A Report of Wisdom Synthesized from the Traditional Knowledge Component Studies

12

Synthesis Report

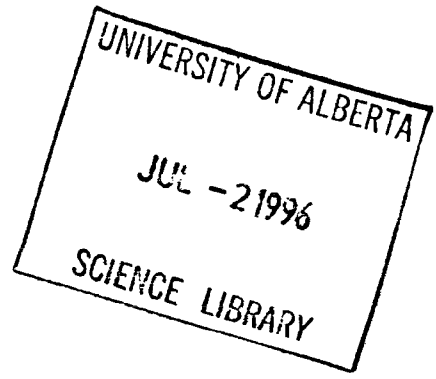
Canada Alberta Northwest Territories

Northern River Basins Study

A REPORT OF WISDOM SYNTHESIZED

FROM THE

TRADITIONAL KNOWLEDGE COMPONENT STUDIES



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EXECUTIVE SUMMARY

The Northern River Basins Study is a three-year study funded by several governments: federal, provincial and that of the Northwest Territories. The study area spans three major river systems: the Peace, the Slave and the Athabasca. The Northern River Basins Study is directed by a 25-member Board and consists of eight study components. The Board developed 16 questions, including the one which is addressed in this Project: "What native traditional knowledge exists to enhance the physical science studies in all areas of inquiry?" The Board did not initially comprehend how it would approach or answer this question. It later became evident that the scope of this question and the magnitude of work involved in developing the Traditional Knowledge Component may have been underestimated.

The Traditional Knowledge Component developed a community based research project over a three year period. Ten communities in north-eastern Alberta and the North West Territories were involved in this pilot project. Two-hundred and forty-six interviews were completed utilizing a non-probability sampling design. A structured survey process was used to acquire responses from second generation and older traditional users of the lands, water and wildlife and to map the responses. This report contains the information that was gathered and analysed for change and the impact of industrial development, to the traditional way of life, the land, water and the wildlife as seen through the eyes of traditional users.

The study project has several distinctive features which make it a unique project, and which are embedded in the conceptual design of the research program. A fundamental feature is the inclusion of community development and community participation, along with acknowledgement of the spiritual element of traditional knowledge. The conceptual framework originated from the medicine wheel concept, which is believed by many nations to be the encyclopaedia of all traditional practice and indigenous idealogy. The medicine wheel is presented in many forms or systems but in all systems the following components are common: spiritual, emotional, physical and intellectual. Essential to this project is the position that all information of Traditional Knowledge origin belongs to the people who share it and thus a set of guiding principles was required to safeguard the information collected from the communities. It was important to the elders that others understand their knowledge and its sacredness, and treat the information accordingly. This report represents all areas of inquiry and contains information synthesized from several data sets compiled by the Traditional Knowledge Documentation project. The data sets include narrative data, information collected through a structured survey instrument, digitized mapped information, and archival information retrieved from existing archival documents.

Historical research was included to provide a point of reference in assessing the significance of change and impact. The review of existing knowledge, as chronicled in diaries and notes of foreigners and early entrepreneurs, was an intricate and important aspect of the Traditional Knowledge work for several reasons. The primary reason for the historical review was to prepare a document or data set for reference and clarification of the state of the environment prior to extensive development along the Peace, Athabasca, and Slave River Systems. It was in the interest of the First Nations People to utilize the information of those individuals who had written about their observations and experiences with the

environment in early times, as this was not the practice of First Nations People, whose culture is that of oral (rather than written) knowledge sharing. Much of the data reviewed and synthesized in the archives data were accessible through the Provincial Archives of Alberta, the National Archives of Canada and Government Libraries on a loan or on-site visit basis, thereby limiting its use to those who have the privilege of knowledge. The information contained in records of this time period provided insight on the way people interacted and perceived the land and its resources in the past. The electronic data base and the report prepared by CIRC: Crozier Information Resources Consulting Ltd. allows greater access and use by all consumers of knowledge and information. This report and data base cover a miniscule portion of the mountain of information contained in other records. It served the needs of the traditional knowledge component as it was intended and serves as a source for others of similar interest. Its availability to all people who wish to use its contents is a milestone achievement at this time as it provides an opportunity for consumers, planners, and developers to revisit the past with ease. In doing so an evaluation of *progress* impact can be made at an individual level.

It became evident throughout the research program that the conceptual framework is best applied and interpreted by those who have both working knowledge and experience in application of the medicine wheel framework as a tool. To our knowledge the medicine wheel framework has not previously been applied to research of this kind. Lea Bill, the Project Manager, has applied this system in her practice as a healer and teacher of traditional systems. The framework has been applied to all elements of the Traditional Knowledge Project. It has been applied to the training of the community researchers, the community consultation process, during the negotiation process of the protocol agreement between the Board and the Grand Council of Treaty 8, and during the development of training and educational materials. It is also being applied to the development of the synthesis report and the data analysis. Fundamental to this system is the use of the wisdom and strength acquired through acknowledgment of the spirit of all living things and the ceremonies used to sustain this process. This spirit is embodied in the sacred teachings of the grandfathers and grandmothers in the following words and as shown by the pictograph created as part of this process Figure 3.8-1:

> All that is created in the universe is of great significance as all that is created from the spirit has great healing ability and will bring increased harmony and balance into our universe.

ACKNOWLEDGEMENTS

Sacred is the life force that flows from our creator,
Sacred is the journey this fragment chooses to take with its environment,
Sacred is the land that becomes the home of all life forms,
Sacred is the journey of this work from many fragments of wisdom.

With humble grace we offer this synthesis of knowledge, experience, and wisdom.

The Traditional Knowledge Component of the Northern River Basins Study wishes to acknowledge and thank many individuals for their efforts, their contribution, and most importantly, their commitment to this project and its objectives. To our knowledge, no such comprehensive project has previously been undertaken. This project design, therefore, was subject to the difficulties with which all first-time projects must contend.

In particular, the project leaders are grateful for the cooperation and sharing of knowledge exhibited by the community elders and leaders. Without their enthusiastic and complete support, the now-documented knowledge bank would not exist. Each of these individuals is identified in the list included as Appendix A.

The project leaders also wish to thank the Treaty 8 leaders, whose support, agreement, and assistance enabled the project to proceed. The First Nations Board members' efforts and determination to implement a traditional knowledge program is recognized, as without their persistence the program would not have become a reality.

Many of the Northern River Basins Study Board members have been exceptionally supportive; others have been provided with the opportunity to enrich their own knowledge through the information gathered as the Traditional Knowledge component team addressed its question.

And finally, the Traditional Knowledge component leaders acknowledge with sincere appreciation the efforts of the external consultants and experts who contributed to this process: Eric Ellehoj and Barbara Redmond, who prepared the maps; Brenda Bush-LaFrance, who prepared, computerized, and analysed the survey data; the project team at CIRC: Crozier Information Resources Consulting Ltd., for their commitment and their contribution in developing the ARCHIVES database and related documentation and for their input into the synthesis component of this report. The transcribers and translators of the community tapes deserve recognition, along with the office support staff, whose ideas and energy have contributed toward the reality of this report. Special thanks go to Gail Delorme, who has so diligently and caringly attended to the massive job of word processing and assembling this document.

The wisdom of the ages was applied throughout the project's design and implementation.

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1.0 INTRODUCTION

1.1 BACKGROUND

The Northern River Basins Study (NRBS) is a joint undertaking of the governments of Canada and Alberta, with the Government of the Northwest Territories as a co-signator, along with the cooperation of the governments of British Columbia and Saskatchewan. The study itself grew out of the need for additional baseline information regarding the Peace, Athabasca and Slave River basins.[1]

The recognition of need developed in response to public concerns regarding development within the northern river basins. Local residents and other interested parties expressed their concern to governments, which in turn responded with the initiation of the Northern River Basins Study. A Study Board developed a vision statement and 16 Guiding Questions to "further assist in the development of the Study's scientific research program, and with the communication of project results."[2]

The Traditional Knowledge Component of the Northern River Basins Study is a unique and comprehensive study, designed to obtain and record the wisdom of the people whose lives are integrally and intimately linked with the land itself. Unlike the other components of the overall study, the Traditional Knowledge Component was not implemented at the outset; its initiation was not simultaneous with the Study's other science components. Traditional Knowledge became a component eighteen months after the overall study topics had been identified and projects initiated. The Traditional Knowledge study was initiated at the insistence of the Aboriginal Board members who believed traditional knowledge warranted recognition as a distinct body of science, with its own perspective and approach. The Aboriginal Board members also insisted that the component be managed by individuals who were knowledgeable of traditional systems and in particular, knowledgeable of experiences related to traditional practice on the land and of the lives of seasoned users. Mr. Lloyd Flett, a trapper and experienced water resources specialist, and Lea Bill, a Community Health Nurse and traditional practitioner, were retained. Their assignment was to develop and manage the project that would answer the question posed by the Northern River Basins Board, and assist other components with the utilization of traditional knowledge for expanding and enhancing their physical science studies.

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[1]Northern River Basins Study. Annual Report, 1992 - 93 Fiscal Year. Edmonton, Alberta. March 31, 1993. p.3.

[2]Ibid, p.4.

An important attribute to the development of the project was the negotiation and signing of a protocol agreement (Appendix B) between the Northern River Basins Board and the Grand Council of Treaty 8. The protocol agreement specifies that "procedural guidelines for cooperative interaction between the Northern River Basins Study and the First Nations of Treaty 8". The protocol agreement outlines expectations regarding the processes of work to be conducted "where it affects the interests of and concerns of First Nations." The protocol agreement recognizes the First Nations Committee authorized to review all aspects of the study processes impacting upon First Nations communities and reserves. The Treaty 8 Grand Council is made up of the eight political bodies that represent Treaty 8 First Nations communities in Alberta, British Columbia, Saskatchewan and the North West Territories. A Joint Steering Committee was established to provide a mechanism for the Treaty 8 Grand Council Environment Committee and the Traditional Knowledge Component of the Northern River Basins Study to work together in preventing duplication of research in the area of environmental health assessment and traditional land use research.

The Traditional Knowledge component of the study was designed to obtain and integrate information from reliable sources, wisdom that had been developed by those with close and intimate knowledge of the area's environment, and documented information written by Euro-Canadians who began coming to the area in the late 1790's. Maps and graphs were developed from the information provided by each of these sources.

The Traditional Knowledge study consisted of three components: personal interviews with First Nations persons, completion of an extensive survey, and the development of a database of archival records that provide detailed descriptions of the environment as it previously existed.

Ten communities were visited and 246 interviews were completed during a one year period. One hundred and fifty-eight (158) elders were interviewed as were eighty-eight (88) second generation persons. Two hundred and twenty-one (221) surveys were analysed, using standard survey research methods.

The interview, survey, and mapping components of the Traditional Knowledge study were restricted to the northern portions of the study area, due to the constraints of time and financial resources.

Simultaneous with the community research activities, a separate but coordinated study of written archival material was undertaken. The purpose of that study was to develop a foundation of recorded knowledge that described the study area's ecology, beginning with the earliest contact with Europeans. The archives portion of the Traditional Knowledge component accessed recorded environmental data describing the overall study area, wherever such information was available. An electronic database of archival information was developed and analysed; those data were fully reported in a previous document[3] and are synthesized in this report.

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[3]Crozier, Jean. "Northern River Basins Study Project Report No. 5905-DI. A Compilation of Archived Writings about Environmental Change." Prepared by CIRC: Crozier Information Resources Consulting Ltd. and published by the Northern River Basins Study. Edmonton, Alberta. March 1995. 38p. plus appendices.

The following sections provide a synthesis of the study activities, and correlates all segments of the Traditional Knowledge Component's findings.

The entire Northern River Basins Study area, as well as the specific area(s) included in the Traditional Ecological Knowledge component project, are shown on Figure 2.0-1.

1.2 THE PROCESS

The community-based Traditional Knowledge project became the vision of many people, following a meeting of elders held in Fort Chipewyan in March of 1993. A large group of concerned people came together to discuss the state of the three rivers upon which the communities depended for their livelihood and the continuing practice of a traditional way of life. The participants of this meeting voiced many concerns related to environmental change and the need to bring forth the knowledge of experienced people who understood the river systems and observed changes. This meeting identified a need to approach traditional knowledge documentation in a more respectful and community-based manner.

The Traditional Knowledge Component managers proceeded to develop a project outline and work plan with the participation of the communities and the leaders. Guiding principles and objectives, along with a work plan, were developed and presented to an assembly of Treaty 8 First Nations in July of 1993, before any training or work in the communities was initiated. The work plan and the guiding principles were also presented at the Metis Annual General Assembly in Fort Smith before Metis leaders of participating communities. The guiding principles were received through ceremony and consultation with spiritual elders.

1.3 GUIDING PRINCIPLES

The guiding principles are listed below:

1. That all living things are of significance to mankind and all are considered to be of vital importance to Aboriginal people.

2. That all who use the land as a means of existence and have always been a part of this way of life are the most knowledgeable of the changes experienced within the study area.

3. That all consultation should begin at the people level.

4. All consultations with organizations or groups are approached in a manner that is respectful of the organizations' communication protocol and structure.

5. All communications with the people and the organizations are open, honest and direct.

6. All project work exhibits traditional values, in particular, in any approaches to teaching, relaying of information and study project design.

7. That original concepts of traditional knowledge are used as the guiding principles of the project work:

   a. Respect all living things.

   b. Be open and honest at all times.

   c. Be giving and cooperative.

   d. Be spiritual in all that you do. All living things have spiritual essence.

   e. Be grateful for all that is experienced as a living being.

   f. Be productive in all that you do.

   g. Practice being conscientious of others' differences, and allow them to express themselves without judgement.

   h. Be willing to accommodate others, providing it is not an infringement upon your own physical, emotional, mental, and spiritual self, and it is done with respect and honour.

   i. Be considerate of the vastness of knowledge not yet acknowledged by others (knowledge received through the grandfathers and grandmothers).

   j. Protect this knowledge from those that do not use it with respect, love and humility.

1.4 PROJECT OBJECTIVES

The following objectives were developed for the Traditional Ecological Knowledge component:

1. To document the traditional ecological knowledge of the people who use the land in a traditional manner.

2. To document the history of traditional ecological knowledge as recalled by the traditional people within the study area.

3. To demonstrate the value of traditional ecological knowledge in scientific research.

4. To demonstrate the value of traditional knowledge in predictions of future natural and industrial environmental change.

5. To achieve recognition as a valued and important component of the scientific research process.

6. To demonstrate the value of traditional methods of data collection as an empirical and scientific process.

1.5 SUBJECTIVE DELIVERABLES

There was a need to distinguish the subjective deliverables of the project because of the nature of the work and the nature of the scientific mind set. By making this distinction the Board and the study directors were able to see the potential of bringing about a perspective of the people that might otherwise not be captured through the typical scientific process of capturing beliefs and perceptions. These subjective deliverables are listed below:

1. Document existing and historical beliefs of the people in regard to their concept of "value of the Land."

2. Document the peoples perceived value of the land and the resources.

3. Document the attitudes of the peoples perceived value of the land and its resources.

4. Document the cultural approach to the land and its resources (traditional land management practices).

5. Document traditional methods of managing the land and its resources (traditional land management).

6. Document the beliefs of the people in relation to their state of well being and the state of the land: mentally, emotionally, physically, and spiritually.

7. Document the peoples perception of health and illness.

8. Document the peoples view of the most prevailing illnesses.

9. Document the peoples view of industrial development and its impact on the land, their lives and those of future generations.

1.6 THE ARCHIVAL INFORMATION

The Traditional Knowledge Component determined that identification of the recorded status of the environment, from the time of the earliest writings, was and is essential in reaching the project objectives.

The archival project had four main objectives:

1. To obtain information on the state of the environment prior to major development;

2. To prepare a listing of Traditional Ecological Knowledge information resources, with abstracts;

3. To abstract the traditional ecological knowledge, of a biophysical nature, as contained in individual documents;

4. To record specific information that documents the influence of development upon ecological systems that had previously been regulated exclusively by nature.

The earliest known recorded information is contained in the journals of the fur traders, followed by the priests' diaries, the surveyors' reports, the settlers' and travellers' diaries, the police reports, and records of various government departments.

The volume of records relevant to this study was massive, and included extensive records collections housed at archives such as the Provincial Archives of Alberta, the National Archives of Canada, and the Hudson Bay Archives collection in the Provincial Archives of Manitoba. Selections of these records were identified and prioritized for use in the study, based on specified criteria developed by the project team to assure accuracy, comprehensive coverage, detailed environmental description, and accurate reflection of the thoughts and philosophies of the writers.

The selected records were used to create a fully-searchable database of archival information. The records contain information on ecological observations such as presence of wildlife, water levels and uses, wildlife uses.

A detailed report of the archival component within the Traditional Knowledge study was prepared and presented as part of Project 5904-D1: Traditional Ecological Knowledge, Review of Existing Data and Information[4].

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[4]Crozier, Jean. "Northern River Basins Study Project Report No. 5904-D1. A Compilation of Archived Writings about Environmental Change." Prepared by CIRC: Crozier Information Resources Consulting Ltd. and published by the Northern River Basins Study. Edmonton, Alberta. March 1995. 38p. plus appendices.

The ARCHIVES database and its accompanying report constitute a knowledge base that is unparalleled in its content and coverage.

1.7 THE SURVEY

An extensive survey was conducted to provide structured, statistically competent data to support the other aspects of the Traditional Knowledge study. A structured questionnaire was developed in consultation with the communities that were involved with this project. The questions consisted of a basic information section of ten questions, designed to obtain the personal history of each of the respondents.

The geographical section was used to identify specific sites and enabled the mapping of traditional land use areas, areas affected by development, waste disposal sites and harvesting sites of wildlife, fish, birds and vegetation. Mapping was done from both a past and a present perspective. Areas of change and movement of wildlife were also mapped, as were ice jam sites and flooding areas.

The land section of the questionnaire contained fifty questions and covered occupancy, activities, regulated lands, waste and land management and relationships with the land.

The section on water also had fifty questions, which recorded water use and water changes; recreational use; community use; snow and ice formation and change; as well as flood sites and flood effects on perched basins, vegetation increases and water quality.

The final section included the use of animals, birds, fish, and plants. Forty different species of animals were listed and individual responses of those species were recorded. Seventeen questions profiled the uses of not only animals but birds, fish and vegetation. Forty species of birds were listed to enable respondents to identify their use, as was done with eighteen species of fish commonly found in the Peace, Athabasca, and Slave Rivers. Seventy species of plants, trees and shrubs were listed for respondents to record their use, and options were left for respondents to include any other species that might have been left out.

A sample of two hundred and twenty-one (221) northern residents responded to the questionnaire. The resultant data were computerized, creating the "KNOW" database. The data were analysed; the charts included in the following sections were created from the KNOW data.

The statistical component of the Traditional Knowledge project was developed by Applied Research Techniques, and a working document was created for use as back ground information in the development of this synthesis report.

1.8 CONCLUSION

The acquisition and integration of knowledge from the sources accessed are intended to provide an unparalleled and exceptionally comprehensive base of environmental information, portraying the environmental status of the area over a period of close to two hundred years.

Throughout the Traditional Knowledge Component study, the philosophy and the reality of bringing all components together were recognized. The various tools used to collect and display the data facilitated that process. The environmental picture that has developed from the information collected is that of surroundings which are significantly different from those of earlier times. It is important that the reality of these changes, and the impacts that infringe upon the lives of human beings, as well as those of the plants and the animals, is recognized by all.

The following sections synthesize the acquired information, and portray the wealth of knowledge that has been generated through the integration of a variety of information types.

2.0 STUDY AREA

The Northern River Basins Study area encompasses over half of the province of Alberta, as well as portions of British Columbia, Saskatchewan, and the Northwest Territories. The area lies between 52^0N and 61.4^0N latitudes and between 103^0W and 128^0W longitude.

Geographically, the area falls within the boreal forest ecoregion, with some notable exceptions, such as that of the prairie region surrounding the Peace River. There are some very large lakes within or adjacent to the study area, such as Lake Athabasca; Great Slave Lake forms a part of the northern boundary of the study area.

The population within the study area is not dense; however, those who live within the boundaries of the study area are human beings with the same rights, privileges, and need for good health as are those who live elsewhere. Similarly, the non-human entities, which include the animals and plants, the earth, air, and water, are each integral components of the natural world. Every one of these components affects the health and well-being of all other components.

The study area is bounded by the Athabasca, Peace, and Slave River. Each of these rivers flows northwards, becoming part of the continental drainage into the Arctic Ocean.

Figure 2.0-1 depicts the study area, and defines the drainage basins of the three major rivers and of Lake Athabasca. Additional physiographic details describing the area are found elsewhere in this report.

The Traditional Knowledge Study was originally intended to cover all areas within the geographic study area. Due to financial constraints, however, only the northern communities were active participants in this study; those communities are shown on Figure 2.0-2.

3.0 MATERIALS AND METHODS

3.1 THE PLANNING AND DEVELOPMENT PROCESS

The Northern River Basins Study was initiated in response to the recognition, by the Aboriginal people, of changes that were occurring in the region. The area included within the drainage basins of the Peace, Athabasca, and Slave River systems had supported human life since time immemorial. Historically, the water throughout the region had been drinkable, the land had been productive both for vegetation and animal life, and the air had been clear and clean.

With the onset of Euro-Canadian development, beginning with the fur trade industry, continuing into agro-industries, and including the fishing and forestry industries, environmental quality changed and day-to-day living was impacted.

As a result of the observations made consistently and over a period of many years by First Nations persons, especially the community elders, this study group was formed. The Northern River Basins Study is a cooperative undertaking, with costs and priorities underwritten by the governments of Canada, Alberta, and the Northwest Territories; the provinces of Saskatchewan and British Columbia are also contributing or supporting jurisdictions.

As was outlined in the previous section 1.1 of this synthesis report, the Traditional Ecological Knowledge project underwent a unique process of planning, implementation, and documentation. This process is consistent with the philosophies developed by First Nations people throughout the ages. Integral to this philosophical approach is the need for consensus, respect for the wisdom of the elders, and a clear understanding of the sanctity of all matters of a spiritual nature.

The Traditional Ecological Knowledge project was designed and developed in accordance with those principles. A description of the project design is contained in the following sections.

3.2 COMMUNITY RESEARCH AND INTERVIEW PHASE

There are ten communities in the northern part of the study area. The interview and consultation process focussed on obtaining the knowledge of those who lived in these communities: Fort Smith and Fort Fitzgerald; Little Red River First Nations (Jean D'Or, Garden River, and Fox Lake); Tall Cree First Nations; Fort Vermilion; Fort Chipewyan; Fort Resolution; and Fort McMurray.

There were several steps in the initial development of the Traditional Knowledge Component Documentation Project. The following chronological outline identifies the individual steps of the process:

1. Meeting with the elders and traditional land users.

2. Consultation with the leadership of the communities (Treaty 8 Grand Council).

3. Consultation with the component leaders of the Northern River Basins Study science program.

4. Consultation with Provincial Government resource management departments and industry (Alberta Fish and Wildlife, Weyerhauser Ltd.).

5. Selection and training of community researchers.

6. Individual community consultation to develop the questions and identify areas of concern they wished to speak on during the interview process (development of a survey instrument).

7. Waiting for the signing of the protocol agreement. (This process took a period of eight months.)

8. Interviewing the people and collecting the information.

9. Preparation of synthesis reports, in written draft form.

10. Community consultation to review draft report.

11. Final report development.

12. Preparation of audio-visual report of project findings.

3.3 COMMUNITY-BASED RESEARCH DESIGN

The research design is a quasi-experimental design which contains a conceptual framework of quantitative and qualitative features. This unusual design format was necessary because of the uniqueness of the information and the need to apply several methods in data set analysis. The design is ethnographic in nature, as the information describes a culture and a lifestyle from the subject's point of view. It is phenomenological because it includes a philosophical research approach which regards each human being as having a unique experience worth documenting for environmental assessment purposes.

Traditional knowledge is known to be acquired through experience and oral dissemination from one person to another within families and communities. To accommodate this process, data were collected by three means: taped oral interviews, mapping of knowledge and experience, and the filling out of a questionnaire by those who could read and write.

The quantitative component of the research design provides statistical analysis of the questionnaire data, which were collected by means of a survey instrument. The sample groups were selected through a process called purposive sampling selection, a non-probability sampling strategy where the researcher selects the subjects who are considered to be typical of the sample population for study. In the case of

this study, the community selected the elders and the second generation sample groups. In this way, the definition of elder and second generation lies with each community and retains their definition rather than the definition being imposed from the outside. The criteria of the Traditional Knowledge Component were that the people chosen by the community had to have lived off the land for thirty years and had to have been traditional users of the land for a minimum of half their life span.

Intellectual property rights and ownership are respected by the study and are specifically recognized in the consent form signed by each participant. It is understood that all data collected belongs to the community and the Study is given permission to use the data for the purpose of outlining the perceptions of the community and the state of the environment in their area. All data are returned to the community in a format that allows them to continue building and expanding future assessments, as well as for its use in community development purposes.

3.4 COMMUNITY CONSULTATION

A draft list of questions and interest areas were generated from the training group and were presented to the communities for review and further input. Community consultation with the ten participating communities involved preparation of the survey instrument and definition of clear direction before interviews started. During consultation, consideration was given to all aspects of the community: the spirit, emotional state, experience, geographical location, and physical structures. Consideration was also given to education such as the level of contemporary education within the community.

The planning involved participation of all levels of the community, the individual, the family, the leadership and the community as a whole. Implementation of the research was community-paced and was dictated by their need to achieve a trust and understanding of the process they were part of. Assessment of the products and the process involved all levels of the community and included the Northern River Basins Board.

3.5 INTERVIEWER SELECTION/COMMUNITY RESEARCHERS

Selection of community researchers was completed with the full participation of band councils. Three individuals from the community were requested to submit resumes to the Band Council and the Traditional Knowledge Component managers, who then interviewed and selected individuals for training and research work at the community level. The community researchers were selected on the basis of their experience with elders, ability to read and write, their understanding of traditional systems, their experience with traditional knowledge, and previous experience with other research projects involving interviewing and data compilation. A willingness to participate and learn through traditional ceremony was also considered as a selection criteria throughout the process.

3.6 INTERVIEWER TRAINING

Each community researcher/interviewer was trained in the processes needed to obtain the traditional knowledge information. Ten days of training for all researchers was completed in August of 1993 and

was followed with community consultation. Training focussed on self-awareness, enhancement of communication skills, and enhancement of traditional environmental knowledge in the areas of:

1. The complexity of traditional environmental knowledge and humankind.

2. Ceremony and the environment, and its relevance to traditional knowledge: communication with prayer, and ceremonies such as the sweat lodge.

3. Beliefs and understanding relationships with the land, animals, water, and other aspects of the environment.

It was believed that the community researchers, through the training sessions, would enhance their own knowledge base, enabling them to become historians within their own communities. The process of listening to and sharing the elders' wisdom would, in turn, assist the researchers in developing the information systems that would become the tools needed to assist in community development and cultural preservation.

3.7 INTERVIEW PROCESS

The communities were involved in the development of the survey questionnaire and in the creation of a list of interview questions which were built upon the following themes:

1. The land and its changes.

2. Wildlife population and cycles.

3. Development and its impact.

4. The water environment status and change.

5. Sacred site locations, respect, and imposition of alternative use.

6. Traditional lifestyle, practices, and processes.

7. Vision of the future.

8. Health status and change.

Interviews were completed at the beginning of November 1994.
The process was consistently active and participatory. The questionnaire was tested prior to printing. Testing allowed for changes in format and presentation of interview questions. Validity was tested by interviewing nine individuals, including both elders and second generation subjects.

The interview process did not commence until the protocol agreement had been signed by the Northern River Study Board and the Grand Council of Treaty 8 in November of 1993. Final review of the interview questions and the implementation plan for interviews took place in February of 1994.

Community researchers began their interviewing with fifty people in their respective communities. The sample groups were to consist of twenty-five elders and twenty-five second generation residents in each community. The elders were first visited to establish a relationship, and to explain the sequence of questions and what was expected of them during the interview. A consent form was signed by each respondent. A non-structured interview approach was utilized with the elders, and a structured interview process was utilized for the second generation persons. Both elders and second generation respondents were asked to map information relating to traditional land use, water, wildlife changes, migration routes and industrial impact on maps of a 1:250 scale. Interviews were completed the beginning of November 1994.

3.8 FACTORS AFFECTING OR CONSTRAINING THE PROCESS

Many factors were considered and noted as the process evolved, and it became evident that no matter how small a project appears to the visitor, there must be acknowledgment both of the changes created by its presence, and the changes that are manifested through the responses of the communities. The Traditional Knowledge Project team noted both positive and negative effects of its work. Most noticeable positive effects were the demonstration of cooperation, pride in knowledge, and the opportunity to participate. From a negative perspective, there was a fear of losing control of the data and the information shared.

There are several factors that have allowed this process to be implemented, and which provide the people with products to use in future environmental work while also fulfilling the Northern River Basins Study Board objectives. Firstly, the protocol agreement signed between the Northern River Basins Study and the Treaty 8 Grand Council served as an incentive to the Board, and gave support to the Traditional Knowledge Component to follow its program outline without interference from other stakeholders in government or industry. Secondly, the use of traditional systems was instrumental in gaining the trust and support of the communities involved in the study.

Traditional processes provided a method for the communities to relay traditional knowledge to the individuals they had chosen as interviewers. The elders' teaching has empowered the people to see the value and the beauty of their own knowledge. The traditional practice of offering tobacco and an honorarium for the participation of the respondents was utilized. This process of acknowledging traditional practice and the recognition of the time each participant contributed was essential in building trust. In some areas, the acceptance of a tobacco offering is considered a binding agreement. It is the gift that binds an oral agreement.

It has become profoundly apparent that the knowledge gained through life experience on the land cannot be ignored as a valid knowledge base for ecosystem assessment and management. The intellectual experience of theory and literature provides one perspective, while traditional knowledge brings not

only the physical nature of the knowledge but also provides the link to the spirit of the land and the people who utilize its resources.

A significant factor which allowed this process to prove itself was the willingness of the science directors to allow the Traditional Knowledge Component to be an evolving component rather than one that was restricted by "traditional science methods." The process enabled growth at the community level, as well as for the Northern River Basins Study Board. Growth was experienced by allowing the communities to fully participate in the planning and development of an ecological assessment process. Community ideas were implemented to meet not only the needs of the Northern River Basins Study but also those of the participating communities.

One tool used to increase the awareness of the value of traditional knowledge and the links to the other science components of the Northern River Basins Study was that of a pictograph. The canvas painting measures six feet by six feet, and was painted by one of the community researchers. The vision and concept were created by the project manager, who then worked closely with the artist. The pictograph became a display for a science forum. This piece not only serves as a legacy of the work but also represents the interconnectedness of all elements within the traditional knowledge component and with the other science components. The pictograph (Figure 3.8-1) is shown at the end of this section.

The level of available funding was a major factor to the Project, and limited the work to the northern part of the study area. It had been planned that a similar process would take place in the more south-westerly areas of the study, but lack of financial resources and time constraints prevented implementation of that portion of the Project.

3.9 THE SURVEY

The process involved in forming the "KNOW" data set is out lined here. Analyzed data are included in each relevant category throughout Section 5: Community Research Results. The data were obtained and analized according to standard research procedures. All statistical undertakings were completed by Brenda Bush-LaFrance of Applied Research Techniques.

3.9.1 Data Processing Procedures

Complete questionnaires were processed according to standard survey research methods. Master code lists of open and closed-ended questions were created, category response data were assigned codes, then completed questionnaires were numbered, entered and validated.

3.9.2 Development of a Master Code List

A master code list of both open and closed-ended questions was developed. Open-ended codes were identified through a review of the first 49 completed questionnaires. The initial code list was submitted to the Traditional Knowledge Component managers for approval. Additional codes were added throughout the data processing stage as new responses arose.

A conscious effort was made to maintain the language of the respondent in developing the open-ended codes as the data would eventually be given back to the ten communities.

The "other" response in the open-ended questions was given particular attention. Wherever possible, the "other" response was eliminated in order to capture as much of the data as possible. Most open-ended questions do not have an "other" response. Those that do, contain no more than 5% of responses to the question at hand.

3.9.3 Data Processing and Entry

Completed questionnaires were in numerical form and were entered through the KNOW database data entry facility. All information from the completed questionnaires is housed in the KNOW database. Information was entered as completed questionnaires were returned to the Northern River Basins Study offices in Edmonton.

3.9.4 Validation and Editing

Once entered, all questionnaires were validated through comparison to a hard copy of responses. A hard copy of completed questionnaires was produced through the Bandit Reporter facility of the KNOW database.
All "other" codes were reviewed by the project manager. Wherever possible, "other" responses were eliminated by creating new responses categories or appending existing categories. The "other" categories were re-entered and re-validated for accuracy.

3.9.5 Survey Report

A survey report was prepared by the statistician, for use as a working document. The data were presented in tabular format and have been reproduced for inclusion in this synthesis report, primarily in bar or pie chart format.

3.10 MAP DIGITIZING PROCESS

Upon receiving the community maps, the Geographic Information System (GIS) group, under the direction of Erik Ellehoj and Barbara Redmond, Cartography/GIS Consultants, established a set of codes for identification of all items located on the maps. The codes were then used in the digitizing process. All maps were digitized using a Summagrid IV digitizing tablet (24" x 36"), a 486-based PC and the software Atlas*GIS, DOS version. Each individual interviewed was assigned a unique code, and this code was used to name each geographic file created. In those instances where the maps comprised two different UTM zones, two files were created for a single individual's responses.

Each map completed by the respondent was stored as a unique layer. The software allows two sets of attributes to be stored with each entry without the need of an external attribute table. These two fields are called _NAME and _NAME2. The field _NAME was used to store the type of information recorded

by the individual. These were broken into six categories: birds, vegetation, human, animals, fish, and geographic names. Numeric codes one through six respectively were assigned to these categories. The field _NAME2 was used to identify subcategories. For example, moose, deer, mule deer, and caribou all had unique numbers assigned. Codes were assigned for any new entry, to maintain the integrity of the original data recorded in the map. Unique codes were developed to differentiate between historic sites (such as a historic caribou site) and current sites. Trail, hunting trail, and water trail were likewise assigned different codes. This process allowed the Traditional Knowledge managers to make a decision regarding which codes should be amalgamated for mapping purposes. This information was transferred to each community, who then helped to make decisions on the joining of categories. Local names for species were also assigned unique codes.

A control sheet was completed for each map digitized to identify date, operator, codes used in that map, projection, and any interesting features or problems encountered. Some respondents wrote comments on the maps that could not be recorded using the codes. All narrative information was recorded using WordPerfect™, and was stored by individual and community. Once all digitizing had been completed, a check was performed to ensure that the digital information corresponded to the information that appeared on the paper.

The first step in mapping was to merge all the geographic files for one community into a single geographic file. The layers were re-arranged to simplify the mapping process. Layers were created for each of the six categories mentioned above (birds, animals, etc.). All information was mapped as single themes to provide Northern River Basin Study Traditional Knowledge researchers with an understanding of the information contained in the geographic database. Using this data, a smaller set of maps was constructed for each community; those maps were used in identifying the most important issues voiced by those interviewed.

The individual community files were, in turn, merged into a larger Northern River Basin Study Traditional Knowledge geographic file to map all information for all communities for a selected set of summary themes. Those maps appear throughout this report. All maps were created using Atlas*GIS for Windows v.3.0. These maps were generated using a Pentium-based PC and an HP 850C colour printer. Larger, poster size, maps were generated using a plotter by creating Postscript files from the Windows™ printer driver. A total of 584 maps were created to provide visual representation of the knowledge defined by this traditional knowledge project.

3.11 HISTORICAL RESEARCH

The archival portion of this study was conducted by the uniquely skilled project team from CIRC: Crozier Information Resources Consulting Ltd.; included on the team were information managers, librarians, archivists, wildlife biologists, and geographers. These people developed, in cooperation with the Traditional Knowledge Component project leaders, the detailed project objectives and activities. Criteria were developed for use in identifying the most appropriate archival records to be selected from the vast storehouse of data available. In-house seminars were held to enable a true sharing of

knowledge among all team members, as well as with those who are the holders of traditional knowledge and spirituality.

Once selected, the researchers reviewed the records, and copied the information verbatim from the records into the electronic database that was the project's primary deliverable (the ARCHIVES database).

The historical information compiled in the Archives data has been utilized in this report to provide a historical reference of the area studied by the NRBS.

The archival records now included in the database contain descriptions of the study area's water, land, fire, weather, wildlife resources, and people as those elements existed during the time period from 1700 to the mid twentieth century. The information in the database consists of verbatim accounts of information originally written by the traders, police, priests, geologists, surveyors, travellers, and settlers who entered the area. The records appear in the database as the information was originally written, without changes or "corrections" to their spelling, grammar, or perspective. The ARCHIVES database provides an electronic and fully-searchable record of the Northern River Basins environment as it existed at the time of earliest European-Aboriginal contact.

The primary sources of information, chosen by the team with the advice and direction of expert historical archivists, include:

1. The Provincial Archives of Alberta

2. The University of Alberta Archives

3. The Hudson Bay Archives, Provincial Archives of Manitoba

4. The National Archives of Canada.

Additional archival institutions were contacted, and their collection content discussed, including those of the Grey Nuns, the Alberta Association of Registered Nurses, the Glenbow-Alberta Museum and Archives, the Hay River Museum and Archives, the Prince of Wales Northern Heritage Centre, the City of Edmonton Archives, and the University of Toronto Archives.

The project team personnel selected records for detailed review based on their expected environmental content, the geographic area covered by the records, the time period covered (up to the mid-1950's), and the anticipated competency of the documented information. Selection of the most appropriate records from the massive volume of information was difficult but critically important.

The database contains more than two hundred records, each word of which is fully searchable. The database constitutes a unique base of information, providing a description of the environment from the time that initial contact was made by European traders and continuing on through subsequent stages of

religious contact, surveying, policing, treaty-making, and institutionalized control through government intervention.

The ARCHIVES database provides a unique source of information, in a form developed for use as an information retrieval and management tool in accordance with meeting the project's objectives. The ARCHIVES database is an essential element within the traditional knowledge component; it provides the only available and easily retrievable historical descriptive environmental data of the study area.

The historical information retrieved and compiled constitutes a major source of information regarding the environment of the study area as it existed from the late 1700's to about the mid-twentieth century.

4.0 THE HISTORICAL OVERVIEW OF THE NORTHERN RIVER BASINS 1790 - 1950

4.1 INTRODUCTION

This section of the report provides a historical view of the Northern River Basin area, including detailed information about the Peace River Drainage Basin, Slave River Drainage Basin, Salt River Drainage System, Lake Athabasca System, and Lesser Slave Lake area.

This section of the report provides a basis for comparison of environmental impact and change. The archival information retrieved includes detailed descriptions of the study area's water, land, fire, weather, wildlife resources and people as those elements existed during the time period 1700 - 1950.

To attain an appreciation of the beauty of the landscape prior to disruption and change by agriculture, logging and industrial developments such as mining, power generations, oil exploration and extraction, descriptions of the landscape were complied from the archival records.

4.2 AN HISTORICAL DESCRIPTION OF THE RIVER BASINS

The rivers and their tributaries formed the major transportation routes for the people who lived, permanently or temporarily, in the area which is now being studied. Furthermore, those same rivers and tributaries provided the environment from which the furs were taken; those same furs that caused men to leave their countries and their homes, to develop new trading organizations that resulted in huge gains in the wealth of the company owners and partners. In later years (that is, after 1870 and into the early twentieth century), the river basins became important for other reasons: as transportation corridors or impediments to the movement of people and their cattle or possessions, as areas in which unique geological phenomena were viewed and accessed (the tar sands, gas wells, and salt formations), and as habitat for wildlife and forest resources. Geographic areas have, historically, been described through use of the drainage basins or watersheds; the study area is no exception.

4.2.1 The Peace River Drainage Basin

The Peace River is 1923 kilometres long and, until the construction of the Bennett Dam at Hudson Point, formed at the junction of the Finlay River from the north and the Parsnip River from the south. The Peace occupies an ancient course as it traverses northern Alberta, where dinosaur tracks have been uncovered along its banks. The river cuts a deep defile up to eleven kilometres in width as it proceeds along its course. The Smoky River joins the Peace at the town of Peace River, after which the river swings northward and then east. The Wabasca River flows into the Peace immediately east of Fox Lake, just prior to the river's entry into Wood Buffalo National Park. The Peace River then joins the Athabasca River to form the Slave River, which in turn empties into Great Slave Lake.

A comprehensive description of the Peace River was presented in the 1884 annual report of the Department of the Interior (ID #52, abstract 13) which notes:

... at the point where the Quatre Fourches joins the Peace River the latter has a width of fully a mile, but divided into channels by numerous islands and sand bars which, at times, occur to the number of two, three and four abreast, making the river in parts two miles wide from the last mentioned point to Peace Point, eighty-six and a half miles from Chipewyan. From Peace Point to the head of the Little Rapids, one hundred and a half miles from Chipewyan, the river passes through rock with narrower channel and not so many islands and bars. The Little Rapids are about three and a fourth miles long, and are merely a swift current ... here the river is very wide, not less than a mile and a quarter ... from the Little Rapids to the falls, 234 miles from Chipewyan, the river is much the same as it is below Peace Point. In very few places is the channel without island or bars. Where there are no obstructions it is nearly half a mile wide and deep water. In places where the island are numerous and large, the river is upwards of two miles wide ... From this place [Red River post, near the falls] to the Battle River, 430 miles from Chipewyan, the bed of the river is much as before described, except that many of the island and bars are gravel instead of sand. From Battle River upwards, the channel becomes narrower, and the bars and islands are nearly altogether of gravel. The current is generally much swifter than in the lower river ...

(ID #52, abstract 14) ... from Battle River to Dunvegan, the river is from a quarter to half a mile in width, the latter distance being where widened by island ... the mouth of Smoky river, 541 miles from Chipewyan, where the water was not more than 4 feet deep. The current being swift ... banks of the Peace from the lake up, for about 30 miles, are low and flat, ... 20 or 25 feet above the river, and in many places the same erosion of the banks may be seen that is going on in the Athabasca, but not to the same extent, the current being less. To Vermilion the banks nowhere exceed 100 feet in height. At Vermilion, they begin to gain in elevation, and at Battle River they are 500 to 700 feet high ... only streams of any size flowing into the Peace River below Dunvegan are the Smoky River about 200 yards wide, the Battle River about 120 yards wide, and the Loon River about 150 yards wide. All the other are small, none exceeding 40 to 50 yards at the mouth.

Other travellers described the Peace River and its surrounding environment in picturesque terms, such as is shown in the following excerpts:

(ID #215, abstract 5):. . .Peace-Smoky confluence is placid, beautiful, majestic. . .

([same record], abstract 14):. . . leaving Dunvegan: river side well wooded (spruce) on the south side. . .

Fishery resources on the Peace River were considered scarce. In 1909 (ID #205, abstract 9), it was recorded that:

... it is remarkable fact that ... the Peace River country possesses but very few fish in its rivers and lakes...

Ice jams were described in several of the ARCHIVES records, such as is included in record #135, abstracts 1 to 3:

> [recounts the rise and fall of the river]. . . (April 21) river rose 1 ft in the 24 hours; April 28, river rose 7 inches during the night; April 29, river went down 5 inches during night. . . .May 12, river still rising slightly (1905).

4.2.2 The Athabasca River Drainage Basin

The Athabasca River rises in the Columbia Icefield, south and west of Jasper townsite in the mountains west of Edmonton, Alberta. The river flows through north-central Alberta, and empties into Lake Athabasca. The Athabasca River is 1231 kilometres long, and is fed primarily by the Pembina, Lesser Slave and McLeod rivers. The Athabasca played a prominent role in the fur trade, and was an important transportation route for exploration, settlement, policing and commerce throughout the period covered by the database just as is currently true. The Athabasca River became a significant transportation route to the fur country following the European discovery of Portage La Loche (Methye Portage). Peter Pond is believed to have been the first of the traders to use the Methye, which was the longest portage (ie. 20 kilometres) used in the northern fur trade. It traverses the height of land between the Hudson Bay and the Mackenzie River drainage areas. Those who used the portage entered the Clearwater River basin, which led into the Athabasca River and subsequent access to Lake Athabasca and the waterways of the Peace and Slave River systems.

The earliest descriptions of the Athabasca River were written by Peter Fidler 1791 and are quite colourful, as is shown in the following excerpts from record ID #183, written in June of 1791:

> (abstract 15): . . . encountered rapids on the river.
>
> (abstract 18): . . . Great quantities of Buffalo crossing the river amongst the rapids -also many moose crossing - & a great many Beaver ... this is the most plentiful place for animals ... that any of our people has ever seen ... banks of the river are very high not less than 3 or 400 feet perpendicular above the level of the water ... open with small ash etc. & small plains of fine grass land, I am told that this is the case nearly all the way to the Southern side of the Athapescow Lake.
>
> (abstract 20): . . . banks of the river lower than before, the Ice when the river breaks up in the spring appears to be very high at time as bark is bruised on the trees by it more than 30 feet above its usual level - Island of Pine, Poplar, Birch, etc ...

Later observations noted the tar for which the Ft. McMurray later became well-known (ID #182, abstract 4, 1912):

> . . .the tar bearing sands which first show on the banks of the Athabasca River at the head of Boiler Rapids, about 38 miles below Grand Rapid and become more and more conspicuous

till we reach Fort McMurray, where the rock outcrop along the river bank abruptly ceases ... copious tar wells, notable one on the right bank well up from the river, about seven miles below McMurray ... between seventy and eighty miles below McMurray the last outcrop of the tar sand formation is seen on the shore of the river...

The Aboriginal people had been using the tar for many years as a sealant for their canoes; other records in the ARCHIVES database also record that use.

The fish resources of the Athabasca River were not viewed as being very important (ID #238, abstract 10, 1908):

> ... there are no fish of great value in the Peace, Smoky or Athabasca Rivers, or in their tributaries ... they are too muddy for any but char or mud pouts. Eels might thrive...

Katherine Hughes, the first provincial archivist, saw the river quite differently than did her fur-trading predecessors:

> ID #218, abstract 3:. . .beyond the Grand Rapids: at the steamboat landing there were 2 rocks painted like BC totem poles. . .

The Athabasca River was thoroughly surveyed and described by the Dominion Land Surveyors in the late 1880's; their records provided precise measurements regarding the extent of the rapids along the river:

> ID #52, abstract 11:. . . the first is situated 120 miles below the landing. . . correspondingly shallow. . .The second rapid is met with 143 miles from the Landing. . . Grand Rapids are situated 166 miles below the Landing, are about two miles long, and. . .have a fall of about 65 feet, most of which occurs in about 30 chains. . . (1884).

4.2.3 The Lake Athabasca System

The area's lakes are numerous, have varied characteristics, and are significant within the overall environment of the region. One of the most prominent lakes in the study area is Lake Athabasca. In the Cree language, the name Athabasca means "meeting place of many waters". This lake played a pivotal role in the fur-trade system as it was the westernmost location to which the traders could go and still return to their eastern headquarters before the winter ice set in. In 1881, a century after Peter Fidler first came to the lake, the Geological Survey of Canada conducted a survey of the lake and described it as follows (ID #146, abstract 1):

> ... the solid rock which cropped out at one part of the bank for a short distance is the same as Specimen 30 except that is a little harder ... so far as we now are down the lake, each side of it is as much unlike the other as it is possible for them to be. To the south, the shore line ... sandy beach and points with a little very coarse gravel ... the north shore shows about as

broken and uneven a front as I think is possible, full of little bays, islands and points, and all of rock highly polished.

(ID #147, abstract 1): Since passing Narrow Point (on the south side) the lake has now become so very wide that due south of where we passed in behind this island ... no land is to be seen ... the south side of Lake Athabasca is all very low indeed and at the mouth of the quatre force ... lined with thick grey willows. The banks are all of a dark black soil, and evidently washed down from either the Athabasca River ... this lake also has at one time been very much larger than it is at present as the low hills are from one mile to two from the shoreline ... The lake ... is very low not more than from 1 to 2 feet above the winter [level], and all covered with a fine growth of either wild grass or swamp grass ...

4.2.4 The Slave River Drainage Basin

The Slave River flows out of the west end of Lake Athabasca, is joined by the Peace River a few miles north of the lake outflow, and then travels through Wood Buffalo National Park to its terminus at Great Slave Lake. The Slave River is 434 kilometres long and has played an important role in regional transportation and as a major component within the overall environment.

The earliest description of the Slave River, as included in the ARCHIVES database, is from one of Peter Fidler's records dated 1791 (ID #183, abstract 30):

... entered into the Slave River, the mouth of the Peace River joins here, or rather the Peace river changes its name when it joins the communication with the Athapescow Lake & is then known under the denomination of the Slave River - River here is about _ mile wide, here the waters of the Peace & Athapescow Rivers join and also all those inferior streams that fall into the Lake in different places. Went down the Slave River ... a poplar Island ... second island of pine & poplar ... got from them [Jepowyans] 1 crane, 3 ducks & 2 geese - strong current in this river - plenty of small pine ash etc. along the sides of the river.

(ID #183, abstracts 32-35): Went down a small branch of the river just below the unloading place 2 perpendicular steep falls ... muddy, bad landing at both this & the last carrying place ... encountered creek, river banks, several small rocky islands, an eddy ... encountered a rapid and a dangerous fall. Got several young & a few old geese from the Indians, river from _ to 3/4 mile wide & not so many Islands in it as above the Falls ... WNW a carrying place on the S side a large Island out of this river into what the Jepowyans call Eg ged da zal la Dez za or Buffalo river, about 5 miles long, that empties itself into the Slave Lake about 30 miles to the Westward of the westernmost branch of this river ... pretty good pine in several places & ash or commonly called poplar.

The characteristics of the Slave River include both those which are unique to that river and those which are common to rivers in northern Canada. For example, bank instability on the Slave River was recognized and recorded as early as 1909 (ID #224, abstract 31):

> The Slave River above Fort Smith is subject to land slides - one last spring damaged boats under construction, and buildings in Fort Smith - therefore it would probably not be possible to build a canal around the rapids to replace the Smith Portage ...

According to the early records, the Slave River was navigable by canoe and steam boat except for the rapids at Smith Portage.

The Slave River has provided habitat for fish and wildlife resources. The river supports whitefish and inconnu; the latter fish ascends the Mackenzie waterways only as far as the Slave rapids at Fort Smith (ID #199, abstract 12, 1920). The delta formed by the Slave River where it enters Great Slave Lake is highly productive, and was described in 1920 (ID #202, abstract 6):

> ... part at least of the Slave River Delta on Great Slave Lake east of Fort Resolution, which has a fauna similar to that of the Athabasca Delta...

4.2.5 The Salt River Drainage System

The Salt River rises at a height of land west of Hay Camp, which is located on the Slave River and flows north and easterly, joining the Slave River downstream of the rapids at Fort Smith. Charles Camsell described the Salt River, based on his journey from Athabasca Landing down the Athabasca and Slave Rivers in July 1902 (ID #179, abstract 4):

> ... canoe trip up Salt River ... for the first 15 miles up the river is quite deep, but for 20 miles beyond that which is as far as we ascended it the river is very shallow and can be crossed nearly anywhere without getting wet above the knees; we saw the famous salt springs which supply this northern country with salt; they are about 20 miles up from the mouth on the west side of the river near where the river forks. The springs issue from the base of a hill about 210 feet in height by Barometer reading and contain a super-saturated solution of sodic chloride and the water after lying some time in shallow basins leave on evaporation a deposit of the chloride ... sink holes could be seen ... depth from 6 feet to 60 with a breadth of from 15 feet to 100 yards ... the larger ones contain fresh water ... country is covered with white alkali near the base of the hill ... cliffs of limestone ... on salt flats there is a scarcity of drinking water.

Of particular interest is the fact that the Salt River itself is not salty for its entire length.

The Quatre Fourches channel is a unique component within the rivers and streams of this region. This waterway joins the west end of Lake Athabasca to the Peace River. In 1791, Peter Fidler described the channel (ID #183, abstract 30):

> ... running out of the Athapescow Lake. This river very much fluctuates & during a summer will run different ways - when the Peace & Slave rivers are high, the water runs thru this to the Lake & when the Lake is high & the waters in Peace & Slave Rivers low it runs the way

it does just now, & according to the level, it varies in the velocity of its current, running some times at a very great rate & at other times when an equilibrium neither one way nor other.

4.2.6 The Lesser Slave Lake Area

Lesser Slave Lake has also played a major role in the lives of humans over the past two centuries, although the sources researched for record input to the ARCHIVES database provided no detailed descriptions of the lake or its major tributary, the Lesser Slave River. Lesser Slave Lake and the Lesser Slave River were important transportation links before roads and railroads were established. As a result, "improvements" to these waterways were continually being contemplated (ID #136, abstract 1, 1904):

> ... government Engineer of Calgary has been working this spring on the Little Slave River with a view of deepening and improving the channel generally. In its present state rapids extend for about twenty miles, the fall being about three feet in one hundred. This river been fed from Lesser Slave Lake the rising of the Athabasca has no effect on it. At the present state of low water York boats cannot bring up a full load, this means doubling the river to the head of the rapids, and in consequence the freight rates are increased.

It is apparent, from the emphasis of data retrieved and then entered in the ARCHIVES database, that the water component of the study area was seen as essential from a use value perspective.

4.3 LANDSCAPE

The landscape of the region is the result of ancient geologic actions overlain by more recent glaciation. The extreme northeast portion of the region shows outcropping of Precambrian basement rock known as the Canadian Shield. Through a period of several hundreds of millions of years, known as the Palaeozoic and Mesozoic periods, seas covered western Canada. Existing salt deposits found in Alberta are the result of these marine environments. Alberta's oil, gas and coal deposits were also formed during these geologic time periods.

Almost the entire region was ice-covered during the last period of glaciation, between about 35,000 and 15,000 years ago. Present day landforms, waterways and life forms are the result of this last glaciation. As the ice melted, new drainage paths were cut into the partially frozen landscape. The blocked meltwater formed lakes which often covered large areas, such as the one which covered the region now encompassed by Lake Athabasca, Great Slave Lake, and Great Bear Lake. Similarly, Lake Zama and Hay Lake, as well as the Claire-Mamawi-Baril Lakes complex, are remnants of this ancient glacial lake.

The topography of the study area at the end of the last ice age consisted of the materials left behind by the glaciers as till (rock and sand) plains, hills or mountains such as the Caribou Hills, and waterways such as the Peace, Athabasca and Slave Rivers.

About 11,000 years ago vegetation in the form of willows and various herbaceous plants had moved into the area. Approximately 10,000 years ago an early version of the present day boreal forest existed in the region.

Most of the study area is now covered by boreal forest, a primarily coniferous association of plants. The predominant species in the boreal forest include spruce (white or black, depending on acidity of the soil); poplar and birch deciduous trees; willow and alder at the shrub level; Labrador tea, herbs, forbs, and grasses at ground level. Lichens are commonly found on the rocks in the Canadian Shield area.

Much of the area is underlain by discontinuous permafrost, which strongly impacts soil drainage. As a result, many small lakes are found throughout the landscape of the study area. These lakes are a significant characteristic of the overall environment.

The earliest records from the ARCHIVES database describing the landscape were those of Peter Fidler in 1791 (ID #183, abstracts 18-24 inclusive) upon his arrival on the Athabasca River:

> (ID #183, abstract 18) ... banks of the river are very high not less than 3 or 400 feet perpendicular above the level of the water ... on the north side the land is in general ... open with small ash etc. & small plains of fine grass land, I am told that this is the Case nearly all the way to the Southern side of the Athapescow Lake.

The 1820 Fort Wedderburn report (ID #226, abstract 1) noted:

> ... a number of mineral and salt springs - there is also in several places a substance which issues out of the ground and seams of the rocks and has both the appearance and smell of tar ...

In 1883, William Ogilvie, one of the first Dominion Land Surveyors in the area, surveyed and described the Athabasca and Peace Rivers. During his attempt to obtain information about the land between the rivers he recorded that (ID #52, abstract 5):

> I made many inquiries concerning the country that lies between the Peace and Athabasca rivers, but could learn nothing definite, as I met no one who had gone any distance from either river into it. It is generally supposed to be a region of swamps and lakes, and all heavily timbered ... impassable swamps which surround the head of [Little] Slave River ... The country between Lesser Slave and Peace Rivers is nearly all wooded with small poplar and some spruce. There are many spruce and tamarac swamps scattered through it...
>
> [same record], abstract 6: When coming down the Athabasca in the fall ... the country we came over was all woods, which extended as far as could be seen to the north; but many places I passed over were, some years ago, prairie. I was assured ... that there used to be many pieces of prairie along the river and to the north of it - notably a fine large piece at the confluence of

the Lesser Slave and Athabasca Rivers ... now there is only about an acre of it left, and that will soon be grown over with poplar and willow.

[same record], abstract 15: The timber on the Athabasca, from Little Slave river down to McMurray, is generally small, and consists of poplar, cottonwood, spruce, tamarac, pitch pine, small white birch, and occasionally a few balsams. There is also abundance of "underbrush", alder, willow, and hazel. Alders and willows grow to a [large] size ... I have seen alders more than 8 inches in diameter, and 30 feet high, while willows are often seen 1 foot in diameter ... The white birch ... is small and crooked, seldom more than 6 or 7 inches in diameter. The pitch pine is generally small and scrubby ... It is only found on high sandy or gravelly knolls or ridges. The tamarac is scarce and generally small. It is only found in marshes, and a great deal of it is hollow and unsound at the heart. The spruce is plentiful, it and poplar being found in about equal quantities, and both greatly outnumbering all others taken together. It is generally found in groves by itself, and as a rule, it seldom exceeds 12 to 14 inches in diameter, and from 100 to 120 feet high ... The poplar and cottonwood are generally small, but on many of the flats they are of a good size, sometimes large.

The Northwest Company established a trading post at Fort Vermilion on the Peace River around 1790. The Hudson's Bay Company district report for the Fort Vermilion location, described the area quite extensively:

ID #236, abstract 1: ...many small lakes ... country may be called pretty level & swampy covered with wood land numerous small plains - the Soil is generally sandy -the timber or wood is what is called the Pine of different species - Birch, Asp, Poplar & Willow. The only vegetables and Grain that has been cultivated ... is Potatoes, Turnips & Barley which produces well - Onions, Cabbage, Carrots also will come to maturity but as yet no great pains has been taken with them ...

The Dominion Land Surveyor described the lower Peace River as it appeared in 1884 (ID #52, abstract 4):

... Grande Prairie...lies to the south of Peace River...probably about twenty miles wide by about forty long...having a rolling surface, with many clumps of poplar, streams of fine water and first-class soil...estimates of size given me by some old Indians and half-breeds who saw it forty or fifty years ago, compared with the estimates of those who have seen it recently, lead me to believe that the forest is gradually encroaching on it, as I know it is on the prairie here...for there is truly a great difference between the country as I saw it, and the same part as Sir Alexander Mackenzie appears to have seen it nearly 100 years ago, and later still, as Archibald McDonald, Chief Factor of the Hudson's Bay Co., saw it in 1828...

[same record, abstract 18]:... ascending the Peace River until Peace Point is reached, the country is mostly low and flat, and the soil is lacustrine, like that on the Athabasca.

> Occasionally a sandy or gravelly ridge is seen ... on the north side of the river, at Peace Point, the country is prairie, with poplar bluffs; and the same extends, I was informed by Indians, through to Salt River, ... the soil along the Peace River at this point is a black gravelly clay, with coarse gravel subsoil ... Peace Point up to Vermilion, is generally heavily timbered, with occasional parts of open scrubby woods and small patches of prairie. On the south side the open woods and prairie are less frequent, until we reach a piece of scrubby prairie, which begins seven or eight miles below Red River and reaches to it, and runs back about two and a half or three miles, where it merges into the forest.

A more picturesque description of the region between Lesser Slave Lake and the Peace River was made in 1909 by Katherine Hughes (ID #215, abstract 5):

> ... at last we saw clearly the big hills that border and the deep narrow valley that hides, the north Heart River. It seemed as though the earth had been torn open by some violent internal disturbance & in time this stream found its way down through the ravine. Found the Peace-Smoky confluence placid, beautiful, majestic.

The country between the Little Buffalo River and the Slave River was described in 1920 by surveyor F.H.Kitto of the Interior Department (ID #199, abstract 11):

> ... bounded on the south by Peace river, on the east by Slave river, on the west by the Caribou mountains and on the north by Great Slave Lake ... country included in this range is nearly all wooded. The lowlands contain black spruce and tamarack. Much level land is found of a park-like nature, containing many open grassy meadows interspersed with light woods and poplar, birch and jackpine. Here and there are ... ridges of hills of sand covered with Jackpine. Near Peace river are found some large open stretches of prairie. Extensive muskegs and swamps are found a few miles back from Peace and Slave rivers, thus making access to the interior difficult. This area at large is not suitable for farming or ranging operations though isolated posts of great fertility are scattered throughout it.

In 1820, William Brown prepared his report from Fort Wedderburn (Fort Chipewyan) describing the Lake Athabasca area (ID #226, abstract 1):

> ... Athabasca or Lake of the Hills: ... the waters of the Athabasca and Peace River carry such a large quantity of wood, mud & earth down with them ... that a large portion on the west side has been silted up & forms several other lakes ... such as Lac Clair, Lac Va[ss]eau & Lac du Brochet ... separated by low swampy ground covered with willows.

Some of the more detailed descriptions of the environment around Lake Athabasca were prepared by the Geological Survey of Canada (ID #146, abstract 1):

> ... while walking past the rapids I saw the first really good sized tree I have this trip or indeed since being the Saskatchewan, am not quite sure whether it was a spruce or B. Pine, it was so

much decayed ... on the north side of the river and just before the lake begins are several small groves of rough looking poplar ... 9 to 12 in. but well grown and tall ... the solid rock which cropped out at one part of the bank ... To the South the shore line sweeps around in regular and easy curves, is for the most part composed of sandy beach and points with a little very coarse gravel, while the hills are very regular and slope gradually down to the water edge from some distance back and are tolerably well covered with an old second growth equally composed of spruce, B. Pine, birch and poplar. The north shore shows about as broken and uneven a front as I think is possible, full of little bays, islands and points, and all of rock highly polished. The highest point of the hills on this side must be about two miles ... look almost as uneven as does the shore line.

The Caribou Mountains were, and remain, a prominent land mark in the northwestern portion of the study region. The description of this area made in 1909 by Robert Bell of the Geological Survey of Canada is concise (ID #133, abstract 1):

Trails go out from Vermilion in all directions. One of these goes north. By following it for 2 days journey you come to the Caribou Mountains. These hills consist of "quartz" rock with knob and valleys ... there is a large (perhaps 40 mi. long) lake, central, in the midst of the Caribou Hills in which the rivers run.

Another prominent land form was the Birch Hills. The Department of the Interior report of 1915 describes this landscape feature (ID #103, abstract 3):

... a large portion of the district W of Athabasca river is occupied by Birch mountains, an extensive elevated plateau covered with boulders. The surface has been burned over and is now covered with windfall and scrub. Several extensive muskegs were met with. Legend lake, about 9 mi. long and 3 mi. wide, contains an abundant supply of fish.

Two other landforms noted in the ARCHIVES database were the Buffalo Head Hills and the Pelican Mountains.

4.4 WATER

An historical overview of the use of water, its state in terms of flow, and productivity in fish resources, wildlife, plant life are described, along with the prevailing attitude of early users and new comers.

Much of this information is gleaned from a subjective perspective, as seen through the writings of those who documented their experiences and observations while travelling and working in the area.

The weather has links to water presence and levels, and has direct influence on the manner in which this resource was utilized in earlier times, by the original people and by the new comers. Hence a section on weather (section 4.5) is included to provide a comparative point of reference for the reader and the researcher.

The records in the ARCHIVES database clearly show that water was the critical agent of life in the early days of the region, as it still is. Although the database records primarily mention water when it was, in some way, a problem, the recorded data do provide a clear indicator of water's significance to life during the 1790's to 1950's time period. Water during that time was recorded in reference to its use or consideration as:

1. A medium upon which to travel.
2. The degree of hazard it presented (i.e., rapids).
3. An entity that periodically flooded or was jammed by ice.
4. Drinking water for humans or livestock.
5. A medium in which to support fish or wildlife resources.
6. A potentially possible source of dammed water for industrial use (in post-1920's records).

The records accessed for use in the ARCHIVES database did not include any indicators of a spiritual aspect to the water environment. Neither do the records reflect respect for the element, except in terms of the physical power or control that water exerts over human activity.

4.4.1 Water as a Transportation Medium

The Peace River has been used as a transportation route for centuries, although the earliest written records are those of the traders. Later on, records portraying the riverine environment and use were created by the police, settlers, missionaries and Hudson Bay Company boats. Settlers began coming to the Peace River area shortly after the Hudson Bay Company transferred its lands to the Dominion of Canada in 1870. Travel to the region was an arduous undertaking with the most popular route being from Edmonton, overland to Athabasca Landing, then on to the Peace River Landing either by water or land. Once at the Peace River Landing, the settlers going to Fort Vermilion obtained material to make their own rafts, or obtained transportation on the small steamer owned by the Roman Catholic missionaries or on one of the traders' York boats.

One of the earliest records describing a raft voyage down the river (ID #158 - Reminiscences of one of the Last of a Bourgeois of the North West Co.) comments:

> . . .I may here remark that we were very likely the first of the Hudson's Bay or the North West Company's people who had the honour of going down the Peace River on a raft from the Rocky Mountain portage to Fort Dunvegan. After leaving the Portage the raft drifted down slowly ... We saw many deer and black bears ... We only saw two Indians from whom we

bought some pheasants for tobacco ... we passed the fall on the Peace River, which is not high. It is no wonder it is called Peace River...

The European fur traders provided the first written information about the area. Guided by Aboriginal peoples, the traders were brought into the region along the waterways traditionally known and used by the ancestors of today's Aboriginal peoples. Initially, those who came with the traders from the Montreal area belonged to the Mohawk tribes. The traders whose journeys originated around the Hudson Bay area were guided by people of Cree origin.

Beginning with the earliest records, which date from the late 1700's, the ARCHIVES database refers to the use of canoe-based transportation. The Aboriginal peoples transported themselves and their goods by canoe, and taught the European traders to do the same. A typical example of these recorded observations occurred in 1803-04 (ID #209, abstract 1, May 25):

... 15 Canoes of Chipewyans passed here for the old company that went away in the spring to the Birch river to make there canoes.

As time passed and technology developed, water-based transportation methods began to take advantage of non-human sources of power. The Hudson's Bay Company built and operated commercial boats, beginning with the "Graham", a steamer, that first entered the Peace River in 1882. Later on, transportation methods reflected the use of boats with increasingly greater freight capacity. In 1913, the federal Department of Indian Affairs noted (ID #200, abstract 1):

... At the present time the method of transporting freight from Athabasca Landing ... to the Arctic Ocean is both tedious and uncertain. Flat-bottomed scows, forty feet long and ten feet wide with a carrying capacity of from eight to ten tons are employed between Athabasca Landing and Fort McMurray...

Transportation-related use of the rivers' environmental resources was also recorded by the early travellers. For example, the "tar" that was found seeping out of the banks along the Athabasca River, close to present-day Fort McMurray, had been recognized historically by the Aboriginal peoples for its effectiveness in sealing objects to prevent water seepage. Reference to this substance can be found in the Fort Wedderburn journal of 1820 (ID #226, abstract 1):

... There is also in several places a substance which issues out of the ground and seams of the rocks and has both the appearance and smell of tar - which is mixed with the gum of the pine tree and used by the Indians to pitch their canoes.

The First Nations peoples used the river as a source of mud with which to paint their canoes (ID #116, abstract 49):

... May 18 sent men to the mouth of the river for white mud to paint canoes.

The transportation-related needs and perspective of the incoming population was reflected in the surveyors' records, such as that of the federal Department of the Interior record of July 9, 1913 (ID #102, abstract 10):

> ... the chief difficulty in exploring this country is its lack of navigable rivers...

4.4.2 Water as a Consumptive Commodity

Rivers and lakes throughout the region were used as primary sources of drinking water. Permanent and temporary settlements were established close to running streams or suitable lakes. On the larger river systems, high river banks made transportation of water difficult. Potable ground water was present but varied in availability and quality. In the Salt Mountain and Salt River region a "... scarcity of drinking water..." was noted (ID #179, abstract 4).

Under drought conditions, the quality of surface water in ponds and lakes suffered. For example, the North West Mounted Police recorded in 1905 that (ID #139, abstract 2):

> ... the water supply at Lesser Slave Lake hitherto has been entirely taken from the Lake, owing to past dry seasons the Lake has become very low (8 to 10 feet lower than its proper level) consequently the water is not so good, and there is a good deal of vegetable matter in it, and it is of a bright yellow colour, this water is soft and good for household purposes, but not for drinking.

As agriculture-based settlers moved into the area, they were confronted with the area's variable water supply. While it appears that the rivers and lakes carried water usually sufficient in both quality and quantity to support human life in small populations, the supply was insufficient for large volume uses, such as that of cattle ranches or farms. In some localities, the raising of livestock ran into difficulties because of the scarcity of water (ID #37, abstract 12, 1908):

> ... Livestock would probably do better, but water is scarce...

4.4.3 Water as a Biological Support Medium

The historical data also reflects the Europeans' concept of water as a food-support medium, primarily regarding fisheries but also as a major factor in the life-cycle of furbearers, waterfowl and insects. One of the earliest records in the database, from the journal of Peter Fidler in 1799, at Lac La Biche, mentions the use of fish as food:

> ID #119, abstract 20: (Oct. 6): The Canadian master sent away 5 canoes to erect a House at the mouth of the Slave Indian River, about 9 days journey from here, where nearly all the Ottaways which is 11, plus 5 Bunjee are to winter. The reason the Athapascan country has not been settled by your servants [i.e. the HBC] is, the men won't go to any place where the living is mostly fish - and those places the best furs are to be got from.

The water in the Northern River Basins region provided a home to a wide range of flora and fauna, and is described in greater detail under the headings of "Wildlife" (section 4.6) and "Landscape" (section 4.3).

4.5 WEATHER PATTERNS

The climatological conditions of the region affected all living things. People were no exception. Weather affected their clothing and lodging requirements, their ability to travel on water and land, their ability to hunt and fish successfully, and the growing season for plants. Seasonality dictated the type and form of travel, availability of food resources, and the social and cultural activities related to the seasons of the year.

Distinct seasonality was one of the most notable characteristics recorded for the climate of this region. The climatic observations of G.A. Mulloy, recorded in 1913, (ID #58) summarize the situation:

> Winter, remains about ten or twenty degrees below zero Fahrenheit, and as the air is very dry, it is not uncomfortably cold. Spring sets in near the middle of April, and all the snow is gone by the middle of May. All vegetation advances very rapidly owing to the long hours of sunshine. Summer, although very short, is luxurious in its production of new growth. Fall is usually very much prolonged, the sloughs and smaller rivers freezing solid long before the first snow falls.

One of the most obvious aspects of the seasonality found in the region is temperature variation. The summer is characterized by long days with close to twenty of the twenty-four hours per day of light. The winters are long and cold, with short days and temperatures that drop to thirty-five or fifty below zero. The springtime is short and subject to rapid changes in temperature. The transition during autumn often brings fog and rain, although sunny days are common.

Severe cold temperatures during winter months allowed the people inhabiting the region to store food in a frozen state for long periods of time. However, these same cold temperatures also brought considerable suffering and physical hardship to those living in the area.

The annual cycle of freezing and thawing affected transportation and transportation routes as well as the growing season for plants. An extended time period between completely frozen and completely open water ways hindered travel and transportation during those transitional periods.

Early and late frosts in the region made the production of cultivated crops risky. In this regard, from his survey of the Vermilion area in 1884, W. Ogilvie concluded (ID #52) that cultivation was "... an uncertainty every year..." because of the summer frosts. Similarly, E. Deville in 1914 (ID #102) recommended that "... the district north of McMurray is not suited for farming on account of the muskegs and summer frosts."

The occurrence of precipitation was recorded frequently in the ARCHIVES database. Some observers were meticulous in keeping daily records while others only recorded what appeared to them as unusual

events or phenomena. Precipitation in the form of rain usually began to occur in April or May while snow usually occurred in the period from September or October until the spring. Seasonal variations between years could be considerable, however, and the time of seasonal transition ranged from days to weeks.

In the western parts of the region weather was more variable than in the eastern regions, according the archival records. In the west, rains began earlier and continued later into the year than was common in eastern sections of the study area. Recorded precipitation in the region varied for both rain and snow but no particular weather patterns were apparent from the ARCHIVES database. For example, the Fort Vermilion Post Journal for December 31, 1841 recorded (ID #214):

> ...Rain & snow - unusual for the season; [and for June 6, 1842]: Lapatate told me of a large and heavy fall of snow they experienced at their tents...about a day's journey from [here] ... about 6" snow and then rain for 2 days ... all which we did not see or feel ... 3 days ago.

An exceptionally severe winter was reported by surveyor J.S. Dennis (ID #53):

> The winter of 1886-87 was in the Territories, as it was in fact all over Northern America, an exceedingly severe one, and was accompanied by an unusually heavy fall of snow.

Mackenzie wrote in 1908 about the demise of elk and buffalo in the Peace River country, which he blamed on the unusually heavy snowfall (ID #205):

> The year of the remarkable deep snow recorded in 1835 was the end of the Elk and Buffalo in these parts.

In the winter, buffalo reach snow-covered grass by moving their head back and forth, pushing the snow out of the way. In areas of exceptionally heavy snowfall, it becomes impossible for the animals to reach sufficient grass to fill their nutritional requirements; death by starvation under those conditions has been observed.

As it is today, sufficient rainfall in the spring and summer was especially crucial for the production of crops. Year to year variations in summer precipitation were common. For example, the Fort Vermilion Post Journal for 1842 reported for June 1-4 (ID #214):

> Garden looks hopeless - dry weather continues; June 6: Our garden & potato field is parched up with heat and dry weather; [but for] June 11-16: A shower was good for the garden across the river.

On the other extreme, in the Dunvegan Post Journal on August 6, 1843 (ID #187):

> Men returned from the hay field can do nothing, their Grass mowed is floating.

Dry conditions also contributed to forest and grass fires throughout the region. E. Deville reported (ID #58):

> Along the 23 base line the whole country for 100 miles north of Dunvegan was burnt over, lack of rain in the fall of 1912 being the cause.

Although the summer season is relatively short, due to the long hours of daylight plant growth during this period is exceptional. G. Mulloy wrote in 1913 (ID #102) that in the area to later become Wood Buffalo National Park:

> All vegetation advances very rapidly [in spring and summer] owing to the long hours of sunshine.

Violent wind and storms were occasionally recorded in the ARCHIVES database. Such occurrences caused considerable hardship for people in the region because they curtailed or hindered travel by boat on the waterways. For example, Peter Fidler recorded in his travels to Lake Athabasca in 1791 on July 19, 21, 23, and 24 and again on August 11 (ID #183) that it was too windy or there was too much swell to enter the lake. Similarly, on October 7, 1872, W. Christie recorded (ID #206) that they had been prevented from landing at Fort Chipewyan by a gale on Lake Athabasca. Charles Camsell wrote on June 22, 1914 (ID #179) from Lake Athabasca that:

> ... A fearful storm of wind struck us last night and did a great deal of damage to boats etc.

Chinook winds were a feature of the western part of the study area and had the effect of temporarily moderating the winter climate. William Pearce mentioned chinooks in 1909 (ID #224) in the Peace and Athabasca River areas:

> Chinooks are of brief duration and then the land freezes again.

Fifty years earlier, the Dunvegan Post Journal recorded the following occurrences of mid-winter chinooks:

> February 21: Weather fine, blowing hard from SW & thawing; [but then] on February 24: Snowed & blew hard all day & weather very cold (ID #186). However, on December 15: Weather cloudy & cold; [but on] December 18: Blowing hard from the SW & thawing on the hills (ID #187).

During the summer months, thunderstorms were common occurrences following hot days. The Dunvegan Post Journal recorded for July 31, 1843 (ID #187):

> Excessive heat all day, in the evening a heavy thunderstorm ... (August 3): We had thunder & a little rain again in the afternoon.

A particularly interesting projection was made by Dodd in 1898 (ID #237) when he predicted that droughts in the Peace River would become commonplace and his conclusion that:

...Eventually it will be a semi-arid district.

It may be noted here that the Hudson Bay Company demanded strict record-keeping by its post factors or superintendents. Included in the recording requirements was that of climate-related information; therefore, the temperature, wind and precipitation for each post was recorded twice daily. These detailed records are available from the Hudson Bay Archives (as part of the post journals), and were reviewed during the course of this project.

4.6 WILDLIFE

The use and distribution of wildlife is of great concern to the traditional users of today. To establish a basis for comparison, a review of wildlife-part use and overall wildlife availability is established though the archival research.

Wildlife was a resource that all people depended on as a food source, for clothing and as for shelter material, including the earlier settlers and newcomers.

Its significance as a resource and the manner in which it was managed, as an industry, has important implications on current perceptions management, as well as by its government and industry.

An historical overview of wildlife use, and the subsequent impacts of industrialization, are described to illustrate the uses, presence, and declines in wildlife populations over the historical time period.

High use areas and the time periods of decline in wildlife populations are illustrated with maps and graphs.

The fur industry was the initial catalyst for the immigration of Europeans and their institutions into the region. In the ARCHIVES database, the most frequently referred to fur bearing animals were beaver, marten, muskrat, mink, fisher, otter, lynx, and black bear. The fur and hides of other wildlife species such as rabbit, caribou, moose, buffalo, deer and elk were used for the manufacture of clothing by the Aboriginal people throughout the region as well as by the Europeans residing in the region at the time. Although the fur of these latter wildlife species was never a major part of the commercial fur industry in this area, the ARCHIVES records clearly show that these wildlife species were extremely important to the traders' food needs.

The fur trade operation entered the region via the Methye Portage, the Clearwater and then the Athabasca River. The industry spread rapidly westward and by the 1810's had become firmly established throughout the entire region.

The earliest records in the ARCHIVES database are those of explorer/trader Peter Fidler's journals, and cover the period from June 1791 to December 1799 (ID #183, abstracts 5, 73, 75, 77 and 84; and ID #119, abstract 15). The journal was kept as Fidler travelled and lived in the area of the Athabasca River

downstream to the Peace Athabasca delta, then northward on the Slave River downstream to Fort Smith. Beaver were often specifically referred to, indicating the importance of this animal to the fur industry.

During the 1800's the largest recorded number of beaver taken was at Fort Vermilion in June 1870 where 4,314 beaver pelts were registered in a portion of one year (ID #233, abstract 52). A full appreciation for the economics of the fur trade is gained from the ARCHIVES database records of Fort Dunvegan in July 1873 (ID #130, abstract 1). Those records show that the recorded value of the furs, beaver castor and hide leather traded through that fort alone, at that time, reached $97,310 (in the currency value of that time).

Beaver harvests escalated through the 1800's until in 1820 the first noticeable change in the beaver population was documented at Fort Chipewyan (ID #226, abstract 7):

> ... beaver have decreased over the last 30 years ... [because the Iroquois employed by the Northwest Company are efficient beaver harvesters; no young are left at the beaver house - everything is killed; the Chipewyan became more efficient beaver hunters; and a distemper epidemic occurred in the beaver population].

Throughout the period from the 1820's into the 1850's, the ARCHIVES record reflects the reduction in beaver populations and a concern about the possible extinction of this fur bearing animal. Among other similar observations, in 1883 at Fort Vermilion the specific notation in the ARCHIVES database that the "... beaver is almost extinct ..." was made (ID #52, abstract 8). A map showing beaver stocks is included as Figure 4.6-1.

As concern for the future of beaver populations grew, it was noted (October 1905) that the "...beaver season is stopped for 6 years" (ID #139, abstract 1). By the 1930's the apparent effect of protecting the beaver had begun to show through an increase in their population. In 1935 at Fort Chipewyan, beaver were considered plentiful "... due to closed seasons ..." (ID #154, abstract 7).

A high population of snowshoe hares was recorded in 1905, followed by population lows in 1925, 1936, and 1937. Rabbit populations are shown on Figure 4.6-2.

Large game animal information recorded in the ARCHIVES database included wood bison (buffalo), moose, barren ground caribou, woodland caribou, elk, mule deer, black bear and grizzly bear. White-tailed deer were rare if not absent from the region.

With the exception of the hides of black bear, moose, elk, deer and caribou, the skins of these animals played a minor role in the commerce associated with the European-based fur trade. However, the meat from these game animals became a staple food resource for the participants in the fur trade. These game

animals had, of course, also been integral to the Aboriginal cultures in the region for centuries providing food, leather, hides, sinew and tools for the people.

The Europeans engaged in the fur trade relied upon Aboriginal people to secure year round provisions from game animals in the form of fresh meat, beat (pounded) meat, pemmican and dried meat. An appreciation of the demands placed on the game populations is reflected in the recorded provisions of Fort Vermilion in October 1870 (ID #233, abstracts 75 - 79, 81 and 82):

- 53 moose
- 6 bear
- 36 lbs. fresh meat
- 7,144 lbs. dried meat
- 453 lbs. pounded [beat] meat
- 1,697 lbs. grease

Fort Dunvegan recorded (ID #113, abstract 6) the "...daily consumption of [the] Post is 360 lbs. [of] meat." Meat provisions used in the 1819 to 1870 period is shown on Figure 4.6-3.

In 1870, the vast area which had been controlled or governed by the Hudson Bay Company was sold to Canada, and the fur trade with its associated forts and supply requirements was irrevocably changed.

Game populations throughout the region appeared to take a downward trend from the later part of the 1870's through to the end of the century, as is shown on Figure 4.6-4. The records from Fort Vermilion in 1888 (ID# 107, abstract 1) are typical of others recorded throughout the region during this period:

> ... great decrease in game [with the] Indians in a constant state of semi-starvation.

By the early 1900's some recovery in game animal populations appears to have occurred. In August of 1909, it was noted that "...bear and moose [are] very abundant" (ID #218, abstract 2) on the Peace Athabasca Delta. Similarly, to the west at Fort Vermilion in March 1915 the ARCHIVES database records indicate that (ID #197, abstract 1):

> ... game is plentiful [and] hunting is good in the mountains nearby.

Migratory game species such as caribou periodically either appeared in great abundance or, to the contrary, were depended upon to arrive but did not do so. For example, moose were apparently low in numbers in the Fort Chipewyan area during the mid-1800's. Yet in February and March of 1852, large numbers of barren ground caribou were harvested (ID #206, abstracts 3 and 4). But in December of 1852, during the time when caribou were normally found in the area, the caribou were considered "scarce" (ID #206, abstract 19).

Bird species, migratory and non-migratory, played an important role in meeting the subsistence and cultural needs of the area's Aboriginal people and European immigrants. Swans, geese and ducks, along

with the birds' eggs, had been harvested by Aboriginal peoples throughout the centuries. These resources also were depended upon by those involved in the fur trade. The ARCHIVES records clearly reflects the harvesting of migratory birds and their eggs in wetland areas, including the river environments.

The area around Fort Chipewyan reflected both an abundance of migratory birds and extensive seasonal use of these resources as food. For example, in May 1803 at Fort Chipewyan (ID #209, abstract 1) "... 99 geese and 4 ducks ..." were harvested. In 1820 at the same location, "... 3 swans, 427 geese and 12 ducks ..." were harvested. Where large numbers of waterfowl concentrated, the meat provided variety to the diet of those who had spent long winters eating only fish and big game. Evidence of the fact that waterfowl, if harvested in large numbers, formed an important component of the community's protein needs is reflected in the ARCHIVES database. For example, in the records of October 1872 for the Peace Athabasca Delta and Fort Chipewyan it is noted that there were "... several flocks of grey geese and wavies ..., provisions [were made] of geese [and] salted geese" (ID #213, abstracts 8 and 9).

Waterfowl eggs in small or large numbers also appeared to be sought after by Aboriginal people and Europeans. The most notable evidence of egg use was shown in the Fort Vermilion records of May 1870 where it was stated that (ID #233, abstract 50):

> ... egg gathering at Buffalo Lake [took place] with 1,000 eggs gathered.

Three separate observations of whooping cranes were recorded in the ARCHIVES database (ID #223, abstract 6) in 1920, 1923 and 1924.

Upland game birds such as sharp tailed grouse ("chicken" or "prairie chicken"), ruffed grouse ("partridge", "bush partridge" or "grouse"), spruce grouse ("fool hen"), blue grouse, and ptarmigan ("white partridge") were found in the region.

The ARCHIVES database contains only a few scattered observations of upland game birds. The earliest such record was from the Fort Chipewyan area in October 1805 (ID #210, abstract 1):

> ... white partridges [were] seen for the first time this fall. [The] white partridges [were] very numerous passing to the southwest.

In 1911, in the region now occupied by Wood Buffalo National Park, there was an "... abundance of partridge and prairie chickens" (ID #57, abstract 13).

Other bird life such as hawks, owls, eagles and songbirds was occasionally noted in the ARCHIVES records.

The ARCHIVES database shows that the Aboriginal people and the European fur traders and explorers depended heavily on fish for their own sustenance and that of their dogs. The records clearly show that if it had not been for the fishery resources, death by starvation during the winter would have occurred even more commonly than it did.

The key fish species of the region as reported in the ARCHIVES database were lake whitefish (tickameg), tullibee, lake trout, rainbow trout, jackfish (pike), walleye (pickerel or D'Or [dorie]), ling cod (maria or burbot), grayling (American grayling, Arctic grayling), inconnu (connie), perch (yellow perch), goldeye and sucker.

The availability of fish resources to people in this region was a determining factor in the resource use. Significant use of some river fisheries occurred, particularly during spawning runs.

Peter Fidler's records dated June 1791 at Lake Athabasca (ID #183, abstract 27) contain the earliest reference to use of the local fish resources:

> ... got 5 perch and 1 flat fish.

The dependency of certain communities on the fishery resource is reflected in the ARCHIVES records for Fort Chipewyan in 1820 (ID #226, abstract 5):

> ... 28,264 fish [were] taken.

In November 1822, the ARCHIVES records from Fort Vermilion (ID #236, abstract 22) show a catch of "... 1,544 fish ..." from the Caribou Mountains. Those records also identified a "... small whitefish fishery located about 3 days travel south of the Fort" (ID #236, abstract 2).

An example of a locally important fishery based on a spawning run in a river was recorded in what is now Wood Buffalo National Park in May of 1912 (ID #58, abstract 10) where it was noted:

> ... in the Little Buffalo River fish can be caught in winter ... suckers so thick they fill the stream from bank to bank but they are small with [the] largest about 1/3 pound.

The inconnu were recorded only in the Mackenzie River system up to the rapids on the Slave River at Fort Smith. Lake trout in Lake Athabasca and Great Slave Lake were recorded in 1884 as reaching up to forty pounds (ID #52, abstract 21). Arctic grayling were found "... in great numbers throughout [the] waters in [the] north" (ID #200, abstract 4). The ARCHIVES records indicate that grayling appeared to prefer mainly rivers and attained a weight of up to 6 pounds.

Commercial fisheries existed on Lesser Slave Lake, Lake Athabasca, and Lac La Biche. These fisheries focused on lake whitefish.

The ARCHIVES database records make no reference to reptiles or amphibians. However, several records make reference to insects. Although there are few such observations, it is clear biting insects such as mosquitoes, black flies and horse flies ("bull dogs") were prevalent during the spring and summer months. The abundance and tenacity of these insect pests was summarized in the statement that they "... worry to death both man and beast" (ID #102, abstract 10).

4.7 FIRST NATIONS PEOPLE

Traditional land use and movement of First Nations People within the basin area has changed with time. The archival research provides insight into the movement of the First Nations people and their scope of land, and resource use within the study during the early contact era. A map showing historical movement of First Nations people is provided as Figure 4.7-1.

The archives research also provides insight into the devastating effects of starvation, and the initial influences of the institutions which have created a dependancy mentality among the Aboriginal peoples. The archival records document some of the starvation that occurred, as is presented in Figure 4.7-2.

Historians believe that before Europeans arrived, northern Alberta was populated by six Aboriginal tribes. Four of them, the Beaver, Chipewyan, Slavey, and Prairie Sarcees were of linguistically-related Athapaskan stock. It is thought that at least five different bands of the Beaver tribe occupied a region roughly from Portage La Loche on the east, Lesser Slave lake on the south, the Rocky Mountains to the west, and the Peace River to the north.

The Chipewyan people lived in an area including northeastern Alberta to Great Slave Lake and east, while the Slavey tribe lived north of the Beaver groups. The Prairie Sarcees had broken away from the Beaver tribe some time in the past, and occupied the area south of the Beaver to about the North Saskatchewan River. It was thought that the Sekani tribe from the mountains bordered the area on the southwest, and that there was contact with Woodland Cree people in the area of the lower Athabasca River, Lake Athabasca and Clearwater River.

The Beaver tribe was first mentioned in the ARCHIVES database in 1802 in the Fort Chipewyan area, with the final record of the Beaver people from the Fort St. John area in 1914. In 1897 (ID #106, abstract 1), the Beaver tribe was reported to still exist in that region of Alberta lying north of Lac La Biche. In 1860 (ID #231, abstract 4), it was noted at Dunvegan Post that:

> Beaver Indians trade here ... The tribe was practically extinct in Dunvegan by 1908.

First Nations elder, Marguerite Maskahsin, mentioned the Beaver people during an interview conducted with Katherine Hughes, first Alberta Provincial Archivist in 1909:

> ID #215, abstract 25: Interview with Marguerite Maskahsin, 'Mrs. Moccasin': remembers Beavers coming to trade when she was young - "used to carry fire in rotten wood as they moved from place to place with flint & punk"...

In the Peace Athabasca area in 1883, the ARCHIVES database records (ID #52, abstract 8) that:

> I think it will be found, whenever a treaty is made for that part of the country, that the original Indians will be very few compared with those who have immigrated into it from

the south and east - many of them quite recently. The original tribe of the country - the Beaver tribe - are fast dying out, through starvation and disease.

From 1791 to 1935, there were numerous references to the Chipewyan tribe in the study area. These people appear to have lived or traded as far west as Fort Vermilion and as far south as Lac La Biche. In 1791, Peter Fidler noted (ID #183, abstract 26) at Fort Chipewyan:

... 6 Tents of Jepowyans & Crees upon the Plantation.

In 1905 (ID #138, abstract 1) in the Birch River - Lake Athabasca area the Royal Northwest Mounted Police Report of July 5th notes:

One band called the "Caribou Eaters" [Chipewyan] come in every second year their hunting grounds being so far away...

Extensive records relating to the Chipewyan people can be found in the ARCHIVES database throughout the region.

Numerous records containing information about the Cree people were found in the ARCHIVES database dating back to 1791. Peter Fidler used Cree guides as he surveyed the Athabasca and Slave Rivers in the summer of 1791. He noted (ID #183, abstract 31) on July 6:

... received 22 young geese & 6 old geese from the Southern Indian or Cree...

There were Cree in the Pierre au Calumet - Lesser Slave Lake area (ID #226, abstract 1) and they also frequented the areas around Red River, Wabasca and Whitefish Lake (ID #241, abstract 14).

According to the ARCHIVES database, Iroquois were brought to the study area by the North West Company fur traders in the late 1700's. The Fort Wedderburn (Fort Chipewyan) report of 1820-1821 (ID #226, abstract 7) indicates that:

... [In 1790 - 1795] a number of Iroquois were carried into the country by the Northwest Company...

Trader's journals from the Dunvegan Post indicate that they traded with Iroquois in 1823 and 1835 (ID #113, abstract 5; and ID #114, abstract 2). The earliest records involving Iroquois were in 1803 when they traded at Fort Vermilion. Trader Thomas Swain referred to them as "Mohawks" (ID #209, abstract 1).

Ojibway people accompanied the Northwest Company when they established fur trade posts in the west. This fact is not specifically mentioned in the ARCHIVES database and there are only a few references to Ojibway peoples in the database. One of the more famous Ojibway people was the Rev. Steinhauer

who ministered to the Woods Cree people living near Whitefish Lake sometime after 1850. He was acknowledged in the ARCHIVES records by the following reference (ID #79, history 1):

> Rev. Steinhauer was an Ojibway Indian and an ordained Wesleyan clergyman. With a group of Woods Cree converts, he established a settlement at Whitefish Lake ...

Only one reference to the Sarcee people was noted in the ARCHIVES database (ID #52, abstract 8):

> ... The original tribe of the country - the Beaver Indians - are fast dying out, through starvation and disease ... a branch of their tribe - the Sarcees ... moved to the south some generations ago ...

The Saulteaux people inhabited and traded in the southwestern portion of the region. The records indicate that the Saulteaux came from the Qu'Appelle Valley in Saskatchewan to the Fort St. John area during the 1870's (ID #215, abstract 13).

Sekani people were first mentioned in 1835 at Fort Dunvegan (ID #114, abstract 2). By 1843, the hunters at Fort Dunvegan stated that the Sekani had "overrun" the country, indicating that they had moved into the area (ID #187, abstract 3).

The Slavey traded at Fort Dunvegan in 1843 (ID #187, abstract 1). Mention of the Slavey occupying the area near Fort Vermilion was also made (ID #106, abstract 2).

The ARCHIVES database does not give a complete picture of the historical changes in geographical distribution of the various tribes in northern Alberta. The database contains only a sample of all the historical records that are available; those records that do exist reflect the amount of detail provided by those who recorded the events and conditions. Sometimes Aboriginal people were identified by tribe, many times they were not.

Although the database information about the individual bands or tribes is not absolutely complete, it does corroborate data published elsewhere. It appears that the range of the Beaver tribe was greatly reduced and the people were forced westward, that the Chipewyans extended their range further south and west, and that the Plains and Woodland Cree inhabited a wide-ranging area that had formerly been occupied by the Beaver Indians.

The general health of the Aboriginal people was a subject of many records in the ARCHIVES database. In 1888, Bishop Young of the Diocese of Athabasca sent a report to the Ministry of the Interior (ID #107, abstract 1). He noted that the Aboriginal people in the whole area had suffered from semi-starvation year-round for the past number of years. A decrease of large and small game used for food, clothing and trading purposes had reduced them to dependency on fur traders and missionaries for food:

> [from St. Luke's mission, Vermilion, Athabasca, July 6, 1888]... There is a great decrease, throughout this part of the country, of both the larger and smaller game, as well as fur- bearing

> animals... The consequence is the Indians, not only during the winter, but also in summer, are in an almost constant state of semi-starvation. This condition is, of course, seriously aggravated during the winter months... The above affects not only the food supply of the Indians but also their power of procuring clothing, ammunition, etc. Many of the Indians are almost destitute of clothing, and owing to their small take of furs, are unable to provide themselves with the necessary clothing and hunting outfit for the coming winter. The above scarcity has greatly decreased the number of their dogs, (so necessary to the Indian for travelling and hunting), which have perished, thus seriously increasing the difficulty of obtaining a livelihood. The Beavers, who used to have a considerable number of horses, have killed so many of them, on account of the scarcity of other food, that they now possess very few...many other Indians — Crees, Beavers, and Chipewyans —, at almost all points where there are missions or trading posts, would certainly have starved to death but for the help furnished by the traders and missionaries at those places...

Prevalent diseases among the Aboriginal people in the region were consumption, dysentery and scrofula (ID #200, abstract 9). The records also indicate clearly that European diseases such as measles and influenza were devastating to the First Nations peoples.

During the 1920's, F. H. Kitto reported in the Department of the Interior records on the health and general state of the Aboriginal people as follows (ID #199, abstract 14):

> ... A layman is struck with two main thoughts, i.e. (1) that the Indian population has lost its vitality and the race in consequence is gradually dying out, and (2) that the Eskimo population on the other hand appears to be quite rigorous and healthy. Information supplied me indicated that Indians suffer from various causes, including lack of proper nourishment; unsanitary and inadequate living quarters; hardships and exposures increased by the conditions just mentioned; tuberculosis; scrofula; whooping cough; measles; venereal diseases; and inter-marriage. The lot of the Indian in this district [Mackenzie District] is not an easy or a happy one. Living conditions are getting harder every year and the Indians eke out an existence under anything but cheerful conditions ...

As early as 1803, deaths among Aboriginal people were reported in the ARCHIVES database (ID #26, abstract 31). In 1843, starvation occurred among First Nations people in the Dunvegan area continually from January to July, and there were many deaths as a result (ID #186, abstracts 2 - 9; ID #187, abstract 1). Survivors ate dried skins, bear skins, and their horses; there was a report of a family of nine dead from starvation and cannibalism (ID #186, abstract 7). Some of the documented instances of stavation are shown on Figure 4.7-2.

The records in the ARCHIVES database point to over a century of illness, death, and starvation among the Aboriginal peoples who lived in the region. It is inevitable, therefore, that burial sites exist throughout the region. Figure 4.7-3 and Figure 4.7-4 shows diseases epidemics that occurred in the study area.

The living patterns of Aboriginal people in the region were intimately linked to the seasonal abundance and distribution of food resources. From the size and location of ancient campsites, kill sites, and lookouts, coupled with probable movement patterns of animals, it is apparent that Aboriginal people moved in concert with the seasons. Kinship ties linked individuals into bands whose size has been estimated as being from 20 to 100 individuals, while tribes are believed to have consisted of around 500 individuals. Within the region, it is believed that food resources were widespread and fluctuated seasonally, and that the people adapted by living in small groups, being highly mobile, and hunting over a wide range.

Scattered throughout the ARCHIVES database are brief glimpses of the traditional lifestyle of Aboriginal people, as viewed by the Europeans who created the records. An interesting example of these observations comes from the writings of Alexander Mackenzie (ID #205, abstract 8):

> ... When I first came into this country I became acquainted with a very old Beaver Indian. I was anxious to know how they lived before white men came among them. he told me they lived with the Bow and Arrow. the Bow of wood the string a sinew of the moose. the arrow was tipped with a small piece of Elk horn rubbed to a sharp point on a stone - the tip was secured to the arrow with sinew. they made snares of the out side fibre of a weed called rabbit weed with which they caught Rabbits, Pheasants &. they made a net out of small tough wiry like roots. set it and watched it until a Beaver got in and killed it before it could knaugh out ...

William Brown, a Fort Wedderburn trader in 1820, talked about traditional beaver harvesting practices of the Beaver tribe. He was advised that when they broke into a beaver house, they never killed a female with young and they always left two young at each house (ID #226, abstract 7).

Aboriginal people used vegetation in a wide range of purposes, from food to shelter, including implements and transportation. Some examples in the ARCHIVES records include driftwood, grass, and pine branches for shelters, and birch for sledges, snowshoes and kettles (ID #183, abstracts 97, 102, 104, 105, and 106). Pine tree sap was also used with tar to pitch canoes (ID #226, abstract 1). Berries were also used as a food source (ID #183, abstract 74).

There have been numerous studies completed, and publications produced, on specific aspects of the First Nations persons in the Northern River Basins area. The data used in this project was restricted to the archival records only; no attempt was made to review the studies or analyses of others.

4.8 FIRE

The traditional users of the Northern River Basins often spoke of fire as a change agent and as a tool for traditional land use management. A search of the archives supports the traditional use of fire in land and wildlife management.

The role of fire in protecting ecological diversity was often raised in the interviews with traditional users. In reviewing the archives data, fire has without a doubt been an identified as instrumental element in the shaping and use of the Northern River Basins resources.

Fire use, or lack of use, remains to be assessed in terms of the long range term effects and how these effects will influence the long planning and use of forestry resources.

Fire has played a major role in the ecology of the Northern River Basin area. Many records in the ARCHIVES database mention observations of fire, evidence of large-scale fires, effects of fire, setting of fires, control of fire, and the use of fire by Aboriginal people as a resource management tool.

In addition to natural fires and their effects, the intentional use of fire by the Aboriginal people in this region is of particular interest. The use of fire to control and encourage plant succession and, consequently, wildlife abundance and distribution is reflected in many records. An example of this practice was found in a description of the Peace River-Athabasca Landing areas in 1909 (ID #224, abstract 18):

> The whole country has been burned over from time immemorial. The Indians start these fires to provide feed for the moose, on the new growth of willow and brush which is very attractive to the moose.

The ecological consequences of fires resulted in the presence of grasslands interspersed through the forests of the region. Increased control of fires had a marked effect on the reduction of natural grasslands in the region. This phenomenon was noted in many records in the ARCHIVES database, including those of W. Ogilvie in 1883 (ID #52, abstract 5):

> ... at the west end of Lesser Slave Lake, there are some extensive pieces of prairie, having very good soil. The forest is gradually encroaching on those prairies; and, should no fires occur, they will, in the course of a generation or two, be all poplar woods.

The records in the ARCHIVES database clearly show that fire is a natural occurrence, and that the setting of fire was a normal part of the life process. Fur traders set fires (ID #219, abstract 32), as did settlers (ID #105, abstracts 5 and 12). Other fires were set by careless smokers, or by the trains.

There are several records in the database that chronicle the beneficial effects of fire:

> ID# 241, abstract 17: [1908]...fine blue-joint an dried top grass is abundant between Burnt Lake and Chipewyan Lake, where a range of hills has been cleared by fire...

TRADITIONAL KNOWLEDGE MAP SERIES #1

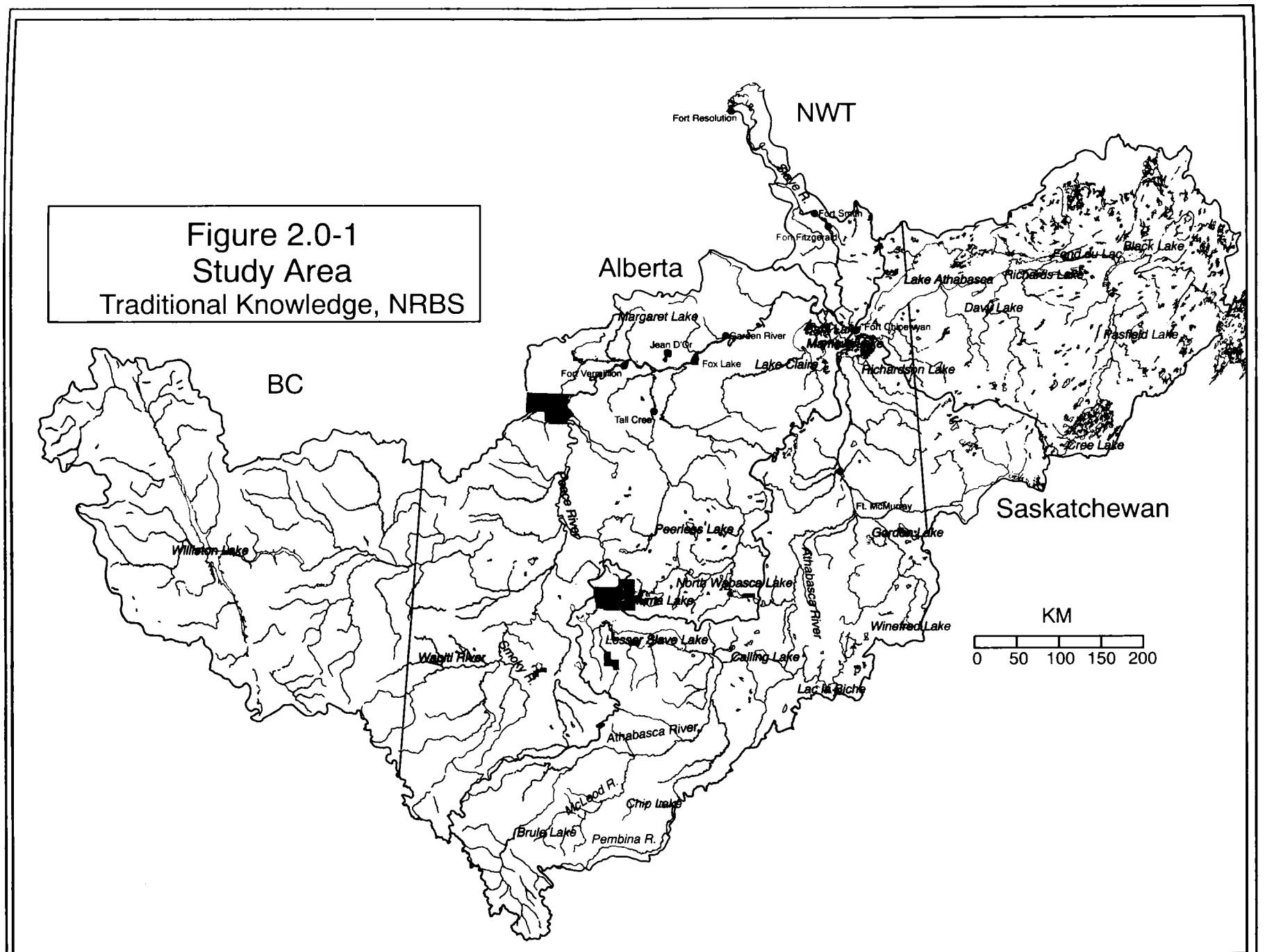


Figure 2.0-1
Study Area
Traditional Knowledge, NRBS
NWT
Alberta
BC
Saskatchewan
Fort Resolution
Slave R.
Fort Smith
Fort Fitzgerald
Lake Athabasca
Fond du Lac
Black Lake
Richards Lake
David Lake
Fort Chipewyan
Fraser Lake
Jean D'Or
Garden River
Fox Lake
Lake Claire
Richardson Lake
Fort Vermilion
Tall Creek
Margaret Lake
Peace River
Peerless Lake
Ft. McMurray
Gardiner Lake
Athabasca River
North Wabasca Lake
Wabasca Lake
Lesser Slave Lake
Calling Lake
Winefred Lake
Lac la Biche
Wapiti River
Smoky R.
McLeod R.
Chip Lake
Brule Lake
Pembina R.
KM
0 50 100 150 200

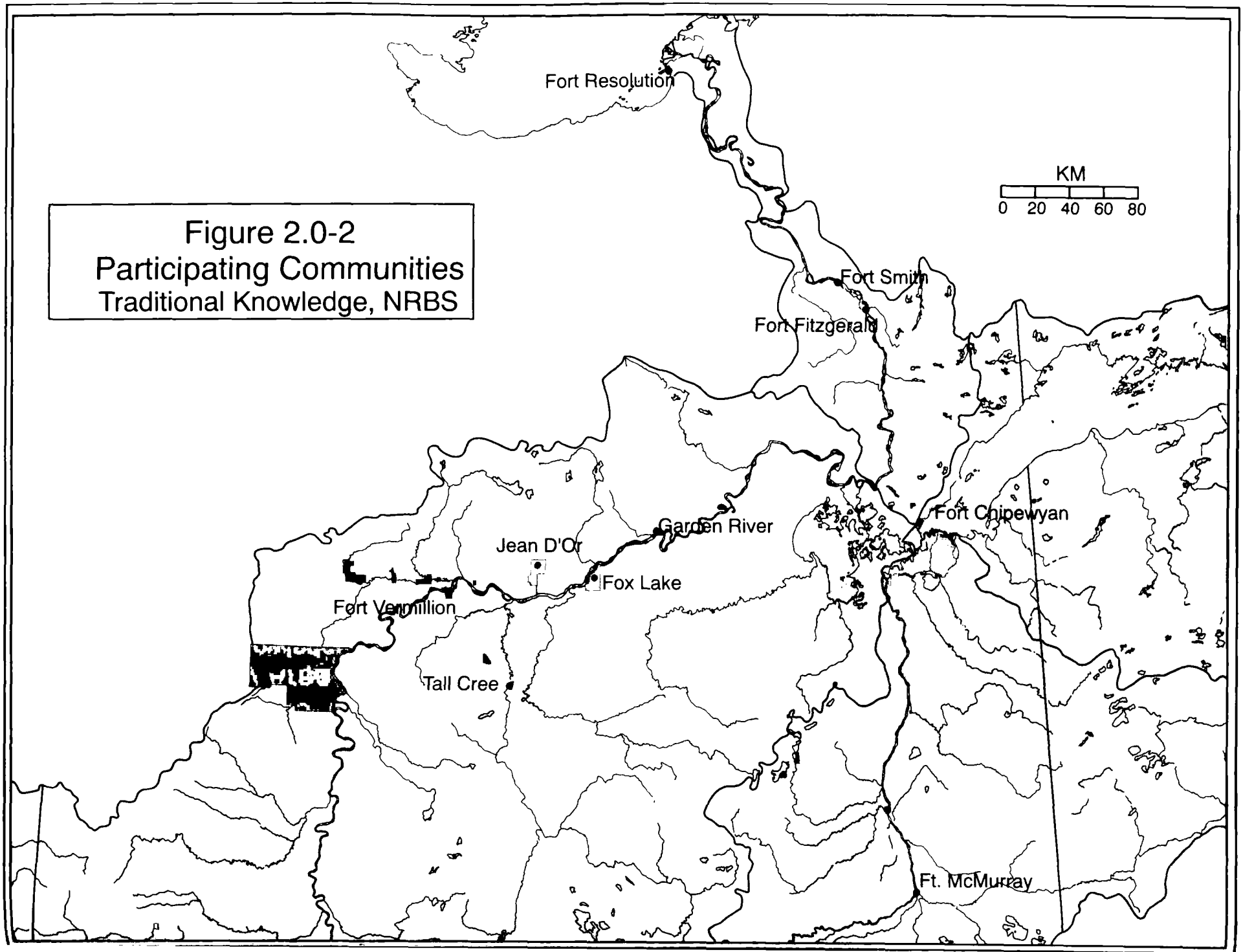


Figure 2.0-2
Participating Communities
Traditional Knowledge, NRBS
KM
0 20 40 60 80
Fort Resolution
Fort Smith
Fort Fitzgerald
Fort Chipewyan
Garden River
Jean D'Or
Fox Lake
Fort Vermillion
Tall Cree
Ft. McMurray

ᒪᒧᐄᐅᑲᐄᒧ
ᑭᔪᓇᑲᑕᐄᒥᔭᐠ

Pictograph Symbology: A Glimpse of the Greater Vision

The circle is the symbol of the cycle of many things including the universe, which has many cycles. This pictograph attempts to depict the components of the Northern River Basins Study, in particular the interrelationship of each component with one another and to the Mother of All Creation. The pictograph attempts to emphasize the significance of the traditional knowledge component to each of the other scientific components.

Each component is a circle within itself but has a connection to the other components and also to the larger picture of the universe.

The components have been symbolized by the natural elements because of the influence of the industrial age upon these elements of the universe.

The understanding of these natural sensors has been limited by the limited vision of man, and to increase the awareness of this vast untapped knowledge the artist has attempted to portray this with the many images of the natural elements.

Canada Alberta Northwest Territories
Northern River Basins Study

Component Images

TRADITIONAL KNOWLEDGE

This component is in the centre of the pictograph, and is depicted by the image of the beaver, the wolf, the otter, the little ones and the seasons.

CONTAMINANTS

This component is depicted by the centipedes as contaminants come in many shapes and sizes.

NUTRIENTS

This component is depicted by the aquatic plant life and the food chain reaching into the water where the fish and other insects reside.

SYNTHESIS AND MODELLING

This component is depicted by a scale with the land mass in one plate and the delicate rose in the other plate.

HYDROLOGY

This component is depicted by the many rivers of water but also by the wave of water flowing against gravity.

OTHER USES

This component is depicted by the dog team and the canoeist.

DRINKING WATER

This component is depicted by the evergreens extending their roots down into the earth to drink the water.

FOOD CHAIN

This component is depicted by the link chain around the many aspects of the ecosystem, water, plants, insects, marine life and water dependent muskrat.

The Images

The many images that have been transformed onto this pictograph have many levels of meaning which can only be described by the individuals experiencing it.

The significance of the animals, the water, the plants, the colours, and the atmosphere are all illustrated in the organization of the pictograph.

The colours are of great significance as colour plays a role in bringing to life all that is unseen and reveals the beauty of life. It brings forth the living essence of spirit, which allows all to experience and receive its gift in a beautiful manner.

COLOUR

Red - life giving, Blue - harmony, Green - growth, Black - reflective, Orange - fire of all that is of living essence, Gold - the spirit of life, Purple - the beauty of love, Indigo - the beauty of sharing, Yellow - the beauty of health, this is only a short list of the symbology of colour as taught by the grandfathers and grandmothers.

ANIMALS

The animals that have been chosen to teach and offer explanation to man, have been chosen because of their experience as a result of man's influence and power over them. The animals are the providers of energy to the Mother of All Creation.

PLANTS

The plants have been used to show the interrelationship of all things and the need to consider all aspects of the natural world. The plants are the sensors of all that is of the Mother's life giving energy.

INSECTS

The weavers of the pathways of interconnectedness within the Mother of All Creation.

ATMOSPHERE

The outer universe is shown to demonstrate the vastness of this knowledge and the impact of all that is of the Mother of All Creation. The air, the moon and all that is of this element are the synthesizers of that which is of life giving upon the Mother of All Creation.

WATER

The water is used to show the interconnectedness of all life forms and its increasingly depleting health as illustrated in the changing patterns and colours. The water is the Mother's cleanser and harmonizer of her being. This pictograph is not only an education tool but it is also a healing tool, as it is hoped by the Traditional Knowledge Component, that it will bring healing to the Mother of All Creation and all who experience it.

SACRED TEACHING OF THE GRANDFATHERS AND GRANDMOTHERS

"All that is created in the universe is of great significance and all that is created from the spirit has great healing ability and will bring increased harmony and balance into our universe."

Canada Alberta Northwest Territories
Northern River Basins Study

The Pictograph

This pictograph was designed with the help of the grandfathers and the grandmothers of the past and the artist Larry Mercredi was only one instrument of this beautiful and profound creation.

Lea Bill, Project Manager, Traditional Knowledge Component, Northern River Basins Study, January 25, 1994

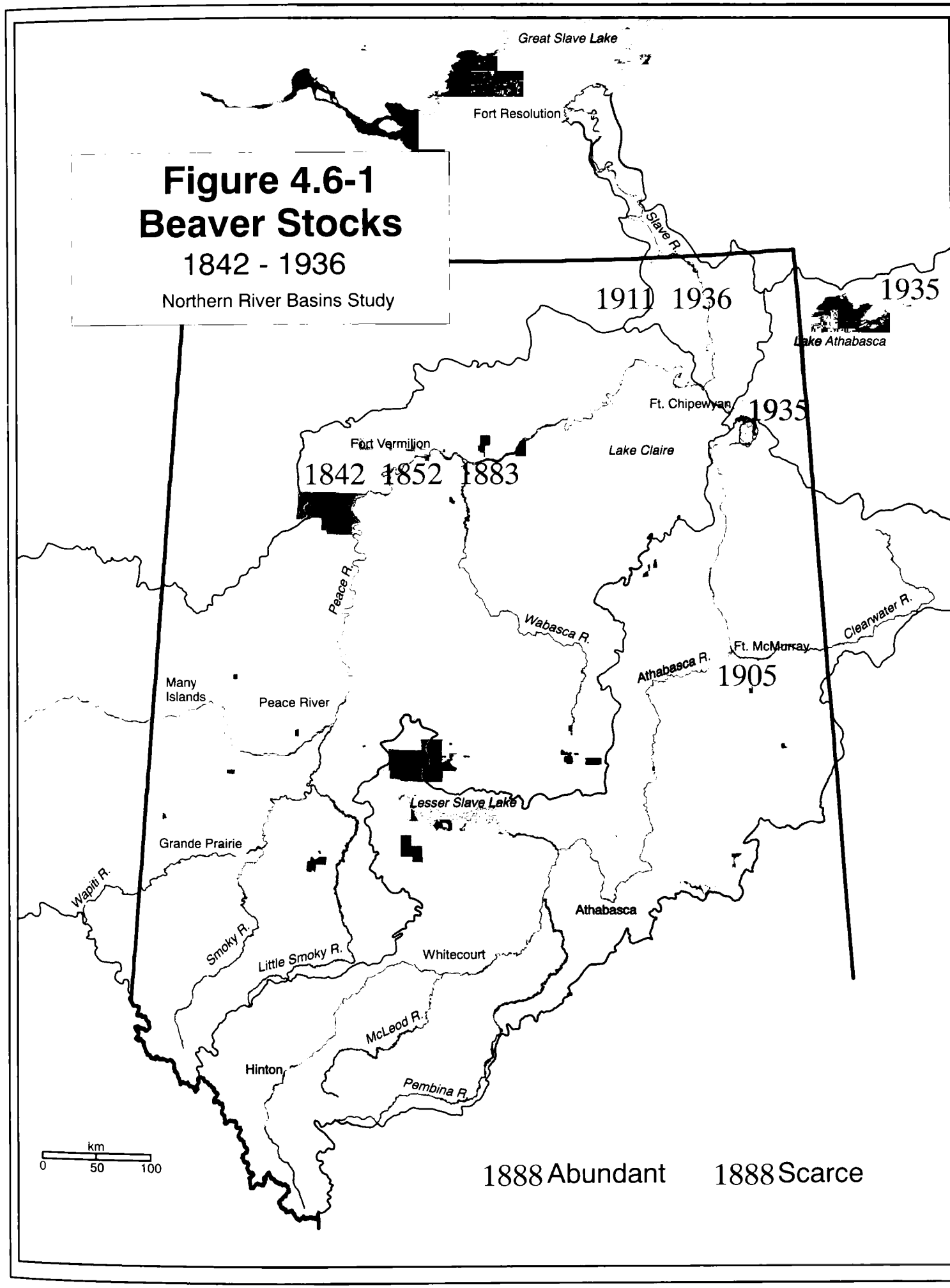
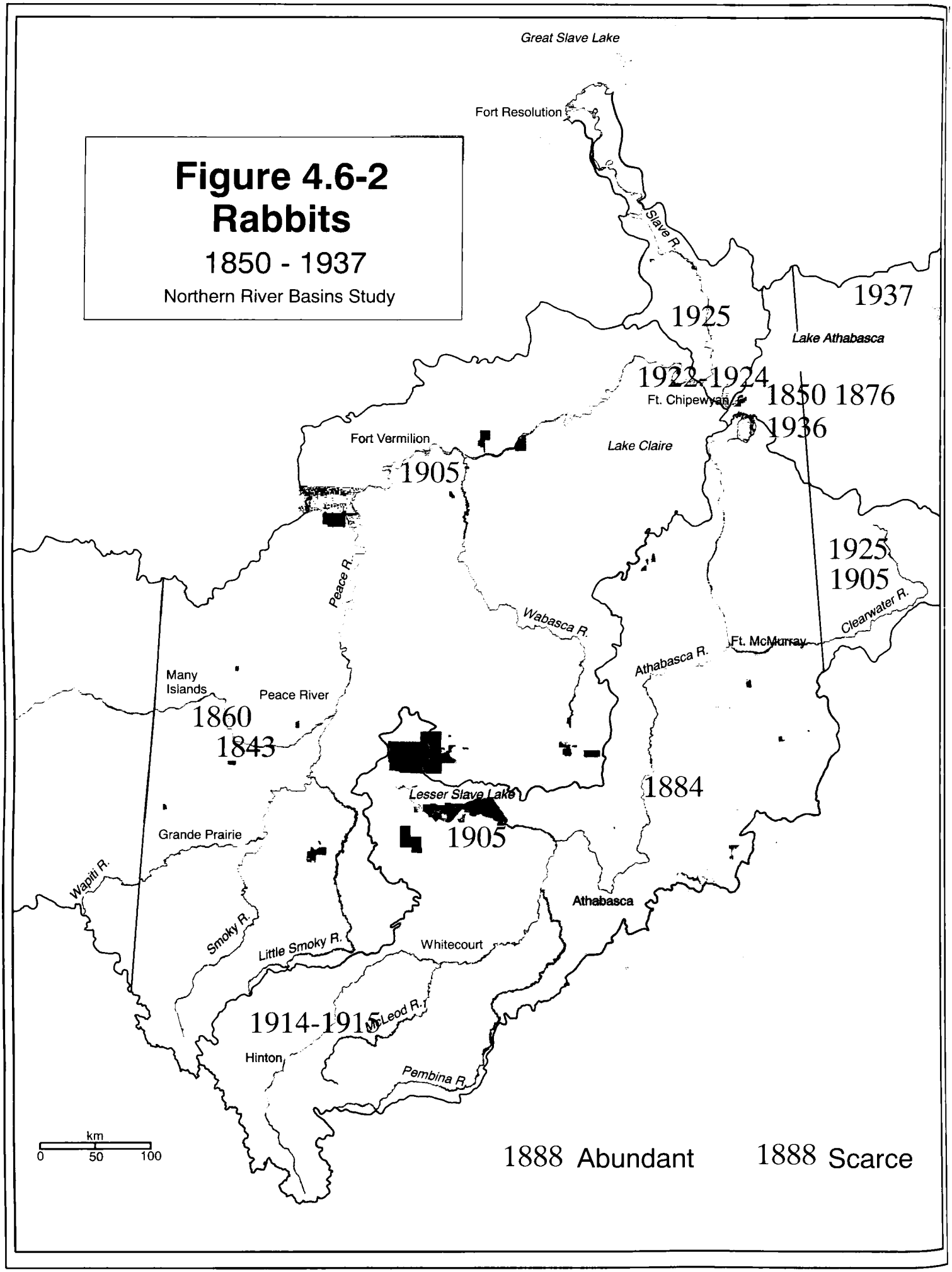
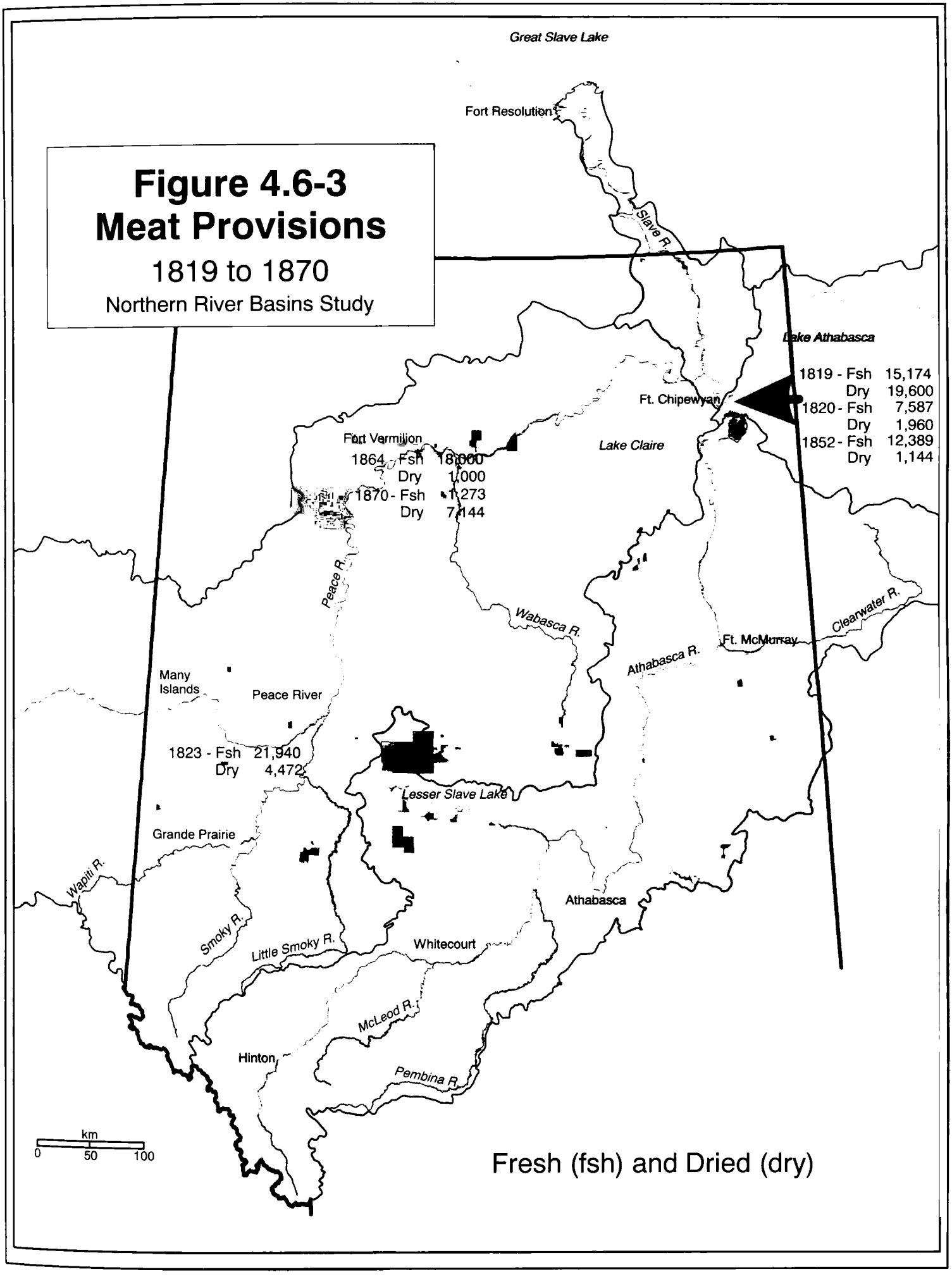
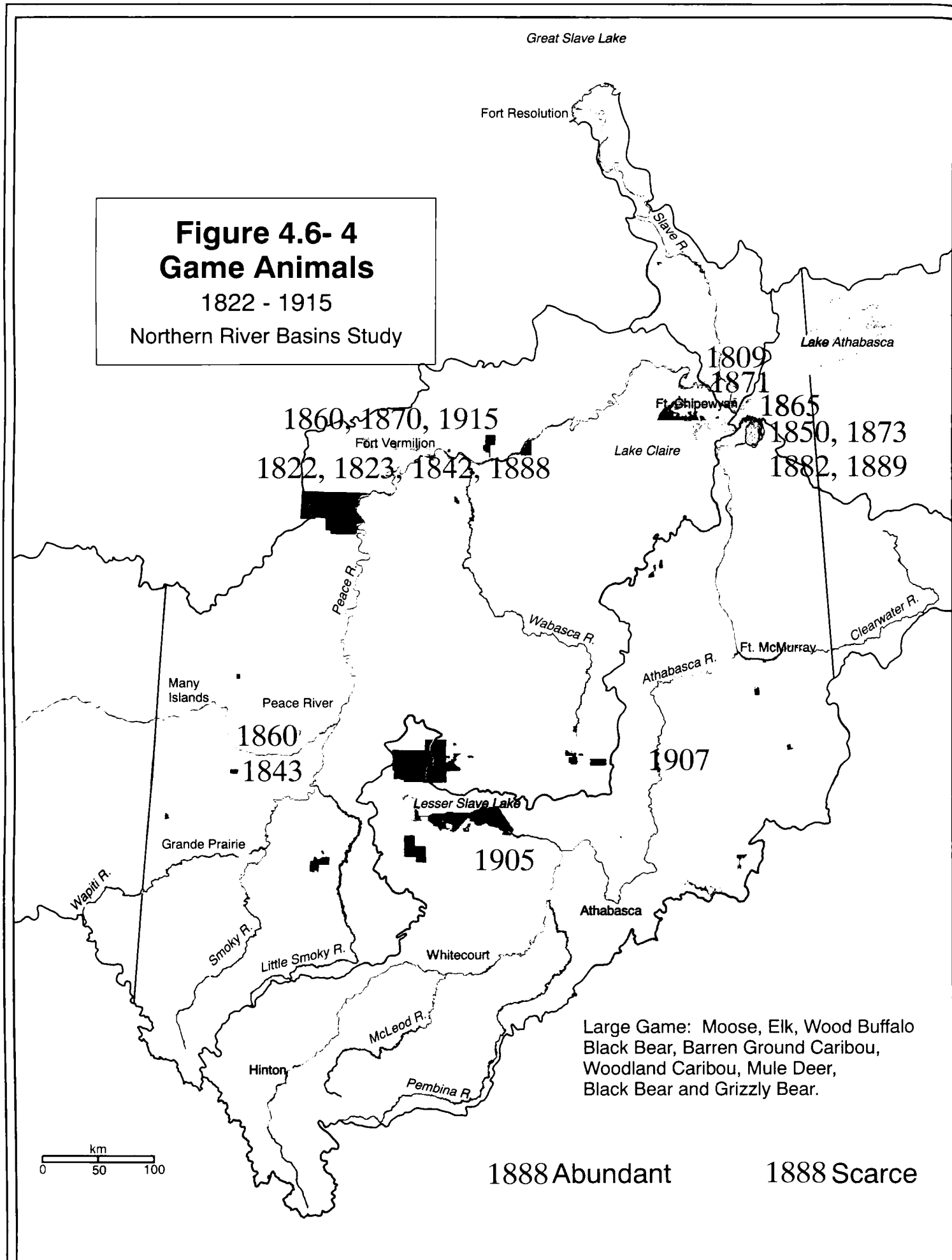


Figure 4.6-1
Beaver Stocks
1842 - 1936
Northern River Basins Study
Great Slave Lake
Fort Resolution
Slave R.
1911 1936
1935
Lake Athabasca
Ft. Chipewyan
1935
Fort Vermilion
Lake Claire
1842 1852 1883
Peace R.
Wabasca R.
Ft. McMurray
Clearwater R.
Athabasca R.
1905
Many Islands
Peace River
Lesser Slave Lake
Grande Prairie
Wapiti R.
Smoky R.
Little Smoky R.
Whitecourt
Athabasca
McLeod R.
Hinton
Pembina R.
km
0 50 100
1888 Abundant
1888 Scarce


Great Slave Lake
Fort Resolution
Figure 4.6-2
Rabbits
1850 - 1937
Northern River Basins Study
Slave R.
1925
1937
Lake Athabasca
1922-1924
Ft. Chipewyan
1850 1876
1936
Fort Vermilion
1905
Lake Claire
Peace R.
1925
1905
Wabasca R.
Clearwater R.
Ft. McMurray
Athabasca R.
Many
Islands
Peace River
1860
1843
1884
Lesser Slave Lake
1905
Grande Prairie
Wapiti R.
Athabasca
Smoky R.
Little Smoky R.
Whitecourt
McLeod R.
1914-1915
Hinton
Pembina R.
km
0
50
100
1888 Abundant
1888 Scarce


Great Slave Lake
Fort Resolution
Slave R.
Figure 4.6-3
Meat Provisions
1819 to 1870
Northern River Basins Study
Lake Athabasca
1819 - Fsh 15,174
Dry 19,600
1820 - Fsh 7,587
Dry 1,960
1852 - Fsh 12,389
Dry 1,144
Ft. Chipewyan
Lake Claire
Fort Vermilion
1864 - Fsh 18,000
Dry 1,000
1870 - Fsh 1,273
Dry 7,144
Peace R.
Wabasca R.
Clearwater R.
Ft. McMurray
Athabasca R.
Many Islands
Peace River
1823 - Fsh 21,940
Dry 4,472
Lesser Slave Lake
Grande Prairie
Wapiti R.
Smoky R.
Little Smoky R.
Whitecourt
Athabasca
McLeod R.
Hinton
Pembina R.
km
0 50 100
Fresh (fsh) and Dried (dry)


Great Slave Lake
Fort Resolution
Slave R.
Lake Athabasca
Figure 4.6- 4
Game Animals
1822 - 1915
Northern River Basins Study
1809
1871
Ft. Chipewyan
1865
1850, 1873
1882, 1889
1860, 1870, 1915
Fort Vermilion
1822, 1823, 1842, 1888
Lake Claire
Peace R.
Wabasca R.
Ft. McMurray
Clearwater R.
Athabasca R.
Many Islands
Peace River
1860
-1843
1907
Lesser Slave Lake
1905
Grande Prairie
Wapiti R.
Smoky R.
Little Smoky R.
Whitecourt
Athabasca
McLeod R.
Hinton
Pembina R.
km
0
50
100
Large Game: Moose, Elk, Wood Buffalo
Black Bear, Barren Ground Caribou,
Woodland Caribou, Mule Deer,
Black Bear and Grizzly Bear.
1888 Abundant
1888 Scarce

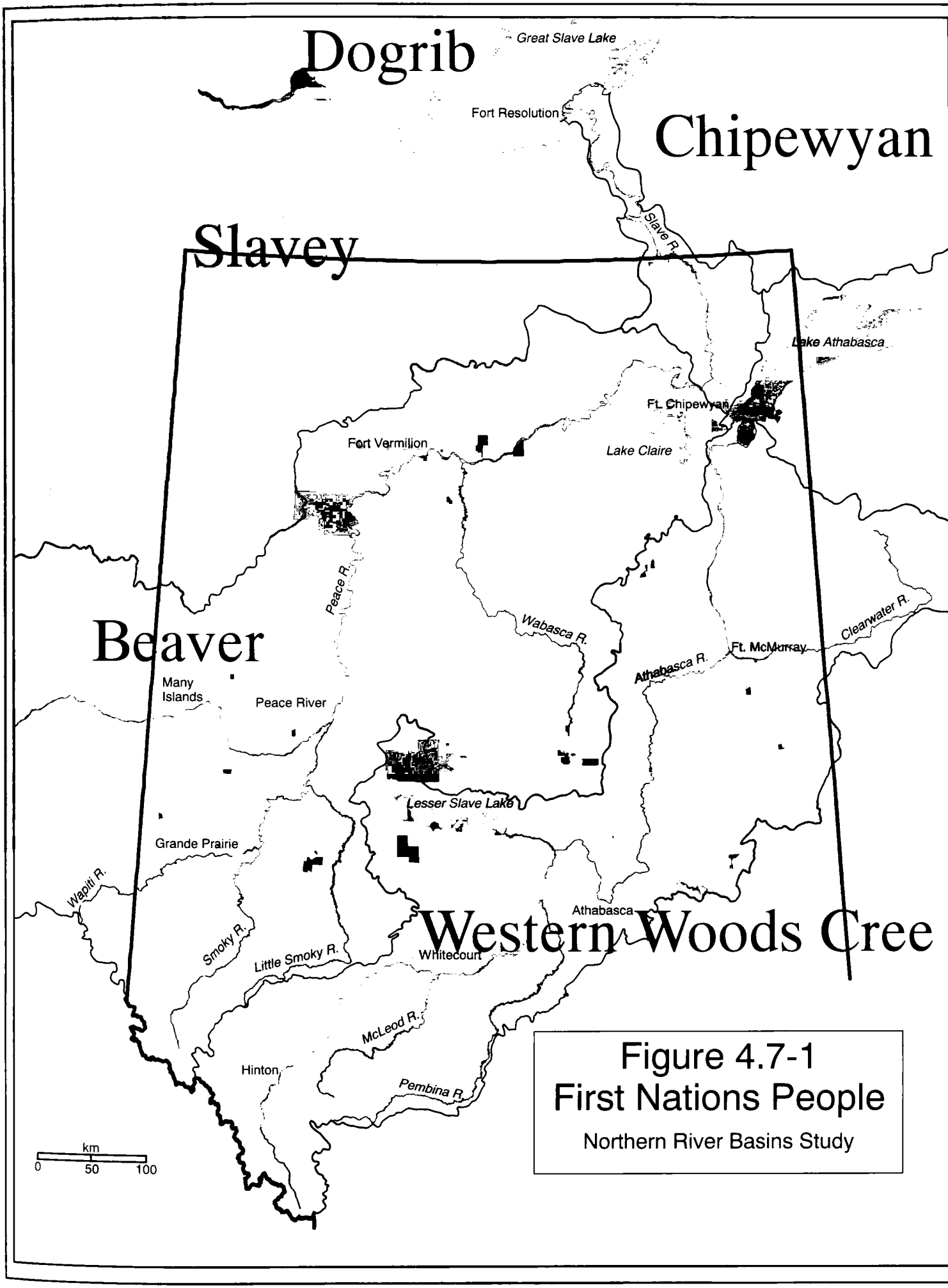


Figure 4.7-1
First Nations People

Northern River Basins Study

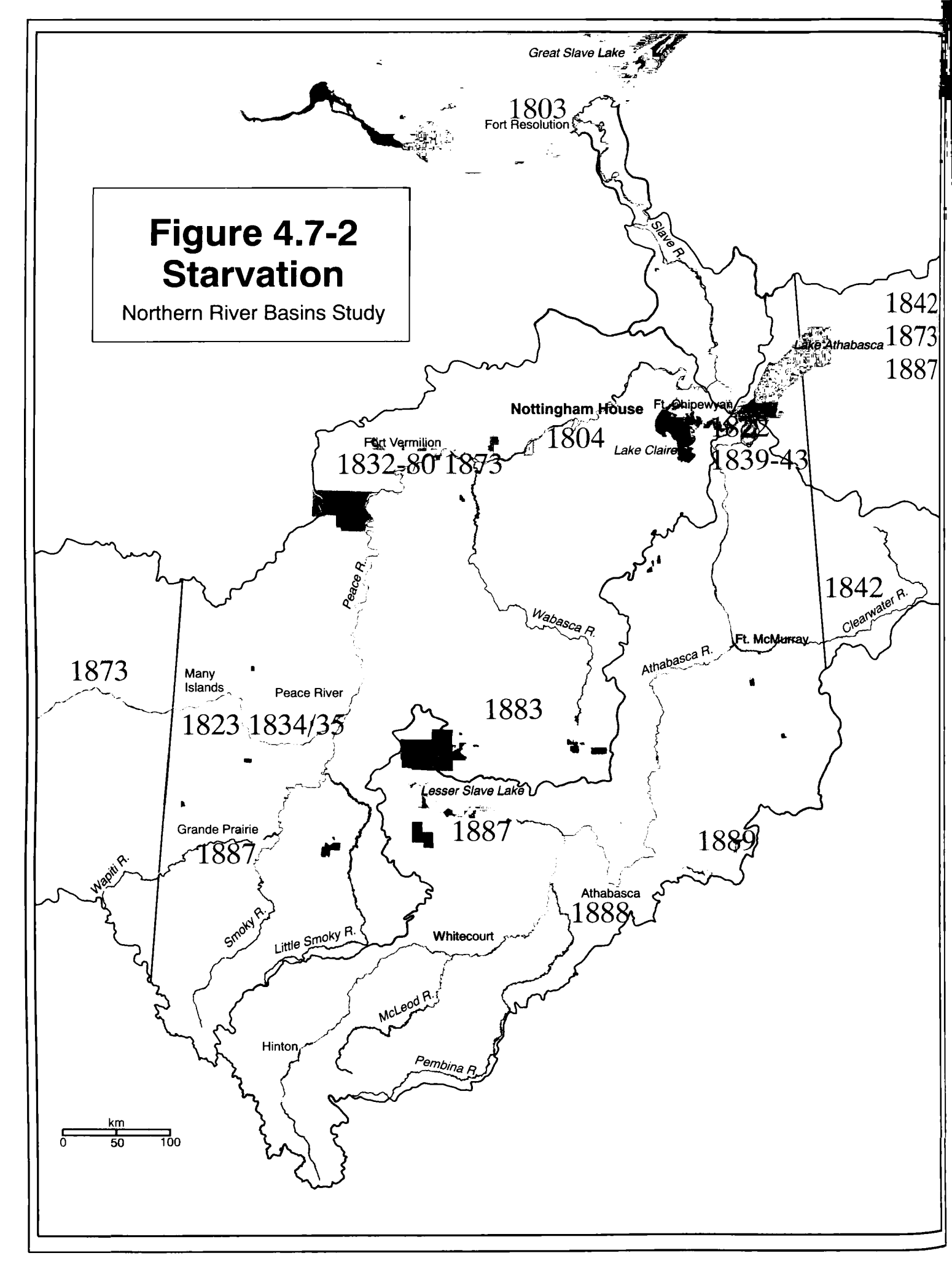


Figure 4.7-2
Starvation
Northern River Basins Study
Great Slave Lake
1803
Fort Resolution
Slave R.
1842
1873
1887
Lake Athabasca
Nottingham House
Ft. Chipewyan
1804
1822
Fort Vermilion
1832-80 1873
Lake Claire
1839-43
Peace R.
1842
Wabasca R.
Clearwater R.
Ft. McMurray
Athabasca R.
1873
Many
Islands
Peace River
1823 1834/35
1883
Lesser Slave Lake
1887
1889
Grande Prairie
1887
Wapiti R.
Athabasca
1888
Smoky R.
Little Smoky R.
Whitecourt
McLeod R.
Hinton
Pembina R.
km
0
50
100

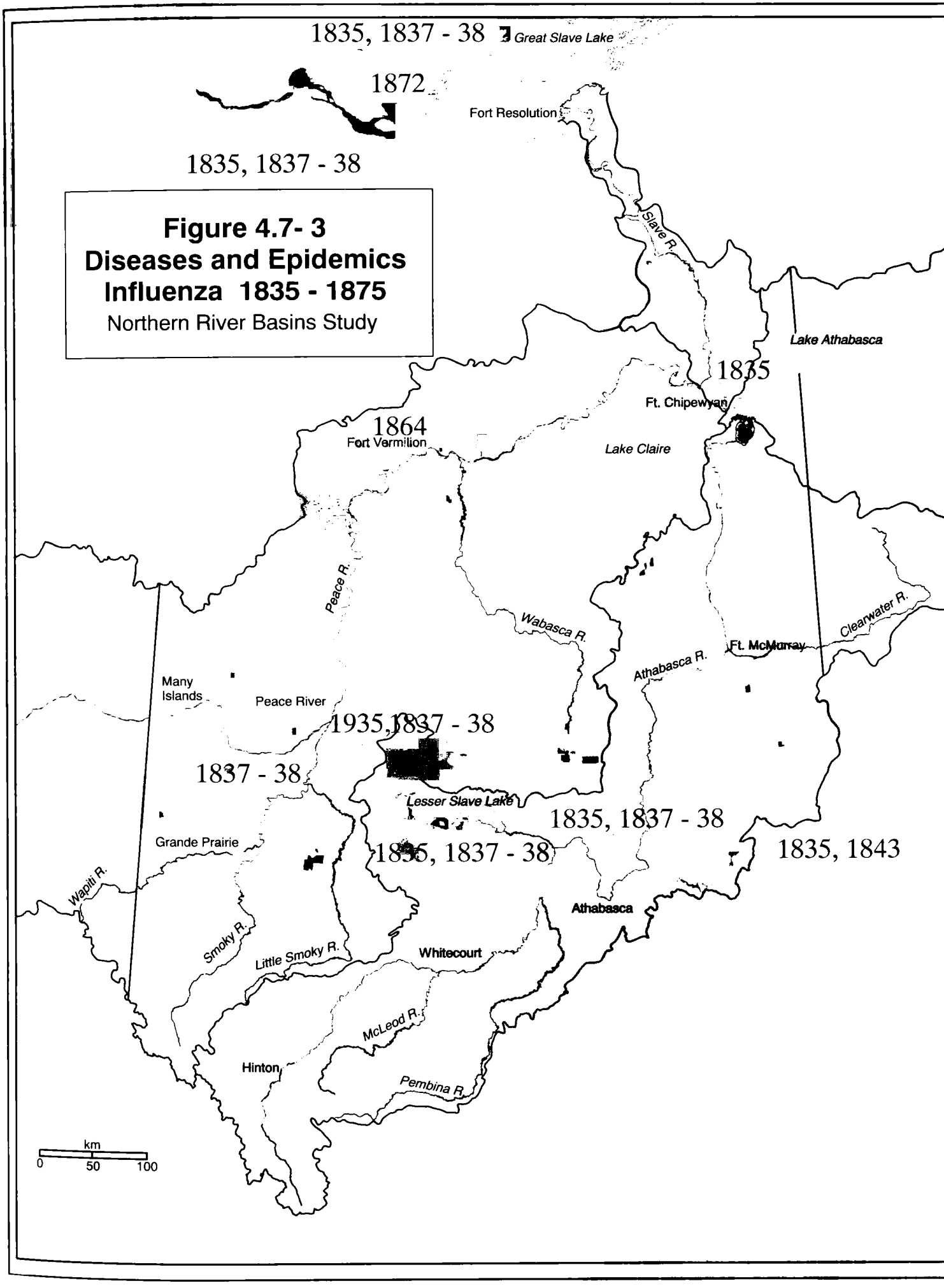
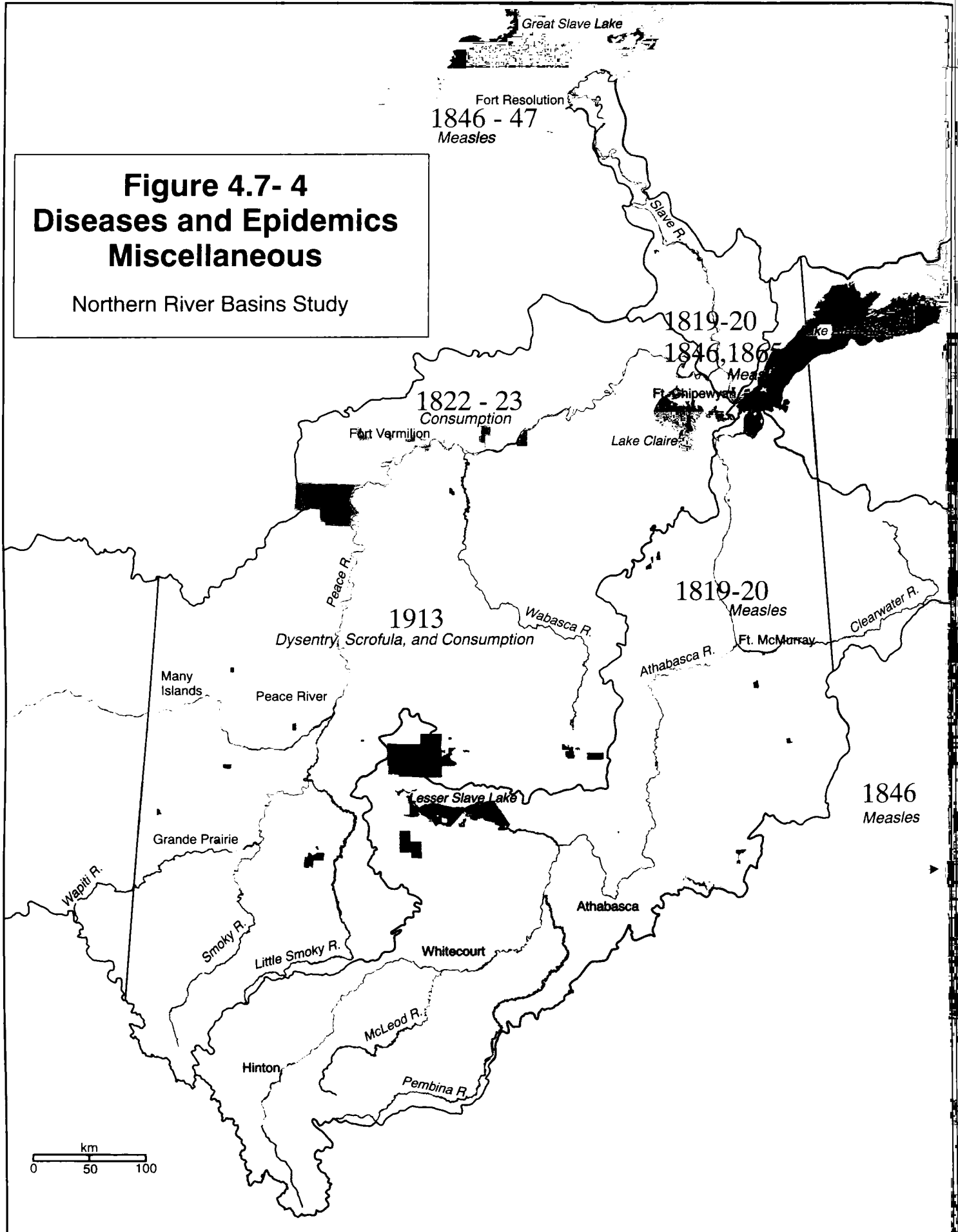

1835, 1837 - 38
Great Slave Lake
1872
Fort Resolution
1835, 1837 - 38
Slave R.
Figure 4.7- 3
Diseases and Epidemics
Influenza 1835 - 1875
Northern River Basins Study
Lake Athabasca
1835
Ft. Chipewyan
1864
Fort Vermilion
Lake Claire
Peace R.
Wabasca R.
Clearwater R.
Ft. McMurray
Athabasca R.
Many
Islands
Peace River
1935,1837 - 38
1837 - 38
Lesser Slave Lake
1835, 1837 - 38
Grande Prairie
1835, 1837 - 38
1835, 1843
Wapiti R.
Athabasca
Smoky R.
Little Smoky R.
Whitecourt
McLeod R.
Hinton
Pembina R.
km
0
50
100

Figure 4.7- 4
Diseases and Epidemics
Miscellaneous

Northern River Basins Study



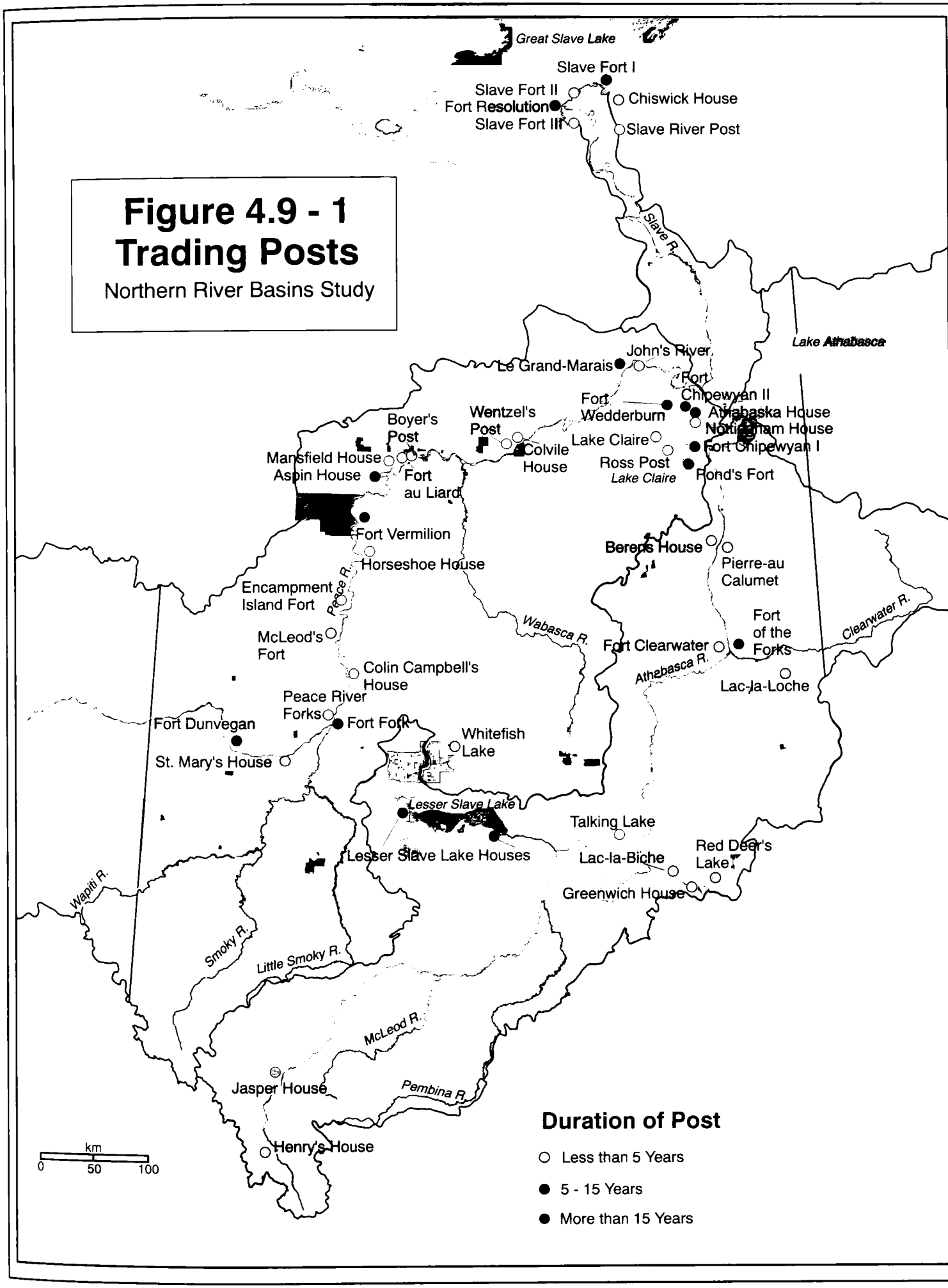


Figure 4.9 - 1
Trading Posts

Northern River Basins Study

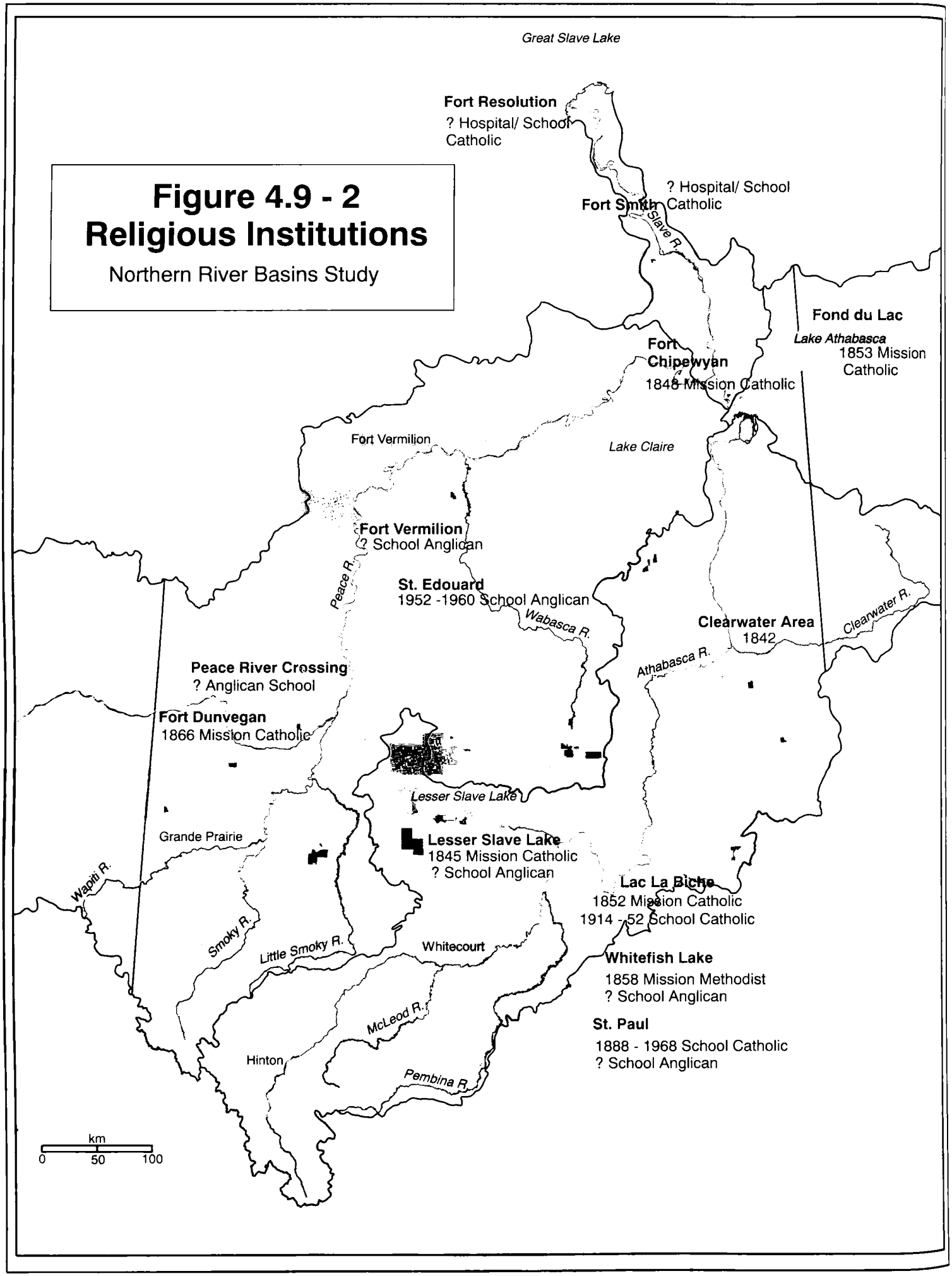


Figure 4.9 - 2
Religious Institutions

Northern River Basins Study

ID# 224, abstract 12: [Peace-Athabasca area, 1909]... Fireweed in the south grows only in burned over areas; here it grows everywhere and spoils hay crops.

> ID# 224, abstract 18: [Peace-Athabasca district, 1909]...The Indians start these fires to provide feed for the moose, on the new growth of willow and brush which is very attractive to the moose.
>
> ID# 57, abstract 15: [Bear Creek, 1911]...On the S side of Bear Creek, immense old brules are encountered. These are invariably covered with seedlings and small trees...

The general tone of the database records, however, is that fire is detrimental, as it destroys large trees or prevents mature forest from developing (record numbers 241, abstracts 11 and 15; 238, abstract 9; 239, abstract 4).

The database records also clearly trace the change in attitude toward fire, from fire management as practised by the First Nations peoples, early fur traders, settlers and farmers, to fire prevention and elimination, as practised by government and the foresters.

4.9 INSTITUTIONS

Institutions which have supported industrial development have been change agents to the diversity and the cultural, traditional way of life in the Northern River Basins.

The traditional family unit has experienced the greatest change as is described by the traditional users who were interviewed during this project.

The principles of family are transmitted, through the traditional value system, and are illustrated in land use and community interaction.

The introduction of a market economy, the removal of traditional spiritual practices by churches, and subsequent enforcement of Government Judiciary leaves a degrading imprint on the minds and hearts of traditional people. Although change is an accepted aspect to life, changes viewed as having been forced are not seen in a positive light.

The archives research illustrates a lack of respect and consideration for the original peoples of the Northern River Basins, and provides insight into the long standing effects these perceptions have had on the culture and lives of the original traditionalists of the Northern River Basins area.

The way in which European people and First Nations people view their relationship with the earth and its resources are at significant variance.

4.9.1 The Family

Aboriginal peoples living the traditional lifestyle of the pre-European contact time period reflected strong bonds of respect between the people, the land, and its resources. The people moved about in accord with the seasonal abundance of plants and animals. The low population density reflected the reality that a large geographic area was needed to provide sufficient food and shelter. Hunting and sharing activities were a regular feature of daily life, and in turn encouraged social interdependency.

As the fur trade expanded, marriages of the traders with Aboriginal women took place. These marriages were of strategic importance to the traders because they enabled more permanent linkages with the Aboriginal communities. Such marriages encouraged and increased the dependence of Aboriginal peoples on the traders, and was responsible for the development of a "new nation" of Aboriginal people: the Metis. These people became the backbone of the fur trade labour force.

4.9.2 Introduction of the Market Economy

Throughout the time period beginning in the 1700's and extending to about the 1850's, the British Imperial Government regulated relations between Europeans and the Aboriginal people of North America. In 1870, the administration for Aboriginal people was assumed by the Department of Crown Lands in Canada West. In the prairie regions of Canada and in British Columbia, the Hudson's Bay Company's chartered authority constituted Britain's initial dealings with Aboriginal peoples of this region. The charter also gave the Hudson's Bay Company absolute jurisdiction over use of the area drained into Hudson's Bay; the charter did not provide exclusive jurisdiction to resources in the lands which drained into the Arctic Ocean. That area was, therefore, open to use and impact by both the Hudson Bay Company and other traders, such as the Northwest Company, the short-lived XY Company, and a variety of free traders. The accompanying Figure 4.9-1, shows the trading posts built in the study area, and the length of time the posts were used.

The Hudson Bay Co. was the first of the traders to establish posts in the Hudson's Bay region, beginning shortly after the company's creation in the mid-1600's. The Cree who lived in that region were introduced to a variety of European goods, including firearms, which they carried westward as they guided the traders to the fur country. The trader-Aboriginal relationship also included extensive employment of Cree hunters as suppliers of game for the trading posts.

Throughout the winter of 1778-79 Peter Pond, who was an employee of the North West Company, traded furs from a site located about 64 kilometres south of Lake Athabasca. He continued this trading annually until 1783. In 1788, under the direction of Alexander Mackenzie, a permanent post was established at Fort Chipewyan. That community became the cornerstone of the northern fur trade and retained that role for about one hundred years. Furs from the Peace, Athabasca and Slave River systems were brought to market through Fort Chipewyan; food was supplied to the traders by Fort Chipewyan-based hunters.

The Hudson's Bay Company had been trading on the shores of Hudson's Bay since the late 1600's, but did not establish inland trading posts until pressured to do so through the aggressive competition of the North West Company. The Hudson's Bay Company finally established trading posts in the lower Athabasca River basin in 1799 following Peter Fidler's 1791 voyage of exploration. The North West Company and Hudson's Bay Company remained in fierce competition until the two companies merged in 1820.

The influx of Europeans associated with the fur trade brought change to this region and the Aboriginal peoples who lived there. Indian people were introduced to liquor even though the Hudson's Bay Company took measures to eliminate the use of liquor in its trading practices.

Diseases associated with the movement of Europeans into the regions devastated Aboriginal people and non-Aboriginal people alike.

As previously noted, the fur trade resulted in extensive demands on wildlife populations for the provision of meat and meat products in support of the fur trade. Considerable demands were also placed on the fur resources of the region.

The fur trade introduced Aboriginal people to a trapping or market economy as compared to the hunting and gathering economy that was present before Europeans appeared in the area. The lifestyle associated with trapping and the fur trade focused the native people on the fur trade posts where, in exchange for furs or provisions such as game meat, they obtained blankets, clothing and other dry goods from European markets. This change allowed for a certain amount of control to be placed in the hands of the trader and it subtly but firmly created an associated dependency of Aboriginal people on the trader. This relationship led to a gradual departure from the previously mobile lifestyle to a more stationary one, which is reflected in the ARCHIVES database (ID #27, abstract 16):

> We cannot get rid of these starving Crees.

In 1870, the Hudson's Bay Company completed the sale of its interests in western Canada to the federal government; thereafter, all social and governmental responsibilities came under the federal institution. The sale also meant a significant change in the market economy that had been developing over the preceding century.

4.9.3 The Church

In 1852 and 1853, the Roman Catholic Church established permanent missions at Lac La Biche and Fond du Lac respectively. Following these dates, the Roman Catholic Church moved rapidly to establish permanent missions throughout the region. Religious institutions of the study are shown in Figure 4.9-2.

The role of the Church and its missionaries was to provide Aboriginal people with Christian teachings, to assist in the development of their education and health, and to provide them with advice on any matter.

The Church eventually assumed an advocacy role on behalf of Aboriginal people. The records of the ARCHIVES database reflect these relationships between the Church and the Aboriginal people (ID #199, abstract 5):

> [The] St. Joseph's School [in Fort Resolution has] 72 children [enrolled]; Girls [get] training in: sewing, fancy work, cooking, and general house work; Boys [get training in] building, agriculture, [and] other subjects; All children taught [in] English; In senior grades French is taught; All get religious instruction; All get lessons in health, cleanliness, sanitation, nursing and first aid.

The efforts of the Church soon had its effect on the lifestyles of the Aboriginal people (ID #106, abstract 7):

> The Indians here keep cows. These Indians have quite nice gardens of turnip and potatoes. This settlement has grown up wonderfully since we passed through eleven years ago. Where it was bush and prairie there are now buildings and gardens.

The attachment of Aboriginal people to the Church and the services it provided was reinforced by the fact that the children of these communities were brought into the educational system provided at the missions. This practice played a major role in the association of Aboriginal people with the missions.

4.9.4 Government and the Judiciary

Following Canada's confederation in 1867, and the subsequent sale of the Hudson Bay Company's interests to the new nation, responsibility for Aboriginal peoples was eventually transferred to the federal government, then to the newly created Department of Indian Affairs in 1880.

As interest in resource development increased in western and northern Canada, it became critical for the Government of Canada to demonstrate a permanent interest in the people and resources of this region. By the late 1890's, rumours of gold had begun to stimulate further interest in the area.

In 1892, the North-West Mounted Police (NWMP) established a permanent outpost at Athabasca Landing. At that time, the Government of Canada was beginning to escalate its interest in improving the transportation systems of the region, to stimulate economic development and settlement. The escalation in mineral development generated by the Klondike Gold Rush in the late 1890's and early 1900's forced the Government to formalize agreements with Aboriginal peoples in the region. By 1899, Treaty 8 was ratified. As a follow-up to this Treaty, priority was placed on establishing Indian reserves throughout the area. The ARCHIVES database records for this period indicate surveying activities such as those which were completed in the Peace River region (ID #139, abstract 2, dated December 1905):

> Surveys being done west of Peace River; 174 miles done; land surveys for Indian reserves [are to be conducted at] Dunvegan, Sturgeon Lake and Peace River Crossing.

In 1905, Alberta became a province, but the federal government retained ownership and control of all natural resources.

The Forestry Branch of the federal government was established in 1912. This agency immediately initiated action to protect the timber resources, particularly from the steamboat wood suppliers. The Branch approached the conservation and management of timber resources by establishing forest reserves. The creation of forest reserves resulted in conflict between the Branch and Aboriginal people traditionally using the land.

In addition, the Branch launched an aggressive program of wildlife regulation, enforcement and fire control, which resulted in even further conflict with the Aboriginal people in the region.

By 1916, the Migratory Bird Treaty was signed between Great Britain (on behalf of Canada) and the United States. This Treaty was followed in 1917 with the proclamation of the Migratory Birds Convention Act and Regulations. This new legislation brought to an end the spring harvest of waterfowl in this region, an action taken without consultation between the federal government and the Aboriginal people of the area.

In the late 1800's, the federal government passed An Act for the Protection of Game in the Unorganized Portion of the Northwest Territories of Canada. Although this Act dealt with all game animals, fur bearers, and birds, the main thrust of this legislation was the protection of wood bison. This new legislation was found to be confusing to the Aboriginal people and also to those who administered it.

In 1922, Wood Buffalo National Park was created, a development that had a major impact on the Aboriginal people who had traditionally hunted and trapped there.

The Natural Resources Transfer Agreement was passed in 1930. The passage of this Agreement transferred the ownership and authority for natural resources from the Government of Canada to the Province of Alberta. This transfer placed an onus on Alberta to respect the constitutional rights of Aboriginal people relating to natural resources such as wildlife. Over the years, considerable case law has been developed in the courts relating to the interpretation of the Transfer Agreement with regard to the rights of Aboriginal people.

4.10 COMMENTARY

The historical research clearly details the status of the environment, as well as the changes that have affected the area's ecology, throughout the past two centuries.

The following Section 5: Community Research Results, provides information that has not previously been documented, but nevertheless largely coincides with the data recorded and is (now) in searchable form in the ARCHIVES database.

In support of the conclusions drawn from the archival review of the basins, the traditional users illustrate and describe the impacts on their traditional way of life, health, and the environment.

It is clear that the basins area has experienced many change forces, which have reduced an accumulated impact on the lives of the users and the resources of the basin.

5.0 COMMUNITY RESEARCH RESULTS

The community research results have been organized to reflect the knowledge of each community as it was presented through the taped interviews and structured survey responses. The community research results were transcribed from tapes and translated from Cree and Chipewyan language to English over a four month period.

Once all interviews were transcribed, the data were reviewed and organized into community specific sections and then divided according to subject: health, family and community relationships, traditional knowledge, and finally future expectations and recommendations.

This process has allowed each community to present its knowledge of its own traditional land use area, its changes, and the resultant impact of development on the peoples livelihood.

It was the view of the researchers that humanity, culture, and its structures were also an ecosystem. The community knowledge reflects an initial attempt to describe these unique ecosystems. The elders and knowledgeable respondents tried to present their very intimate knowledge of the ecosystem to which they are linked, both in terms of geography and of environmental understanding and compatibility. The views expressed are unique to this project; the method of expression best portrays the knowledge as it was shared and presented by the knowledge keepers.

This approach has never before been utilized to provide insight into ecological assessment of specific land use sites.

Direct consultation with individuals and communities as a whole was the factor emphasized throughout this project and which makes it unique.

Maps and graphs presented in this report are representative of the individuals interviewed and is by no means a complete view of each communities knowledge and traditional land use area.

5.1 FORT SMITH/FORT FITZGERALD

Of the thirty-four individuals interviewed, nineteen were elders. Thirty-two surveys were completed by the respondents of Fort Smith and Fort Fitzgerald, and represented 14% of the two hundred and twenty-one surveys analysed. The majority of the respondents of this community were in the 60 to 69-year age group (35%). Thirty-one percent of the people between the ages of 60 to 69 filled out the questionnaire. An elder was defined by this community as being sixty years or older. It became very obvious as the information was examined that there were several changes in the way people interacted with the land and its resources. Those changes took place as a result of low water levels, fire impact, and the presence or shortage of certain animals. The elders in this community held much knowledge, particularly of the Slave River fish and of fish-producing lakes. Fire has been a major change agent in their area as it has created not only landscape changes but has also influenced the variety of animals and populations remaining in the area. The amount of water on the land has been a factor that has influenced the occurrence and extent of fire and the movement of the animals.

5.1.1 Land

The land was described as an important consideration to life as it provided a means of living through the traditional ways of hunting, trapping, and fishing. Fifty-two percent of the survey respondents identified the land as part of who they were and 28% indicated they used it as a source for life. The land is an important source of food and water (48%) and income (22%). The ability to be on the land and harvest from it enabled the people to maintain themselves and to feel healthy. The land was described as working for them rather than they as individuals working the land. The traditional land users often described the land as a gift giver of peace, and joy when they spent time out on the land. The seasons added to the experience as it provided a variety of experiences for the mind, body and spirit. The elders indicated that even a non-spiritual person could not help but be reminded of the greater power that had created the beauty of the land. The land is seen as a gift to be used in a respectful manner for life. The elders spoke of a special connection to the land that can only be described as intimate and intrinsic to their health and well being, as the land provides a living not only for themselves but also for the creatures they depend upon. A section of the survey dealt with use of plants, trees, shrubs and fruit.

The respondents of Fort Smith/Fitzgerald identified the following plant species more frequently than others listed in the survey. Low bush cranberries ranked as the highest use (48%), followed by blueberry, high bush cranberry, and raspberry all at 35%, wild mint and Saskatoon berry (29%), Labrador tea (26%), strawberry (23%), and gooseberry (19%). Other plants and fruit bearing shrubs were rated decreasingly from 16% down to no mention. Trees identified frequently for use were: birch and jack pine at 35%, black spruce and aspen poplar at 26%, willow and white spruce at 16%, balsam poplar at 10%. Iceland moss, reindeer moss and sphagnum moss were all rated at 10%, all other plants rated at 3% and less.

When the number of years spent on the land was compared to the total sample, Fort Smith revealed that 45% of the respondents had lived off the land for up to 40 years followed by 23% who had lived off the land for 60-69 years. Common uses of the land by the Fort Smith respondents were (ranked according

to most frequently used): food 100%, income 93%, building and construction 81%, raw materials for tools 70%, and equal use for medicines and clothing at 67%. Use for ceremonial grounds (4%) and burial sites (33%) were least likely to be identified by the respondents. The picture given by Fort Smith respondents seems to be one of industry versus an emphasis on traditional supplemental skills and practices. Although some Fort Smith respondents gardened (37%) or were employed while living off the land (41%), these activities were well below the total sample rates of 51% and 60% respectively. Ranching and farming was not identified as an activity practised by these respondents. Forty-six percent of the survey respondents indicated they practised traditional land management methods and 54% reported they did not practice traditional land management methods. Respondents mentioned all methods, although they were most likely to talk about limiting the amount of harvest (50%) or rotating harvest areas (33%). Eight percent spoke of the land's upkeep and maintenance and 8% also mentioned controlling the animal population. "Don't waste/over hunt/over trap and rotating traplines/harvest areas", followed by managing controlling animal populations and maintaining the upkeep of their land base were methods identified by these respondents. Thirteen percent did so either weekly or annually and 25% rotated their lines seasonally. As would be expected, hunting, trapping, fishing, gathering were highly practised activities. Water use and gardening were also identified as part of using the land. Fort Smith respondents (44%) reported that they lived off the land year-round, compared to 35% in the total sample. In the past, traplines were family owned by respondents of Fort Smith, but statistics indicate a drop of almost 20% over the years (92% to 74%), when this survey was completed.

Most respondents spent under forty years on the land (45%), followed by 23% of those aged 60 to 69 years, and 18% of those aged 50 to 59 years. Fourteen percent of these people had spent 40 to 49 years living on the land.

Twenty-one percent of the Fort Smith respondents indicated they did not have a special way of relating to the land and 13% stated they did have a special way of relating to the land. Twenty-nine percent identified respect and love as the way of demonstrating this relationship to the land, followed by "way of life/Indian land (21%), proper care/management/protection" (17%).

Forty-seven percent of the respondents said their relationship to the land and 58% their view of the land had not changed as a result of development. The 42% who felt their view of the land was changing indicated the main reason was due to the decline in the number of animals (30%). Increased development (20%) and environmental changes (20%) were each cited by one in five respondents. Those in Fort Smith who did comment on the way that development affected their relationship to the land commented on either the fact that development crowds them out and causes loss of control over the land and their environment (16%) or that development simply destroys their relationship to the land in general (16%). To maintain their relationship with the land Fort Smith respondents felt that this could be best achieved by allowing natives to maintain and live on the land (33%). Maintaining the land's and water's natural state was a need expressed by the respondents (29%), followed by a need to have better understanding between users (24%), stopping polluting, increasing government support and tougher regulations (14%). Improved land use management was cited by 10%. Three categories "no development, stop logging/cutting trees, control/slow down development" each received a 5% response.

The impact of fire responses showed a wide range of answers with 29% mentioning the new growth and 29% simply saying that fire destroys the vegetation. Respondents in Fort Smith reported shorter times than the sample overall and certainly shorter times than Fort Chipewyan respondents. A quarter of Fort Smith respondents said the forest grew back in one to six years. Almost a third (29%) said the forest took 10 to 15 years to grow back. Only a quarter said the forest grew back in 20 to 34 years and 18% said it took 40 years or longer.

Waste management practices fell into three categories: burning, burying and dumping. A combination of these methods were identified: 37% burned their waste, 7% buried, and 7% dumped.

The 15% of Fort Smith respondents who said that development had affected their traditional land use, e.g. traplines, mentioned cutlines, access roads and seismic lines.

Fort Smith respondents also mentioned eight types of development, with hydroelectric (63%) showing much higher percentages than for the sample as a whole. Almost four out of five Fort Smith respondents mentioned parks (38%), a figure which is also above the 21% mentioned by the total sample. Fort Smith respondents followed the same rating pattern on a scale of one to five (one being the worst and 5 being the best). Industry was ranked the lowest followed by government, followed by individual and citizen groups, and the two Aboriginal groups rated the highest. As well, Fort Smith respondents tended to rate each of these groups slightly higher than the sample as a whole, ranging from 2.1 for industry to 3.4 for each of the two Aboriginal groups. Still, these scores are not positive in nature. Fort Smith respondents, like Fort Chipewyan respondents, did not feel that any of these groups was doing much about managing renewable resources. Fort Smith (20%) suffered the greatest recent loss of traplines.

The elders were asked to identify sacred sites and to describe a sacred site for definition purposes. Many of the elders in this area responded by stating that the land was sacred but that there were some special places such as ancestral burial sites. Many indicated that there were burial sites scattered all over the land as designated burial sites were not in place until missionaries arrived. The special areas identified were: Fort Reliance, a hill across the river at Salt River, which was used as a resting place many years ago; Rock Heart River near Enterprise; and Lac St. Anne near Edmonton. Bird Lake was reported to have had camp sites and tepee rings many years ago. Grave sites were reported there too. Benwells Point was identified as an old camp site and gathering place. The Natawa Lake area was identified as having camp and burial sites.

Table 5.1-1: Table Demonstrating a Special Regard for the Land

	Total	Ft. Smith/Ft. Fitzgerald
Yes	27%	35%
No/do not know	30%	35%
Respect	27%	5%
Ceremonies	5%	0
Protect it	3%	0
Meetings/land use study	3%	5%
Elders	3%	5%
Way of life/community life	9%	15%
Number Respondents	115	20

Table 5.1-2: Table for the Land and Its Link to a Traditional Way of Life

	Total	Ft. Smith/Ft. Fitzgerald
Source of income & livelihood	29%	30%
Recreation/ enjoy beauty	3%	9%
Spiritual/ mother earth	3%	0
Part of us/ who we are	37%	22%
Survival now and in future	15%	9%
Renewable resource	3%	9%
Respect for land/its ability to sustain life	5%	0
Wildlife/ vegetation/ garden	6%	0
Medicine/ health	1%	0
Significant/ important	10%	9%
Way of life/gives life	16%	22%
Source of food/water	18%	48%
Provides shelter	3%	13%
Number Respondents	134	23

5.1.2 Water

Water was not a concern in the past because it was abundant and fresh in quality no matter where the people travelled. Water was taken only from flowing streams and rivers; stagnant water was considered to be "dead water" and was not used for human consumption. The individuals who responded to the questions of water use indicated surface water was used most often (65%) even though they also had access to water treatment facilities (12%). Ninety six percent of the respondents indicated that they used the water for travelling, and 69% for recreation. Fort Fitzgerald did not express any differences from other areas in water use. During the winter, snow and ice were used for drinking water as it was easier to access than was river water. Many of the elders were out on the land during the winter season, therefore water was not a big issue as they used the snow and ice during that time. In recent times, they have had to carry water with them into the bush because water levels have decreased substantially over the years and there is some concern as to the cleanliness of the snow or ice on the lakes and rivers. Fires have affected the quality of the water because ash and dead wood fall into the creeks and lakes. This reduced water quality not only creates difficulty for the people but its effects on the beavers and fish were noted. Water quality and changes identified by Fort Smith/Fitzgerald included algae growth (75%), water insects (50%), turbidity (44%), and other plant growth (25%). Although some areas have more water than others, namely Roche River and Rat Lake area, lower water level was of a primary concern in these communities. Seventeen percent indicated that the water was dirtier and 33% reported that there was more green slime on the river banks and in the fish nets. The elders and traditional fisherman who did not fill out the questionnaire have also noted an increase in green algae on the Slave River in the last five years, as the algae fills their nets. The Dog River area was identified as having good water but the Slave River was considered dirty because of turbidity. The elders believe that the water levels and quality have fluctuated notably since the Bennett Dam was developed. Many of the smaller lakes, creeks and sloughs have dried out and beavers are seen working feverishly to hold back the water. Specific areas noted are the Labutte Creek and the Ryan Creek. Darwin Lake is unaccessible by boat because the creeks are dry or dammed by beavers. Prior to the "Big Dam" (Bennett Dam) low water was not a problem. Ryan Creek is also described as unusable because of low water level. The Hanging Ice area had water everywhere 60 years ago but today has little to no water. It had been expected that a traveller got wet if he or she were on the land, but this situation is not so today. The water level at the Tsu Lake is very low and is believed to be low as a result of the Taltson Dam. The water has been redirected since the Taltson Dam was built by Three Bear Creek and Star Lake. Water fluctuations make winter travelling very dangerous. Nanacho Lake area was flooded when the Taltson Dam was built and no clearing of trees was done prior to flooding. Subsequently, it affected the water quality in the area. Changes in use patterns were influenced mostly by self-experience and health warnings. Fifty-seven percent of the respondents identified water treatment facilities as the primary source of water treatment followed by boiling (52%) and thirdly, by settling and chemical treatment (22%). Filtration was not as commonly used by these communities.

Ice changes, such as thinning and crumbling, were noticed by 22% of respondents. Others (6%) stated the ice was dirtier and lower than previous years. The ice on the Taltson River is described as having a funny taste and is no longer used. Fort Smith respondents reported that naturally occurring ice dam flooding broke up trees, cleared the land along the river bank (31%), and flooded inland lakes and ponds

(25%). Six percent of the respondents reported formation of sandbars as an impact of ice dam flooding. Nineteen percent of the Fort Smith respondents reported little impact from naturally occurring ice dam flooding and regrowth was reported to occur within the same season by 21% of Fort Smith respondents. It was believed that ice dam flooding had a positive affect on the wildlife by 56% of the respondents. The increase in water reported by 13% obviously helped wildlife as well as improved canoe travel as reported by 6% of the respondents. The significant ways that Fort Smith respondents paid special regard to the waters was not to dump in it or pollute them (38%). It appears they chose to treat the waters with respect and importance (33%) and utilize the waters on a regular basis (25%).

Negative impacts of flooding which were spoken of were mainly the loss of personal possessions (33%) and the loss of wildlife or livestock (17%).

The water was reported to stay slightly longer in Fort Smith than for the sample as a whole but not quite as long as in Fort Chipewyan. Less than half (43%) reported water subsiding within a week. Water was more likely to stay one month (27%) or even up to a year (26%). Five percent of respondents reported seeing water stay two to ten years after a natural flood.

When the respondents were asked to identify change agents for flooding, 39% spoke of dams, 6% said flood sites depend on water levels, and 17% said that the water was low and not enough was coming in from British Columbia. Only a few respondents mentioned natural factors such as the thickening of ice (6%), lack of snow (6%), or changing weather patterns (22%). Flooding was reported to occur primarily in the spring (91%), followed by the fall (5%) or winter (5%).

Forty five percent of the respondents indicated that the flood times had changed. A third said that flooding was less frequent or did not occur at all, 44% mentioned floods being controlled by damming and a fifth said the water was let go in either the fall (11%) or in December (11%). The time identified for filling of perched basins was the spring, which stands to reason, as greater flooding occurred in the spring. Other changes identified were increasing willow growth since flooding has not been as significant (65%).

Respondents were asked to rate the impact of industrial activities on water quality. These activities received the three lowest mean scores: pulp and paper mills (1.4), oil exploration (1.5), and tar sand plants (1.6). Fort Smith respondents rated tourism as having a neutral impact on water quality with a mean rating of 3.1. The one respondent in Fort Fitzgerald gave all activities a neutral rating of 3, except for pulp and paper mills and tar sand plants which were rated a negative 2. Fort Smith was slightly higher in their ratings overall than respondents in Fort Chipewyan although the rank order of each group was the same. Respondents were asked to rate several groups on their efforts to improve water uses. Industry received the lowest rating of 1.7. Governments were rated almost higher than industry, especially the Provincial Government reaching 2.7. Native groups were seen as doing something positive about water use with mean scores of 3.9.

Table 5.1-3: Table for Demonstrating a Special Regard to the Water

	Total	Ft. Smith/ Ft. Fitzgerald
Do not/no	5%	4%
Leave it alone to heal	4%	0
Cleansing/purifying	6%	12%
Give thanks	14%	8%
Do not dump in it/ pollute it	36%	36%
With respect/importance	35%	32%
Use every year/use it	8%	24%
Yes-unspecified	2%	4%
Evaluate physical characteristics	4%	4%
Other comments	1%	0
Number Respondents	130	25

Table 5.1-4: Table of Water Character Changes By Community

	Total	Ft. Smith/Ft. Fitzgerald
Polluted/dirtier/muddy & oily	4%	17%
More weeds	10%	0
Fluctuations in amount of plant life	1%	0
Green slime on riverbanks/nets	3%	33%
Pulp mills & motor boats on river	1%	0
Sand bars	5%	0
Fewer fish & water insects	4%	0
Fish not as good to eat	1%	0
Lower water levels/water drying up	28%	50%
More algae & insects	3%	0
Too much chlorine	1%	0
Number Respondents	78	6

Table 5.1-5: **Observed Ice Formation Changes**

	Total	Ft. Smith
No change/never noticed	0.26	0.53
Thinner ice/ gives & crumbles	52%	26%
Ice not as cold	3%	0
More floating objects, e.g. blocks, stumps, drift logs	1%	0
Ice dirtier /ice darker	4%	5%
Bennett Dam releases water in winter	1%	0
Jam releases & takes everything with it	1%	0
More overflow	3%	0
Lake or river changed shape, e.g. channels dried up, different water path	2%	0
Ice freezes rougher	3%	0
Ice is low	2%	5%
Number Respondents	101	19

5.1.3 Wildlife/Fish

Water and fire were the most frequently discussed elements that affected the cycles of the animals and directly influenced their habitat and movement. The animals used for food and income were ranked according to most frequently identified as being used by the respondents of the surveys. The mapped information illustrates the movement, historically and where their has been significant change in habitat and presence. Food sources most frequently mentioned were: moose at 55%, beaver (52%), lynx (48%), muskrat at 45%, rabbit and caribou both 42%. The fur bearing animals most frequently mentioned, which were likely used as an income and clothing source, were red fox and mink both 45%, fisher and river otter both 35%, weasel, grey timber wolf, and coyote at 29%. Water fowl most frequently noted by the respondents were: Canada goose (48%), Mallard (45%), ptarmigan and grouse (39%), prairie chicken (32%), black duck (29%), pintail (26%), followed by brief mentions of other, smaller ducks. It was frequently noted in the narrative data that caribou, moose, fish, and smaller animals such as rabbit, ptarmigan, grouse, ducks, and geese were the main food sources.

Fire has changed the habitat, in particular for caribou. The caribou were known to migrate through Fort Fitzgerald, and were last seen migrating through this area in 1958. The caribou were known to migrate into Natawa Lake during the period from 1932 to 1964. Another migration route went through the Caribou Mountains and along the Beaver Lake (Conibear Lake). It has been 35 years since the caribou were seen in these areas.

The moose is known to frequent new burn areas and their numbers will increase in areas where there is a new burn to feed on the new growth. The moose herd around the middle of January and then begin to travel. Moose frequent an area called the "Flat Grass." In years past, the moose were not as numerous in the traditional land use areas of the elders interviewed.

Buffalo were greater in number historically but have decreased in the last few years.

Deer hunting was not common because of the animals' scarcity. The Gravel Point area was identified as an area where deer had been seen on occasion.

Rabbits have not been plentiful for many years, and frequently the elders stated that the normal cycle was four to seven years. The rabbit and the muskrat are considered the controllers of the cycles of other animals. Mink, fox, lynx, coyotes, and even wolves to a lesser degree will feed on rabbit and muskrat. A predator cycle was described as running seven years; as the populations of muskrats and rabbits decrease there is a natural chain reaction on the animals that fed on them. By the sixth year of a cycle the numbers became very low and began to regenerate on the seventh year. A peak was noted during the fifth and sixth year. Historically, rabbits were the main food source, particularly during difficult times.

Martin moved into burn areas although no specific reason was given as to why this happened. Muskrats have been decreasing over the last 15 years. The Taltson Dam is believed to be partially responsible for this decrease, as there had previously been much flooding that affected habitat. The dam subsequently created low water levels in the outlying areas. Muskrats move and travel over dry land during times of

drought in search of wet land and feed. These animals must have a wet environment, and move about until satisfactory habitat is found.

Mink and fisher populations have decreased but no explanation was offered except that there are no rabbits.

Beavers are numerous compared to the 1930's and 1940's when a quota was instituted to prevent extinction. The beavers and muskrats are primarily found in the smaller creeks and lakes. Beavers are known to move with the current and will sometimes not return to their original area.

Black bears have increased and have been noted to move closer into communities, where they have become problematic.

The lynx has not been numerous for four years, and fox populations are noted to be increasing in the Dog River area north of Fort Fitzgerald. Wolves have been noted to increase in the last three years. Skunks and porcupines are seen more now than before but are not numerous. Otters are only found where there are fish.

Fishing continues to be an activity that most traditional users practice although there has been a decrease in the numbers of fish over the last 50 years. Fish species identified by the respondents were: northern pike and lake white fish (45%), walleye (also known as pickerel and dory) (35%), lake trout (29%), goldeye (28%), burbot (24%), sucker (21%) followed by fewer mentions of chub, rainbow trout and sauger. In the fall three thousand fish and sometimes more had been put up for dog feed. In some areas, thin and unhealthy fish are described and in other areas fish have disappeared. The fish quality and size have changed over time. The fish were larger and firmer in the past. The Slave River continues to be a major fishing site for all traditional users who feed their dogs. The species most frequently noted in the Slave River was losh. Harvesting took place in November only, as losh is not present any other time. In the past there were numerous loshes at the Fort Smith site. Whitefish, northern pike (jackfish) and goldeye were caught in the spring after the ice went out, although these populations decrease by the middle of July. During mid-August the coneys arrive, along with a few whitefish and northern pike. Suckers also come down in the spring along with the occasional rainbow trout, but this is very rare. Chubs were taken from the Slave River but a time is not noted. The fish travel from the Great Slave Lake to Fort Smith to spawn, specifically whitefish is known to spawn in the Slave River, a precise location was not noted. The elders reported that whitefish had been caught all summer long but this is not the case anymore. Northern pike can still be caught during the summer in some places. Most of the fishing is done directly across from the town of Fort Smith. Coneys were known to run through a channel in the Great Slave Lake called "Coney Channel," in the fall. Goldeye were caught at the mouth of the Salt River in the spring. The Salt River, which runs through the Wood Buffalo National Park, had losh and suckers. The Taltson River has been identified as a vital pickerel fishing river and Piolet Lake was identified as a good trout lake.

Pickerel are caught in the fall when it is cooler. The Little Buffalo River is reported to have numerous northern pike (jackfish) and smaller numbers of brook trout, goldeye, lake trout and suckers. Trout are

caught in the inland lakes and in some lakes the fish are described as different from the river fish. Inland fish were reported to have white spots and tape worms internally.

Inland lakes identified as fishing sites were: Mingon Lake, Wolf lake, Oulton Lake, Nataway Lake, Tsu Lake, Hill Island Lake, Hanging Ice, High Level Lake, Lyon Lake and Robinson Lake. Germaine Lake was a fall fishing lake. Suckers were caught at Hanging Ice, Oulton and Nataway. Nataway also had pickerel, jackfish, losh and whitefish.

During the 1940's and up to the late 1950's, wolf poisoning was practised and poison bait was left on the ice of some of the inland lakes. Some believe that this practice affected the fish populations, causing decreased populations in the lakes where poison bait was left. Oulton Lake was specifically identified but is beginning to recover.

Dog River had goldeye, some whitefish, pickerel, losh and many suckers. Fishing took place at the mouth of the Labutte Creek at one time. Fish have not been present for two years at this site. Northern pike, pickerel and whitefish were caught at Labutte Creek. Nanacho lake was identified as a lake with deformed fish. The trout, whitefish, and pickerel were described as skinny with large heads. This deformity was noted more so ten years ago. [Author's note: this deformity is commonly identified with starvation.]

The elders reported a greater number of ducks, ptarmigan and chickens in the past. Canada geese and snow geese were plentiful in the fall during the migration south, and usually stopped in open water areas. Snow geese were often reported in the Dog River area. Eagles and night hawks were reported in this area too, although generally speaking fewer hawks were noted by the respondents of the Fort Smith region. Birds were mostly observed along the main rivers and the inland lakes where food could be found. Geese and ducks were reported to frequent and nest at the Labutte Islands. It was said that there are not as many ducks and geese stopping over during their migration south. The migration of birds normally took days compared to the few days it now takes for the migration to pass. Big Beaver Lake was also identified as productive for ducks. Eagle nesting sites were reported along the Jackfish; at one time a fire went through this area and the eagles have moved. Blackbirds were known to arrive in the thousands in the spring as compared to very few today. Most often the elders described a lack of noise in the bush from the birds, particularly along the streams and lakes.

5.1.4 Health

The illnesses most frequently noted by the elders were cancer and heart attacks. Respondents of the survey who addressed health concerns indicated that 61% had no concerns and later identified cancer (47%) as the most noted illness in their community. Thirty-three percent indicated they had not noticed increases or decreases of diseases in their community. Another 10% indicated they had noted changes but did not specify diseases, 10% identified alcohol and drug abuse along with communicable diseases. Three percent identified heart problems or heart attacks. Diet and lack of physical activity on the land and increased use of drugs and alcohol was often cited by the elders as contributing to the unhealthy state of the community. Much concern was expressed for the youth and their inability to find

constructive ways to utilize their time. Many spoke of having the knowledge to use a firearm and hunt small game by the time they were eight years old. The elders felt that living out in the bush where there was little opportunity to get into trouble was much healthier for the mind and the spirit of an individual. The likelihood of being more active was greater out on the land which also increased physical health. Activities such as hauling water, collecting wood and walking to hunt or check traps were activities that took up one's time on the land. The elders often stated that there was very little illness in the past, with the exception of tuberculosis.

When it came to physical fitness activities Fort Smith and Fort Fitzgerald identified boating/canoeing and swimming as the activity most frequently participated in the "more than once a week" category. The dietary habits of Fort Smith and Fort Fitzgerald fell in a one to one ratio with traditional and store brought food. The persons who responded to the rating for health fell into a neutral category with a rating of 3.2 on a scale of 1 to 5.

5.1.5 Family and Community Relationships

Although the elders of this community did not specifically speak about relationships as was done in other communities, there were comments made about behaviours. These comments indicated that there were certain teachings and expectations which had been learned traditionally.

The children were taught to behave with respect toward visitors and elders; running and interfering with the visit was discouraged. Women did not drink long ago. This behaviour was unseen and did not begin to occur until recently. Sharing of a kill, helping one another, and discouragement of abuse toward animals were spoken of frequently. Hunting and killing for sport was considered abusive and was not condoned.

In order to provide a holistic perspective on the concept of interconnectedness and relationships with the land, water and resources several questions were posed to the respondents to provide us with a greater understanding of how relationships with the land were articulated in the way the traditional users interacted with the environment and subsequently practised with community and family. Respondents were asked why the land was so important to them and their families. Fort Smith and Fort Fitzgerald indicated that the land was important, because it was part of who they were (52%) which suggests that the land forms part of their identity and culture. The second most frequently identified feature was that the land was the source of life, as it provided income and also was the source to water which ultimately sustained life. Twenty-two percent identified these two features as important in their relationship with the land. When the respondents were asked about the important aspects of water, and their relationship to it, the three characteristics frequently identified were: physical, chemical and spiritual. The relationship with the land and water was measured by asking how they paid special regard to the land and water. Thirty-six percent listed do not dump in/pollute the water followed by 30% who regarded it with respect/importance and 24% stated they expressed this regard through their use of the water. The special way of expressing a regard to the land and water is similar to the teachings identified as important for family and community relationships. This philosophy is further strengthened in their comments that the land and water is the source of life and links them to the family and the community as a whole.

5.1.6 Traditional Knowledge

This section primarily highlights traditional practices described by the elders and some of the teachings which they had themselves learned through traditional use of the land. The people were nomadic in nature and did not over-use an area. Generally, families moved in groups. It was traditional practice to leave seed for the following year and this was accomplished by taking care to leave adult animals behind to repopulate the area. Beavers in particular were treated in this fashion as it was observed that the young did not survive without adult beavers present. All elements of the animal were used to minimize waste. Tools and items used for a livelihood were treated with respect and cared for as survival depended on these tools.

Fort Smith respondents also showed a strong network of traditional knowledge teachers as compared to the sample as a whole. Fort Smith appeared to have access to multiple teachers. Parents were mentioned by 90% of Fort Smith respondents, similar to the sample as a whole (86%). Grandparents showed the only decline in the role of teachers, from 29% for the total sample to 21% for Fort Smith respondents. Spouses (17%) and friends (14%) were mentioned slightly more frequently by Fort Smith respondents than for the total sample of 8% and 6% respectively. What is interesting is the difference for relatives, 45% in Fort Smith versus 33% for the total sample. Other people also appeared to play a more important role for Fort Smith respondents (15%) than for the sample as a whole (4%).

Fort Smith responses showed similar declines as the total sample in the percentage change of people who had and still were living off the land with the exception of children. Parents' land use declined 67 percentage points, while that of grandparents dropped by 73% and siblings' use dropped by 30%. Children were the only group showing a greater drop in land use than was shown for the sample as a whole. The percent of Fort Smith respondents whose children still lived off the land was down 20% versus a drop of 8% for the total sample. Other relatives who still lived off the land were down 19% from those who had lived off the land.

Survey respondents were asked to identify the skills they had learned or acquired over time as traditional learners and land users. Two categories were identified during the review of skills identified by the respondents, subsistence skills and supplemental skills which involved the creative aspect of the skills themselves. Fort Smith respondents are typified by their average to above average knowledge of subsistence skills and the supplemental skills that are closely related to subsistence skills. Respondents showed a high propensity to know fishing (93%), hunting (100%), trapping (90%), making tools and weapons (63%) and building shelter or boats (83%). Subsistence skills that were above the total average were making traditional foods (93%), healing (37%) and ceremonial items (23%).

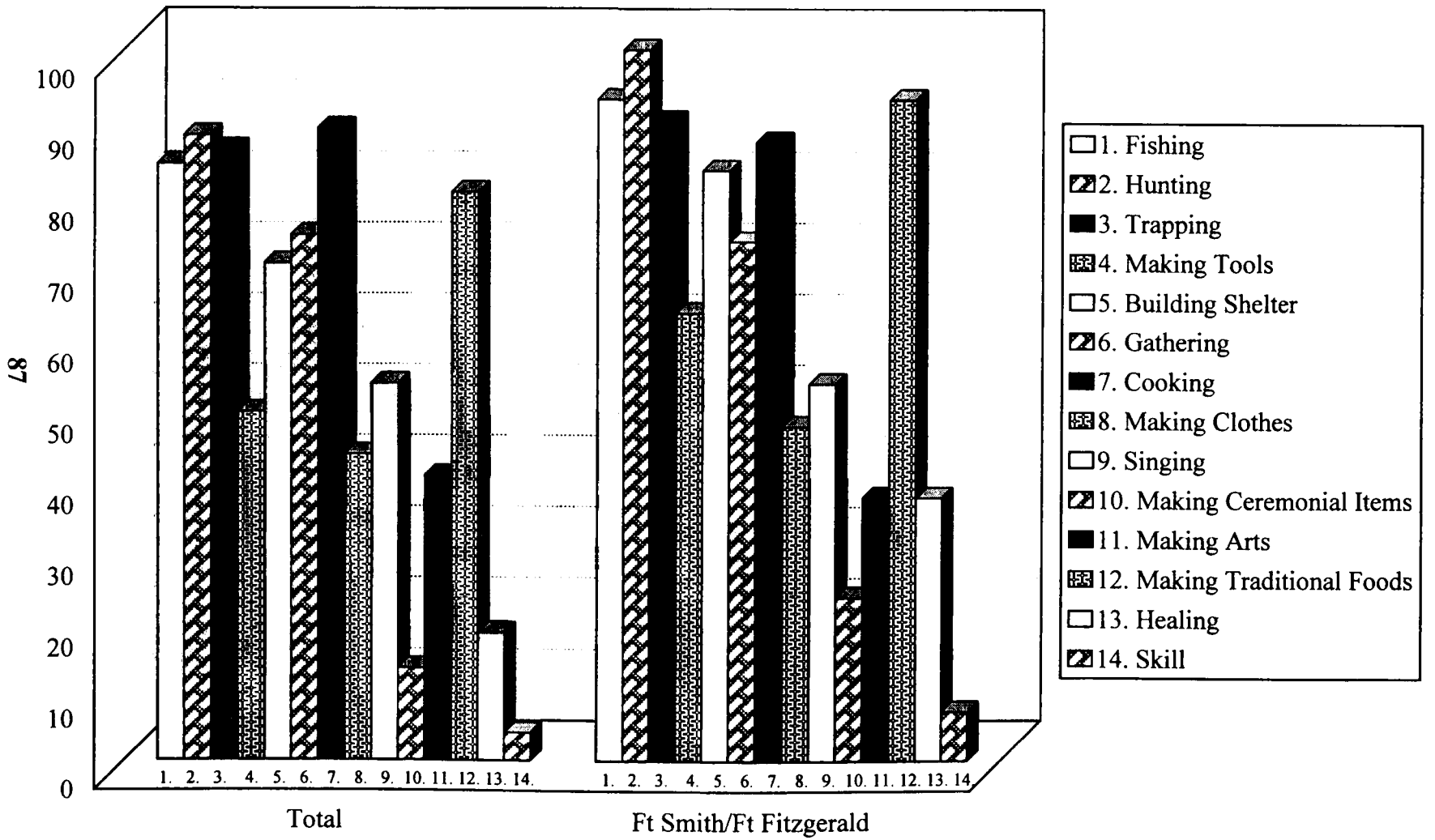
The Fort Smith (32%) community was considered to be the one most likely to identify traditional Indian beliefs. The use of dogs is known to be an important part of the way people travelled and moved over the land. Attempts were made to identify a classification of dogs and how much fish was used to feed them. Working dogs appear least common among Fort Smith respondents where 55% had four to six dogs, and 20% had more than six dogs. Fort Smith respondents were most likely to have dogs as pets (25%), and to feed them fish (6%) such as inconnue or coney.

5.1.7 Future Expectations and Recommendations

When the elders were asked what they saw for the future and what they would like to see done to preserve the traditional ways, they indicated that it was very clear that there would be very little left for future generations if efforts were not undertaken to be more respectful and caring toward the land, the water, and the creatures. The elders often expressed great concern for the way young people responded toward their attempts to teach them traditional ways. Like other community elders, Fort Smith elders indicated that the young people most often responded with distrustful laughter and scepticism in the value of their knowledge and way of life. The elders hoped that more efforts would be made to teach the young people how to protect the land, the water, and the air so that there would be a clean environment for future generations. Traditional conservation concepts such as respectful use of the land, water and wildlife were considered important for the young people to learn. It was important for the young people to learn responsible resource management such as not hunting for sport, and taking only what was needed. It was felt that the young people would benefit from learning about the bush as it would strengthen their self-confidence and ability to be more self-reliant in providing for themselves. The elders of Fort Smith also felt there was a need to set aside an area for elders to continue to trap and hunt because it kept the mind active and promoted a peaceful spirit. If a site is chosen for elder use, consideration of an elder's ability to travel is required. If such an area were set aside nearby, it would allow and support continued traditional activity.

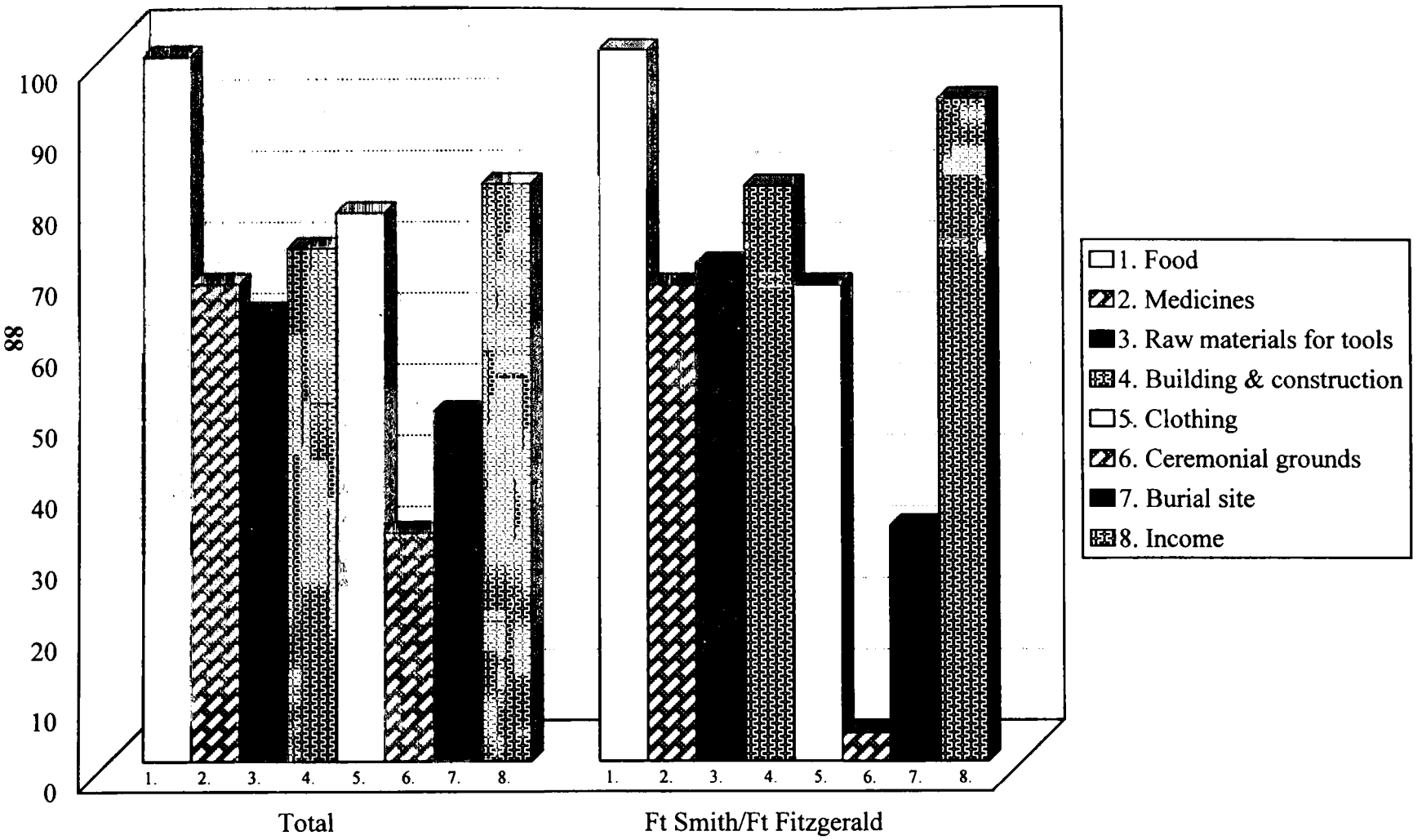
Industry and leadership need to work toward more sustainable resource plans which prevent further ecological destruction.

Figure 5.1-1; Traditional Life Skills Identified



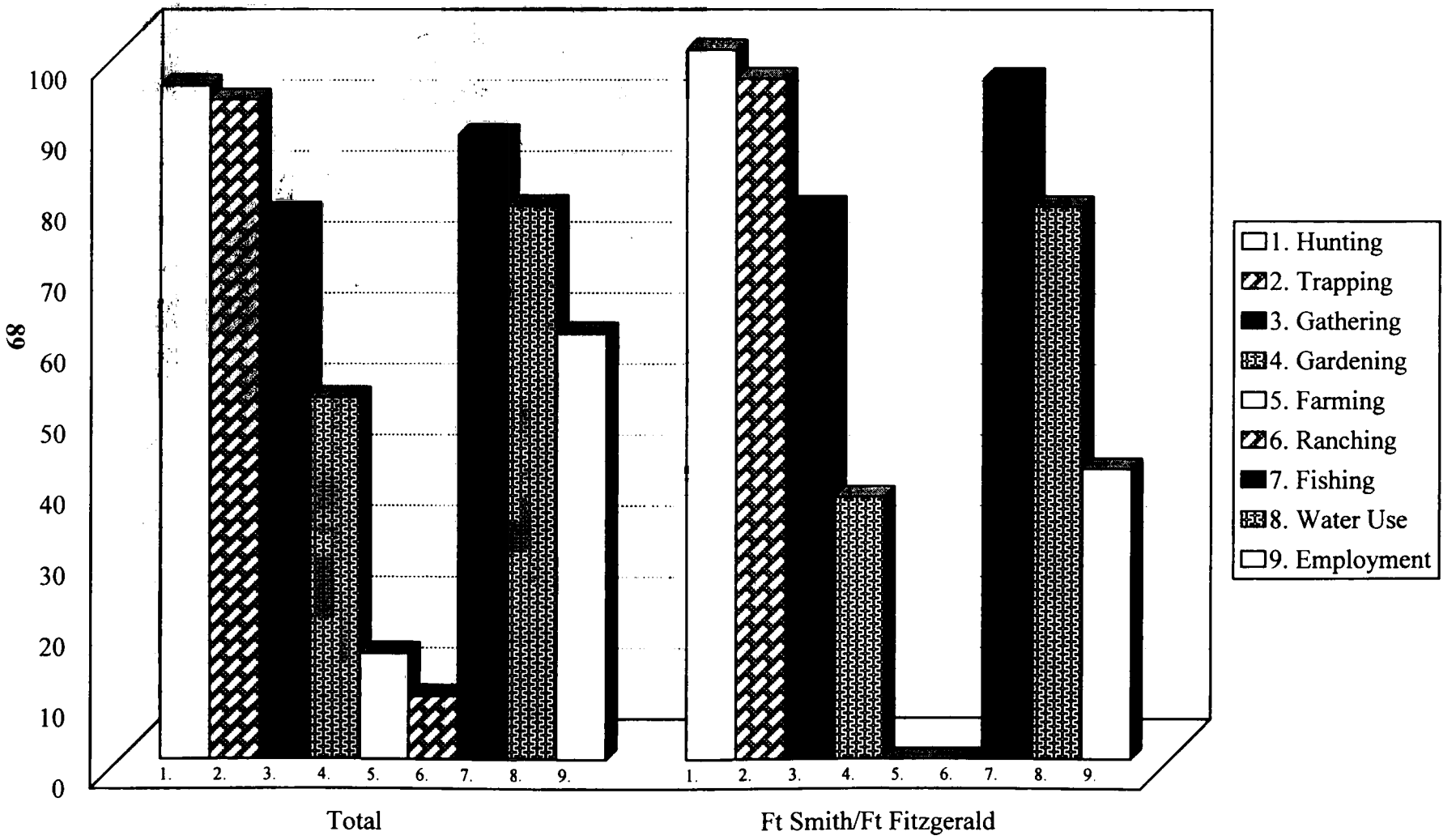
Sample size - 221 - Total respondents - 205 - Responded - 30

Figure 5.1-2; Commonly Identified Land Uses



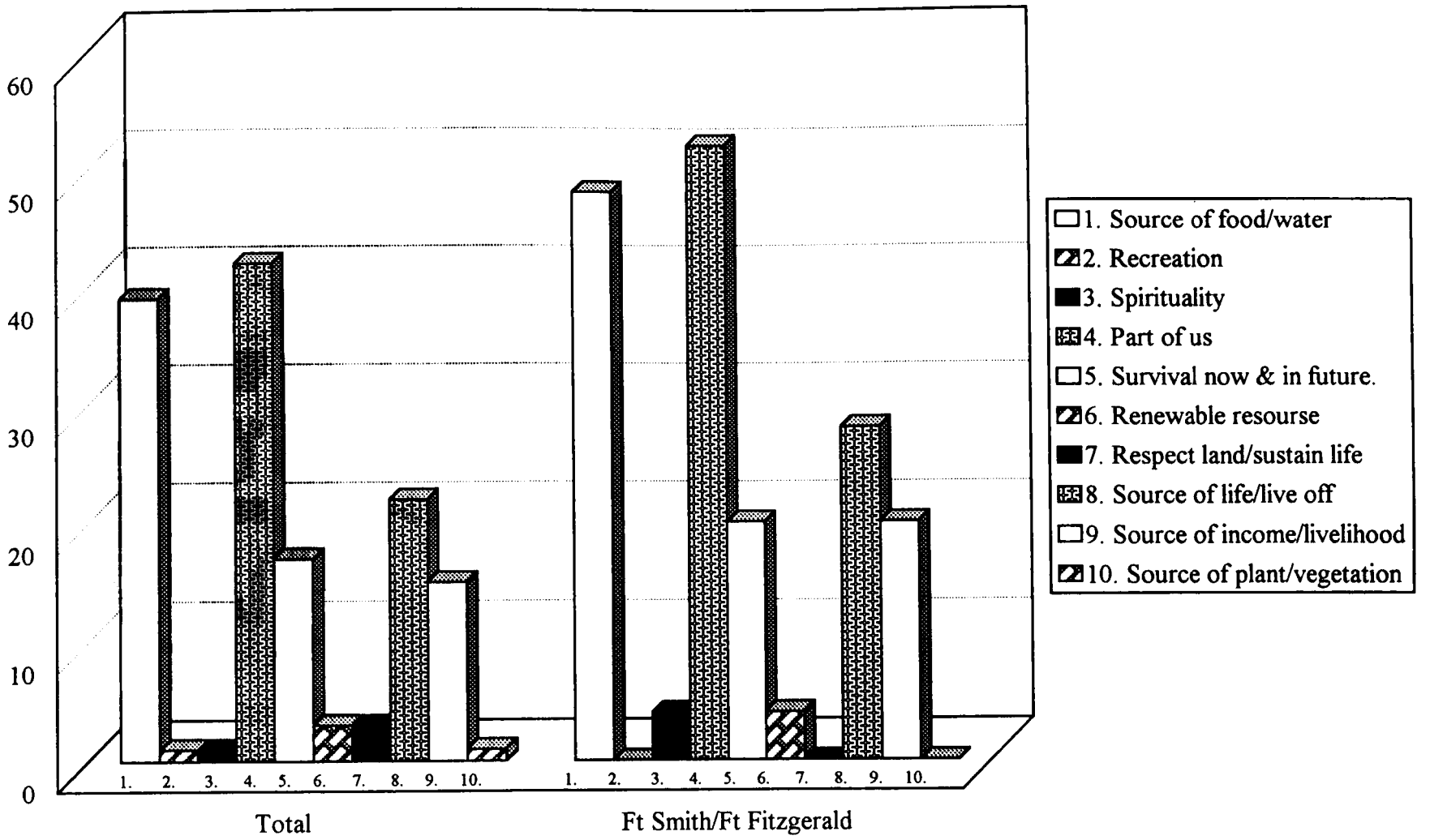
Sample size - 221 - Total respondents - 175 - Responded - 27

Figure 5.1-3; Land Use Activities



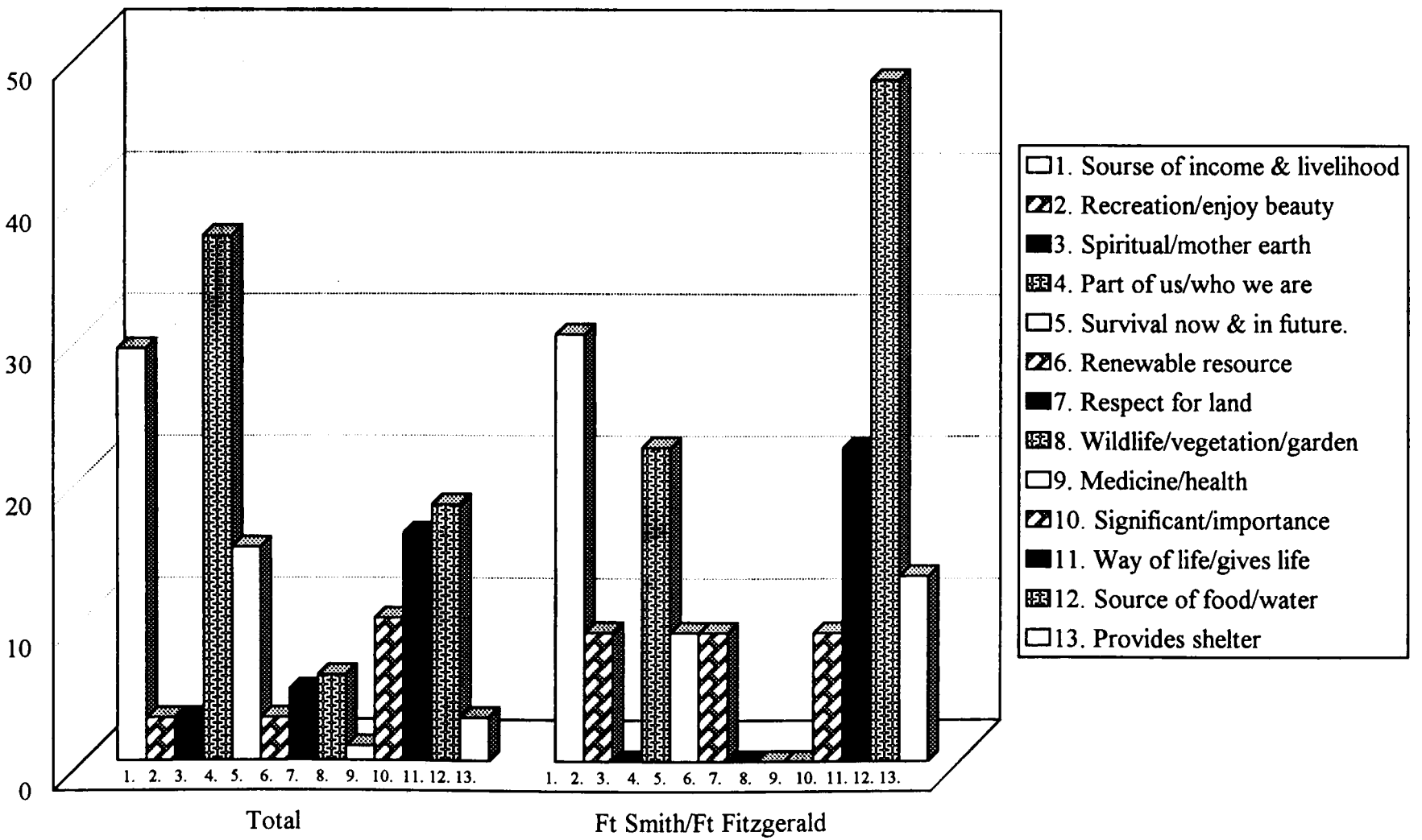
Sample size - 221 - Total respondents - 176 - Responded - 27

Figure 5.1-4; Land Use Significance



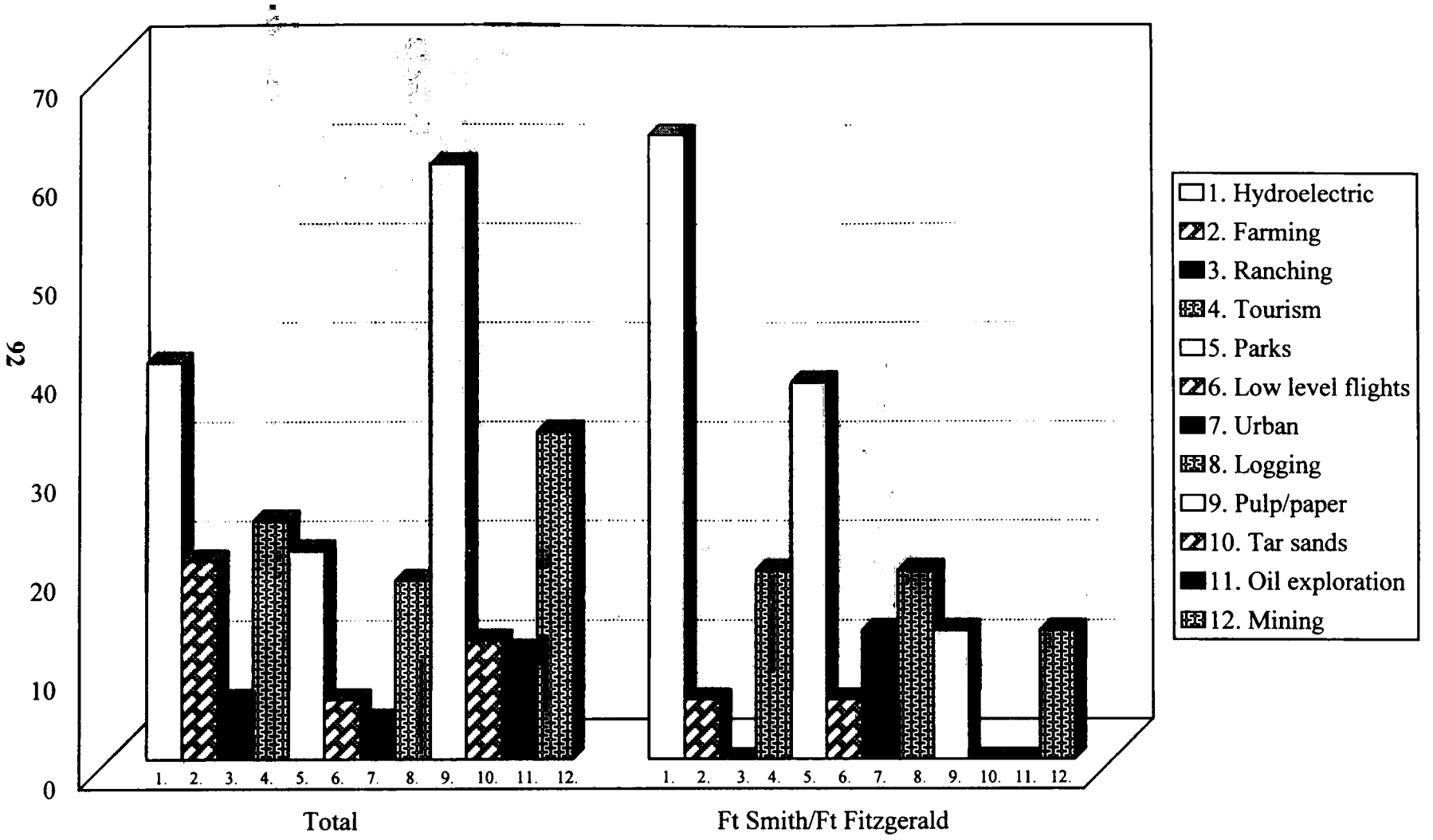
Sample size - 221 - Total respondents - 158 - Responded - 25

Figure 5.1-5; Land Use Significance to Traditional Lifestyles



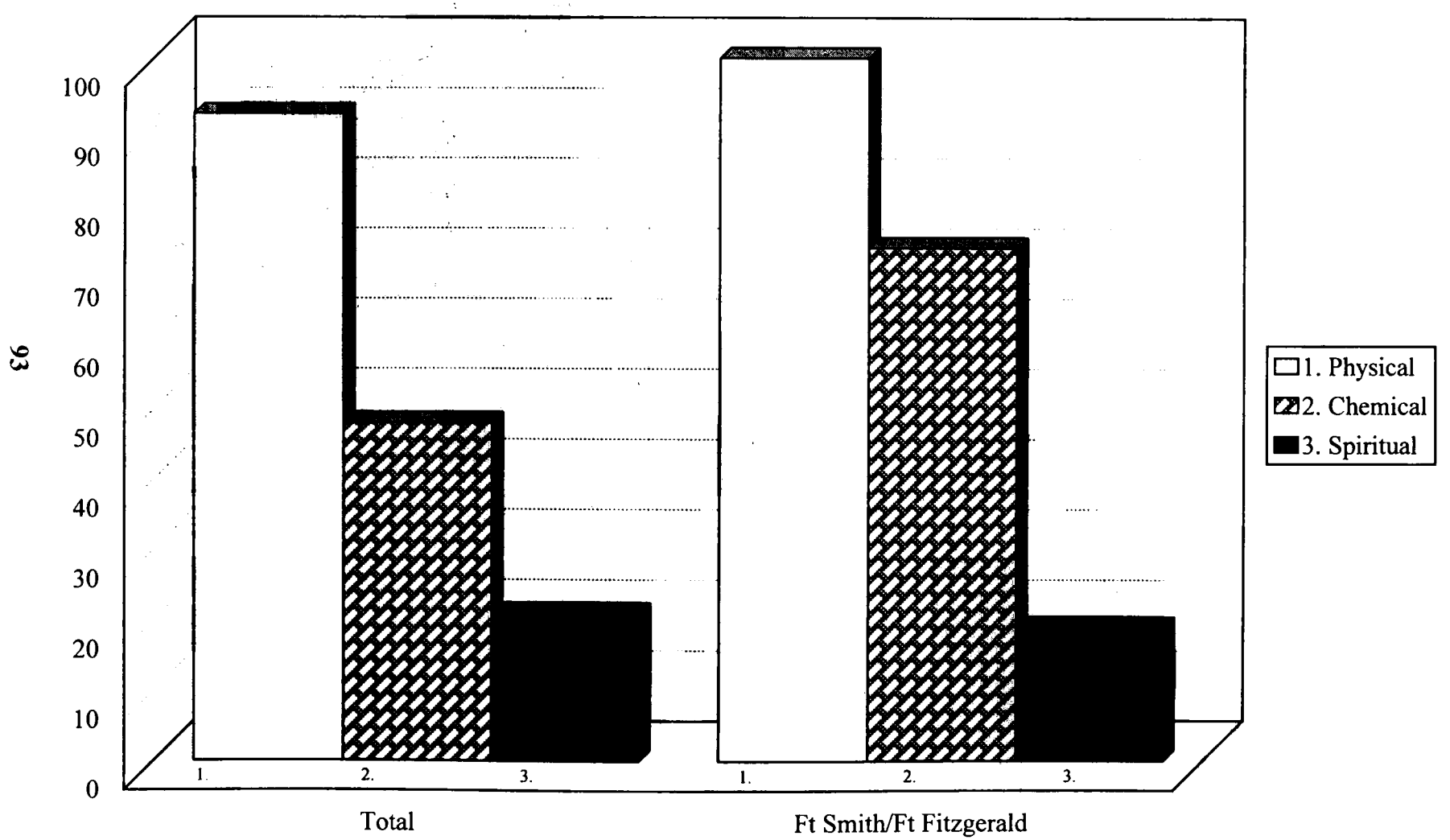
Sample size - 221 - Total respondents - 134 - Responded - 23

5.1-6; Developmental Land Use Near Traditional Lands



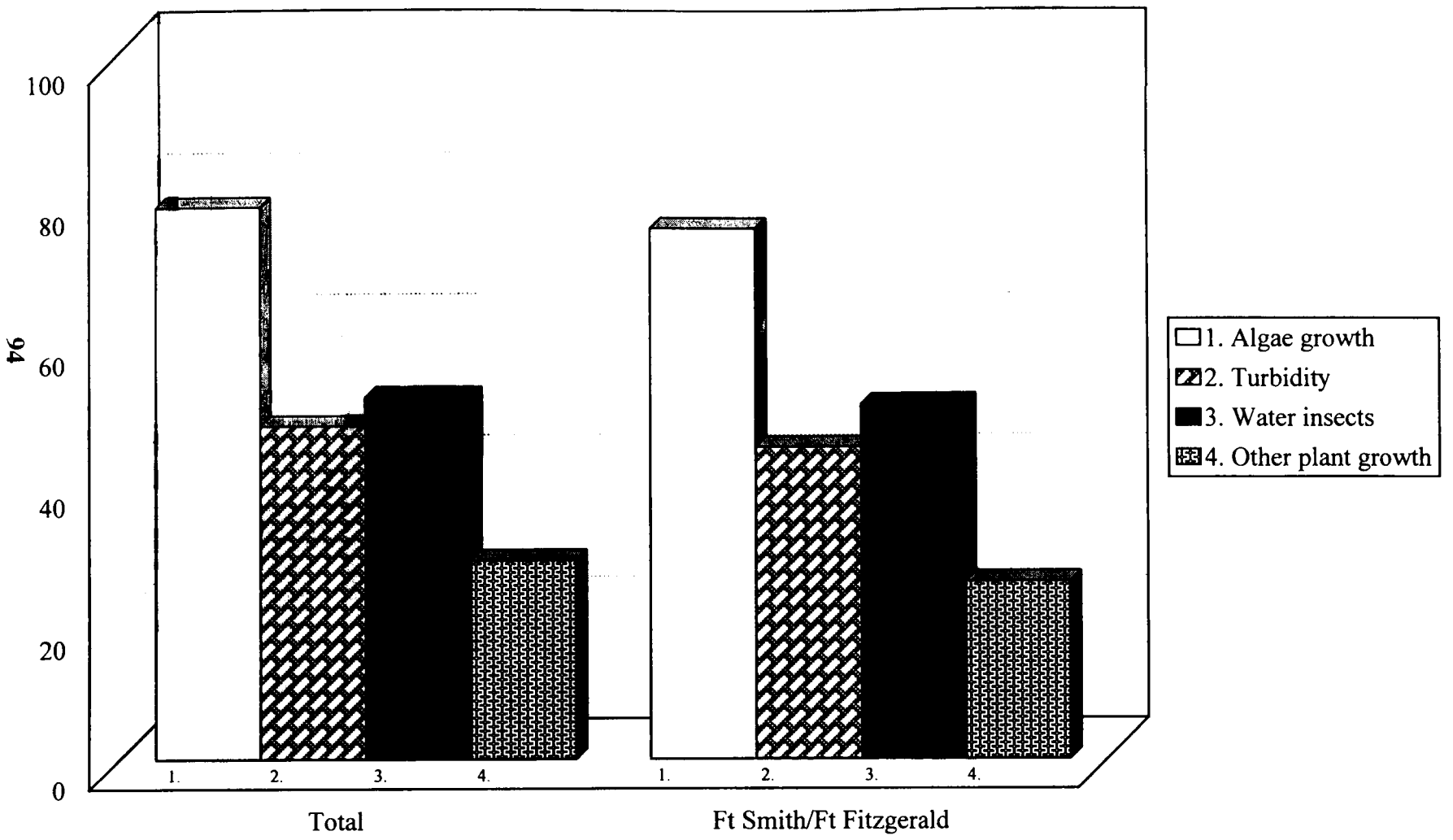
Sample size - 221 - Total respondents - 146 - Respondents - 16

Figure 5.1-7; Significant Water Elements



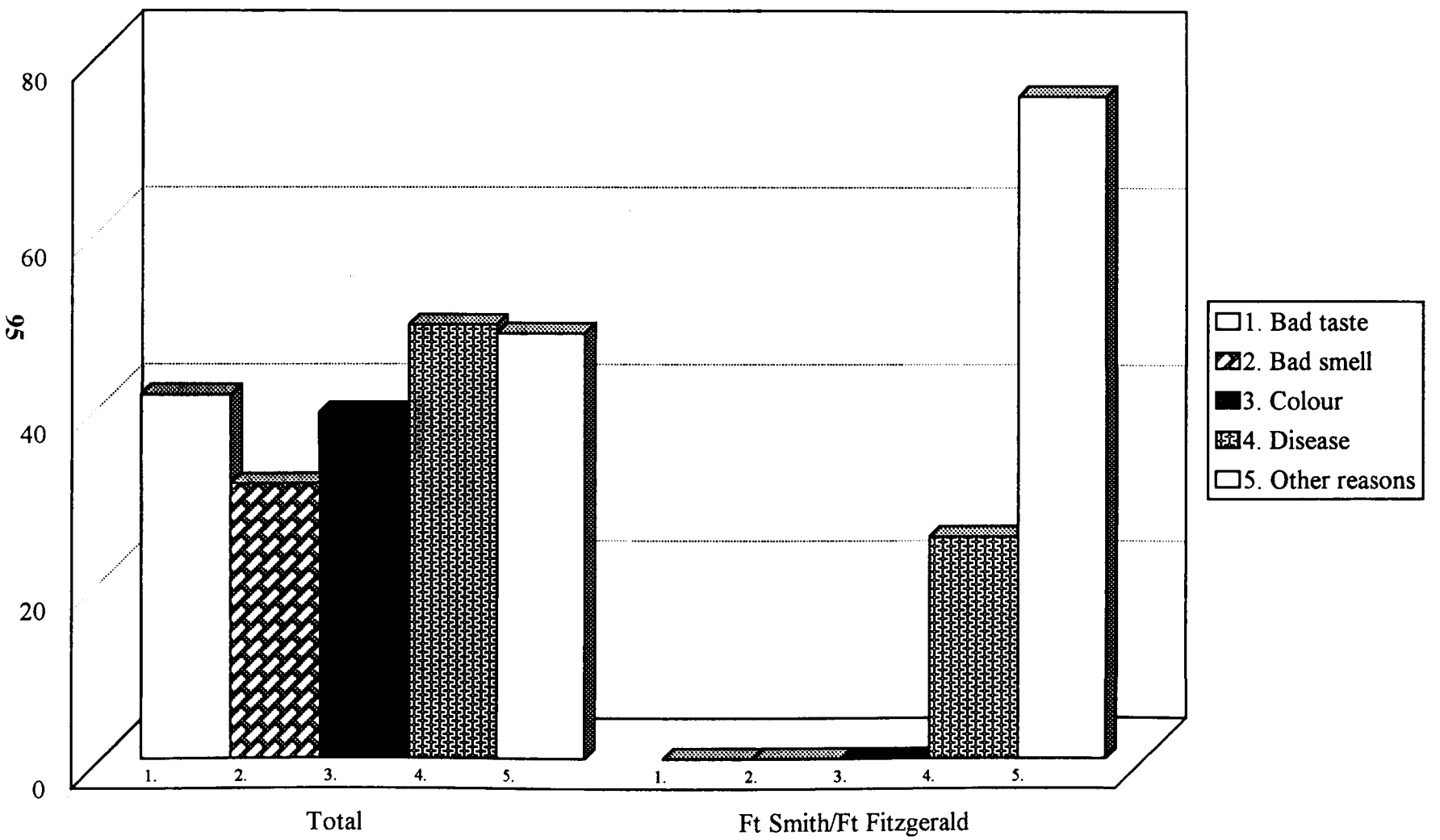
Sample size - 221 - Total respondents - 151 - Responded - 26

Figure 5.1-8; Identified Water Change



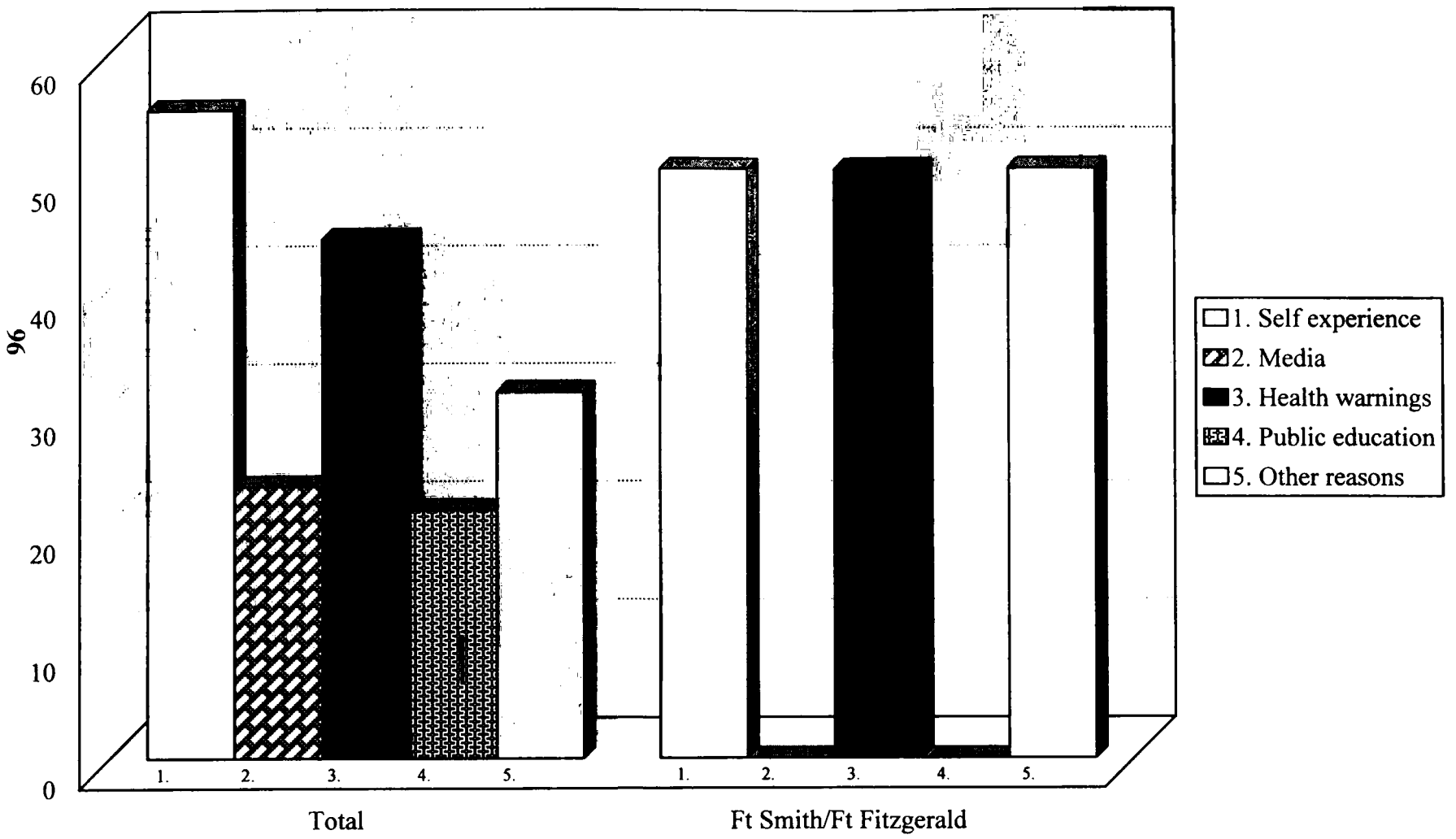
Sample size - 221 - Total respondents - 129 - Responded - 16

Figure 5.1-9; Negative Water Changes Impacting Use



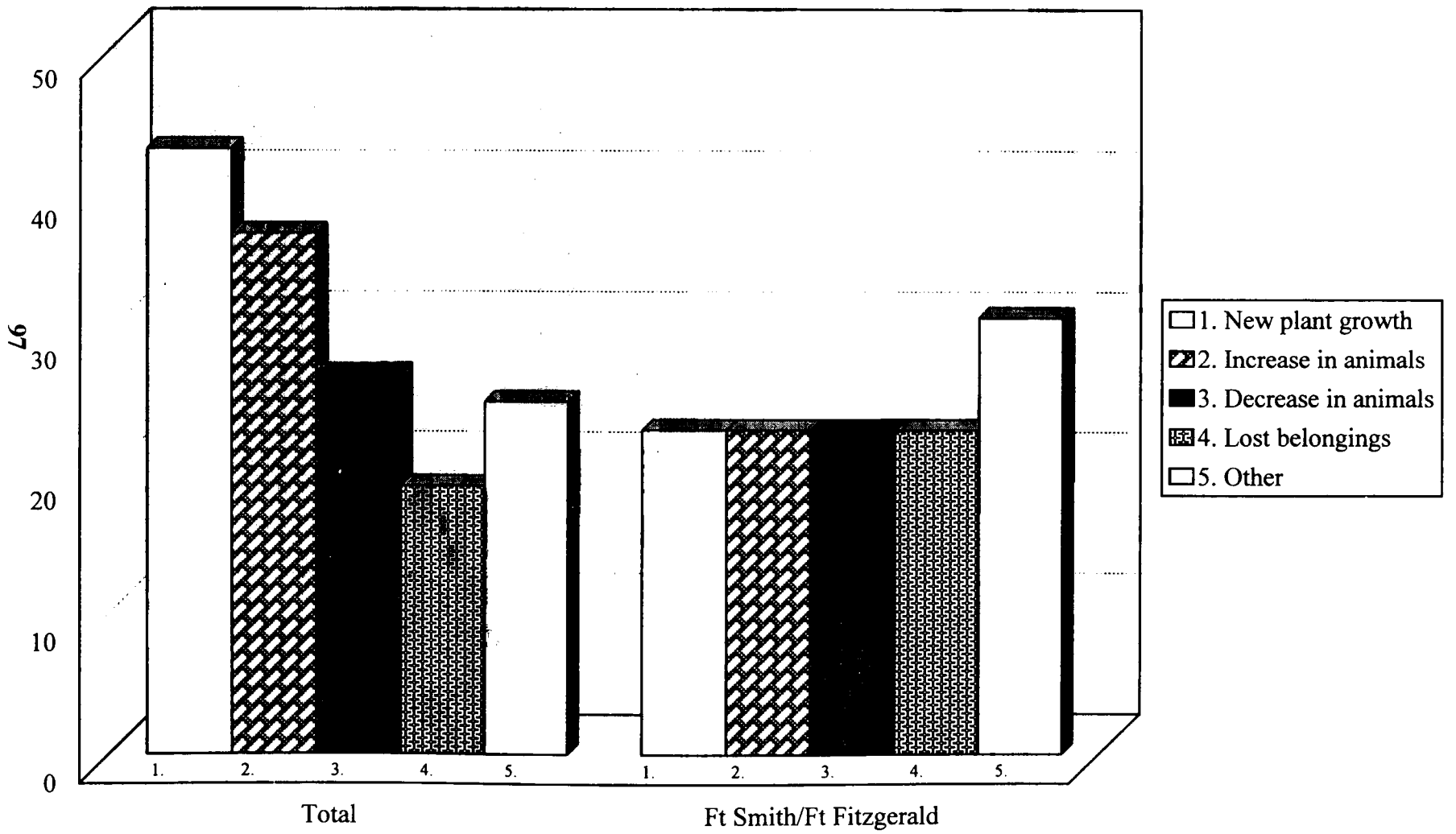
Sample size - 221 - Total respondents - 71 - Responded - 4

Figure 5.1-10; Reasons for Changed Water Use



Sample size - 221 - Total respondents - 62 - Responded - 2

Figure 5.1-11; Ice Jam Flooding Impacts to the Land



Sample size - 221 - Total respondents - 105 - Responded - 13

Figure 5.1-12; Most Frequently Used/Available Animals

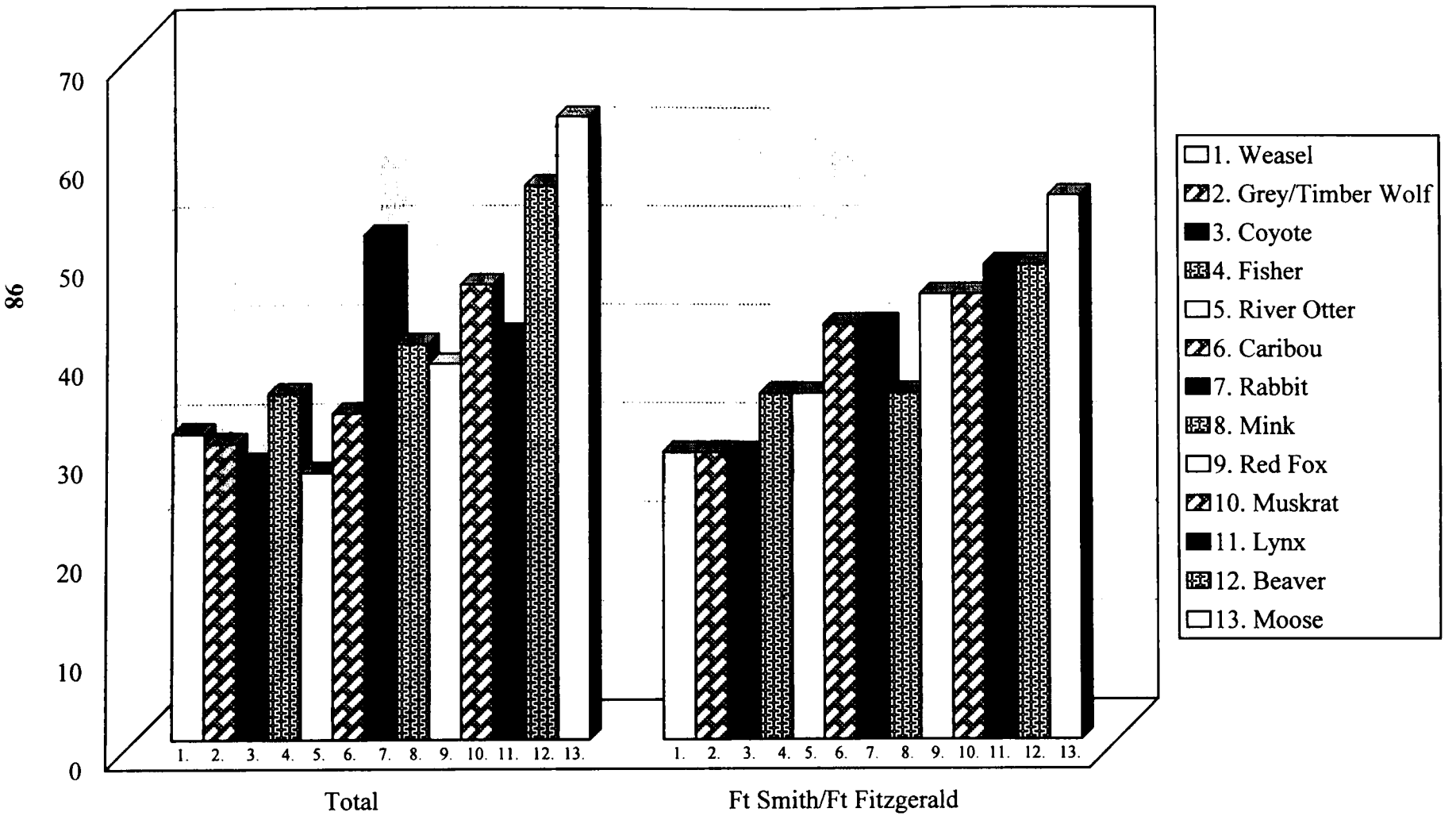
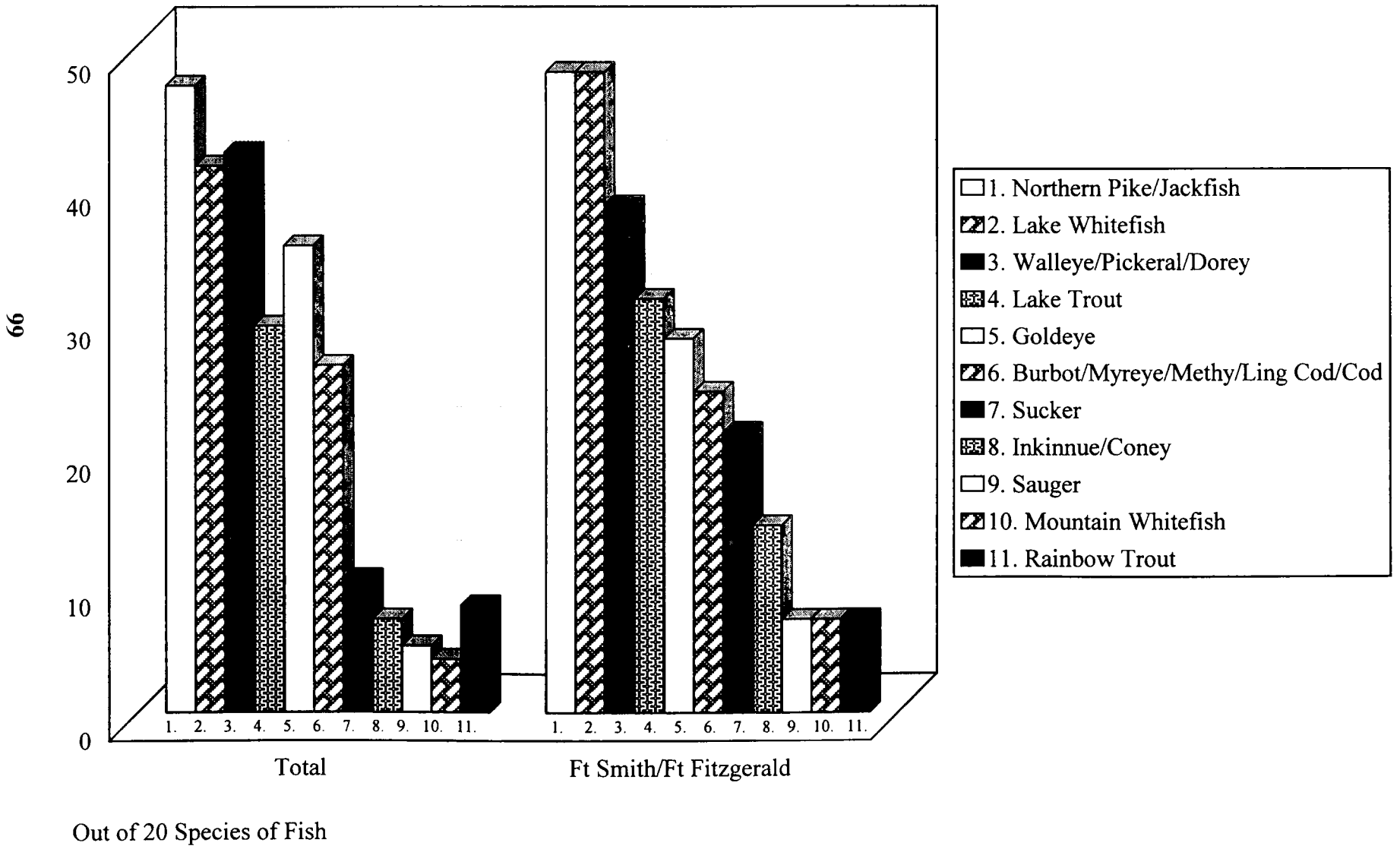
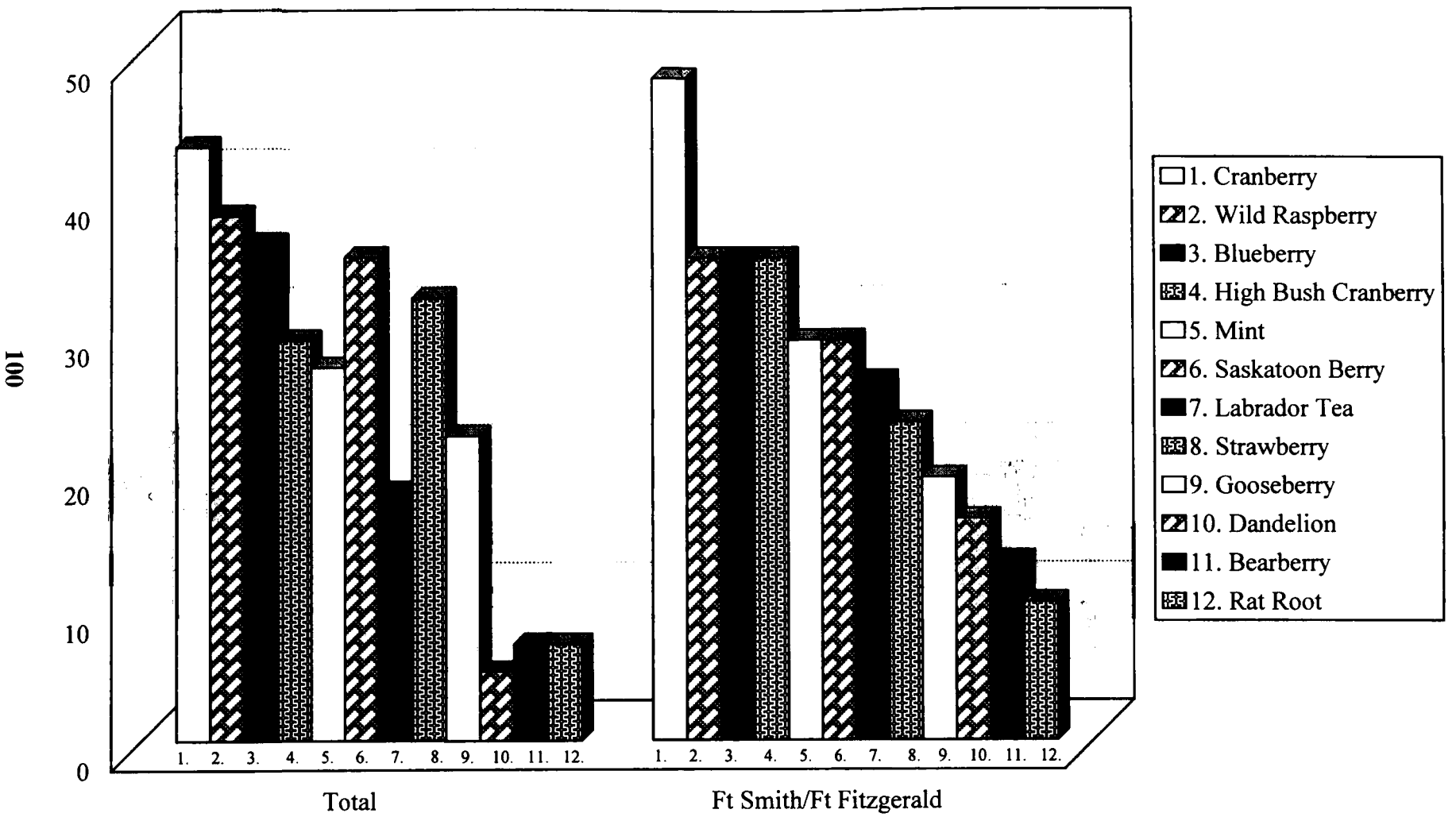


Figure 5.1-13; Most Frequently Used/Available Fish



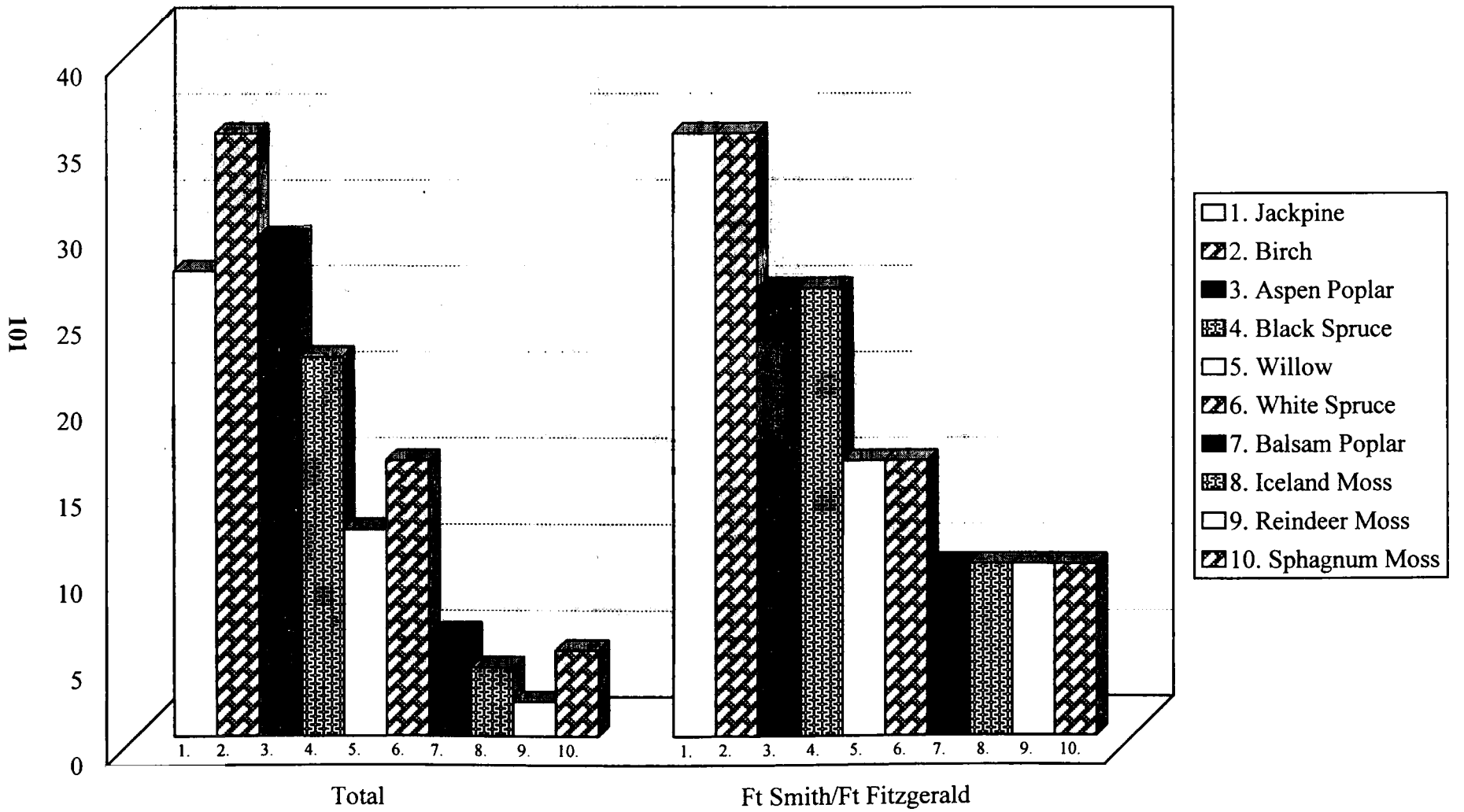
Out of 20 Species of Fish

Figure 5.1-14; Most Frequently Used/Available Plants



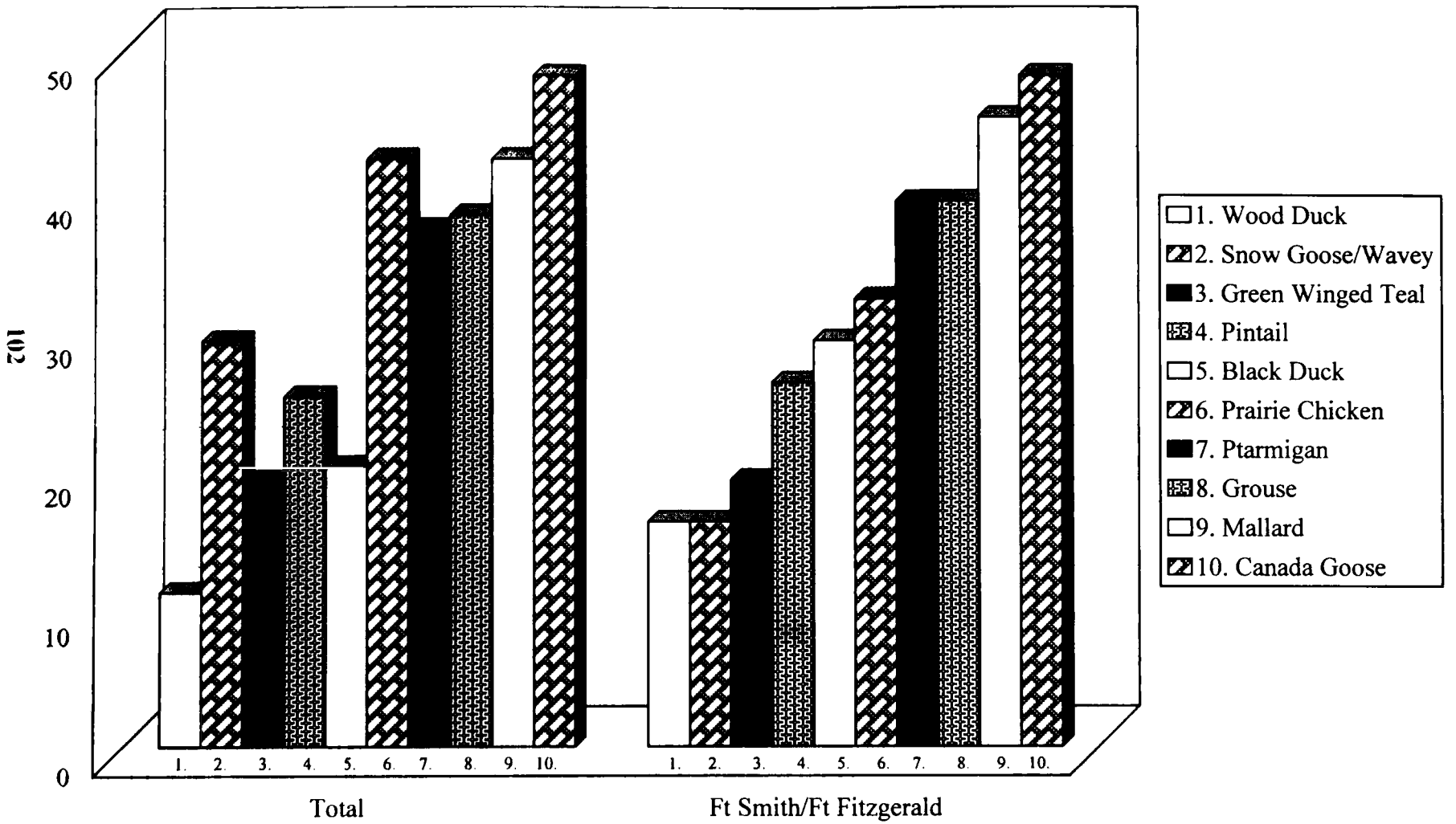
Out of 45 Species of Plants

Figure 5.1-15; Most Frequently Used/Available Trees



Out of 25 Species of Trees

5.1-16; Most Frequently Used/Available Birds



Out of 31 Species of Birds

5.2 LITTLE RED RIVER FIRST NATIONS - FOX LAKE/JEAN D'OR/GARDEN RIVER

Of the thirty-four interviews in these three communities, twenty-six were with elders. In Fox Lake, nine elders were interviewed, Jean D'Or had thirteen, and four were from Garden River. For the three communities, 14 (6%) of the total sample were in the 60 - 69 years of age group. In the 50 to 59 years of age group there were 12 (5% of the total sample). In the 70 plus age group there were 5 (2% of the total sample). The remaining 3 (1.2%) were less than 49 years of age. Twenty- three surveys were analysed from these three communities, or 10% of the 221 surveys analysed. An elder was not defined by age in these communities but by their knowledge. This was evident in that there were some respondents who were identified as elders who were in the 50 to 59 age group and others were not identified to be elders. The majority of the respondents were from the ages of 50 to 69 years of age.

When the years of life experience is added up from the community sample group of respondents the total is 2047 years of life experience.

The elders of the Little Red River First Nations (LRRFN) communities were very eloquent in their description of the land, and their feelings toward its resources, the water, wildlife and fish. The words of these elders were articulated in a manner that demonstrated how traditional life was intricately woven in with the environment. Their experience with their teachers came through in their presentation of the knowledge they have of the environment. Their interaction with the environment was not only for survival, but was the life teacher. Every principle spoken of is rooted to the land and its resources. They spoke of the land as one would speak of a friend who has provided life long support to them in a loving and generous manner.

5.2.1 Land

The elders of the Little Red River First Nations have indicated that the land sustains not only life in a physical manner but is the storehouse of all the knowledge that is required for the people to live in a respectful and productive manner. Nine respondents of the 23 (39%) analysed responded to the question that addressed the season of land use. Those respondents of Little Red River First Nations who responded to the question of land use overwhelmingly (91%) indicated that they used the land year round. Most of the survey respondents had been on the land for less than 40 years (50%) followed by 38% of respondents, who had been on the land up to 49 years, and 13% of respondents between 60 and 69 years of age. The land has sustained the people of this area for many generations and it continues to be viewed as an important element to their way of life and to plans for the future of their children. The land is used for healing, educating, maintaining health, for survival and for life. The common uses identified by the survey respondents were firstly food and medicine (92%), secondly for clothing and income (67%), thirdly for ceremonial purposes (50%), and fourthly for raw materials and construction purposes (50%). Access to the land in a traditional manner substantiates their ideology and is considered to be the only way in which traditional ways can be preserved and maintained as those ways were passed on to them.

Ten respondents reported on their activities on the land. The activities identified as most frequently engaged in are as follows: hunting and trapping (100%), followed with gathering (75%), fishing (67%),

water use (58%) and finally employment (25%). It was noted that Jean D'Or did not identify fishing as an activity that was pursued by any of the respondents. Very little information was given as to plant usage by the Little Red River communities. Much of the information collected in relation to plants and trees was provided in the mapping section of the interview. Plants and trees noted for use were primarily fruit bearing plants and trees along with coniferous trees (wild rose, wild raspberry, Saskatoon berry, strawberry, low bush cranberry, high bush cranberry, choke cherry; aspen poplar, fir, black and white spruce, birch, and willow). A healthy respectful relationship with the land meant a sustained future for future generations. The land was described as a gift giver of songs, strength, wisdom, joy, and positive mental health when a mind was in turmoil.

Ceremonies are still very much a part of their relationship with the land. Through traditional ceremonies, gratitude is expressed for the gifts bestowed. The elders concede that the creatures of the land are sovereign, as compared to humans who manipulate the land. The creatures maintain the land according to natural law as their relationship is intimate at all times.

Living a nomadic lifestyle was their way of living according to natural law, just as the creatures of the land did. It prevented over-use of one area, which was, and is, "natural resource management." All elements (biological, meteorological, astrological, and geological) of creation are acknowledged as interconnected with one another and reflect the state of the environment in subtle ways.

The elders indicated that the land was sacred and all areas were accorded the same respect. One place did not have more consideration than the other. The elders were asked to identify ceremonial and burial sites. The elders indicated that ceremonies were not always held in one place. A site identified for current gatherings of families is the Little Red River, where annual pilgrimages are held. The Little Red River First Nations identified the following industries as having the greatest impact on their relationship with the land. Most of the impact was identified by the respondents of Fox Lake. The following statistics were reviewed from the Little Red River First Nations perspective. Two-thirds (64%) of the Little Red River (LRRFN) respondents felt the impact of cut lines, seismic lines, pipelines or access roads. Cut line impact alone was experienced by 22%, and logging impact was experienced by 1.3%. A third (35%) of the respondents from LRRFN identified specific types of development near traditional land use areas. Pulp and paper mills (75%), mining (50%), followed by hydro and parks development both at 25%, then farming and tar sands both at 13%. When they were asked how their relationship could be maintained, the LRRFN indicated that the "white man" destroyed their relationship with the land (43%) and also indicated that there was a need to work on the following areas: "tougher government regulations", "aboriginal land use management", and "working on increasing the understanding between users of the land"; 1.4% in each category mentioned. The LRRFN sample group who indicated special groups were doing all they could in managing renewable resources and achieving healthy long term development rated First Nations chiefs and councils (3.7), in both instances followed by citizen groups (3.2), individuals (3.1), city and town officials (2.7), provincial government (2.1), federal government (2.1) and lastly, industry (1.7). In terms of healthy long term development, citizen groups rated highest (3.1) followed by individuals (2.9), city and town officials (2.9), Aboriginal chiefs and councils (2.9), provincial government (2.2), federal government (2.1), and lastly industry (1.8). Of the 5% that responded to the traditional land management practices question, "don't waste, over-hunt or

trap" was most frequently listed as a practice followed by rotation of traplines and harvest areas. Thirty-five percent (70%) of the respondents indicated that they had practised burn-off as a land management practice and (30%) continue to use this method on a seasonal basis. Waste was managed mostly with a combination of methods: burying (17%) and burning (25%), and least, dumping (8%). The LRRFN communities view of the land has not changed as is indicated by the 30% who responded to this question, although increased development has also been noted. This response indicates only that the people continue to have a close relationship with the land as they have spoken of throughout the narrative interviews.

Table 5.2-1: Table for Demonstrating A Special Regard for the Land

	Little Red River First Nations
Yes	0
No/do not know	0
Respect	43%
Ceremonies	57%
Protect it	0
Meetings/land use study	0
Elders	0
Way of life/community life	0
Number Respondents	7

Table 5.2-2: Table for Demonstrating A Special Regard for the Water

	Little Red River First Nations
Do not/no	0
Leave it alone to heal	25%
Cleansing/purifying	0
Give thanks	13%
Do not dump in it/pollute it	13%
With respect/importance	63%
Use every year/use it	0
Yes-unspecified	0
Evaluate physical characteristics	13%
Other comments	0
Number Respondents	8

5.2.3 Water

The elders were asked to speak about their perceptions of the state of the water today and to indicate the condition of water in the past. Water was never a concern in the past but became a matter of concern in the last fifteen years. The elders frequently referred to "poisons" in the water and the effects of stopping the flow of water, as making it unhealthy for the animals and the people. The "poisons" meant effluent put into the river systems by the mills and the towns. The elders often spoke of water becoming unhealthy when it was stopped for long periods of time and made reference to the effects of dammed water on the beaver. It was their practice to always collect water from moving streams and/or muskeg. The elders frequently stated that they collected water from any place and it was never known to cause illness or death. Water is no longer collected in that way because of the concern for possible ill effects. The eleven people (48%) who listed water use areas primarily identified various sources (lake, river, muskeg) as the major source of water use (26%). Surface water was indicated by the remaining 22%. A few springs were identified, and are still used by some people; this water is considered to be healthier than the water that is pumped from a water treatment plant. Changes that have been noted by the survey respondents of the LRRFN communities included: polluted, dirtier, muddy and oily water; fewer fish and insects; and the fish were not good to eat. Water appearance changes noted in each community of the Little Red River First Nations respondents were: Fox lake (75%) algae growth, Garden River (100%), and Jean D'Or (100%). Turbidity was noted by Fox Lake (25%) and Garden River (50%) but it was not indicated by Jean D'Or. Water insect appearance changes were noted by 29% of LRRFN respondents. Changes in water use began in 1979 and the influencing factors to change water use were

from self- experience, primarily. Algae growth (86%), disease (75%), and change in the colour, increased turbidity (29%) and water insect changes (29%) were identified for reasons of changing their pattern of use. Water treatment methods most frequently used today are chemical (64%), boiling (55%), settling (36%), and lastly by filtration (99%). When the respondents were asked how often, most responded by stating it was occasionally practised (82%). Water levels were identified as a great concern for three primary reasons: its effect on the wildlife abundance; the effects of the pollutants on the health of the animals; and the subsequent effect on the consumers. Often it was stated that the water was the reason why animals were not as plentiful as they had been in the past.

Ice conditions were discussed and many elders indicated that the ice was not the same in appearance and consistency as compared to past ice conditions. The scouring effect of ice on the river system is not experienced anymore. The ice acted like a channel opener and scraped away deadfall and new growth from the previous year, which prevented the outlets of the smaller creeks from growing over with brush. Many of the smaller creeks have now grown over, which affects the spawning of some fish. Effects of ice jams noted by the survey respondents were new plant growth (67%), increase in animals (33%), and for some animals a decrease (33%). The ice was reported to have floated on the river for longer periods of time and to have been very thick, up to four feet thick at times. In the spring the ice would jam in the following areas: a place called "the stretch way," Big Island, Rocky Lane, Sled Island, at a bend just before you reach Garden River, and another place called "The Dam". Ice jams have not occurred for as many as 25 years now and much of this change has been since the Bennett Dam was developed. New island formation was mentioned by (80%) of the survey respondents. Flooding has changed significantly over the years (70%) of the LRRFN respondents indicated. The last flood to occur in the Fox Lake area was in 1976-77. Other smaller rivers were not known to flood except for the Birch River on occasion. At present the water is very low and in some places is non-existent. Water levels have consistently dropped for the past 15 years and some of this change is attributed to less rain and snow. Perched basins were known to fill on an annual basis (80%) and generally in the spring (83%). Perched basins were also known to have water in them from one month to as long as five years. Muskeg water was used frequently in the past for drinking water and was considered very good to drink in spite of its brown colour. A very dry period was spoken of by one elder who recalled a time when the smaller lakes had dried up completely. During this period increased populations of mice were noted. This condition would have occurred approximately fifty years ago. The Peace River is considered very dirty now, as it is more turbid and has an oily film on it at times. The taste is not as "pure" and people do not consider it healthy water for man or wildlife. The Peace River was known to be very turbulent during the spring prior to the Bennett Dam. Flooding has also occurred in the fall in recent years, which never happened before. This situation is attributed to water control and release by the Bennett Dam. The LRRFN communities rated impact of development on water in the following order, from 1 - worst to 5 - best: hydro-electric dams (2.1), mining (1.6), logging (2.1), pulp and paper mills (1.4), tar sands plants (1.5), urban development and tourism both rated at 2.3, farming and ranching at 2.4, and finally oil exploration (1.7). The LRRFN gave groups mean scores on a scale of 1 (worst) to 5 (best) for doing all they can for uses of water in the following manner: industry (1.7), federal government (1.9), provincial government (2.0), city/town officials (2.6), citizen groups (3.1), individual (3.2), chiefs and native councils (3.6). The rating for efforts in achieving healthy, long term development with water

were: industry (2.1), provincial and federal government, both rated 2.3, city/town officials (2.6), individual (3.1), citizen groups (3.2), and Aboriginal chiefs and councils (3.5).

Table 5.2-3: Table of General Water Characteristic Changes

	Little Red River First Nations
Polluted/dirtier/muddy & oily	50%
More weeds	0
Fluctuations in amount of plant life	0
Green slime on riverbanks/nets	0
Pulp mills & motor boats on river	0
Sand bars	0
Fewer fish & water insects	25%
Fish not as good to eat	25%
Lower water levels/water drying up	0
More algae & insects	0
Too much chlorine	0
Number Respondents	4

5.2.3 Wildlife/Fish

This section reflects the status of wildlife which have been identified as affected by industrial development. The elders spoke of declining and increasing populations of different species. They spoke about several different animal species, birds, fish, insects, and their cycles. The elders stated that the animals were being chased away by the fumes, and the loud noises created by logging. It was felt that this activity had deleterious effects on the animals because they had to seek other places to survive. The teaching and experience of the elders was to treat the animals with great respect because it was their only food source. Respect was demonstrated by placing animal remains such as bones in the trees in designated areas. Some elders spoke of the sacred relationship with the animals and insects as healers who imparted sacred gifts to them. The elders have seen a dramatic change in the natural cycles of animals. A cycle constituted a four-year span; today it is noted that there is more than a seven-year span.

In their observations, more animals are disappearing every year. Rabies killed off many animals, particularly skunks, foxes and coyotes. The beaver is reported to die off when there is no flowing water for long periods. All twenty-three respondents replied to portions of the section on animals and identified the following twelve species as predominantly used for food or income: moose, beaver, and

rabbit (26%), muskrat and mule deer (22%), black bear (21%), mink (22%), red fox (13%), bison, grey/timber wolf and coyote (13%), and caribou (9%).

Moose are found in the Caribou Mountains, and prefer to feed on new growth vegetation. The bull moose becomes fatter when the fireweed is blooming and was hunted during this time of the year, unlike the present when it is hunted during the rut. The moose will travel but overall there seems to be less than before, as they were frequently seen along the rivers. The moose is much leaner than the elders are used to seeing. The Mikkwa River area is considered to be good moose country.

The buffalo used to be plentiful here but there are fewer of them now. The buffalo like to spend the summer months by Martin Lake.

The caribou used to migrate through Gambling Point and the Big Slough area. It has been forty-four years since they passed through this migration path. The caribou were also in the Caribou Mountains at one time. Mule deer and white tail deer are not as numerous as before although there is good feed available for them. Elk were not seen in the area as far as anyone could remember.

Rabbits, skunks, porcupines and foxes were reported by all three communities as scarce in numbers. The skunks and porcupine depletions are attributed to the rabies epidemic of twenty years ago. Foxes and coyotes were affected by this epidemic but have recovered to some degree; their numbers are considered low. Many of the fur-bearing animals and birds of prey were identified as being dependant on the rabbits, chickens, muskrats and waterfowl for food sources. The shortage of rabbits, chickens, ducks, and muskrats in some areas affected the ability of the foxes, coyotes, and lynx, to regenerate their populations. Martins feed on rabbits, squirrels, mice and chickens.

Squirrels are reported as decreasing too because their feeding grounds are being destroyed by loggers. Beavers are reported to have increased in numbers. The beaver cycle is known to be seven years and will decline from an illness that is believed to be caused from stagnant water. Some elders described a disease that created paper like lungs in the beavers. The increase in beavers is considered a sign of trying to bring back the water. The beaver is a strong animal. It heals itself, therefore regenerates very fast even when it has declined from illness. Buffalo River area did not have many beavers, but presently there are many. Muskrats usually have a four-year cycle.

Bear have not been plentiful for fifteen years, and were frequently seen feeding along the river when the berries were ripe. Bears are also known to frequent beaver houses when there is a shortage of food.

All birds were considered very important to the people and were noted for the beautiful sounds they brought to the land and the happiness they brought with them. Birds identified for use were mallards and Canada geese (17%), widgeon, shoveller, black duck, and sand hill cranes (13%), cinnamon teals, grouse, prairie chickens, and wood ducks (9%). Geese were a mainstay of human sustenance in the area and were not fed to the dogs. Geese were hunted in early spring and then left alone until the fall. It was reported that the waterfowl had declined in greater numbers, and that they do not feed in the sloughs and smaller lakes anymore because of low water levels. It was observed that the ducks preferred to feed

in the farmers grain fields. The people historically gathered duck eggs; to find twelve and fourteen eggs in a nest was common. Egg collecting was practised in early spring to allow the ducks ample time to have a second lay of eggs. American coot eggs were favoured. Today, nests are frequently found to have six to eight eggs only. Mallards, in particular, are reported to have fewer eggs than before. Bear Lake was an egg harvesting site. Ducks were often sighted in every pot hole that had water; at present, this is not as common. Black ducks have also declined noticeably in the last two years. Waterfowl have declined along the Peace River and inland lakes around Jean D'Or, Fox Lake and Garden River. Night hawks and smaller birds such as sparrows, robins, woodpeckers and sandpipers were abundant in the past.

The elders in all three communities reported that fish populations have declined over the past 20 years. Fishing as a traditional practice is non-existent in the three communities due to the scarcity of fish. The fish caught at times are thin and do not taste the same. The people historically fished where the creeks and rivers flowed into lakes, but many of these creeks and rivers are now dry. The fish are unable to swim into the lakes because of low water levels and filling in of channels. Little Buffalo and Big Buffalo Rivers were identified as spawning rivers, although species were not noted. There were only five species of fish that were identified for use or presence by the survey respondents. Goldeye (22%) and northern pike (17%) were identified for human consumption and dog feed. Walleye/pickerel was more popular (17%) than burbot and sauger, both at 4%.

In the Peace River the fish swam against the current during late summer when the leaves were full. The people fished below the rapids on the Horse River; that river is said to be devoid of fish today. At mid-summer, the fish would start to migrate into the Peace River and nets were set during that time. The Prairie River was also a river that was fished but is no longer used. A place called the "Dam" was noted for goldeye. Jackfish and goldeye arrived at the Little Prairie in the early summer when the leaves were starting to fill out. Jackfish were caught in the rivers they spawned in, and there were many gulls present during that time because gulls ate the spawn. September was the best time to fish for goldeye and pickerel on the Peace River. The fish ran in the fall but this does not happen anymore.

5.2.4 Health

People travelled on foot or by dog team, which kept the people healthy in body, mind and spirit. Illnesses such as cancer, diabetes, and high blood pressure were unknown to the people until recently. The elders indicated that the incidence of cancer, diabetes and high blood pressure had increased in their communities. They considered tuberculosis and flu to be diseases of the past and these illnesses were not identified as a great concern now. Many of the elders felt that the lack of "movement" and the change in food habits were the primary cause of the diseases they identified. Store food was mentioned on many occasions as having too many additives to be healthy for the people as compared to "ordinary food" (wild food) which did not have any additives.

Activities practised more than once a week for health in these communities were reported. Fox Lake residents preferred swimming/long walks, and gardening/fishing/hunting (43%), followed with boating/canoeing (10%) and no mention of other activities. Garden River, on the other hand, indicated

that gardening/fishing/hunting was done more often (100%), followed by (50%) identifying all other activities: boating/canoeing, curling, ball games, skating/skiing and jogging/running. Jean D'Or only identified gardening/fishing and hunting (100%).

Traditional food was preferred by LRRFN respondents who ate an average of 3 traditional meals a day versus two store bought meals. It was felt that traditional food and exercise was most important for health and well being.

Illness increases that have been noted by 61% of respondents, who identified illnesses in their community included: colds/common cold (71%), digestive problems/diarrhea (21%), diabetes (21%), heart problems/heart attacks (14%), gall stones/kidney stones (7%) and cancer (7%). The respondents had the greatest concern for alcohol/drug/tobacco abuse (42%) and impact of store bought/unhealthy foods (42%).

5.2.5 Family and Community Relationships

The traditional way of life had specific principles that were applied in day-to-day living and family interaction. The principles were applied toward one another through sharing and helping in the camps and in the community. The principles of helping, cooperation, respect, appreciation and caring were learned during the process of traditional skill acquisition. An example is the sharing of meat after a kill and assisting one another in tanning hides. Theft was unheard of long ago. When there was a need to enter another's cabin for survival reasons, the property was left as it had been found. The owner was advised at the next meeting. Children were taught the concept of self respect and respect for the old people. Children were brought indoors before dark and playing out after dark was not permitted. By getting the children in before dark the principle of respect for the night was taught. Family relationships were considered very important and that emphasis was recognized by referring to one another by kinship titles and not by name. This practice is considered respectful communication. This respectful manner of acknowledging one another has diminished and has affected the way families interact with one another. The elders often mentioned that children and parents did not speak to each other and that they were further hampered because the children do not speak Cree, which prevents them as elders from communicating with their grandchildren. Teaching used to be done through the elders by using teaching circles. The young people were directed by their parents to request teaching by offering a smoke to an elder for advice and information on life skills. There were certain people who were recognized for specific knowledge and skill.

Great concern was expressed during the interviews for the elders who were dying before transmitting their knowledge to the young people. Frequently the elders had attempted to transfer their knowledge to the young people but were faced with a lack of response and appreciation for the knowledge which they have to share. The elders often spoke of the young people as different people because they had not been taught in the same manner as the elders were. They stated that the young people were preoccupied with distractions such as television, video games and partying and did not know how to be respectful toward the old people as they had been taught. The younger generation's ability to travel with ease was also identified as a factor that influenced the young people to choose not to seek out information that

pertained to traditional ways because it meant going out on the land. The elders stated frequently that the young people did not seem to see the value of their knowledge and experience therefore this had a great influence on their interest to pursue traditional knowledge and traditional ways.

5.2.6 Traditional Knowledge

The traditional knowledge of these communities was unique in nature because of the way their information was presented through the interviews. During the review it was evident that there was a historical way of transferring information that did not come through in the other interviews. The elders were very grateful for the opportunity to share their views in a traditional way. Those that agreed to participate had experienced a way of traditional knowledge acquisition that is no longer being used. That is, to sit in a circle and listen to elders speak of their knowledge and how it is applied to daily life. The process of offering a gift of tobacco was an intrinsic principle they had known and to be approached in this manner meant a great deal to these elders, such as was done throughout this community research process. Traditional knowledge was not just learning how to hunt and trap but included child rearing, community responsibility, interaction, and the relationship to the self and the environment. The elders spoke of the changes to the family structure as a result of lost traditional land use and practices such as hunting, trapping, fishing. They spoke of the effects of the institution of reserves and schools and developments such as logging and power generation dams. The two communities which documented, in the survey, how the information was transferred, support this concept as they indicated that other relatives were the primary teachers of knowledge in the area. The eight respondents from Garden River were exclusively taught the traditional way of life by family members, specifically parents (88%), grandparents (50%) and other relatives (63%). The sole respondents from Jean D'Or learned the traditional way of life through parents, grandparents and other relatives. The thirteen respondents from Fox Lake showed a greater use of their relatives (69%) than any other community, more than twice that of the 33% mentioned by the sample as a whole. Parents (85%), grandparents (31%), and friends (8%) were on par with the total sample. Nobody from Fox Lake mentioned spouses or other people.

Respondents from LRRFN appeared fairly well-rounded in their acquisition of both subsistence and supplemental skills. They demonstrated an average to above average propensity to know all the skills, such as making tools and weapons (55%), making ceremonial items (25%), making clothes (50%) and making arts and crafts (55%).

The most commonly learned skills were: hunting (100%), trapping (100%), fishing (80%) and making traditional foods (85%).

Skills such as hunting and trapping, tanning moose hides, berry picking and learning how to read the bush were put into practice by many of the elders when they were as young as six years old.

The elders of the Little Red River First Nations communities gave vivid descriptions of teaching practices which involved their grandfathers and grandmothers as teachers. Several concepts were identified as important to learn for a traditional way of living:

1. The community members, particularly the elders, were responsible for teaching and advising the young people.

2. The youth were expected to seek guidance from the elders.

3. Everyone was taught to share and work together, and this practice is demonstrated through the sharing of food and harvests from the land.

4. The principle of respect for territory and property were taught.

5. Learning survival skills such as drying meat, fish, berries and identification of herbs which were used for health and healing.

6. Other survival skills such as birch tree tapping, as well as moose hide tanning to make garments, implements, and snowshoes.

7. It was important to understand about how to build lodges for protection and for ceremonies, and knowledge of which trees and mosses to use when building these dwellings.

8. Botanical knowledge as it pertained to the uses of willow bark and the roots of birch and spruce to make rope, nets, and binding for the canoes were included in the teaching. Willow bark was gathered in the spring.

9. It was important to learn and accept the responsibility for certain ceremonies that were used to express gratitude and acknowledgment of the gifts of the land and the role and importance of the elders as advisers at these ceremonies. The elders at this time gave advice to the community on living a peaceful life and also spoke of premonitions or messages they needed to share with the community about the future.

10. Calm and peaceful disciplinary methods for children were emphasized rather than physical discipline.

Several changes have been noted by the elders, such as community members continuing (or not continuing) to be helpful toward each another. The elders indicated that traditional skills are almost all gone, such as snowshoe making, hide tanning, hunting skills, and the ability to read the water and the land.

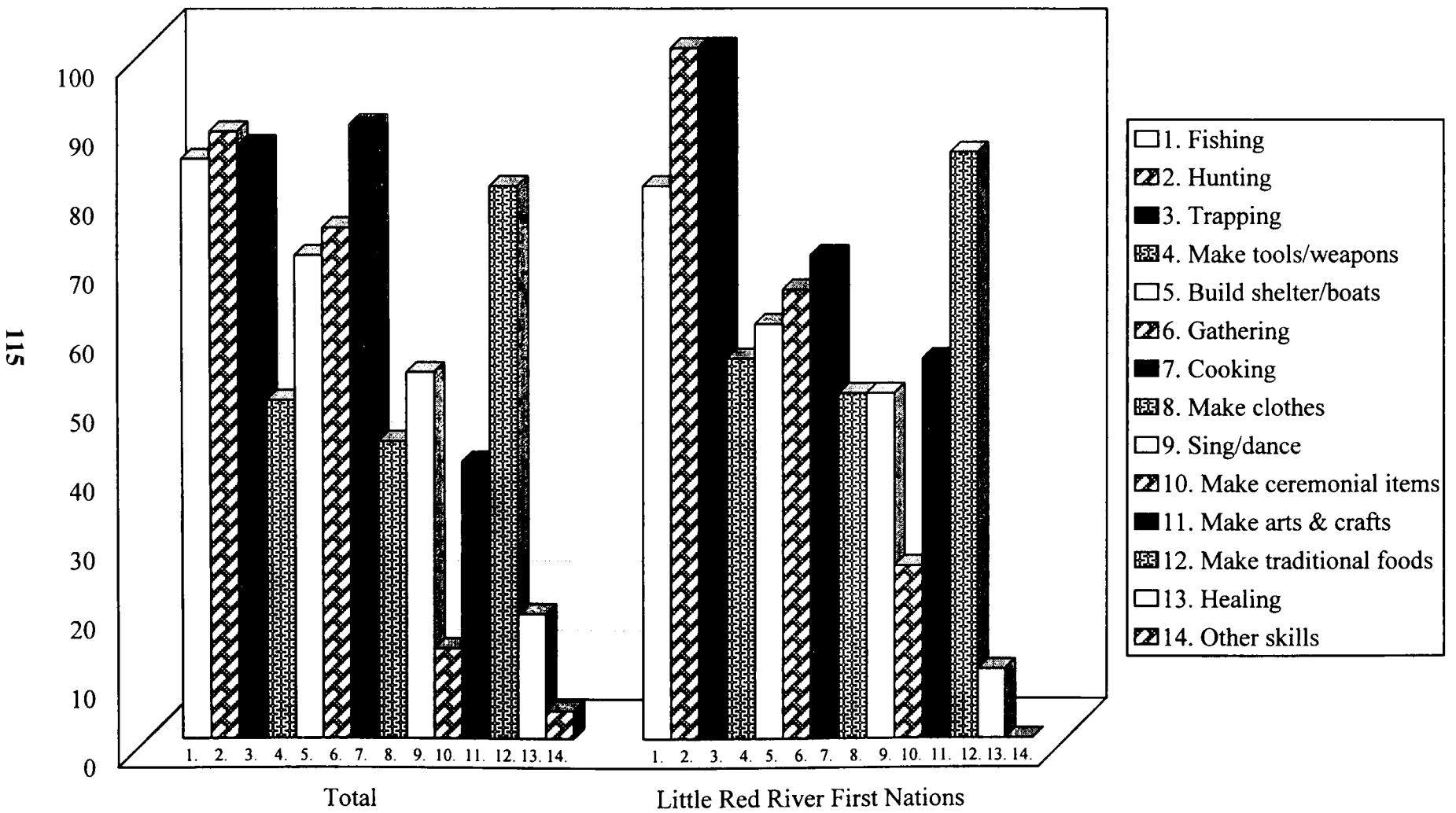
Fishing is not pursued by the young people mostly because of the warnings against fish health in the Peace River and because there is a scarcity of fish. The young people do not seek advice or consultation with the elders on matters pertaining to lifestyle and traditional practice. It used to be important to know who was related to whom in the elders' youth, and this is virtually non-existent for the youth of today.

The elders indicated that the people are not active physically and ride machines everywhere, even to visit across the road. It was felt that the animals, birds, fish and the landscape have been most affected by the land clearing and logging. The seasons were discussed and several indicated that the fall season seemed to come sooner because the leaves begin to change by July. It was believed that there are more warm winds in the winter and there is not as much rain and snow. Astrologically the elders commented on the moon's decreased light at night and believed it to be related to atmospheric pollution. Modern travel mechanisms were not considered to be as safe and ecologically sound.

5.2.7 Future Expectations and Recommendations

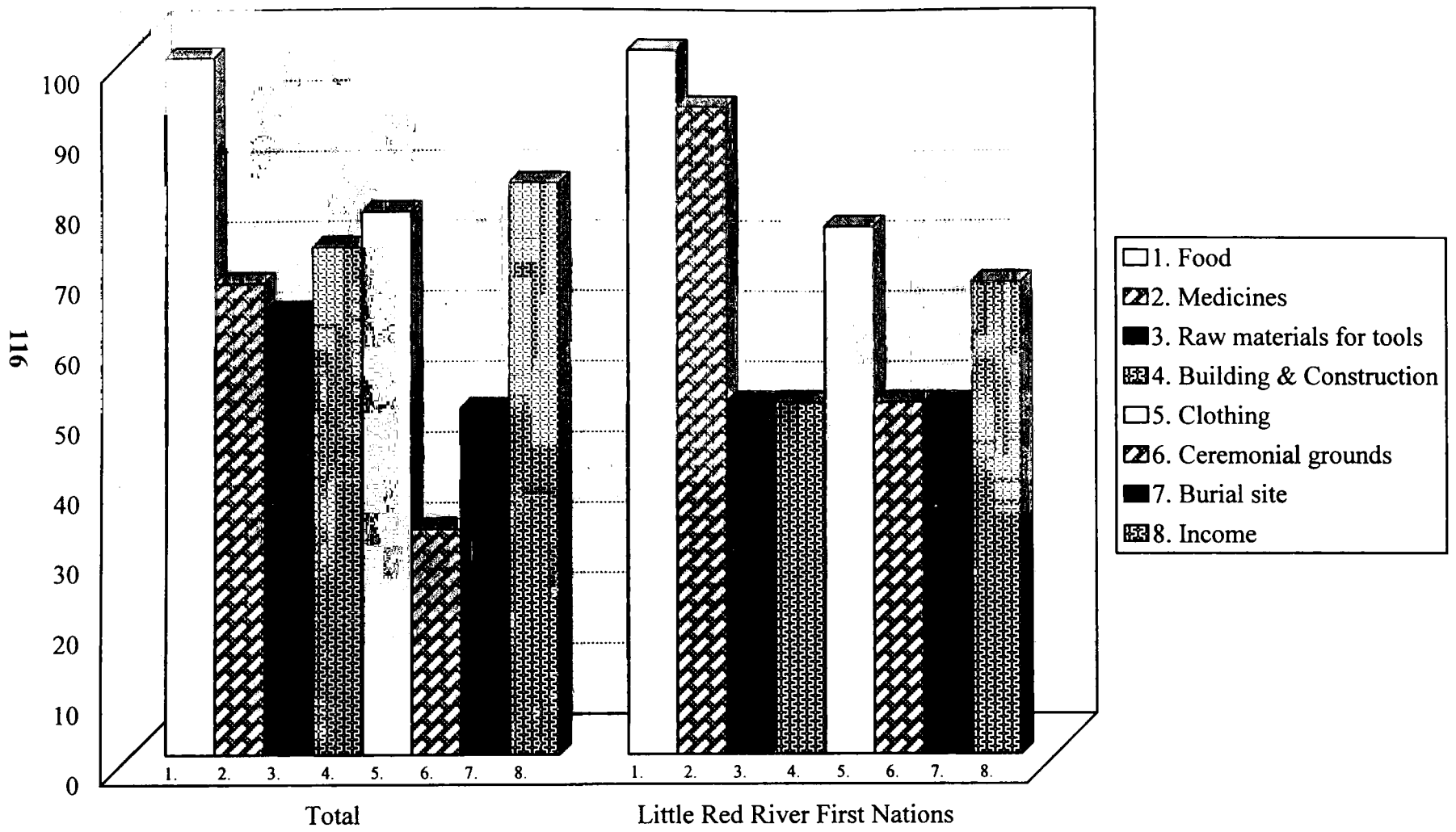
When the elders of these three communities were asked about the future and their expectations, they voiced a great concern for the loss of traditional land use and traditional practices. In particular there was concern for the increasing loss of language and learning how to live from the land. They also expressed great concern for the lack of respect and acknowledgment by the young people. Much blame for these losses was directed at the encroachment of the "Whiteman" and his ways of doing things. There was much emphasis placed on the need to work together with other groups to ensure that the land was preserved for future generations. It was important to set aside regions as traditional land use areas where no development would disturb its state. The elders felt it was important to acknowledge the people who use the land as a means of living. Resources such as water needed to be protected from further insults by man because of increased development along water ways utilized by many communities. The elders indicated that the young people needed to be taught the traditional ways, as it is important for future survival. The preservation of the land for traditional life practice was very important. Decision makers and government officials need to work in cooperation with the First Nations People. The young people need to utilize the elders for advice, guidance, and teaching. The young leaders need to be kept in office longer so that they can learn and apply the knowledge better. The people need to communicate more with the leaders rather than complain about their concerns with the community. Young people need to decrease their use of alcohol and drugs. Traditional bush camps should be planned to provide an alternate activity for young people. All of the land and the things that are taken from it have a spirit that needs to be treated with respect and this needs to be recognized by the Whiteman and the young people.

Figure 5.2-1; Traditional Life Skills Identified



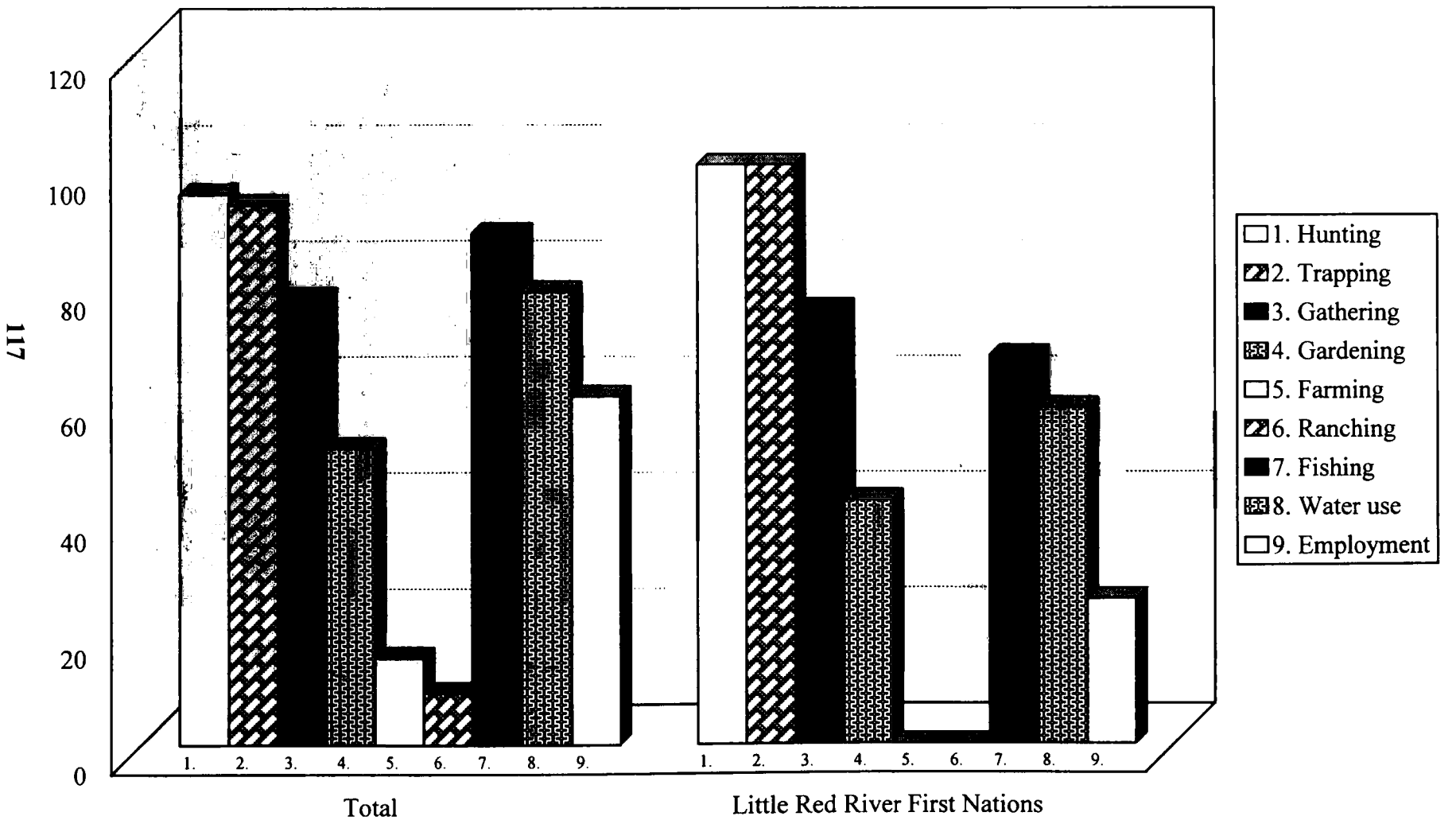
Sample size - 221 - Total respondents - 205 - Responded - 20

Figure 5.2-2; Commonly Identified Land Uses



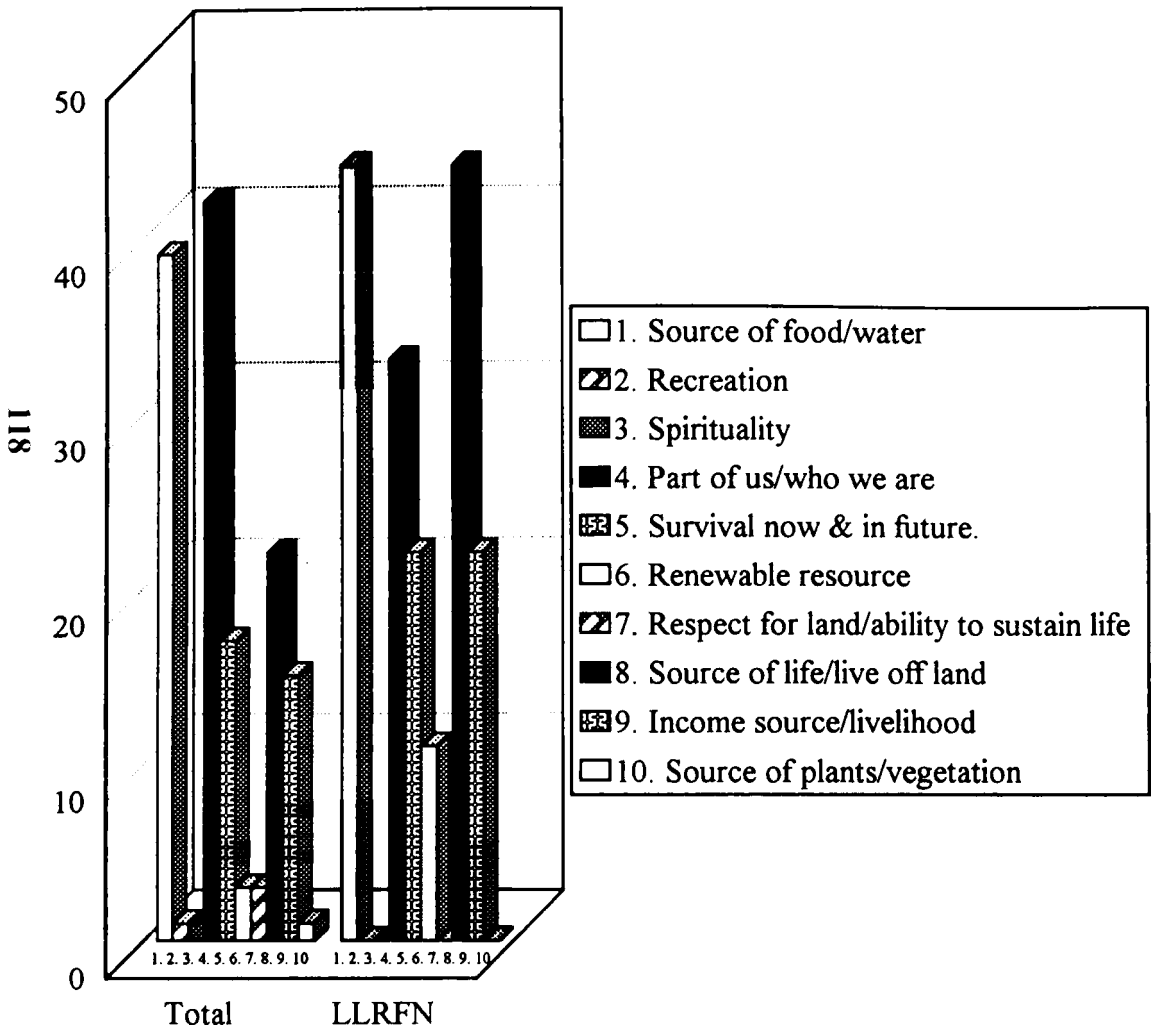
Sample size - 221 - Total respondents - 175 - Responded - 12

Figure 5.2-3; Land Use Activities



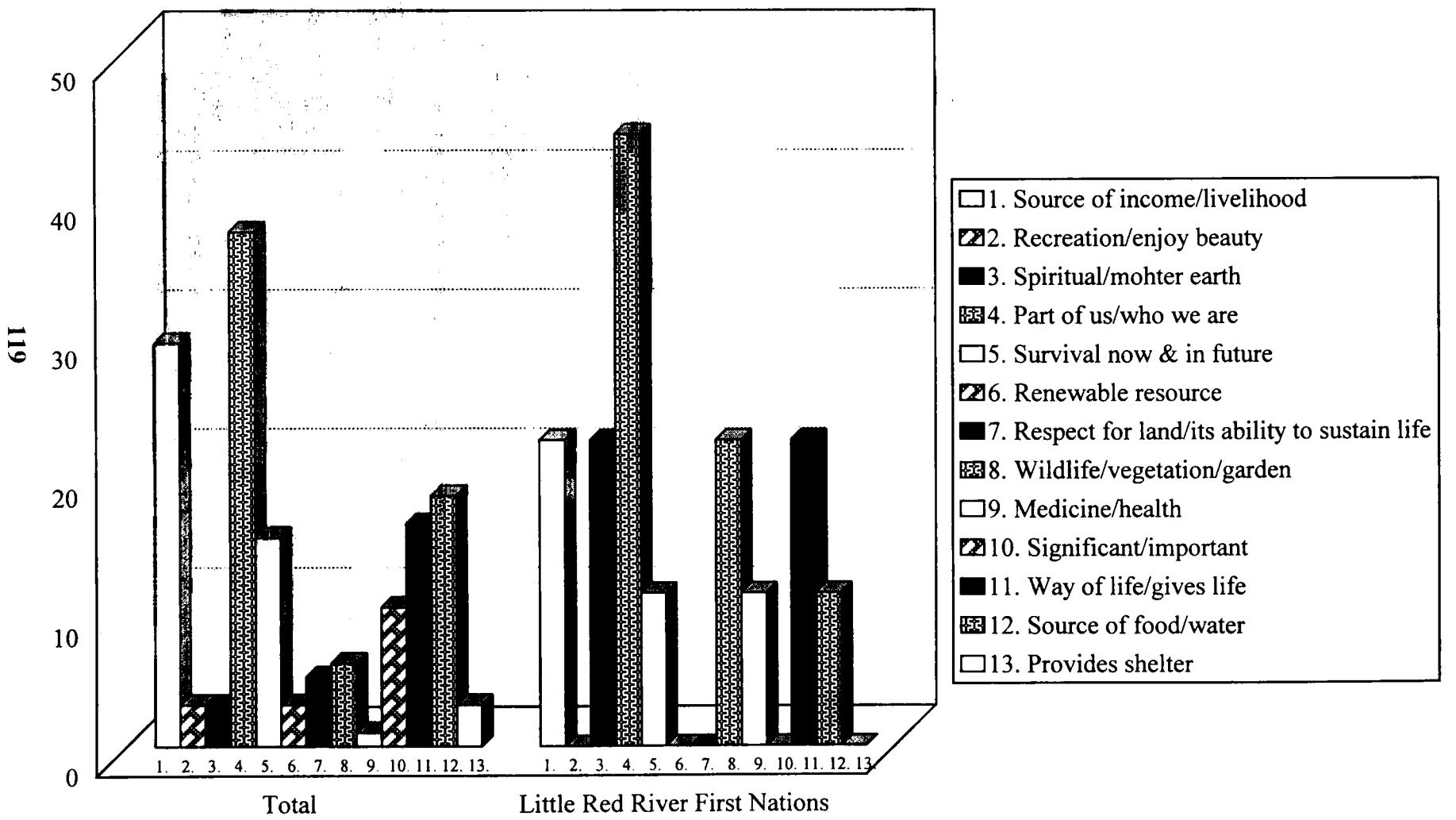
Sample size - 221 - Total respondents - 176 - Responded - 12

Figure 5.2-4; Land Use Significance.



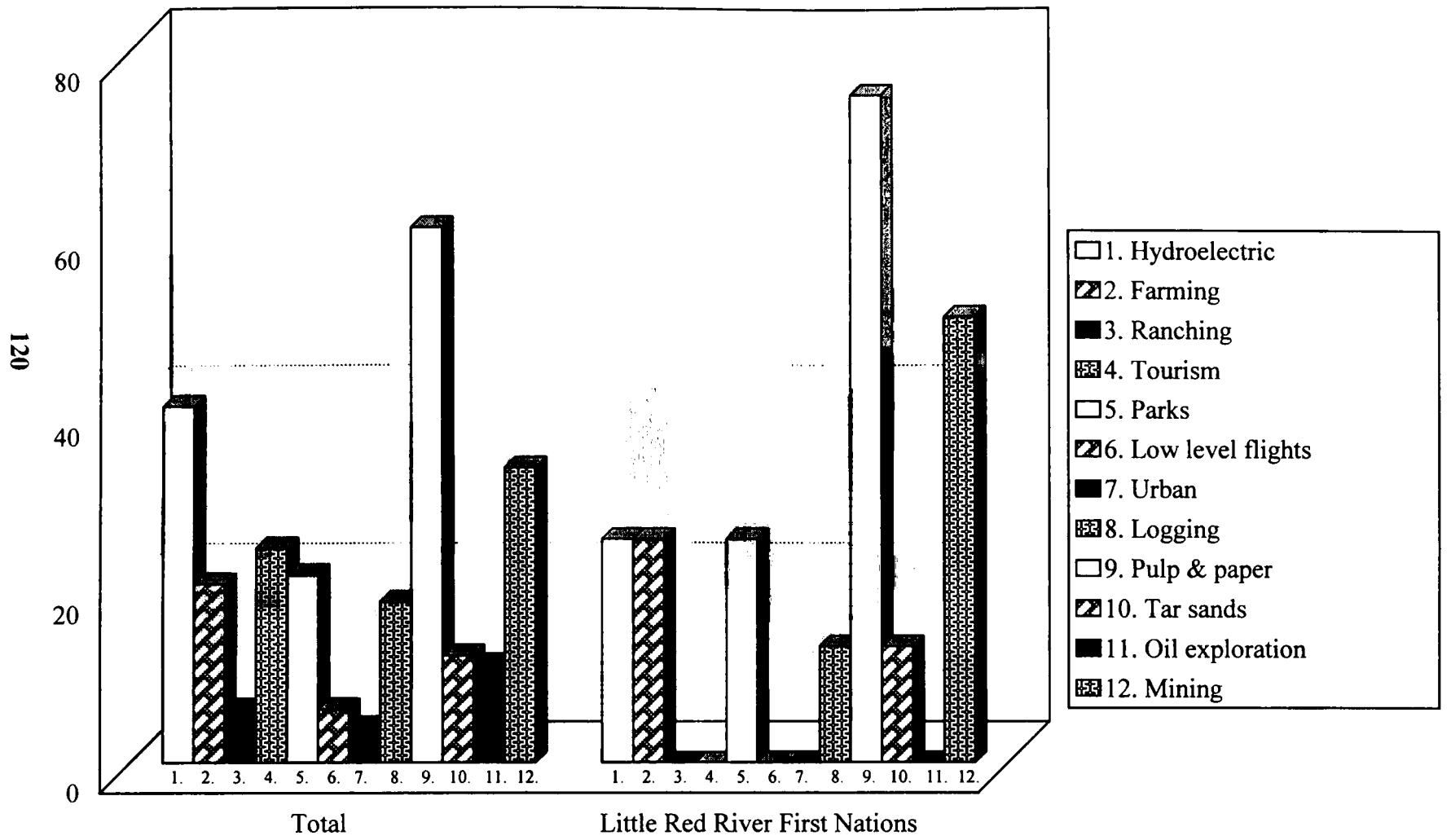
Sample size - 221 - Total respondents - 158 - Responded - 9

Figure 5.2-5; Land Use Significance to Traditional Lifestyles



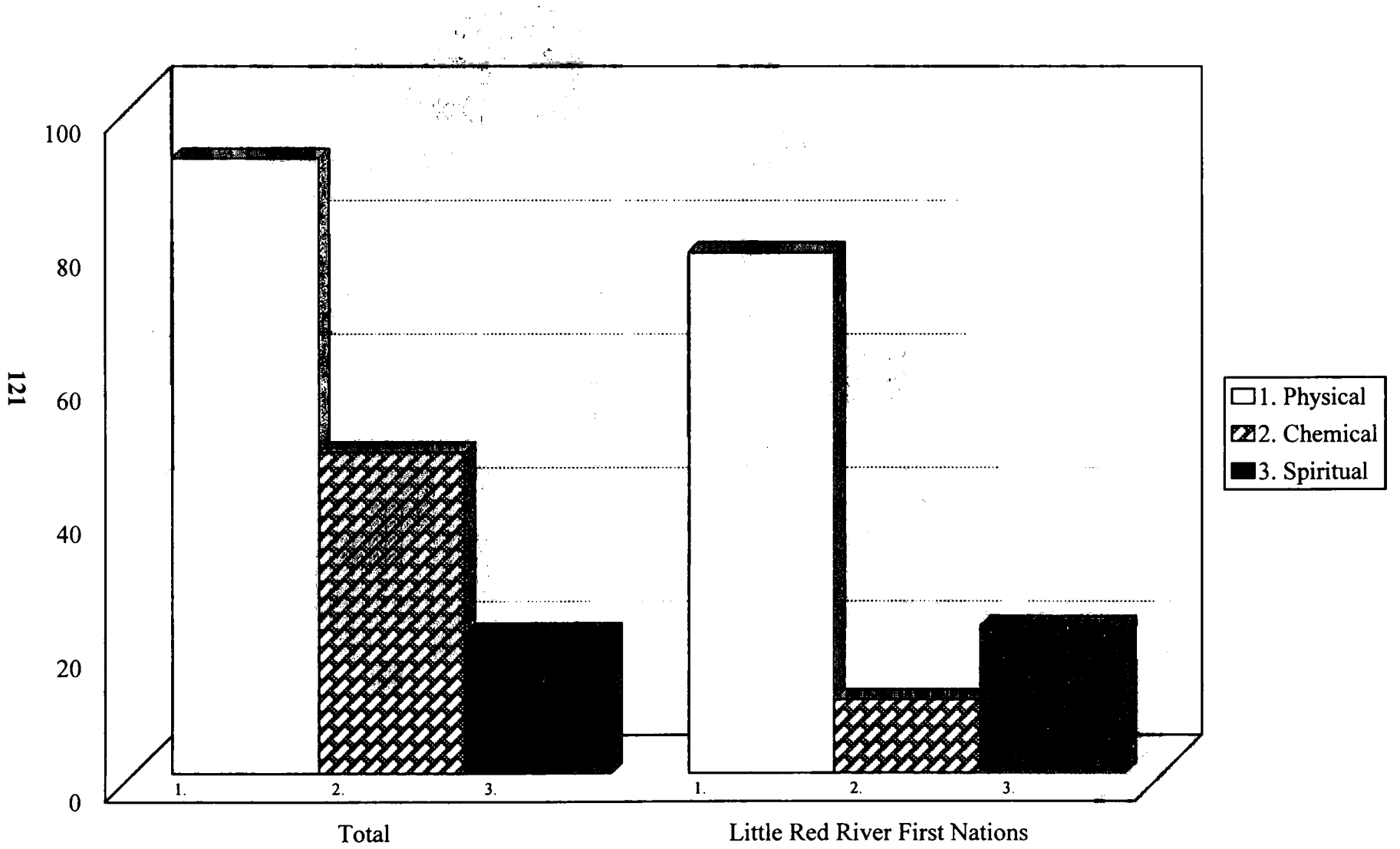
Sample size - 221 - Total respondents - 134 - Responded - 9

Figure 5.2-6; Developmental Land Use Near Traditional Land



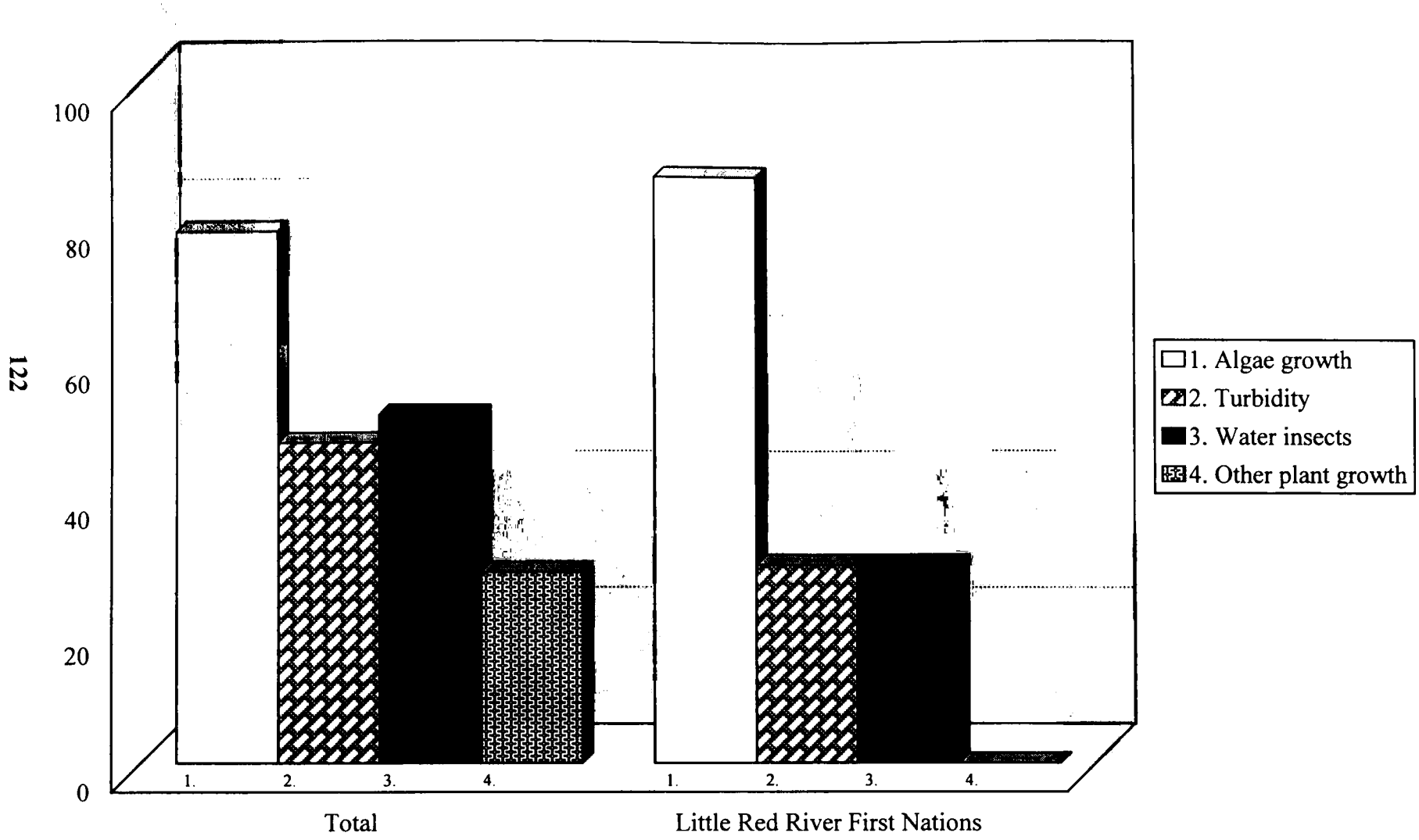
Sample size - 221 - Total respondents - 146 - Responded - 8

Figure 5.2-7; Significant Water Elements



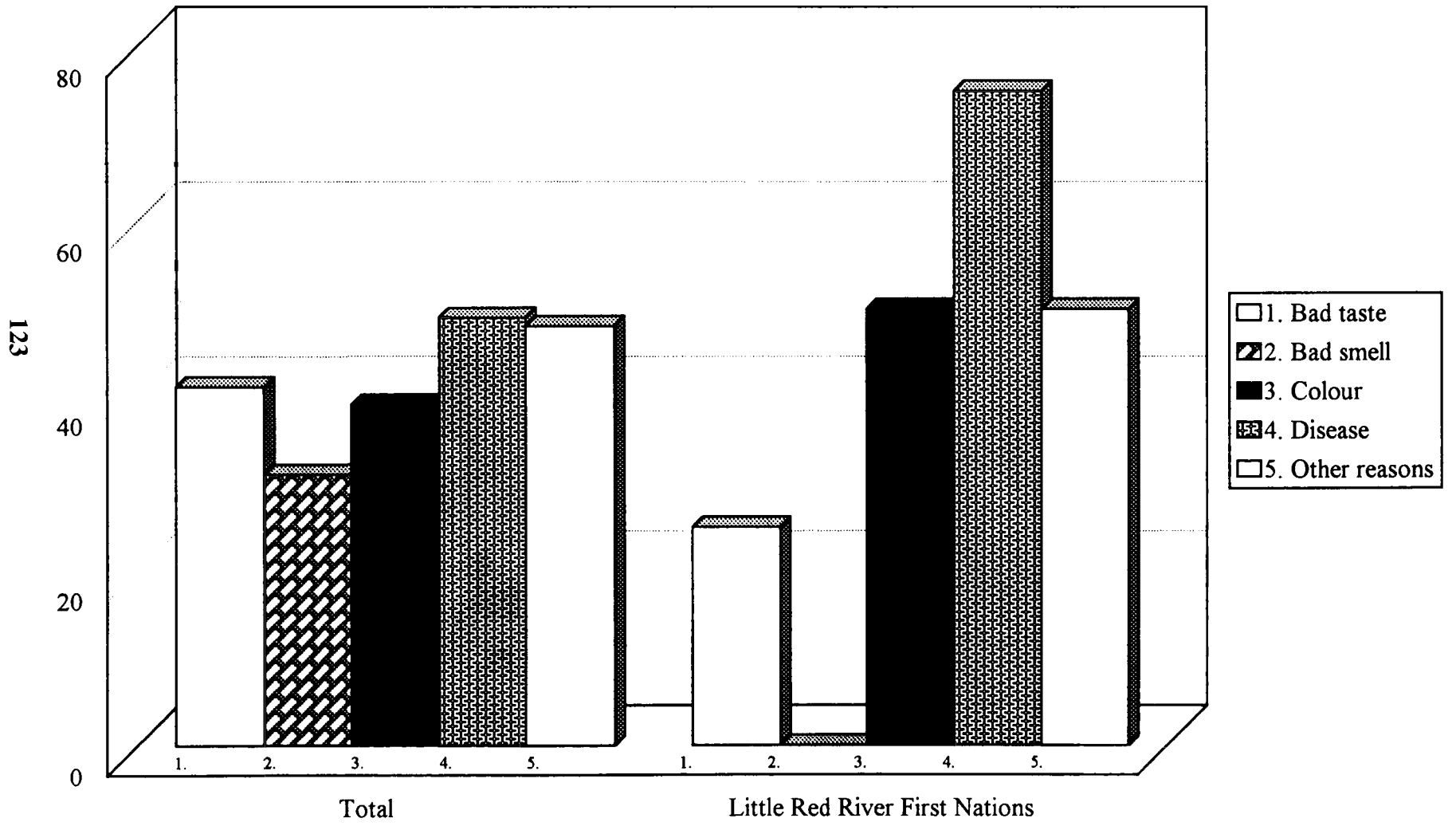
Sample size - 221 - Total respondents - 151 - Responded - 9

Figure 5.2-8; Identified Water Change



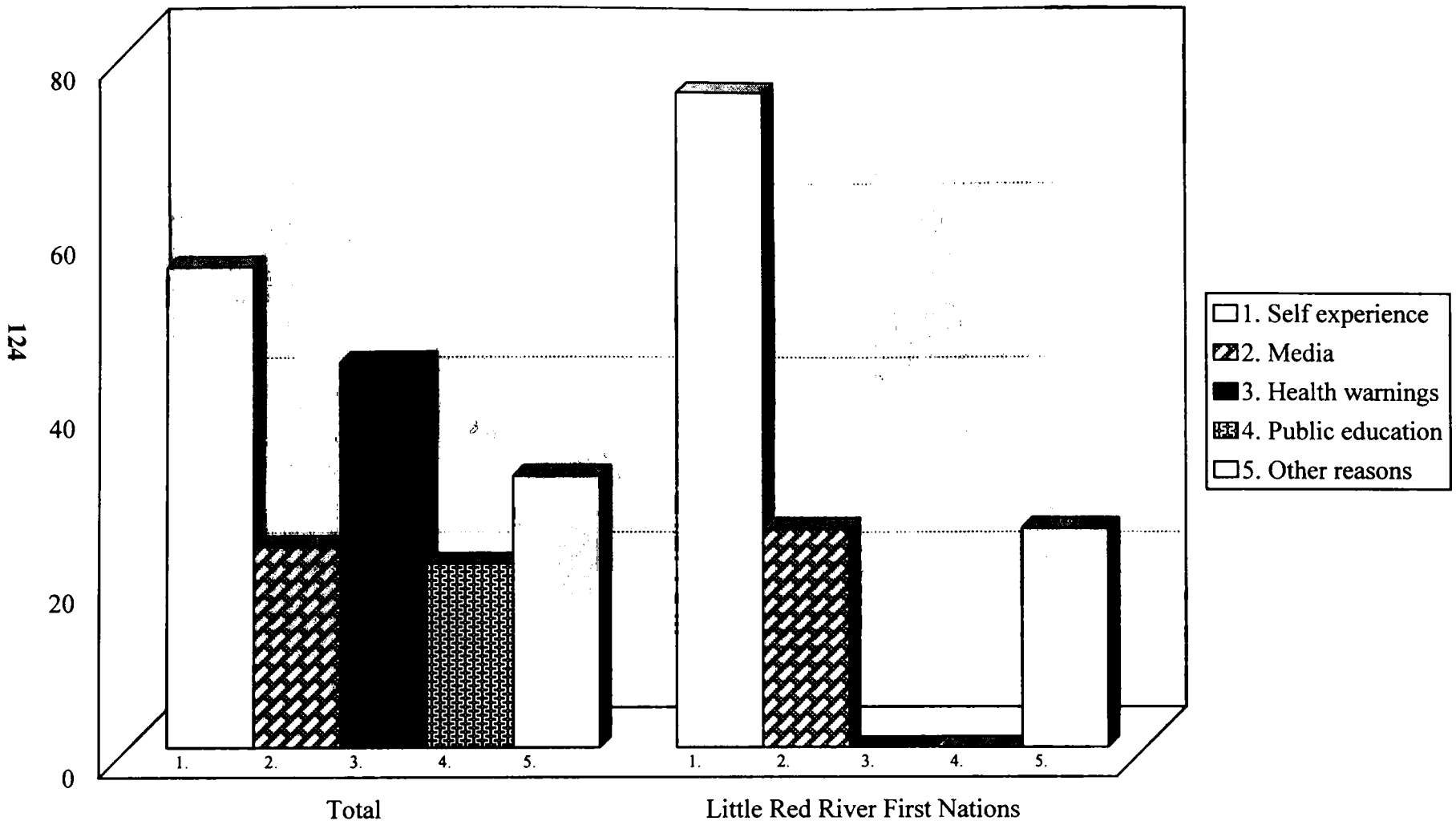
Sample size - 221 - Total respondents - 129 - Responded - 7

Figure 5.2-9; Negative Water Changes Impacting Use



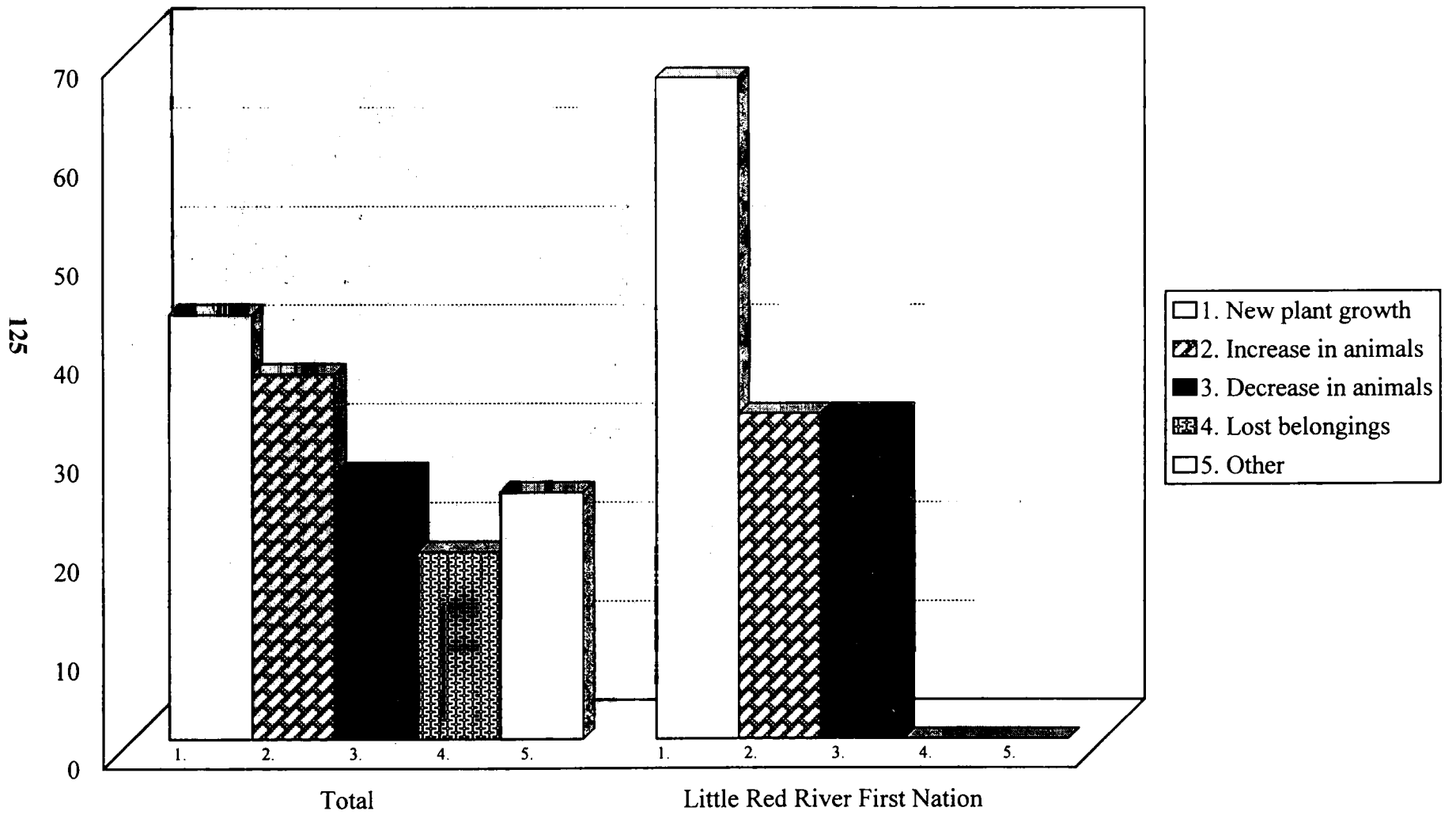
Sample size - 221 - Total respondents - 71 - Responded - 4

Figure 5.2-10; Reasons For Changed Water Use



Sample size - 221 - Total respondents - 62 - Responded - 4

Figure 5.2-11; Ice Jam Flooding Impacts to the Land



Sample size - 221 - Total respondents - 105 - Responded - 6

Figure 5.2-12; Most Frequently Used/Available Animals

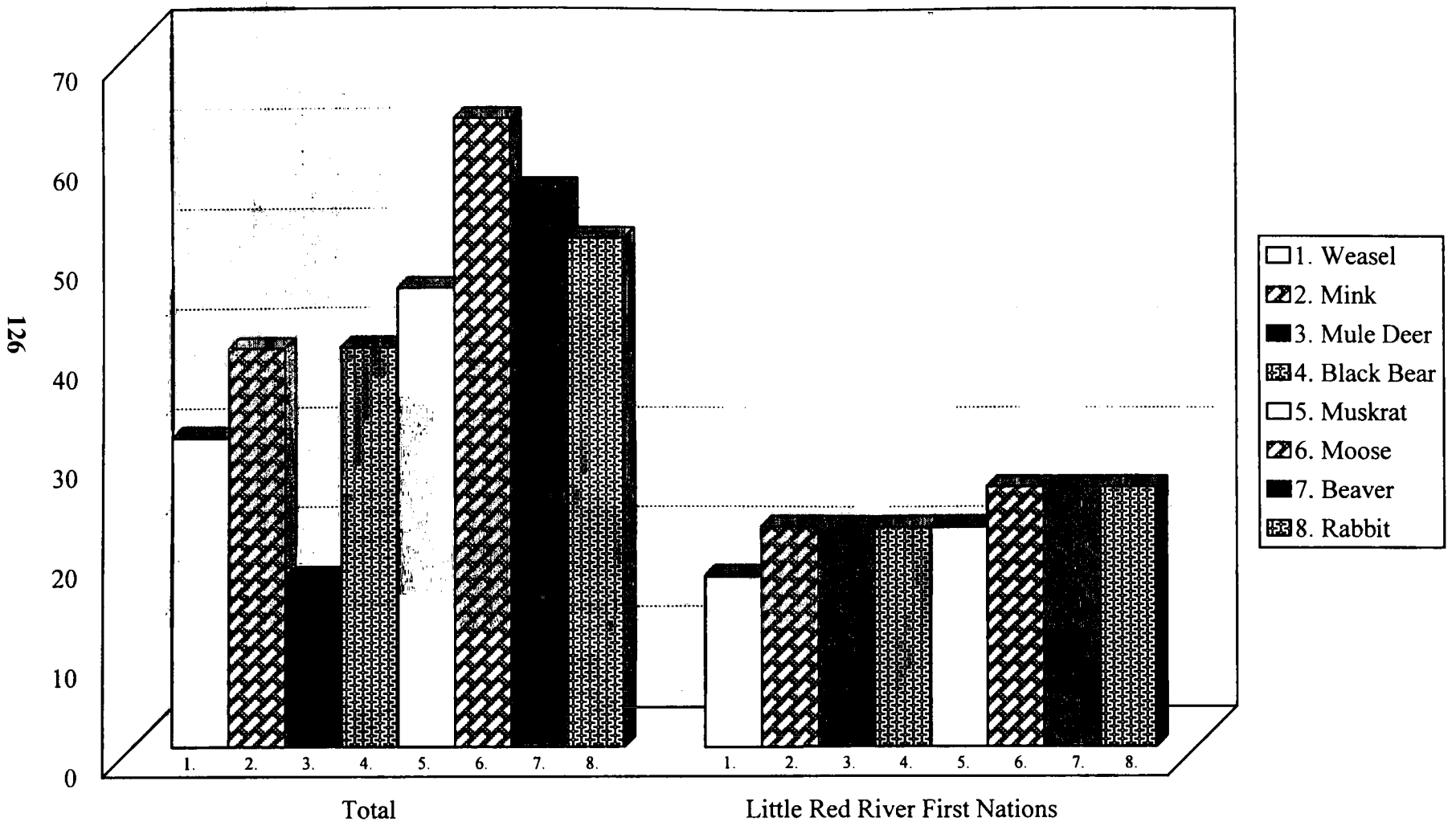


Figure 5.2-13; Most Frequently Used/Available Fish

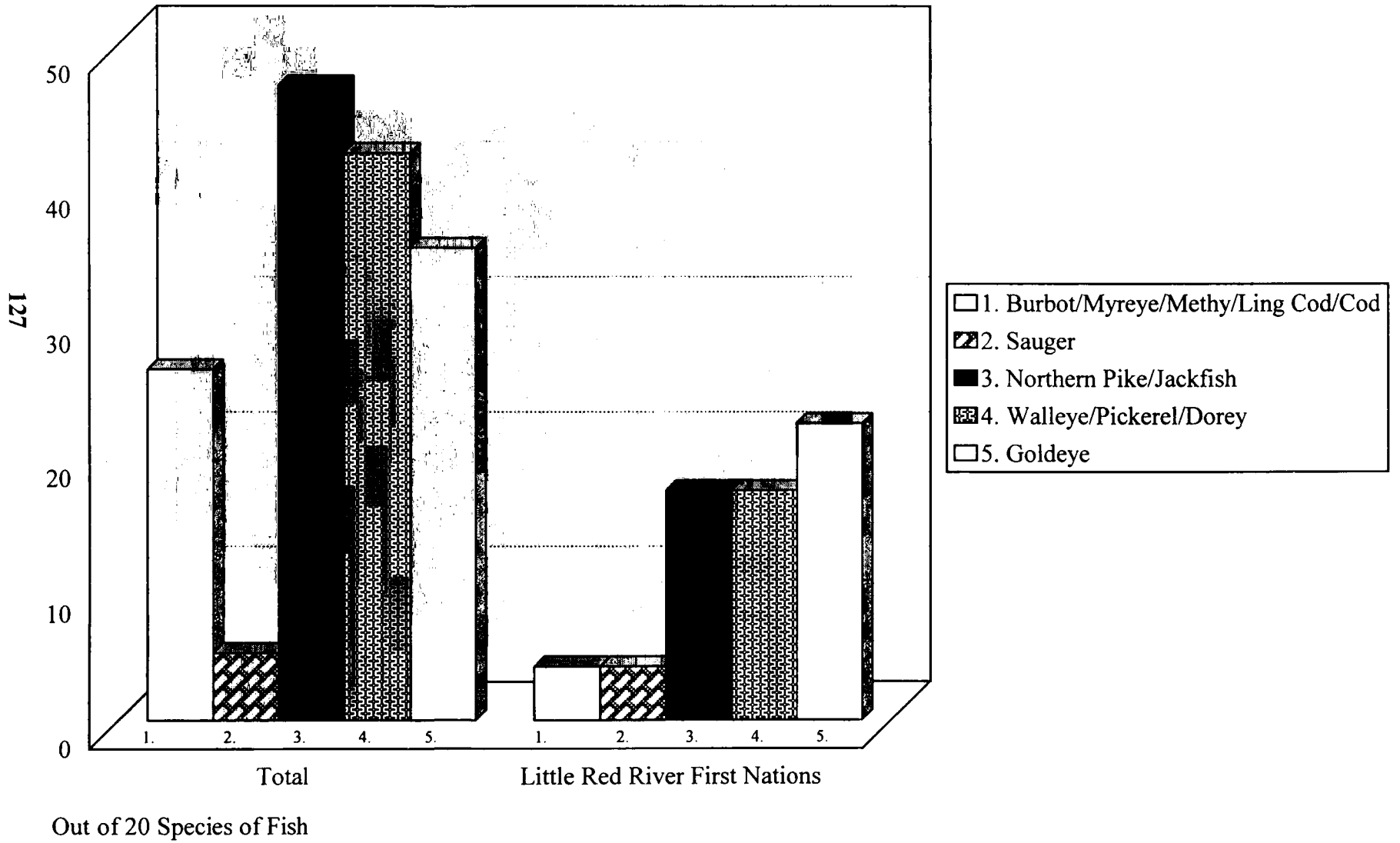
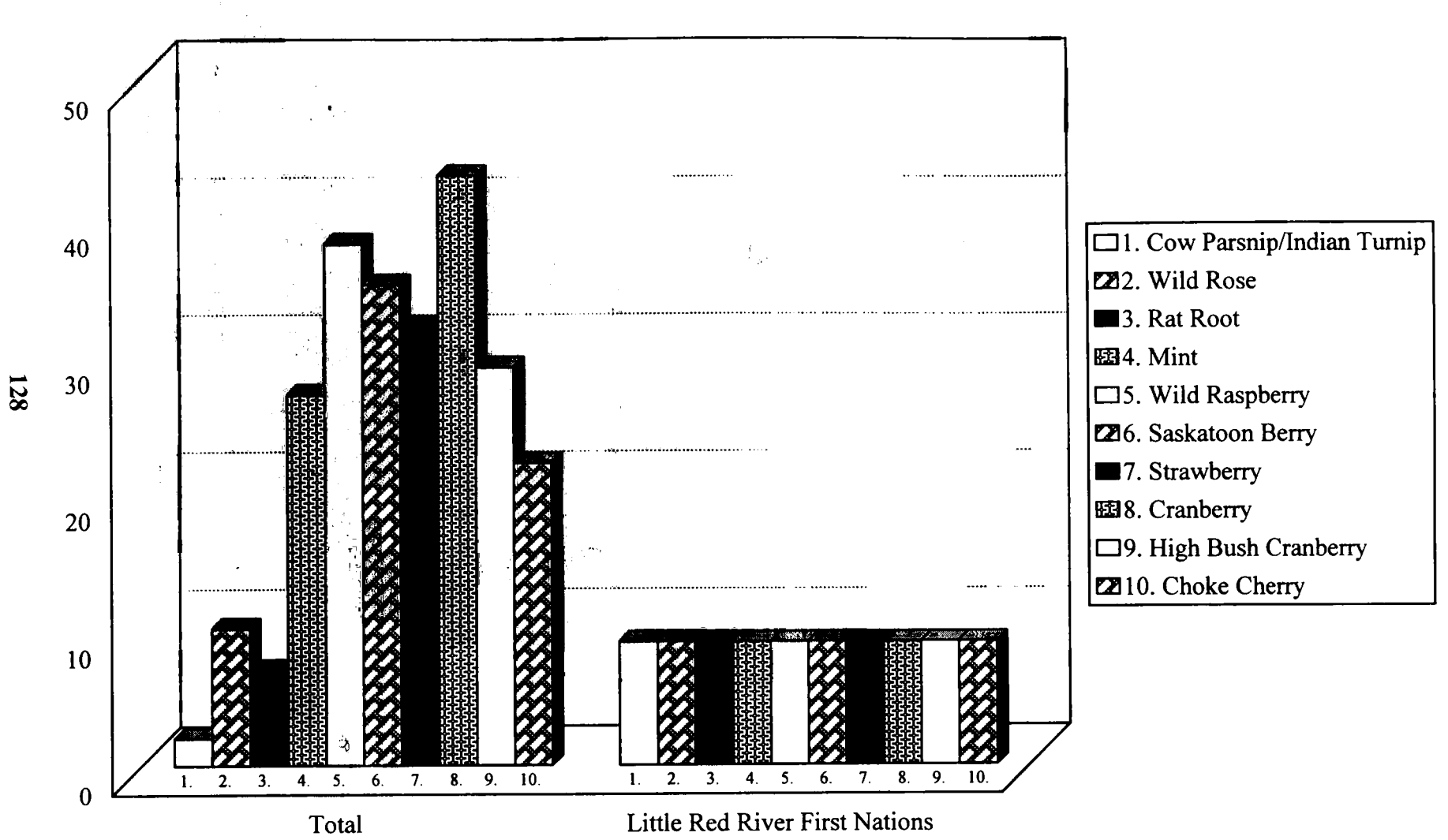


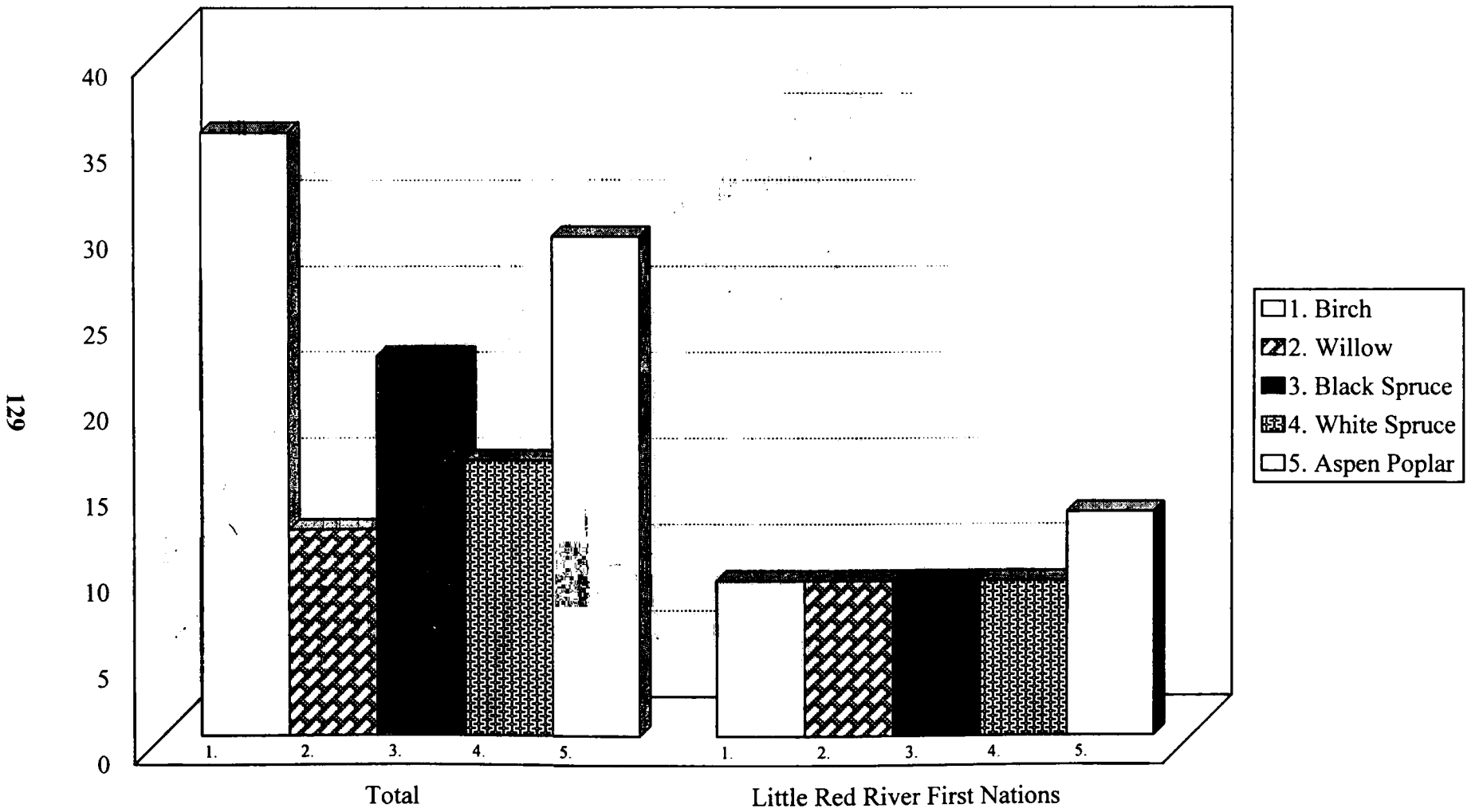
Figure 5.2-14; Most Frequently Used/Available Plants



128

Out of 45 Species of Plants

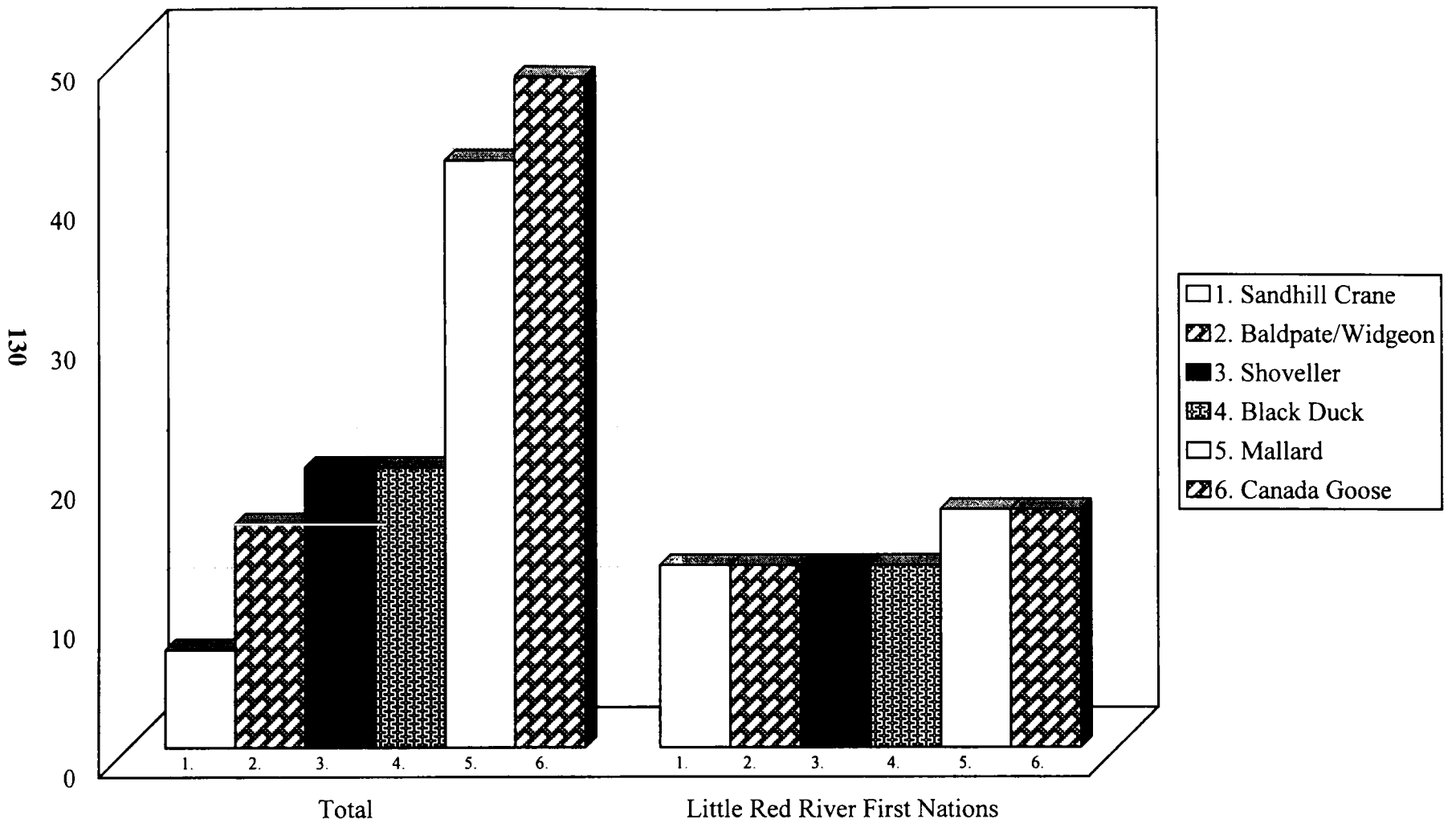
Figure 5.2-15; Most Frequently Used/Available Trees



129

Out of 25 Species of Trees

Figure 5.2-16; Most Frequently Used/Available Birds



Out of 31 Species of Birds

5.3 TALL CREE FIRST NATIONS

Of the thirty-two interviewees, nine were elders. Twenty-six surveys (12%) of the total sample of surveys were analysed. The respondent age breakdown shows that a greater number of individuals were in the 50 to 59 years age group (34%) than was true for the survey as a whole, followed by the 31% who were sixty years and over, and 28% in the 30 to 39 years age group. Sixty-nine percent (69%) of the surveys analysed were completed by respondents between 36 years to 59 years of age.

This community also seemed to define its elders by experience and not by age. Some who were 55 years old were defined as an elder and others in the same age category were not so defined.

5.3.1 Land

The elders of Tall Cree spoke of the land with much affection and respect as they often stated the land is a means to life. Traditional practice was not much different from that of the other communities and described the people as nomadic. This way was the practice long ago when people did not live in one location for extended periods of time, and it was how the land was managed. They spoke of the land as beautiful and having an abundance of game. Concerns that were raised in relation to the land were the destruction of trap lines by road building and the encroachment of farmland through clearing and logging. It is felt that land clearing has affected the wildlife populations, that the land is becoming desolate of animals. Little information was collected on plant knowledge and use from Tall Cree. The plants that were most frequently identified for use were: blueberry (58%), low bush cranberries and Saskatoon berries and mint (54%), strawberries and choke cherries (42%), Labrador tea and sweet grass (19%), wild rose and bear berry (12%). Trees identified for use by this community were: aspen poplar (65%), birch (46%), white spruce (38%), tamarack/larch (15%), balsam poplar (12%), and finally willow and black spruce (8%).

Tall Cree respondents with relatives who still live off the land were numerically greater than was true for the sample as a whole. This situation has resulted in a lower than average decline in people leaving the land. The percentage changes for Tall Cree versus the sample as whole are: parents, -50% versus -76%; grandparents, -61% versus -81%; siblings, 0% (or no change) versus -16%. Finally, 20% of the total sample had no relatives still living off the land versus 0% for Tall Cree.

Most of Tall Cree respondents had lived off the land for 40 to 59 years (66%). Only 20% had lived off the land for less than forty years and 13% for 60 - 69 years. None of Tall Cree respondents had lived off the land for 70 years or longer.

Tall Cree respondents made extensive use of the land. They showed average to above average use in every use listed, especially ceremonial grounds (61%) and sacred or burial sites (67%).

Tall Cree respondents carried out all activities except farming and ranching while living off the land but to a lesser extent than the sample as a whole. Hunting (89%), trapping (89%), gathering (72%), fishing (78%), and gardening (39%) were mentioned by at least some respondents.

Employment (67%) and water use (94%) were the only items mentioned more often by Tall Cree respondents than for the sample as a whole.

Just under one third (29%) of Tall Cree respondents had methods for managing the land. Those methods were either rotating traplines and harvest areas (25%) or maintaining their land base (25%). Tall Cree sites were the next most popular places for burn-off. The 25% of Tall Cree respondents who practised burn-off, do so seasonally. Of the four respondents from Tall Cree, half said it took one to six years for the forest to re-grow, one said 20 to 34 years, and one said 40 years or more.

In Tall Cree, most respondents (61%) used a combination of waste disposal methods. Seventeen percent dumped their waste while 22% burned it.

In Tall Cree, respondents showed the greatest concern for the land, representing survival now and for future generations (44%). In Tall Cree all seventeen respondents had a special way of relating to the land. Almost three-quarters (71%) spoke of respect and love. Most respondents in Tall Cree (47% said respect for the land.

This community appeared least likely to have recently lost traplines, as indicated by 5% of the Tall Cree respondents who had lost their traplines. However, seventy-one percent of peoples were affected by cutlines, pipelines, seismic lines, or access roads. Tall Cree residents (71%) appear to have suffered the greatest effect of development lines and roads on their traplines. Tall Cree respondents were mostly concerned that development scares the animals and/or destroys animal habitat (58%). An additional 42% mentioned logging effects and a third spoke of cutline effects. Tall Cree respondents identified every type of development except low level flights. All 17 respondents said that pulp and paper was being or had been developed near their land base. Almost three-quarters of respondents mentioned logging (71%) and mining (71%). The fourth most common type of development around Tall Cree land bases was farming (65%).

Eighty percent (80%) of Tall Cree survey respondents considered moving but did not actually move as a result of development. For 53% of Tall Cree respondents, mining was the major concern.

Tall Cree respondents showed the greatest range of average scores ranging from a low of 1.1 for industry to a high of 4.9 for Aboriginal chiefs. Pattern-wise Tall Cree respondents followed that of the total sample rating industry the lowest followed by the three levels of government (1.3 to 1.4) followed by individual (4.6) and citizen groups (4.1) and finally rating Aboriginal chiefs (4.9) and Native councils (4.8) the highest.

Although 33% said the land was changing, and has been affected by development, it has not affected their feeling toward the land. Those who commented were mostly concerned that development disrupted the wildlife balance, cycles and numbers (19%).

In Tall Cree the respondents, similarly to those in Fort Resolution, were most likely to say their relationship with the land could be maintained by stopping development (29%), stopping logging (21%)

and stopping pollution (7%). They were much less likely to make comments about maintaining the natural state of the land (7%) or water (7%) or having respect for the land (7%). Tall Cree respondents were the only ones to say that the white men had destroyed their relationship to the land (14%).

A sacred site was described as a place where people were buried long ago and where mystical experiences or ceremonies had taken place. Ceremonies such as feasts and dances were held in a clean site or where there had been successful hunts of game. A couple of specific sites are those of the Wabasca River and Kawakoopiack. The Little Red River was also identified as a sacred site because the priests had seen the image of the Virgin Mary there. Tall Cree respondents, like those in Garden River, rotated their traplines fairly infrequently. Over half (53%) did not rotate their lines at all. Twelve percent did so annually, 29% seasonally and only 6% weekly. Past ownership of traplines in Tall Cree ran at 84%, while only 53% still own traplines.

Table 5.3-1: Table for Demonstrating a Special Regard for the Land

	Tall Cree
Yes	29%
No/do not know	18%
Respect	47%
Ceremonies	6%
Protect it	0
Meetings/land use study	0
Elders	6%
Way of life/community life	0
Number Respondents	17

Table 5.3-1: Table for Demonstrating a Special Regard for the Land (continued)

	Tall Cree
Do not/no	8%
Leave it alone to heal	0
Cleansing/purifying	23%
Give thanks	0
Do not dump in it/pollute it	8%
With respect/importance	69%
Use every year/use it	8%
Yes-unspecified	0
Evaluate physical characteristics	0
Other comments	0
Number Respondents	13

5.3.2 Water

The elders were asked to speak about their concerns and knowledge of the water, ice and floods in their area. This section describes their impressions and thoughts as it relates to the water. Tall Cree respondents were most likely to pay special regard to the waters by not dumping in or polluting them (69%). Tall Cree distinguishes itself by its apparently greater importance on cleansing or purifying the waters (23%) coupled with giving thanks (8%) and respecting the waters (8%). Tall Cree respondents used the greatest number of water sources; surface water (33%), water treatment plants (22%), rain or melted snow (6%), dug-out (6%) and various sources (33%). The water is believed to cause more illness in children because of the way it is treated and in particular Tall Cree water is not considered good water. The water leaves a scum on the cup and even after it is made into tea. Water levels have decreased considerably over the years. Creeks and lakes are known to have dried up. Almost all (94%) Tall Cree respondents had noticed an increase or new appearances of algae growth, higher than any other community. Turbidity was at levels equalling that of the total sample (47%), while water insects (76%) appeared more prevalent in Tall Cree. Other plant growth (18%) was less frequent in Tall Cree than in any other community.

Tall Cree respondents (57%) had observed an increase in over growth of vegetation which has disrupted traditional activities. Thistle and silverweed growth was first noted in the early 1970's and increased by the mid-1970's.

Those in Tall Cree were consistently low in their ratings of all activities. Water quality was believed to be affected, mostly from mining (1.1).

The elders indicated that many people stopped using the lake and river water about four years ago because of taste and the concern for its cleanliness. Tall Cree (11%) were the least likely to haul water. Finally, Tall Cree respondents showed a greater concern than any other community for the water's bad taste (100%). Coupled with this was the respondents' concern for the bad smell (89%), off-colour (78%), and the threat of disease (67%).

Ice jams were known to occur at Fort Vermilion and in 1932 - 34 it flooded as a result of an ice jam. Tall Cree was evenly split between not noticing any changes in the ice formation (50%) and that the ice was thinner. Six people in Tall Cree identified the spring as the flooding season. Tall Cree respondents were fairly evenly split on whether or not the flooding times had changed with 43% saying they had. Those three respondents all agreed that flooding was less frequent if at all.

Table 5.3-2: Table of Observed Ice Formation Changes

	Tall Cree
No change/never noticed	50%
Thinner ice/ gives & crumbles	50%
Ice not as cold	0
More floating objects, e.g. blocks, stumps, drift logs	0
Ice dirtier /ice darker	0
Bennett Dam releases water in winter	0
Jam releases and takes everting with it	0
More overflow	0
Lake or river changed shape, e.g. channels dried up, different water path	0
Ice freezes rougher	0
Ice is low	0
Number Respondents	4

5.3.3 Wildlife/Fish

The elders were asked to speak about their knowledge of cycles, and changes in wildlife as they could recall and had observed over their time of traditional land use and practice. The elders of Tall Cree made the following comments about wildlife and environment changes. Their traditional land use area primarily spread out toward the Caribou Mountains and along the Peace River.

The elders reported that many of the animals had changed their routes of travel, because the "white people" were scaring them away. The animals are perceived to be running away from the disturbances created by logging, farming and road creation. Although some animals are returning to abandoned roads, the former population numbers have not recovered. Caribou, for example, have not returned for many years. The moose were remembered as being numerous and were the main animal used for survival. All products of the moose were used and therefore were not only a sustenance source but also provided tools, lodging and clothing to the people. The elders reported that moose preferred to be in sheltered areas rather than prairies. Buffalo were always present at Poplar Point and at Mcfarlane but few are reported to be in the area presently. White tailed deer were also numerous in the past but are no longer sighted as frequently.

The animal use was ranked according to which animals were reported to be used most in the survey. Moose (100%), beaver (92%), rabbit (85%), black bear (81%), muskrat (77%), white tailed deer (69%), lynx (54%), coyotes and mink both at 50%, red fox (46%), mule deer, grey/timber wolves at 42%, weasel (38%), bison and red squirrel (31%); all other smaller game animals rated at less than 12% use.

Sometimes squirrels were eaten, long ago. Squirrels have been affected by the logging and their numbers have declined due to a decreased habitat. The spruce trees are not around for the squirrels to collect cones. The Sugar Creek area was noted for mink but they have declined in numbers. It is believed that the shortage of rabbits influences the capacity for the mink to increase their numbers. Lynx and martin are not as plentiful. Otters were reported in the Buttle Lake area but in deceased numbers.

Muskrat, beaver and bear meat was eaten quite frequently in the past but many of the elders indicated that the meat of these animals does not have the same flavour that they were used to in the past. Muskrats were hunted for food in the spring; although muskrats are fat, an unpleasant oily taste is now present in the meat. Muskrats were always noted to have been along the creeks and the river, but few have been observed lately. Beavers have increased in numbers compared to years ago. Ten beavers were considered many at one time. The elders stated the flavour of river beaver meat was different from that of the beavers that lived in the mountains (Caribou Mountains). The difference in flavour was attributed to the diet of the beaver. River beavers consume saplings and are considered better tasting compared to the bush beaver that fed on a water plant called "Waskutamow." Beavers are reported to get diseased at times with an illness that causes fluid on their intestines and lungs, and a swollen appearance. Generally beavers will not leave the area if there is plenty of feed, as they will flood areas to create a suitable environment for themselves.

Bear are not as plentiful and are not as flavourful to the elders. Bears' diet was primarily berries and insects, and the meat was good to eat. Hunting took place along the river after the berries were ripe as there would have been many bears feeding on berries. There have been occasions when the hunters have come upon the remains of bear with only the feet and the gall bladder or the hide taken. Such findings generated indignation toward the sport hunter, and in particular toward hunters who do not have the same regard or use requirements as do those who still try to utilize bear as a food source.

Rabbits are considered to be very scarce and have been scarce for a longer than usual period; the normal cycle of rabbits is considered four years. Skunks and porcupines used to be very numerous. It was reported that at one time there were so many porcupines "the trees were white with them"; this cycle peak was about 10 years ago.

There does not seem to be as many foxes, coyotes and wolves as before. During the rabies epidemic people were paid to go out and kill the foxes, skunks and the other sick animals. Since then, many of these animal species have not been around. The wolves in this area have been known to run in packs of five at the most.

Birds frequently used by this community were: Canada goose (92%), mallards and prairie chickens (77%), black ducks (58%), grouse (50%), shoveller and ptarmigan (46%), green-winged teal (35%), pin tail (27%), mud hen/coot (23%). Other water fowl and birds were used less than (12%).

Prairie chickens have decreased along with the spruce hens although small numbers have been noted to be present at Rat Lake. This lake was frequented by ducks and geese in the past. Zama Lake apparently used to have thousands of ducks at one time. Ducks and geese were hunted in the spring for a brief period, then left alone to raise their young. The ducks and geese were seen sitting along the river on the ice in the spring. Buttle Lake was also identified as a location for ducks and geese. Bald eagles were known to be frequently seen along the Peace River. Whiskeyjacks and other smaller birds have also been noted to be less in number over the last four years.

Fish were fed to the dogs and were also used as a food source. Tall Cree was slightly less than Fort Vermilion with 67% of respondents not feeding fish to their dogs. Eight species of fish were frequently used by the Tall Cree respondents. Goldeye (62%), northern pike/jackfish, walleye/pickerel/dorey (54%), burbot/myreye/ling cod (23%) and sauger (4%).

The Wabasca River and the Peace River were fishing rivers but this changed after warnings were posted not to eat the fish in the Peace River. There are less jackfish, goldeye, suckers, and pickerels in the Peace River.

5.3.4 Health

The elders of Tall Cree identified the following illnesses as the most prevalent in their community: diabetes, cancer, cardiovascular problems such as high blood pressure, and other illnesses such as flu and arthritis were discussed. Illness that was identified as increasing in the community were diabetes

(25%), cancer (19%), and heart problems (6%). The most important aspect to health for the Tall Cree respondents was good nutrition (62%), followed by traditional food (46%) and exercise (15%). The use of traditional and store bought food was evenly used by the Tall Cree respondents. It was said that there was less activity and people seemed to rely on motor vehicles for travel, rather than walking to their destinations. Activities engaged in more than once a week by the respondents were swimming and long walks (71%), followed with jogging/running (29%), gardening/fishing/ hunting (21%), and to a lesser degree other recreational activities such as boating, curling, ball games, skating/skiing (6%), running dogs was practised by 9% of the respondents. The elders indicated that the diet of the people had changed greatly and obesity was the result of this lack of physical activity and change of diet. The elders felt that children often became ill quickly and suddenly.

Those elders who spoke of traditional medicines indicated that they had to go further to harvest their herbs for healing and stated that the farmers were destroying their medicine harvesting territory. The elders indicated that it was more difficult to find the plants used for healing. Specific plants were not identified during the interviews.

5.3.5 Family and Community Relationships

Several of the elders indicated that they had been raised in the bush and had not gone to formal school. These elders spoke of the family unit as very important to them because that was where they had learned how to live in the bush. They spoke of the many influences over the youth today and indicated that the youth were losing the knowledge because of the distractions. It was stated that the young people are trying to be like "white people." They spoke of the lack of respect they received from the youth. It was said that even when an elder tries to advise or direct the youth they do not listen. Some elders spoke of the need for the youth to revisit the old ways so to find the strength that is needed to refrain from being influenced by alcohol and the many other distractions. There was reference made to the role of traditional dances and ceremonies in asking for life and direction from the creator. It was said that the drum was an important instrument because it would echo through the land for the life of all things. The role of fathers in teaching hunting and bush wisdom was very apparent as the elders often indicated that their fathers, uncles or grandfathers had taught them how to be in the bush. It would seem that this role has eroded greatly, since the present-day youth are not as interested in learning about trapping and hunting or living out on the land.

5.3.6 Traditional Knowledge

The elders indicated that the people made it a priority to seek guidance in a spiritual way, this was done in the lodges and the ceremonies they held. Many of the elders that used to do these things are now gone and very few know of these ceremonies. Dancing was a way to ask for life and prosperity. The drum was seen as the link to the land and the creator, as its sound travelled great distances. The pipe was also a means to communicate with the creator. The elders believed this practice would help the young people to regain their strength in the traditional ways and thereby be happier and stronger in mind, body and spirit. The men were also taught how to dry meat and fish, as that was a survival skill.

All were taught to follow nature and the movement of the animals and to keep the land beautiful. Skills such as hunting and harvesting along with the ability to makes the tools to survive with, were taught.

Seventy-three percent (73%) of Tall Cree respondents appear to have grown up in a close knit community of relatives. They were most likely to learn the traditional way of life within the family, including their spouses. Parents (84%), grandparents (47%), spouses (11%) and other relatives (32%) were all used as sources of traditional knowledge. Non-relatives, that is friends and other people, were not traditional knowledge teachers for Tall Cree respondents.

Sixty-nine percent (69%) of respondents from Tall Cree have probably experienced the least change with respect to relatives leaving the land. The respondents of seemed to show a much stronger affinity to the traditional way of life than any other community. The percent of Tall Cree respondents whose relatives had lived off the land was consistently higher than for the sample as a whole. As well, many Tall Cree respondents have acquired a wide range of skills, although not with the same frequency as the total sample. Fishing (58%) was almost thirty percentage points lower than the total sample. Hunting (79%) was more popular than trapping (74%) or gathering (58%), although all were lower than the total sample, except for making arts and crafts (26%), which fell substantially below the total sample of 40%. Tall Cree respondents (47%) were most likely to identify traditional Indian beliefs as a spiritual preference but they were the least likely to have noted spirituality as part of their traditional teaching. Tall Cree respondents ((94%) are the most likely of all to live off the land; they have a high propensity to hunt (84%), and 7% of Tall Cree respondents still use dog teams.

5.3.7 Future Expectations and Recommendations

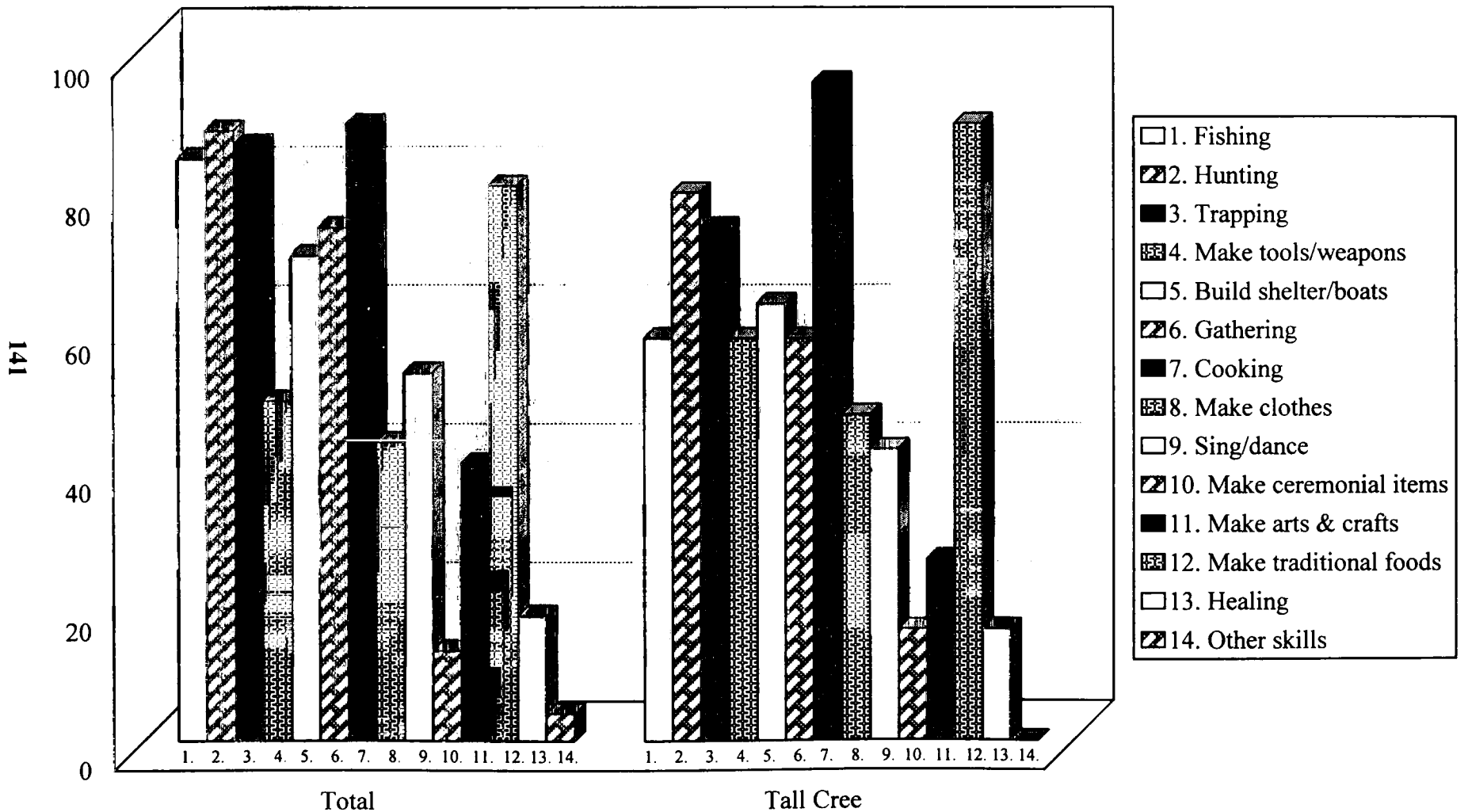
The elders of Tall Cree emphasized several changes they felt had occurred within their community and with their surrounding land. The elders felt that the manner in which children are taught had created much change in the way children behaved and perceived the importance of traditional ways. They indicated that the landscape had changed greatly from the land clearing for farms and logging. They reported that their use of the trap lines had decreased because the game was gone, and because the fur market had declined.

The elders have observed that the young people have lost interest in hunting and trapping and are not choosing to eat wild meat because of the taste. They believe that the young people have been influenced by other food.

The community of Tall Cree focused on influences of modernization and development throughout the interviews. When they were asked about their expectations and message to the youth and the leadership, they frequently spoke of the need to reinstate traditional practice. Often it was mentioned that the youth needed to not only acquire an education but to also work toward learning more about the old ways. They advised the youth to learn the language and give respect to the elders and to the land. They indicated that it was very important for all people to work together for a better future and a sustainable land. It was clear to them that if present practice continued there would be little or nothing left for future generations. The elders felt that there was a need to control and reduce the effects of pulp mills and

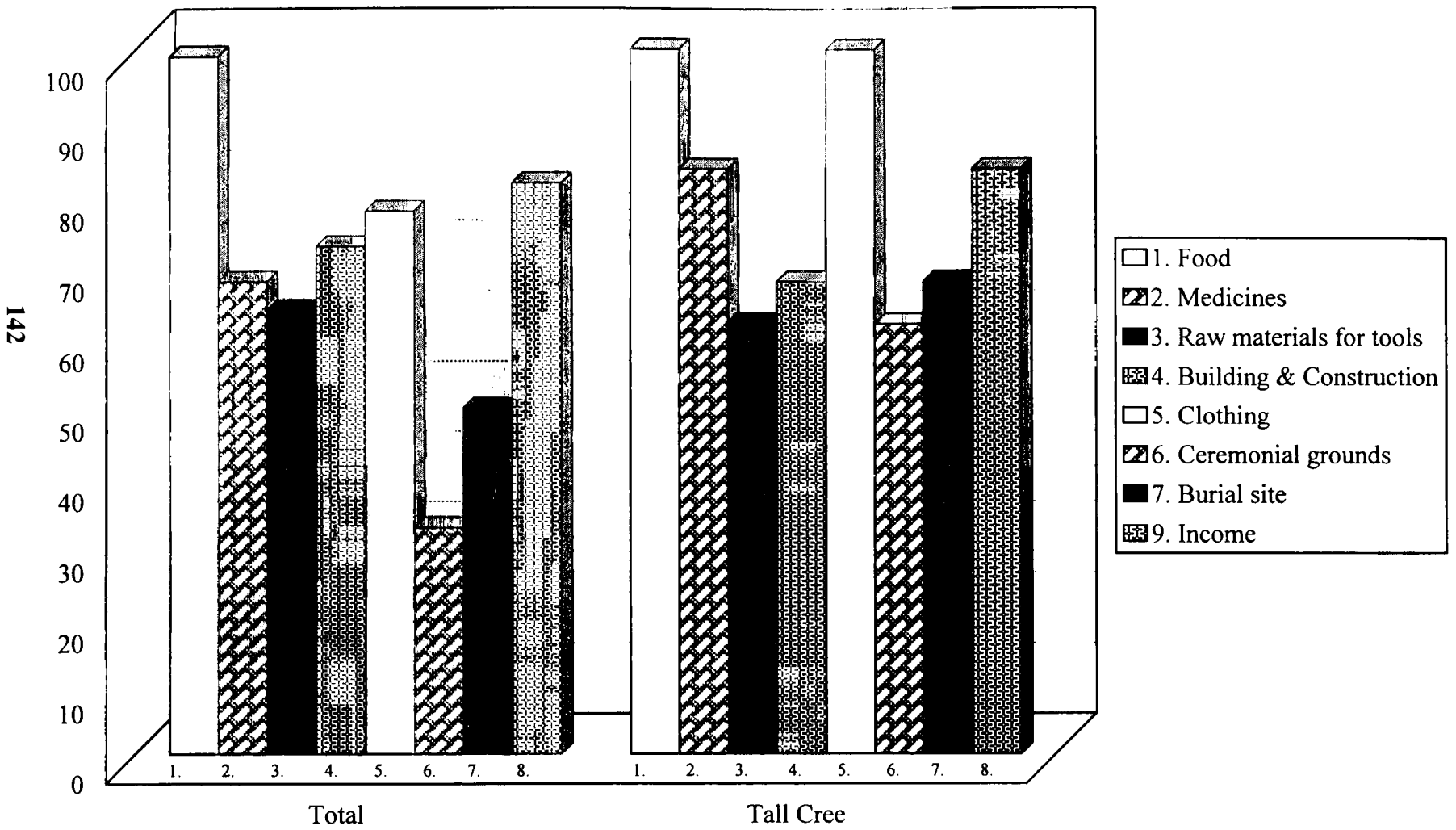
logging practices. The elders also indicated the need to be approached and included in the teaching and guiding of the youth. The elders spoke of the need to educate the world about the effects of development in their area. They indicated that if others knew of the effects it would not be seen primarily from the perspective of those it served. They advised the youth and the children to be aware of the need to follow the advice of the elders and to work toward living a life without alcohol and drugs. The message they had for the leaders was to listen to the people: "they are crying for help."

Figure 5.3-1; Traditional Life Skills Identified



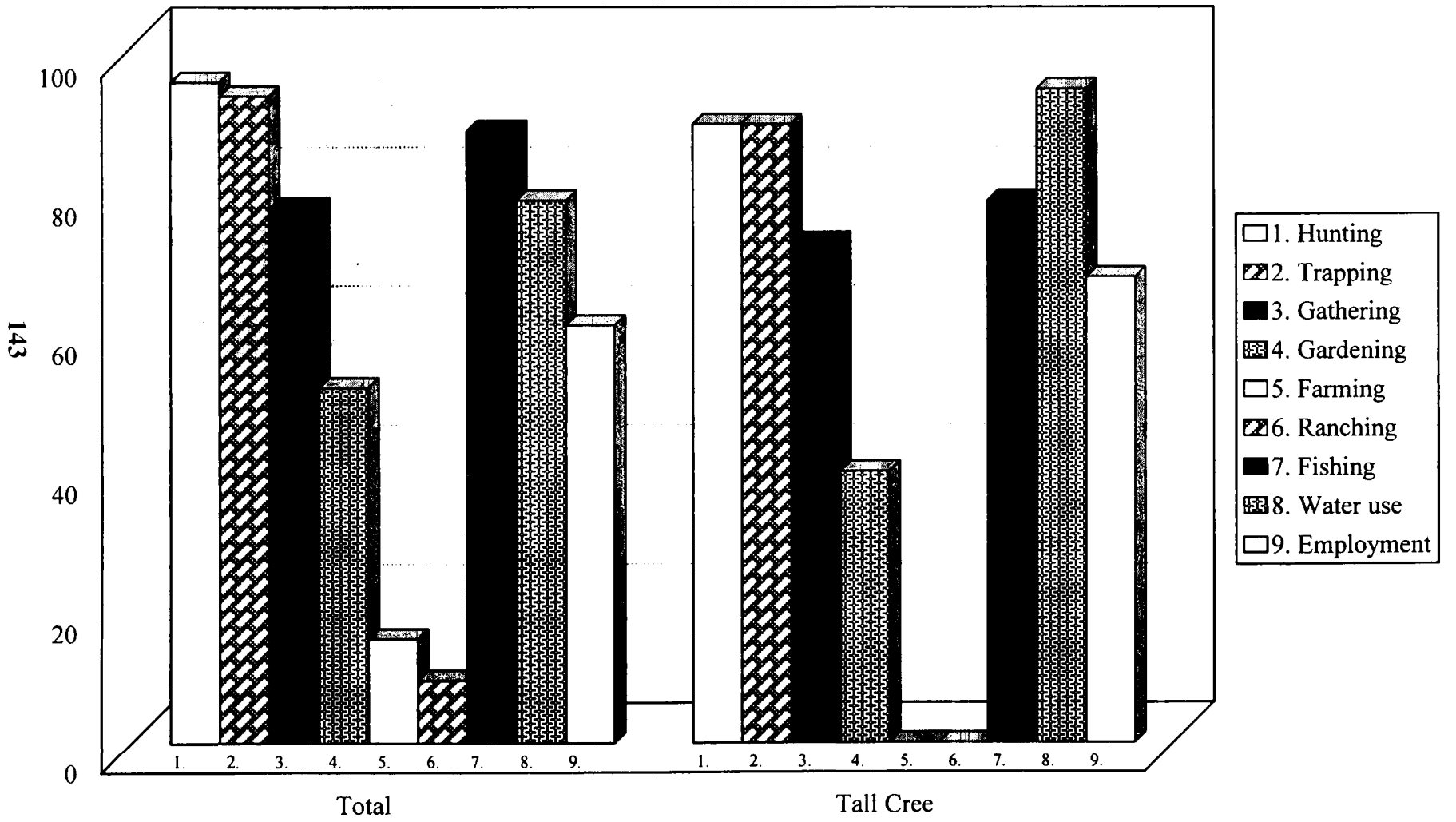
Sample size - 221 - Total respondents - 205 - Responded - 19

Figure 5.3-2; Commonly Identified Land Uses



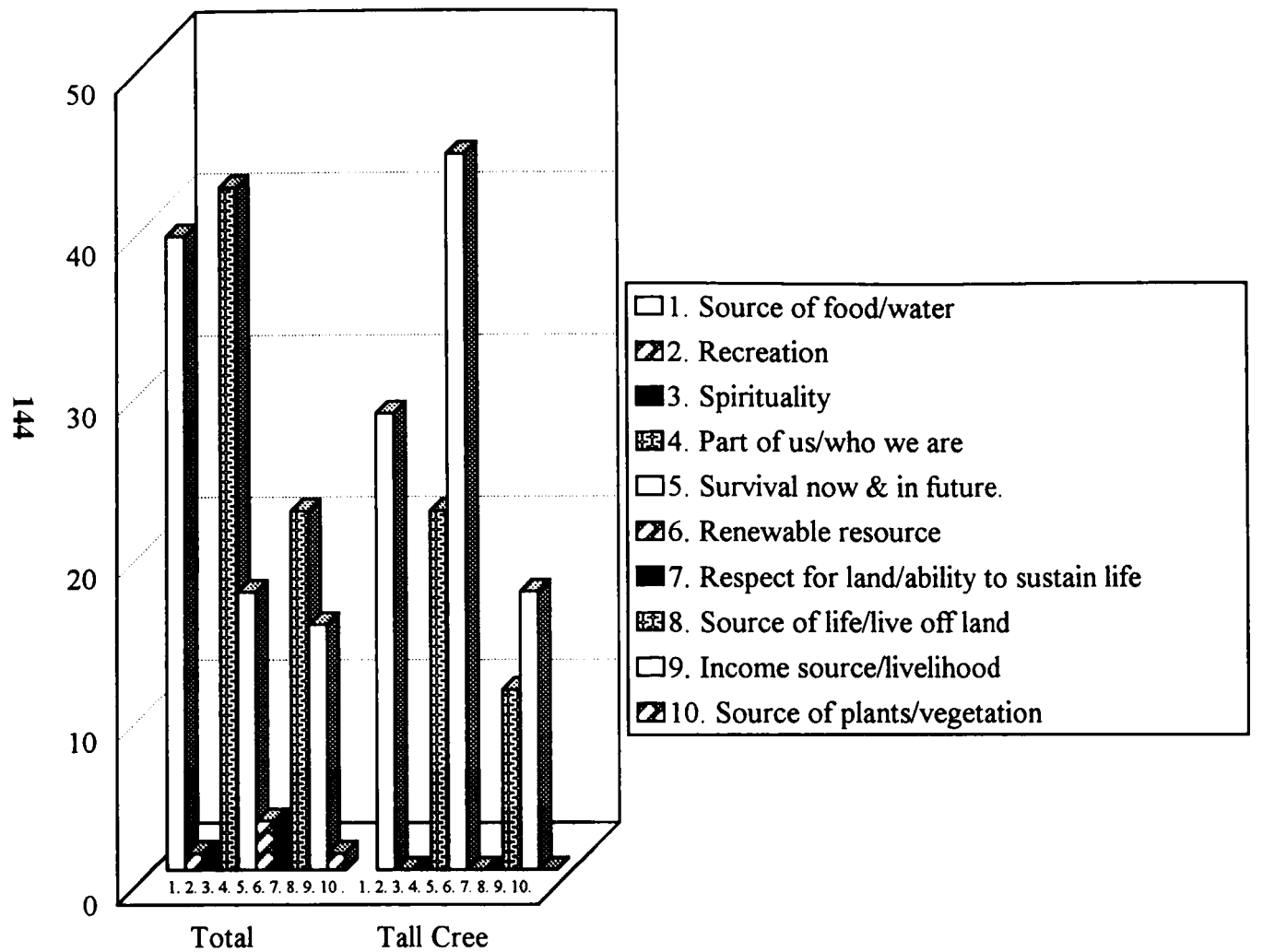
Sample size - 221 - Total respondents - 175 - Responded - 18

Figure 5.3-3; Land Use Activities



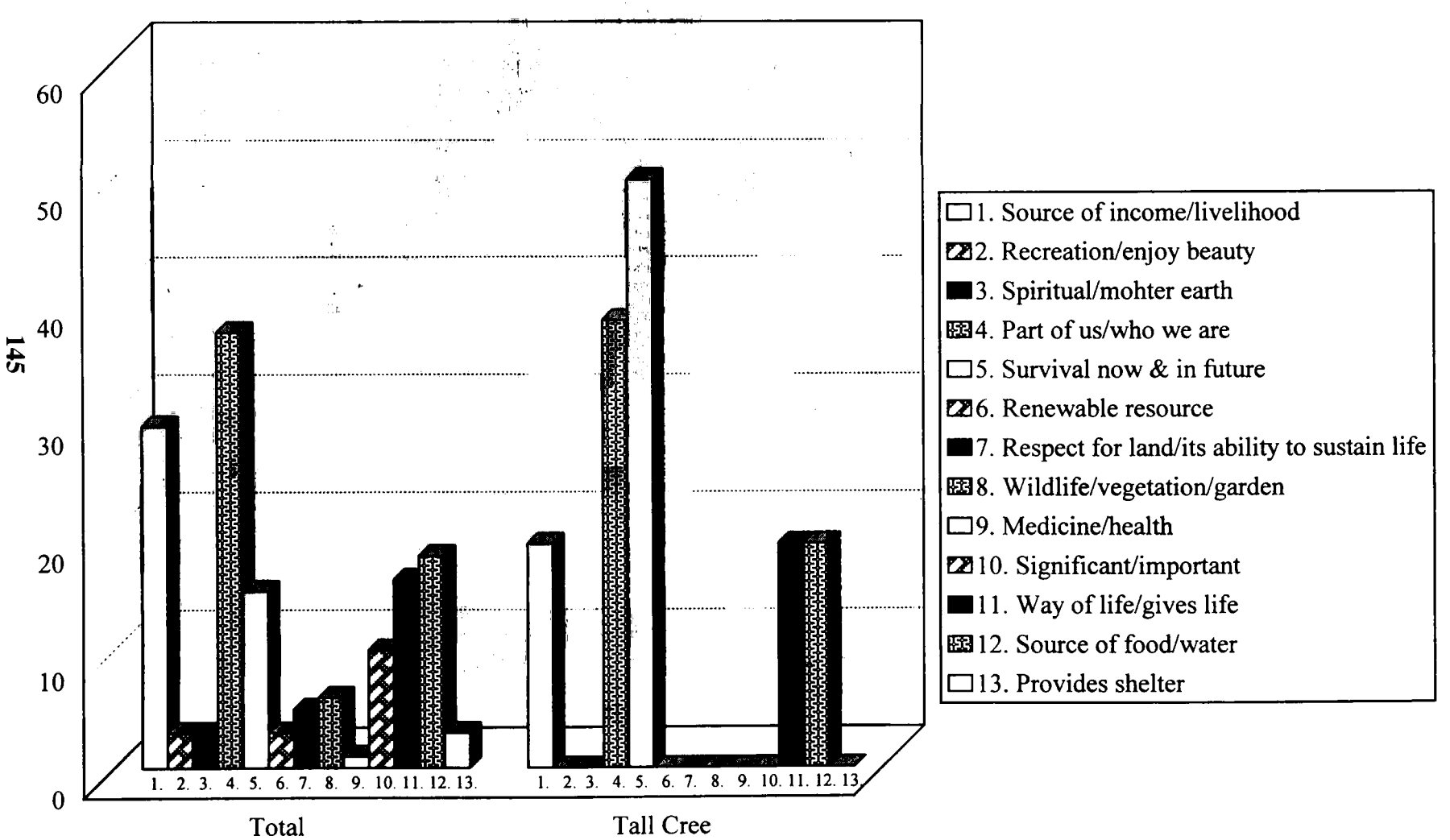
Sample size - 221 - Total respondents - 176 - Responded - 18

5.3-4; Land Use Significance



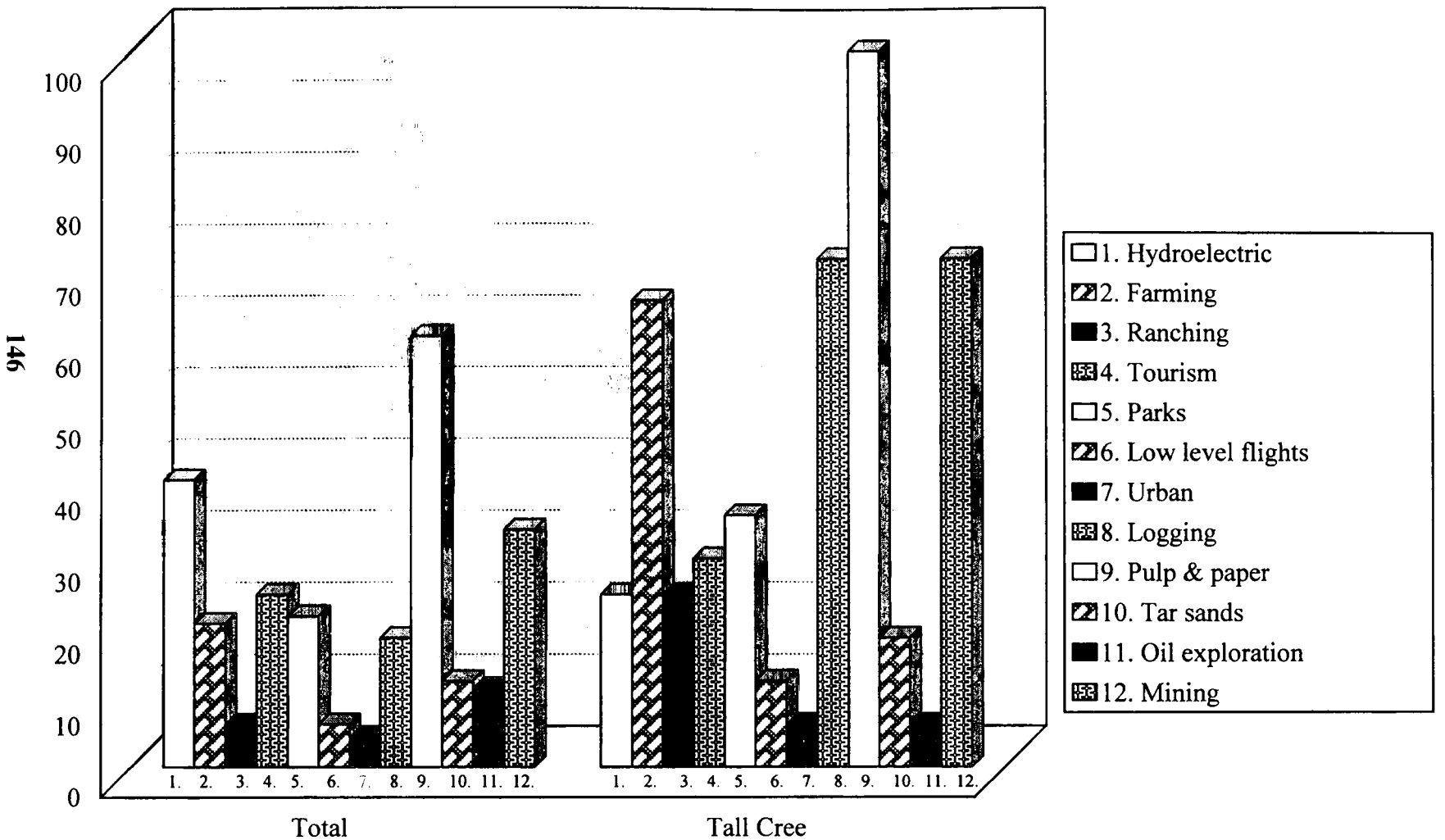
Sample size - 221 - Total respondents - 158 - Responded - 18

Figure 5.3-5; Land Use Significance to Traditional Lifestyles



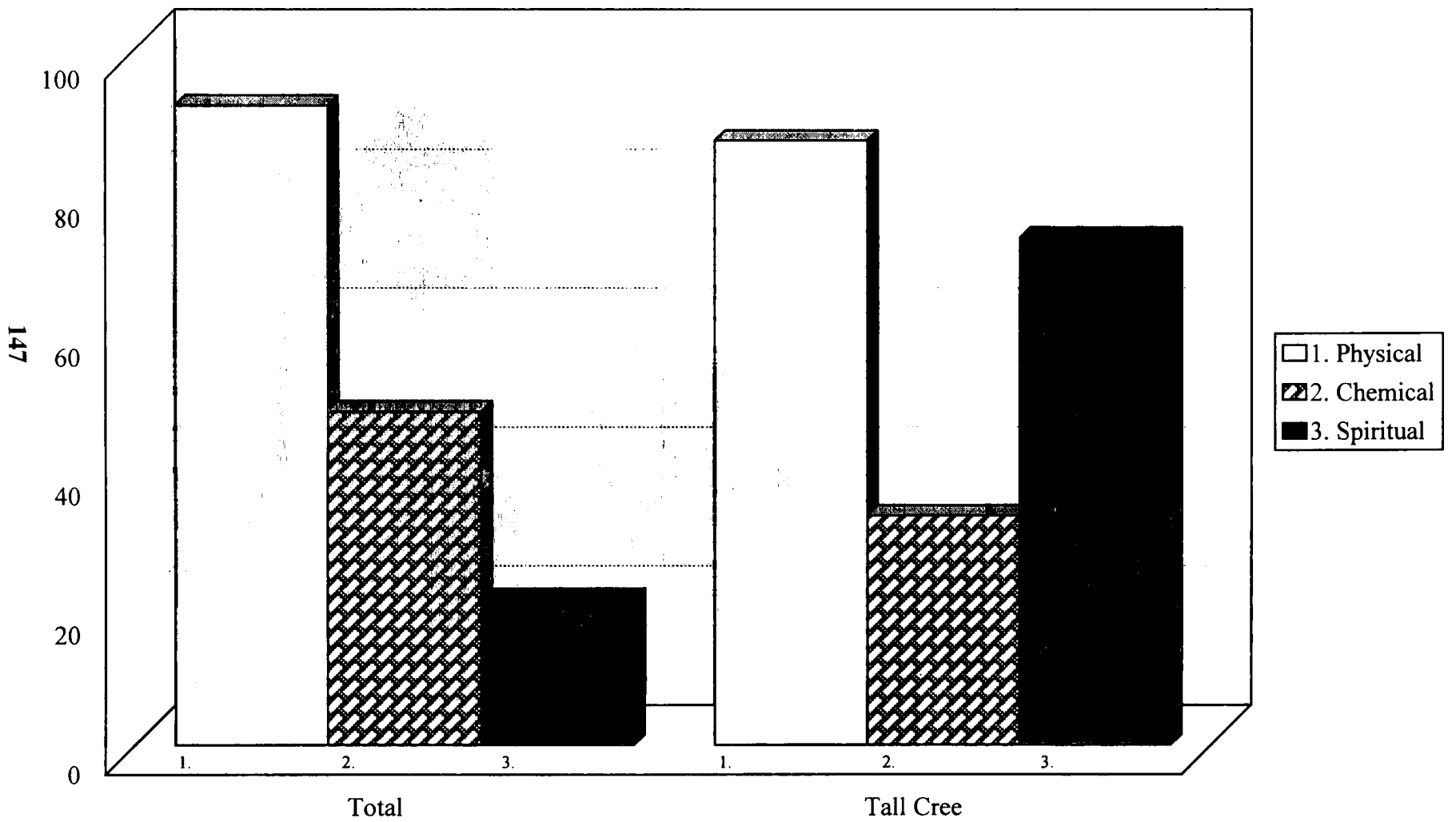
Sample size - 221 - Total respondents - 134 - Responded - 16

Figure 5.3-6; Developmental Land Use Near Traditional Lands



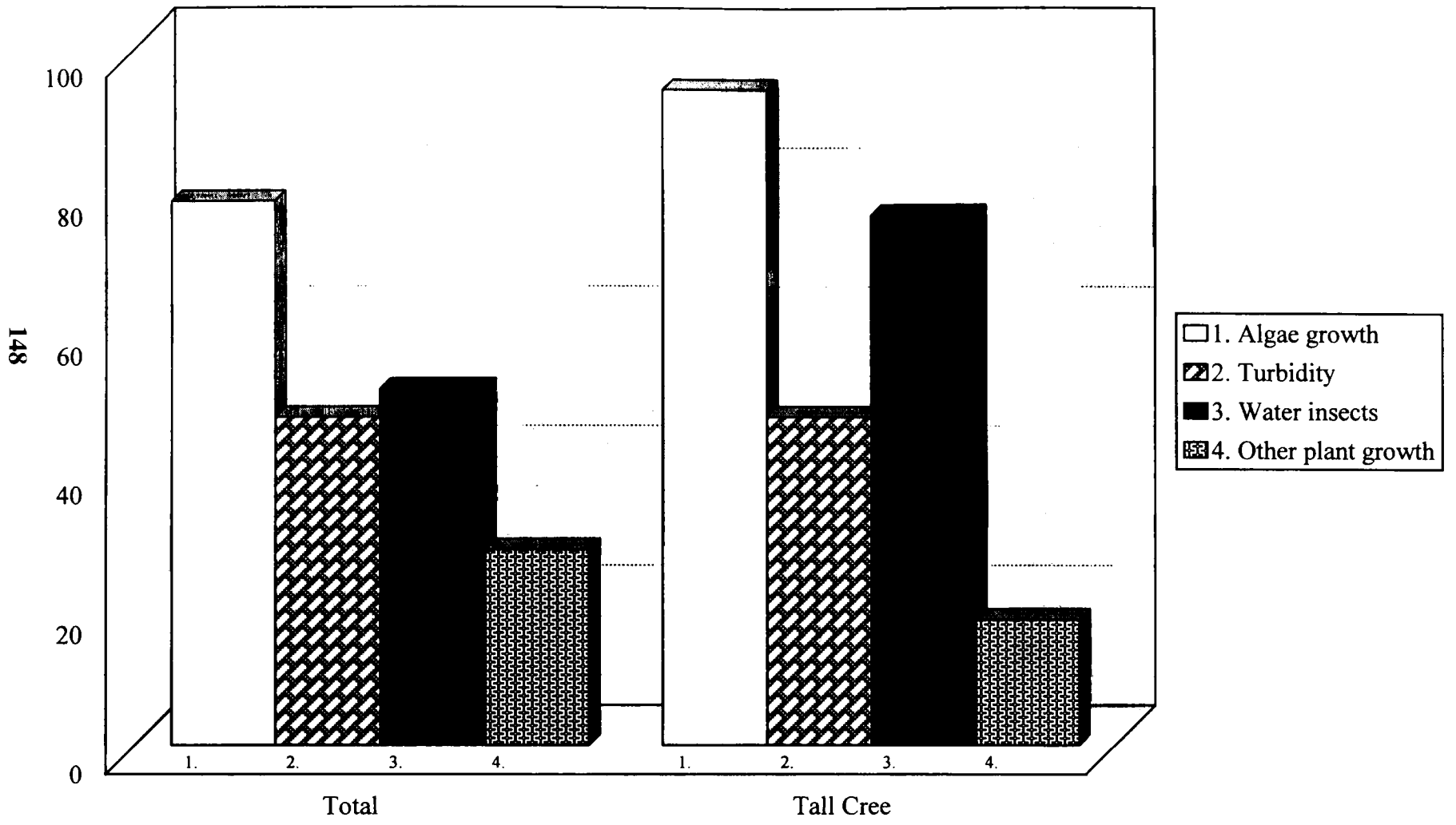
Sample size - 221 - Total respondents - 146 - Responded - 17

Figure 5.3-7; Significant Water Elements



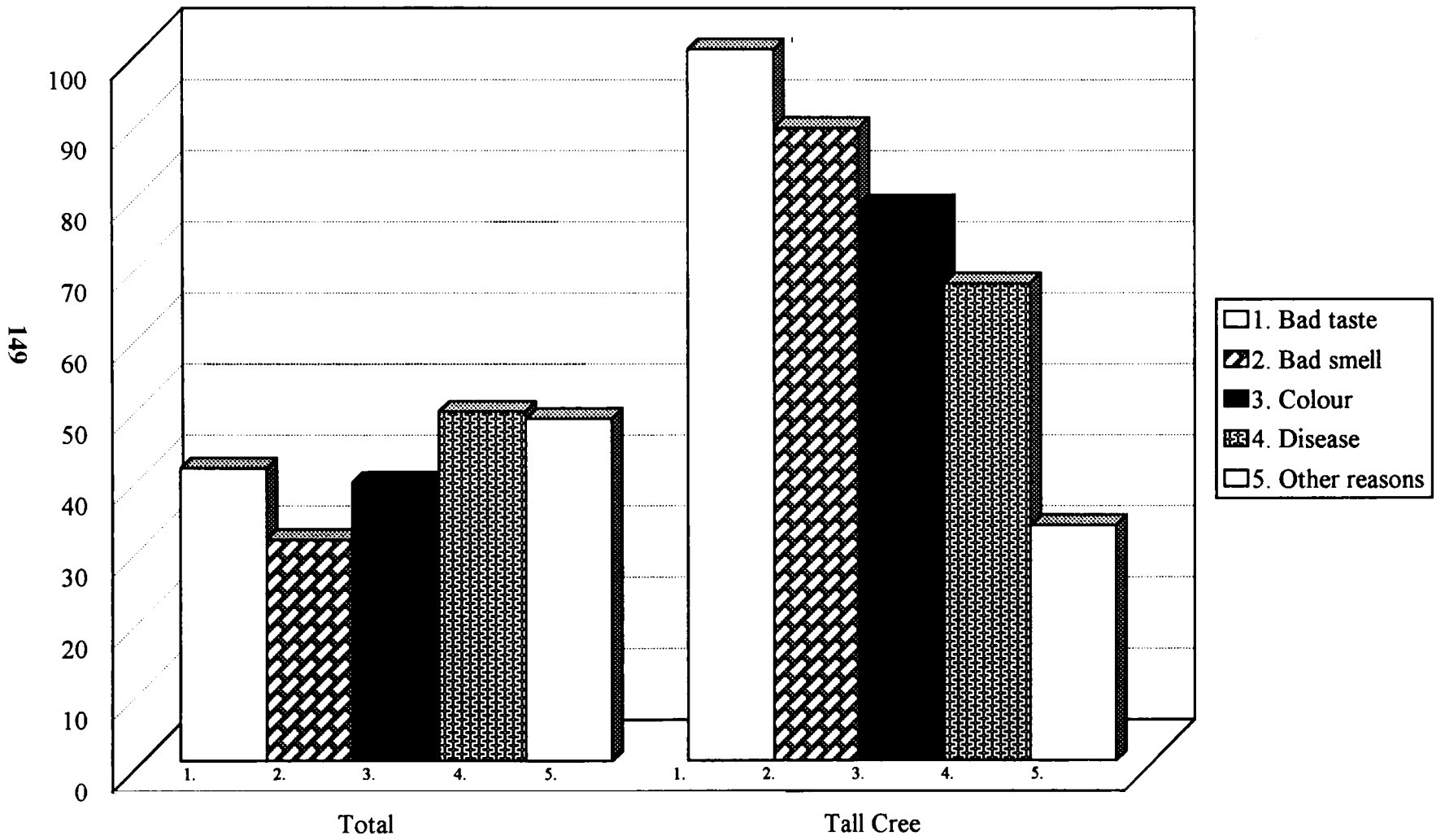
Sample size - 221 - Total respondents - 151 - Responded - 15

Figure 5.3-8; Identified Water Change



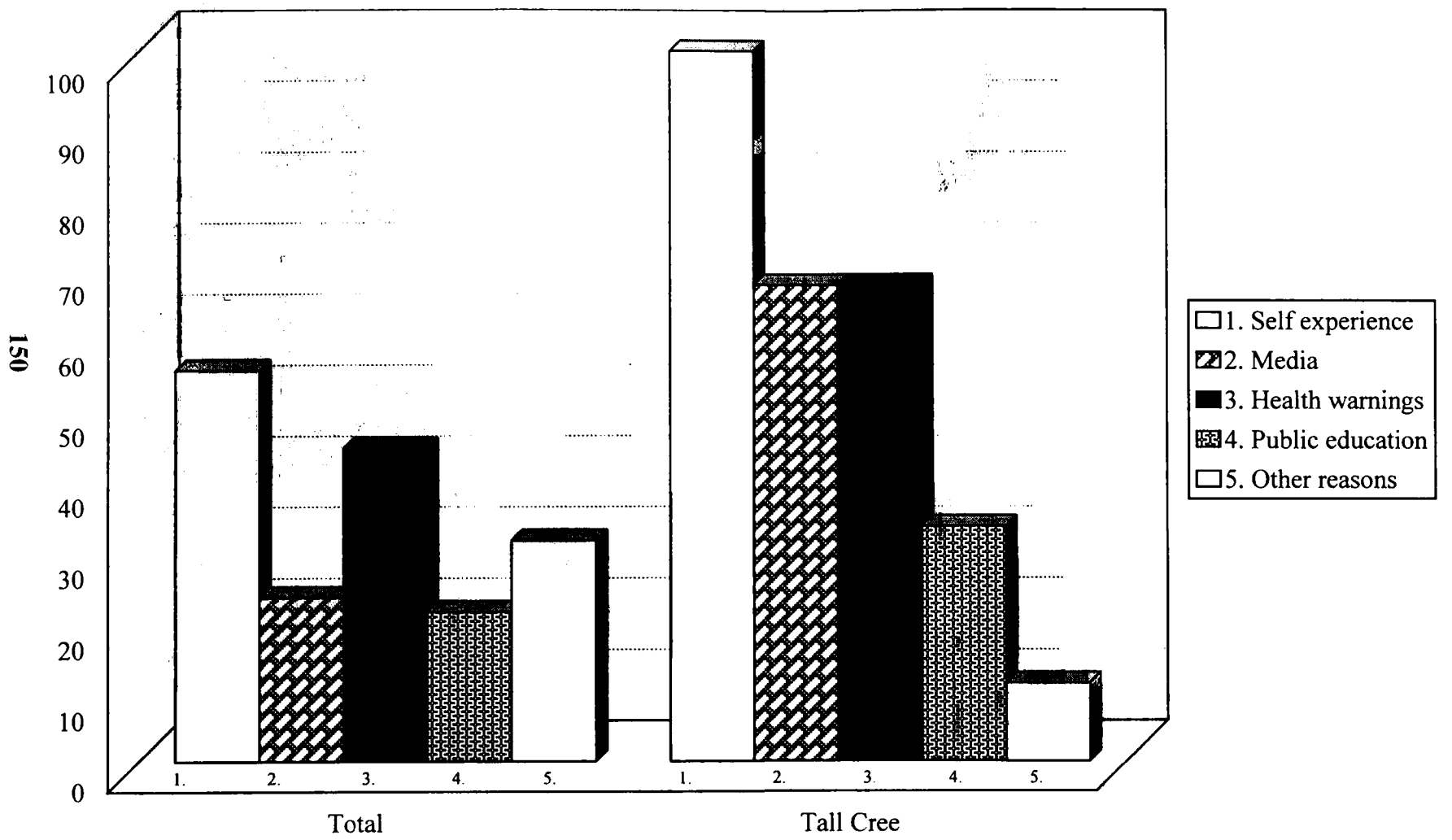
Sample size - 221 - Total respondents - 129 - Responded - 17

Figure 5.3-9; Negative Water Changes Impacting Use



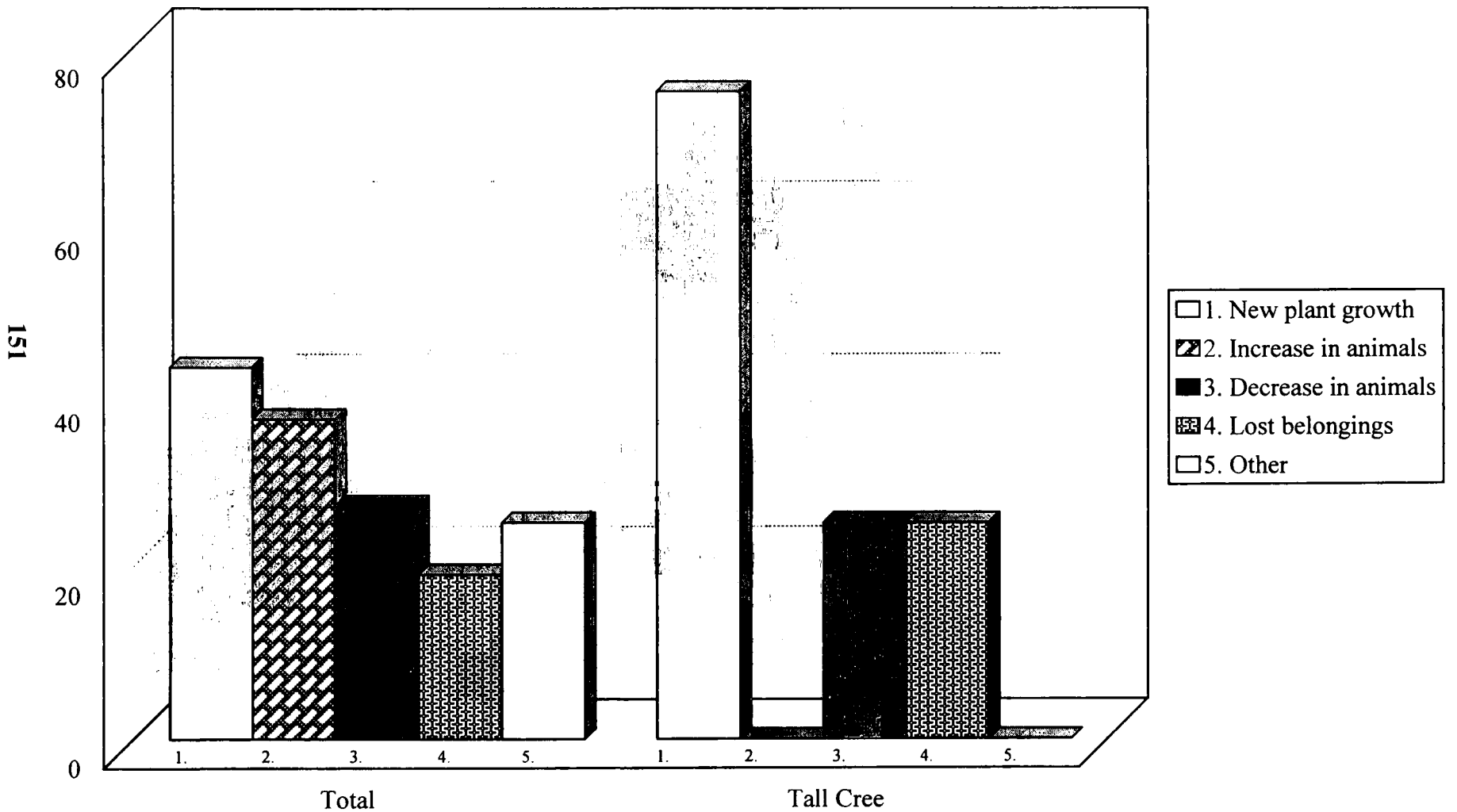
Sample size - 221 - Total respondents - 71 - Responded - 9

Figure 5.3-10; Reasons for Changed Water Use



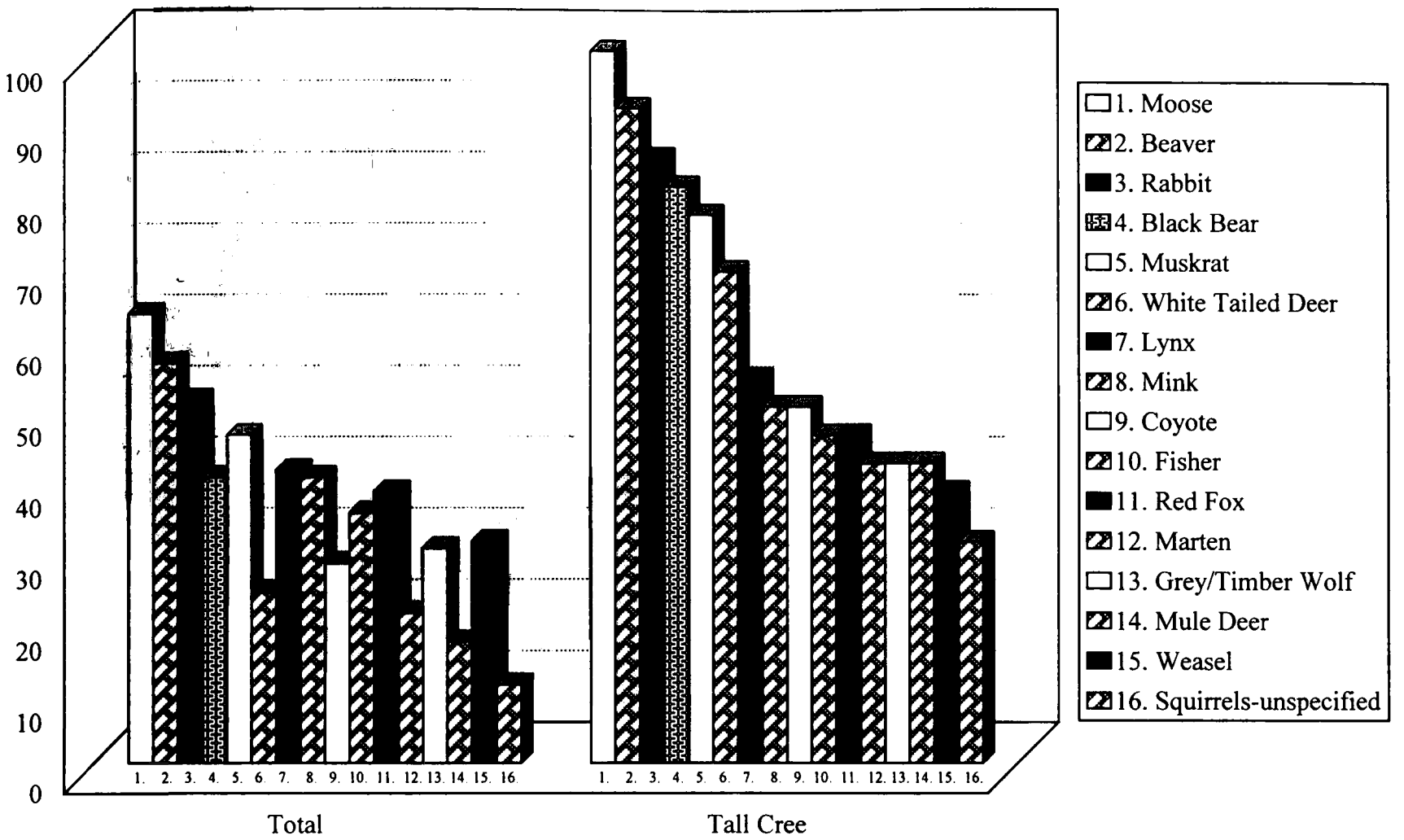
Sample size - 221 - Total respondents - 62 - Responded - 9

Figure 5.3-11; Ice Jam Flooding Impacts to the Land



Sample size - 221 - Total respondents - 105 - Responded - 4

Figure 5.3-12; Most Frequently Used/Available Animals



Out of 36 Species of Animals

Figure 5.3-13; Most Frequently Used/Available Fish

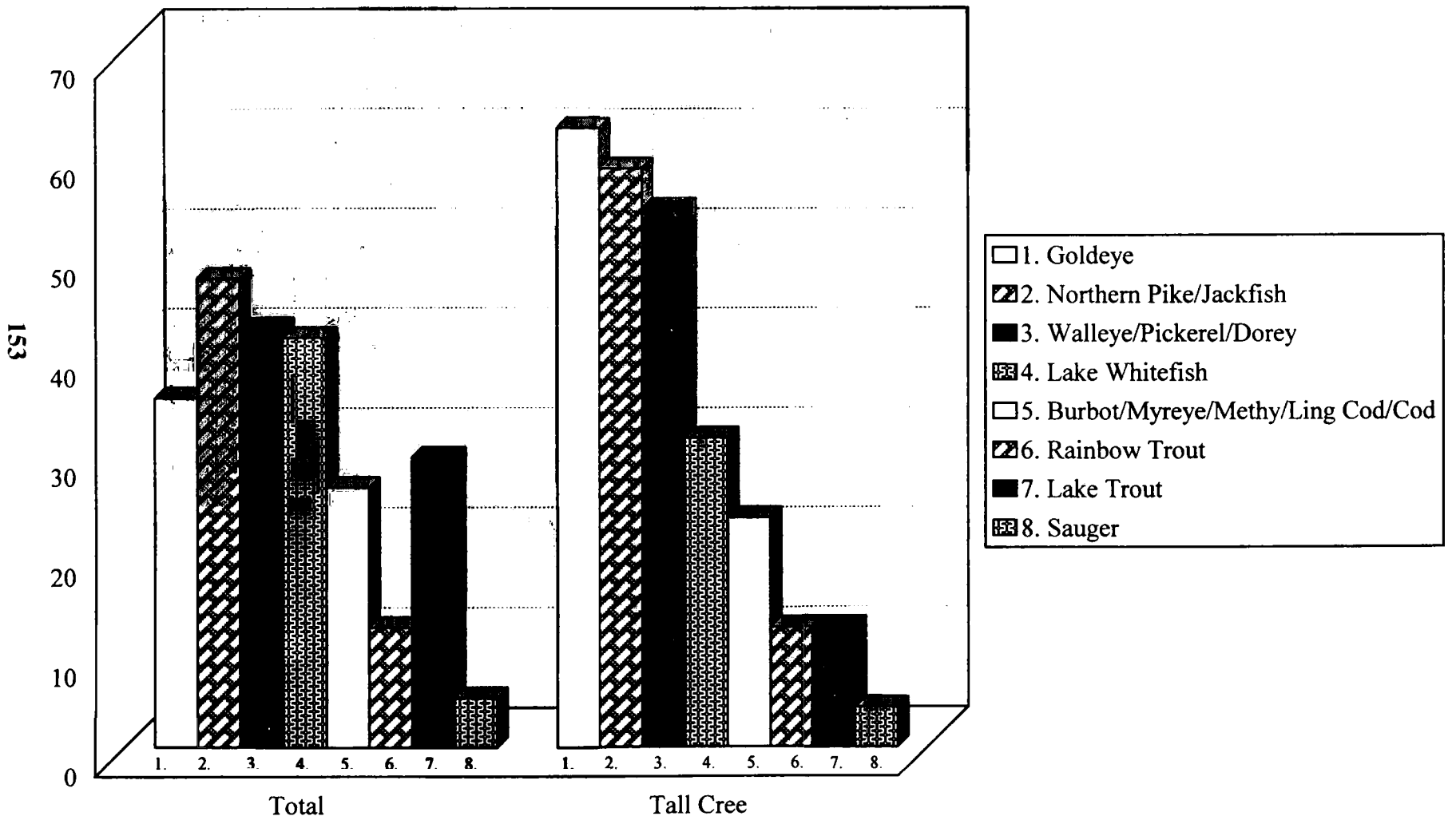
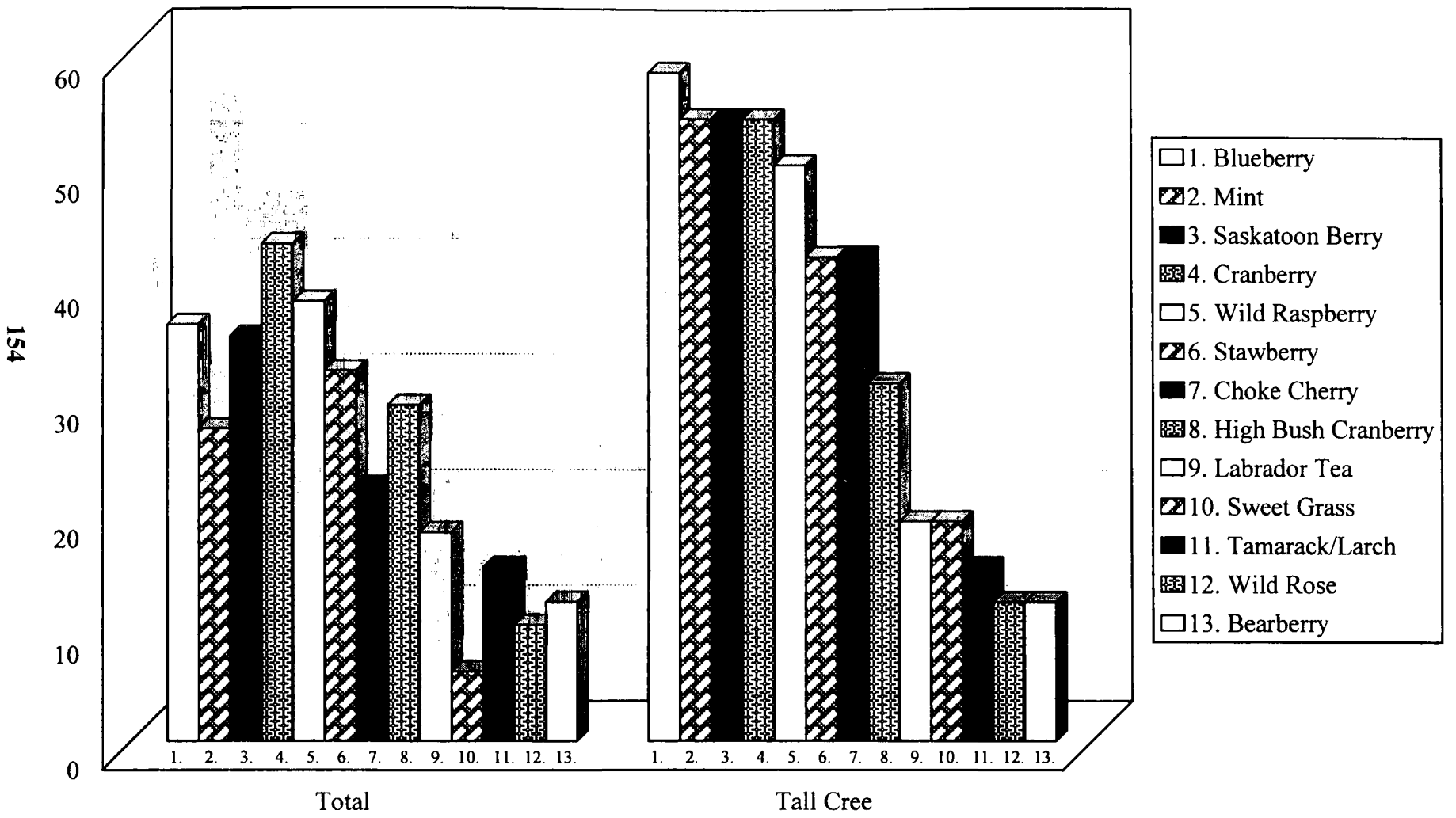
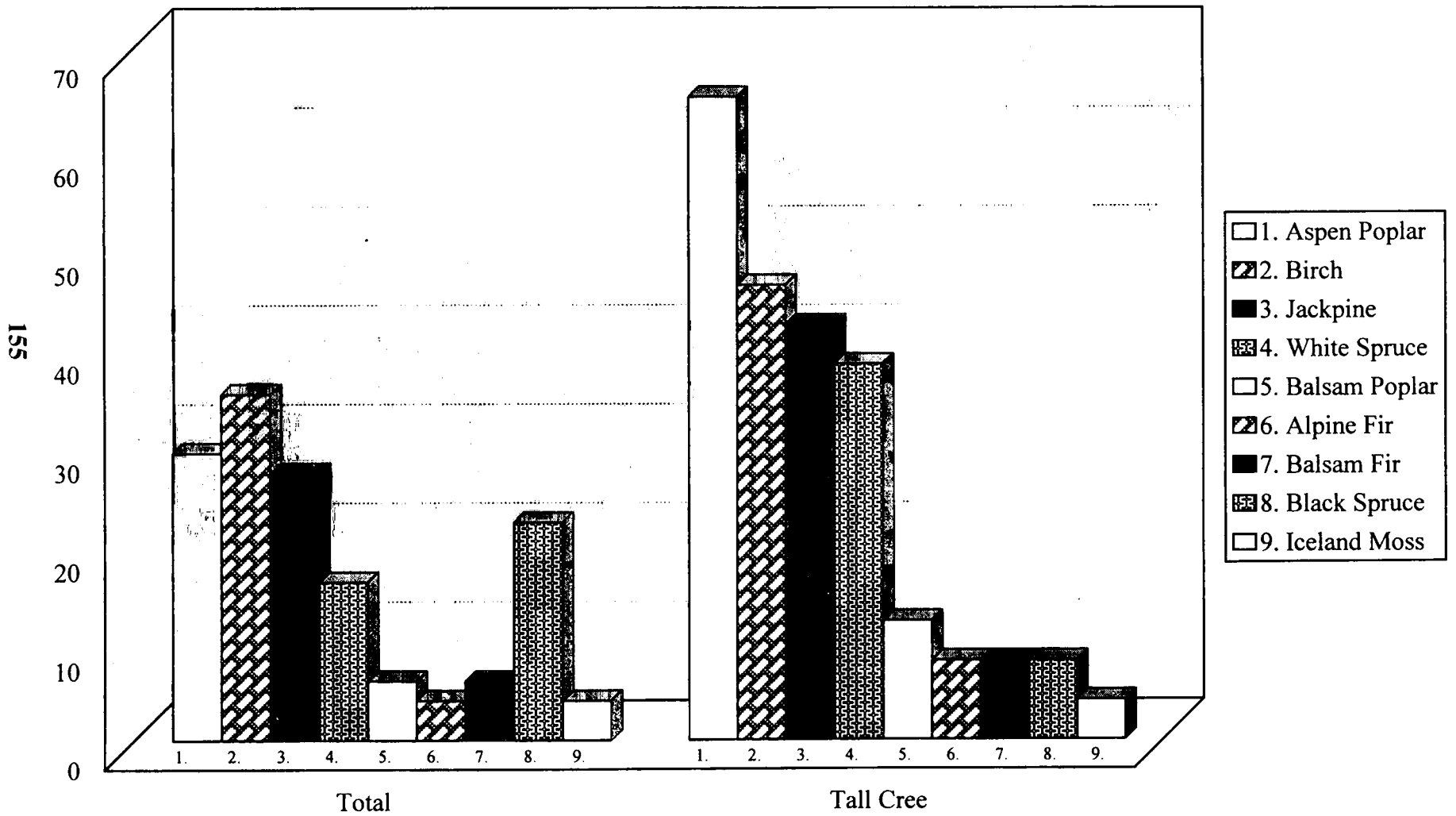


Figure 5.3-14; Most Frequently Used/Available Plants



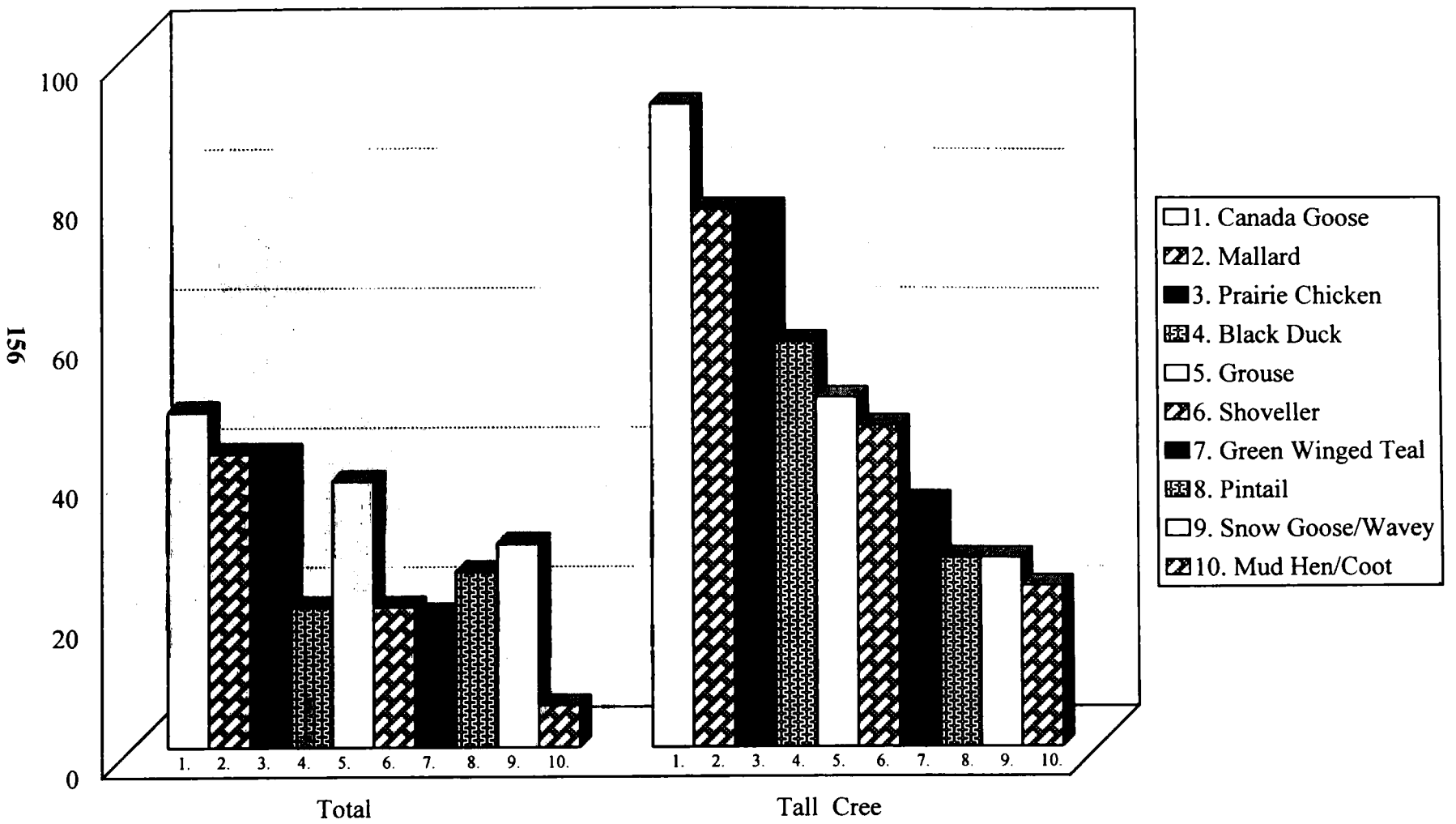
Out of 45 Species of Plants

Figure 5.3-15; Most Frequently Used/Available Trees



Out of 25 Species of Trees

Figure 5.3-16; Most Frequently Used/Available Birds



Out of 31 Species of Birds

5.4 FORT VERMILION

Of the thirty-three interviews, twenty-eight were with elders. Fort Vermilion respondents were mostly from the 70 years of age and over category (38%), followed by 60 to 69 years of age (28%), and (19%) in the 50 to 59 years category, and the remaining falling in a less than 49 years group (16%). Thirty-one surveys were analyzed, 15% of the total survey sample. Fort Vermilion defined their elders also by experience, the youngest being 48 years old.

5.4.1 Land

The land was used as a source of food and the principle of respect for the land was intrinsically a part of their upbringing as it provided their living. The elders indicated that the land was important because it was the source of their livelihood. Those that did use the land as a means of survival paid much attention to its ability to sustain them. Respondents in Fort Vermilion described the importance of the land in terms of their identity with the land. The land is a source and the essence of life, "we live off the land" (40%) and "the land is who we are, part of us" (43%). Finally, the land gives life as a source of food and water (33%).

Fort Vermilion respondents reflected the same traditional knowledge findings as for the total sample. The percent of respondents with parents and grandparents still living off the land fell by 83% and 93% respectively. Siblings totals fell 17% and children's in total fell 14% while the percent of other relatives still living off the land fell 15%. Fourteen percent more respondents said that they had no relatives on the land.

Fort Vermilion respondents, more than any other community, were most likely to relate to the land with respect and love (55%) as they took proper care and protected it (41%) and only took what was needed (21%). Fort Vermilion stands out in that 12% of its respondents spoke of the land being cleared and opened up. The shrinking land area was evident in fort Vermilion as mentioned by 22% of respondents. The most common response was simply that development destroyed their relationship to the land (43%).

Plants and trees used by the respondents were: low bush cranberries, blueberries and choke cherries (74%), wild raspberry and mint (68%), jack pine (58%), Saskatoon berry and strawberry (65%), birch and black spruce (48%), Labrador tea (45%), tamarack, pin, cherry, aspen poplar (42%), goose berry, black current and black spruce (39%), wild rose (29%), rat root and balsam fir (26%), all other plants were used by less than (23%).

They practised the principle of respect through the use of traditional land use management, which was evident in the way wildlife was used and managed. Fort Vermilion respondents were the second most likely community to have methods for managing the land as stated by 74% of Fort Vermilion respondents. Most respondents from Fort Vermilion said that they managed the land by not over-hunting, trapping or picking (57%). Maintaining or keeping up their land base was mentioned by almost a third (29%). Five percent (5%) spoke of rotating harvest areas and controlling the animal population.

Fort Vermilion respondents were most likely to rotate their lines annually (38%). A quarter (24%) did not rotate their traplines at all. Only 17% rotated their lines seasonally, 14% weekly and 7% daily.

Fort Vermilion respondents were fairly evenly split for disposal methods. Only 38% used a combination of methods, a third burned their waste, 12% buried it and 15% dumped it.

Fort Vermilion respondents appear to have a longer than average history with the land. Only 19% had lived off the land for under forty years, 16% for 40 to 49 years, 28% for 50 to 59 years and 19% for 60 to 69 years. Fort Vermilion respondents were much more likely to have lived off the land for more than 69 years (19%) compared to the sample as a whole (6%).

Respondents from Fort Vermilion were frequent land users and used it for a wide variety of activities. Although they used it for food (99%) and income (81%) at exactly the same rate as the total sample, they showed slightly higher (about 3% to 5%) use for all other activities.

The respondents of Fort Vermilion were quite diverse in their activities while on the land. Respondents were very similar in their responses to the total sample mentioning hunting (94%), trapping (91%), gathering (80%) and fishing (86%). There were some interesting differences however. When it came to gardening (80%), farming (60%), ranching (40%), water use (91%) and employment (89%), they were much higher than average. The respondents of Fort Vermilion seem to be more pluralistic in their activities than any other community.

Logging has occurred in many of the traditional land use areas and in particular the Buffalo Head region which has many clear-cut areas. The elders often spoke of the need to protect the land for the animals as the animals depended on the land and needed the shelter and the habitat provided by the trees. Farmers have taken up much of the traditional land use areas and have drained many of the sloughs and smaller lakes to create farmland. It was very clear to those who were traditional land users that the land in their area could not be used as a means of survival. To them it was no longer possible because of the depletion of wildlife and the disrupted natural cycle of the animals and birds.

Fire has also been a change agent in this region and has destroyed some areas by removal of animals and slow regeneration of the land. The time that the fire occurred was the reason given for slow regeneration because the fire had burned the top soil. It is said that spring fires do not cause this kind of damage and generally burning was done historically, during the spring time. The elders stated that people were careful with fires in the past. It is said that fires were rarely started by lightning because there was much moisture in the ground. One area that had been burned was a place called "Ten Miles Bluff" near James Creek. In 1982, 70% of Wilfred Mercredi's trap line was burned and this particular area has been slow to regenerate. The people view the land as their home and are very protective with it. The Fort Vermilion area often used burning off as a management practice. Twenty-three percent of Fort Vermilion respondents had practised burn off; 6% seasonally, 9% annually and 9% every two to three years. Respondents in Fort Vermilion reported fairly short times for the forest to re-grow after a fire. Half said one to six years and 8% said 10 to 15 years. A third reported it took 20 to 34 years for the forest to grow back and 8% said 40 years or more.

The elders have observed increased wind and believe it to be a result of tree removal by farmers and logging. They stated that the area is more open than it used to be in the past. There is also very much concern of the amount of fertilizer used by the farmers and its subsequent effects on the wildlife. It was often stated that it is important to save the land from further tree removal. The need for stringent replanting efforts was frequently expressed. It was felt that the loggers and the farmers needed to replace what they had taken. The requirement for buffers was mentioned on several occasions. A concern for the land has become a conscious concern in the last 10 - 15 years, and originated from the observed impact of land clearing by farmers and loggers. It was certain that this community would like to see an area designated as protected land for traditional uses only. It was stated that there is a need to work with the land in a more harmonious way. One specific activity they felt strongly about was the cessation of draining the land as it had detrimental effects on the birds and those animals that are predators of the birds.

This community defined a sacred site to be a place where people gathered in the past, and where old burial sites exist. A sacred site was noted at Eliskay on the reserve and at Little Red River where people gather to pray. Tea dances were held along the river; no specific site was mentioned. At one time there was a special ceremonial site where the airport is now located in Fort Vermilion. This ceremony involved a feast of traditional food only. There was a burial site at a place called "Bull Dogs Place" but it is now plowed over. It was not known if the remains were moved. This site is now called Rocky Lane. Ceremonies were also held where the Alberta Housing Building is in Fort Vermilion. This area used to be fenced at one time before an Alberta Housing building was put there. Poplar Point and Sled Island have grave sites (Leskey and Red River were places identified as sacred). Ceremonies involving the use of pipes and singing were held along the east shore of Peace River.

Fort Vermilion (21%) had experienced recent loss of traplines. Fort Vermilion respondents (68%) were affected by cutlines, pipelines, seismic lines or access roads due to the development of lines and roads on their traplines. Fort Vermilion respondents were heavily affected by seismic lines (60%) or logging (55%). To some extent, Fort Vermilion respondents were experiencing all twelve identified types of development near their land base. Pulp and paper activities (76%) was taking place near three-quarters of Fort Vermilion respondents' land bases. Not far behind, mining (76%) was cited by almost two-thirds of respondents. Farming (44%) and hydroelectric development (35%) were the third and fourth most common types of development in Fort Vermilion.

One respondent from Fort Vermilion did complain about development. Fort Vermilion respondents appeared the most consistent in their rating of the eight groups. All scores were low and close together. They ranged from a low of 2.0 for city and municipal officials to a high of only 2.8 for both Aboriginal chiefs and Native councils.

Two thirds (67%) of Fort Vermilion respondents said their view of the land was changing. By far the most common reason given was the increase in development (41%). Fort Vermilion respondents reflected that of the total sample. They were most likely to refer to maintaining the land's natural beauty and state (32%) and showing more respect for the land (11%). Fort Vermilion was the only selected community where there was no hope that their relationship to the land could be maintained (5%).

Table 5.4-1: **Table for Demonstration of a Special Regard for the Land**

	Ft. Vermilion
Yes	19%
No/do not know	62%
Respect	14%
Ceremonies	0
Protect it	5%
Meetings/land use study	5%
Elders	0
Way of life/community life	5%
Number Respondents	21

Table 5.4-2: **Table for Demonstration of a Special Regard for the Water**

	Ft. Vermilion
Do not/no	7%
Leave it alone to heal	0
Cleansing/purifying	0
Give thanks	7%
Do not dump in it/pollute it	73%
With respect/importance	20%
Use every year/use it	0
Yes-unspecified	3%
Evaluate physical characteristics	3%
Other comments	3%
Number Respondents	30

5.4.2 Water

The elders were asked to discuss the changes they had seen in the water in their area. They had much to say about water levels and the state of the Peace River.

Those living in Fort Vermilion were definitely surface water users (73%). Six percent used wells and 21% used a variety of sources.

Fort Vermilion respondents (32%) were least likely to haul water. All those in Fort Vermilion used the water for travelling (100%). Not surprisingly, work (88%) was also a high reason for use as well as recreation (84%). Fort Vermilion differed little from the sample as a whole. The main difference was the slightly higher than average reports of water insects (61%) in this area.

Fort Vermilion respondents were no exception to the survey norm with respect to concern about lower water levels (35%). This community was the only one to mention an increase in sand bars (15%). Water pollution (31%) was also a concern for Fort Vermilion respondents.

The Peace River was always observed to flow at a steady rate and its level was higher than it is today. The elders indicated that the river needed to be treated with more respect by preventing further waste and pollutants being put in the river. In their experience, water was taken from the creeks and snow was used in the winter for human consumption. Fort Vermilion respondents were most conscious about not dumping into or polluting the waters (73%). An additional 20% said they respected the waters and 7% gave thanks.

In Fort Vermilion, chemical treatment was practised by half (47%) of respondents. A third boiled their water and another third used water from treatment plants.

A handful of Fort Vermilion respondents also mentioned fluctuating water levels (12%), environmental changes (6%), changes in general in the weather (6%) and a greater appreciation or need to survive (6%).

The last flood to occur was caused by an ice jam in 1934 and the water came up to where the Legion now stands in Fort Vermilion. A house at Stony Point is reported to have a water mark four feet up from the floor. It was usual to have four inches of silt after a flood, and this was considered to be a positive effect in regeneration of the land. The water would rise about the first of July, from mountain run off, but this rise has not occurred now for some time.

In Fort Vermilion almost everybody spoke of either the breaking up of trees and clearing of the land along the river bank (44%) or the flooding of inland lakes and ponds (33%). Muddier land (11%) resulting in good and new growth (11%) was a third impact. Nobody in Fort Vermilion said there was no impact at all.

The ice is reported to be thinner today compared to the past. It used to be thick enough to make ice houses for refrigeration during the summer. The thinner ice crumbles more easily and is not seen to

have the same effect on the river banks and channels. Ice hangs rather than becoming a firm structure as it was normally known to develop. The elders believe this to be caused from the fluctuating water levels created by the Bennett Dam releasing water during the winter months. Water was not a concern in the past because it was always present.

Fort Vermilion residents also had little to report about the effect of ice jams, except for new plant growth (38%). A quarter noticed an increase in animals (24%) and 48% said other things happened as a result of ice jams.

Fort Vermilion was the only community that mentioned an increase in water plant growth (50%) more frequently than a positive effect on wildlife (17%). This was probably due to the richer soil mentioned by a third of respondents.

The main negative impact from the Bennett Dam, as reported by Fort Vermilion respondents, was the loss of land areas (36%). To a lesser extent, the loss of personal possessions and property was cited (18%) and the loss of wildlife or livestock (9%). Most affected by damming were Fort Vermilion (52%). Fort Vermilion also reported only spring flooding indicating that either the dam does not release water in the fall or winter in this community or that Fort Vermilion respondents gave the "regular" or "most common" flooding time. Only 17% of Fort Vermilion respondents reported a change in flood season. Two-thirds said that there was less, if any, flooding and a third said the flooding was controlled by damming. Forty-five percent (45%) reported new island formation. (45%).

There was a great concern expressed for the quality of the town water. Several people described the water as having a very strong bleach odour. One elder went on to explain that the water was capable of cleaning out a rusty pail without using additional additives. There was concern raised about the effects the water had on kidneys and its connection to increased rates of kidney and prostate problems in their community. In the past the elders used water from the Boyer River and the Hay River and both sources were considered good water. The south side of the Deer River was a water retrieval site and was frequently used in the past. Almost all Fort Vermilion respondents (95%) said that the perched basins filled in the spring and 5% said during flood season.

Regulated water affected the use of the delta by the community of Fort Vermilion. Fort Vermilion respondents showed a narrow range in their mean score ratings. They rated pulp and paper mills (1.7) as having the worst impact on water quality. Tourism (2.6) and ranching (2.5) were seen as having only a slightly negative impact on water quality.

Fort Vermilion respondents saw industry (2.1), the municipal government (2.2), the provincial government (2.3) and the federal government (2.3) as fairly equal in their not-so-good efforts to improve water use. Citizens groups (2.6) and individuals (2.7) were rated slightly higher but still not on the positive side of the scale. Native groups received neutral mean scores of 3.1. A few respondents in Fort Vermilion (16%), considered moving but did not move because of loss of traditional use of water.

The Bennett Dam is believed to affect the quality of water as much as concern regarding pulp mills was associated with the water levels. The elders reported a noticeable change in the currents and the channels of the Peace River. Elders have observed an increased formation of islands and an increase in the turbidity of the water. This turbidity is noted throughout the year, compared with past occurrences during the spring break up only. Rafting with hand made rafts was a regular activity on the Peace but this is not a common occurrence anymore. The elders state it is difficult to find clearings along the river to land the boats or canoes because of overgrowth along the shore line. The ice kept the shores cleared of bush, and of sand bars on the river. The water was normally high in the spring but has been very unpredictable since the Bennett Dam was constructed. The Peace River has been noted not to freeze over completely by the "Experimental Farm" and concern was expressed that this facility was creating this anomaly by dumping substances into the water.

At one time big boats navigated up and down the Peace River but that is not possible now because of low water levels and changing river channels. The Peace is reported to have been less murky before the Dam was built.

Table 5.4-3: **Table of General Water Characteristic Changes**

	Ft. Vermilion
More weeds	4%
Fluctuations in amount of plant life	0
Green slime on riverbanks/nets	0
Pulp mills & motor boats on river	4%
Sand bars	15%
Fewer fish & water insects	4%
Fish not as good to eat	0
Lower water levels/water drying up	35%
More algae & insects	0
Too much chlorine	4%
Number Respondents	26

Table 5.4-4: **Observed Ice Formation Changes**

	Ft. Vermilion
No change/never noticed	32%
Thinner ice/ gives & crumbles	36%
Ice not as cold	0
More floating objects, e.g. blocks, stumps, drift logs	0
Ice dirtier /ice darker	4%
Bennett Dam releases water in winter	0
Jam releases and takes everything with it	0
More overflow	0
Lake or river changed shape, e.g. channels dried up, different water path	4%
Ice freezes rougher	8%
Ice is low	0
Number Respondents	25

5.4.3 Wildlife/Fish

The elders were most concerned about the disappearing wildlife and believed it to be caused by the land clearing, logging, and low water levels. The animals are considered to be an important element, as some still utilize the wildlife as a food source. Wildlife is used to supplement what they otherwise purchase. There are fewer white tail deer and caribou has not been seen as frequently at Margaret Lake and in the Caribou Hills. Bison are no longer found near the Fort Vermilion area, although they were known to be present by the Bear River and west of the community along the Peace River. The elders state that there used to be many buffalo in the LaCrete area when there was only a wagon trail. The moose are not as numerous and the reasons given are that too many bulls are taken, and there is too much land clearing. White tail deer lived along the Bear River, Buffalo Head Prairie, around LaCrete and in the Rocky Lane area but are no longer seen as frequently. Squirrels were numerous along the Peace primarily on the south side beginning at La Crete and moving eastward. Logging and land clearing have occurred in much of this area and have affected the squirrel habitat; consequently, the numbers have decreased. A chain reaction has been observed in the small animals such as mink, martin and fisher which have decreased as squirrels are their primary food source. Rabbits have been scarce for more than seven years which has affected the lynx cycle but it is expected that it will increase providing rabbits return.

Rabbits and mice are identified as the main food sources for foxes, coyotes and lynx. The rabbit is described as the "medicine keeper" because of its diet of bark from different trees. Mink and otter are generally found where there is water. The rabies epidemic in the 1950's cleaned out the foxes, skunks, and porcupines and they have not been around since. Coyotes normally have a very large range north and south of the Peace River beginning west of Margaret Lake and extending down to the Panny River. Lynx range is small and patchy compared to the other fur bearing animals in this area but primarily occurs near the Peace River and along the Bear River. The Bushe River area was also identified as a lynx range. Black bear are not as numerous, where they often frequented the river areas and the Tall Cree area. There were many black bears at one time. There was always more respect given to the bear compared to the wolf because of its unpredictability. The last time there had been many fox and lynx in the area was 1973. River otters were frequently seen along the Peace River near Fort Vermilion but the numbers have decreased over the years. The elders report that after drilling started many of the animals moved and often fell into the unfilled drill holes. Porcupines have not been in the area for quite some time but a group of people who were travelling to Fort Simpson in 1987 described a herd of porcupines crossing the highway as they travelled north, "for three miles on the road just like stars". Foxes have not increased since the 1940's and were just increasing when the rabies epidemic hit in 1953. The only area identified by this community as having marten was in the Caribou Mountains. Muskrats were not mentioned much by this community but indicated they were not high in numbers because of the decrease in water levels and were usually found where there is water or small sloughs.

Animals most frequently used by the respondents of Fort Vermilion were: moose (84%), beaver (81%), rabbit (77%), white tailed deer (68%), then mule deer, red fox, mink, weasel (48%), otter and caribou (35%). All other animals were used less than (13%).

The elders report a decline in the number of birds overall, in particular the small song birds. Crows and magpies are observed often taking the eggs and the young. Ducks are not as numerous as they used to be in this area. Magpies are numerous and were not in the area many years ago. The elders report that the flavour of duck meat has changed to a "green" flavour. Prairie chickens are not as numerous. Blue birds and hawks are sighted more often lately.

Birds frequently used by the respondents were: Canada goose and green-winged teal (77%), mallards (74%), prairie chicken (71%), grouse (68%), snowy/wavey goose (65%), blue-winged teal, green-winged teal and baldpate/widgeon (55%), ptarmigan (48%), black duck (42%), wood duck (35%), cinnamon teal (32%), goldeneye and all other birds were used by less than (19%) of the respondents.

Waldlin lake was noted for its cranes. More geese are reported in the Fort Vermilion area. Black ducks have a very fishy flavour and are not eaten much. Whiskeyjacks (grey jays) are not around now as much as before.

Ducks or geese are not seen on the river and on the islands. The people used to scare up many birds during boat travel on the river. Song birds have not been heard except for the odd one, for the last six to seven years. Mallards feed on the fields and it is believed that the chemicals are killing them. Snow geese used to nest along the creek into Hay Lakes but a dam has flooded out their feed. Buffalo Lake,

and Little Long lake were feeding areas for water fowl years ago. Long Lake was not good for water fowl because it has a lime bottom. Footman Lake is a nesting place for loons.

There was very little information on fishing sites in the interviews, which implies that the elders who were interviewed did not fish much. Main fishing sites identified by the elders in this community were in the Beaver Ranch area. A camp was set up along the Peace River bank in Fort Vermilion where fish were dried. Twenty-five years ago they used to fish across the river from Fort Vermilion. Fish species reported to be in the Peace River around Fort Vermilion were whitefish, goldeye, and jackfish. The goldeye is reported to be nonexistent today. The elders reported that there was "good" fishing along the Peace at Fort Vermilion. Fish species most frequently used by the Fort Vermilion respondents were: northern pike/jackfish (71%), goldeye (29%), mountain whitefish and arctic grayling (13%), brook trout and other fish were used by less than 10%.

The fish were reported to come up the river over the chutes during high water, but since the water has been low, goldeye, pickerel, and jackfish are not present, most notably goldeye. Margaret Lake was reported to have jumbo whitefish. Fish, buffalo meat, squirrels and crushed wheat were often reported to be used as feed for dogs. Beaver meat was fed to the dogs in the spring.

5.4.4 Health

This section of the interview focused on the elders' perception of the most prevalent illness in their community, which they identified as high blood pressure, diabetes, cancer, arthritis, and kidney, prostate, and intestinal illnesses. The respondents reported diabetes (76%) to be the most increased in the community followed by cancer (68%) and heart problems (41%). The respondents believed that exercise (56%) was the main contributor to health, along with good food and nutrition (50%). Swimming and long walks were identified as the most frequent activity engaged in followed by jogging and running. Fort Vermilion respondents used store bought food more than traditional food.

Several elders had indicated they were surprised there were so many people, including children, with glasses compared to the past and were attributed to water quality and changes in dietary patterns. Alcohol and prescription drug abuse were raised as unsettling contributors to the unhealthy conditions of people. The elders indicated that in the past whooping cough, diphtheria, chicken pox, and measles were often the illnesses one would hear about in their community. There was discussion of the water creating sickness in babies during 1960.

Some elders spoke of the use of herbs and many indicated they had a great respect for the medicines although it was not used as much in the community. The elders that spoke of the use of herbs spoke of an approach to harvesting that they had observed their grandparents utilizing, and which involved the offering of tobacco to the earth at the place of harvesting.

5.4.5 Family and Community Relationships

Several statements reiterated by the elders about helping one another, sharing, and treating the elderly with respect indicates that this community also held citizenry in high regard. They often spoke of the traditional tea dances and the diamond hall where they used to have community celebrations and gatherings in the past. Spirituality was also identified as an important aspect to community and individual health. The elders indicated that the neighbourly attitude did not seem to be as common in the community. Much of this change was attributed to the changes brought about from leaving the land and the traditional way of life. They indicated that everyone was much more self-centred. The elders of Fort Vermilion also indicated that the youth had far too many distractions to contend with. It was important to them to know where the children were and indicated that children today had too much time on their own. They indicated that parents needed to be more restraining of their children as far as night activity was concerned.

5.4.6 Traditional Knowledge

During the review of the interviews, attempts were made to discern traditional teaching from the transcriptions of the interviews. Fort Vermilion respondents appeared to have an average to low access to traditional knowledge teachers. Except for spouses, they were less likely than average to mention any of the other teachers. Parents (83%), grandparents (20%), other relatives (31%), friends (3%), and other people (3%) were all mentioned at the same rate or less frequently than the sample as a whole. Spouses were mentioned by 14% of Fort Vermilion respondents versus 8% for the total sample.

Fort Vermilion respondents (54%) were least likely to hunt. Respondents from Fort Vermilion had a fairly high percentage of respondents with four to six dogs (83%). Fort Vermilion was the highest with 69% feeding their dog something other than fish. Jackfish or northern pike were commonly fed to dogs in Fort Vermilion (8%).

The following are but fragments of a vast set of knowledge these people have within their community. Some elders spoke of building homemade traps with deadfall before metal traps came into being. The principle of "help thy neighbour" was often articulated through descriptions of sharing a kill, helping and respecting the elders and caring for the area they hunted and trapped in by not over harvesting. The principle of respect for the land and its gifts was illustrated in the interviews by the elders' descriptions of offering tobacco to the land in return for medicine, and by taking from the land only what could be used. Traditional skills identified by the elders were making garments such as moose hide mitts, moccasins, parkas, and the needle work that went into decorating the garments.

Fort Vermilion respondents compared equal to or lower than the total sample in learning subsistence skills. Their emphasis appears to be on the traditional supplemental skills as more respondents had acquired these skills. Fishing (80%), hunting (80%), and trapping (83%) were on par with the total sample as was building shelter and boats (66%), gathering (71%), cooking (94%), making clothes (49%), making ceremonial items (14%) and to a lesser extent making traditional foods (74%). Fort Vermilion respondents were more likely than most to have acquired the following supplemental skills:

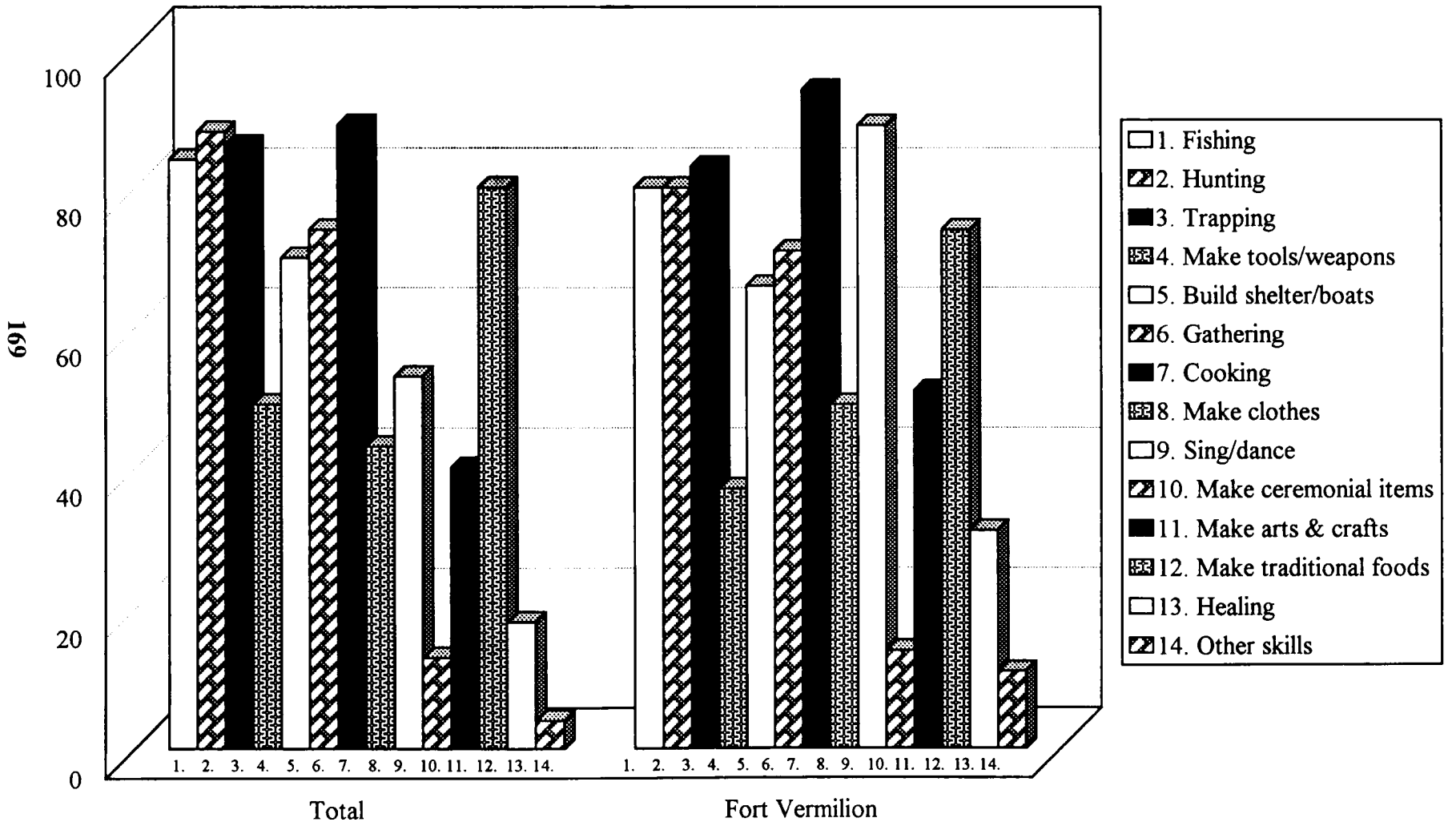
singing and dancing (89%), making arts and crafts (51%) and healing (31%). Making tools and weapons (37%) was not a common skill among Fort Vermilion respondents. The spiritual preference identified by 6% was traditional Indian.

The elders spoke of building rafts more than canoes and stated that hand made rafts were commonly seen on the river years ago. The ability to build a fire and to set up a teepee was spoken of as an unequivocal skill that had to be learned. Fire was treated with great care. The principle of respectful and sustainable land use was also part of the learning. These concepts were articulated through the teaching of moving from one area to another and by ensuring that seed was left behind to regenerate the species they depended on for a living. The spring season was not usually a time to hunt for large quantities of game; this was done in the fall and food was stored in caches for the winter. The elders often spoke of drying berries, meat, fish, and rendering down fat from the bear. Several times child-rearing principles that involved teaching respect for the elders were raised and its deficiency in the mind set of youth today. The elders spoke of children not being allowed to be out after sundown as a child rearing principle that helped children to learn about respecting the night as the period used for rest. Traditional medicine was more difficult to interpret as it was not spoken of as frequently. One elder spoke of observing a cast being made with a cloth soaked in melted spruce pitch and wrapped around the broken limb. Once it had hardened it formed a cast around the broken limb. It was stated that much of this knowledge was not passed on to others because the holder of medicine knowledge on to those who were capable of handling it respectfully and knowledgeably. The medicine people were known to hold special ceremonies that involved offering food to the fire, feasting and dancing. Environmental changes were noted such as during the very dry years there were increased numbers of grasshoppers that would clean out the crops in the area.

5.4.7 Future Expectations and Recommendations

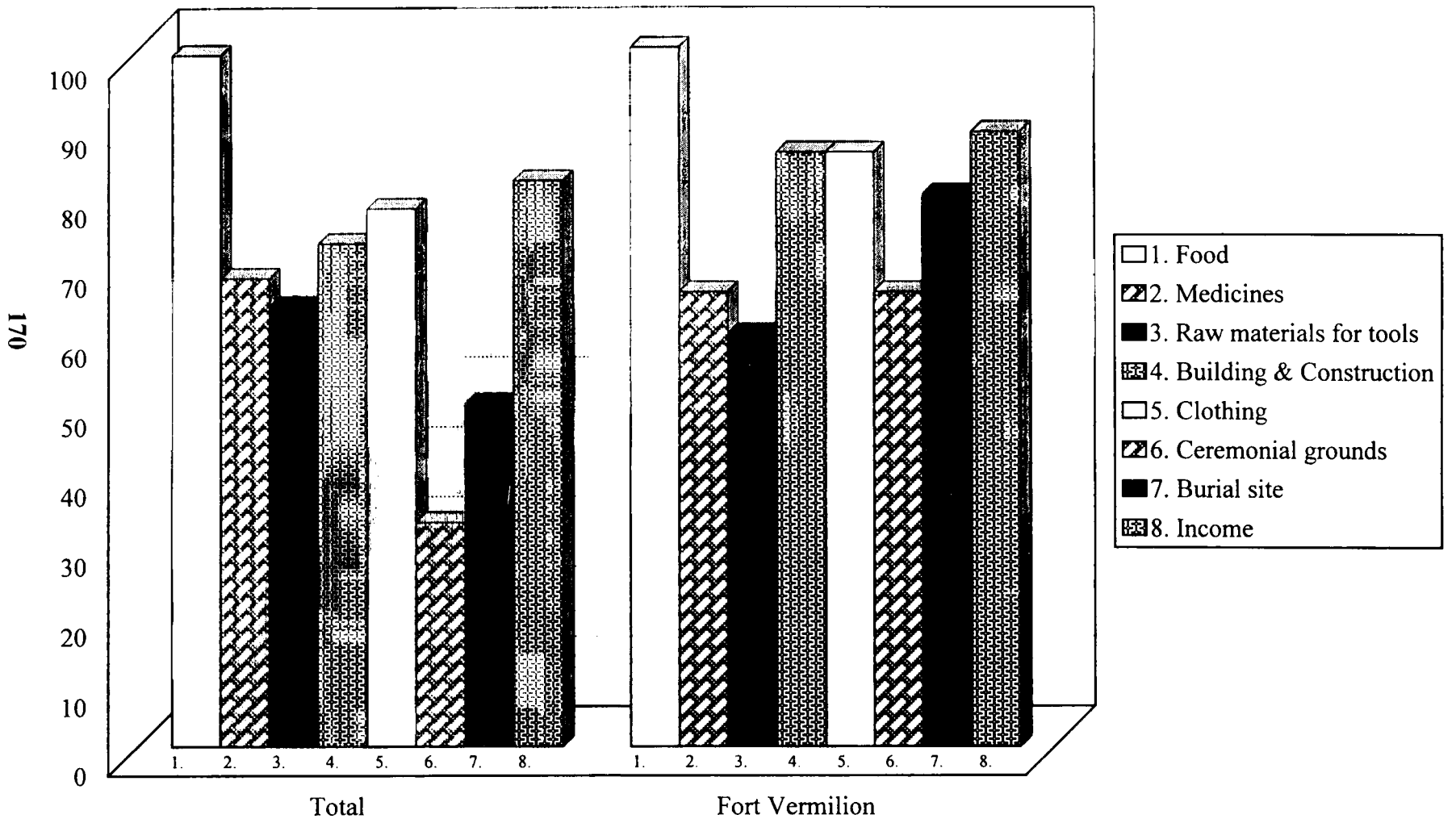
The elders of Fort Vermilion were most concerned about the changes that were occurring with the land and the consequences of land clearing, draining of the land, and the use of chemicals by the farming industry. Their recommendations were primarily related to working toward decreasing these effects through teaching the young people to respect the land and its resources, such as water, and wildlife. They indicated that the farmers need to make an effort to replace buffers on their property in order to decrease the loss of soil by wind erosion. They spoke of the need to decrease the amount of logging because it was creating more problems with the wildlife than it was believed. The animals were being crowded out by development.

Figure 5.4-1; Traditional Life Skills Identified



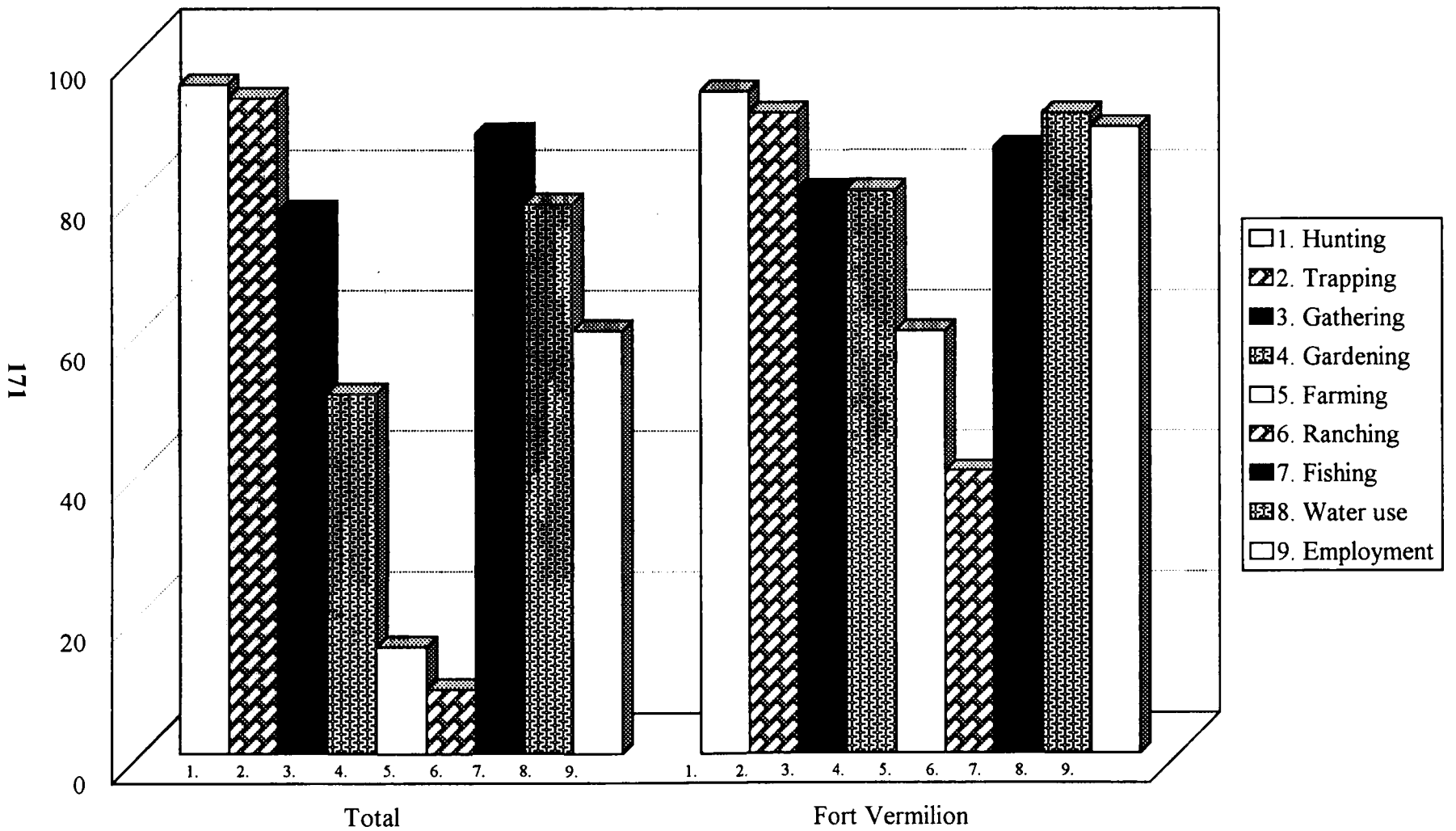
Sample size - 221 - Total respondents - 205 - Responded - 35

Figure 5.4-2; Commonly Identified Land Uses



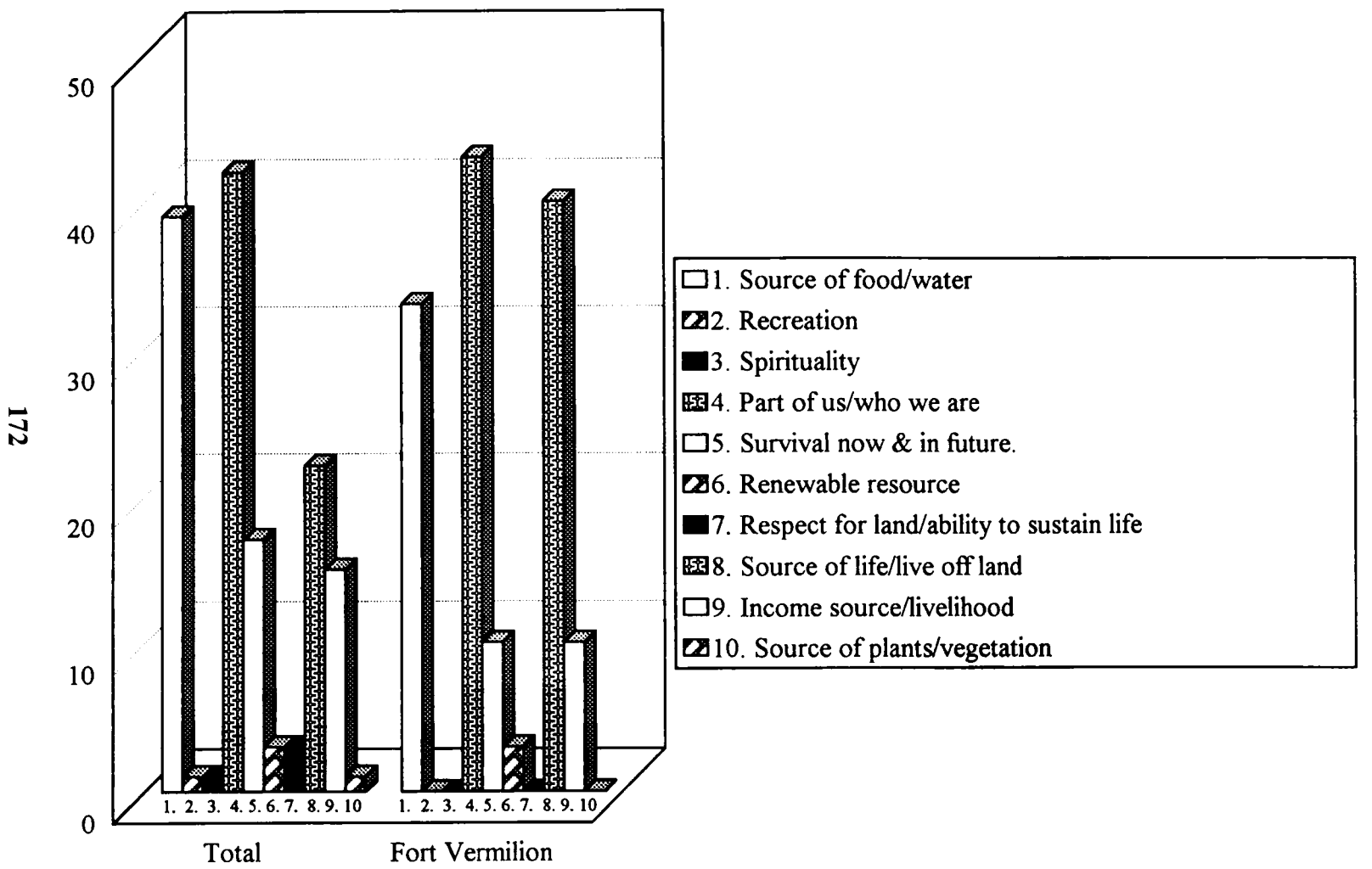
Sample size - 221 - Total respondents - 175 - Responded - 34

Figure 5.4-3; Land Use Activities



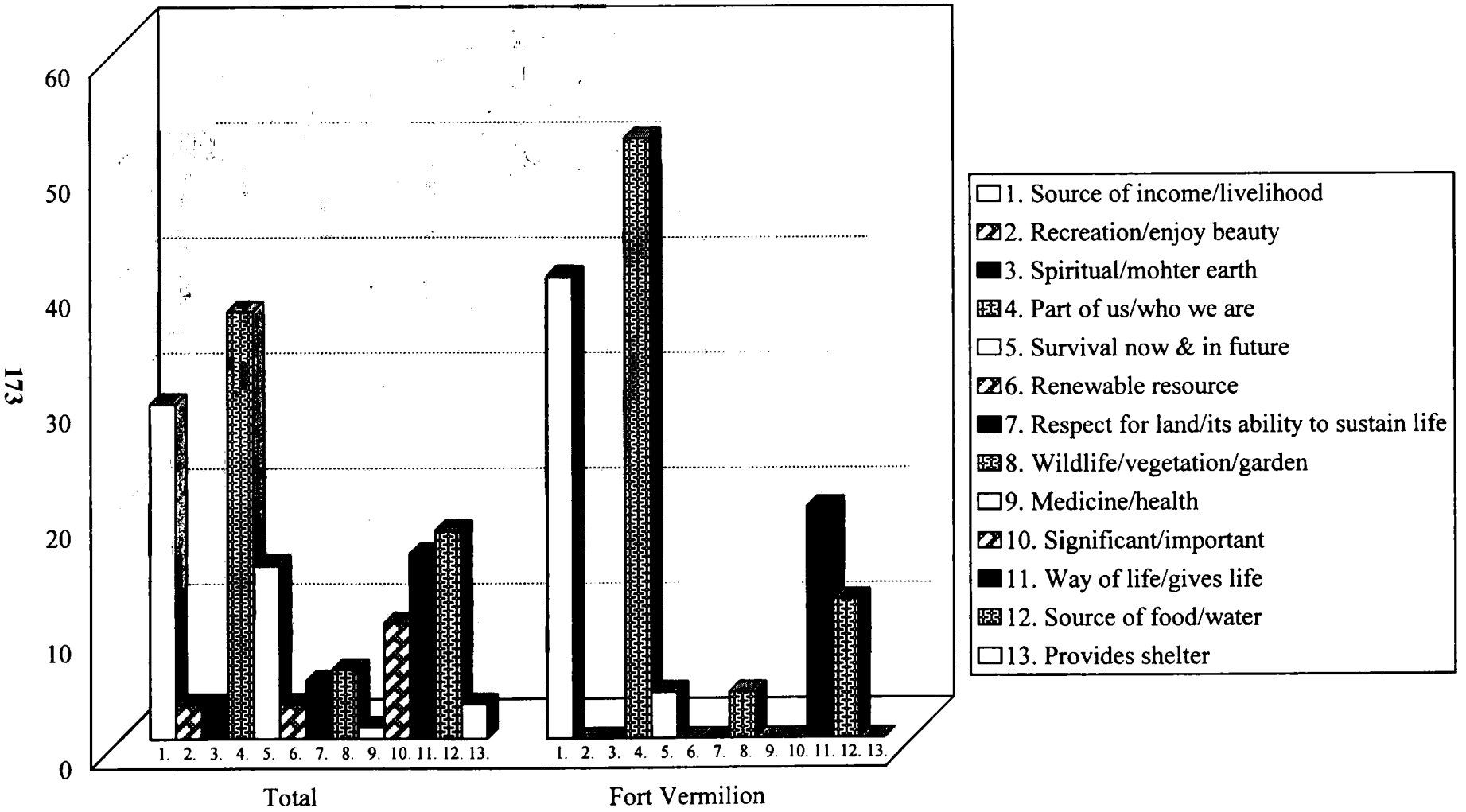
Sample size - 221 - Total respondents - 176 - Responded - 35

Figure 5.4-4; Land Use Significance



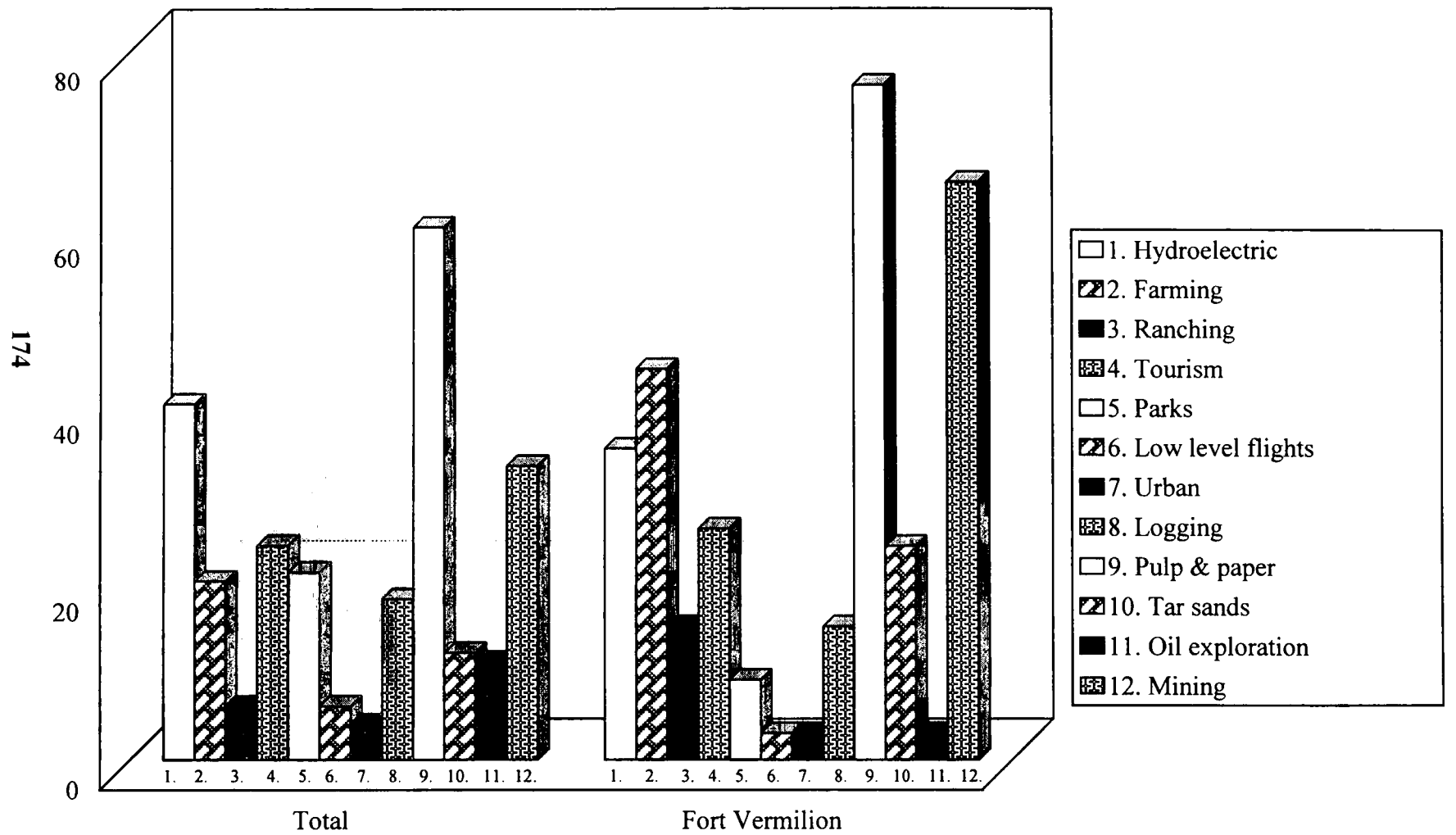
Sample size - 221 - Total respondents - 158 - Responded - 30

Figure 5.4-5; Land Use Significance to Traditional Lifestyles



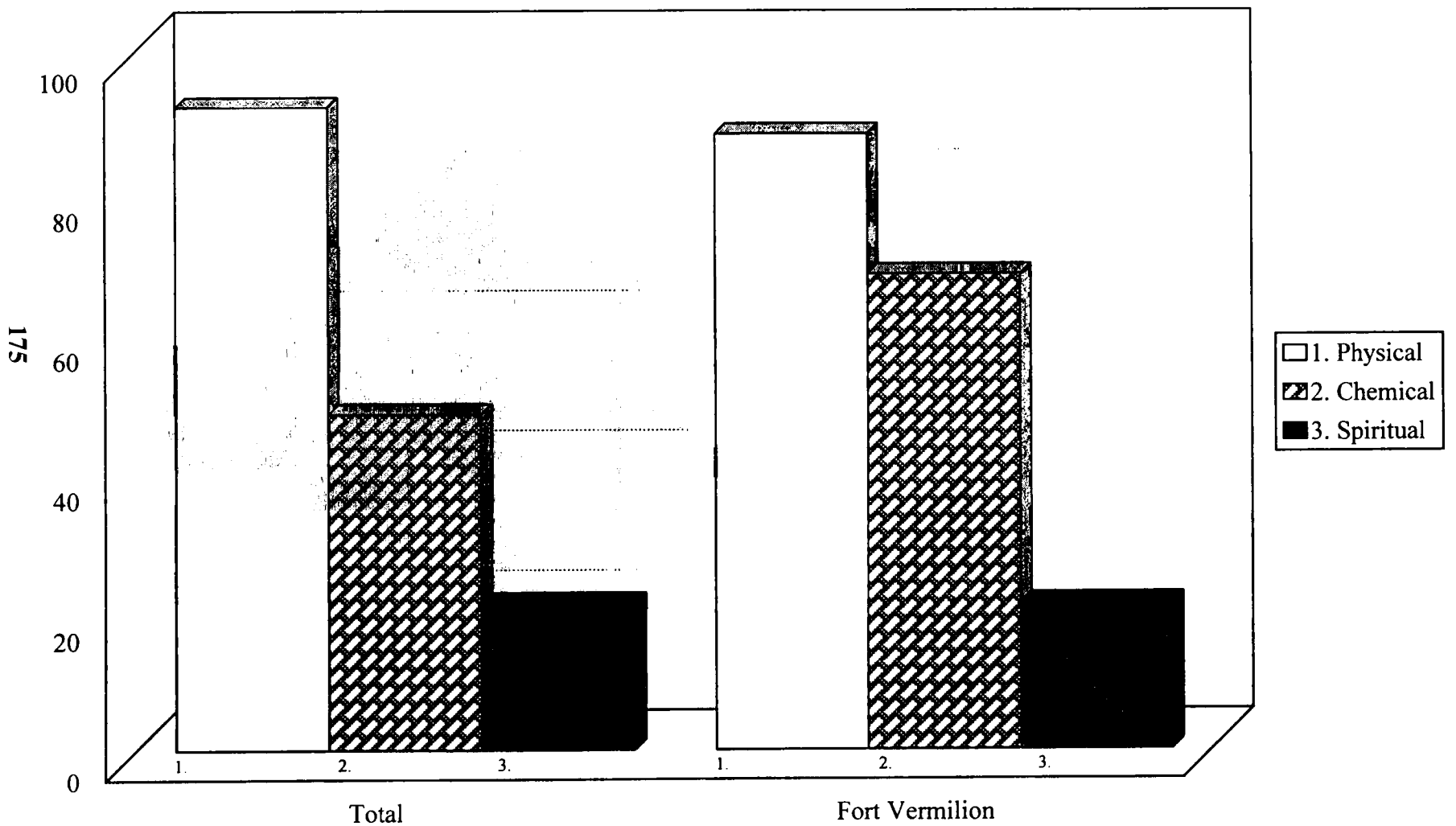
Sample size - 221 - Total respondents - 134 - Responded - 25

Figure 5.4-6; Developmental Land Use Near Traditional Lands



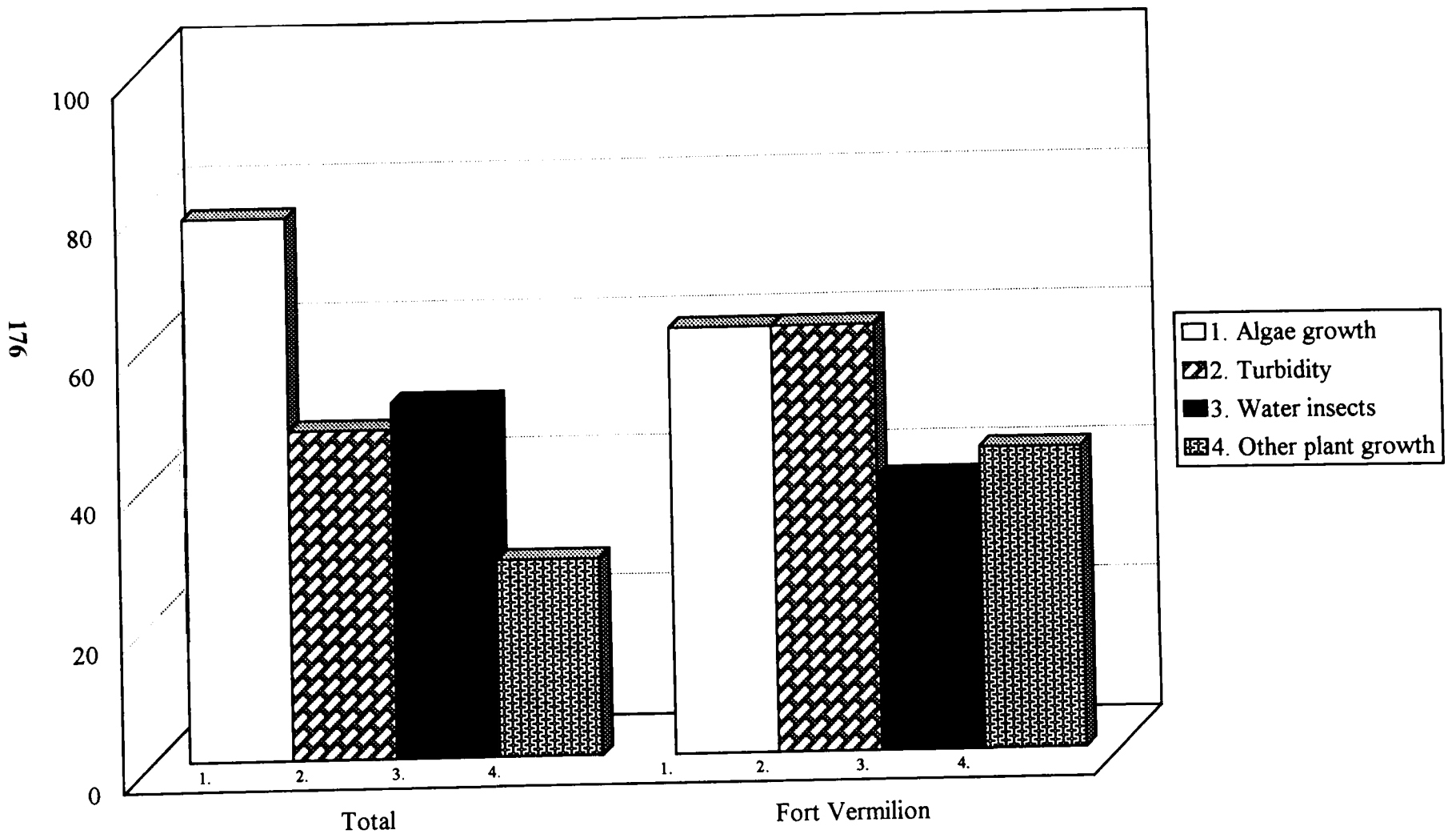
Sample size - 221 - Total respondents - 146 - Responded - 34

Figure 5.4-7; Significant Water Elements



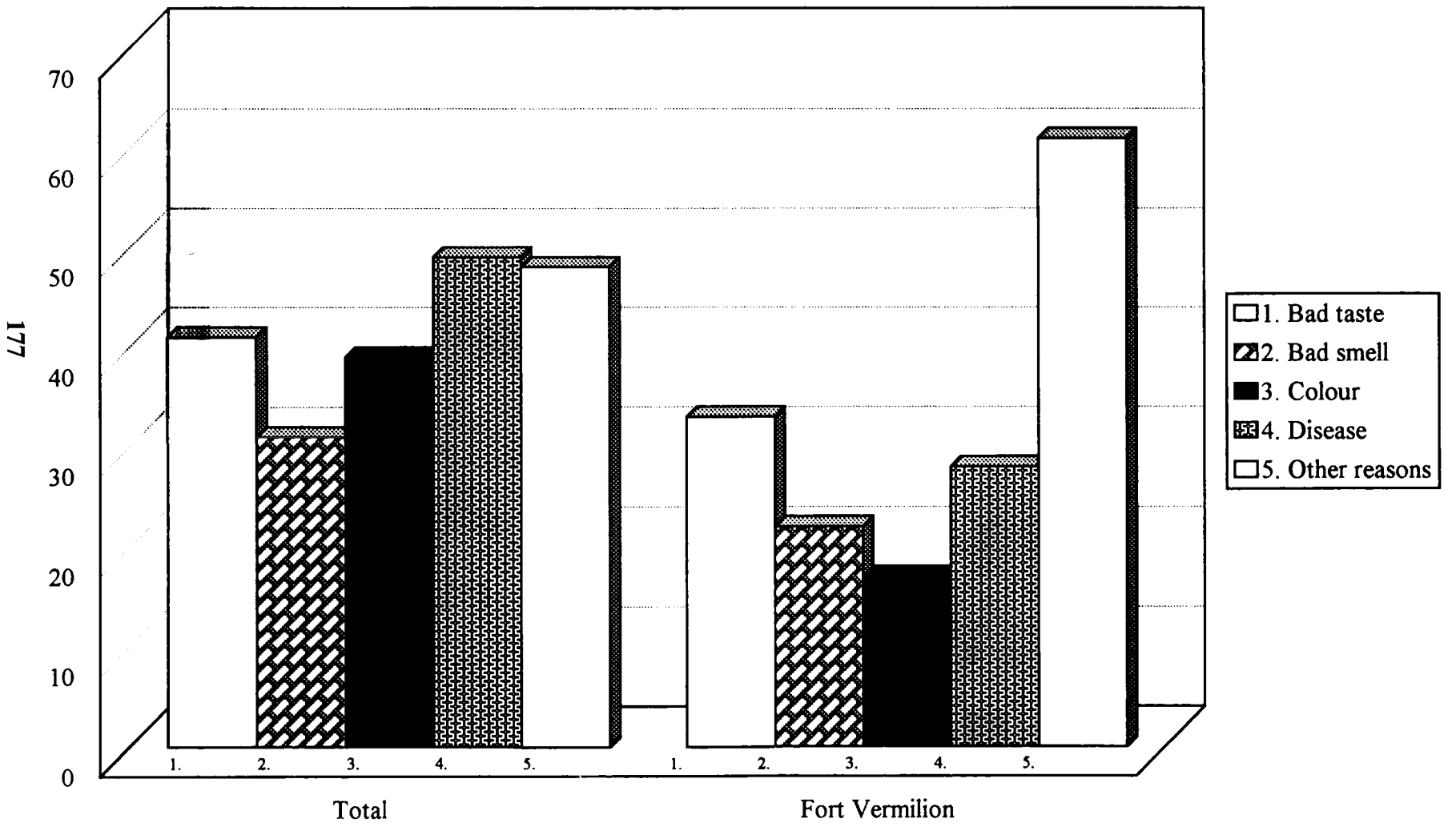
Sample size - 221 - Total respondents - 151 - Responded - 34

Figure 5.4-8; Identified Water Change



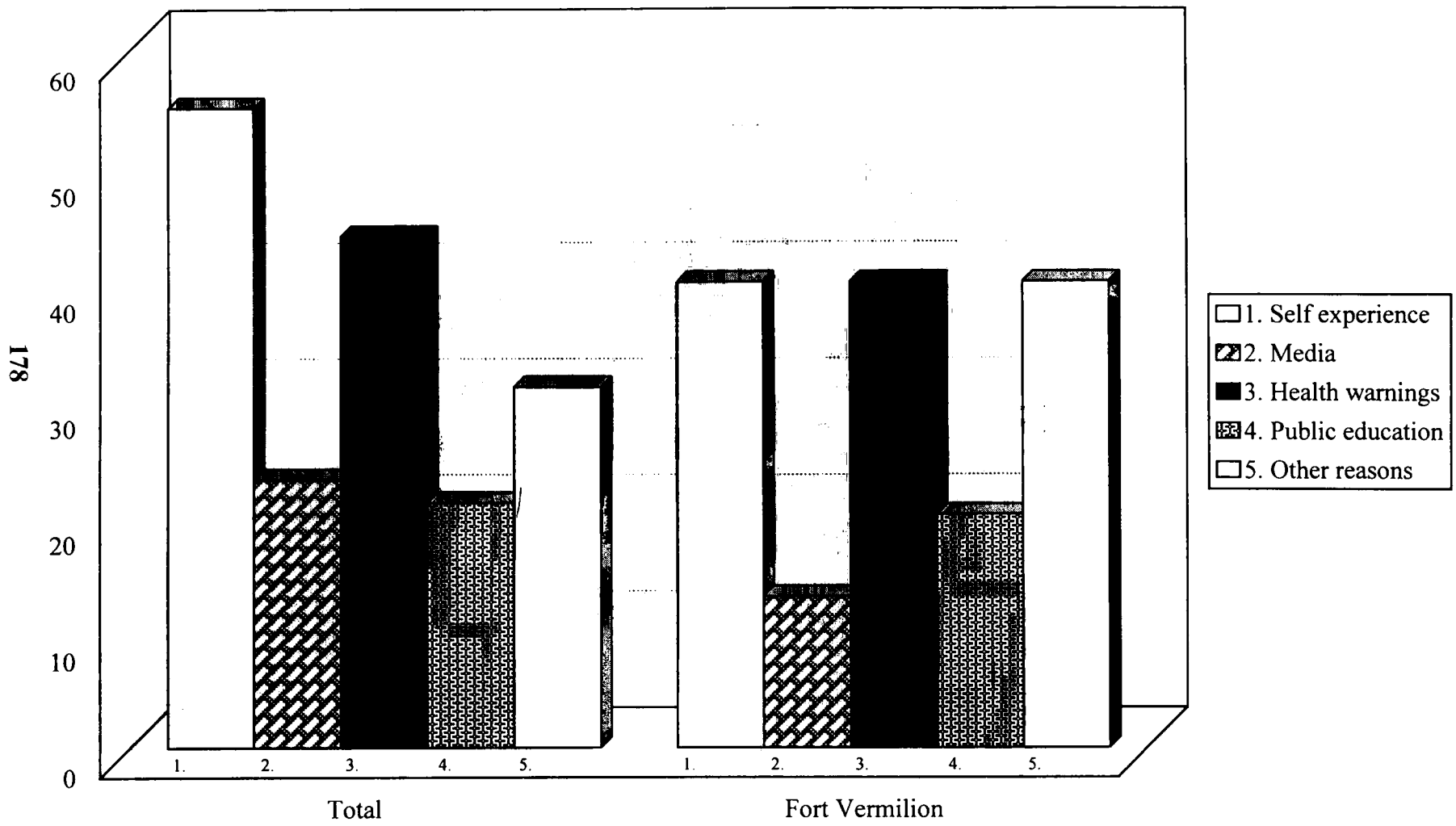
Sample size - 221 - Total respondents - 129 - Responded - 28

Figure 5.4-9; Negative Water Changes Impacting Use



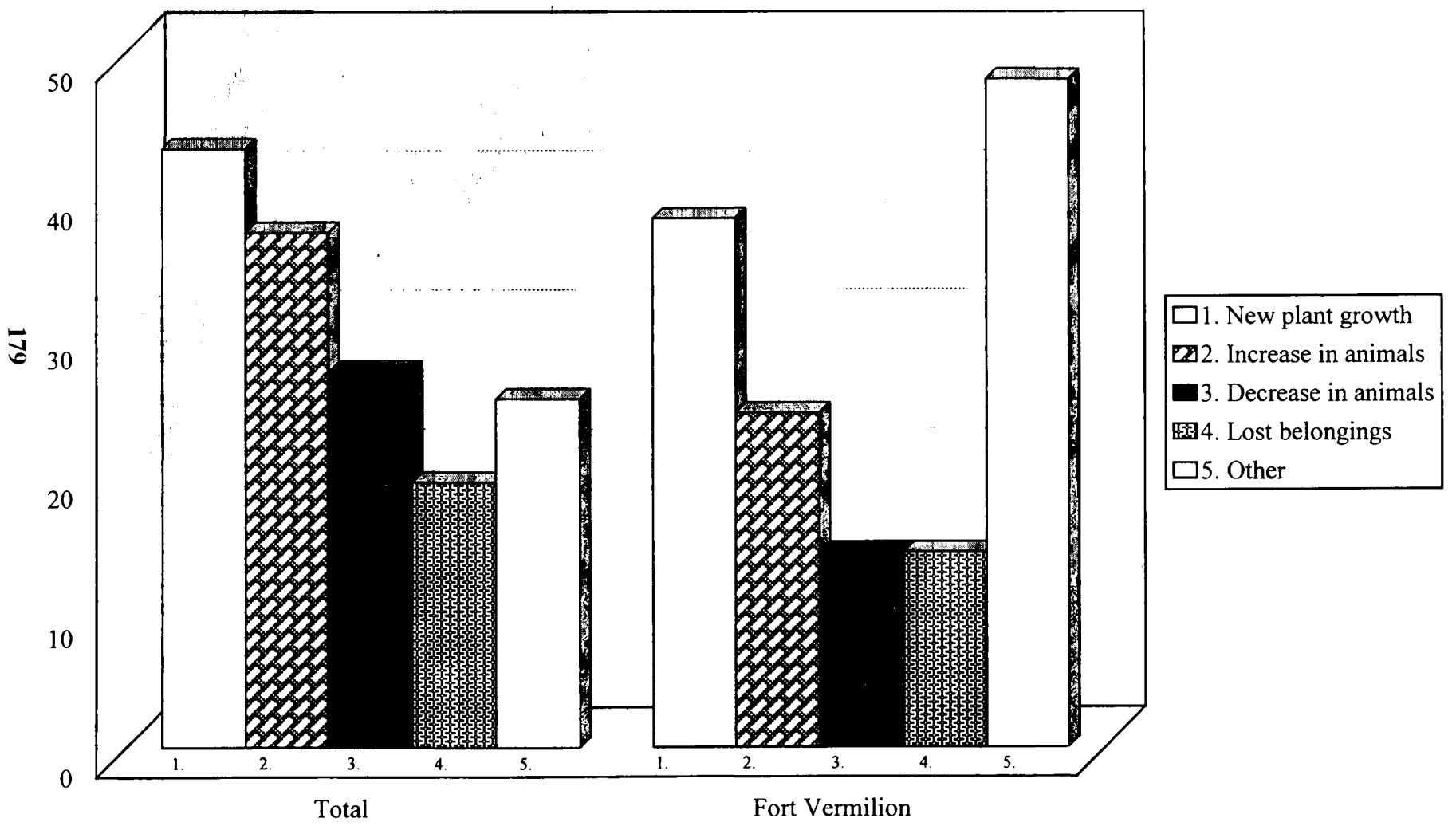
Sample size - 221 - Total respondents - 71 - Responded - 18

Figure 5.4-10; Reasons for Changed Water Use



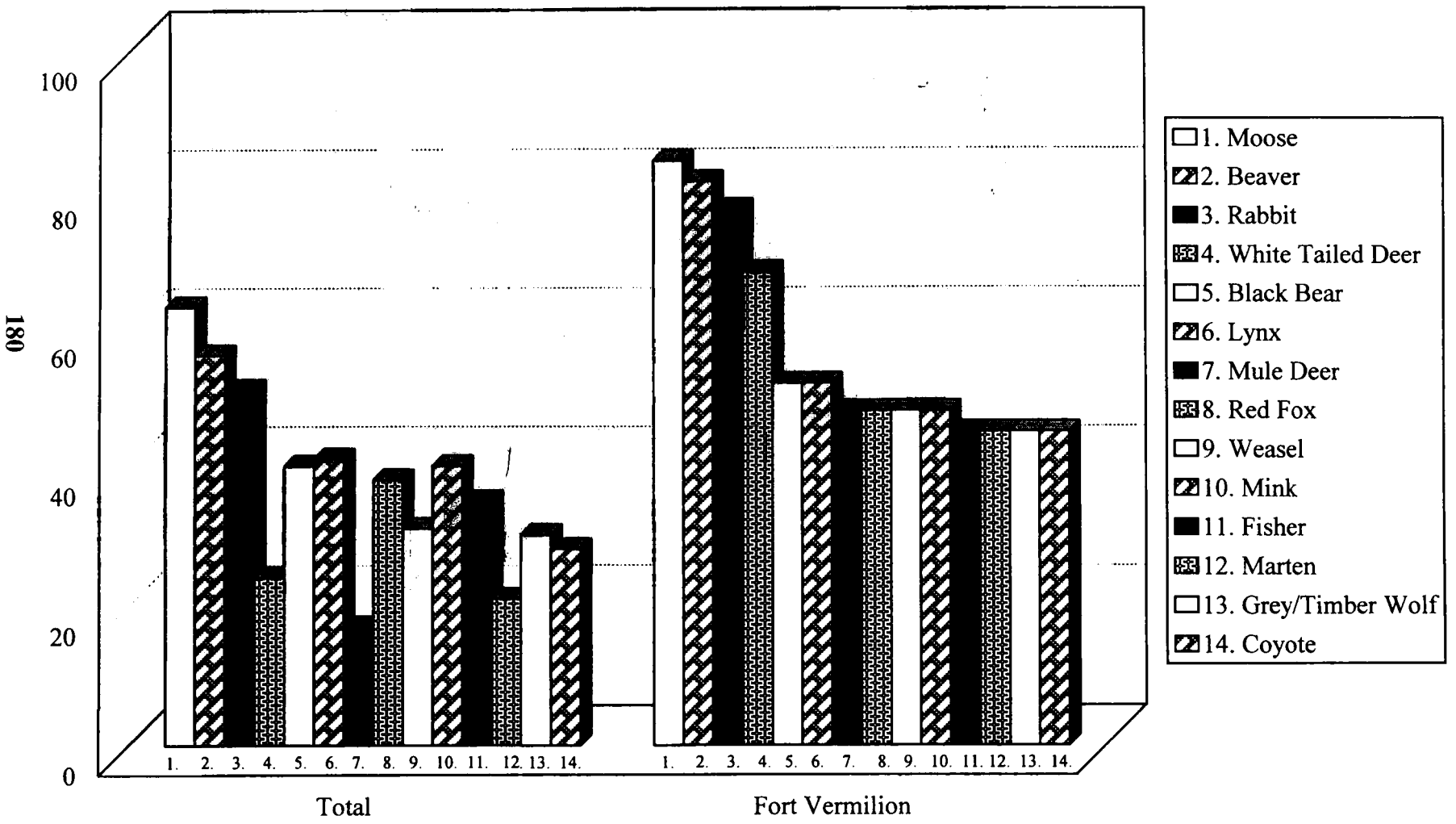
Sample size - 221 - Total respondents - 62 - Responded - 15

Figure 5.4-11; Ice Jam Flooding Impacts to the Land



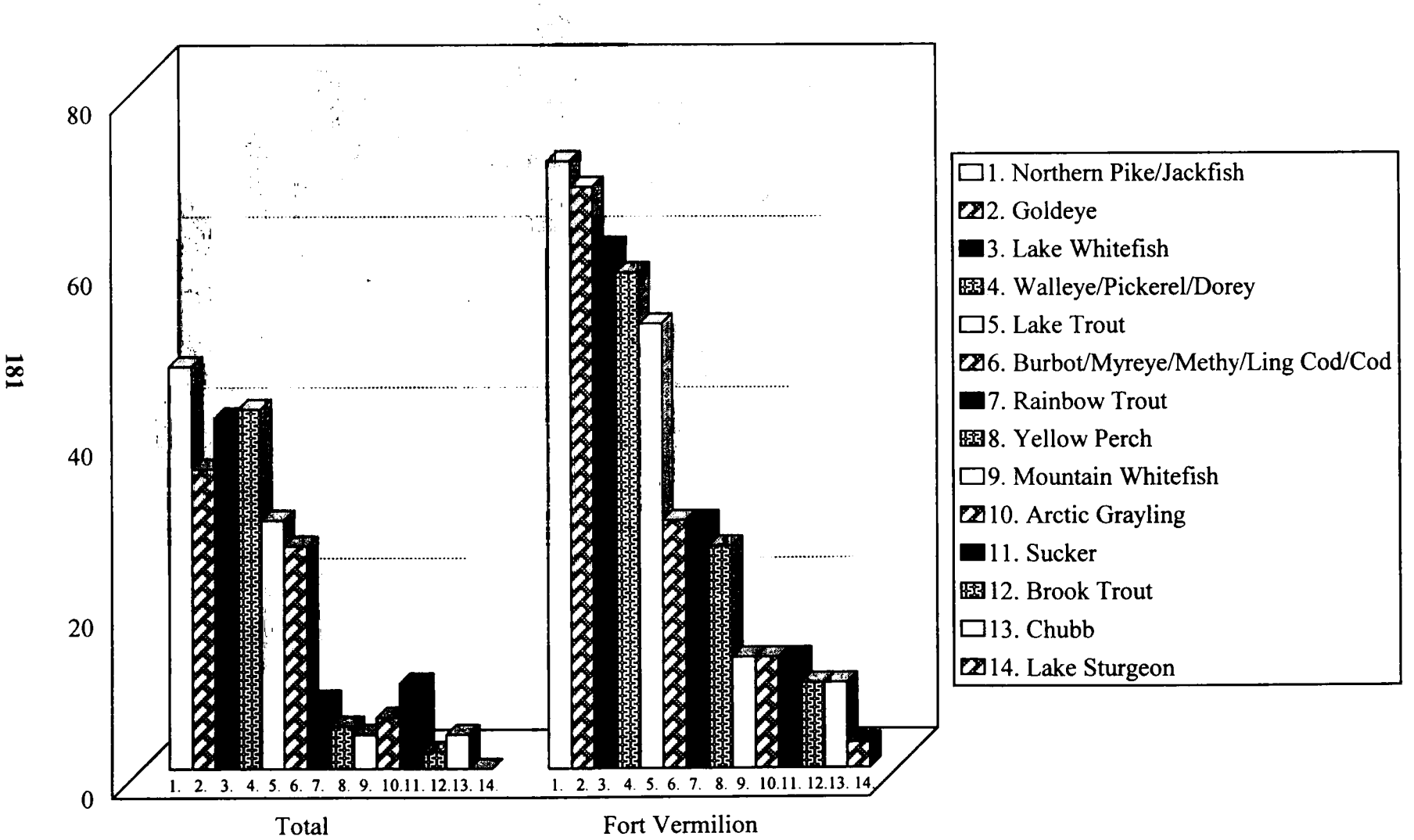
Sample size - 221 - Total respondents - 105 - Responded - 21

Figure 5.4-12; Most Frequently Used/Available Animals



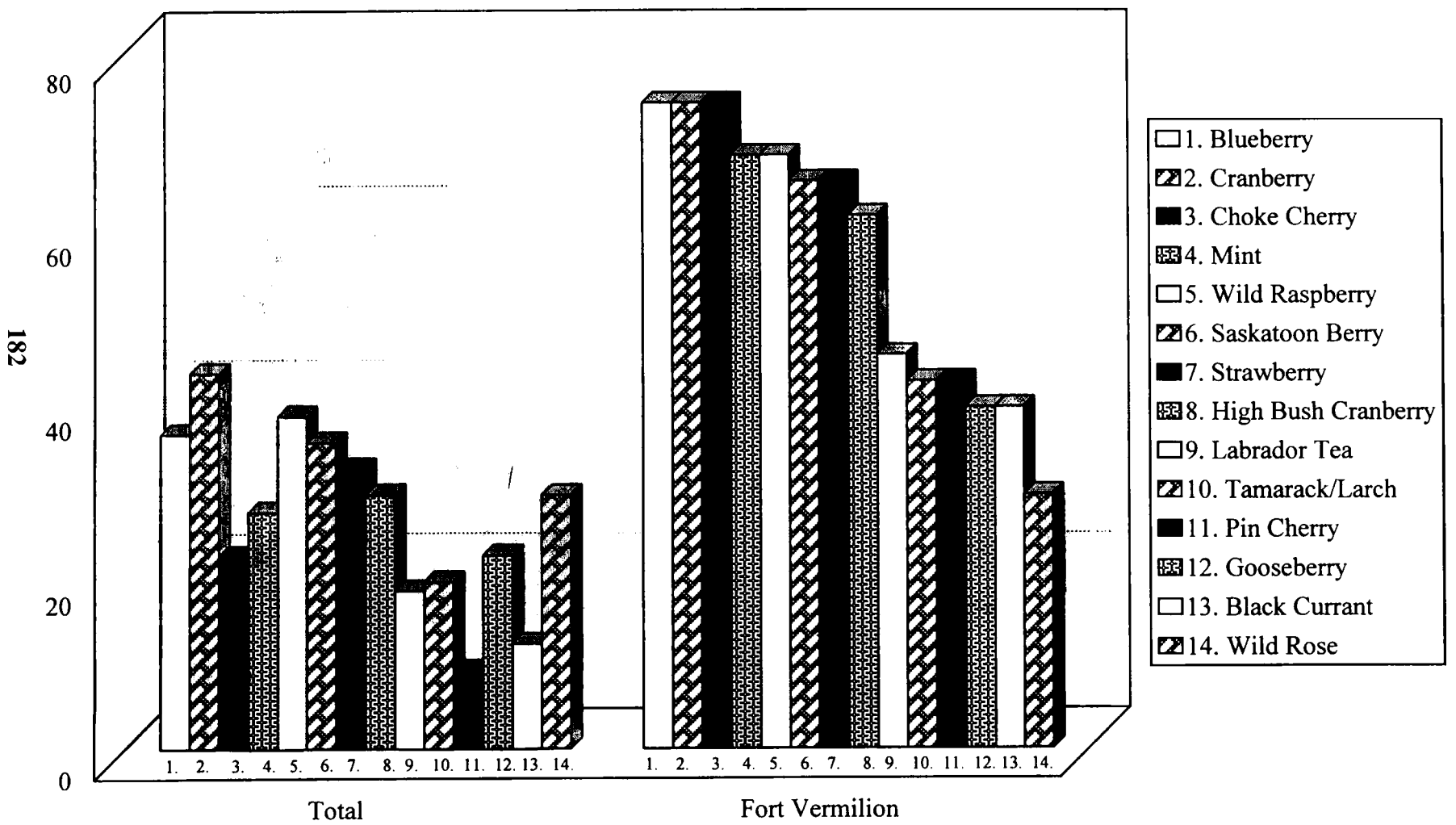
Out of 36 Species of Animals

Figure 5.4-13; Most Frequently Used/Available Fish



Out of 20 Species of Fish

Figure 5.4-14; Most Frequently Used/Available Plants



Out of 45 Species of Plants

Figure 5.4-15; Most Frequently Used/Available Trees

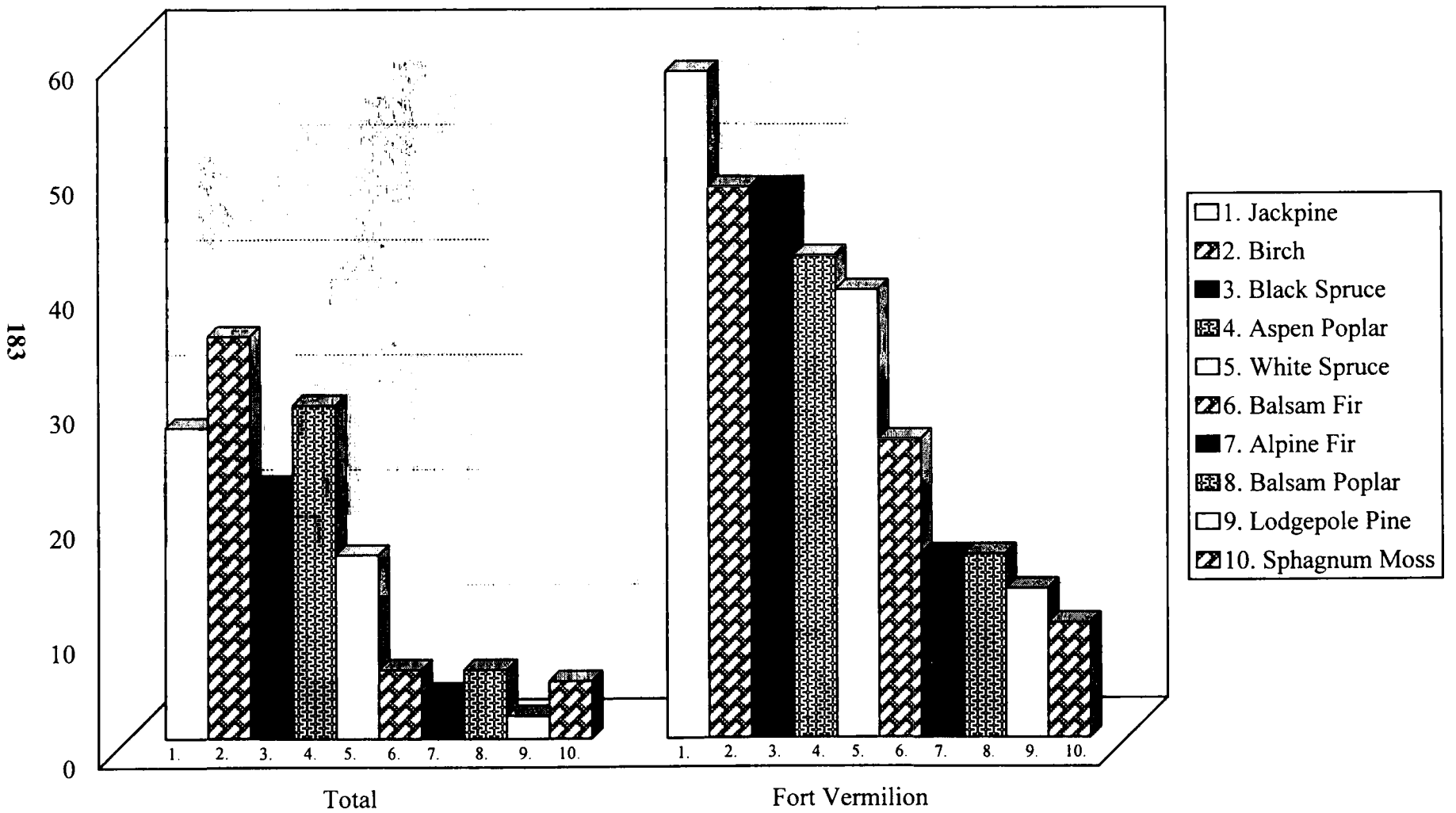
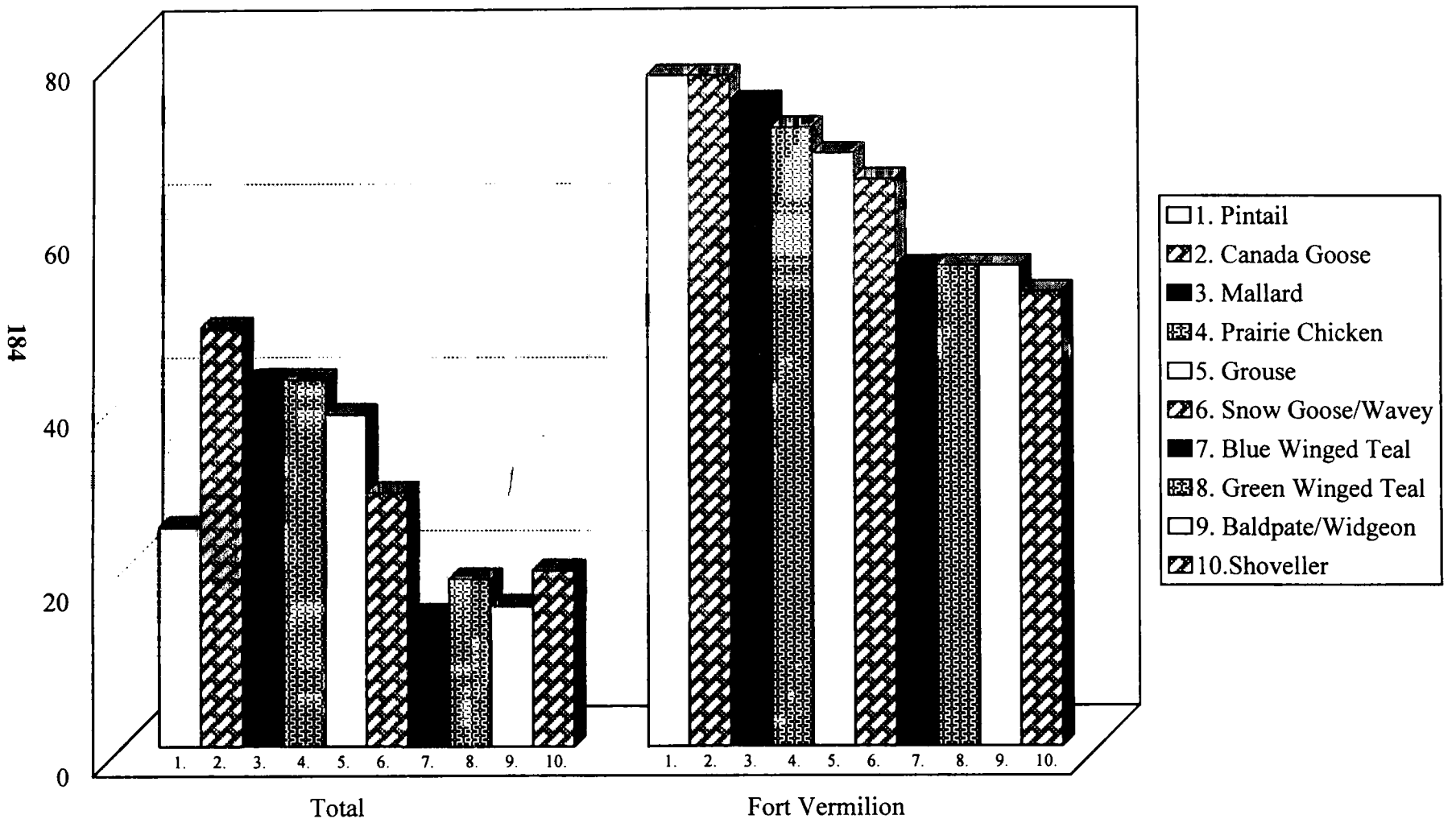


Figure 5.4-16; Most Frequently Used/Available Birds



Out of 31 Species of Birds

5.5 FORT CHIPEWYAN

Of the twenty-nine interviews, twenty-three were with elders. Twenty-eight surveys were analysed from this community. The age distribution of the respondents ranged from 50 to 59 years (34%), 70 years and over (21%), and 40 to 49 years (21%), 60 to 69 years (17%), the remaining (6.8%) were under 39 years of age.

An elder was defined by experience and knowledge of the land, along with continued practice. The youngest elder was 45 years old.

5.5.1 Land

The extent of the decline in the percent of people living off the land varies by community. Fort Chipewyan changes were fairly close to those of the sample as a whole. There has been a drop of 81% in parents still living off the land a drop of 83% in grandparents. The percent of siblings who had and still were living off the land dropped by 16% according to Fort Chipewyan respondents, while children dropped by 6%. The percent of other relatives who had and still were living off the land dropped by 24%. Respondents who lived off the land year round were most likely to come from Fort Chipewyan (75%). Fort Chipewyan appeared to be fairly typical of the sample as a whole with respect to the length of the time spent on the land.

Fort Chipewyan has more (30%) respondents in the 50 to 59 year age range living off the land and had no respondents in this category aged 60 to 69 years; conversely, Fort Chipewyan had 9% of the respondents in the 70-year and over category.

Fort Chipewyan respondents differ very little from the sample as a whole with respect to type of land use. However, they show higher than average use of the land for medicines (80%) and burial sites (64%). Fort Chipewyan respondents are less likely to use the land for ceremonial grounds (20%) than respondents as a whole.

The most significant comments coming from Fort Chipewyan elders in terms of their perception of the land and changes were connected to the water levels and the subsequent effects on river morphology, and disappearance of water bodies. Encroachment of willows and the disappearance of sandy beaches where users beached their boats was often discussed. Egg Lake was one lake identified as no longer being present. This lake is defined as a perched basin as it is normally filled by flooding. A second lake identified as having disappeared is Pushup Lake. The land has been described by the elders as an asset which was used in the past for livelihood and continues to be viewed as an important asset for future generations providing it is managed in a sustainable manner. The land was often described as beautiful and deserved to be respected because it sustained all forms of life. The original users of the land in this area managed their land as other communities have described by managing its resources through nomadic land management practice. An area was not over used and families moved from one harvesting area to another. This changed when permanent lodging and trap lines were assigned. The land was seen as a bountiful producer of wildlife up until 1956 and by 1984 significant changes in water levels and

wildlife populations were noted. The last major flood recalled that replenished the delta and outlying landscape occurred in 1974. There were areas that do not usually get flooding but when there is a higher than normal rain fall and spring thaw the lakes and streams in this area will increase in levels. This occurs out in the Sandy Point area.

The Big Point area was burned over in 1981 and is now beginning to regenerate.

Of the eight types of development identified by Fort Chipewyan respondents, hydroelectric (41%) was the most frequently cited. About a third of Fort Chipewyan respondents said parks (32%), pulp and paper (36%) and oil exploration (32%).

What is interesting is that Fort Chipewyan respondents were among the lowest to even consider moving (5%), yet the most likely to complain (10%). This might be coincidence. However, it might also be a difference in how respondents from various communities react to development, some move without considering complaining and some complain without considering moving. Major industry concern to Fort Chipewyan respondents is that of pulp and paper mills (70%).

Fort Chipewyan respondents tended to give lower scores than the sample as a whole for every group except individuals, which received the same average score of 2.9 as was given by the total sample. Fort Chipewyan respondents followed the same rating pattern as for the total sample in terms of industry receiving the lowest score (1.5) then the three governments, citizen and individual groups then the two Native groups receiving the highest average scores.

Fort Chipewyan respondents were the most likely to say that their view of the land has changed (80%). Their reasons for such were fairly evenly split between the increased development (32%) and the fluctuating water levels (26%). The next two main issues were that the environment was changing and there was more pollution (16%), and there were fewer animals (16%). Five percent of Fort Chipewyan respondents attributed changes in the weather and a greater appreciation or need to survive as reasons for their changing view of the world.

The three major comments about industry in Fort Chipewyan were that it destroys their relationship to the land (24%), it destroys the vegetation and trees (29%), it destroys wildlife and their habitat (29%) and basically pollutes the land (18%). Fort Chipewyan respondents indicated they related to the land with respect and love (59%). They took proper care of the land (14%) and only took from it what was needed (9%).

In Fort Chipewyan, 43% said respect and 14% spoke of protection, the two most common responses.

Fort Chipewyan respondents practised all methods for managing the land. Almost all (95%) of the Fort Chipewyan respondents had some method of managing the land. The most common methods were conservation - don't over-hunt, trap or pick (44%), followed by rotating traplines and harvest areas (38%). Only 6% said either maintain the land or upkeep and control the animal population.

Almost all respondents in Fort Chipewyan rotate their traplines on a seasonal basis (86%). Only one person (5%) rotated them daily and one person (5%) rotated them annually. What is interesting is that only one person (5%) said they did not rotate their traplines. It should be noted that the trappers of Fort Chipewyan trap in groups, all using one area.

Fort Chipewyan respondents showed a high propensity to hunt (92%).

Fort Chipewyan was the only community to show an increase in trapline ownership (+5%) from 91% to 96%.

In Fort Chipewyan, respondents are fairly divergent in their responses regarding the effect of forest fires. Sixty-three percent said fires had a positive effect on vegetation with respect to new growth. A quarter focused more on the departure of the animals and their food source. Fort Chipewyan respondents felt that it took a long time for the forest to grow back after a forest fire. A third (36%) said more than 40 years, a third (36%) said 20 to 34 years and 21% said 10 to 15 years. Only 7% said it took one to six years for the forest to re-grow.

Almost all Fort Chipewyan respondents (92%) used a combination of waste disposal methods. Only 4% regularly burned their waste and 4% dumped it.

In Fort Chipewyan, respondents showed a particularly strong identity with the land, "it is who we are" sums it up (78%). The land is regarded as a source of life (17%) in terms of income (22%), food and water (13%).

Respondents in Fort Chipewyan tended to speak more of what they needed in order to maintain their relationship to the land rather than to focus on stopping or controlling development. They said that their relationship could be maintained by letting Native people live off the land (50%) and to maintain the natural state of the land (19%) and water (13%). Respect for the land (13) was slightly higher among Fort Chipewyan respondents than for the sample as a whole.

The plants identified by the respondents as most frequently used were: blue berries (64%), low bush cranberries (54%), wild raspberry (46%), high bush cranberry, birch (43%), Saskatoon berry and strawberry (36%), goose berry (32%), black spruce (29%), jack pine and mint (25%), tamarack and choke cherry (21%), aspen poplar and willow (18%), Labrador tea and white spruce (14%), black currents and wild rose (11%).

The elders were asked to speak about sacred sites and to describe locations they felt were sacred. Most of the locations identified were burial sites. Thus, burial sites have been defined as sacred along with some locations where people used to camp many years ago. Traditional burial ceremonies involved leaving the remains in a teepee. Several of the implements and other articles belonging to the departed were placed with the remains to assist him or her during the journey to the sprit world. After the arrival of the priests, the burial ceremony involved much of what is practised today. Many elders indicated that burial sites are located all over the land and the for this reason the land should be respected. Newcomers

and developers are not often aware of these sites prior to visiting the area. Specific sites that this community identified as sacred include: Dog Camp, Peace Point, Carlson's Landing and Rocky Point; these sites have burial places. Other burial sites named were: Sweet Grass Island toward Sweet Grass Creek; a few miles along the Athabasca Lake shores on either side, marked grave sites were identified and 17 graves were noted at Big Point. Several grave sites were noted at Jackfish Creek and Richardson Lake. These sites have very old burial sites along the shores. Similarly, along the Embras, and in particular along the back trails leading from the Embras and Frog Creek and Pine Creek, burial sites were noted.

The Birch River, more specifically House Lake, was identified as a mass burial site for Chipewyans who died during the flu epidemic. Moose Island along the Peace River just before the link to the winter road was identified as a burial site. A hill near Jackson Whiteknifes' cabin has seven graves. One above his cabin was five miles above his place. Carlsons, Moose Island (6-7) and along the river were kept marked at one time.

Wood Buffalo National Park's policy was often raised as having a debilitating effect on the traditional use of the land. Many of the policies which affect this community have been instituted without consultation and have been implemented as recently as 1984.[5] There was a very strong indication that the elders felt that the land had been lost and was managed by others.

Table 5.5-1: Table for Demonstrating a Special Regard For the Land

	Total	Ft. Chipewyan
Yes	27%	29%
No/do not know	30%	29%
Respect	27%	43%
Ceremonies	5%	0
Protect it	3%	14%
Meetings/land use study	3%	0
Elders	3%	0
Way of life/community life	9%	0
Number Respondents	115	7

[5]Parks Canada. Wood Buffalo National Park, Management plan (1994). Ottawa. 66 pp.

5.5.2 Water

According to the Fort Chipewyan elders, water is "the giver of life" and is the most significant influencing factor of change. They spoke of its vitalness to the livelihood of the community and the link it has to all elements of the delta: wildlife, fish, land, and the people who depend on its presence for continued sustainable resources linked to traditional life practice. Water is depended on as a transportation medium and as a renewal factor for the land. Water has decreased substantially as is evidenced by the dry lake beds and inhibited travel of traditional users of the land. Thirty years ago they were able to travel by skiff to Poplar Island. Prairie River is described as a "prairie of cattails." There used to be a lake called Bellmans Lake, but it no longer exists.

Clearly, Fort Chipewyan respondents used the greatest variety (63%) of daily water sources than any other community. Only 21% used surface water on a daily basis, lower than any other community. Fort Chipewyan respondents were also most likely to have water.

Fort Chipewyan respondents showed slightly lower usage rates than other communities for drinking (88%), tea or coffee (88%), cooking (88%) and preparations (60%). There does not seem to be an explanation of this.

Fort Chipewyan respondents used lake and river water heavily for recreation (80%) and travelling (84%).

Fort Chipewyan had the highest percentage of respondents who did not have a special way of regarding the waters (18%). Those who mentioned special practices were most likely to say they just leave it alone (27%) or they don't dump in it or pollute it (27%). Nine percent gave thanks and 9% regarded the water with respect and importance. Nine percent also spoke of evaluating its physical characteristics.

Water quality was not an issue in the past and it was taken from any place for drinking purposes, no ill effects were ever noted. The Peace River has been described as muddy and no longer fit to drink. The elders went on to describe areas where there used to be much water at all times, such as the Portage Creek, Egg Lake, and Pushup Lake, which currently can be walked through with moccasins. This drying of the inland lakes has had a subsequent impact on aquatic wildlife such as muskrats, fish and water fowl as has been repeatedly reported by the elders. In 1949 it was recalled that the Damway Creek area had very little water, which would indicate a dry period.

Ice formation and consistency has changed greatly and the ice is described as thinner and weaker in texture. Ice was known to be crystal clear and to freeze up to four feet in depth, this was reported to occur in the 1950's. Ice was said to be strong and could be walked on till April at times. Its appearance is described as "smoky," "oily" and "less than 4 feet" most of the time now. Presently it develops to approximately 18 to 20 inches and is observed to crumble with ease during the breakup, thus has little scouring effect as it normally had in the past.

Ice formation and movement, as well as running water phenomena are considered to be essential to keeping the rivers and streams cleansed and replenished. Floods were described as essential to the cleaning and replenishing of the delta and the surrounding landscape in the Peace Athabasca Delta. Floods were known to occur on a regular cycle of every two to three years. The last major food the elders recalled occurred in 1974, although a small flood occurred on the Athabasca River in 1990. Although that flood brought water into Lake Mamawi, it was not considered significant as it did not have the overall replenishing effects it used to experience when the Peace River floods. Flooding is recalled by the elders starting from 1935, 1958, 1960 with the most recent occurring in 1974. Big Point was always known for its high water level throughout the year and its water level drop is considered to be abnormal. Ice played a very big role in the spring flooding of the outlying land and perched basins. Naturally occurring ice dams flooded the land regularly in the past but in recent years this has not been observed and is believed to be linked to the control of the water regime on the Peace River by the Bennett Dam. The entire area was flooded during spring flood periods, and people travelled everywhere by canoe. Egg Lake, Frog Lake, Lake Clair, Lynx Stand, and Youth Lake are all regulated and influenced by flooding. There were times when the water level was expected to increase such as during the spring thaw and in late June to early July.

It is said that the perched basins and other lakes were healthy for up to three years after flooding was experienced. It was always known to flood at "Simpson House, on the Peace River and at another place called Hay River House." Ice was known to jam where the Embras joins the Athabasca and where there are sharp bends on the Embras. An ice jam would occur 10 miles below Jackson Whiteknifes' cabin and flood the Grouse Point area. Water was known to stay for about a week before it began to recede. Most often the ice would jam at every sharp bend along the rivers.

Fort Chipewyan respondents were primarily concerned about water quality. Two-thirds of their comments were about water quality; more polluted (44%), more weeds (11%) and more algae (11%). Almost a third of respondents (28%) commented on lower water levels.

Respondents in Fort Chipewyan were most concerned about water colour (63%) and disease (68%). Bad smell (32%) and bad taste (37%) matched that of the total sample.

Self-experience (65%) coupled with health warnings (65%) were the two major motivating factors to influence water use by Fort Chipewyan respondents. Fort Chipewyan respondents reported an above average appearance of algae growth (87%), water turbidity (61%) and water insects (61%). New and other plant growth was on par with the sample as a whole (26%).

Water treatment of choice was boiling, and was carried out by almost all Fort Chipewyan respondents (96%). Settling was also a very popular method in Fort Chipewyan unlike most other communities where it was not popular at all. A quarter (24%) of Fort Chipewyan respondents had access to treated water.

Flooding effects reported by Fort Chipewyan respondents was of new plant growth (83%) and an increase in the number of animals (78%).

The respondents in Fort Chipewyan talked mostly of the drop in water levels (46%) and the wash-out that occurred (31%). All of Fort Chipewyan respondents had noticed changes in the ice formation, two-thirds (65%) said that it was thinner and crumbled easier. Twelve percent said the ice was not as cold. The appearance of the ice was darker and dirtier as mentioned by 6% of Fort Chipewyan respondents. The impact of the Bennett Dam releasing water in the winter was most prevalent in Fort Chipewyan (6%).

The negative impact of flooding reported by the respondents was the loss of land areas and the loss of wildlife or livestock.

Water appeared to stay slightly longer in Fort Chipewyan than for the sample as a whole. Only half (47%) said the water left within a week, 6% said it subsided between one to four weeks. A quarter of respondents noted that the water stayed up to a year and a quarter said the water stayed from two to ten years. Fort Chipewyan respondents reported the greatest amount of time for the plants to grow back, probably because the flood waters stayed longer in Fort Chipewyan than in any other community. Almost four out of ten (39%) respondents said that plants took longer than a year to grow back.

In Fort Chipewyan, comments about the water level were cited as major reasons for the changing flood sites. Respondents made comments such as: dams control the water level (37%), low water levels or not enough water coming in from British Columbia (11%), and too much rain or water (5%).

In Fort Chipewyan, spring (95%) was the most common flood time followed by the summer (5%). Over half of Fort Chipewyan respondents (52%) said that flood times had changed and that now the floods were not as often or not at all (50%). Another 30% said the floods were now controlled by dams. One respondent each said that now water floods in early to late spring and that there was more rain in the summer.

In Fort Chipewyan, respondents really noticed the positive effect that naturally occurring ice dam flooding had on the wildlife (69%) probably due to the increased water availability (19%). Also, the river was cleaned and scoured by the flood (13%).

Willows were first noticed in flood areas in 1934 in Fort Chipewyan. However, the greatest increase seemed to occur during the 1970's and into the mid-1980's, again, mostly in Fort Chipewyan. Other communities reported the odd increase in willow growth but no pattern across the other communities surfaced.

Thistle growth was first noticed in 1974 in Fort Chipewyan. The growth of thistles in the delta was most noticeable during the 1970's. Silverweed was first noticed in the delta in 1974 in Fort Chipewyan. An increase appears to have occurred during the mid-1970's in Fort Chipewyan. Fort Chipewyan respondents noticed foxtail in the delta, first in 1974 and continuing until 1984.

Mean scores in Fort Chipewyan ranged from a low of 1.2 for oil exploration to a high of 2.9 for tourism. Activities rated the lowest in Fort Chipewyan were oil exploration (1.2), hydroelectric dams (1.3), and mining (1.4).

In Fort Chipewyan, industry was seen as making the least effort to improve water use (1.3). All three levels of government were rated slightly more positively with either 1.6 or 1.7 mean ratings. Citizen and Native groups were rated the highest (although still negative) with average scores of 2.4 to 2.6.

Fort Chipewyan respondents were by far the most likely of all respondents to consider making an official complaint (67%), although none had such concerns resolved. Those that had moved came from Fort Chipewyan where 9% of respondents said they had moved because of the loss of traditional water use. Another 27% of Fort Chipewyan respondents had considered moving but had not yet moved.

Table 5.5-2: Table for Demonstrating a Special Regard to the Water

	Total	Ft. Chipewyan
Do not/no	5%	18%
Leave it alone to heal	4%	27%
Cleansing/purifying	6%	9%
Give thanks	14%	0
Do not dump in it/ pollute it	36%	27%
With respect/importance	35%	9%
Use every year/use it	8%	0
Yes-unspecified	2%	0
Evaluate physical characteristics	4%	9%
Other comments	1%	0
Number Respondents	130	11

Table 5.5-3: **Table of Water Character Changes by Community**

	Total	Ft. Chipewyan
More weeds	10%	11%
Fluctuations in amount of plant life	1%	0
Green slime on riverbanks/nets	3%	0
Pulp mills & motor boats on river	1%	0
Sand bars	5%	0
Fewer fish & water insects	4%	6%
Fish not as good to eat	1%	0
Lower water levels/water drying up	28%	28%
More algae & insects	3%	11%
Too much chlorine	1%	0
Number Respondents	78	18

Table 5.5-4: Observed Ice Formation Changes

	Total	Ft. Chipewyan
No change/never noticed	0.26	0
Thinner ice/ gives & crumbles	52%	65%
Ice not as cold	3%	12%
More floating objects, e.g. blocks, stumps, drift logs	1%	0
Ice dirtier /ice darker	4%	6%
Bennett Dam releases water in winter	1%	6%
Jam releases & takes everything with it	1%	6%
More overflow	3%	0
Lake or river changed shape, e.g. channels dried up, different water path	2%	0
Ice freezes rougher	3%	0
Ice is low	2%	6%
Number Respondents	101	17

5.5.3 Wildlife/Fish

The elders view wildlife as a resource the Creator placed on earth for people to use for living. There were feelings that there had been more animals in the past because there was less traffic and more water for the creatures to use in accessing sustenance from the food chain to which it was linked. Moose, buffalo, muskrats and water fowl were most often discussed in many of the interviews. The animals identified by the respondents as used most frequently for food and income were: moose (93%), beaver and muskrat (79%), rabbit (68%), black bear (50%), Weasel, fisher and red fox (43%), river otter and mink (39%), coyote and caribou (32%), grey timber wolf (25%), martin, squirrels, white tailed deer and porcupine (14%). Interestingly, very little information was collected on the caribou even though other communities often spoke of how the caribou used to come through Fort Chipewyan. Deer was very seldom mentioned by any of the elders either as a food source or simply regarding their presence in the area. According to the elders there were less moose in the area when they were children and numbers remained low during the 1950's. Numbers have gradually increased and by 1970 moose were sighted more often. The moose was described as preferring a diet of young saplings and occasionally water plants from the smaller inland lakes. The moose is not often observed to graze in rivers and creeks. The moose was known to travel more than 25 miles in one day. The moose is known to become scarce from

January to February and are difficult to find or track. The increase in population is attributed to decreased hunting by the people. Some areas are considered better moose country than others, namely Grass Creek, Emerald Slough, and High Rock. The Hay River area was described as poor moose country.

The buffalo was described as decreasing progressively in numbers, some of which was attributed to a massive drowning during the flood of 1974. The elders indicated that buffalo hunting was not practised north of the Peace where the Wood Buffalo National Park is now located. Buffalo were moved to Buffalo Landing in 1926 by Parks Canada. In the past the elders stated they killed buffalo by chasing them onto the ice and drowning them. A significant change they have noted over the years in the depletion of buffalo grazing lands is from the encroachment of trees.

Black bears were noted to be more numerous in the past few years particularly along the river shores. Bear were always known to be present at Bear River and Neck River, but not in the Hay River and Cow Patch area. Bear are frequently sighted here now. Bear have been known to prey on young moose. Bear were hunted during the berry season along rivers as this was the time the meat was considered most palatable and fatty.

Beavers have increased substantially over the past 25 years, which is attributed to reduced hunting and lessened fur markets. Beavers were hunted in early spring for food as they were known to be fat then. King Lake was identified as very good beaver country.

Porcupines were not spoken of much but the Hilda Lake area was identified as porcupine country.

Muskrat was often talked about in relation to how the decreased water levels in the delta have influenced its ability to regenerate to the great numbers of the past. Muskrat is considered to be a main dietary staple of traditional users. It is usual for the meat to be worth more than the pelt these days. Muskrat populations have been down for fifteen years and are very unusual as a cycle is known to span more than seven years and is linked to the flood cycles. According to the elders the muskrat peak was in 1950 to 1954. Generally it takes four years to reach the peak after a flood. Rose Bush Slough, and Bail Out Lake were always known for large populations of muskrat. Mink will frequent sloughs and lakes when there are muskrat and it is generally agreed that mink and fox will fall with the muskrat populations. Lynx are also connected to this cycle but rabbit are seen as the more significant cycle controller of lynx. The King Tower area is known as lynx country. Coyotes are not as numerous as in years past according to the elders. It was usual to see packs of ten coyotes lingering around the buffalo at Mamawi Lake or Lake Claire. Much of the small game disappearance has been linked to the poisoning of wolves in the 1950's as many small creatures such as mink, lynx, skunks, and foxes and scavenging birds were also exterminated by this process. Rabbits and mice are considered important elements to the food chain of these creatures too. Population numbers of these creatures has also been low.

The second most significant change to be noted by the elders and traditional users in Fort Chipewyan was the change in numbers of water fowl and their flyway. Populations were described as in the thousands at one time. In the fall it was usual to see flocks of ducks and geese spanning sixteen miles in one big cloud. Thousands of birds were observed frequently feeding in the flats of the delta. The elders described times when they would be out at the Frog Creek area in the fall and the sky would be white with birds, obscuring their view of the Birch Mountains. In the fall of 1972, there were thousands of water fowl on the south shore of Lake Claire; this sight hasn't been observed since then. Buffalo Point was another site often seen with numerous water fowl.

The migrating water fowl now move toward the Peace River district. The shift in flyways is attributed to depleting feeding ground and drying of the land. Water fowl were known to fly over the delta where many of the trappers have cabins and several sites were noted as stopping sites for these birds, including Little Frog Lake, a lake named "Going Through the Birds," and Trunin Island (seven miles above Sweet Grass Landing). In the spring, waterfowl were known to stop south of Potato Island, Lake Mamawi, and Lynx Stand on Lake Claire, and to subsequently move over to Sweet Grass and then northwards. It was common to see many ducklings and nesting sites all over the delta. Mud hens were often noted where-ever the people went but that is not the case today. In the spring and fall the larger black ducks were also known to be numerous in the delta but are not as numerous today. The populations have been noted to decrease in the last ten years. The white swans, white cranes and the sandhill crane along with ducks and geese were always known to stop at the Lake "Going Through the Birds". It is very uncommon now to see five sets of ducks in a flock and very few ducklings throughout the summer. The bird species identified for use through the respondents of the survey were: Canada goose (68%), mallards (46%), snow goose/wavey (43%), ptarmigan and prairie chicken (39%), Ross goose and white swan (36%), gadwall and baldpate/widgeon and pin tail (25%), blue-winged teal, green-winged teal, cinnamon teal, wood ducks, and spruce hens (18%), black ducks and goldeneyes (11%).

Song birds have also been noted to be fewer. The elders stated that there had been many kinds of smaller birds and that the land was musical. Several species were noted by the elders, such as the red winged black birds, other black birds with a brown breast, crows, ravens, robins, wood peckers, and whisky jacks (grey jays) along with two species of gulls—black headed ones and the white ones. The numbers of spruce grouse were also noted to be lower than had been in the past.

The most significant factor seen to affect the fish in the Athabasca Lake was the fishing industry. Commercial fishing brought goldeye to the brink of extinction. Fish were commonly used for food, bait and dog feed. Walleye or pickerel, the most common of the human consumption fish, was most popular in Fort Chipewyan (64%), where pike or jackfish were also heavily used. Burbot, the second most commonly used fish for human consumption, was most often found in Fort Chipewyan (50%). Arctic grayling was eaten only by respondents in Fort Chipewyan (14%). Most likely to mention goldeye were Fort Chipewyan respondents (61%). Northern pike were common to respondents from Fort Chipewyan (64%), and were most frequently used for human consumption and dog food. Lake whitefish were also used by Fort Chipewyan respondents. Fish species identified as native to the area were jackfish, lake whitefish, pickerel, suckers and burbot. Several spawning sites were identified for several species.

Goldeye was noted to spawn in Lake Claire in May-June. Goldeye migrates in from the Peace in early May and again in August. Goldeye populations are noted as recovering since controls were put in place to protect its harvest. Pickerel have spawned in Richardson Lake but over the years this process has been inhibited as a result of silt buildup at the channel entrance to the lake. A channel was recently reopened to assist the pickerel in reaching this spawning site. Jackfish spawns in the Pine Creek where there is much tall grass and the burbot were also seen to arrive at Pine Creek in the spring only. Several locations were identified where fish nets were set in June at the Pine Creek location site for whitefish, jackfish, pickerel, and suckers. The creek that empties into the Little Frog Lake was fished in the spring only. Hay River and Dirt River were also identified as historical fishing sites. The Embras River by the little creek was fished in May and June. Net fishing was done at a place called "Where the River Flows into the Lake". Whitefish was caught at Lake Claire and the Prairie River was usually fished all winter. The Athabasca Lake was fished in the winter. Jackfish Creek was also identified as an abundant fishing site. Several sites were identified on Lake Athabasca, Little Island, Goose Island, Potato Island, Stoney Point, Dog Camp and at Fidler's Point. Goose Island was a well used fishing site and thousands of fish were harvested at this location over many years. The Moose Island site was noted for winter-long fishing of jackfish, whitefish, moria, and goldeye.

Anatomical and physiological changes have been noted in some fish. Jackfish have been noted to have warts externally and the veins of the fish are noted to be more blue which would indicate hypoxemia. This condition was noted in the Pine Creek area mostly. Fish organs such as liver and intestines are still eaten but are scrutinized carefully by the users. They have noted that livers are yellower in appearance and others have found that the fish in the Embras Creek area had a very yellow liquid in the intestines when they were gutted. A healthy liver is described as pale green to cream in colour. By 1984 many people indicated they had decreased their use of the fish in these locations due to concerns with the health of the fish. Other fish, with the exception of goldeye, have been noted to have white markings internally, and soft watery flesh. Drying fish is more difficult when the flesh of the fish is watery and soft. Collectively the elders have indicated that the fish do not taste the same and fishing is not routinely practised at this time.

5.5.4 Health

The elders raised concerns about the high incidence of diabetes, cancer, cardiac ailments, and arthritis. They indicated there was little illness long ago with the exception of tuberculosis, and the flu epidemics. Illnesses that were identified as increasing in the community were cancer (86%), diabetes (41%), heart problems (32%). There were concerns raised about the undetected effects of the tar sands emissions into the air. They indicated that the children seem to have a higher incidence of colds and respiratory problems compared to those in their own child-rearing times. They wondered why so many elders did not seem to keep their capacity to recall and maintain a clear mind. Several elders indicated their grandparents had died at a hundred years old and had the capacity to recall and advise them as they were growing up, right up until the time that the grandparents died.

The activities that were most frequently engaged in for health were boating/canoeing (38%), gardening/fishing/hunting (18%), curling (17%), ball games (15%), jogging/running (8%). Traditional and store bought food were equally used by the respondents. The important aspect to health for the respondents was exercise (54%), followed by good nutrition (45%) and use of traditional foods (36%).

5.5.5 Family and Community Relationships

Community and family relationships have been influenced greatly by the changes occurring in the environment. To the outsider this may not be as evident until one begins to understand the complexity of the kinship of land, individual, family and subsequently of the community. As other communities have indicated, families travelled in groups and moved from one hunting/harvesting site to another throughout the year as a form of land use management. Principles that were intrinsic to this way of life were sharing with others, helping each other as a group, and respecting the land and the tools used to survive on the land. Family interaction was also integral to the culture and its knowledge, as this was how the young were taught how to live and survive from the land and its resources. The young people spent time with the older, more experienced, trappers and their favourite activity was to sit and listen to stories told by the older trappers. Learning started at a very early age, 6-7 years old and by the age of 10-12 yrs many were out on their own. When something happened to the parents, the other families adopted the children. The sharing and the helping are said to be present but not as it was in the past. This is attributed to the changing values and principles of the younger generations. The elders have observed that the youth are not respectful and willing to learn how to trap and hunt as they themselves had been taught in their childhood. Some indicated that the institution of trap lines has affected the way people interacted with each another long ago, because people were more willing to share their hunting sites and the resources they knew were scarce in other's areas. It was felt that the young people are too distracted by alcohol, smoking, video games and television. These distractions were not present during the elders' growing years. It was felt that these activities promoted impetuousness and interfered with the ability of the youth to use their minds constructively.

5.5.6 Traditional Knowledge

Fort Chipewyan elders' traditional knowledge fell into three main classifications:

1. Lifestyle knowledge—how one conducted life in the bush and interaction with one another;

2. Practical skills such as building a fire, caring for tools and knowing where to set camp and hunt;

3. Traditional healing and medicine which were shared by describing plant use for simple remedies.

Fort Chipewyan showed that they had a variety of traditional knowledge teachers, compared to the sample a whole Fort Chipewyan had identified parents (96% versus 86%) as most predominant teachers of traditional knowledge. This community was also the most likely to identify grandparents: 58% compared to 26% of the total sample.

Spouses were also mentioned more frequently by this community (13%) versus 8% for the total. Other relatives (29%) and friends (13%) were also mentioned by the respondents as teachers. Another category was also listed; "other people", 4% of teachers who taught traditional knowledge in the community.

Lifestyle knowledge such as sharing, helping and utilizing time in a constructive manner were often explained with comments such as: "We never wasted, we shared and respected the land", "Respect the elders, we were not to run where they were sitting", "The traditional person lives with and follows nature". Several skills were identified as important skills to know and have the capacity to perform with ease, such as tracking and reading the signs of wildlife behaviour, preserving food, tanning hide and being able to make clothing for winter wear. Building a fire and knowing where to set up camp were considered important as these skills were essential for survival. The ability to make snowshoes was also important because of the frequent need to use snowshoes for travel in the winter. Food preservation such as drying meat, fish and berries were a necessity in their time. One preserving technique that was used involved weaving red willow branches around the dry meat before it was put in a cache for later retrieval. The covering was sound enough to keep mice from eating the food in the cache. Drum making and tent frames for lodging were also identified as traditional skills the elders were often taught.

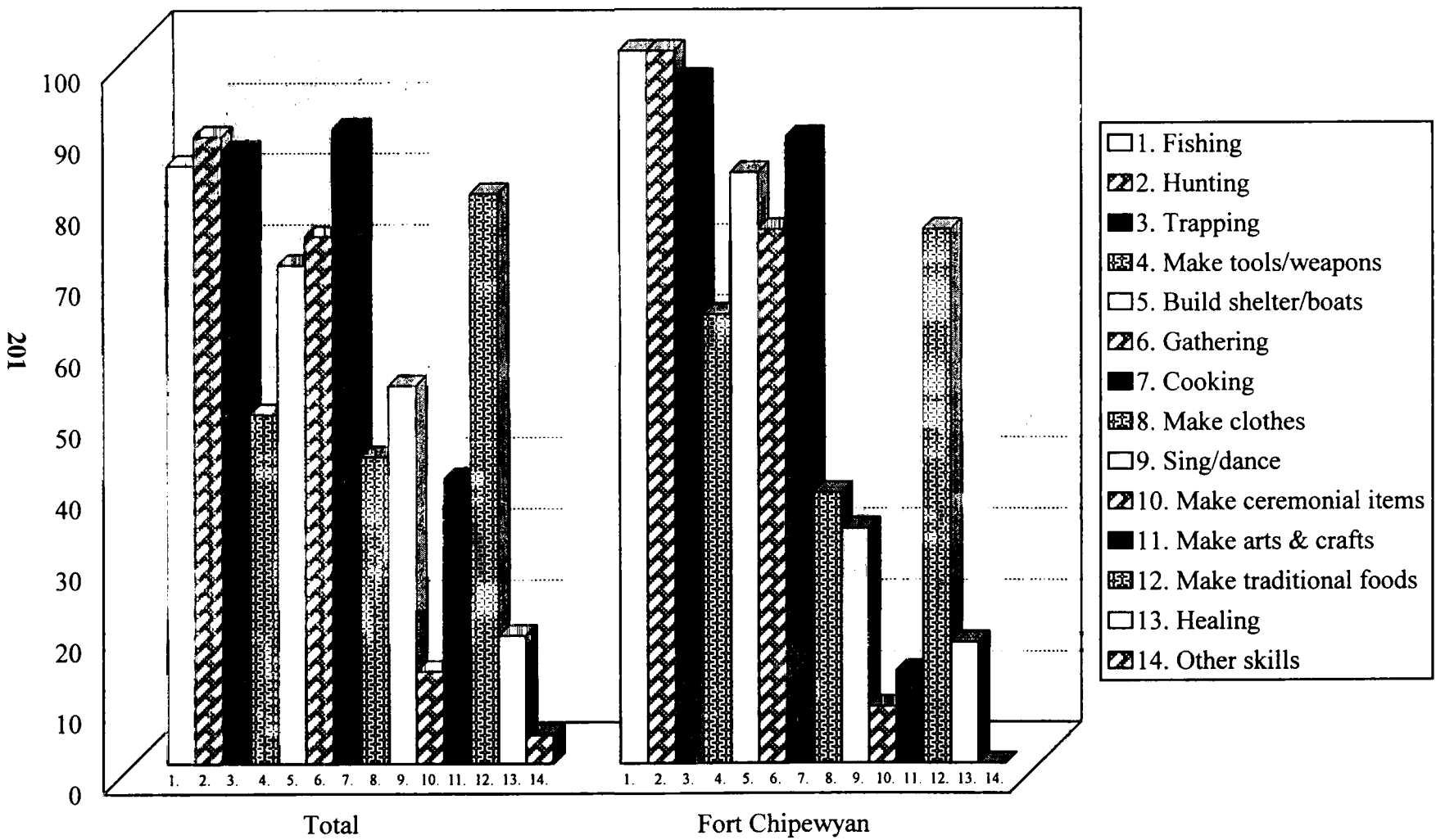
Socialization was an important aspect to their training and the drums were utilized for hand game competitions and dancing. Alcohol was not part of these activities and their socialization was described as happy and fun-filled without disputes. A hand game played in a group with drummers often involved placing wagers with matches and ammunition as these items were commodities. The elders often stated that there were several known healers in the community years ago and although they knew some of the remedies they did not equate themselves at the same level of healers as were their grandfathers and grandmothers. Plants most often mentioned as continuing to be used were mint, sweet flag, coniferous pitch, black spruce cones, Labrador tea, balsam and poplar bark, and animal parts such as bear gall. They indicated that the healers in the past did utilize lodges for ceremonies and healing but no description was offered. The etiquette of placing tobacco in return for plant medicine continues to be practised and is considered a must. It is unequivocally accepted that it is the Creator who owns and directs the healing of a healer. Birch Creek was identified as a medicine harvesting site.

5.5.7 Future Expectations and Recommendations

The elders of Fort Chipewyan voiced a great concern and need to preserve the traditional ways of teaching and living on the land. It was important for all to recognize that the elders needed to be utilized in this teaching and transference of knowledge. They stated that the "young people need to learn about the land—they may need this knowledge in the future".

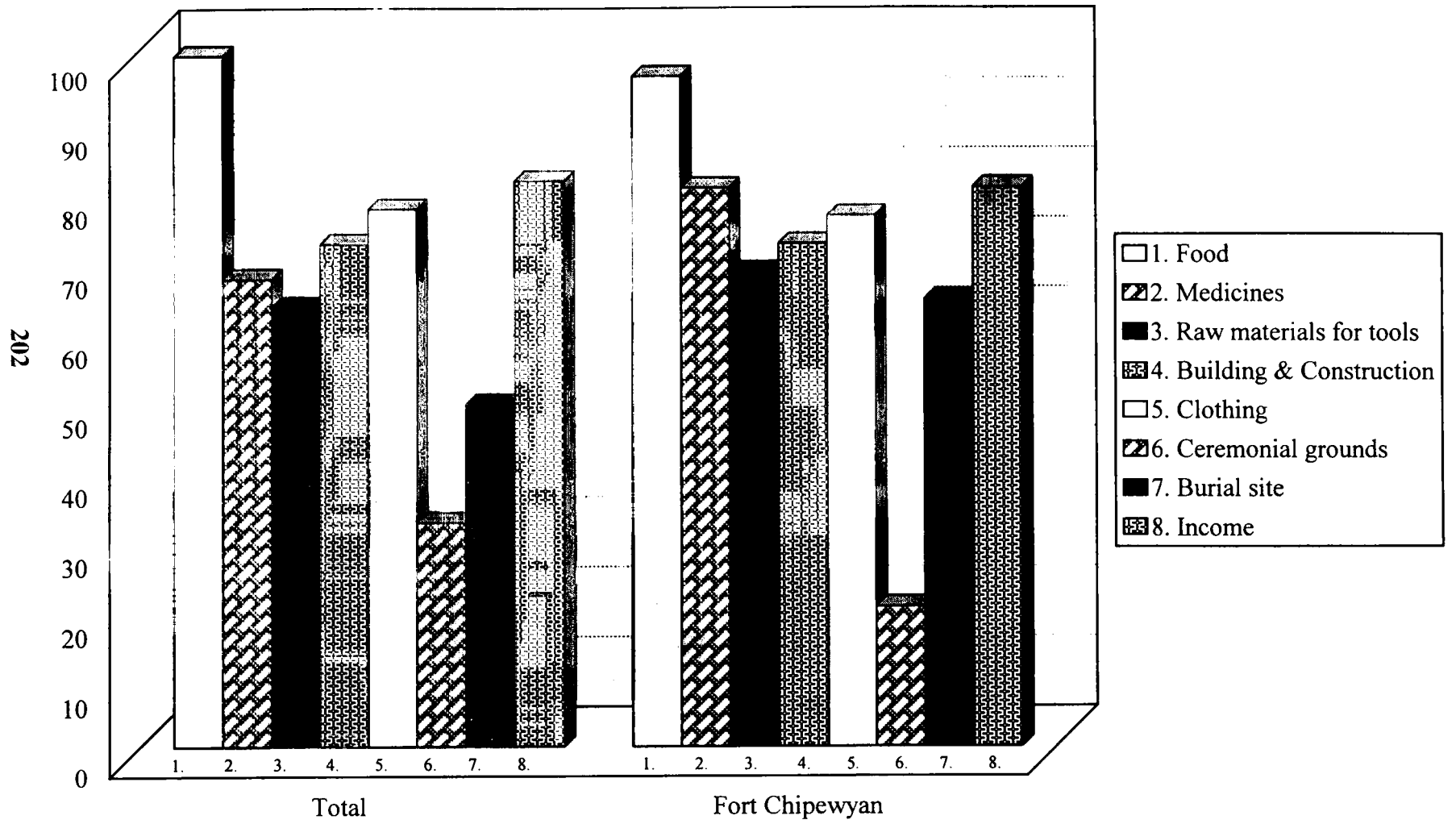
It was felt that the traditional knowledge they gained would help them in planning for future generations. It was also felt that the young people need to take responsibility for their own learning and make more effort in learning the knowledge of the land and how it provides life to all things. School was considered important but efforts need to be made to learn the traditional ways too.

Figure 5.5-1; Traditional Life Skills Identified



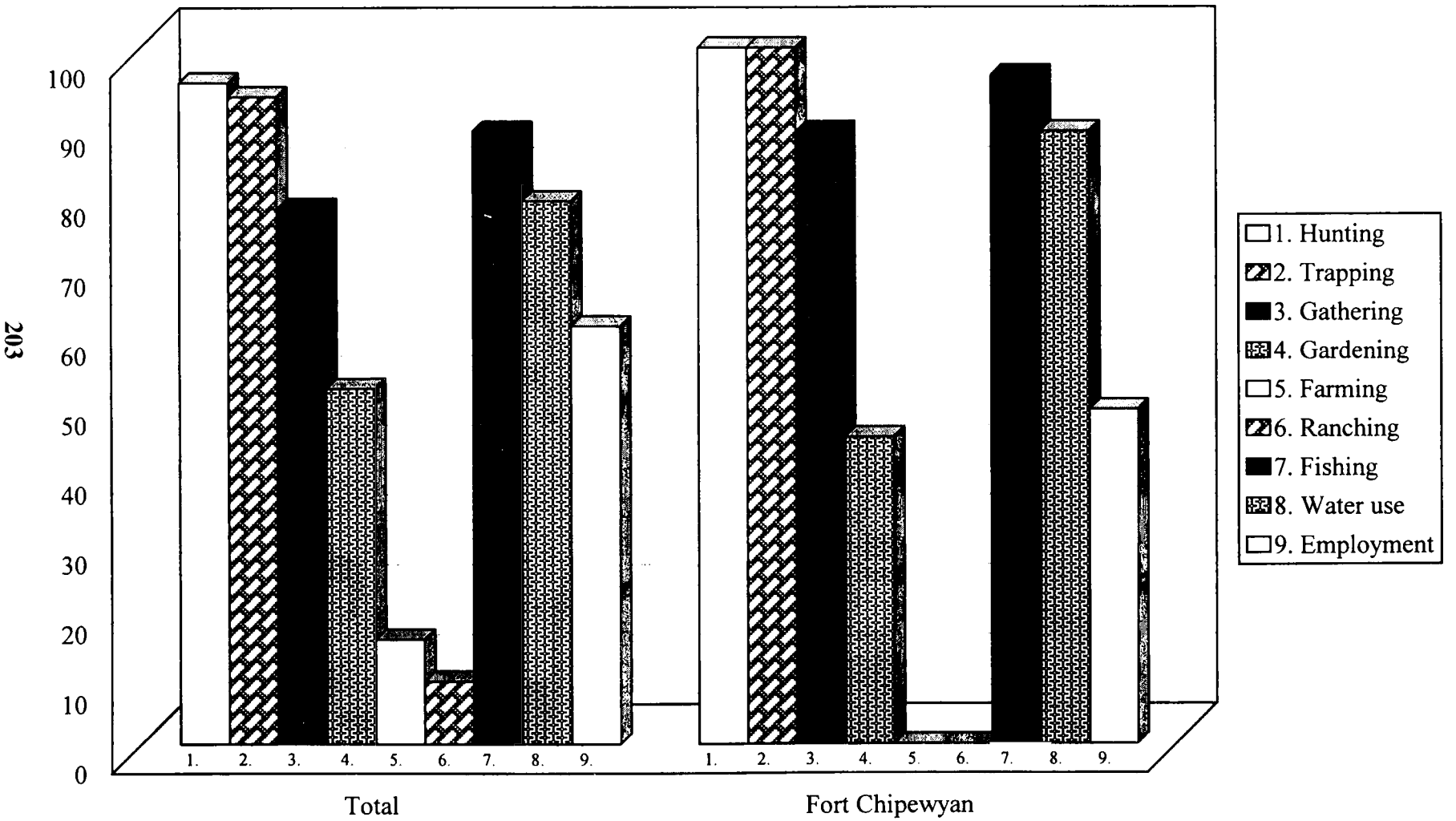
Sample size - 221 - Total respondents - 205 - Responded - 24

Figure 5.5-2; Commonly Identified Land Uses



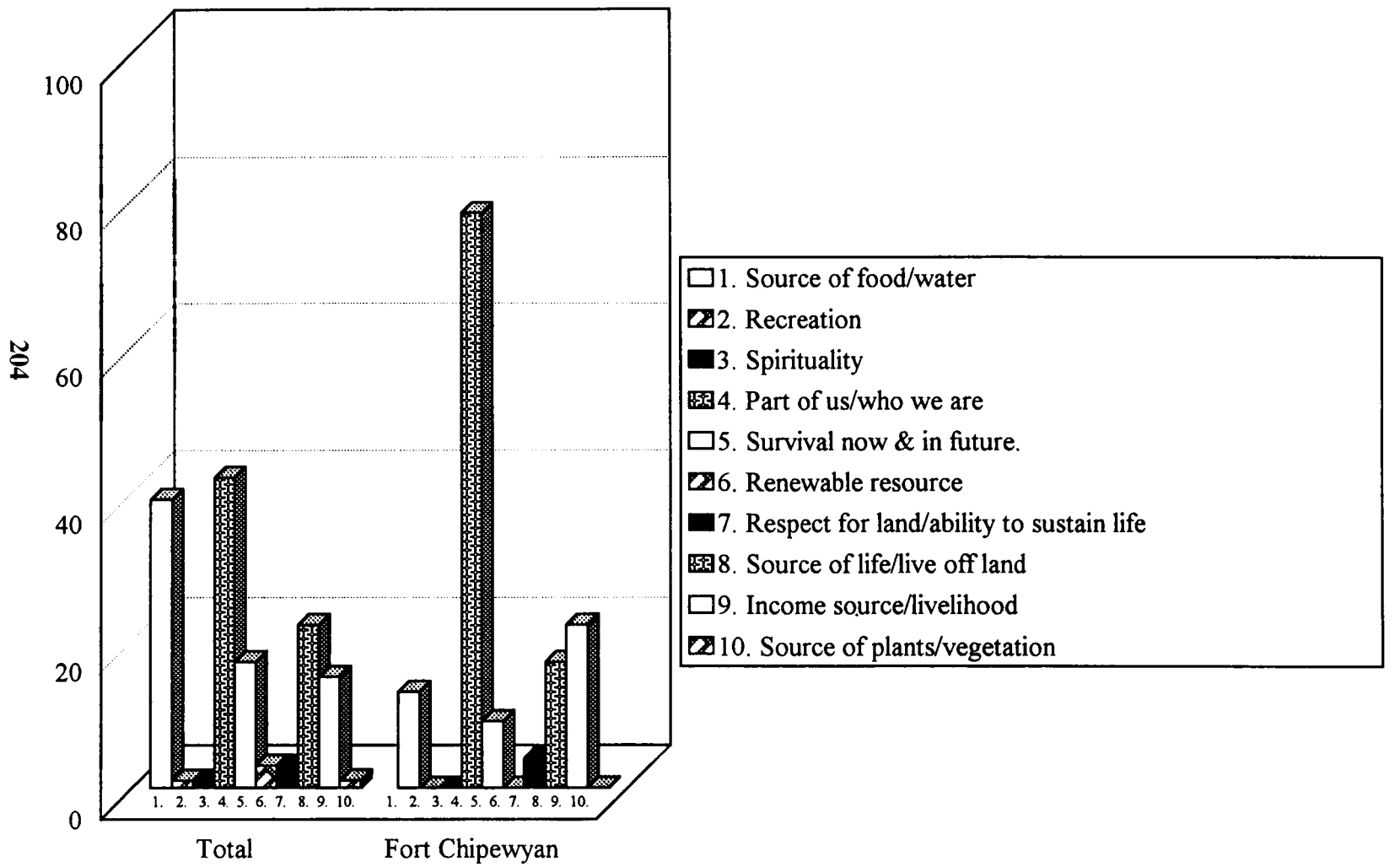
Sample size - 221 - Total respondents - 175 - Responded - 25

Figure 5.5-3; Land Use Activities



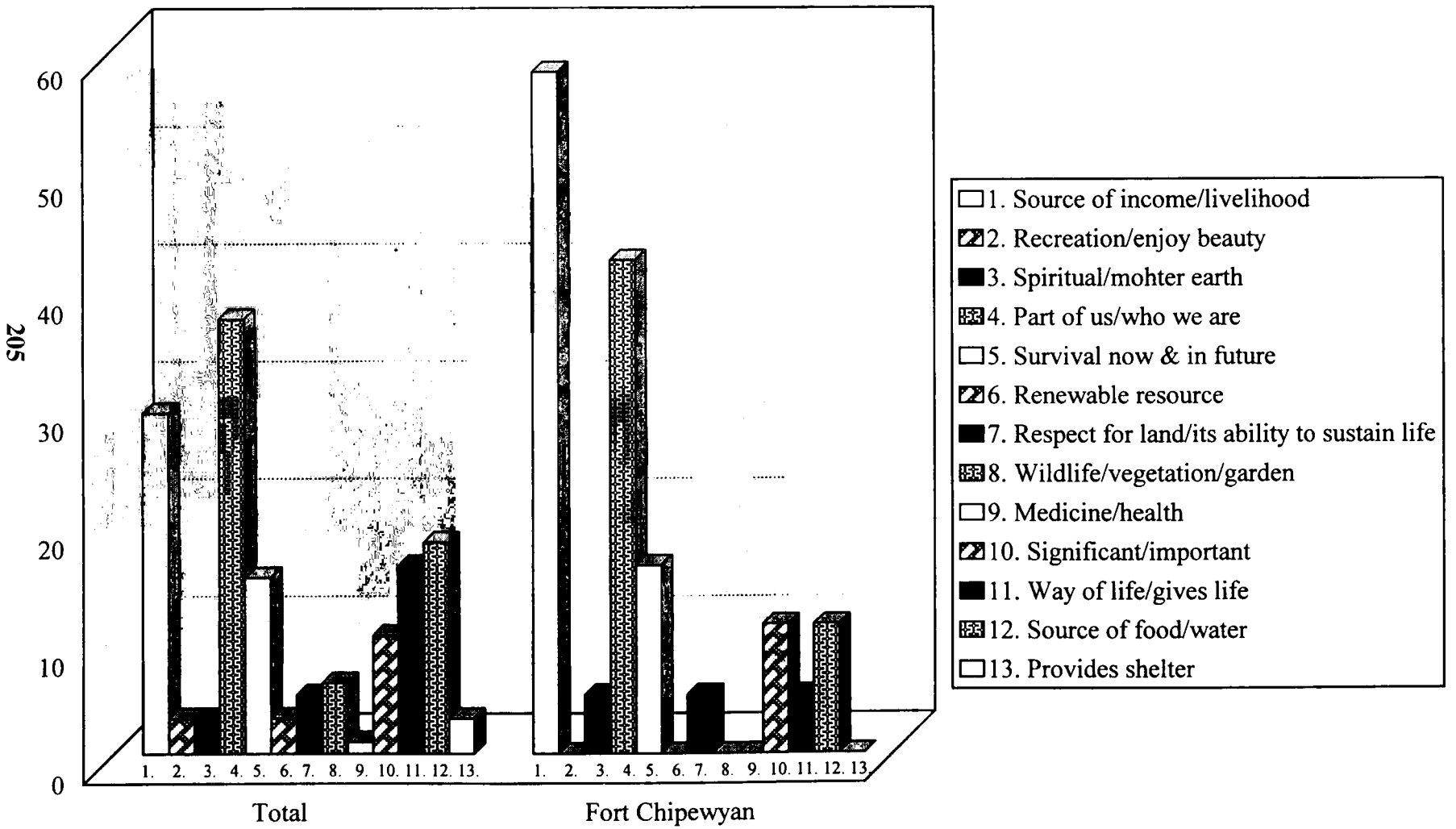
Sample size - 221 - Total respondents - 176 - Responded - 25

Figure 5.5-4; Land Use Significance



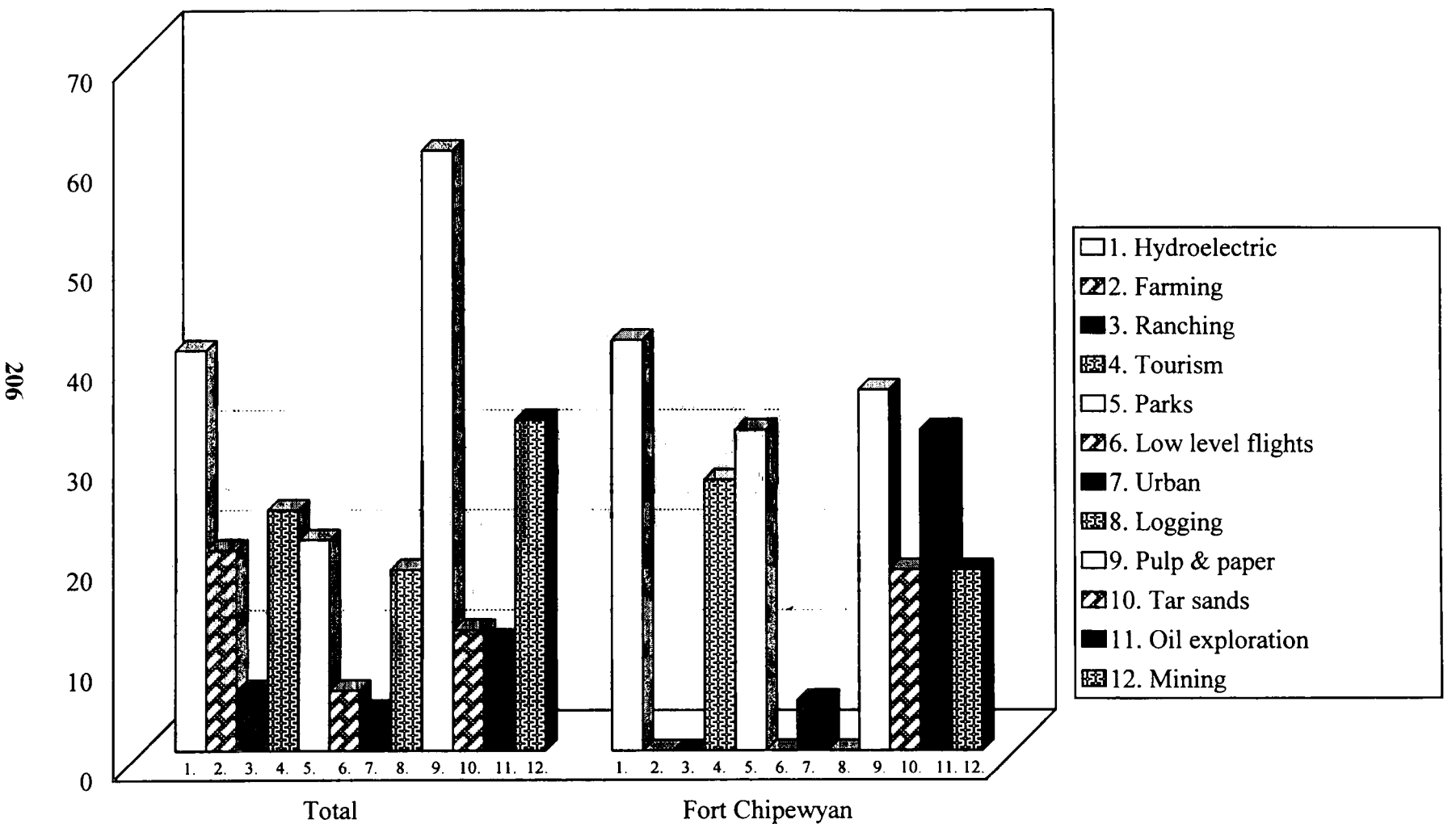
Sample size - 221 - Total respondents - 158 - Responded - 23

Figure 5.5-5; Land Use Significance to Traditional Lifestyles



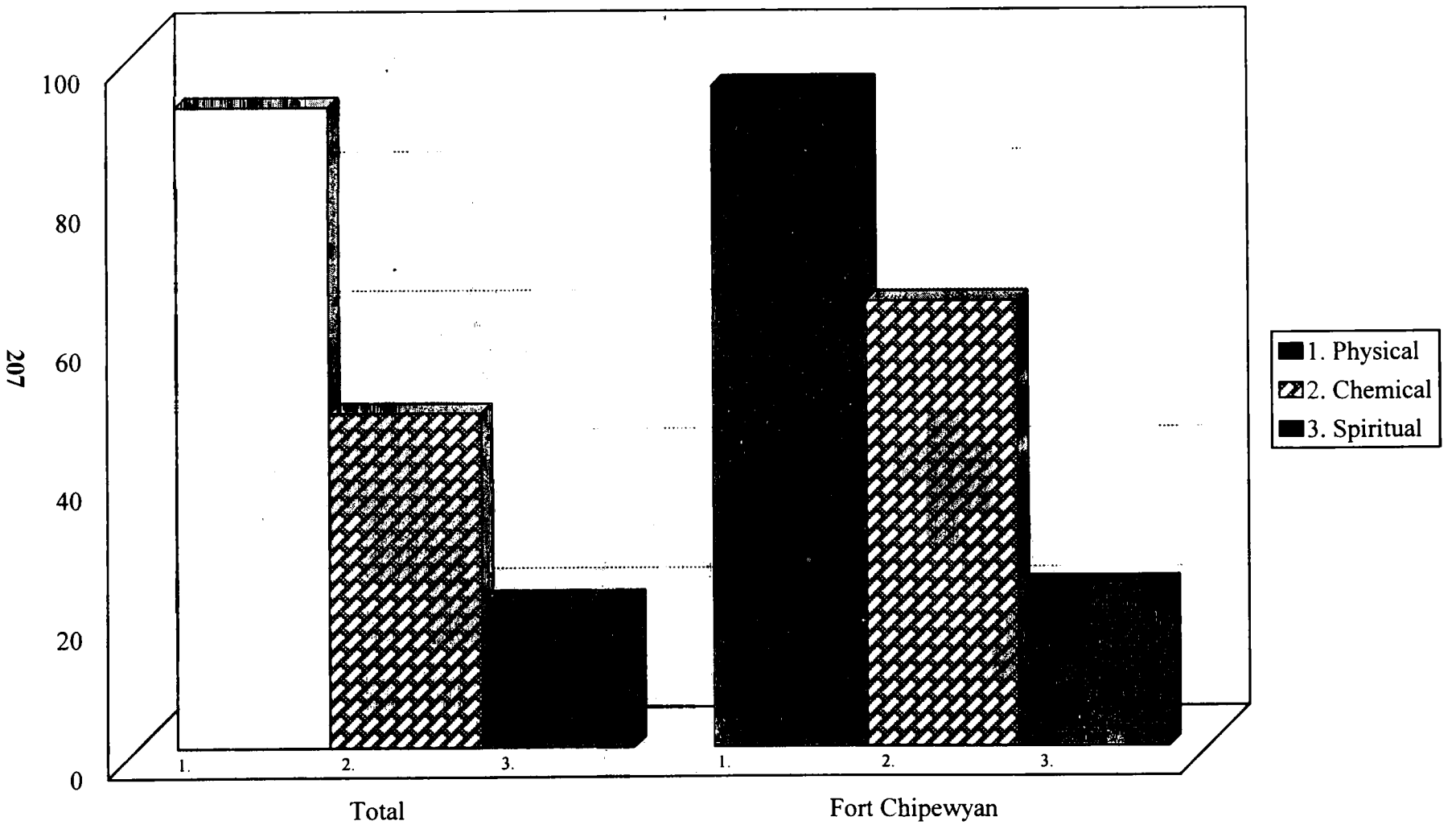
Sample size - 221 - Total respondents - 134 - Responded - 19

Figure 5.5-6; Developmental Land Use Near Traditional Lands



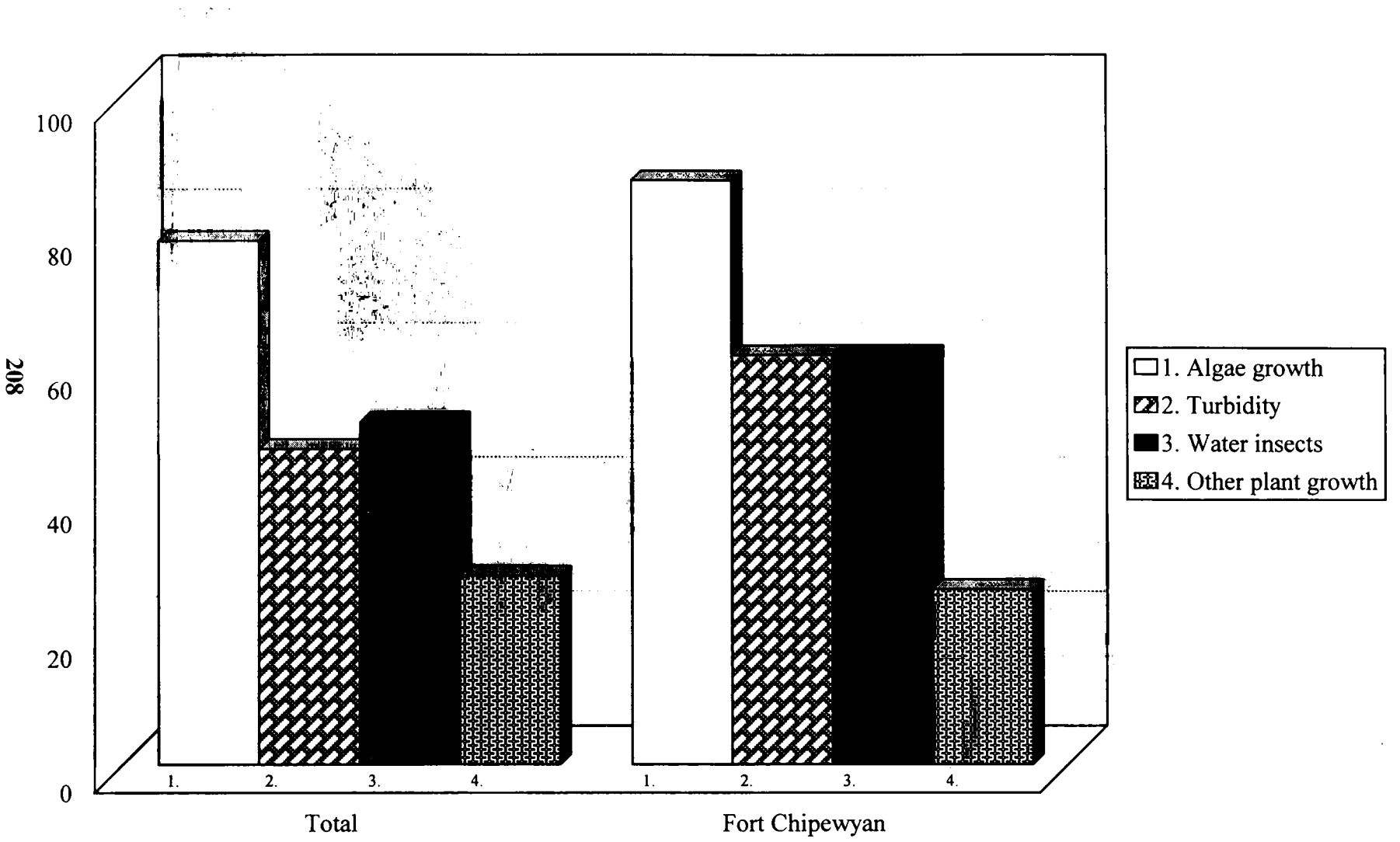
Sample size - 221 - Total respondents - 146 - Responded - 22

Figure 5.5-7; Significant Water Elements



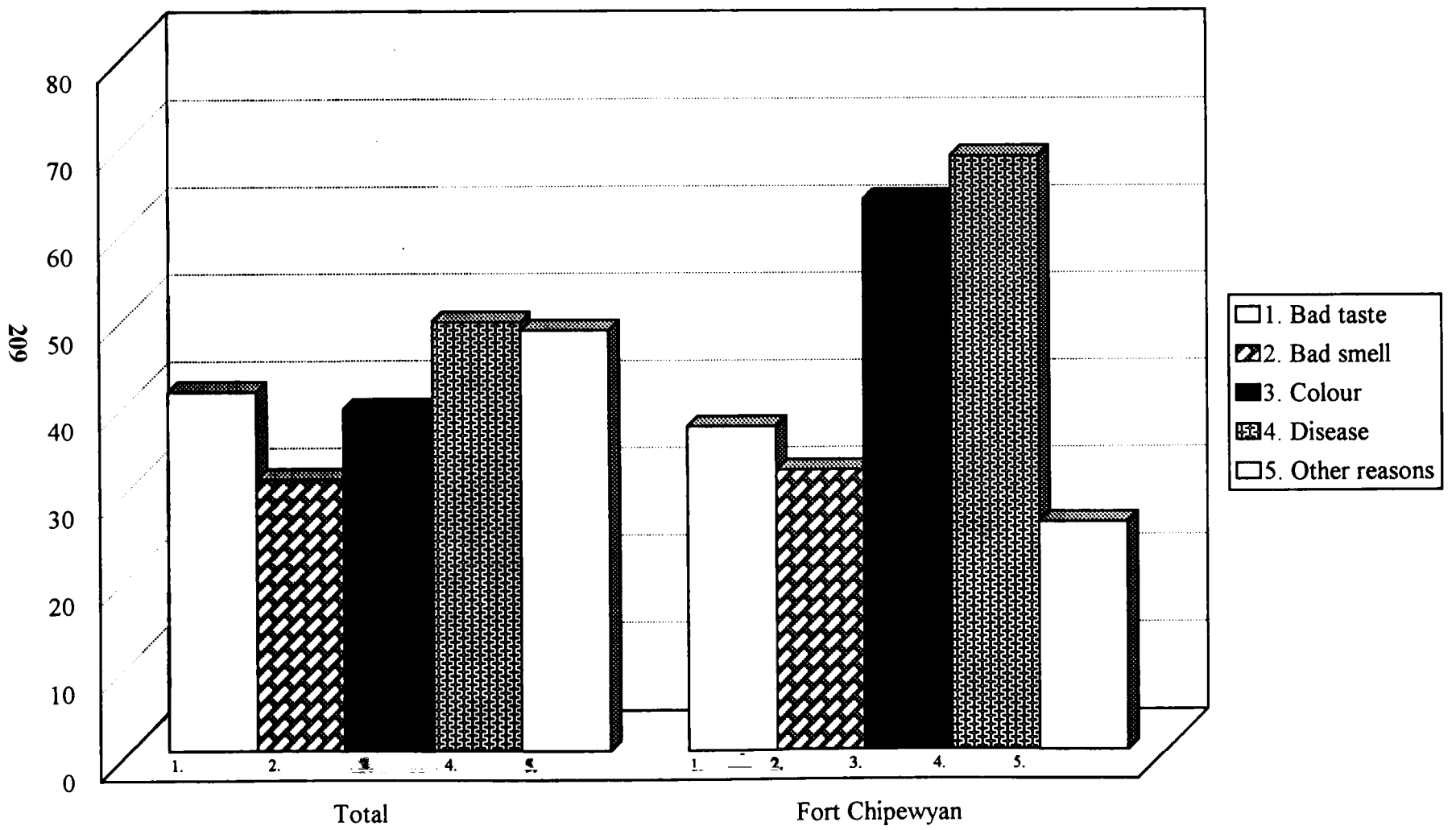
Sample size - 221 - Total respondents - 151 - Responded - 22

Figure 5.5-8; Indentified Water Changes



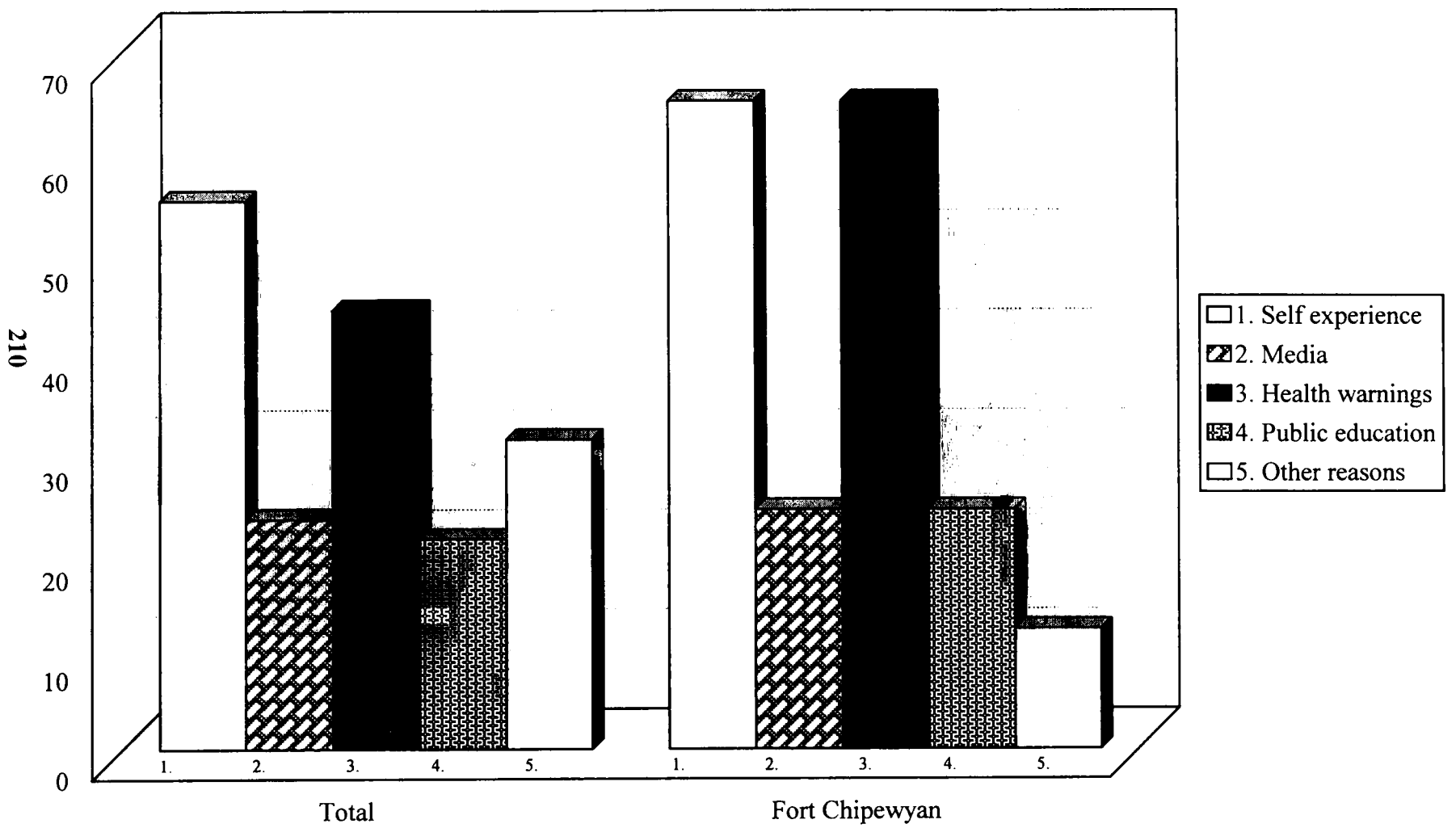
Sample size - 221 - Total respondents - 129 - Responded - 23

Figure 5.5-9; Negative Water Changes Impacting Use



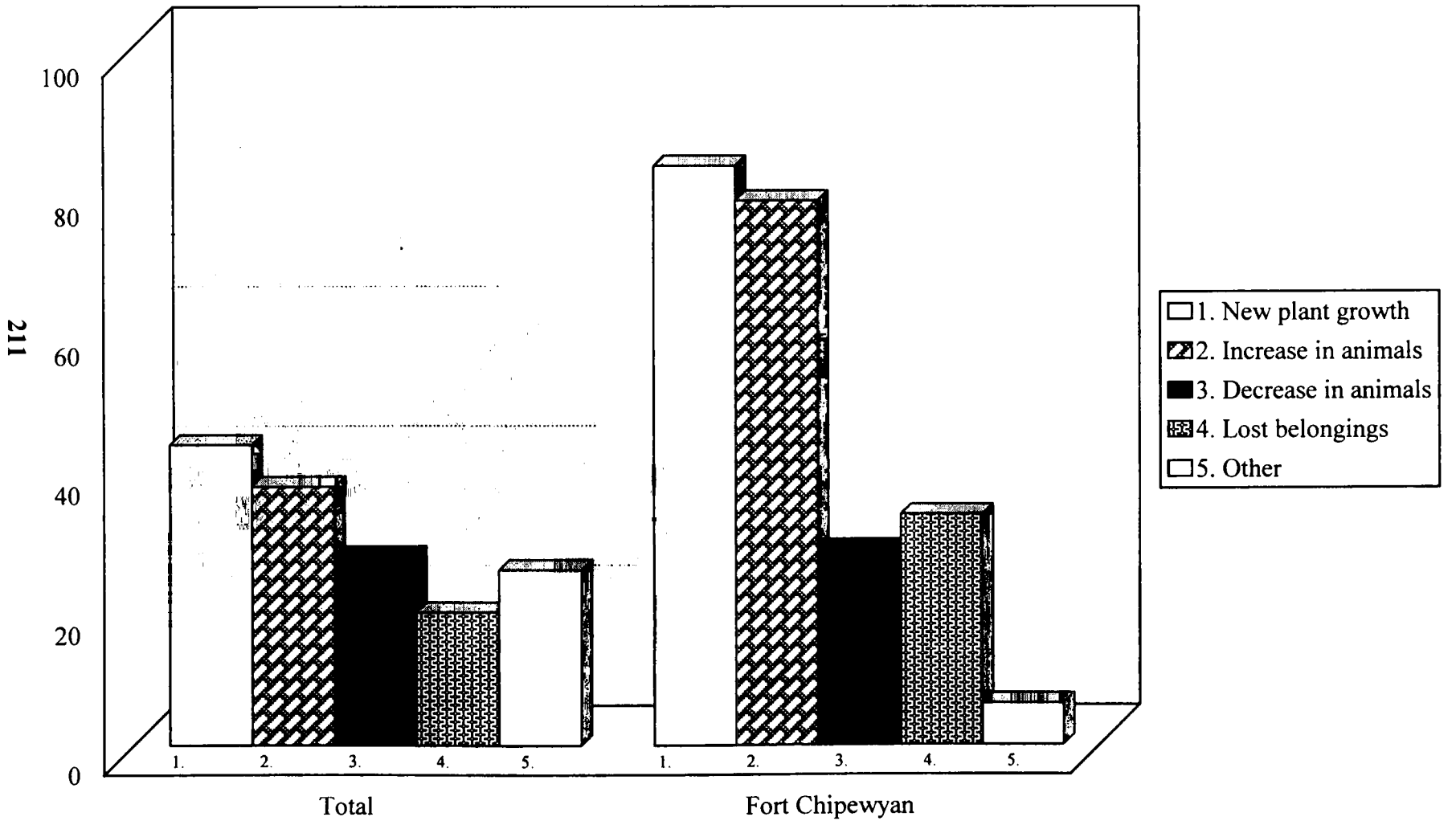
Sample size - 221 - Total respondents - 71 - Responded - 19

Figure 5.5-10; Reasons for Changed Water Use



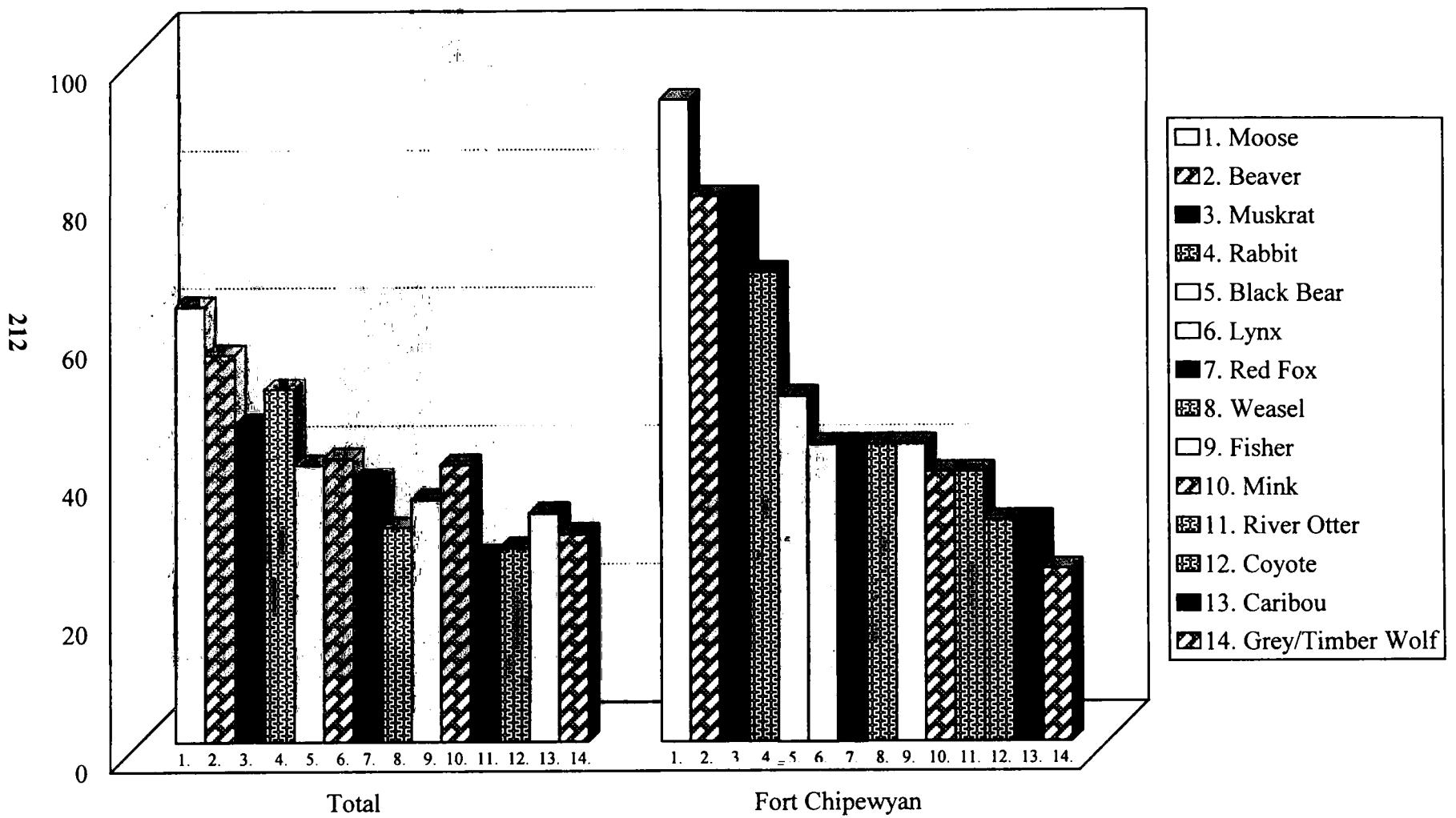
Sample size - 221 - Total respondents - 62 - Responded - 17

Figure 5.5-11; Ice Jam Flooding Impacts to the Land



Sample size - 221 - Total respondents - 105 - Responded - 18

Figure 5.5-12; Most Frequently Used/Available Animals



Out of 36 Species of Animals

Figure 5.5-13; Most Frequently Used/Available Fish

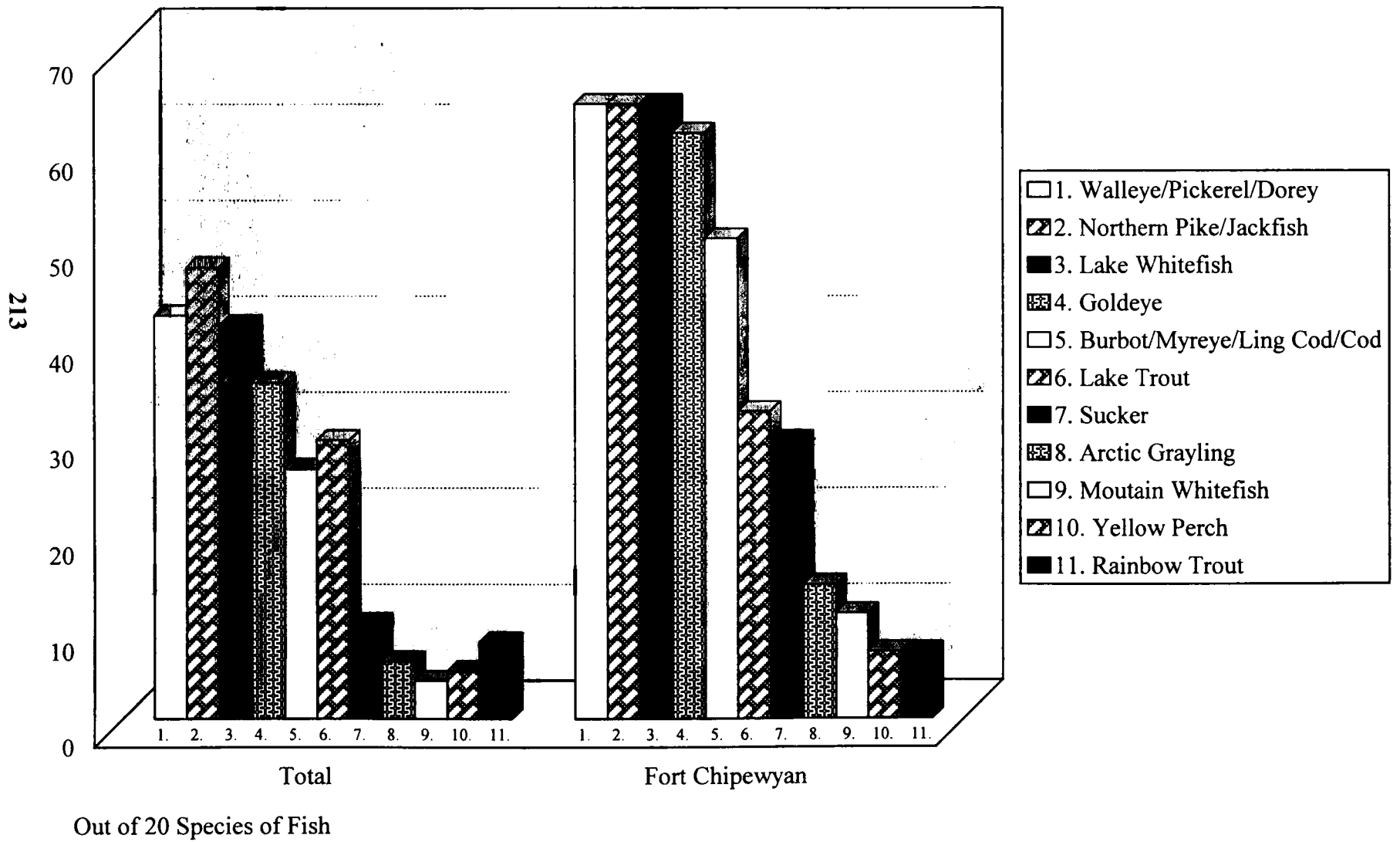
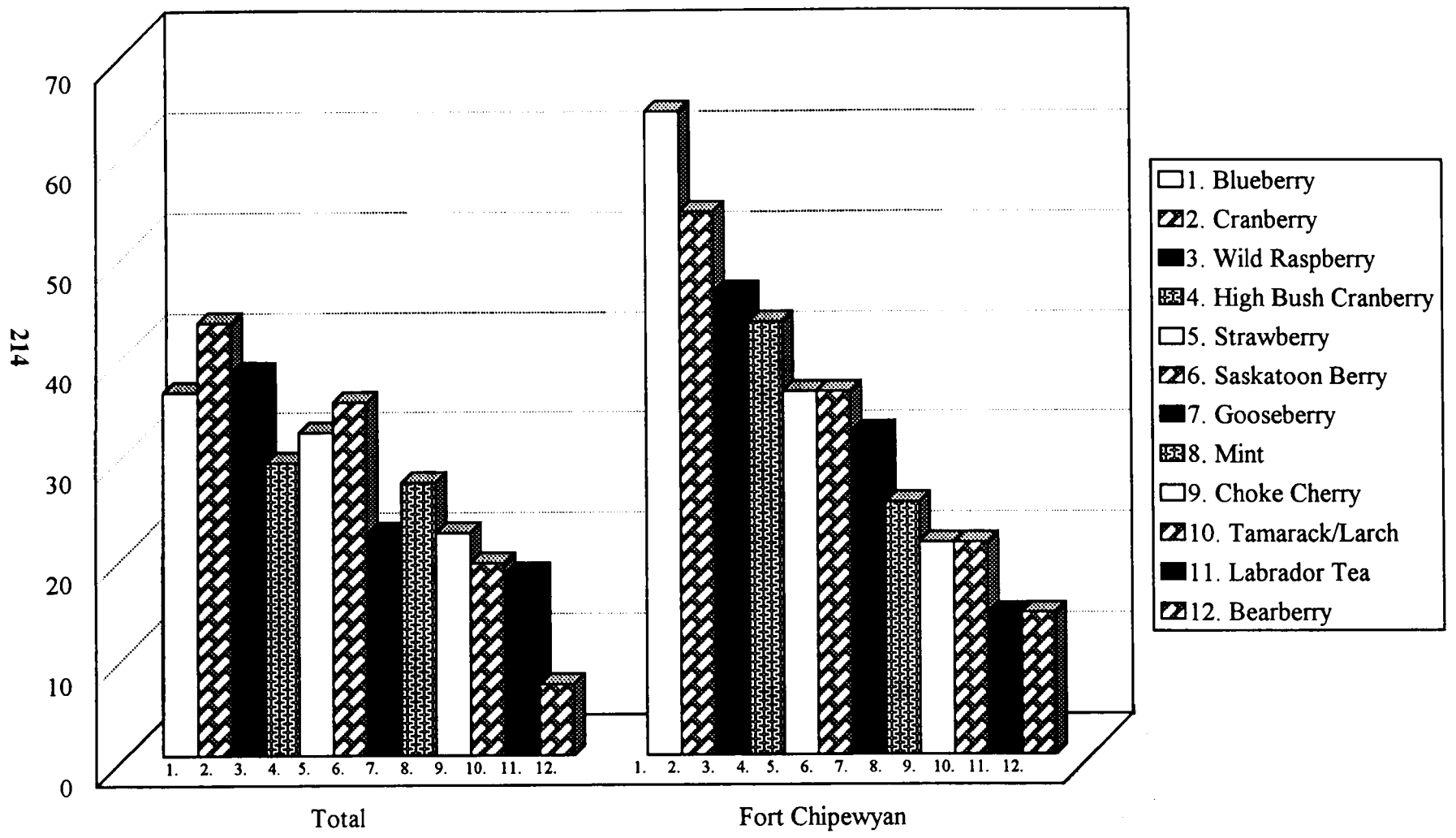
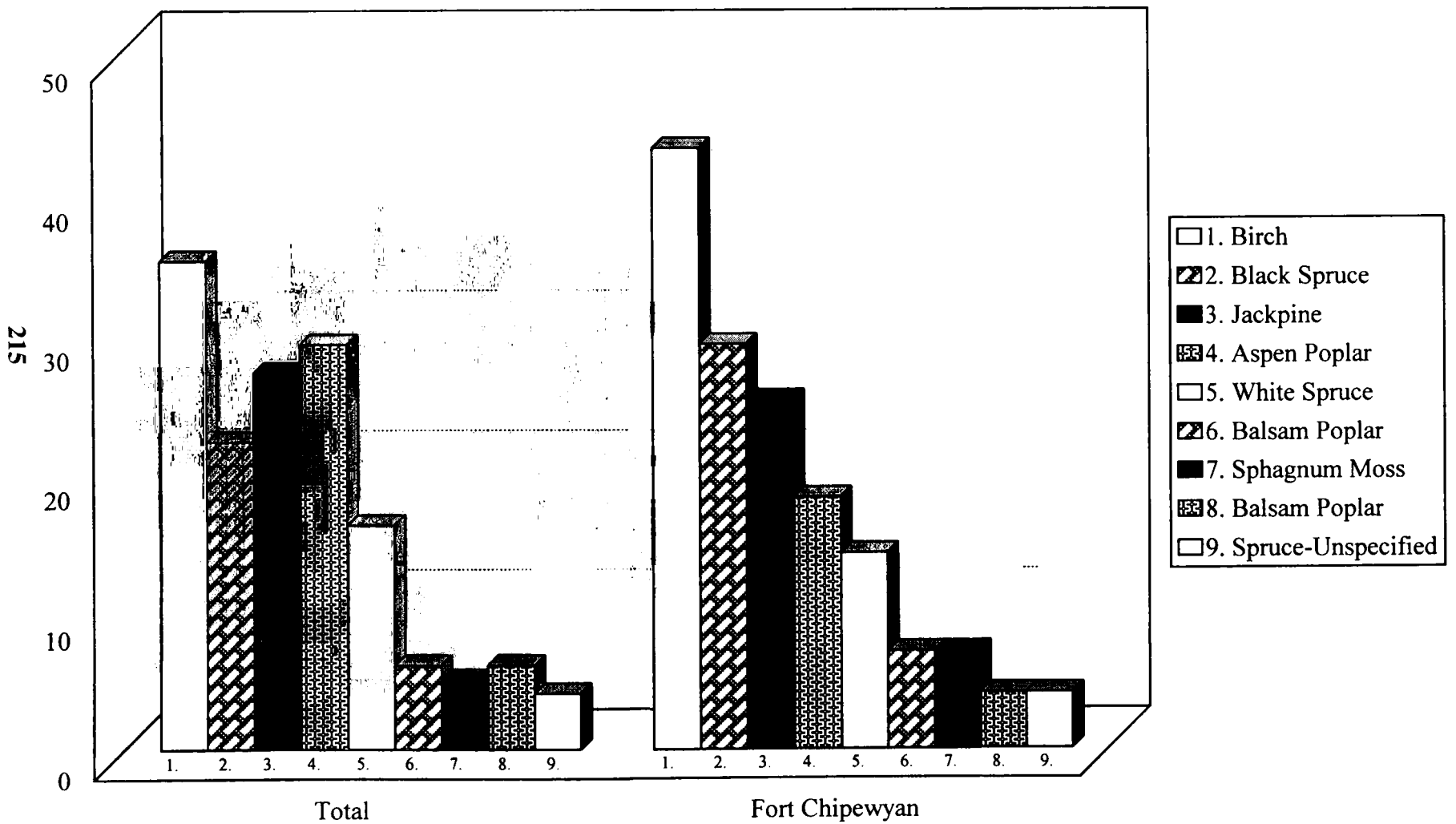


Figure 5.5-14; Most Frequently Used/Available Plants



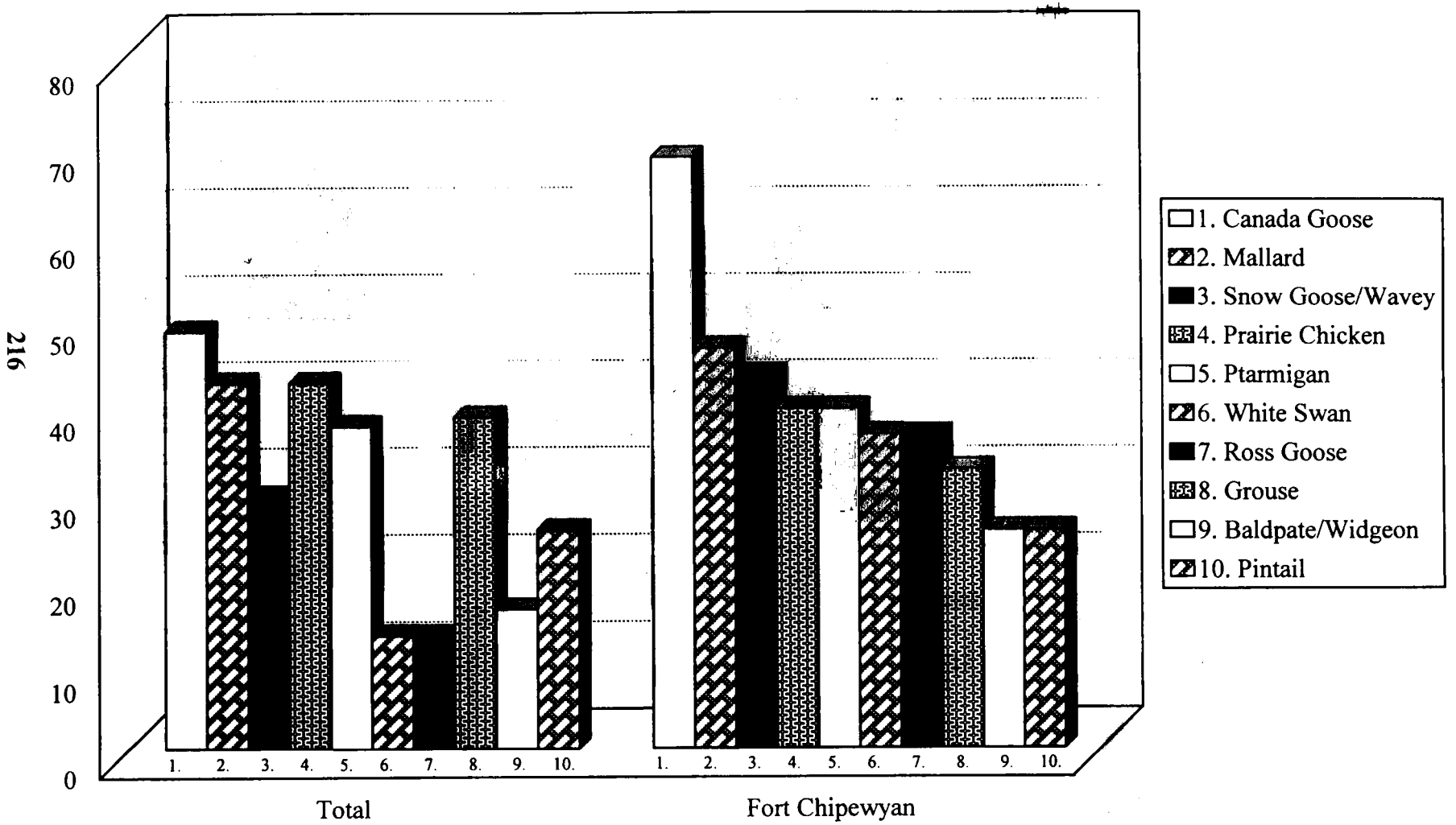
Out of 45 Species of Plants

Figure 5.5-15; Most Frequently Used/Available Trees



Out of 25 Species of Trees

Figure 5.5-16; Most Frequently Used\Available Birds



Out of 31 Species of Birds

5.6 FORT RESOLUTION

Thirty of the forty-nine interviews completed in Fort Resolution were with elders. All forty-nine respondents completed a survey and the results were analysed for this report. Thirty-one percent of the respondents were in the age category of 60 to 69 years, 18.3% were in the 70-year and over category and 43% were between 39 and 59 years. The remaining 8% were under 29 years.

Elders were defined by their knowledge and experience as evidenced by the youngest elder being 46 years old. Others who were older were not defined as elders.

5.6.1 Land

The land was and continues to be used for trapping and hunting. The traditional user manages the land according to the seasons. Trapping does not start until the fur is prime, which is usually after the season is opened by regulation.

The plants and trees used the most by the respondents were: low bush cranberry (45%), wild raspberry (39%), Saskatoon berry (39%), goose berry and strawberry (33%), aspen poplar and birch (29%), black spruce (24%), willow (22%), tamarack/larch and jack pine (18%), Labrador tea (14%), wild onion, mint, spruce unspecified (12%).

The main comment from Fort Resolution respondents identified the land as a source of food and water (57%). Respondents in Fort Resolution were most likely to describe their relationship with the land in terms of respect and love (33%) and that they lived the Indian life (33%).

Sixty-nine percent (69%) of the respondents indicated that they still lived off the land, although they showed a slightly shorter than average length of time with the land. Half (51%) had spent less than forty years on the land, higher than for the total sample (39%).

One out of five (19%) respondents had lived off the land for 40 to 49 years similar to the total sample. Only 8% had lived off the land for 50 to 59 years, lower than the 22% for the total sample. Fort Resolution respondents showed the same percent of people living off the land for 60 to 69 years (22%). Nobody from Fort Resolution had lived off the land for greater than 69 years. These respondents were more likely to use the land for building and construction (76%) and less likely to use it for ceremonial grounds (22%) and burial sites (31%) than were other respondents.

Only a quarter (23%) of Fort Resolution respondents had particular methods for managing the land. Respondents spoke either of conservation by not over-hunting, trapping or picking (50%) or rotating harvest areas (33%). Fort Resolution respondents tended to rotate their traplines seasonally (40%) or annually (33%). Only 7% rotated their lines weekly, while 19% did not rotate their lines.

Fort Resolution respondents were most likely to burn their waste (45%) or bury it (16%). The remaining 39% used a combination of methods.

Most of the changes noted by the residents and elders of Fort Resolution are related to the delta's lower water levels, the impact of the Pine Point Mine and the impact of logging and roads on the animals and trapping areas.

The most significant development to directly effect the people of this area is the mining and the hydro development on the Taltson Dam. Logging is also an industry that is beginning to influence the way people use the land and its ability to support a traditional way of life. Logging as an industry is a recent experience for this area, even though the community used to log for its own purposes in the past. Logging was not formerly done to the current degree. It has recently begun to compete with logging in the southern markets. Much concern was expressed by the elders in the approach to logging and the use of clear cutting, rather than selective logging.

Fort Resolution respondents (18%) experienced the greatest recent loss of traplines. The people of Fort Resolution (24%) were affected by cutlines, pipelines, seismic lines and access roads.

Fort Resolution respondents mentioned nine different types of development that had taken place near their land base. Hydroelectric (51%) was second only to pulp and paper (56%). To a lesser extent, Fort Resolution respondents had tourism development (26%) occurring near their land base.

Two of the forty-one Fort Resolution respondents considered moving but did not move, and two of the forty-one considered moving and did actually move. The mean scores regarding institutions doing all it should about the management of renewable resources, as assigned by Fort Resolution respondents, were: industry (1.6), citizen groups (1.7), and the municipal government (1.9) received the lowest average scores in Fort Resolution. What is notable is the higher average score for the provincial government (3.), higher than the federal government (2.4). Fort Resolution respondents distinguished themselves in that they rated Native chiefs (2.4) and Native councils (2.5) lower or the same as the provincial and federal government. This was the only community that did not rate the two Native groups higher than the three government groups. Most respondents in Fort Resolution felt that their relationship to the land could be maintained by stopping development, statements or comments about maintaining the land and water's natural state or letting Native people maintain the land.

Although only 21% of Fort Resolution respondents said their view of the land was changing, they were clearly concerned about the increased development (40%). Twenty percent went on to talk of environmental changes as well.

Those who commented on their relationship to the land in Fort Resolution were likely to make general comments about development destroying their relationship (24%).

Land ownership was also discussed and the elders often stated that the land was shared and not fought over and this continues to be the practice even though there are designated trap lines now.

Decreased water levels have been identified as a significant change that affects the entire delta in this region. The delta is perceived farther away because of the receding water. The community identified increased islands and sand bars on the Slave River System. This change has occurred in the last ten years.

The loss of prairies as a result of increased growth of willow and shrubs was identified also, and the subsequent effect on the buffalo and moose habitat.

Fire has been a big change agent for many of the trap-lines and traditional land users as it has directly affected the harvests from trap lines and community land use areas.

Fort Resolution respondents were equally as likely to talk about the animals leaving (38%) as they were about the re-growth of the vegetation (33%). Fort Resolution respondents reported longer lengths of time for the forest to grow back than for the sample as a whole. Nobody in Fort Resolution said it took one to six years and only five percent said 10 to 15 years. Forty percent said forests took 20 to 34 years to grow back and half said 40 years or more.

Hydro development on the Taltson River has also had a major effect on the ability of the traditional peoples to make use of historical land use areas because the flooding has completely changed the physical appearance of the land. Water has been redirected and the water levels have decreased in some areas and in many areas is not present at all. Some of this change is believed to have been caused by the dam. The Bennett dam was also mentioned as having some influences on the water levels in this area because of its link to the Peace and Athabasca Rivers.

Pulp and paper received a neutral rating of 3.1 from Fort Resolution respondents. In Fort Resolution, hydroelectric dams (2.7) were somewhat of a concern. Fort Resolution respondents showed probably the narrowest range of scores although, again, their rank ordering of groups reflected that of the total sample. Mean scores ranged from a low of 1.6 for industry to a high of 2.9 for Native groups.

Interestingly the elders also spoke of the remaining effects of the Russian satellite that fell in their area in 1974. The effects have been noted in the amount of berries in specific places where fragments had been found. It is also believed that the satellite is the reason why so many people in the community are dying of cancer.

The elders were asked to describe and map sacred sites in their area. Many elders identified old camp sites and burial sites.

The "Fishing Area" was a site described as a place where two sloughs merge to form a "Y." Two graves are said to be at this site. Mission Island was also noted for graves. Fort Reliance, the Imperial Falls

and a place along the Roche River called the Fox Hole were gathering sites for the people and also burial sites. Rat River had grave sites. People were essentially buried wherever they died during the 1920 flu epidemic. A special moose hunting place was also identified but the site was not specific. A prairie was also mentioned where men used to gather to perform specific healing ceremonies. Stoney Point was noted as a sacred site because many people were buried there during the flu epidemic. It is said that many are afraid to stop there because it starts to blow and a traveller can end up being stranded on this point for a week because the waves get so high on Slave Lake. It is considered the best place to stop when returning from the Roche River. Grand Point was also identified as a sacred site.

Table 5.6-1: **Table for Demonstrating a Special Regard for the Land**

	Total	Ft. Resolution
Yes	0.27	0.31
No/do not know	30%	20%
Respect	27%	34%
Ceremonies	5%	3%
Protect it	3%	3%
Meetings/land use study	3%	0
Elders	3%	3%
Way of life/community life	9%	14%
Number Respondents	115	35

5.6.2 Water

The elders of this community were most concerned about the water level and its subsequent effect on the river channels, the aquatic animals and birds.

Much of the decreased water level is believed to be related to the Taltson and Bennett dams.

Regarding relationship with the water respect (45%) and thanks giving (34%) were highest among Fort Resolution respondents, followed by not dumping in or polluting the waters (18%).

An elder spoke of being amazed at finding clear water at Long Island because it was not usual for this area. Others also spoke of hearing their grandfathers speak of the future when the water would not be clean and that it would affect the fish and the animals. Stoney Point was noted in the past for higher water levels compared to the present. Buffalo River is said to be a salty river. Water was good all over before, and there was no concern about its quality or its presence on the land. The Taltson River is remembered as a river that always had high water but sometimes water would be lower in other areas for short periods. There used to be much water at Mirrion Island and the people travelled through this area at one time; now it is all grassland. It was usual for water to go down three feet in the past but by July there was always an increase and more water was present by the fall. There used to be channels all the way up to a place called Lunder Lake which is now known as Hook Lake, and people travelled into this area by boat. This route is now dry. Water is an important element to this community because of its dependance on the fish and the aquatic mammals such as muskrats and beaver for food. Many of the people prefer a diet of wild game compared to the prepared and packaged foods offered at the stores. Run-off from the Pine Point and the tailings of the mine operations is believed to have contaminated the creeks and the underground water. The trees have not regenerated and there is very little wildlife in this area. Gaping holes have been left in the area and no clean-up has ever been done by anyone. People stay away from the area. During its operation some of the people who used to trap in the area had alerted the government to the finding of dead animals in the area. Fort Resolution respondents were the greatest users of surface water (91%). Nine percent used various sources of water. In Fort Resolution, recreational use of water is unusually low (35%). In fact all uses, except travelling (93%), were below the total sample.

Fort Resolution respondents matched the total sample with their comments on water pollution (40%). However, there appeared to be a slightly greater concern with weeds (20%) and the fluctuations in the amount of plant life (7%). Fort Resolution respondents were also concerned with lower water levels.

Self-experience (38%), health warnings (25%) and public education (38%) were the choices mentioned by Fort Resolution respondents.

The most notable difference in Fort Resolution compared to the sample as a whole was that in Fort Resolution there seemed to be a greater than average decrease in animals (41%), although this was

balanced out by the same number who said there was an increase in animals (41%). This could be explained by distribution of persons and their traplines.

Fort Resolution respondents reported the wash-out that occurred (38%) and the flooding of riverbanks and low lying areas (28%) in addition to the drop in water levels (28%). The single most noticeable change in Fort Resolution was the thinning, crumbling ice (75%). Perhaps more than any other community, thin ice was a big change in Fort Resolution.

Respondents in Fort Resolution were most likely to mention the break-up of trees and the clearing of land along the river bank (30%) or along with the flushing out and cleaning of the river (3%) and erosion (3%). Only 10% mentioned the flooding of inland lakes and ponds or the formation of sand bars (3%). Almost a quarter (23%) said there was little impact of naturally occurring ice dam flooding on the land.

Fort Resolution reported the shortest length of time for the plants to grow back with only 4% saying it took more than a year and 88% thus noticing new plant growth within the same year.

The wildlife (60%) in Fort Resolution apparently enjoyed the greatest impact of naturally occurring ice dam flooding and, to a lesser extent, the plants enjoyed new growth (13%). Again, the increased amount of water was cited (20%).

In Fort Resolution, the loss of water channels (25%) and land areas (4%) were the major negative impacts. To a lesser extent, the uprooting and breaking-up of trees was mentioned (17%).

Fort Resolution respondents reported the shortest length of time for water to stay after a natural flood. Almost all (88%) of Fort Resolution respondents said the water subsided within a week. Eight percent cited the water staying one to four weeks and only 4% noticed water one month to a year after the natural flood.

Fort Resolution respondents were more balanced in their comments between water levels and natural factors. Seventeen percent of Fort Resolution respondents mentioned the control of water by dams, 4% said the low water levels, and 33% said flood sites depended on water levels.

Respondents also spoke of natural factors such as the thickening of ice (17%), the change of ice jam location and movement (8%), the changing weather patterns (38%) and that there was too much rain (17%).

Snow and ice were used in the winter for drinking water but there is much caution in using snow and ice now because of pollution. The elders spoke of a belief and a teaching they were taught; "nothing that was dirty was to be put in the water"; their own fish cleaning was never done out on the water.

Ice jams occurred by the Little Bow, and when this happened the water was high for about two weeks. When there was a flood on the Slave River the water spread over the land for miles and it filled the sloughs and creeks. The entire area would be replenished for up to five years.

Jean River at the mouth of the Slave was identified as an ice jam site and this frequently created a large flood of the area. People who used this area always had stages built to place their belongings on and as a place of retreat when they were caught in a flood while they were out camping. Floods are seen as "washing of the land"; even the flowers seem to be brighter and more beautiful after a flood.

There is mention of a flood on the Big River frequently (Big River being the Slave River) but the times are not noted. Water is known to come up eight feet overnight. During the 60's and 70's there were regular floods created by ice jams.

Fort Resolution respondents reported most flooding occurred in the spring (90%) followed by winter (7%) or fall (2%) floods, little or no change in flood season (46%). Two-thirds of Fort Resolution respondents (63%) said that the basins filled in the spring. Seven percent just said they filled during heavy rains but did not specify a time of year, and 30% said during or after flooding.

Table 5.6-2: Table for Demonstrating a Special Regard for the Water

	Total	Ft. Resolution
Do not/no	0.05	0.03
Leave it alone to heal	4%	0
Cleansing/purifying	6%	3%
Give thanks	14%	34%
Do not dump in it/ pollute it	36%	18%
With respect/importance	35%	45%
Use every year/use it	8%	8%
Yes-unspecified	2%	3%
Evaluate physical characteristics	4%	0
Other comments	1%	0
Number Respondents	130	38

Table 5.6-3: Observed Ice Formation Changes

	Total	Ft. Resolution
No change/never noticed	0.26	0.14
Thinner ice/ gives & crumbles	52%	75%
Ice not as cold	3%	4%
More floating objects, e.g. blocks, stumps, drift logs	1%	0
Ice dirtier /ice darker	4%	0
Bennett Dam releases water in winter	1%	0
Jam releases & takes everything with it	1%	0
More overflow	3%	0
Lake or river changed shape, e.g. channels dried up, different water path	2%	1%
Ice freezes rougher	3%	0
Ice is low	2%	0
Number Respondents	101	28

5.6.3 Wildlife/Fish

The major change agents on the animals as identified by the elders are water, fire, mining, logging and the development of roads. There is specific notation of the lack of animals in the Pine Point Area. The moose population has not changed much according to the elders, except that there seem to be more around in the last couple of years. Hook Lake area was known as moose country in the past and in recent years they have been noted to have moved further inland. They were frequently seen along the rivers in the past. The moose shed their winter hair in the spring and prefer to be near the water, particularly lakes, to get away from the flies and mosquitoes. The caribou migration has changed significantly in this area. During the 1920 to 1925, caribou were known to pass by the community and also were in the Roche River area. Some elders indicated that it has been 30 or 40 years since the caribou have been close to the community. The caribou were described as so thick that if you were travelling and the caribou were crossing, the traveller would have to stop his dog team and let them pass by before he could continue the journey. Fire went through the area and destroyed the habitat caribou prefer. The caribou were also hunted in the Buffalo Lake and Stoney Point area. The animals that were identified for frequent use by the survey respondents were: mink (57%), beaver (57%), lynx, bison, caribou (55%), red fox, muskrat (51%), fisher and rabbit (47%), river otter (37%), black bear (35%), weasel (33%), coyote (24%), martin (22%), wolverine (12%).

Bison have been declining since the 1960's and it is blamed on the fires, low water levels, decreasing grasslands and some even stated that since the innoculation of bison they seemed to decline even faster. Bison were known to range in the Narling Prairies, and the prairies across from Lafferties. Hook Lake was known to have more bison than any other area because spring burn off was practised in this area. The bison are moving to better feeding grounds wherever they can be found. Deer were not frequently seen in this area and the only place they are noted by some elders was at Gabby Laferty's cabin.

Caribou and moose were caught with snares in the past. Moose hide ropes were made and the hunters would wait for the caribou to cross a river or a lake and then they clubbed the caribou with peeled clubs. The most recent time there were many caribou in the area was 1940. Moose was the main animal used for making clothing, lodging and many other items for daily living. Although the caribou was also used, the moose was depended on for its hide.

Mink, fisher, marten, river otter and weasels were discussed to a lesser degree and were also primarily noted for the income they brought into the home and the furs that were used for clothing. These animals vary in numbers, according to the elders, and follow a cycle closely linked to the rabbits and muskrats and the areas where fish spawn. In the past there were fewer martens than are noted today. The mink and the otter are known to travel great distances to find food, and in particular mink are seen out on the ice when it is colder. Many otters are present in the main river systems and have been known to prey on beaver and muskrats. The otter will clean out beaver lodges. There used to be many mink on the Taltson River and at Sulphur Point.

Beaver, muskrat and squirrels were identified as important animals because they were not only food sources for the people but also for other predators. There used to be many beavers at the Sulphur Point area prior to the Pine Point mining and it is also noted that overall there are many more beavers now since the time that the limit was five beavers per hunter. The beavers have dams along many of the creeks and smaller rivers; this is seen as an attempt to help the land to retain the water.

According to the elders, Sulphur Creek and Napoleon's Creek "did not have a living thing" present and dead beavers were noted by the trappers who used this area. Clean up of the area has never been done as far as the elders can remember. Sampling of the water was apparently done but the results were never shared with the community, in particular with those who normally use the area. Little Buffalo River was noted as a beaver hunting river and some trappers of this area had noted dead beaver here in 1973-74. Squirrels were not only harvested for their fur but also for a food source. Some elders stated that squirrels were eaten and the meat had the flavour of rabbit meat. Muskrats were discussed at great length by many of the elders. Their biggest concern was the decreased number in the delta primarily due to low water levels and depleted feeding grounds. The muskrat is a highly used food source but its presence affects the cycles of other fur bearing animals in the area. Spring is cited as the season to hunt muskrats. There are times when the muskrats will have up to three litters in one season and as many as twelve pups at a time. This will occur when there is high water and lots of feed.

The muskrats have been declining for more than ten years. Roche River was a harvesting site for muskrats and 500 to 600 rats could be harvested at any time by one hunter. The Slave River Delta was known for its muskrats and often people from Hay River and Fort Providence travelled to hunt muskrats in the delta. Nineteen thirty-seven was a high water year and there were also many muskrats during that time. It is said that a good hunter could harvest up to 200 rats a day. The muskrats are known to remain numerous two years after a large flood. The decline of muskrats has been more severe in the last two years and this is seen as an extended cycle of depletion caused by a lack of flooding. In some areas the muskrats are noted to be skinny and have marks on their lungs and liver, a condition that was noted before they began to disappear. Some muskrats were also noted to have puss on the liver and around the heart even when they were considered to be fat.

Dog River, Buffalo River, Roche River, Taltson River, Dekerat Lata Lake and Rat Lake (which is no longer present) were all rat producing water systems at one time.

Bear, lynx and porcupine were also discussed in terms of being food sources and but also as having multiple use. Bears were hunted after the berries were ripe, and until they went into hibernation. Lunder River, near the Dee Chaay River and along the Jean River were considered bear country. Bear was part of the diet and provided the grease for cooking; bear parts were also used in a medicinal manner. People do not use the bear as much as they did in the past. Lynx are described as mice, squirrel, and muskrat eaters in this area. Lynx were described as plentiful prior to logging and in the areas where they were plentiful there has been logging, consequently the lynx have moved out of the area. The lynx apparently prefer the timber because this is where squirrels are most plentiful. The elders often said that

years ago there were not many lynx but they came back in more recent times and have now decreased again. Lunder River was a noted lynx habitat.

Porcupines were also eaten years ago but these creatures have not been in the area for quite some time. A specific time period was not noted.

Foxes, coyotes, and wolves were not spoken of much except to state that they were present in small numbers. Coyotes in particular have not been around in great numbers. Rabbits were mentioned by every elder as an important cycle influenced by all the other fur bearing animals that preyed on them. The rabbit was also utilized as a food source by the people. Its disappearance has raised much concern because of its link to the food chain of all other animals. Some elders spoke of the rabbits having puss on the liver and other internal organs. Rabbits have not been abundant for more than 10 years. The cycle is four to five years in this area. There has been a slight increase in rabbit tracks around Gabby Laferty's cabin in the last couple of years, which raises the hope that they will come back in greater numbers in forthcoming years.

Water fowl have been described as "going down more and more"; this again is attributed to low water levels and lack of feed for the birds. To the people in this area the ducks and geese have decreased substantially in the last few years.

Spoon ducks were described as having "string-like shreds in the flesh of the breast meat about 10-15 years ago." Specific years that were noted for high numbers of ducks were 1946, and 1975. In 1945 many ducks were seen from South Roche extending down to the far end of Russell Lake. In 1975 the Jean River was noted for being populated with many ducks during the month of August. Normally geese and ducks feed in the delta and along the Roche and Slave River. The geese used to stop and feed at the mouth of the river and generally spend longer times along the Little Buffalo River. The people looked forward to the sound of the birds as they arrived, it was a sign of the arrival of the spring season. Birds that were used most frequently by the respondents were: ptarmigan (53%), prairie chicken (48%), grouse (45%), Canada goose (35%), mallard (33%), white swan and snow goose/wavey (29%), pintail and sandhill crane (16%), Ross goose (12%), all other birds were used less than 11%.

Although fishing occurred all year round, the most frequently mentioned time period for preparing and preserving fish was fall. This time was to prepare feed for the family and for their dogs. Fresh fish was used throughout the winter. The species of fish most frequently used by the respondents were: lake whitefish (55%), lake trout (51%), northern pike/jackfish (45%), walleye/pickerel/dory and burbot/myreye/ling cod (41%), inconnu/coney (24%), sauger (14%) and goldeye (11%). There has been a noticeable decline in the numbers of fish and in some areas the species of fish has changed completely. The Slave River fish have been noted to be smaller and thinner in the last few years. Most of the fish that were noted with sores and cysts, were caught out in the delta and in the Slave Lake. The whitefish in the little Buffalo River were noted to be thin. The fish were known to travel up the Taltson River to the first set of rapids to spawn. Coneys were sighted as spawners of this area. Since the development of the dam on this river, the spawning has changed. Whitefish now spawn on the Taltson River. Commercial fishing in the Thubun Lake was identified as depleting the stocks in that lake. Roche River

Bay was a spawning site years ago for trout. Trout numbers have also been depleted greatly, and is attributed to the commercial fishing industry. Coneys and white fish replaced the trout at this site for a while. The white fish started to spawn here in 1940 - 1949. This site now has catfish and goldeye. In the spring the Roche River has many suckers.

Fish were measured in sticks. Four coneys on a stick were one-stick. The number of whitefish was not noted but each family would put up to as many as 2000 to 3000 fish in the fall for the dogs and for their own use. There was a place called the "fish hole" on the Taltson River where fishing occurred all summer long which is no longer present because "it is dried out" (a "fish hole" is a location where the fish lurk or gather.

Buffalo River does not have many fish at all according to the elders. Large trout were always caught with hooks at Hook Island. Oche Lake fish are not considered good fish because the trees that were killed in the area (possibly by flooding). The Dess Chaay used to have pickerel and jackfish but this is not so anymore. This side of Sulphur Point used to be a productive fishing site 65 years ago.

Fishing sites that were identified by the elders were as follows: Slave River, Great Slave Lake, Buffalo River, Thuban Lake, Taltson River (which used to have several species of fish, but today has only white fish, jackfish and coneys), Rat River, Roche River, Paulette Island, Deroschaay Koo-waay, Dass Dessaay River, Big Buffalo River, Stoney Point, and Mission Island.

5.6.4 Health

The elders were asked to speak of their view of health and to speak about what illnesses they perceived to be most prevalent in their community. When they spoke of illnesses of the past, they often stated that people were healthier and more active in the past. The past illnesses they spoke of were tuberculosis and the flu of the 1920's. The illness they were most concerned with today was cancer. Cancer was not an illness they were familiar within the past, and is a recent occurrence as far as they are concerned. The numbers of cancer deaths have been significant in their minds and were noted more after the Russian satellite fell in their area in January of 1977. The pollution left by the Pine Point mine is also believed to be linked to the incidence of cancer in their community.

Illnesses reported to be increasing in the survey were: cancer (95%), diabetes (12%), and heart problems (5%). Activities that were frequently engaged in for health were: gardening/fishing/ hunting (55%), boating/canoeing (47%), swimming/long walks (35%), running dogs (21%), jogging/running (18%), skating (10%), and ball games (9%); no one identified curling.

Traditional food use was rated at 2.0 compared to 1.4 for store bought. The respondents believed that exercise (63%), good nutrition (59%), and traditional foods (22%) were an important aspect of their health.

Asthma and deaths due to accidents and suicide were also identified as a great concern by elders. Alcohol and drug use by the younger generation was raised as an issue that needed to be addressed by this community. The need to teach the young people the value of being spiritually aware was raised by several elders. Health in the past was maintained by being physically active and leading a productive life. The distractions of alcohol and television were also raised by the elders of this community as not having a healthy influence on the younger generations. Some elders indicated that traditional medicine was used much more in the past than it is today. Some elders indicated that certain plants are still used for illnesses such as the flu and for cuts or sores.

5.6.5 Family and Community Relationships

Fort Resolution respondents provided a unique perspective on family and community relationships in the way the elders described the interactions between the males of families; this perspective was not as evident in the interviews with other elders across the ten communities. The elders of Fort Resolution often mentioned the time they spent on the land with their grandfathers, fathers, and brothers as a very special time and credited all of their knowledge acquisition to those who had trained them. Often the elders stated "we used to trap and fish out there on the land— my brothers, my dad and my grandfather". The bonding and the significance of having a male role model was apparent in the manner that the elders talked about how the youth of today should learn about hunting, trapping and fishing. It was stated that the youth should learn from their "dad" and later take over the traditional ways for their own sake. The elders participated in the hunting and trapping at very early ages as one indicated he caught his first mink at five years old. Women also participated and travelled with the hunters at certain times particularly when there were big hunts and during the fishing season. The main camping areas where the family participated as a community were at Roche River, and along the Little Buffalo and Big Buffalo River.

The elders of this community also spoke of the effects of alcohol and television on the minds and ability of young people to be motivated to learn about life skills and be out on the land. It was felt that television creates a "heavy burden for the people" because so much is learned by the youth from television. The women who were interviewed stressed the importance of teaching the children the value of prayer and the need for parents to teach their children spirituality and self discipline. It was often stated that the youth did not know how to listen and interact with elders, which influenced the elders' ability to teach traditional ways. It seems that the role of the male figure of the family unit is very important for transference of traditional knowledge to occur consistently in this community. The elders indicated that changes in this relationship of male role modelling and learning traditional ways was first noted soon after the Pine Point mine was established near Fort Resolution. Many of the men began to work at the mine, the industry itself affected the presence of wildlife, and alcohol use and abuse also became very prevalent. The statistical review of who still remained on the land and continues to use the land revealed that the siblings of the respondents of Fort Resolution were more likely to have left the land to do other things (51%) compared to the sample as a whole (23%).

5.6.6 Traditional Knowledge

Fort Resolution respondents showed a more restricted resource network of traditional knowledge teachers, both in terms of the percent of respondents who identified each of the possible teachers and the variety of teachers which was mainly family members excluding spouses. Three-quarters of the 40 respondents mentioned parents (lower than the 86% for the total sample), 28% said grandparents and 28% said other relatives. None of the Fort Resolution respondents mentioned spouses as teachers of the traditional way of life. Only 3% and 5% respectively said friends and other people, the same as for the sample as a whole.

Except for siblings, Fort Resolution respondents reflected the same traditional use as did the total sample. Siblings of Fort Resolution respondents were more likely to have left the land (down 51%) than were siblings as a whole (down 23%). Responses for other relatives were: parents, down 76%, grandparents, down 88%, children, down 6%, other relatives, down 29% and none of the above, up 27%.

Fort Resolution respondents show a slightly higher than average tendency to know subsistence skills and making traditional foods. Supplemental skills were less common among Fort Resolution respondents than for the sample as a whole. The subsistence skills of fishing (96%), hunting (93%), trapping (96%), gathering (78%), making tools and weapons (56%), building shelter and boats (78%) and cooking (93%) were all slightly higher than the sample as a whole. Fort Resolution respondents were less likely than the sample as a whole to have acquired the traditional supplemental skills except for making traditional foods (93%) and making arts and crafts (47%).

Five percent of Fort Resolution respondents currently use dog teams. Fort Resolution also showed a high percentage of people with working dogs. Only 5% had one to three dogs. Over half (56%) had more than six dogs and 38% had four to six dogs, enough dogs for one team. Mountain whitefish, although not widely used, was only fed to dogs in Fort Resolution (3%).

Specific knowledge that is separate from all other information collected from this community relates primarily to the peoples' relationship with the land and the way it is interconnected with themselves. The knowledge includes the land as it is influenced by all elements, such as the effects of low water on the ecosystem within the delta, and on the food chain. Specific teachings that were spoken of were the land and its resources, and how these resources were managed and utilized in a sustainable manner. The elders' wisdom and teachings also include being respectful and conscientious about keeping the water and the land clean, because it is the land that provides a living. They respect the principle of "no wasting and harvesting, take only what you need." They were taught not to kill more than their sleigh could hold and, more specifically, no more than their dogs could haul back to camp. They passed on that principle and their knowledge to responsible and respectful recipients.
The principle of respect for the water was practised by not cleaning their fish out in the lake or on the rivers. Another teaching that this community spoke of was not to leave an area if you were unsure of the direction in which to travel. They were taught at an early age how to read the land and the weather. They had to know how the sun and the moon travelled. Although this information is not given in detail,

the elders did give a few examples, such as the knowledge that sun dogs around the sun or a ring around the moon meant a change in the weather and travelling was not done when it was storming.

Table 5.6-4: Table for the Land and Its Link to a Traditional Way of Life

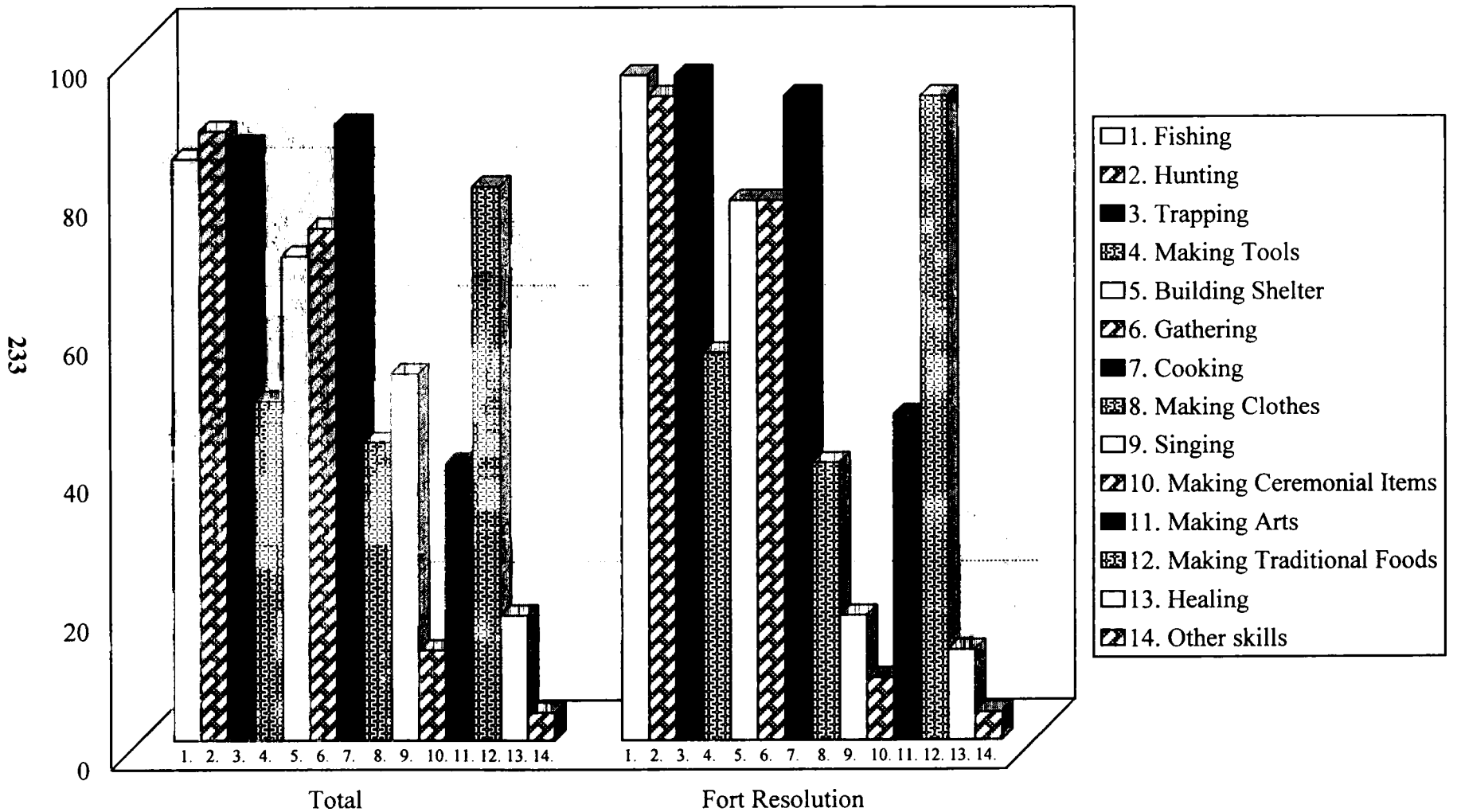
	Total	Ft. Resolution
Source of income & livelihood	0.29	0.17
Recreation/ enjoy beauty	3%	3%
Spiritual/ mother earth	3%	3%
Part of us/ who we are	37%	28%
Survival now and in future	15%	6%
Renewable resource	3%	3%
Respect for land/its ability to sustain life	5%	11%
Wildlife/ vegetation/ garden	6%	14%
Medicine/ health	1%	3%
Significant/ important	10%	25%
Way of life/gives life	16%	11%
Source of food/water	18%	11%
Provides shelter	3%	3%
Number Respondents	134	36

5.6.7 Future Expectations and Recommendations

The elders were asked to give their leaders and their youth messages for future planning and development. This section outlines their recommendations and expectations.

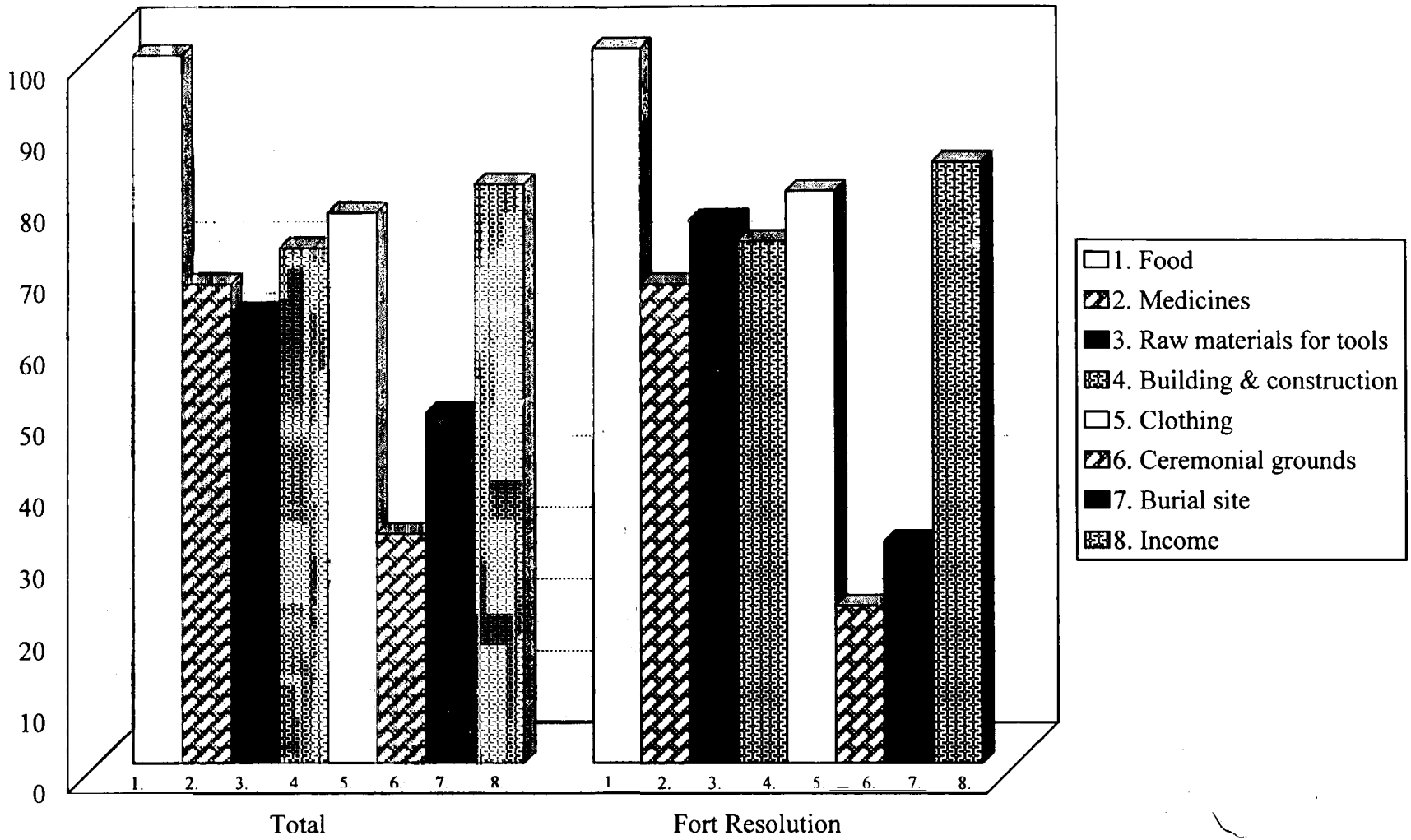
The young people need to be taught how to use the land in a respectful way. They need to learn how to use the land in a traditional way, such as hunting, trapping, and fishing. The language needs to be retained by the young people and the traditional teaching needs to be part of the learning in school. Encouragement is given to the young people to complete their education but to also learn about the land and how it can be used in a traditional manner. They encouraged the young people to take a serious look at the influence of alcohol on their life and requested that the leadership work with them to develop alternatives to this practice. Many people suggested using summer camps to train the youth to learn the traditional ways. They invited the youth to have more confidence and respect for their knowledge and ability to teach them valuable information about living. The leaders were encouraged to utilize the elders more in their meetings and in planning for the future of the community. They encouraged the leaders to become more active in environmental issues and in the need to clean up the land where it had been damaged. They requested more stringent water quality assessment and control of impact from industries. Lastly there was much said about needing to work together within the community for the benefit of future generations.

Figure 5.6-1; Traditional Life Skills Identified



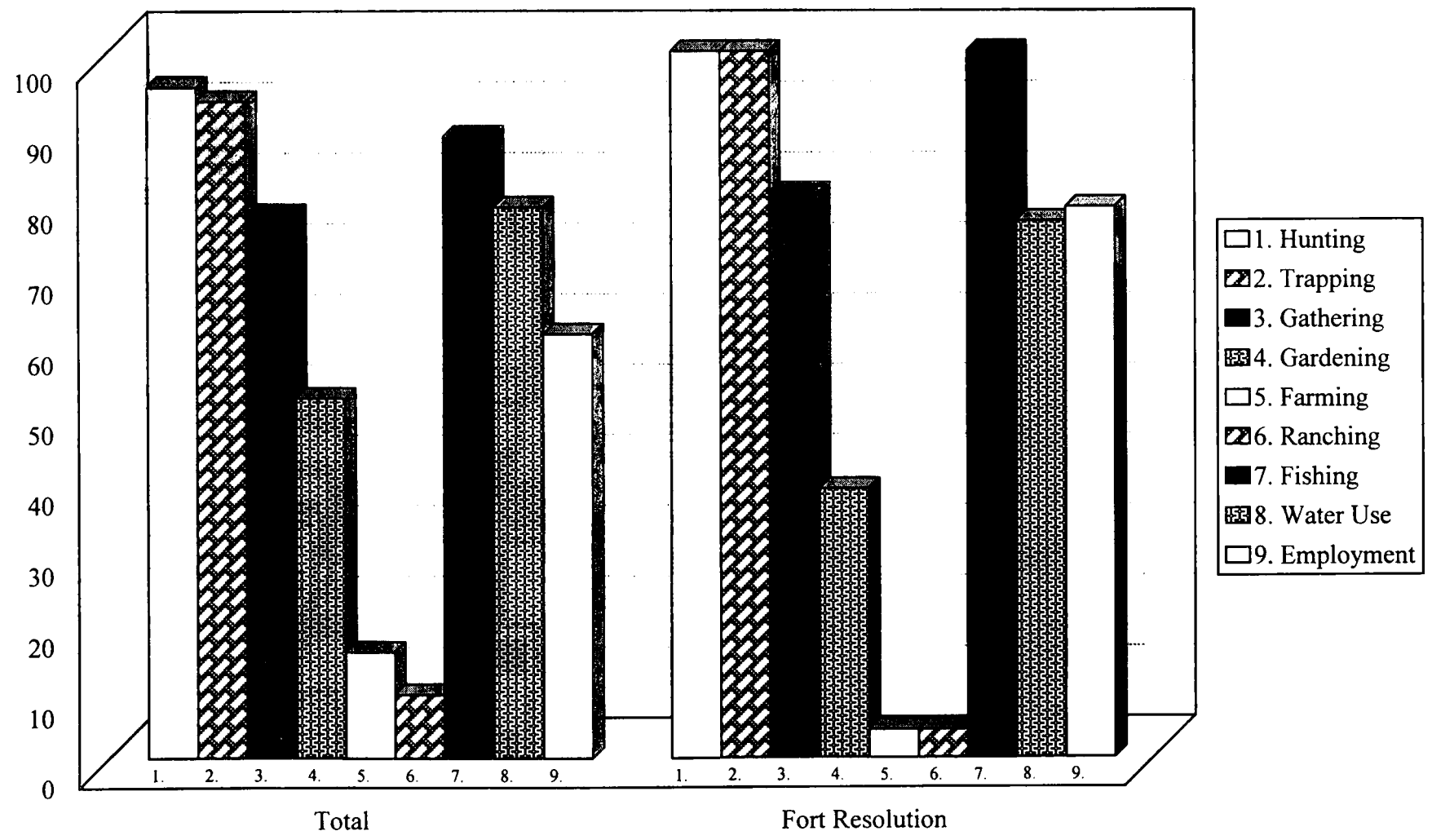
Sample size - 221 - Total respondents - 205 - Responded - 45

Figure 5.6-2; Commonly Identified Land Uses



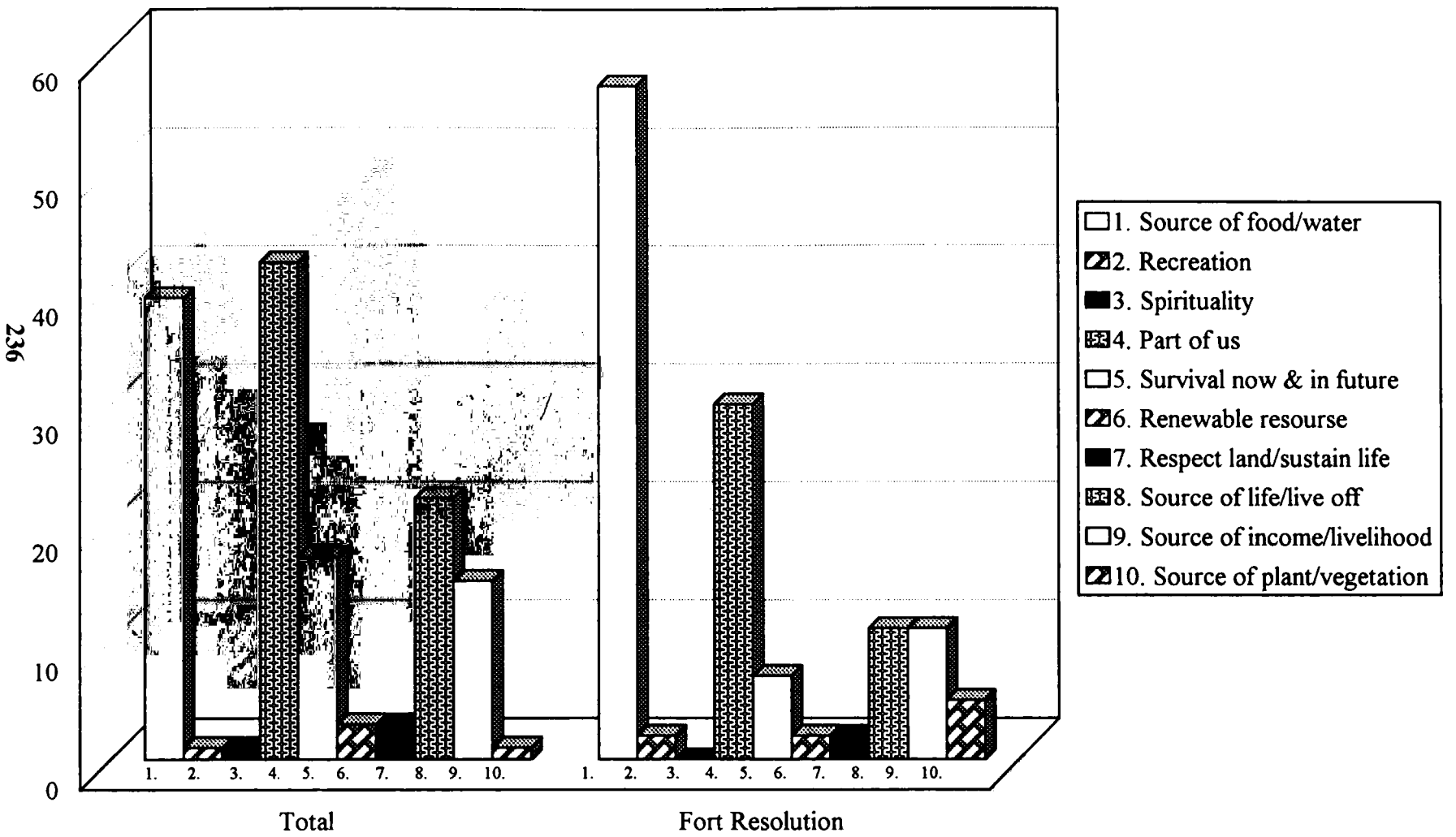
Sample size - 221 - Total respondents - 175 - Responded - 45

Figure 5.6-3; Land Use Activities



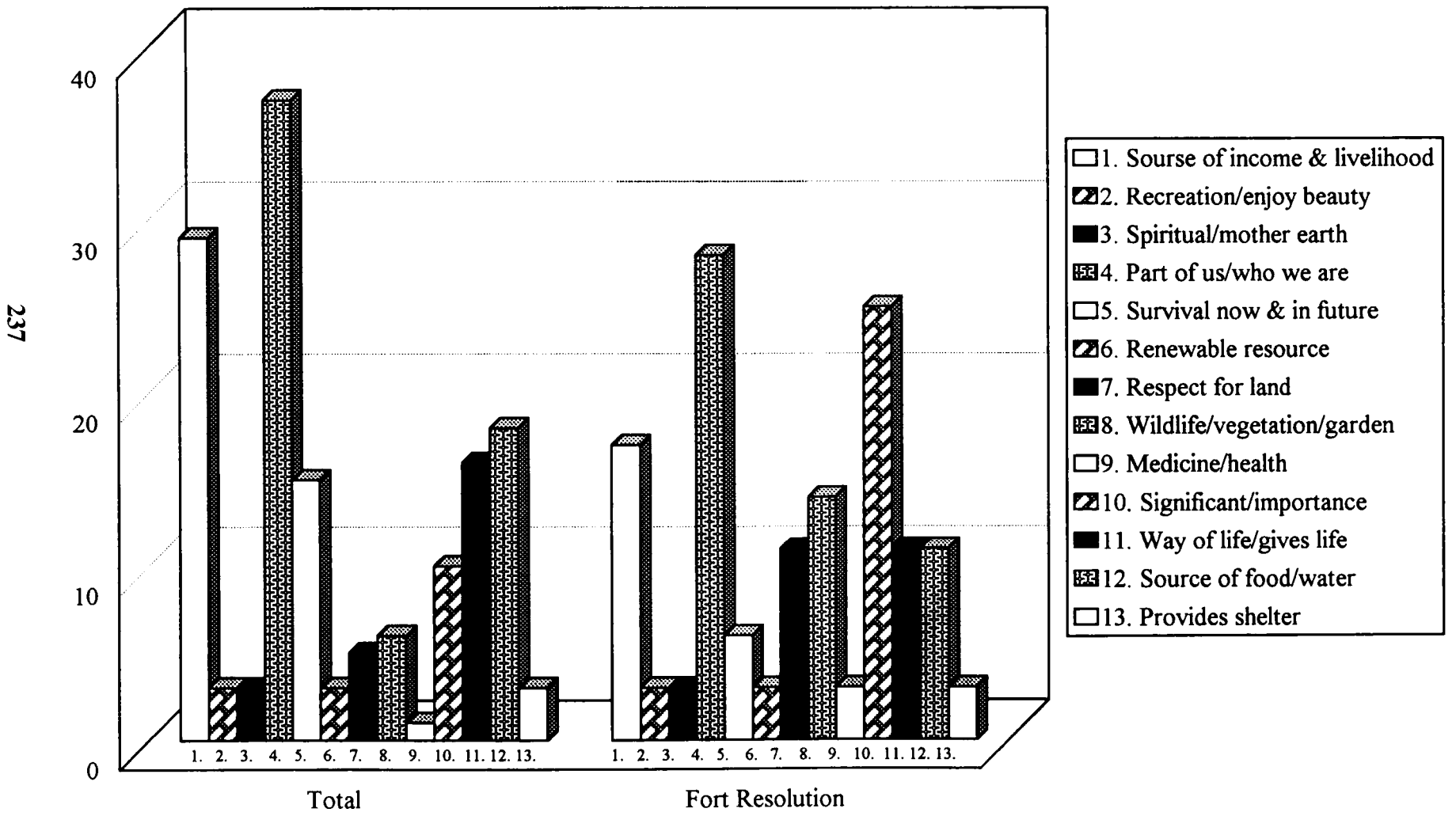
Sample size - 221 - Total respondents - 176 - Responded - 45

Figure 5.6-4; Land Use Significance



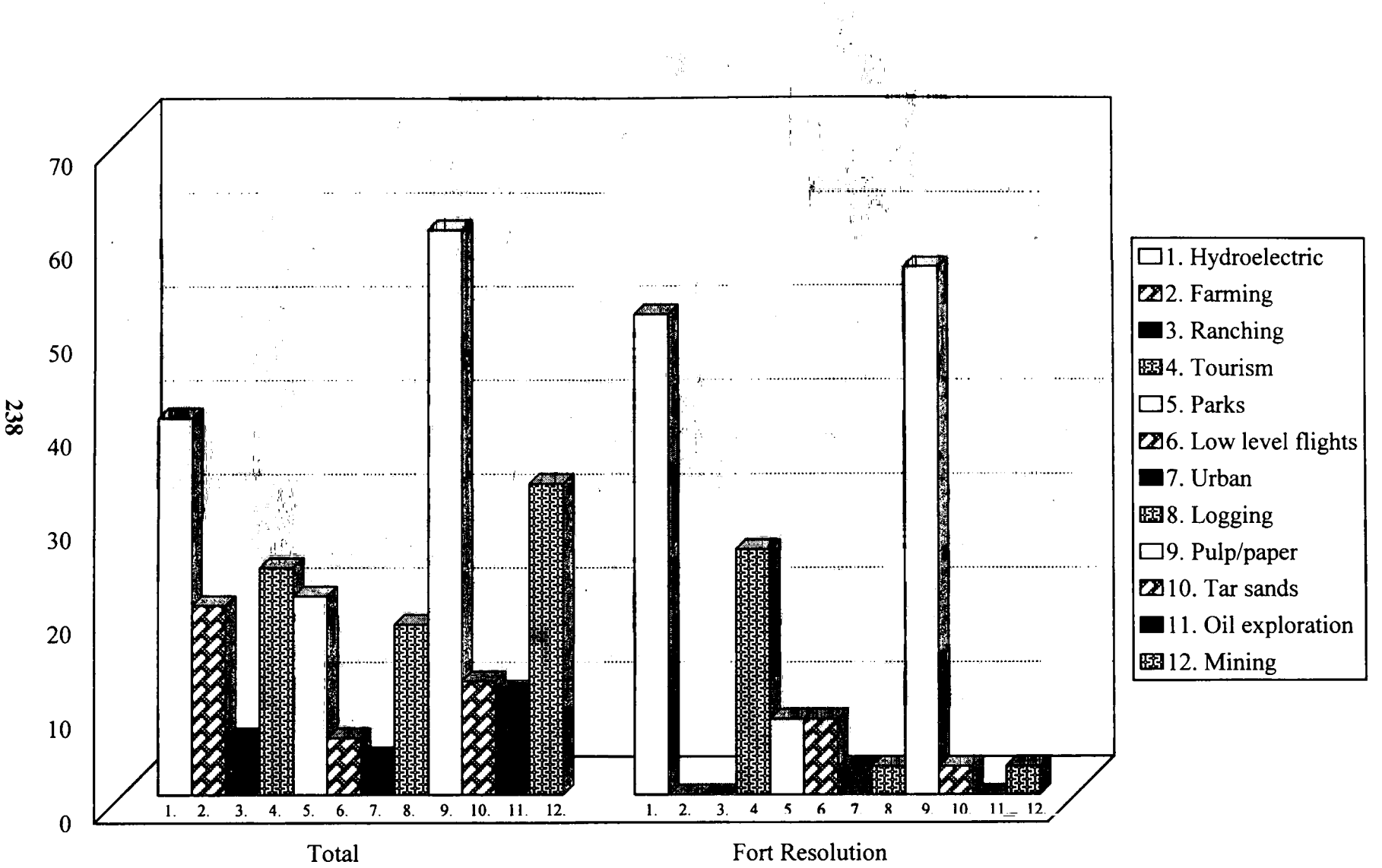
Sample size - 221 - Total respondents - 158 - Responded - 44

Figure 5.6-5; Land Use Significance to Traditional Lifestyles



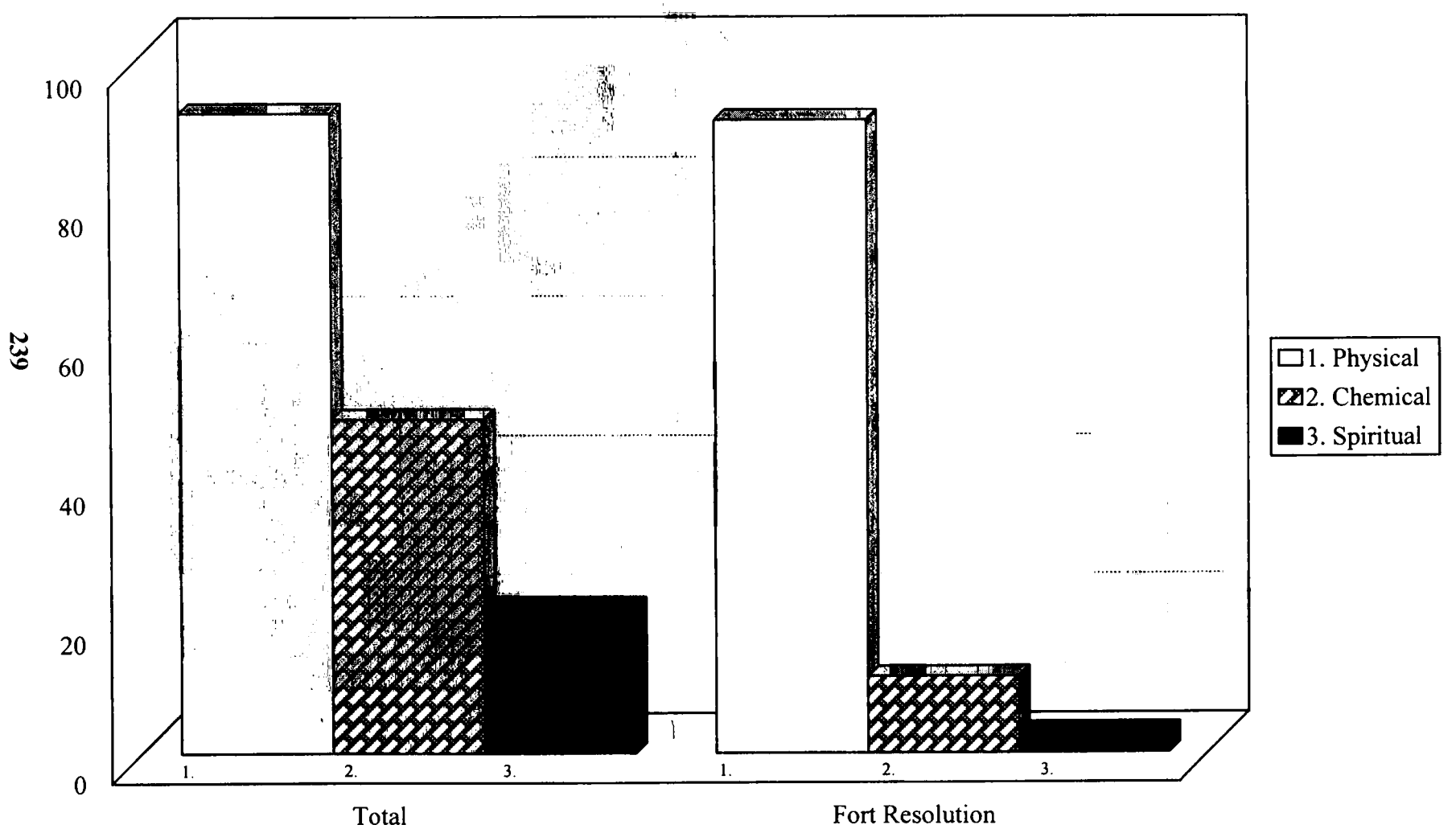
Sample size - 221 - Total respondents - 134 - Responded - 36

Figure 5.6-6; Developmental Land Use Near Traditional Lands



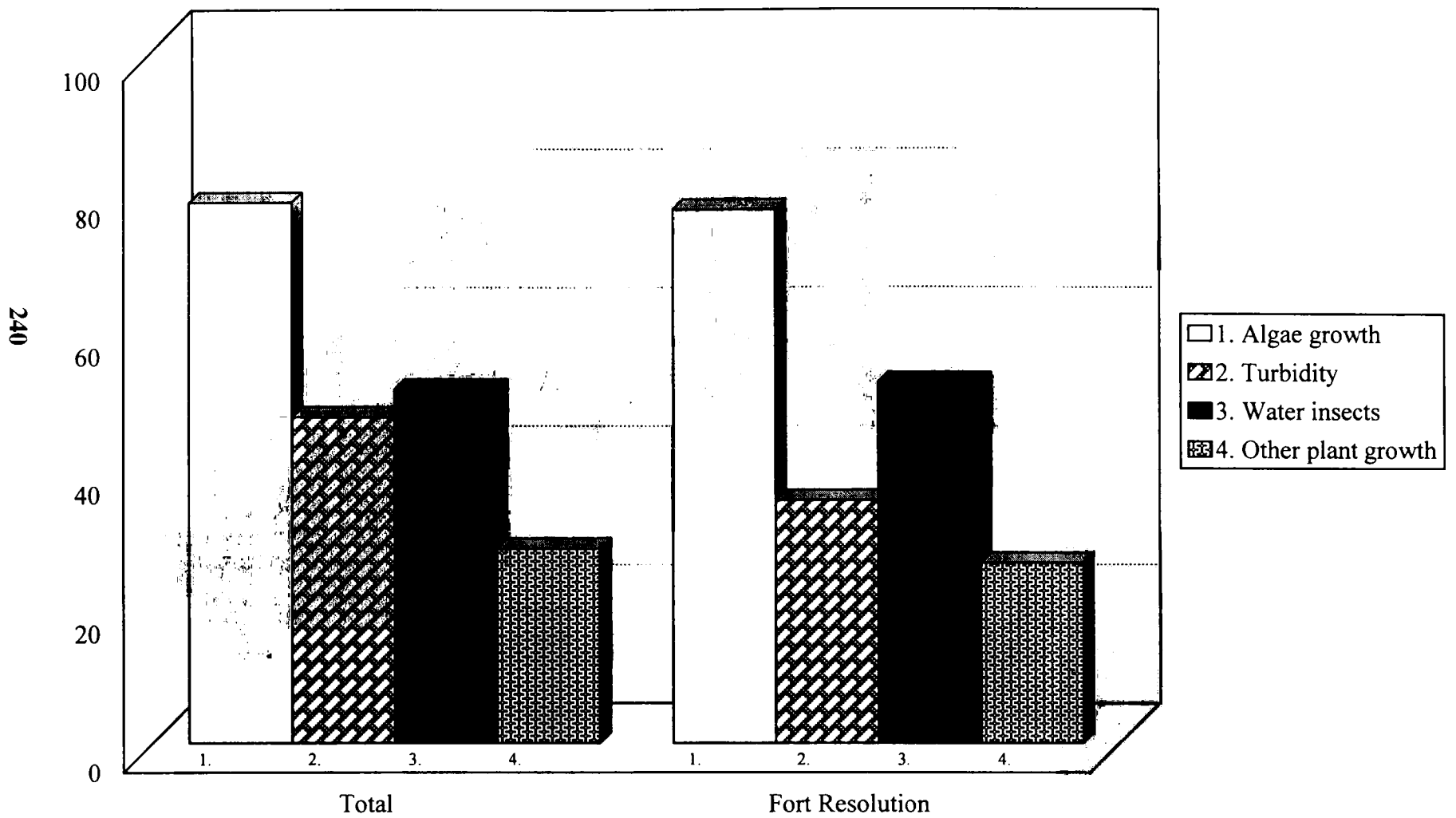
Sample size - 221 - Total respondents - 146 - Responded - 39

Figure 5.6-7; Significant Water Elements



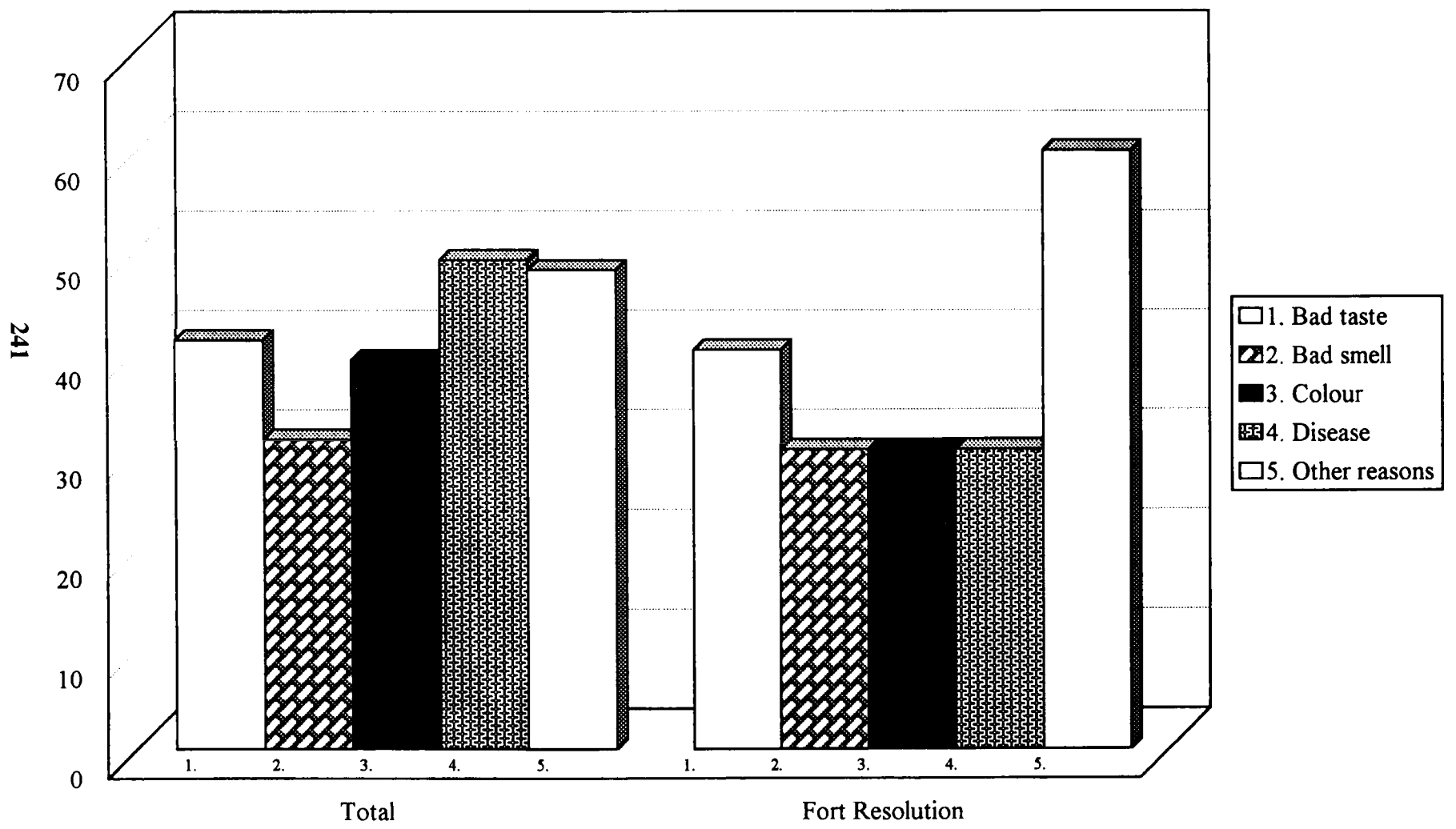
Sample size - 221 - Total respondents - 151 - Responded - 35

Figure 5.6-8; Identified Water Change



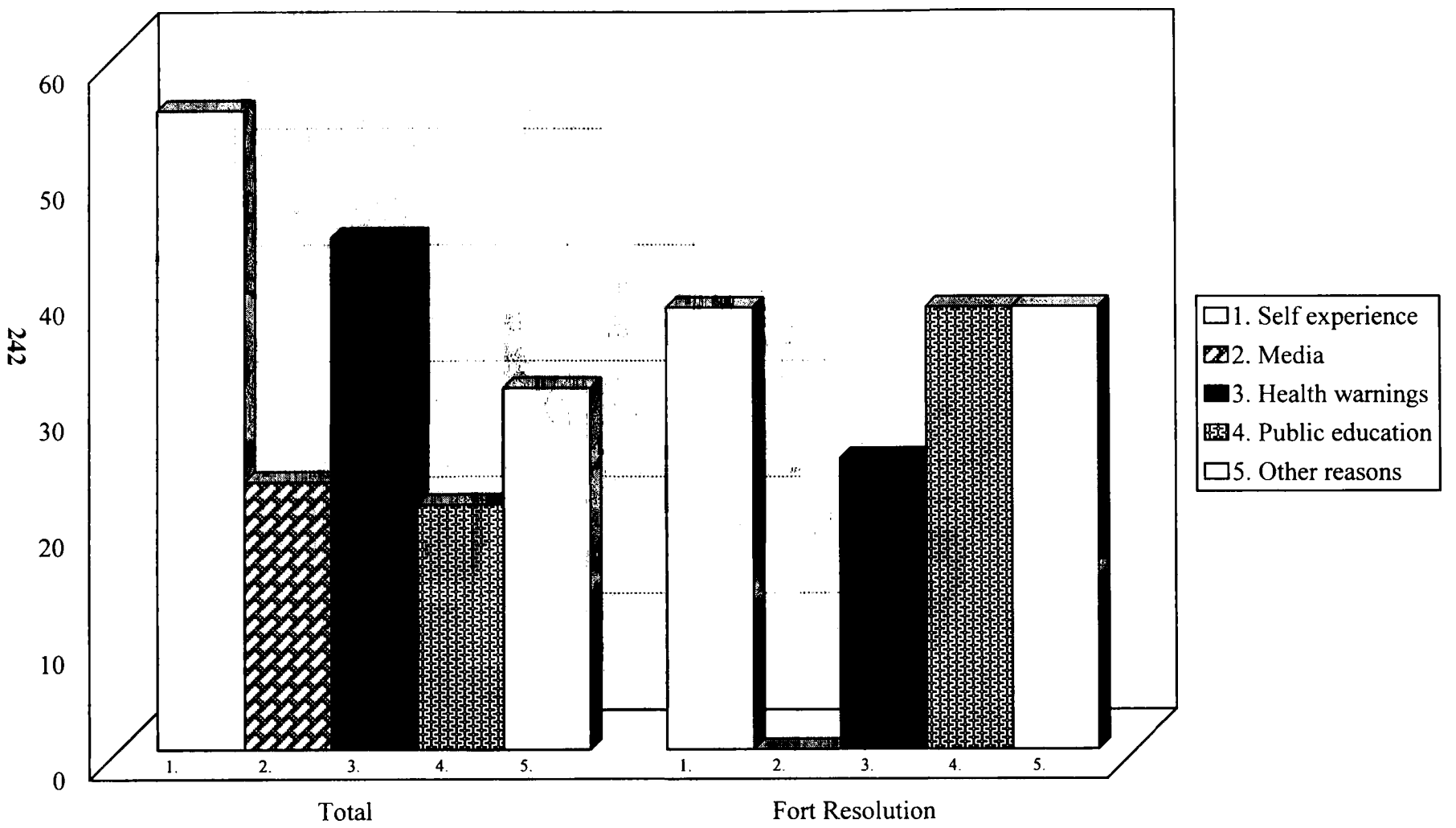
Sample size - 221 - Total respondents - 129 - Responded - 31

Figure 5.6-9; Negative Water Changes Impacting Use



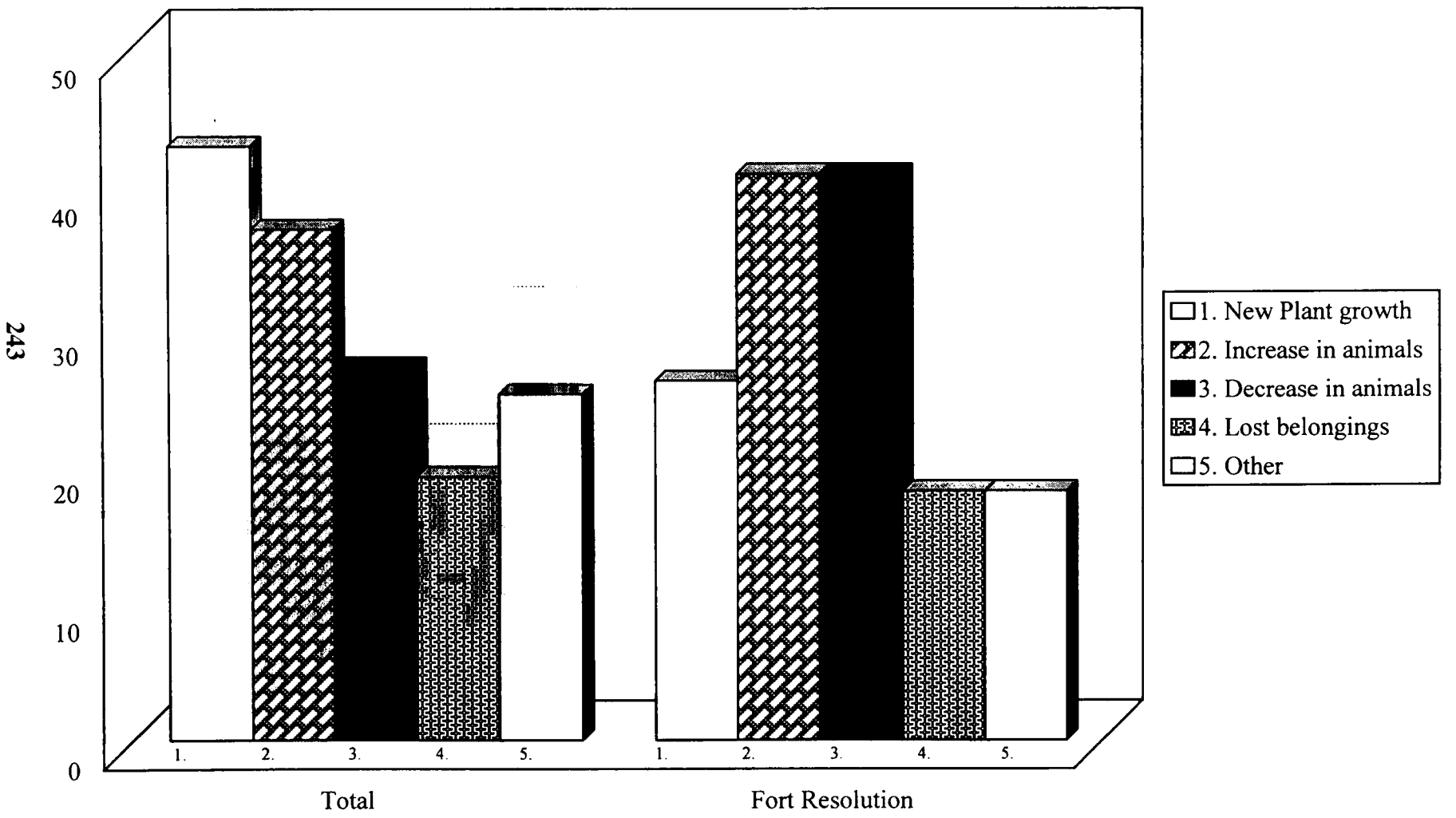
Sample size - 221 - Total respondents - 71 - Responded - 10

Figure 5.6-10; Reasons for Changed Water Use



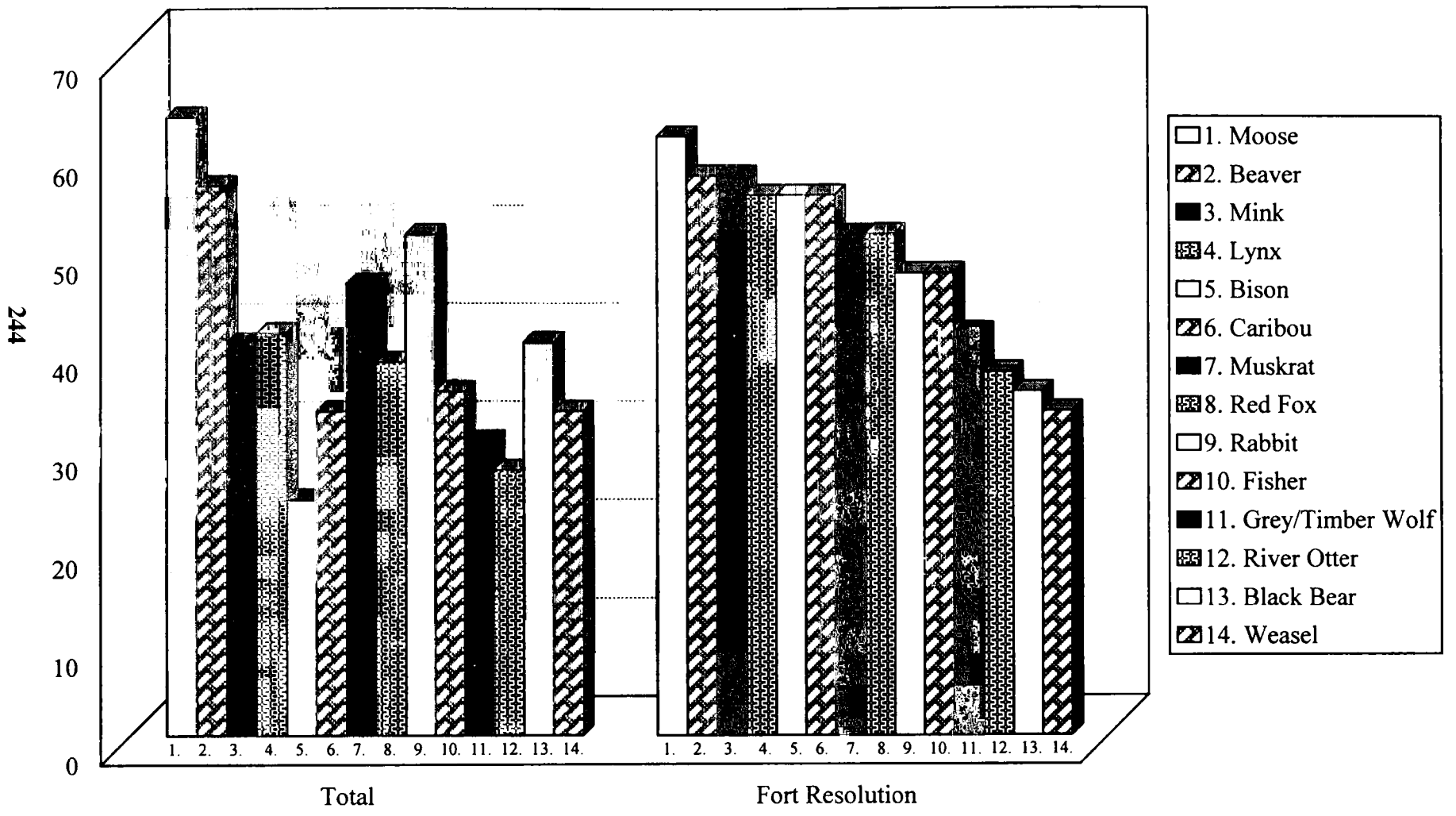
Sample size - 221 - Total respondents - 62 - Responded - 8

Figure 5.6-11; Ice Jam Flooding Impacts to the Land



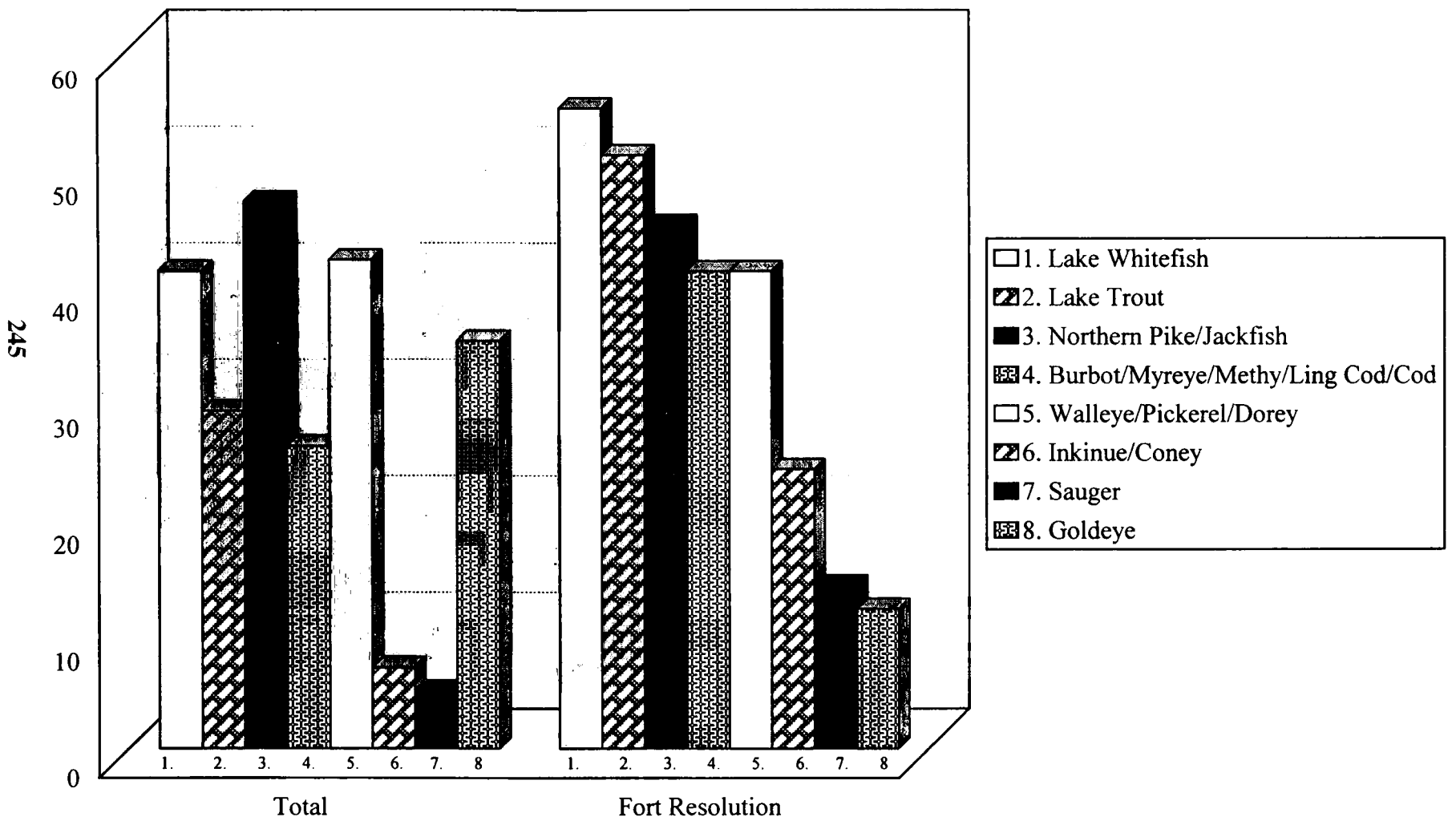
Sample size - 221 - Total respondents - 105 - Responded - 34

Figure 5.6-12; Most Frequently Used/Available Animals



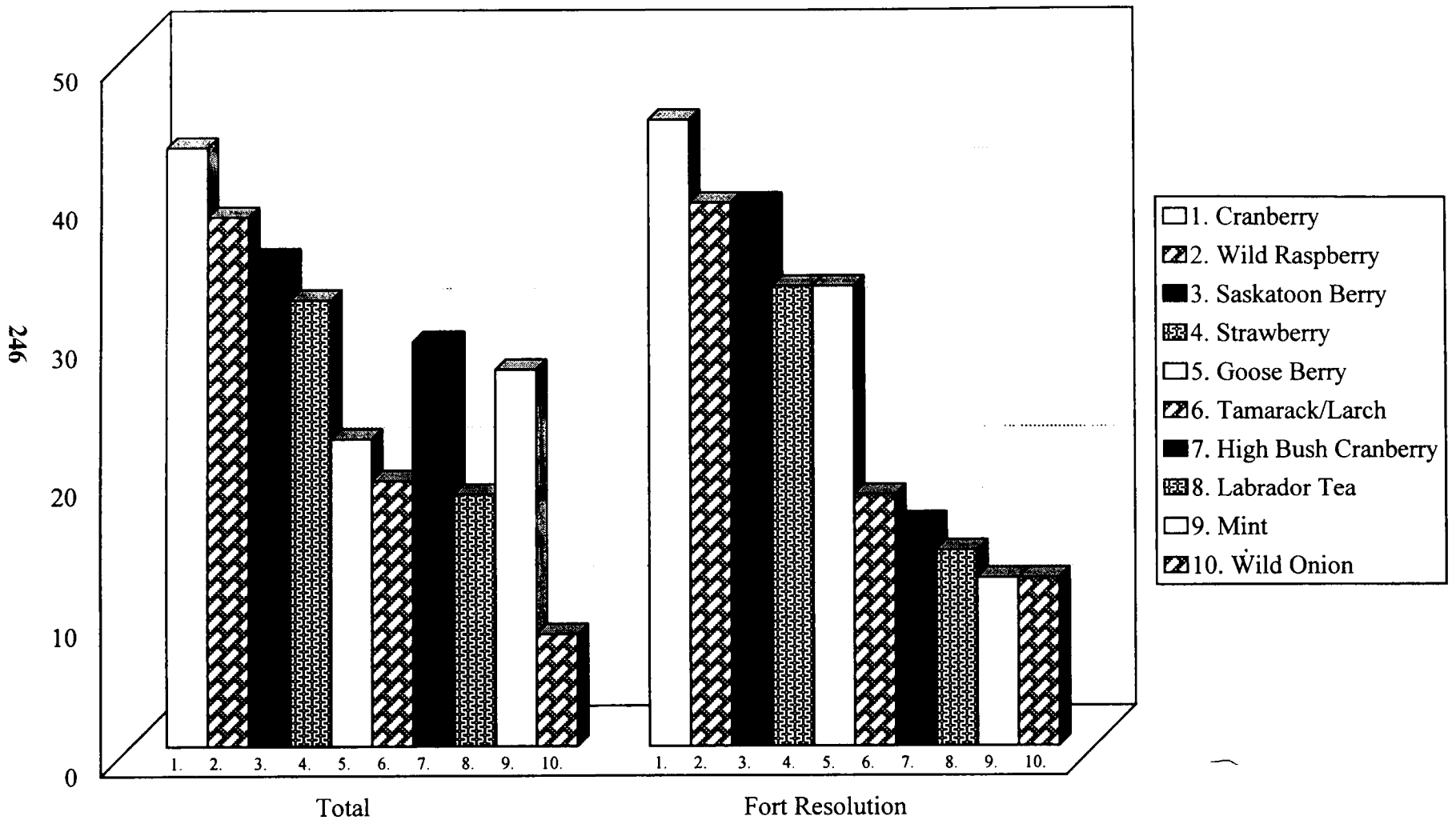
Out of 36 Species of Animals

Figure 5.6-13; Most Frequently Used/Available Fish



Out of 20 Species of Fish

Figure 5.6-14; Most Frequently Used/Available Plants



Out of 45 Species of Plants

Figure 5.6-15; Most Frequently Used/Available Trees

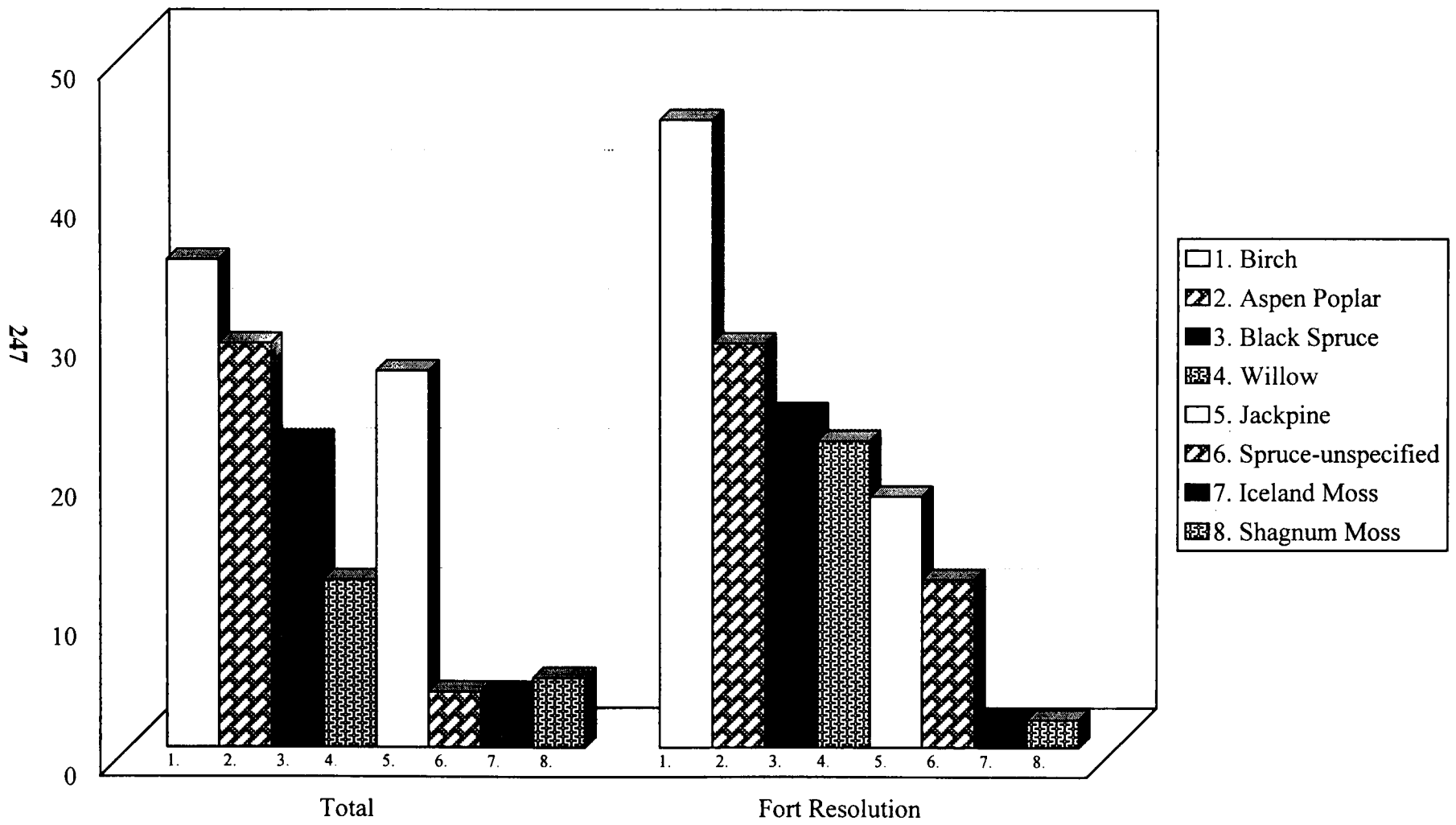
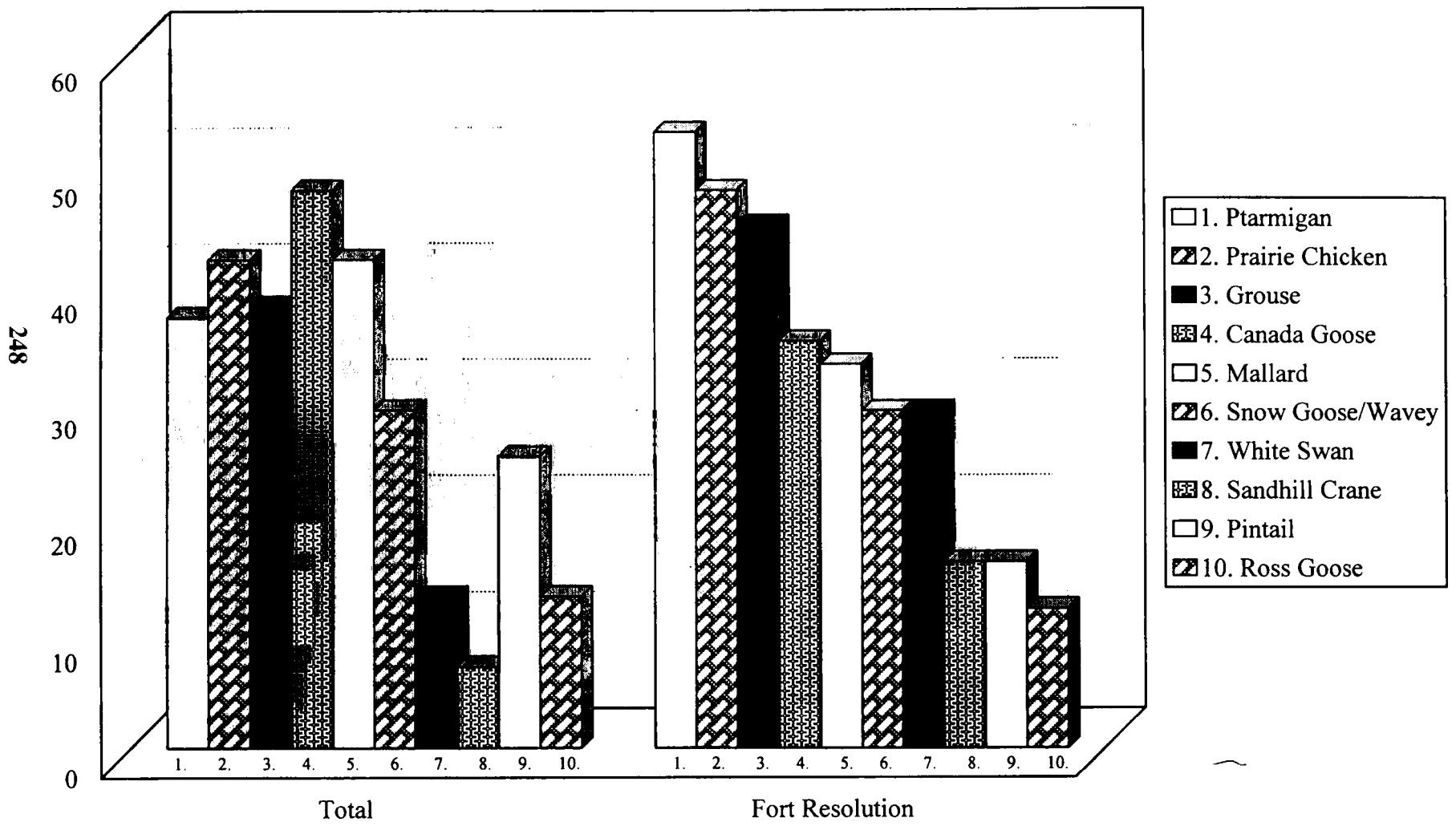


Figure 5.6-16; Most Frequently Used/Available Birds



248

Out of 31 Species of Birds

5.7 FORT MCMURRAY

Twenty-four elders were interviewed in Fort McMurray out of the total of thirty-five interviewees. Thirty-five surveys were analysed, or 16% of 221 surveys. The age distribution for the respondents was 51% were 70 years and older, followed by 23% in the 50 - 59 years age bracket, and 20% in the 60 to 69 years age range. The remaining 5.7% were under 49 years.

An elder was defined by experience and knowledge, with the youngest elder at 50 years old. Others in this age category were not identified as elders.

5.7.1 Land

The information gathered through the interviews from this community was primarily documented in the KNOW data. There were fewer elders who were interviewed in this community who had actually lived from the land and this was very evident in the information presented in narrative format. There seemed to be the perception that the land had not changed much but that industry has had more influence on the way people interact with the land and its resources. Those elders that had lived off the land had a very distinct view of the land which was very similar to those elders who were interviewed in the other communities, whereas the elders that had not lived off the land had difficulty answering specific questions that related to cycles of animals and natural environmental changes or phenomena. Those who had a traditional history with the land expressed it as part of themselves and indicated that they had to treat it with much respect because they had to live from it. They stated "we live off the land, it is very special." Fort McMurray (19%) suffered the greatest loss of traplines. Fort McMurray respondents (25%) have also been affected by development lines and access roads. Not surprisingly, oil exploration (70%) was taking place near almost three-quarters of Fort McMurray respondents, land bases. Pulp and paper (60%) was mentioned by a high percentage of Fort McMurray respondents and, naturally, logging (40%) was also among the more frequently mentioned types of development. A major concern for respondents living in Fort McMurray was pulp and paper (30%). Fort McMurray respondents gave Aboriginal chiefs and Native councils average scores of 2.9 and 2.8 respectively. Citizen groups (3.1) and individuals (3.0) were slightly higher. Fort McMurray respondents differed from the sample as a whole again in their rating of industry (2.2). Industry received a slightly higher rating than the federal government (1.9) and the same rating as the provincial government (2.2). The municipal government received a marginally higher rating than the other two levels of government (2.3).

Fort McMurray (60%), responded the land was changing. Fort McMurray was an exception as the respondents here were less likely to feel that their view of the land had changed.

There was a sense that big industry is taking over the land and that the government is allowing this to happen. There was great concern raised about the clearing of trees up to the river banks because this left the rivers unprotected. The one change that was evident from their knowledge and experience was the drying of the land as was indicated by other elders from each of the other communities. The

landscape was also identified as changing as a result of large scale clearing to the south of Fort McMurray for the Alberta Pulp and Paper Company.

Overall, Fort McMurray respondents did not appear to utilize plants and trees as much as the other communities in the study. Fruit trees and berries were used the most by the respondents of Fort McMurray. Herbs were used by less than 11% of the respondents. Fruit trees and plants used most frequently were: blueberries (17%), choke cherries (17%), and low bush cranberry followed by other plants and trees at 11% and less.

Fort McMurray was more likely than other communities to learn about the land from community members as stated by 20% of Fort McMurray respondents.

Fort McMurray appears to be losing more people from the land than average, particularly children and other relatives. The thirteen Fort McMurray respondents varied from the sample as a whole in a few categories. In the total sample, the percent of grandparents who still lived off the land dropped by 81% versus a drop of only 64% for Fort McMurray respondents. Fort McMurray parents were down 79% versus 76% decline for the sample as a whole. Just under a third fewer (-28%) of Fort McMurray siblings continue to live off the land. The percentage of children who lived on the land fell by 14% in Fort McMurray, versus 8% for the total sample. The percentage of relatives fell dramatically (by 36%) as compared to 16% for the sample as a whole. An increase occurred in the percentage of Fort McMurray respondents who said none of their relatives still lived off the land, an increase of 77% from the "had lived off the land" question. This increase was higher than any of the other communities, suggesting Fort McMurray respondents have experienced the greatest loss of relatives from the traditional life.

Fort McMurray respondents were 33% lower than other communities to be most likely live off the land.

Respondents in Fort McMurray were actually more evenly spread over the seasons as follows: most of the year (25%), half of the year (17%), winter (17%), and summer (8%). None of the Fort McMurray respondents lived off the land only in the spring or fall.

Only fourteen Fort McMurray respondents answered the questions on land use. Those who did indicated that they used the land less than any other community. Although all respondents said they used the land for food (100%), only 7% said they used it for medicine, 21% for raw materials for tools, 43% for building and construction, 43% for clothing, 7% for ceremonial ground, 7% for burial sites and only 43% for income.

Again, Fort McMurray respondents showed the greatest differences from the sample as a whole. Percentages were substantially lower than average except for a few categories. Gardening (79%) was the primary activity while living off the land. Less than three-quarters (71%) for Fort McMurray respondents hunted and only half trapped or fished (57%). Gathering (43%) was also not very popular among Fort McMurray respondents. Water use (36%) was lower among Fort McMurray respondents

than any other community as was employment (7%). What is interesting is the higher than average tendency towards ranching (21%).

Just over one-fifth (22%) of Fort McMurray respondents said they had methods for managing the land. Only one respondent identified those methods as maintaining or keeping up the land.

A third of Fort McMurray respondents did not rotate their traplines. A third rotated their traplines annually and 17% rotated them either weekly or daily.

Fort McMurray respondents (47%), compared to other communities, were least likely to hunt. Fort McMurray trapline ownership dropped from 75% to the lowest community rate of 19%. Dog teams were popular, and were fed a variety of fish. Almost all (71%) respondents in Fort McMurray agreed that fire had a positive effect on the re-growth of the vegetation. Nobody in Fort McMurray mentioned the departure of the animals. Fort McMurray respondents were evenly split on their perception of the length of time it took forests to grow back after forest fires: a third said one to six years, another third said 10 to 15 years, and the other third said 40 years or more.

Three-quarters of Fort McMurray respondents used a combination of waste disposal methods. The remaining respondents either burned their waste (9%) or dumped it (9%).

Fort McMurray respondents were less likely than were other respondents to mention that the land was a source of food and water (22%). However, they depended on the land for their survival now and for future generations (44%). The land was very much respected in general and was noted for its ability to sustain life (22%).

Recreation (22%) was an important role that the land played in Fort McMurray.

Fort McMurray respondents were more likely than most to relate to the land simply through observation and roaming around, enjoying being on the land (29%). They also spoke of proper care, management and protection of the land (29%).

Fort McMurray respondents (38%) indicated that they were unaware of ways that the community acknowledged the land.

The six respondents in Fort McMurray whose view of the land had changed said it was due to an increase in development (40%), fluctuating water levels (20%), greater appreciation for the land and survival (20%), and fewer animals (20%).

The six respondents in Fort McMurray who answered this question spoke of development destroying their relationship to the land (33%) and that the land was abused and its natural beauty destroyed by development (33%).

The elders were asked to identify sacred sites in their areas and to describe a sacred site as they defined it. Most of the elders considered grave yards as sacred sites and proceeded to identify these sites. Poplar Point, Richardson Lake and a place that had a grotto by the Catholic church was mentioned. This site had been disturbed by the highway and it was felt that more care should have been taken to preserve this site.

Table 5.7-1: Table for the Land and its Link to a Traditional Way of Life

	Total	Ft. McMurray
Source of income & livelihood	0.29	0
Recreation/ enjoy beauty	3%	17%
Spiritual/ mother earth	3%	0
Part of us/ who we are	37%	50%
Survival now and in future	15%	50%
Renewable resource	3%	17%
Respect for land/its ability to sustain life	5%	33%
Wildlife/ vegetation/ garden	6%	0
Medicine/ health	1%	0
Significant/ important	10%	17%
Way of life/gives life	16%	17%
Source of food/water	18%	0
Provides shelter	3%	0
Number Respondents	134	6

Table 5.7-2: Table Demonstrating a Special Regard for the Land

	Ft. McMurray
Yes	25%
No/do not know	38%
Respect	13%
Ceremonies	0
Protect it	0
Meetings/land use study	13%
Elders	0
Way of life/community life	13%
Number Respondents	8

5.7.2 Water

The water on the other hand was thought to have changed a great deal in terms of levels and quality. Other changes identified included the time the water froze and the time when the Athabasca River broke up in the spring.

Fort McMurray used surface water (70%), treatment plants (10%) or spring water (10%). Twenty percent used a variety of water sources. The respondents of this community were least likely to have water (25%) compared to other communities.

Fort McMurray respondents were comparable to all others with respect to drinking lake and river water (100%), and cooking (90%). However, their use of lake and river water for tea or coffee (80%) is slightly lower, as is use of water for preparations (60%). It should be noted that Fort McMurray has no, or few, traditional healers or sacred ceremonies in which preparations might be used. Fort McMurray respondents stand out for their very popular use of lake and river water for recreation (100%), and its very low use of water for travelling (36%).

An increase in algae growth (86%) and other plant growth (43%) was above average in Fort McMurray. However, an increase in turbidity (29%) and water insects (29%) was less frequent in this community.

In Fort McMurray, disease (57%) and other reasons (57%) topped the list of reasons for stopping use of water. In Fort McMurray very few respondents chose the self-expedience (14%), media (14%) or health warnings (14%). Rather, they stopped drinking the water for other reasons (71%).

Fort McMurray respondents were evenly split between boiling (55%), and water treatment facilities (55%) with a third using settling (36%) and 18% using filtration.

Water has been rerouted in several places to accommodate industry and one area that was mentioned by several elders was the Beaver Creek. This creek was rerouted into Mildred Lake and Root Lake and now drains into Poplar Creek. Beaver Creek used to flow into the Athabasca River. The Syncrude plant has blocked off this river at the south end of the plant. Another stream that has been rerouted is the Saline Creek which used to flood every spring. Water was also noted not to freeze below the Suncor plant and was known to be open in April. Channels in the river were also mentioned as changing much over the years. Navigation through Goose Island started to become problematic in 1938-39 and travel was rerouted to pass by Big Point. Athabasca River has been noted to be quite a bit lower in the last 20 years. There was more concern about the quality of water upstream from Fort McMurray compared to the streams that flow into the Athabasca downstream. Eighty percent of Fort McMurray respondents paid special regard to the waters by not dumping in or polluting them. Fort McMurray (20%) started recently to pay special regard to the waters.

A flood occurred in 1963 and again in 1977, and the last "big" flood was noted to have occurred in 1936. The floods generally result from ice jamming in the Athabasca River. The ice apparently used to jam in three places: near a point where the Horse Creek empties into the River, and at a hilly segment of the river. The ice would always jam in the Clearwater every spring. At another place "ice used to jam between here and the fire sign," (approximately 12 miles below Fort McMurray on the Athabasca River). The ice jams appeared to have little or no effect on Fort McMurray respondents and the land around that area. Only 33% reported new plant growth, 11% reported an increase in animals, 11% lost belongings and 56% said other things happened as a result of ice jams. Fort McMurray respondents particularly noticed the drop in the water levels (50%).

Thin ice was also a concern in Fort McMurray as reported by 67% of respondents. An additional 17% mentioned that the ice was dirtier and darker than it had been previously. More overflow was reported by 8% of Fort McMurray respondents.

Fort McMurray respondents spoke of the muddier land (40%) that resulted after naturally occurring ice dam flooding. Erosion (20%), the breaking up of trees and clearing of the land along the riverbanks (20%) and flooding of inland lakes and ponds (20%) were also mentioned.

Those in Fort McMurray also mentioned the positive effect on wildlife (60%). New plant growth (20%) was likely due to the richer soil (20%) that resulted.

The effects of ice jam flooding and break up noted were the uprooting and breaking up of trees, old growth and debris being left behind, and the loss of personal possessions.

In Fort McMurray and Fort Smith, plants grew back at about the same rate. Eighty percent in the community had noticed new growth within the same spring, summer, or year.

Only three respondents from Fort McMurray responded and they felt the changing flood sites were due to too much rain, the change in ice jam locations or movement, and that flood sites depended on the water level. Ten Fort McMurray respondents agreed that flooding occurred in the spring. Note the absence of fall and winter flooding suggesting that flooding is not being controlled artificially by dams.

Fort McMurray (33%) reported the formation of islands.

One respondent in Fort McMurray said the perched basins filled in the spring. Fort McMurray gave the highest mean score across any of the communities for impact of the following groups on water quality. Pulp and paper mills were rated 4.6 on a five point scale. According to Fort McMurray respondents, mining (2.2) and urban development (2.3) were having the worst impact on the water quality.

Fort McMurray respondents were slightly more positive in their ratings, as it relates to these groups doing all they can with water use. For example, they rated industry (2.2) the same as the federal (2.1) and provincial (2.2) governments. The municipal government was rated slightly higher at 2.5. Citizen groups (3.5) and individuals (3.1) received neutral to positive ratings with Native groups receiving positive scores of 3.6.

The reaction of Fort McMurray respondents to the changing water was that 10% had made a complaint. No other respondents said that they had made an official complaint about water uses.

The Clearwater River is considered cleaner than the Athabasca River. The formerly common rise in the river level, in June of each year, do not occur anymore. When that did happen, the river was always noted to be full of logs. Athabasca River was described as much more powerful in the 1950's.

Table 5.7-3: Table for Demonstrating a Special Regard to the Water

	Ft. McMurray
Do not/no	0
Leave it alone to heal	0
Cleansing/purifying	0
Give thanks	0
Do not dump in it/pollute it	80%
With respect/importance	0
Use every year/use it	0
Yes-unspecified	0
Evaluate physical characteristics	20%
Other comments	0
Number Respondents	5

Table 5.7-4: Table of Water Character Changes by Community

	Total	Ft. McMurray
Polluted/dirtier/muddy & oily	40%	57%
More weeds	10%	29%
Fluctuations in amount of plant life	1%	0
Green slime on riverbanks/nets	3%	0
Pulp mills & motor boats on river	1%	0
Sand bars	5%	0
Fewer fish & water insects	4%	0
Fish not as good to eat	1%	0
Lower water levels/water drying up	28%	0
More algae & insects	3%	0
Too much chlorine	1%	0
Number Respondents	78	7

Table 5.7-5: Observed Ice Formation Changes

	Ft. McMurray
No change/never noticed	17%
Thinner ice/ gives & crumbles	67%
Ice not as cold	0
More floating objects, e.g. blocks, stumps, drift logs	0
Ice dirtier /ice darker	17%
Bennett Dam releases water in winter	0
Jam releases and takes everting with it	0
More overflow	8%
Lake or river changed shape, e.g. channels dried up, different water path	0
Ice freezes rougher	0
Ice is low	0
Number Respondents	6

5.7.3 Wildlife/Fish

Much of the information relating to the animals was documented in the survey instrument and is presented in the KNOW data analysis. This community did not provide as much information on changing ranges and changing habitat as the community to the north. Many of the respondents stated that animals were being pushed farther into the bush by industry. Some areas had moose but overall there seemed to be agreement that there were few moose in the region. Woodland Caribou used to migrate into the area in the winter but this does not happen anymore. There are few mule deer and white tail deer in the area and elk was noted to be in the Instrum Lake area. Animals that were identified by the respondents as frequently used were: moose (23%) and rabbits (17%). All other animals were mentioned less than 11% for use.

Small fur bearing animals like mink, fisher, marten, river otters and weasels were generally noted in the outlying area but not in great numbers. Mink was noted along the streams and the fishers were said to frequent the river valleys. Some trappers had more fishers in their areas compared to others. Martens and river otters were also said to be near the rivers and the creeks.

Canines such as wolves, coyotes and foxes are not present in great numbers in this area. Skunks and porcupines have not been seen much in the area for quite some time and badgers are not in the area at

all. The lynx were noted in a few areas but were not in great numbers. Rabbits were said to have been very low in numbers for quite some time. Muskrats were also not numerous in the area. Beaver on the other hand have been noted as more numerous.

Bears have not been very numerous but sometimes will wander into the town site.

The most significant comment made by the elders about birds was the lack of small song birds. Some of the elders stated that this lack had become more obvious in the last few years. Golden eagles and sand hill cranes on the other hand have become more numerous. Water birds in general were noted as not being as numerous as before, although they are seen along the Athabasca River, in the Snye and the Clearwater. Water fowl were also noted, more in the Poplar Creek Reservoir, the Beaver Creek Reservoir, in the Snye, Gregor Lake and Instrum Lake. Birds that were identified for frequent use were: grouse and prairie chickens (14%), and ptarmigans at 11%. All other birds were mentioned less than 11% for use.

Fish seemed to be used more than any of the other wildlife as is indicated by northern pike/ jackfish use (23%), walleye/pickerel/dorey (20%), arctic grayling and goldeye (11%)

Goldeye, walleye/pickerel, lake trout, northern pike, lake whitefish, yellow perch, burbot, suckers and arctic grayling were the species identified in this area. Arctic grayling were said to be in the Steep Lake River, and at the Jack Pine Ridge. A second type of grayling was also noted in the Horse Creek; a specific description was not included. Burbot is found in the Athabasca and Clearwater Rivers and is known to spawn in the Snye Park area.

Northern pike were described as being in several different lakes and bodies of water in the area. Yellow perch were reported to be in the Chip Lakes and in the Clearwater River. White fish spawned along the Athabasca River and in the Clearwater River.

5.7.4 Health

The elders of this community reported that there seemed to be more children with asthma and that there were also more people in their community with cancers. They indicated that communicable diseases such as small pox, and whooping cough were the diseases that they had often heard of when they were younger. Activities frequently engaged in by the respondents for health were swimming/long walks (33%), jogging/running (30%), skating/skiing (27%), ball games (26%), curling (21%), gardening/fishing/hunting (18%), boating/canoeing (16%), and running dogs (10%). Store bought food (2.5) was used the most by the respondents of Fort McMurray compared to traditional food (1.9). The respondents indicated that they believed good nutrition (85%) and exercise (45%) was an important aspect to health and well-being. Illnesses most frequently to occurring in this community were cancer (33%) and heart problems (4%).

5.7.5 Family and Community Relationships

The elders of this community spoke about the importance of respect and how this principle was learned. They recounted that they were expected to demonstrate respect toward the elderly by being helpful. Freedom to explore out in the woods for long hours without much concern from the parents implied that their parents trusted them as children because they had learned how to be in the bush. They indicated that there was quite a contrast now with their grandchildren who were squeamish to touch or eat wild food. They spent quite a bit of time along the river as children and would watch the breakup in the spring which was a sight to behold, according to their descriptions.

5.7.6 Traditional Knowledge

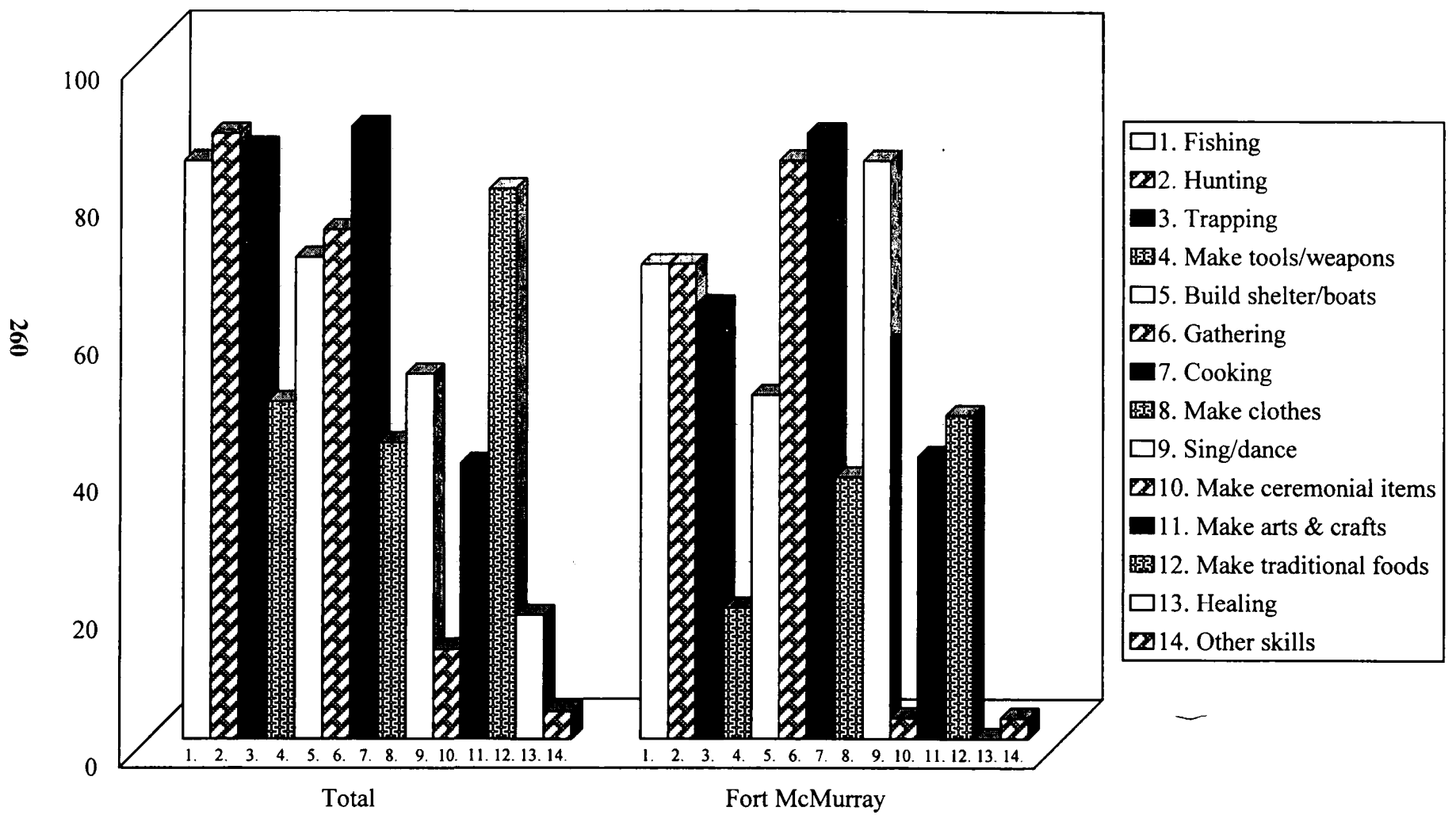
Fort McMurray respondents are unique in that they seem to have acquired the least amount and fewest number of traditional skills, subsistence or supplemental, of all the people interviewed. The exceptions were gathering (84%) and singing and dancing (84%) which both fall above the total sample of 74% and 53% respectively. Fort McMurray respondents were generally less likely than any other community to say they had learned fishing (69%), hunting (69%), trapping (63%), tool and weapon making (19%), building shelter and boats (50%), making clothes (38%), making ceremonial items (3%) and making traditional foods (47%). Cooking (89%) was mentioned at the same rate as the total sample. Note that none of the Fort McMurray respondents had learned healing skills.

The traditional knowledge of this community focused on hunting, trapping, fishing, and harvesting and preserving wild fruit. Those that were traditional users of the land indicated the principles of respecting the land and the animals as an intrinsic part of traditional knowledge. One elder spoke of leaving the "dewlap" of the moose on a willow after a kill, as an expression of respect toward this animal for giving its life to the hunter. Fort McMurray respondents, like those in Fort Resolution, were rather narrow in their range of traditional knowledge teachers. Although a handful of respondents mentioned friends (6%) and other people (3%), parents (94%) were almost exclusively the teachers of traditional knowledge. Grandparents (16%) and other relatives (13%) fell below the total sample average of 29% and 33% respectively. Traditional Indian spirituality was not noted by respondents of this community.

5.7.7 Future Expectations and Recommendations

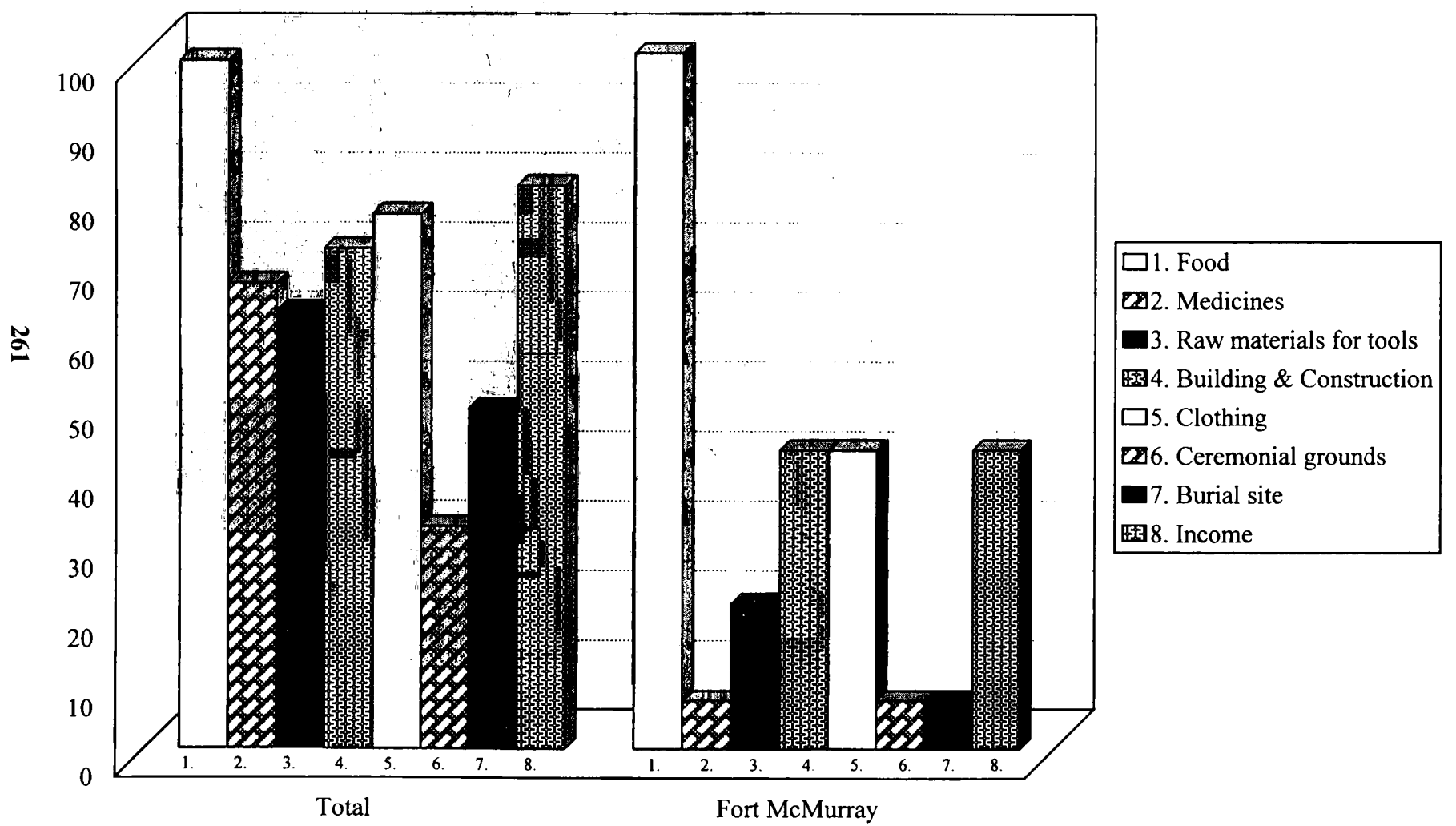
The recommendations that were offered by the elders of Fort McMurray centred around the preservation of historical sites and the knowledge they had to share. They indicated that the young people could benefit greatly from their stories and their experiences; as one elder stated "the young people need to listen to the voice of experience." They requested more organized events that would give them an opportunity to share their history and experiences. They recommended that the leaders be more supportive of the traditional land user because this aspect was becoming unbalanced as the industries and the big corporations seemed to have much more power than do the people of the area.

Figure 5.7-1; Traditional Life Skills Identified



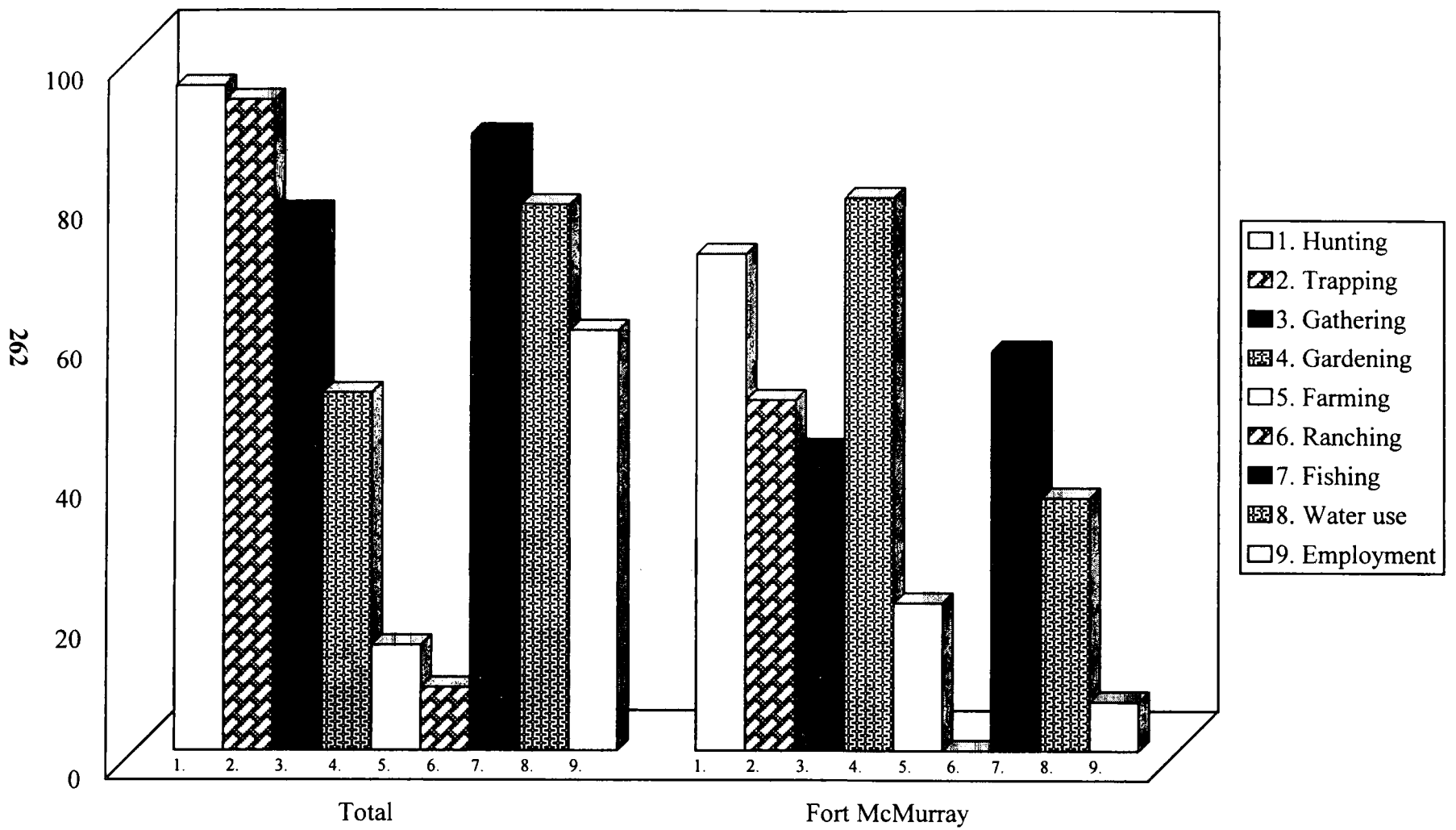
Sample size - 221 - Total respondents - 205 - Responded - 32

Figure 5.7-2; Commonly Identified Land Uses



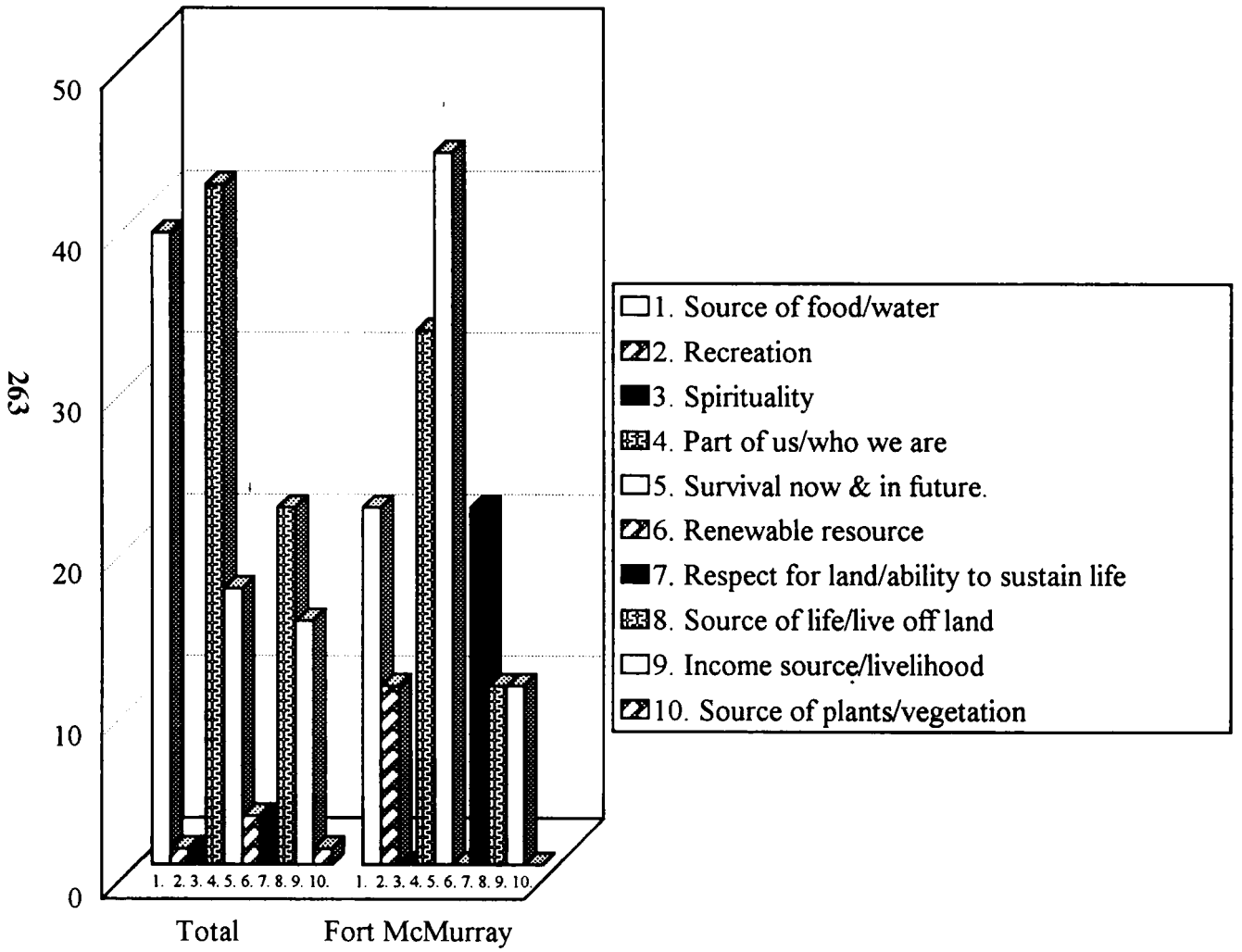
Sample size - 221 - Total respondents - 175 - Responded - 14

Figure 5.7-3; Land Use Activities



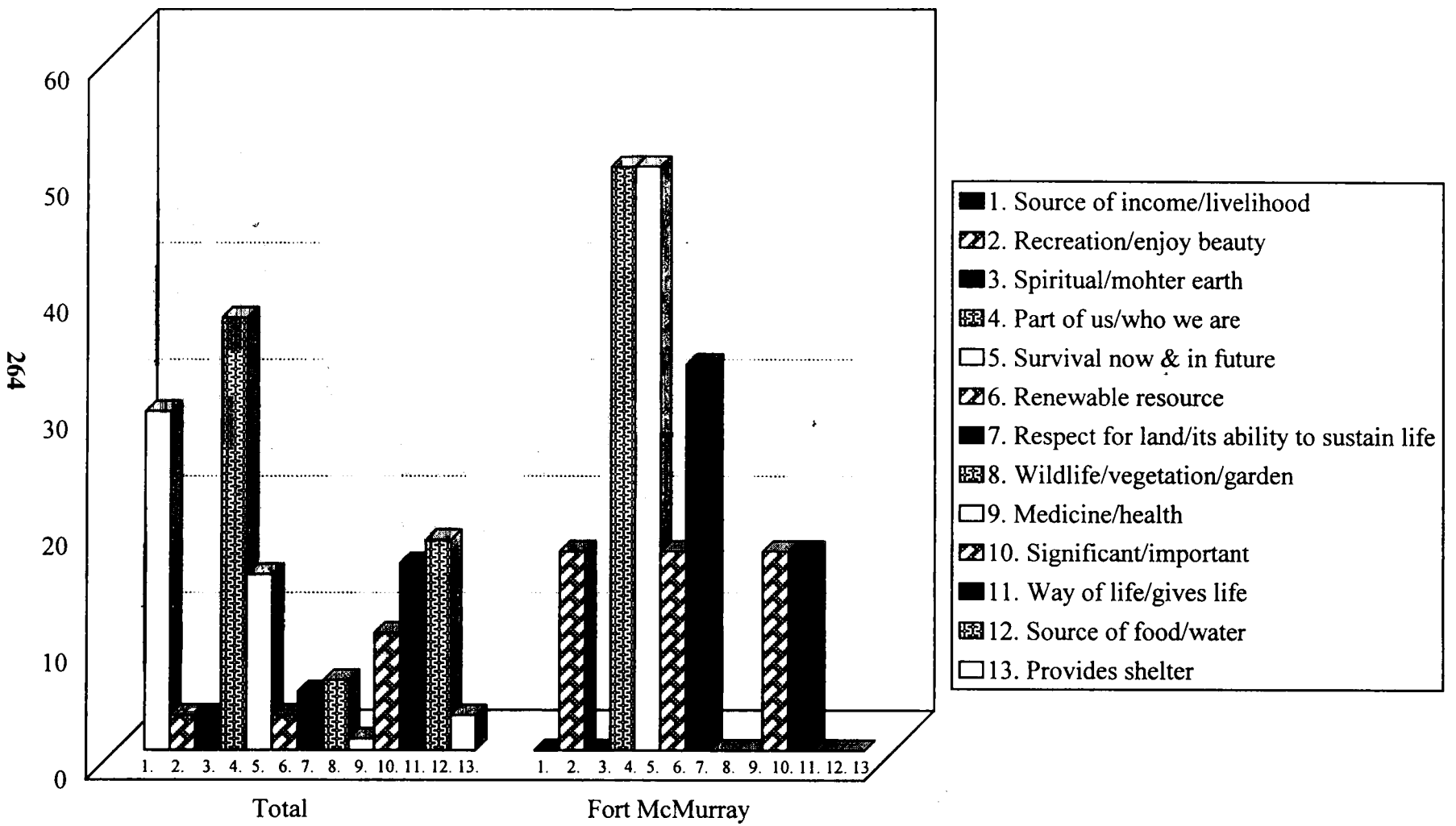
Sample size -221 - Total respondents - 176 - Responded - 14

Figure 5.7-4; Land Use Significance



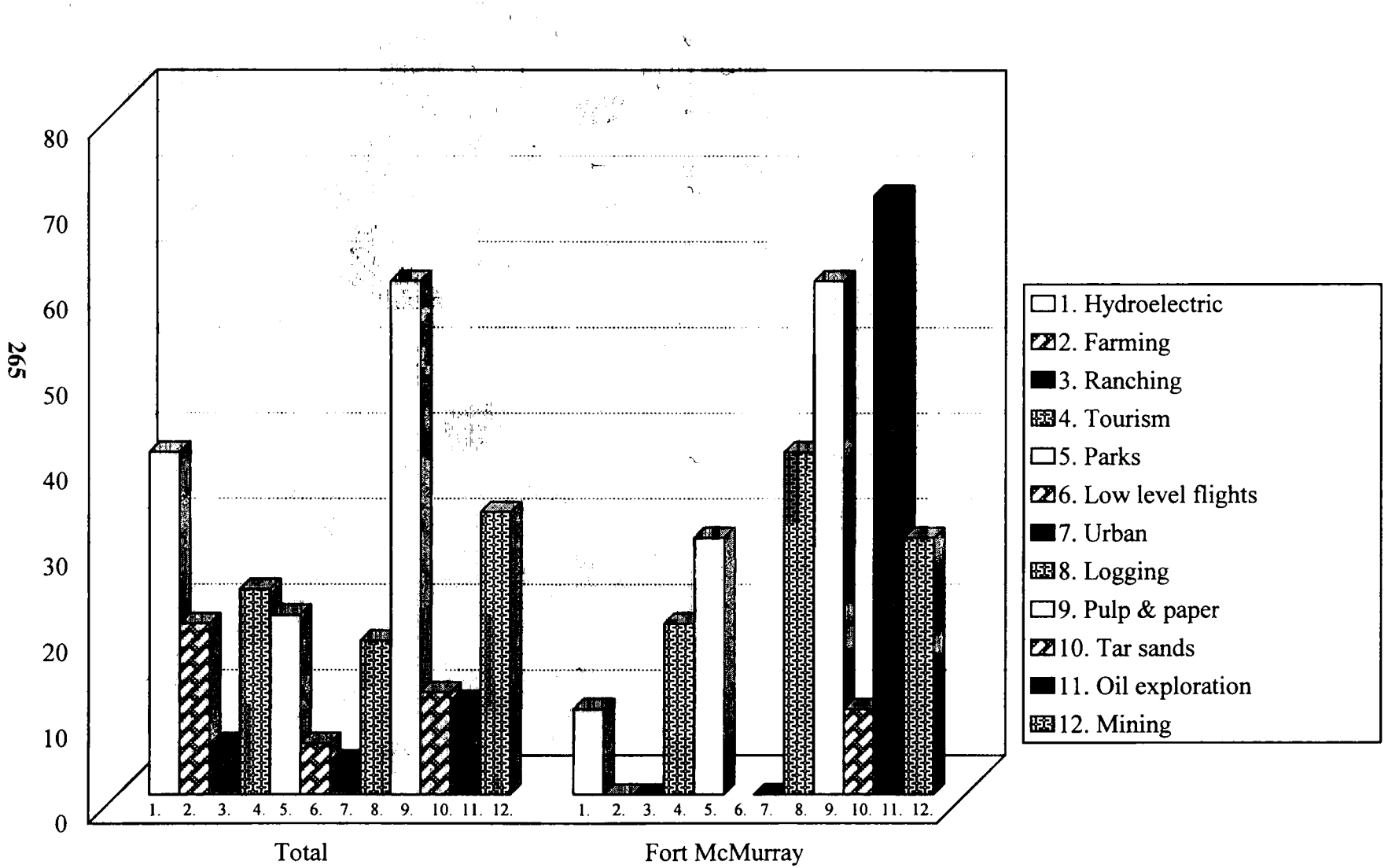
Sample size - 221 - Total respondents - 158 - Responded - 9

Figure 5.7-5; Land Use Significance to Traditional Lifestyles



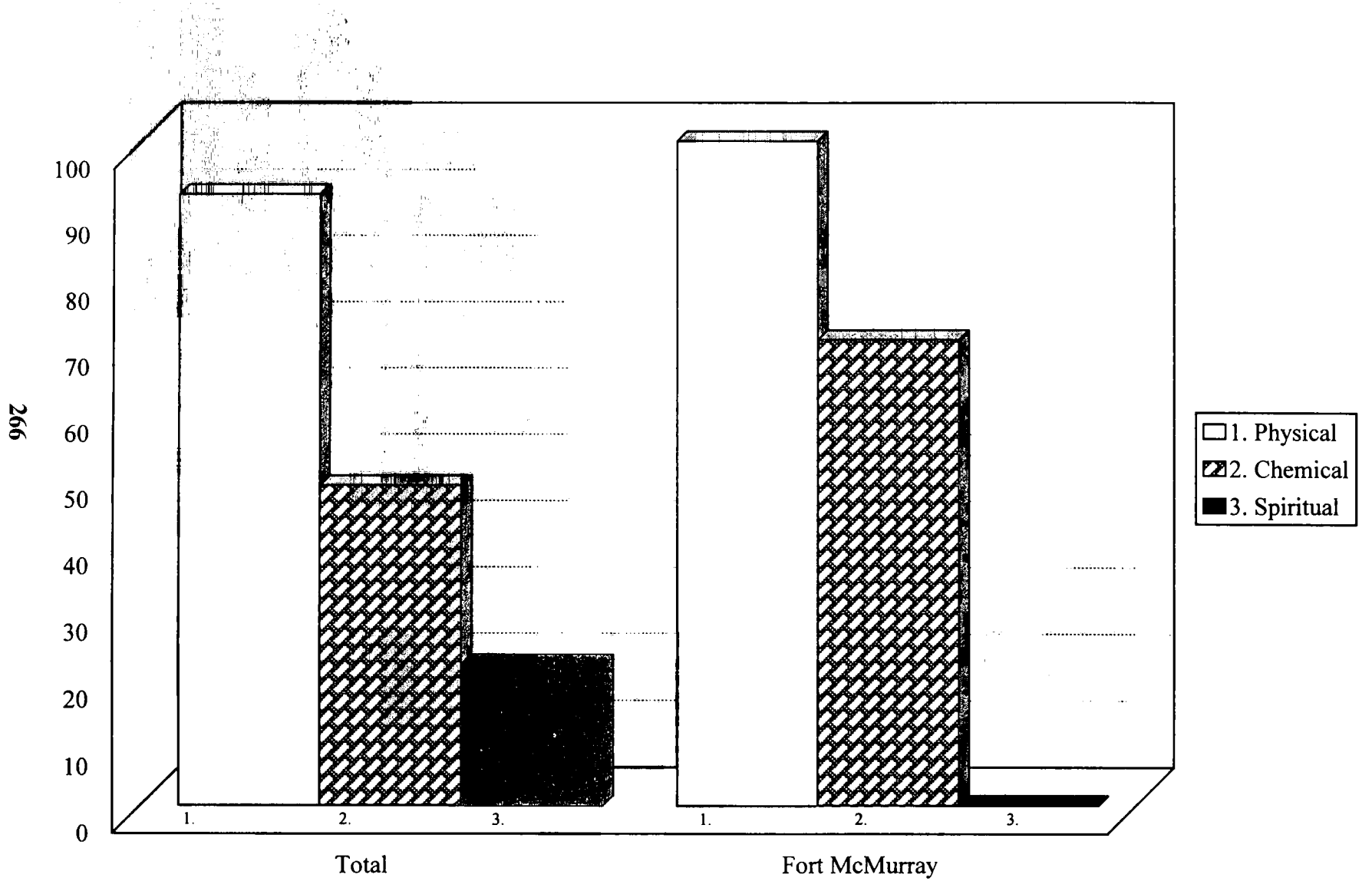
Sample size - 221 - Total respondents - 134 - Responded - 6

Figure 5.7-6; Developmental Land Use Near Traditional Lands



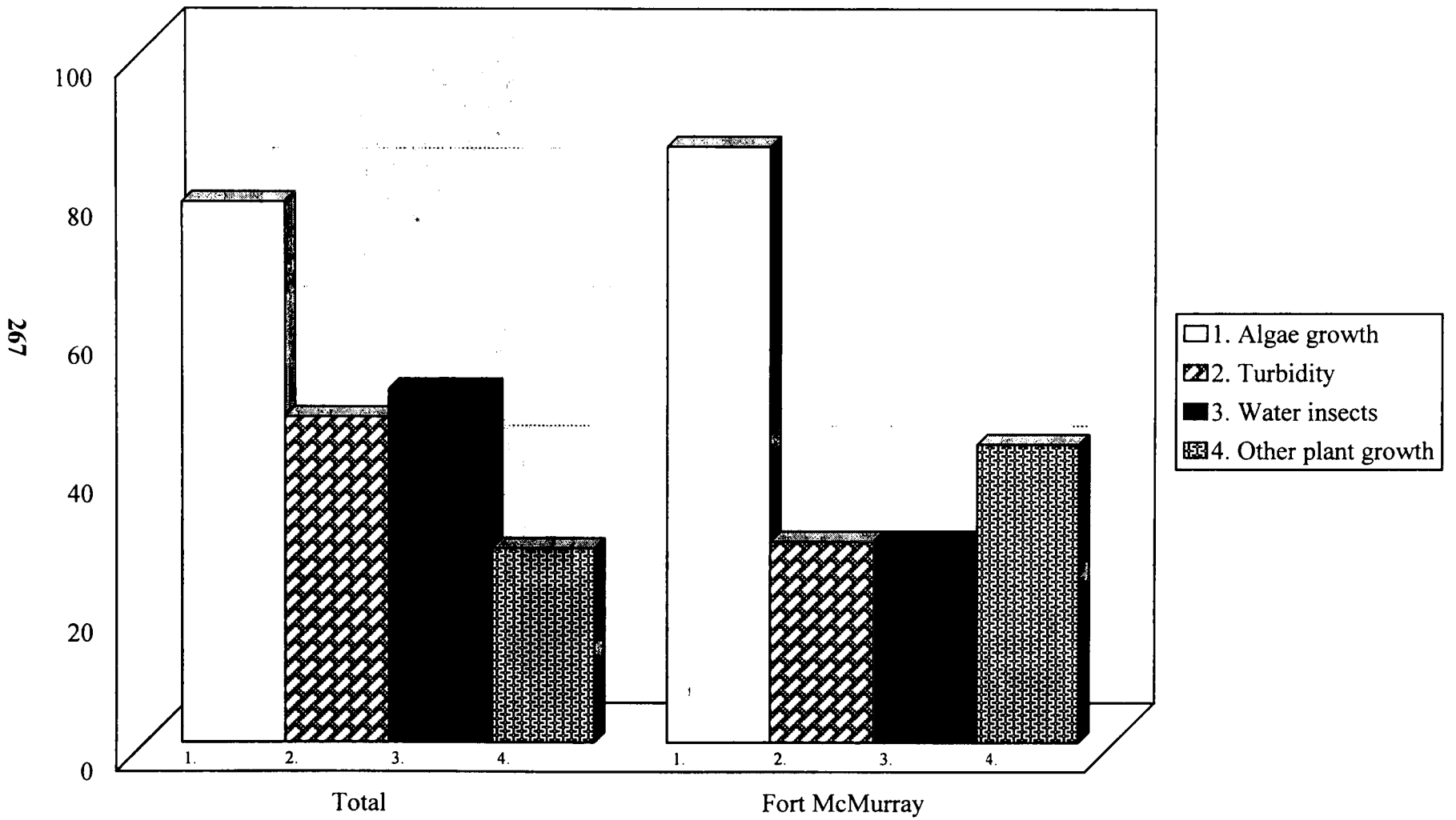
Sample size - 221 - Total respondents - 146 - Responded - 10

Figure 5.7-7; Significant Water Elements



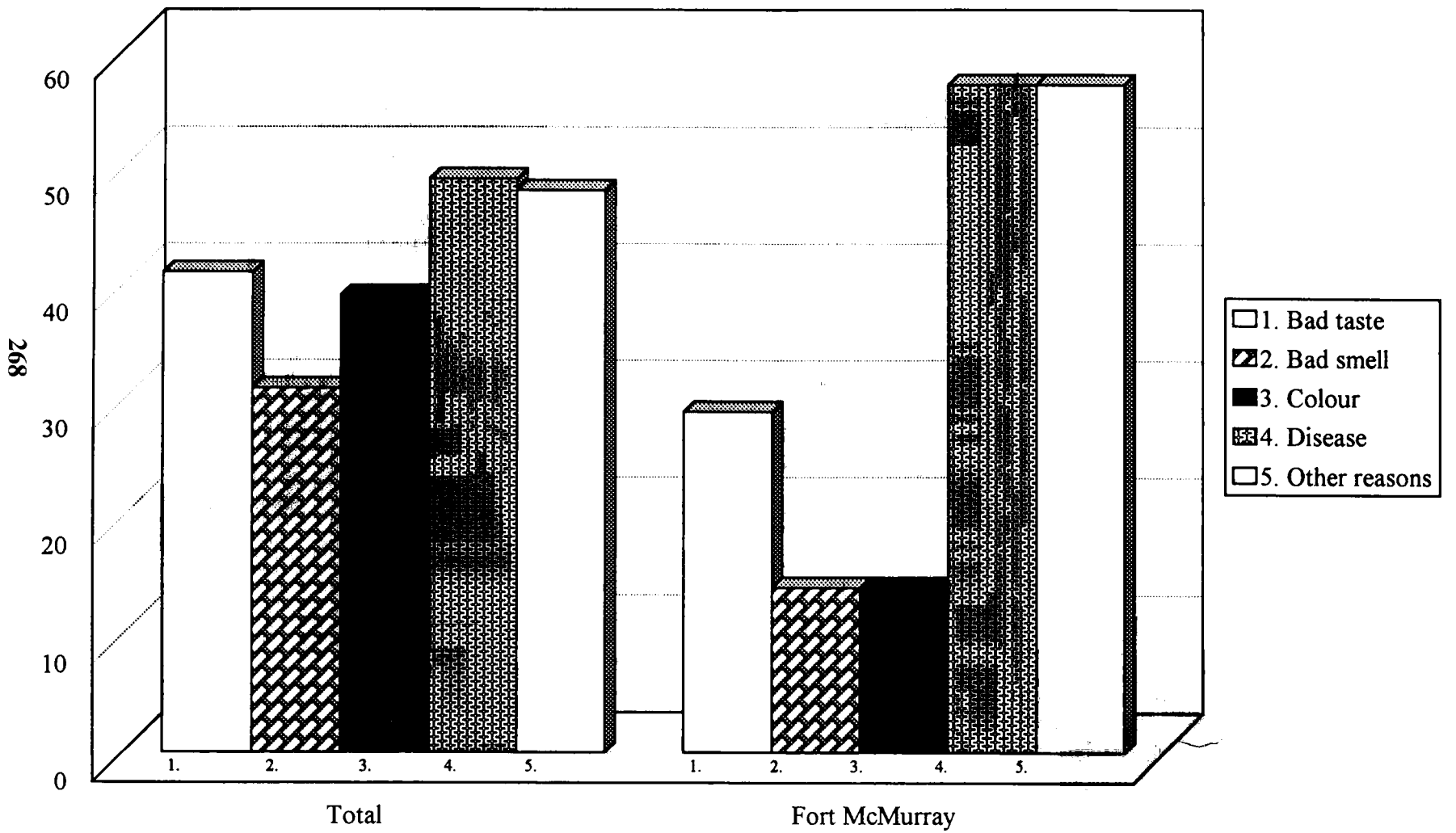
Sample size - 221 - Total respondents - 151 - Responded - 10

Figure 5.7-8; Identified Water Changes



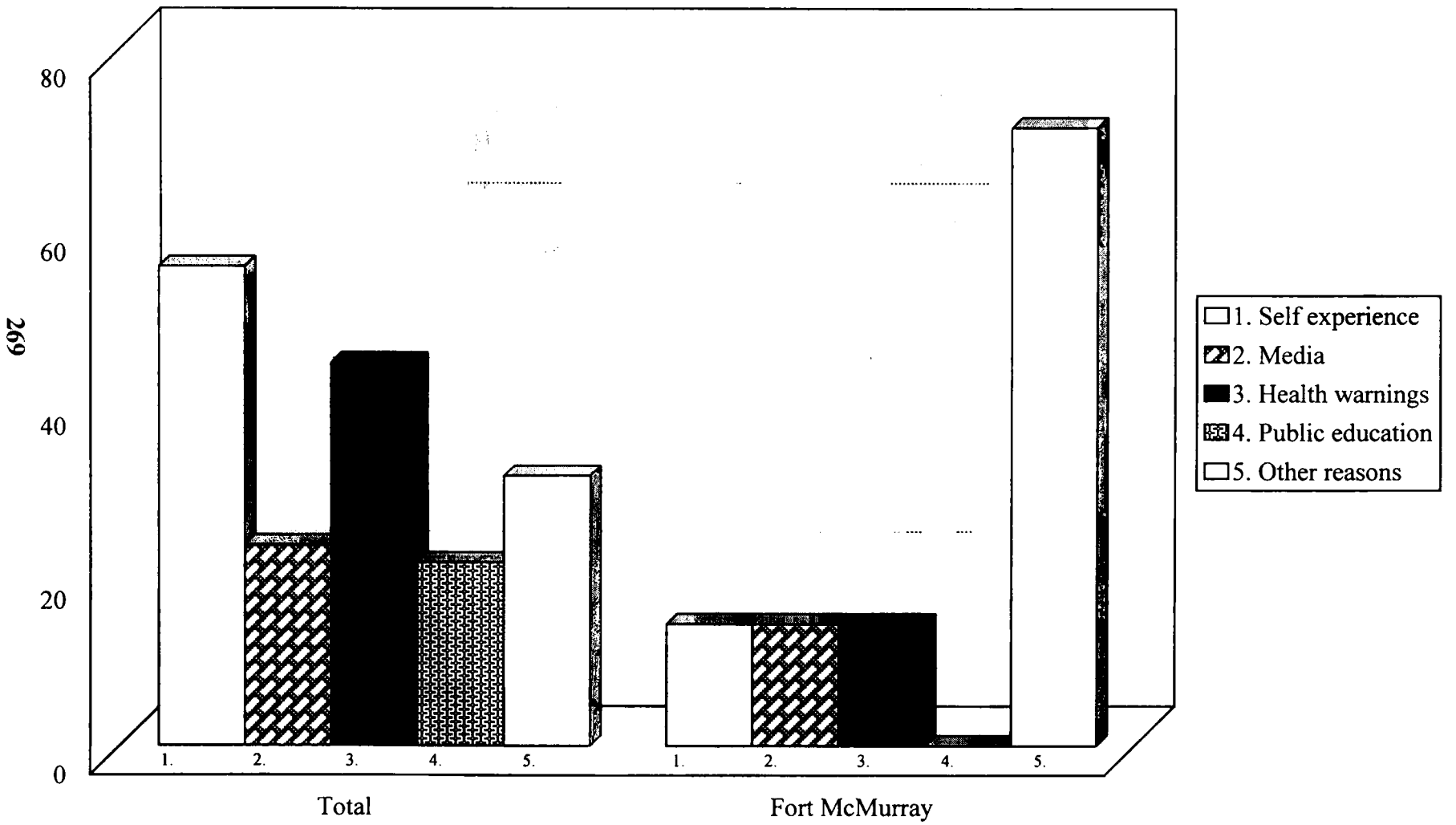
Sample size - 221 - Total respondents - 129 - Responded - 7

Figure 5.7-9; Negative Water Changes Impacting Use



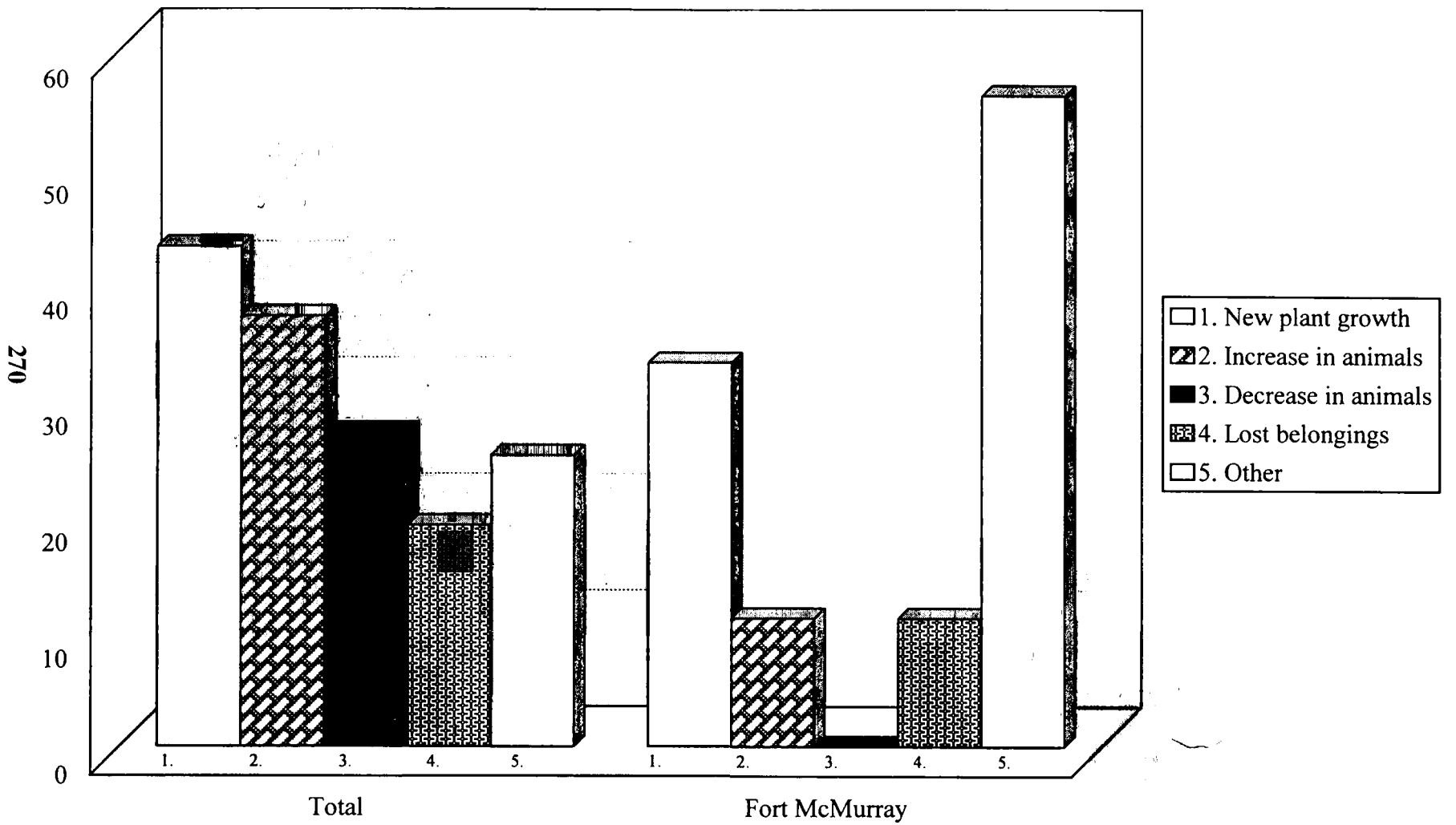
Sample size - 221 - Total respondents - 71 - Responded - 7

Figure 5.7-10; Reasons for Changed Water Use



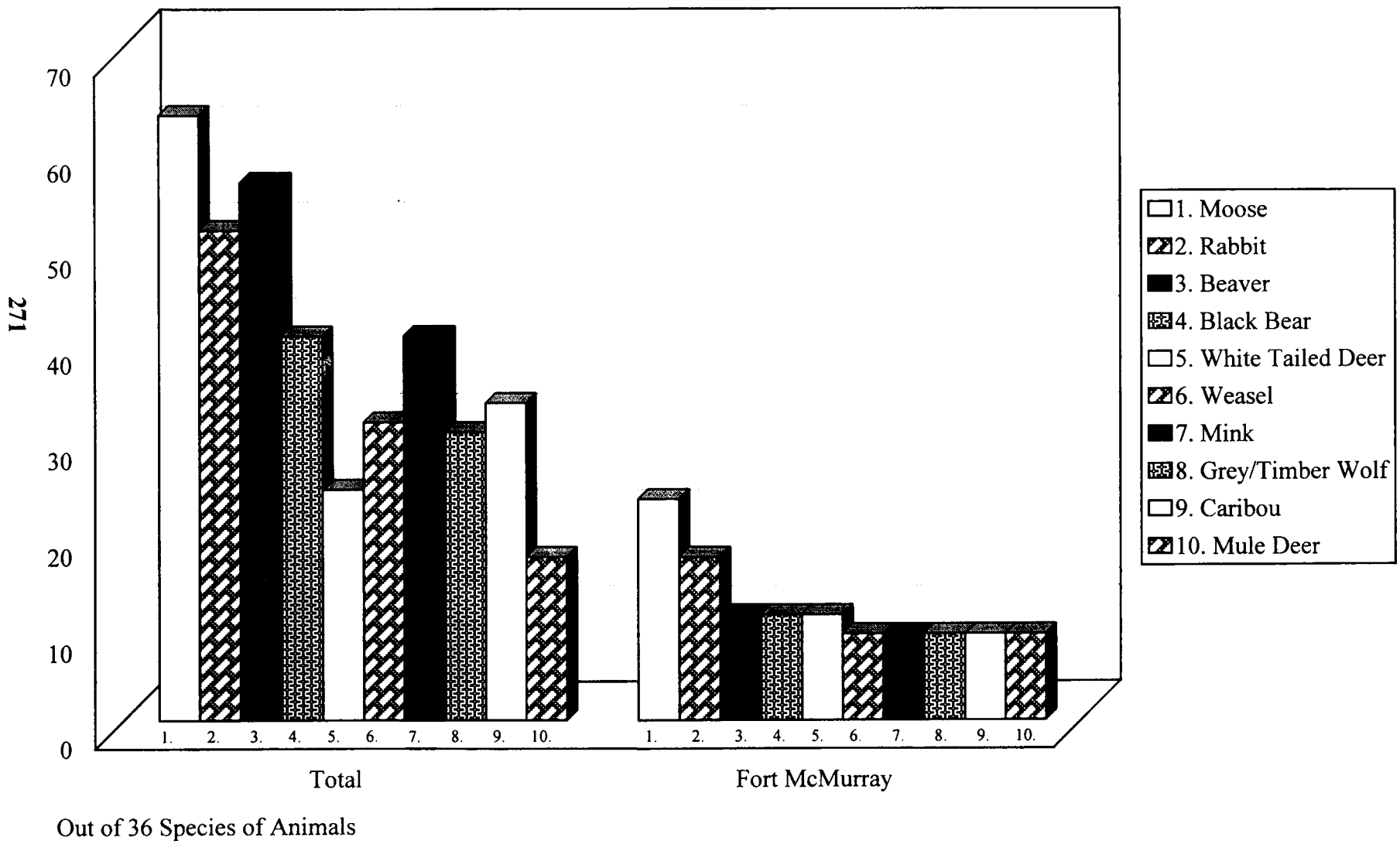
Sample size - 221 - Total respondents - 62 - Responded - 7

Figure 5.7-11; Ice Jam Flooding Impacts to the Land



Sample size - 221 - Total respondents - 105 - Responded - 9

Figure 5.7-12; Most Frequently Used/Available Animals



Out of 36 Species of Animals

Figure 5.7-13; Most Frequently Used/Available Fish

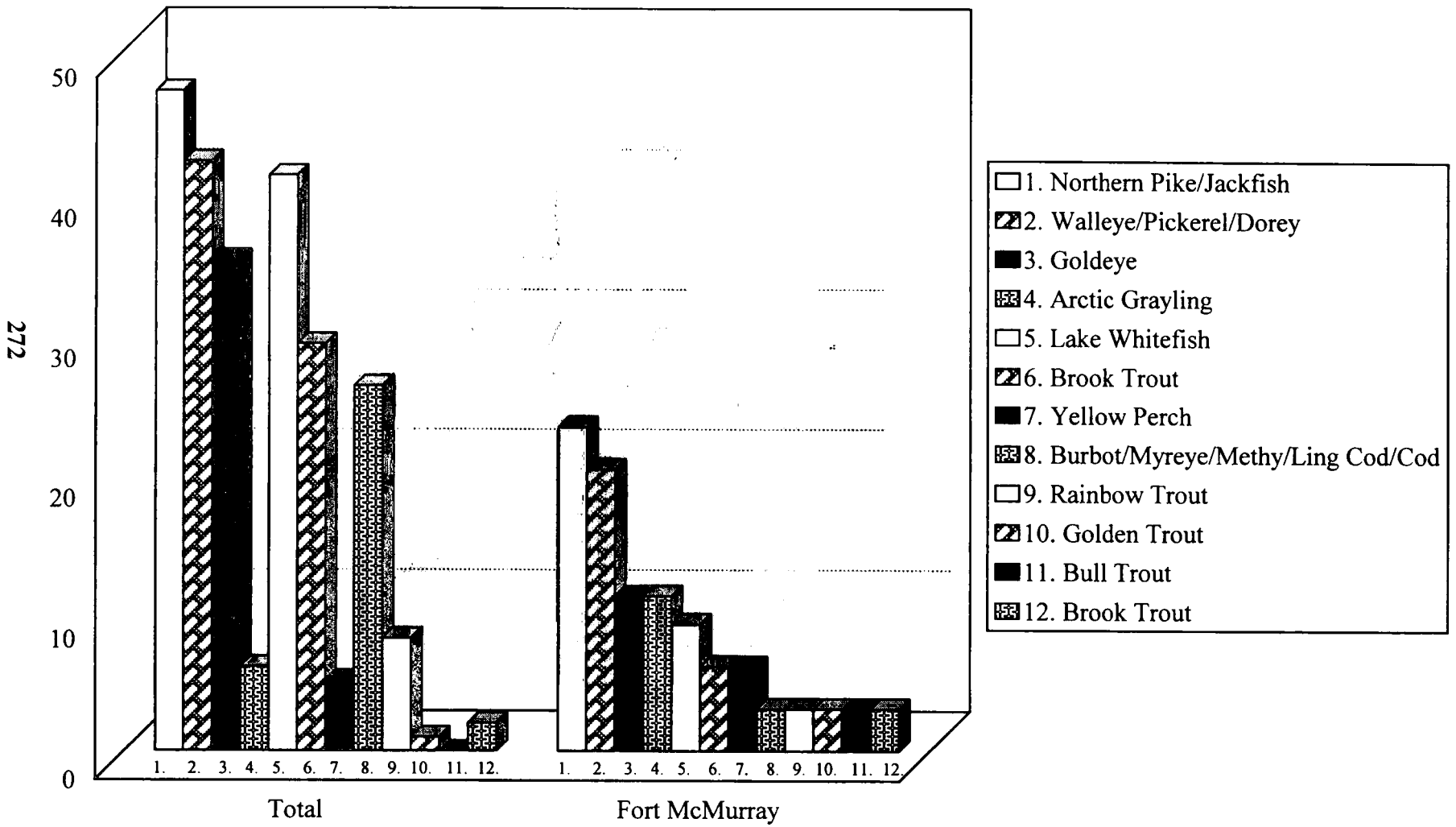
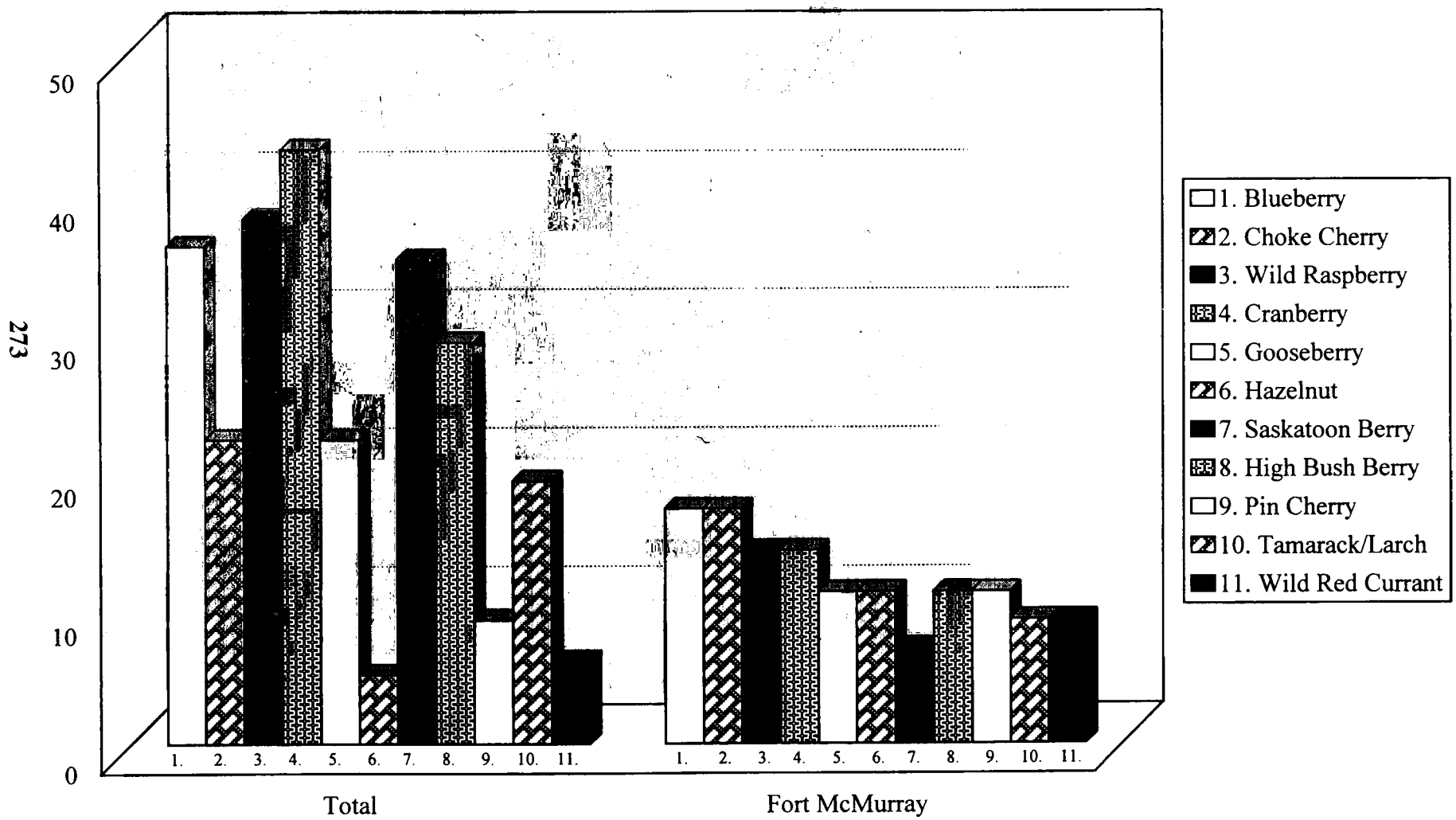
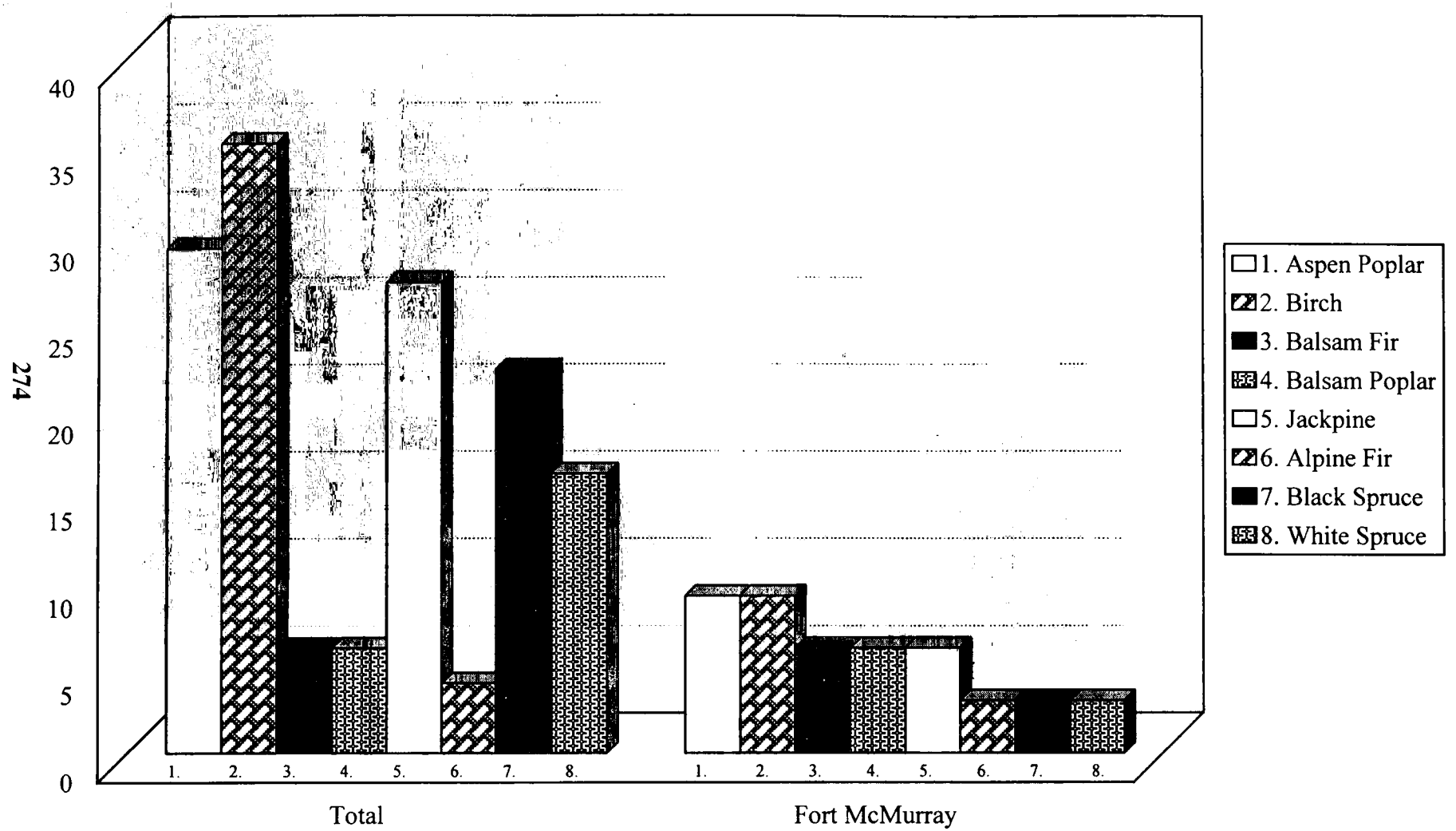


Figure 5.7-14; Most Frequently Used/Available Plants



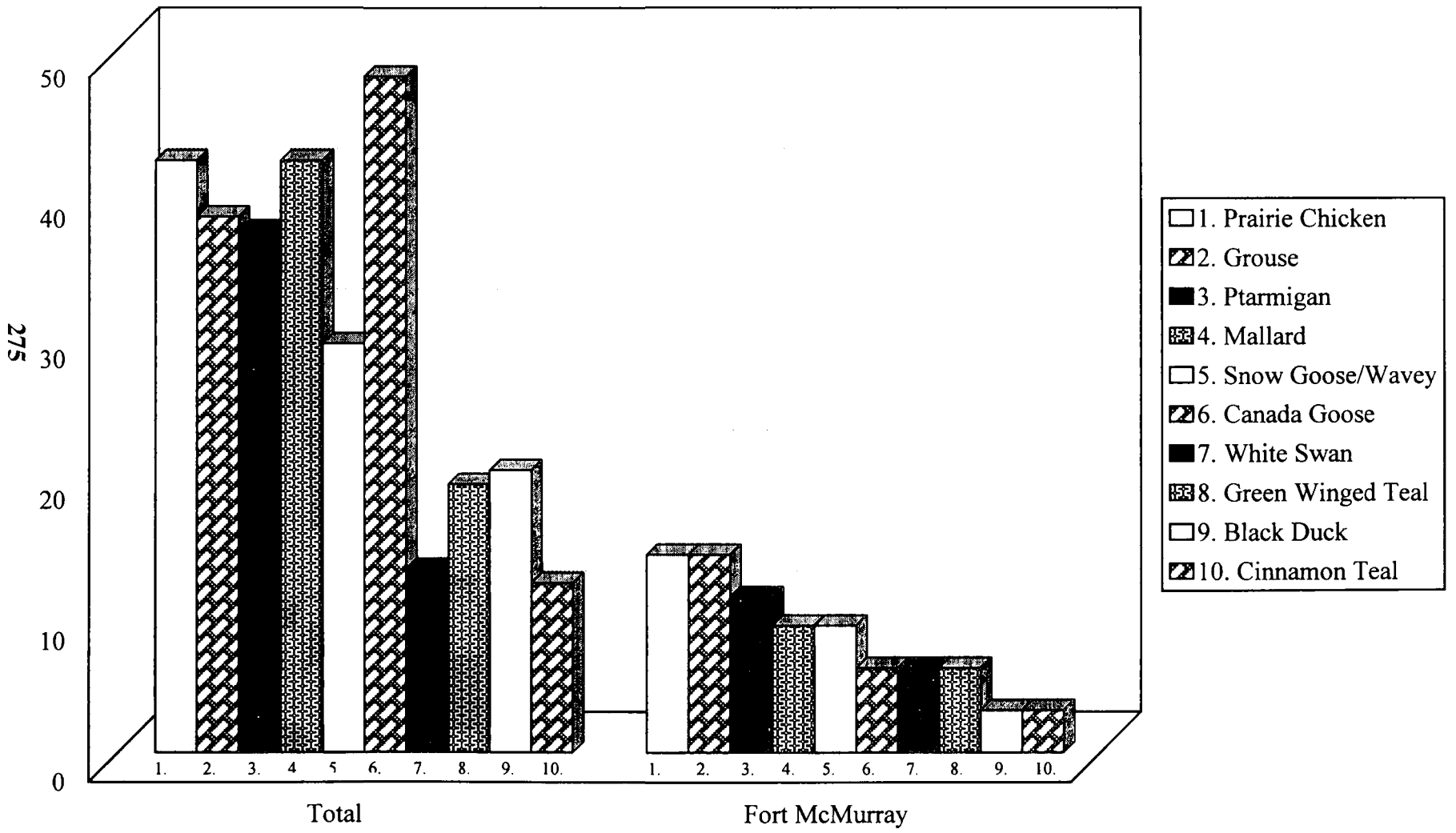
Out of 45 Species of Plants

Figure 5.7-15; Most Frequently Used/Available Trees



Out of 25 Species of Trees

Figure 5.7-16; Most Frequently Used/Available Birds



Out of 31 Species of Birds

5.8 SUMMARY OF SURVEY DATA

5.8.1 Survey Completions

Interviewers attempted to get an equal number of completed questionnaires in each of the ten communities. However, as with many survey research studies, the practical problems of non-response and interviewer turnover preempted this goal. The following table shows the final number of completed questionnaires across nine communities.

Table 5.8-1: Summary of Completed Community Questionnaires

Community Name	Number	Percent
Fort Chipewyan	28	13
Fort Smith	29	13
Fort Resolution	49	22
Fort McMurray	35	16
Fort Vermilion	31	14
Fox Lake	13	6
Garden River	6	3
Jean D'Or	4	12
Tall Cree	26	12
Total	221	100

Most interviews were completed in Fort Resolution, where there was a total of 49 respondents. Fort McMurray yielded the second highest number of completed questionnaires with 35. Fort Vermilion (31), Fort Smith (29), Fort Chipewyan (28) and Tall Cree (26) had about the same number of completed questionnaires. Communities with the fewest number of completed questionnaires were Fox Lake, Garden River and Jean D'Or with 13, 6 and 4 completed interviews respectively.

However, the Little Red River First Nations communities had very thorough narrative data that provided a greater insight into their way of Traditional Knowledge transference and acquisition.

Fort Resolution had the most detailed maps and an enormous amount of data.

The community with the least amount of maps and information was Fort McMurray.

The completion rate of each section of the questionnaire varies. The graph below shows the percent of respondents who completed each section of the questionnaire. Percentages were determined by reviewing each questionnaire for completeness. Sections where the respondent answered at least one question were included in the calculations.

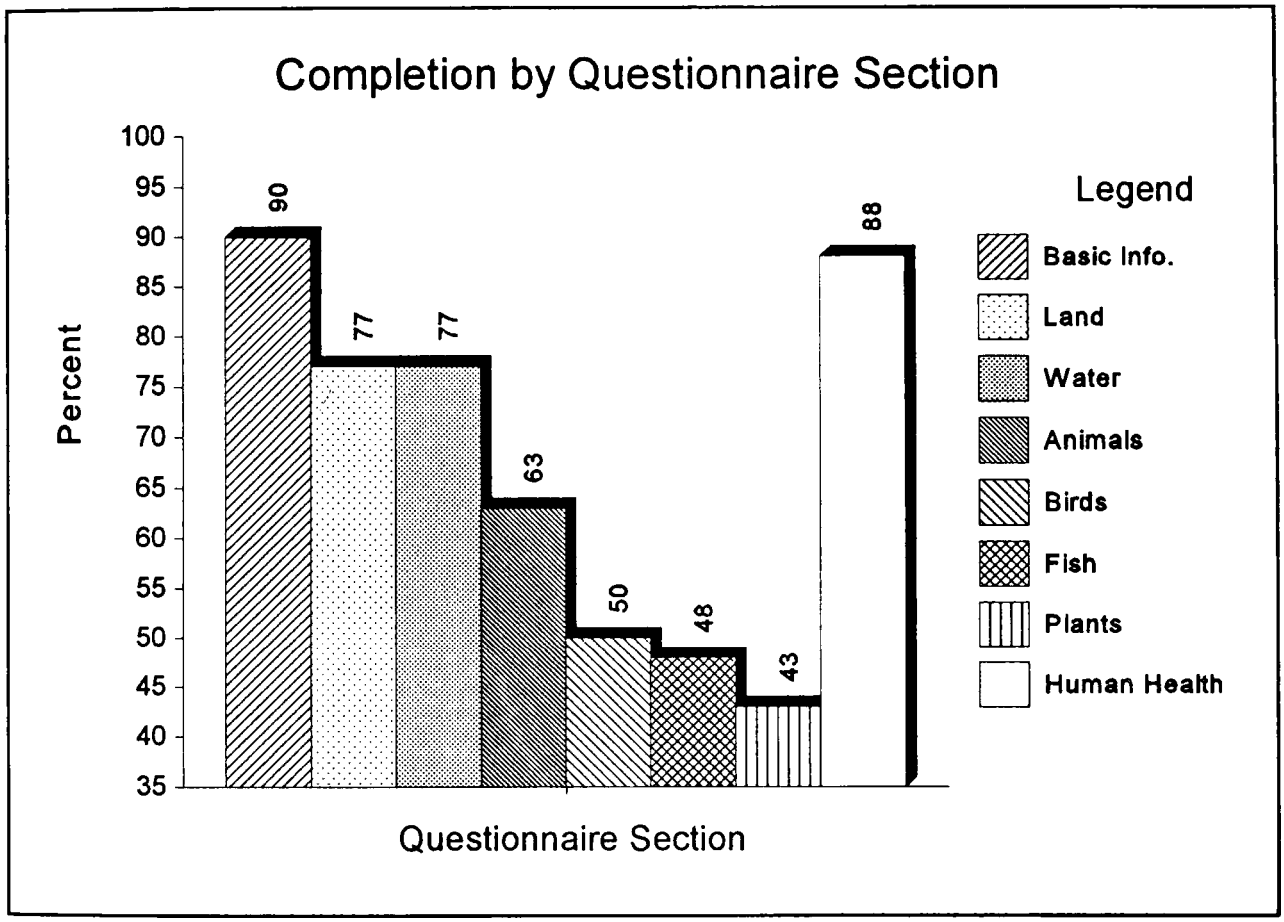


Figure 5.8-1 Completion by Questionnaire Section

Basic information section was most likely to contain responses with 90% of respondents answering at least part of this section. Human health was answered by the second greatest percentage of respondents (88%). Land and water were equally as complete with 77% of respondents answering at least one of the questions in each section. Animals (63%) was completed by almost two-thirds of respondents and the most complete species section. Birds (50%) and fish (48%) were completed by almost half of respondents. The section on plants showed the lowest completion rate with 43%.

The completion rates suggest some respondent fatigue might have occurred as completion rates fell as the interview progressed. Completion rates rose again for the last section on human health as interviewers were instructed to strongly encourage respondents to complete this section.

5.8.2 Language and Cultural Summary

Since a traditional language is also very important in Traditional Knowledge acquisition and understanding, it was important to record the presence and use of Aboriginal languages. Almost all respondents were either bilingual or, in some instances, tri-lingual.

Respondents were given a list and asked to indicate which languages were used in their conventional education, respondents answered as follows:

Table 5.8-2: Language Used In Conventional Education

Language Used	Number	Percent
Cree	45	24
Chipewyan	13	7
Dene	1	1
Metis	2	1
English	163	88
French	32	17
Slavey	2	1
Ukrainian	1	1
Total	186	NA

English was by far the most commonly spoken language in the conventional school system as stated by 88% of respondents. Cree was the second most common language of conventional schools, used by 24% of respondents. Fewer than one in five respondents (17%) used French in their conventional schooling. Few respondents received a conventional education in any of the other Native languages of Chipewyan (7%), Dene (1%), Metis (1%) or Slavey (1%). Only 1% of respondents spoke Ukrainian in their conventional schooling.

5.8.3 Traditional Teachings

One of the measures of a traditional education is the teacher. Hence, respondents were asked, "Who taught you the traditional way of life?". The figure below reports those results.

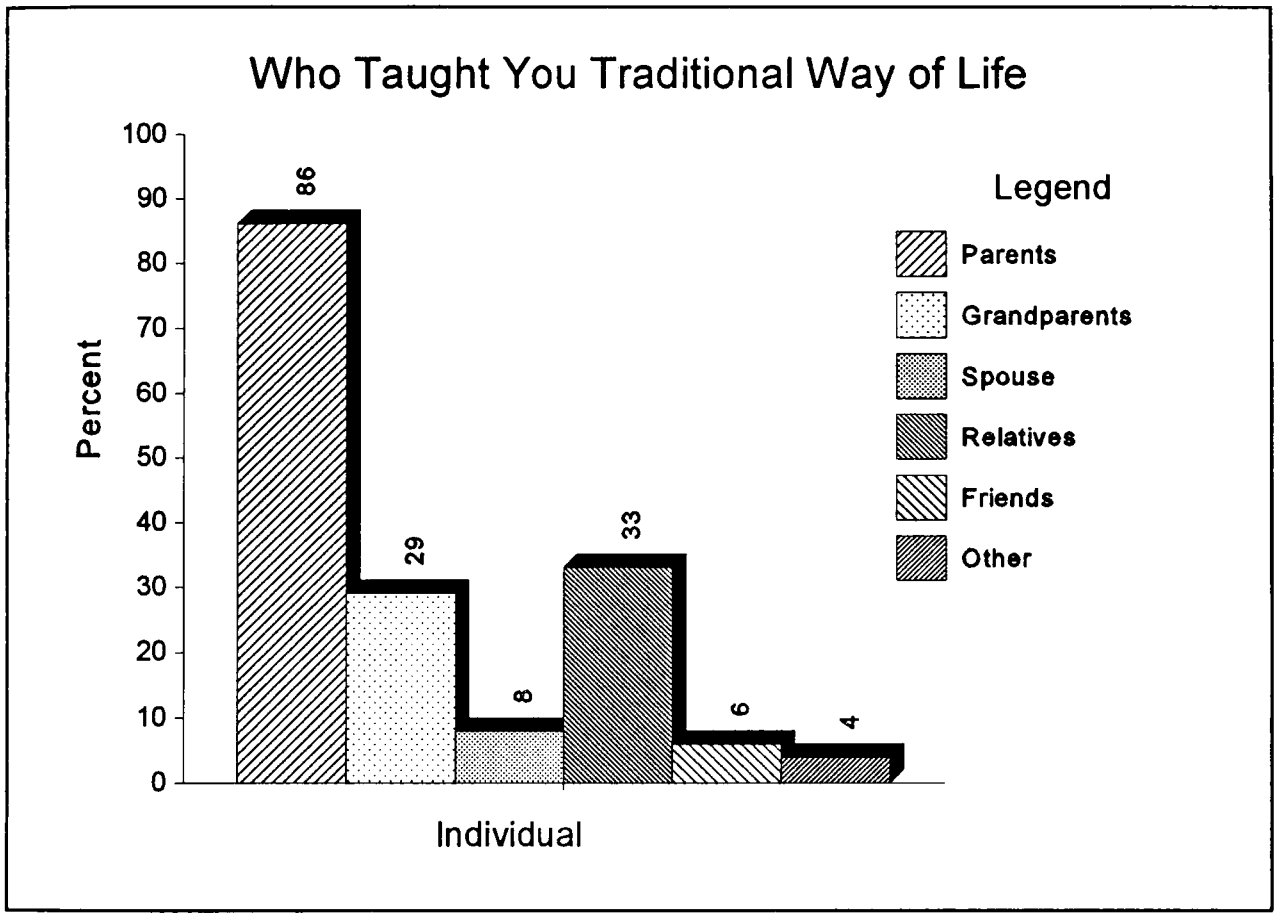


Figure 5.8-2 Who Taught You Traditional Way of Life

Parents (86%) were by far the most popular teachers of traditional knowledge. Other relatives (33%) and grandparents (29%) were also mentioned by about a third of respondents. Spouses (8%), friends (6%) and other people (4%) were least likely to be primary teachers of traditional knowledge.

5.8.4 Traditional Skills

Respondents were given a list of practical skills unique to the traditional way of life an asked which of these skills they had learned. The types of skills learned are reported in the table below.

Table 5.8-3: Unique Practical Skills

Type of Skill Learned	Number	Percent
Fishing	172	84
Hunting	181	88
Trapping	176	86
Making tools, weapons	100	49
Building shelter, boats	143	70
Gathering	151	74
Cooking	182	89
Making clothes	89	43
Singing & dancing	108	53
Making ceremonial items	27	13
Making arts & crafts	82	40
Making traditional foods (dry meat, fish, berries)	163	80
Healing	37	18
Other skills	9	4
Total	205	NA

Cooking in general (89%) and making traditional foods specifically (80%) were very common skills to have learned. Hunting (88%), trapping (86%) and fishing (84%) were also learned by almost all respondents. Gathering (74%) and building shelter and boats (70%) were also very common skills to have learned. Approximately half of respondents learned traditional singing and dancing (53%) and tool and weapon making (49%).

About four out of ten respondents learned how to make clothing (43%) and arts and crafts (40%). The skills least commonly learned were healing (18%) and making ceremonial items (13%).

5.8.5 Seasonal Land Use

Respondents have a long history with the land. On average, a respondent lived 43 years off the land. The number of years lived off the land ranged from a minimum of one year to a maximum of 80 years.

Respondents gave the years that they lived off the land. Almost four out of five (79%) were either currently living off the land or had very recently (since 1990) stopped living off the land. Eight percent of respondents stopped living off the land between 1980 and 1989. Only 13% stopped living off the land before 1980.

The specific times of the year that respondents lived off the land are presented in the table below.

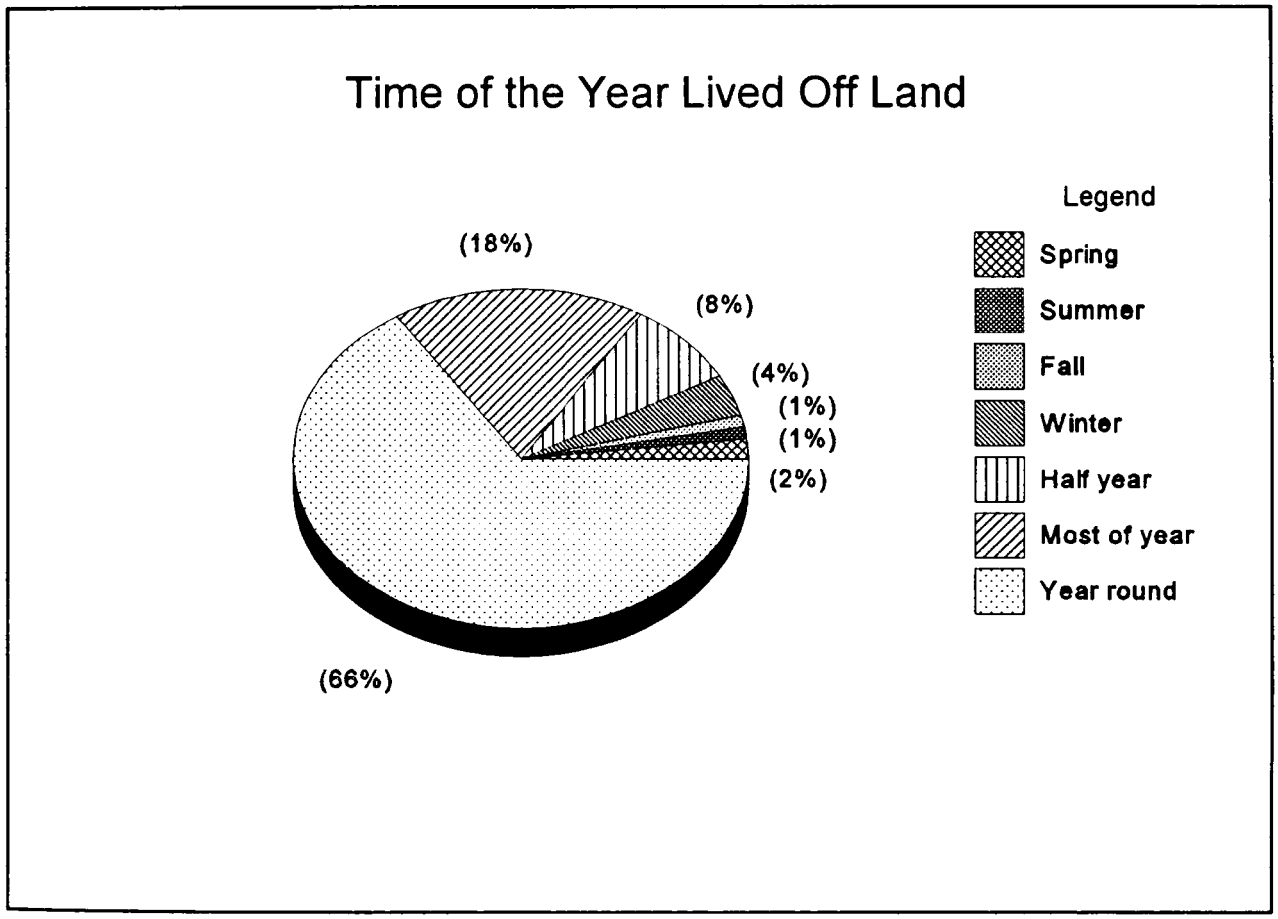


Figure 5.8-3 Time of Year Lived Off Land

Almost all respondents lived off the land either year round (66%) or for most of the year (18%). An additional 8% said they lived off the land for half of the year. Respondents who lived off the land for

only one season of the year, were most likely to do so in the winter (4%) or spring (2%). The fall (1%) and summer (1%) were least popular.

5.8.6 Developmental Land Use Near Traditional Lands

Development in the north is a growing concern. Respondents were asked to indicate what types of development have taken place near their land base. Their answers are presented in the table below.

Table 5.8-4: **Types of Development**

Type of Development	Number	Percent
Hydroelectric Dams	58	40
Farming	29	20
Ranching	9	6
Tourism & Recreation	35	24
Parks	30	21
Low Level Flights	9	6
Urban Development	6	4
Logging	26	18
Pulp & Paper Mills	87	60
Tar Sand Plants	18	12
Oil Exploration	16	11
Mining	48	33
Other Development	17	12
Total	146	NA

Two-thirds of the 221 respondents reported at least one type of development occurring near their land base.

Those who indicated development near their land base were most likely to mention pulp and paper mills (60%), followed by hydroelectric dams (40%). A third of respondents indicated that mining was occurring near their land base. Approximately one in five respondents mentioned the following types of development occurring near their land base: farming (20%); tourism and recreation (24%); parks (21%); and, logging (18%).

Just over one in ten respondents cited tar sand plants (12%) or oil exploration (11%) near their land base. Urban development (4%), ranching (6%) and low level flights (6%) were least likely to be occurring near respondent land bases.

5.8.7 Developmental Land Use Impacts to Traditional Uses

Respondents described in their own words how, if at all, development affected their relationship to the land.

A quarter of respondents (26%) said that development destroyed their relationship to the land. Twelve percent said that development crowds them out and they lose control over their land. Approximately one in ten respondents mentioned the destruction of wildlife habitat (11%) or the destruction of vegetation and trees (9%). Pollution in general (9%) was also mentioned by just under one in ten respondents.

The abuse of the land and destruction of nature was cited by 8% of respondents. Seven percent spoke of the disruption of the wildlife's natural balance or cycles. Six percent of respondents said that development reduces water levels, creates conflict between humans or that it affected their relationship with the land in many ways. Five percent identified concerns regarding their loss of income due to development. Some of the less common ways that development has affected respondents relationship to the land were: floods the land thus affecting fishing (1%); and the loss of possessions (1%).

One in five respondents (21%) said that development does not affect their relationship with the land.

5.8.8 Water Sources

Respondents were asked where they got the water that they used every day. Their responses are shown in the following figure:

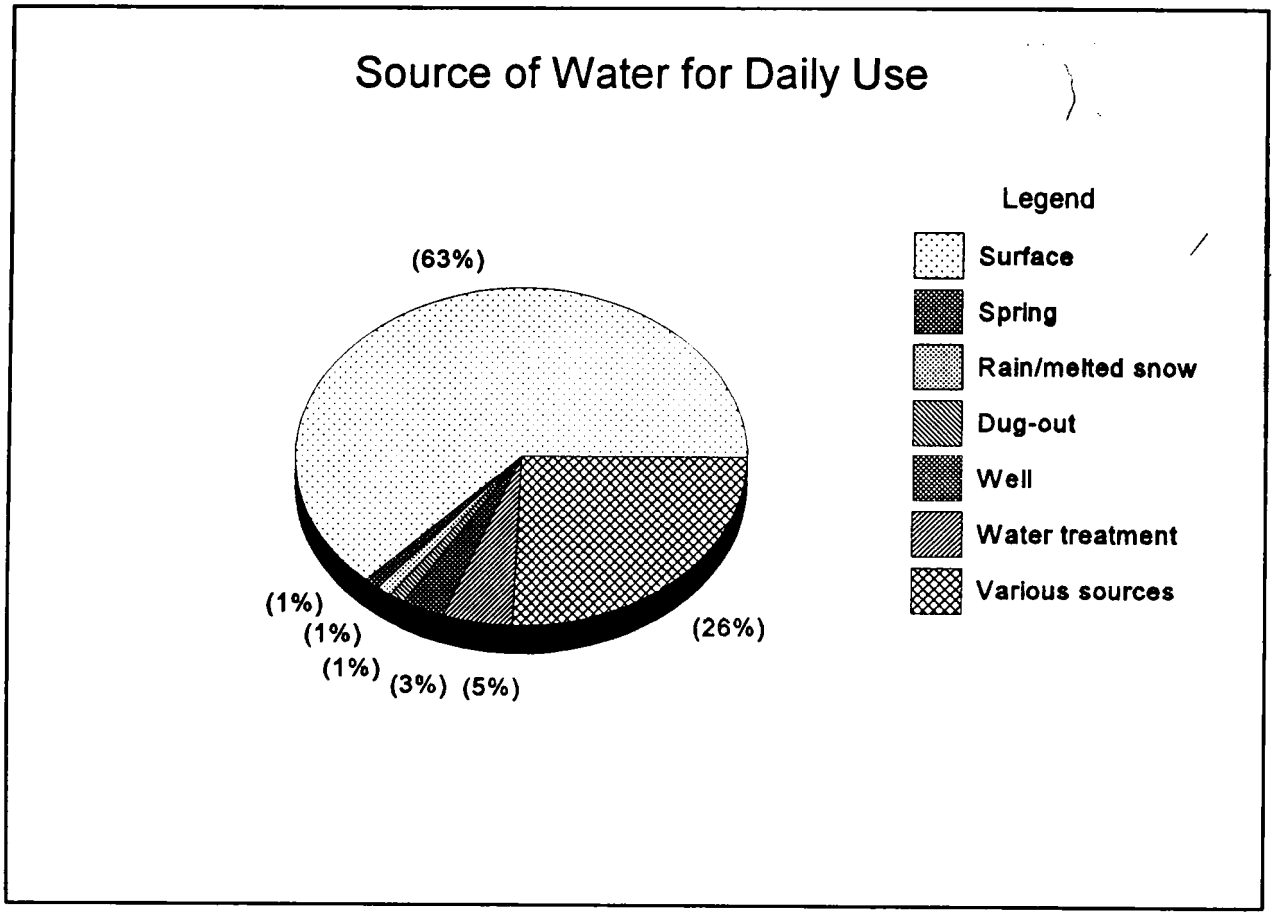


Figure 5.8-4 Source of Water for Daily Use

Surface water was by far the most common source of water used on a daily basis as indicated by 63% of respondents. Just over a quarter (26%) used a number of water sources on a daily basis. Five percent received their daily water from treatment plants. Few respondents used spring water (1%), rain or melted snow (1%), dug-outs (1%) or wells (3%) on a daily basis.

5.8.9 Water Uses

Respondents were given a list of possible uses for lake and river water. For each use, they were asked whether or not they used lake or river water for these purposes. Their responses are presented in the next figure.

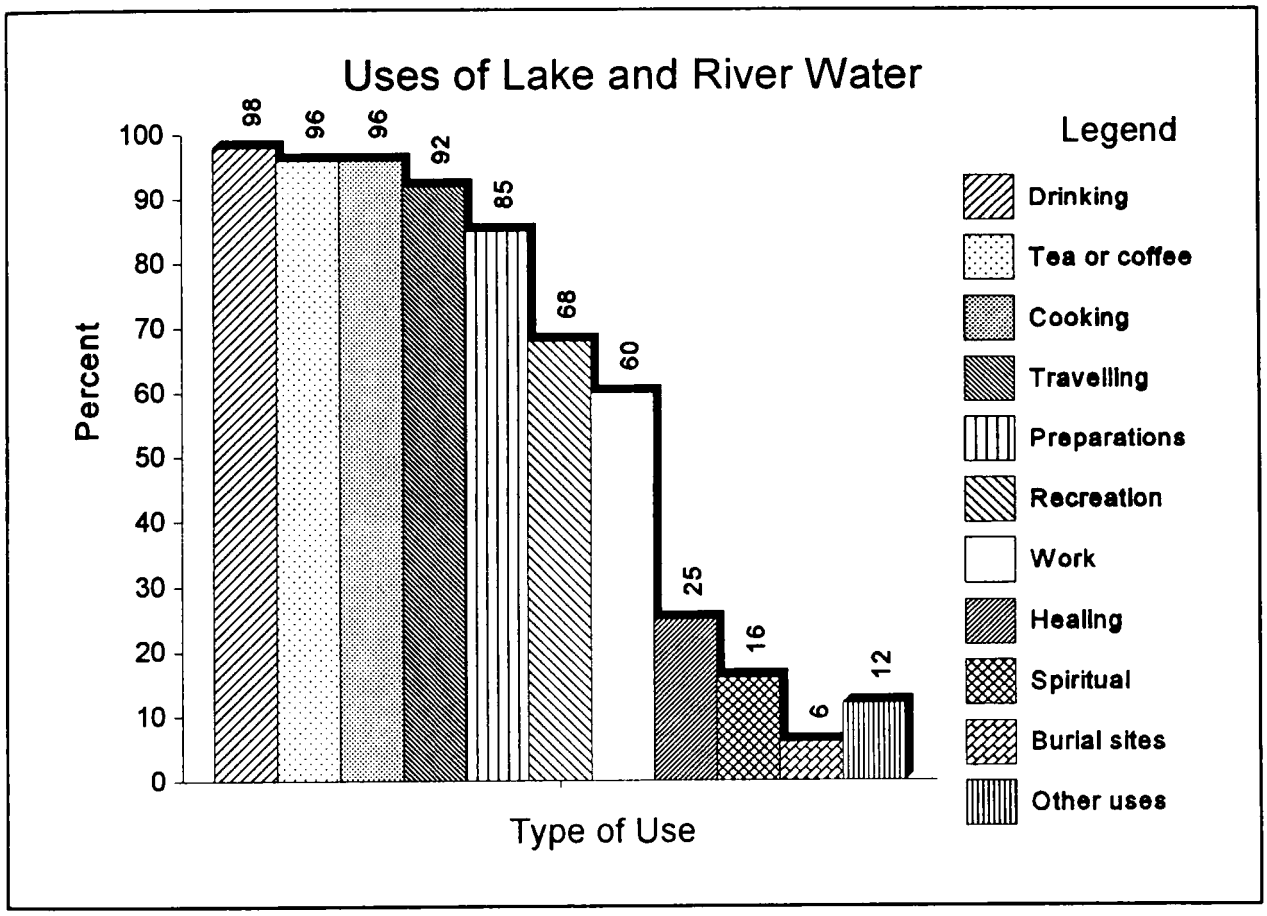


Figure 5.8-5 Uses of Lake and River Water

More than nine out of ten respondents used lake or river water for the following purposes: drinking (98%), tea or coffee (96%), preparations (96%), and travelling (92%). Almost the same percentage used lake or river water for cooking (85%).

Recreation (68%) and work (60%) also played a fairly important role in respondent lake or river water use. A quarter of respondents used lake or river water for healing.

The least common uses for lake and river water among respondents were spiritual ceremonies (16%) and burial sites (6%).

5.8.10 Identified Water Changes

When asked to indicate how the water had changed, respondents checked off: algae growth (78%); water insects (51%); turbidity (47%); and, other plant growth (28%). Some of the other characteristic changes in the water were spontaneously mentioned by respondents. Their comments are listed below.

Some respondents described water characteristic changes in their own words.

Other Comments on Water Characteristics

- Polluted/dirtier/muddy & oily (40%)
- Lower water levels/water drying up (28%)
- More weeds (10%)
- Sand bars (5%)
- Fewer fish & water insects (4%)
- More algae & insects (3%)
- Green slime on river banks or fishing nets (3%)
- Fluctuations in amount of plant life (1%)
- Pulp mills & motor boats on river (1%)
- Fish not as good to eat (1%)
- Too much chlorine (1%)

Comments fell into four broad categories; concerns about water quality, water levels, plant and fish life and human presence.

Increased pollution in the water (40%), including too much chlorine (1%), and green slime on the river banks and nets (3%) were the most frequently mentioned set of related concerns.

Lower water levels was the second most common concern as mentioned by 28% of respondents.

The affect of water changes on plant and fish life was cited by a number of respondents in slightly different ways. Specifically, respondents made mention of the decrease in the number of fish and water insects (4%), more weeds (10%), sand bars (5%), more algae and insects (3%) and the declining quality of fish for human consumption (1%).

Pulp mills and motor boats on the river were mentioned by 1% of respondents.

5.8.11 Water Quality Ratings

Respondents were given a list and asked to indicate why they stopped using the river or lake water. They checked off bad taste (41%), bad smell (31%), colour (39%), disease (49%), and other reasons (28%). When asked what made them stop using the lake or river water, respondents checked off self experience (55%), media (23%), health warnings (44%), public education (21%), and other reasons (31%).

Respondents were asked to rate the quality of water near their land base on a five point scale with one being the worst and five being the best. The line chart below depicts the shape of the distribution of responses.

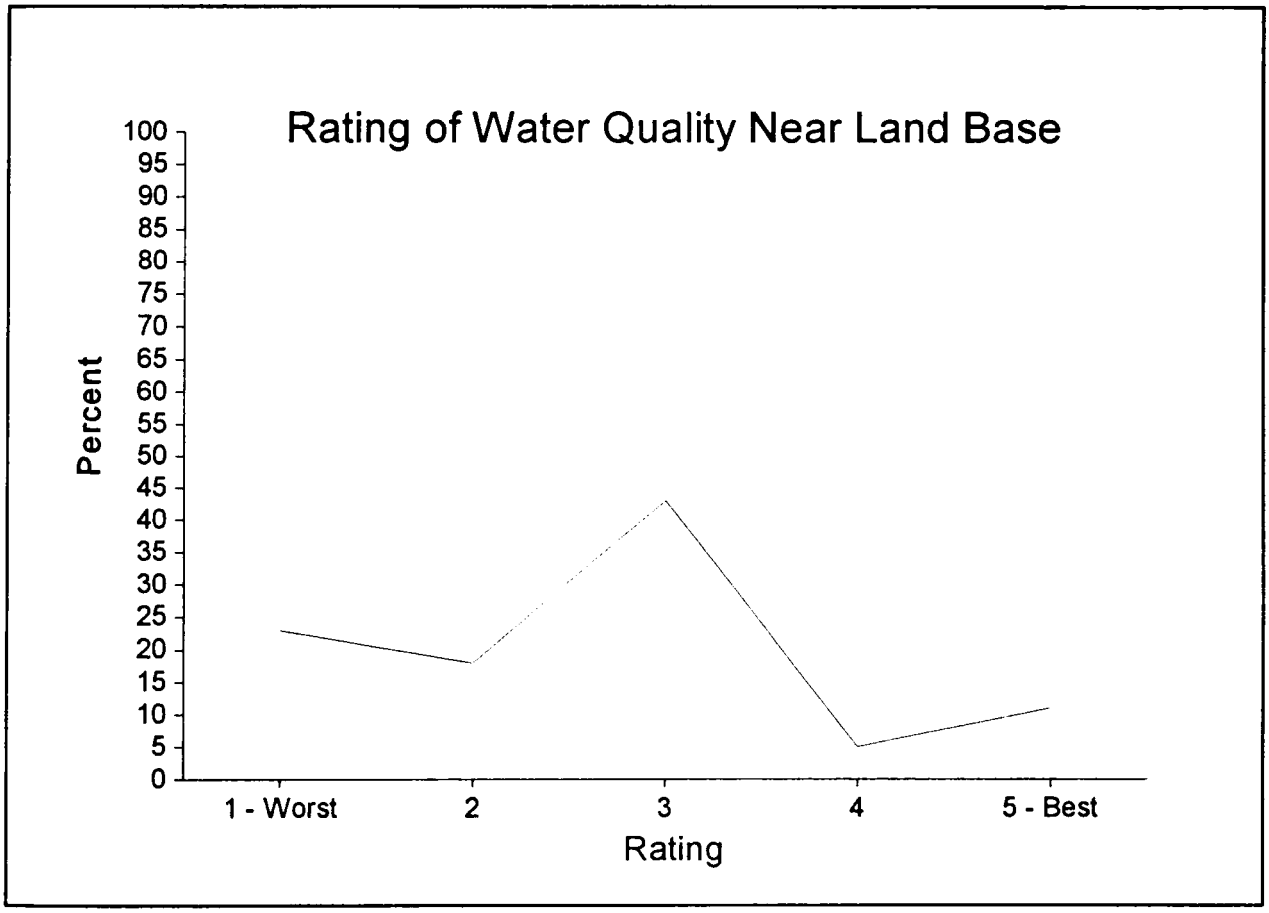


Figure 5.8-6 Rating of Water Quality Near Land Base

The average rating for water quality near their land base was seen as somewhat negative by respondents with an average rating of 2.6 out of five. The percent of respondents answering by indentifying "one -

worst" was 23%. An additional 18% circled two, indicating a negative water quality rating. Approximately four out of five respondents (43%) circled three, indicating neither a positive or negative water quality. Fewer respondents circled either four (5%) or five - best (11%).

When asked whether or not water quality had affected their health, 52% said yes. Just over four in ten (42%) said water quality had affected their spouse's health, followed by 37% indicating an affect on their children's health and 58% checked off other people's health. About a third (36%) of respondents did not know whether water quality had affected theirs or anybody else's health.

5.8.12 Human Health Summary

Respondents were asked a number of questions regarding human health. One of these question was to rate their health on a five point scale, with one being excellent and five being poor. Their responses are as follows.

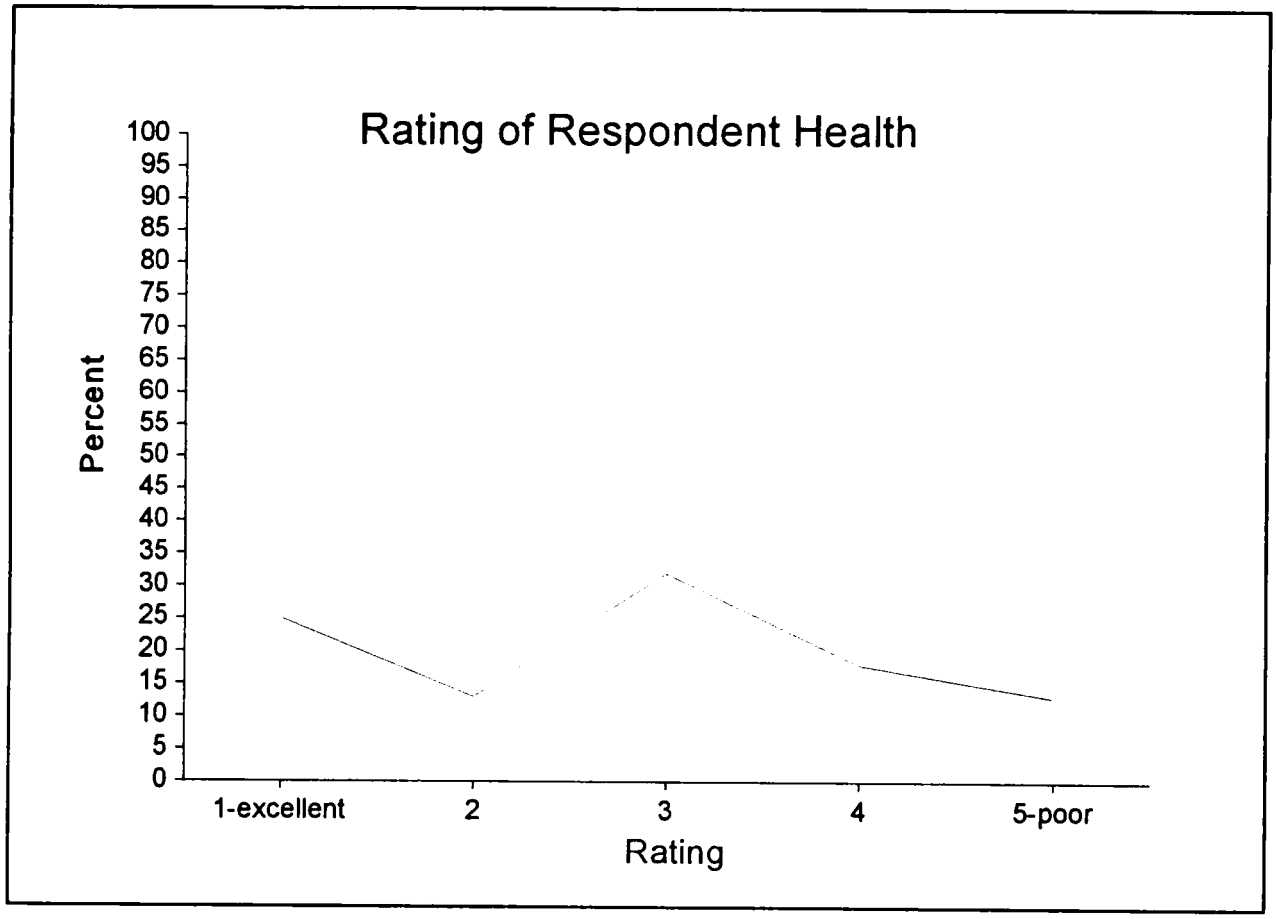


Figure 5.8-7 Rating Of Respondent Health

Overall, respondents tended to be positive about their health with an average rating of 2.8 on a scale of one (excellent) to five (poor). A quarter of respondents rated their health as 1 - excellent and additional 13% rated their health as two. Just under a third (32%) were neither positive nor negative about their health as indicated by their rating of three. Eighteen percent felt their health was somewhat poor rating it four, while 13% gave their health the lowest rating of 5 - poor.

Respondents were asked, "List what you believe is the most important aspect of health and well-being". Their answers fell into the categories shown below.

Most important aspect of health and well-being

- Exercise/stay in shape/walking (54%)
- Good food/nutrition/lots of fish (51%)
- Traditional food/wild meat & vegetables (31%)
- Time for rest/relaxation (11%)
- Clean/fresh air (10%)
- Live a traditional life/live off the land (7%)
- Good/clean water (6%)
- To work/have a stress free job (6%)
- Stay healthy and strong/no smoking/drinking/drugs (6%)
- Keep active and interested in things (6%)
- Have a general sense of well being (5%)
- Friendship/family/community gathering (3%)
- Be phisically able & independent/live on my own (1%)
- Traditional medicine (1%)
- Luck (1%)
- Other aspects (3%)

Exercise and staying in shape (54%) was the single most important aspect of health and well-being. Food and nutrition (51%), as well as traditional foods (31%), were also seen as important aspects of health and well-being.

About one in ten respondents cited time for rest and relaxation (11%) or clean, fresh air (10%) as important aspects of health and well-being.

Less frequently mentioned health aspects by respondents were: live a traditional life (7%); good, clean water (6%); to work or have a stress free job (6%); stay healthy, keep in shape and don't smoke, drink too much or abuse drugs (6%); keep active and interested in things (6%); have a general sense of well-being (5%); and, to have friendship, family or community support and gatherings (3%).

One percent of respondents mentioned the following aspects of health and well-being: to be physically able and independent, to use traditional medicine and to have luck in life. Respondents were asked to cite any illnesses or diseases that had increased or decreased in their community. As seen in the text chart below, respondents tended to cite increasing , rather than decreasing, incidence of disease or poor health.

Illnesses that Increased or Decreased in the Community

- Cancer (59%)
- Diabetes (25%)
- Heart problems/heart attack (17%)
- Common cold (10%)
- Arthritis (8%)
- Blood pressure (7%)
- Allergies/asthema (5%)
- Flu (3%)
- Diarrhoea/digestive disorders (2%)
- Alcohol/drug/tobacco abuse (2%)
- Gall stones/kidney stones (2%)
- AIDS (1%)
- Stress (1%)
- Yess - unspecified (8%)
- Decrease in chicken pox, tuberculosis, scarlet fever (4%)
- None/haven't noticed (14%)
- Other conditions (3%)

Eighty-two percent of the 221 respondents spontaneously mentioned at least one health condition that had increased or decreased in their community. By far the most common condition mentioned was an increase in cancer (59%). Diabetes (25%) was the second most commonly mentioned health condition. Seventeen percent of respondents mentioned heart related conditions, while one in ten respondents felt that the comon cold was on the rise.

Less than one in ten respondents identified an increase in the following health conditions: flu (3%), digestive problems or diarrhoea (2%), arthritis (8%), blood pressure (6%), allergies or asthma (5%), alcohol, drug or tobacco abuse (2%), AIDS (1%), stress (1%), and gall or kidney stones (2%).

Only 4% of respondents mentioned a decrease in communicable diseases such as small pox, tuberculosis and scarlet fever.

Almost a quarter (23%) of respondents said that industry had affected their health. Their reasons are listed in the text chart below.

Reasons Industry Has Affected Health

- Water pollution from dam/pulp mills (49%)
- Pollution in general/air & chemical (38%)
- Changed food supply/can't get food from land (8%)
- Increase in illness (8%)
- Can't live traditional life anymore (3%)
- Farming ruins traplines/land (3%)
- Changed wildlife balance (3%)
- Destroys plant life (3%)

N = 37

Pollution, either in general (38%) or specifically water pollution (49%) was the major way that industry had affected respondents' health. Respondents also cited concerns of: an increase in illnesses and sickness (8%); and, respondents could no longer get food from the land or that the food supply had changed in a negative way (8%).

The less frequently mentioned concerns were: they could no longer live a traditional lifestyle (3%); farming had ruined the land and/or traplines (3%); and, that industry had destroyed plant life (3%).

Respondents were asked whether or not the loss of traditional land use had affected the health of certain groups. The table below shows the percent of respondents who answered positively for each of the specific groups.

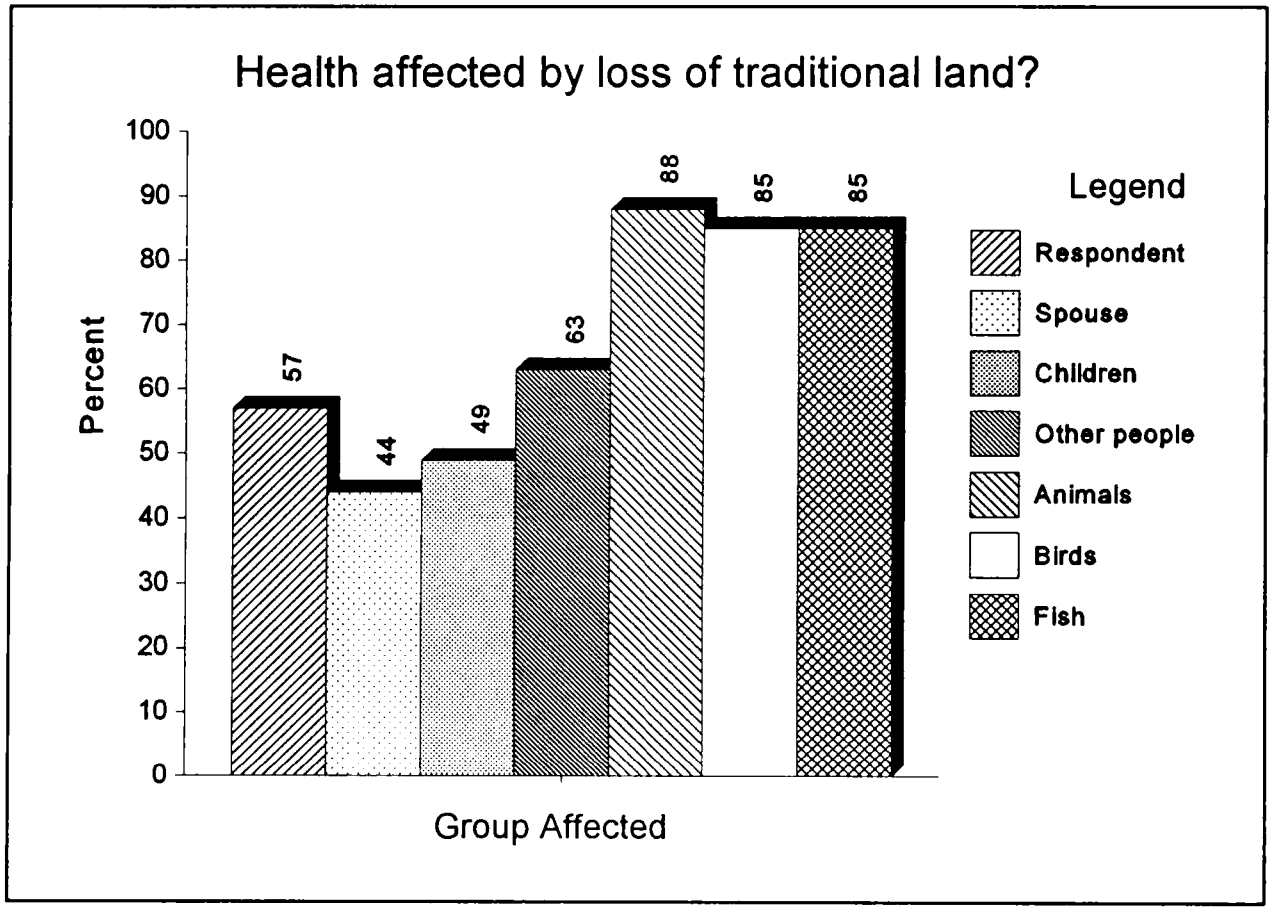


Figure 5.8-8 Health Affected by Loss of Traditional Land

The health of animals (88%), birds (85%) and fish (85%) were perceived as being most affected by the loss of traditional land. Approximately six out of ten (57%) respondents said that the loss of traditional land had affected their personal health. Half (49%) felt their children's health had been affected and 44% said their spouse's health had been affected by the loss of traditional land. Sixty-three percent felt that other people's health had been affected.

5.8.14 Traditional Resource Use

The ten most frequently used animals are presented in the table below followed by a chart reporting all animals used and the percent of respondents who use them.

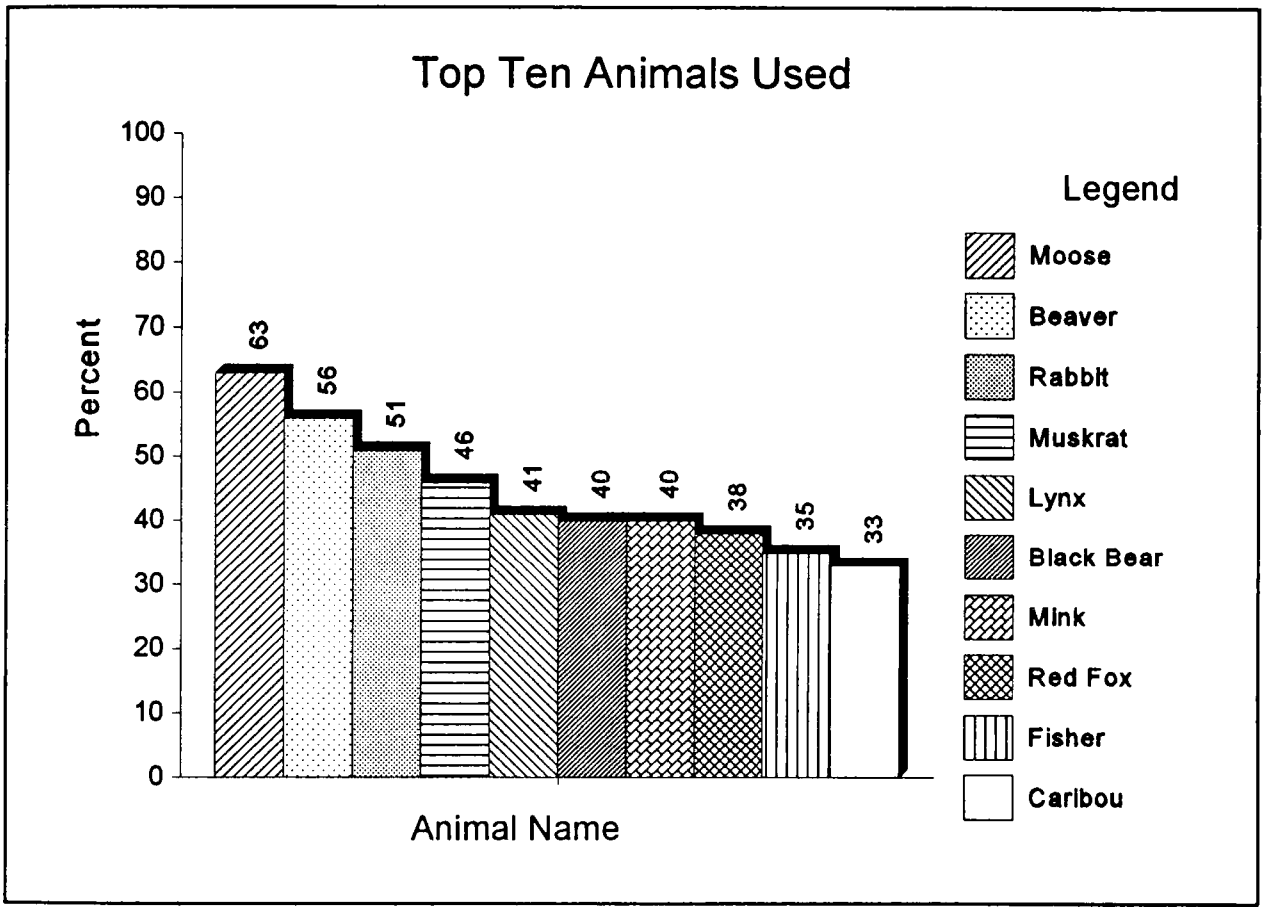


Figure 5.8-9 Top Ten Animals Used

Moose were the most commonly used animal among respondents. Almost two-thirds (63%) of respondents use the moose. Beavers were the second most commonly used animal as stated by 58% of respondents. About half of respondents used the rabbit (51%) or muskrat (46%). Approximately four out of ten respondents made use of the lynx (41%), black bear (40%), mink (40%) and red fox (38%). A third of respondents used the fisher (35%) and caribou (33%).

The table below reports usage of all animals mentioned in this survey.

Table 5.8-5: Numerical Summary of Animal Use

Animal	No.	%	Animal	No.	%
Moose	139	63	Mink	89	40
Bison	52	24	Fisher	78	35
Black Bear	89	40	River Otter	60	27
Beaver	124	56	Mouse	1	0
Muskrat	102	46	Flying Squirrel	15	7
Rabbit	113	51	Grey Squirrel	19	9
Mule Deer	38	17	Striped Ground Squirrel	5	2
White Tailed Deer	52	24	Least Chipmunk	4	2
Caribou	72	33	Black Tailed Prairie Dog	8	4
Elk	6	3	Woodchuck/Groundhog	10	5
Bobcat	2	1	Frogs or Toads	1	0
Lynx	91	41	Bugs or Beatles	1	0
Grey/Timber Wolf	67	30	Wolverine	15	7
Striped Skunk	8	4	Marten	46	21
Badger	2	1	Red Squirrel	22	10
Weasel	69	31	White Fox	6	3
Coyote	62	28	Grizzly Bear	1	0
Red Fox	85	38	Squirrels - unspecified	24	11
Porcupine	14	6			

Respondents were shown the pictures and names of 31 different animals and asked whether or not they made use of each of these animals. All 31 animals were used, some more than others. Respondents also spontaneously mentioned five additional animals not on the list. They were the wolverine (7%), marten (21%), red squirrel (10%), white fox (3%) and grizzly bear (1%). In addition 11% said that they used squirrels, but did not specify which type.

The usage for animals varied dramatically from a high of 63% for the moose to a low of 0% for the grizzly bear.

5.8.15 Traditional Plant Use Summary

The following chart shows the ten most frequently used plants.

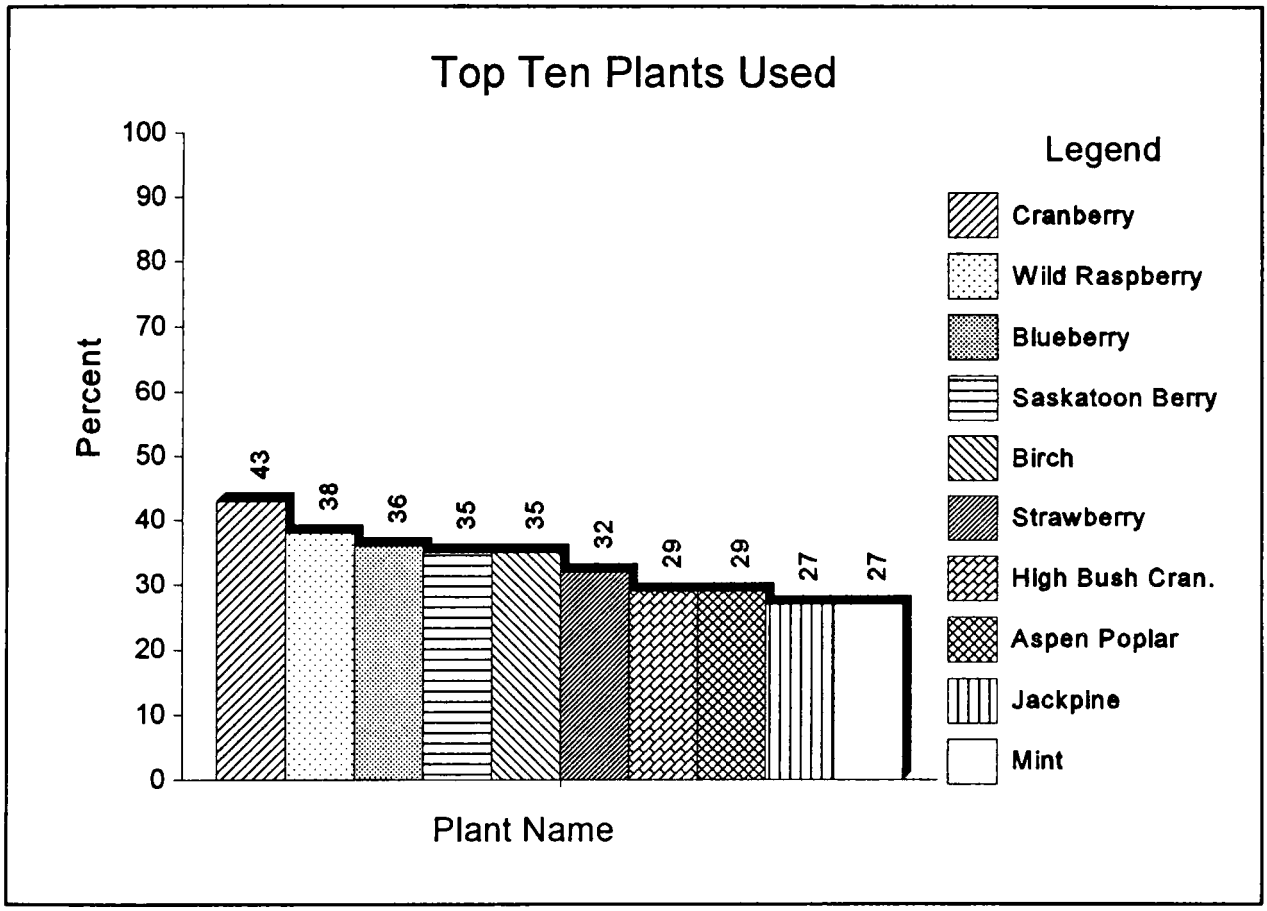


Figure 5.8-10 Top Ten Plants Used

Berries accounted for more than half of the top ten plants used. Cranberries (43%) were the most commonly used plant. An additional 29% used the high bush cranberry. Wild raspberries (38%), Saskatoon berries (35%), blueberries (36%) and strawberries (32%) were also among the top ten plants used.

Birch (35%) was the second most common plant used and the most common non-berry plant used. Aspen poplar (29%), jackpine (27%) and mint (27%) were equally as popular.

The following table reports usage of all plants mentioned in this survey.

Table 5.8-6: Numerical Summary of Plants Used

Plant	No.	%	Plant	No.	%
Alpine Fir	9	4	Clover	3	1
Aspen Poplar	63	29	Fireweed	3	1
Balsam Fir	14	6	Liquorice Root	1	0
Balsam Poplar	14	6	Lamb's Quarters	1	0
Black Spruce	48	22	Marsh Marigold	2	1
Birch	77	35	Mint	59	27
Jackpine	59	27	Mountain Sorrel	2	1
Lodgepole Pine	4	2	Pineapple Weed	0	0
Tamarack/Larch	41	19	Plantain	0	0
White Spruce	36	16	Tiger Lily	1	0
Bearberry	16	7	Shrubby Cinquefoil	1	0
Blueberry	80	36	Silverweed	1	0
Bunchberry	7	3	Soapberry	5	2
Wild Red Currant	14	6	Strawberry	70	32
Cranberry	96	43	Strawberry Blight	2	1
High Bush Cranberry	64	29	Sweet Gale	1	0
Crowberry	3	1	Sweet Grass	13	6
Choke Cherry	48	22	Seneca	1	0
Black Currant	26	12	Wild Ginger	1	0
Yarrow	1	0	Wild Onion	17	8
Goat's Beard	1	0	Wild Sage	5	2
Goldenrod	2	1	Wild Sasparilla	1	0
Arrowhead	0	0	White Water Lily	2	1
Cow Parsnip	3	1	Woolly Lousewort	0	0

Plant	No.	%	Plant	No.	%
Knotweed	2	1	Yellow Pond Lily	3	1
Bristley Black/ Swamp Currant	3	1	Cattail	3	1
Dogwood	3	1	Shaggy Mane	1	0
Gooseberry	49	22	Iceland Moss	5	2
Hazelnut	11	5	Reindeer Moss	9	4
Juniper	6	3	Tripe de Roche/ Rock Tripe	0	0
Labrador Tea	40	18	Tree Lichen	2	1
Pin Cherry	20	9	Sphagnum Moss	10	5
Wild Raspberry	84	38	Red Banker	0	0
Saskatoon Berry	78	35	Wild Sweet Pea	0	0
Wild Rose	22	10	Death Camus	0	0
Willow	27	12	Indian Turnip	1	0
Chickweed	2	1	Rat Root	15	7
Cloudberry	4	2	Water Hemlock	2	1
Dandelion	10	5	Spruce - unspecified	9	4
Green Poplar	1	0	Black Poplar	1	0

Respondents were shown drawings and names of 71 different plants. The table above shows usage of 79 different plants. The additional eight plants volunteered by respondents were yarrow (.5% or 1 person), black poplar (.5% or 1 person), green poplar (trembling aspen) (.5% or 1 person), seneca (.5% or 1 person), wild ginger (.5% or 1 person), Indian turnip (.5% or 1 person), rat root (7%) and water hemlock (1%). In addition, nine respondents (4%) used spruce, but did not name the specific type.

The most commonly used plants, as mentioned above, were berries. This tendency to use plants with edible fruit is also apparent in the above table with choke cherry (22%), gooseberry (22%) and black currant (12%) ranking among the more commonly used plants.

Plants shown to respondents and not used by anyone who answered the questionnaire were the pineapple weed, plantain, woolly lousewort, tripe de roche, red bunchberry, wild sweet pea and death camus.

5.8.16 Traditional Bird Use Summary

The chart below shows the ten most frequently used birds.

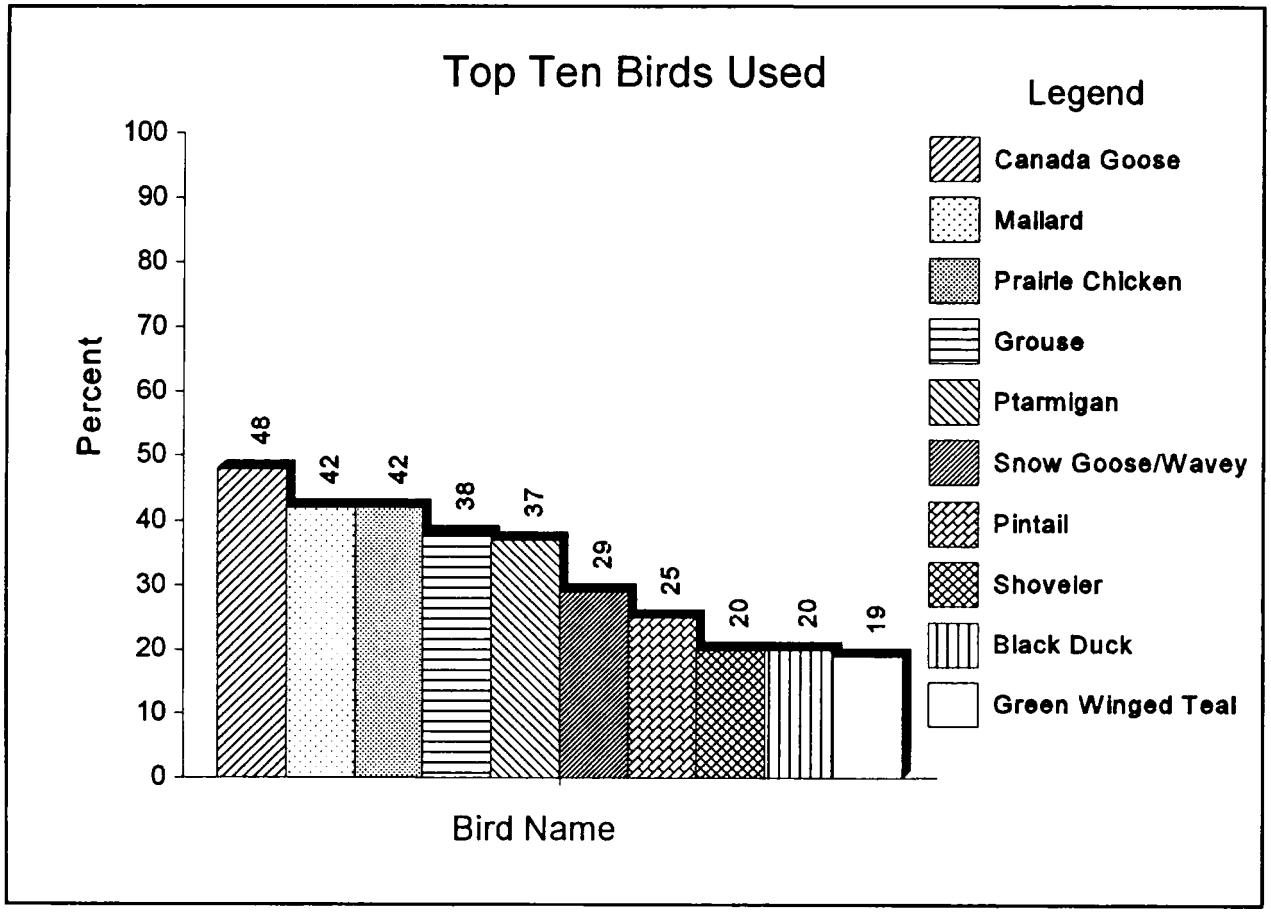


Figure 5.8-11 Top Ten Birds Used

Almost half of respondents used the Canada goose (48%). The mallard (42%) and prairie chicken (42%) were the two second most commonly used birds. The grouse (38%) and ptarmigan (37%) were equally as likely to be used followed by the snow goose or wavey (29%) and pintail (25%). One in five respondents used the shoveler (20%), black duck (20%) and green winged teal (19%).

The following table reports usage tables of all birds mentioned in this survey.

Table 5.8-7:Numerical Summary of Bird Use

Bird	No.	%	Bird	No.	%
Ross Goose	28	13	Broad Winged Hawk	0	0
Snow Goose/Wavey	63	29	Marsh Hawk	0	0
Cinnamon Teal	26	12	Osprey	0	0
White Swan	29	13	Merlin	0	0
Canada Goose	105	48	Sharp Shinned Hawk	0	0
Blue Winged Teal	34	15	Red-Tailed Hawk	0	0
Green Winged Teal	43	19	Cooper Hawk	0	0
Baldpate/Widgeon	35	16	Bald Eagle	3	1
Gadwall	18	8	Peregrine Falcon	0	0
Mallard	93	42	Sparrow Hawk	0	0
Pintail	56	25	Golden Eagle	1	0
Shoveler	44	20	Ptarmigan	81	37
Black Duck	45	20	Grouse	84	38
Goldeneye	15	7	Prairie Chicken	93	42
Wood Duck	25	11	Spruce Hen	10	5
Blue Heron	0	0	Drummer	1	0
Pelican	0	0	Owl	2	1
Sandhill Crane	16	7	Mud Hen/Coot	14	6
Whooping Crane	5	2	Pheasant	1	0
Sand Piper	0	0	Speckled Goose/ Grey Wavey	2	1
Night Hawk	1	0	Partridge	1	0
Goshawk	0	0	Geese - unspecified	20	9
Rough-legged Hawk	0	0	Ducks - unspecified	31	14
			Hawks - unspecified	1	0

5.8.17 Fish Use Summary

The following chart shows the ten most frequently used fish.

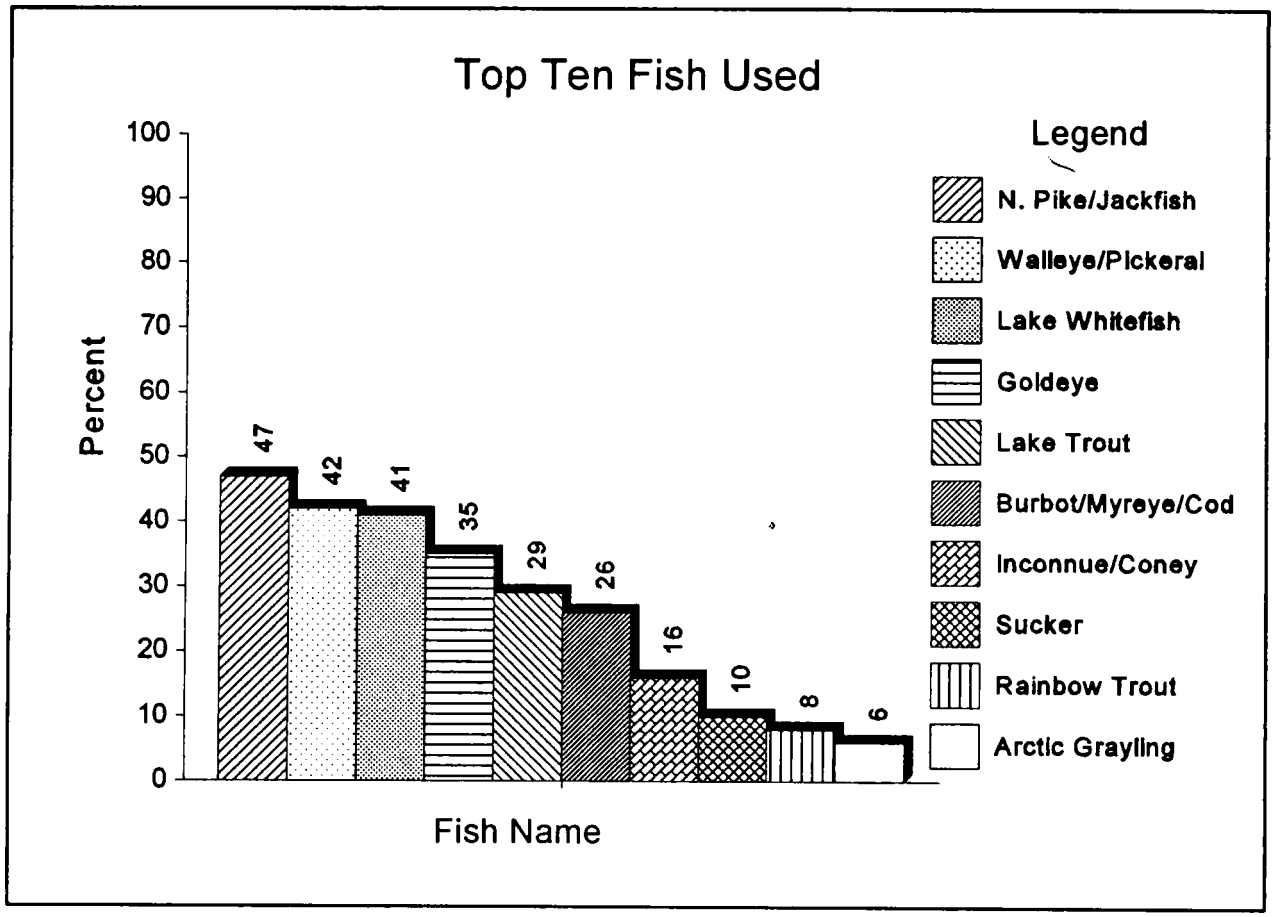


Figure 5.8-12 Top Ten Fish Used

The northern pike or jackfish (47%) was used by almost half of respondents. Approximately four in ten respondents used the walleye, pickerel or dorey (42%) as well as the lake whitefish (42%). About a third of respondents used the goldeye (35%) or lake trout (29%). A quarter of respondents said they used the burbot, myreye, ling or ling cod (26%), while 16% mentioned the inkinue or coney. Sucker (10%), rainbow trout (8%) and the arctic grayling (6%) were the eighth, ninth and tenth most commonly used fish.

The table on the following page reports the usage of all fish mentioned in this survey.

Table 5.8-8: Numerical Summary of Fish Use

Fish	No.	%
Goldeye	77	35
Northern Pike/Jackfish	103	47
Sauger	11	5
Lake Whitefish	90	41
Walleye/Pickerel/Dorey	92	42
Rainbow Trout	17	8
Yellow Perch	12	5
Mountain Whitefish	9	4
Burbot/Myreye/Methy/Ling/Ling Cod	58	26
Golden Trout	2	1
Arctic Grayling	14	6
Bull Trout	1	0
Lake Trout	64	29
Brook Trout	4	2
Sucker	21	10
Cutthroat Trout	1	0
Brown Trout	1	0
Lake Sturgeon	1	0
Inkinue/Coney	35	16
Chub	4	2
Fish - unspecified	6	3

Respondents were specifically asked about their usage of 18 different kinds of fish. The two additional fish spontaneously mentioned were the sucker (10%) and chub (2%). Three percent of respondents said they used fish but did not identify which types.

As mentioned above, the most frequently used fish was the northern pike or jackfish (47%). The least frequently used fish were the bull trout, cutthroat trout, brown trout and the lake sturgeon, all mentioned by only .5% or one person.

5.9 CONCLUSION

The preceding description and summary of Traditional Knowledge and resource use captures for the first time both the overall and the specific information shared by each community with the world at large. The land is an important consideration in the practice of traditional use of the river basin, for traditional users of the basin. Traditional users reported greater amounts of algae in the Slave River compared to 5 years ago as well as drying of the land. Since the traditional users depend on surface water as a primary water source this is a big concern. The quality of the water has decreased in their view and has affected the people and the wildlife. The river is turbid and levels fluctuate continuously. Ice is noted to be thinner, weaker, dirtier, and hangs lower on the River. The traditional users of the Little Red River area strongly advocate "zero discharge" in the rivers. They recommend that the government work with the First Nations people in protecting the land, water and the wildlife as it is seen as an important resource for all traditional users.

Development identified as having significant effects to their traditional life style and traditional land use areas were seismic and cut line activity, pulp and paper mills, logging, mining and farming. It was said that logging and development should be stopped in certain areas in order to preserve traditional land use areas and to allow the land to recover to a level of health to sustain wildlife.

Water changes reported by traditional users of Tall Cree were increased algae growth in the Peace River, increased turbidity, and changes in the amount of water insects seen when out on the waters. Traditional users reported decreased use of the river water over the last four years because of bad taste, bad smell, and a change in the color of the water and concerns of the threat of disease.The disappearance of wildlife is attributed to land clearing, logging activity and low water levels. Fewer deer, buffalo, caribou along with fine fur animals are reported. Fort Chipewyan traditional users identified land changes that were linked to water levels. Significant changes can be observed throughout the delta and are of great concern to this community. Lakes and rivers used for harvesting traditional food are no longer present in some locations, for example Egg Lake. Its quality has decreased and is seen in changes such as increased presence of algae, increased turbidity, and decreases in water insects and disappearance of spawning areas for fish.

Ice formation changes are reported in this area too. The greatest effect seen in the area has been on the aquatic life of the delta. Muskrat, fish, and water fowl have decreased in significant numbers. These resources were the primary food source and still supplement the diet of traditional users today. Traditional users link their health to the ability to practice traditional ways and the interference of the traditional lifestyle is considered to have deleterious effects on the overall health of the community because it distances the youth from the land and the knowledgeable people of traditional ways. Industry has clearly pushed the traditional user aside and is echoed in the comments made that "industry is given all the power by the government". Water levels were reported to be low and water quality was considered poor. Throughout all the communities visited development is experienced as a destructive force against the traditional relationship to the land, water, and wildlife. Development disrupts the natural balance of the land, and its inhabitants both human and natural.

Surface water was used by 63% of the sample as a whole making water resources an important element of consideration for future health and balance of the Northern River Basin ecosystem. All communities have seen changes in the quality of water. Forty percent see it as polluted/dirtier/muddy and oily. Twenty-eight percent have noted decreased water levels over the entire basin. Ten percent have noted increases in algae/weeds in the rivers. Four percent noted decreases in fish and water insects.

The sharing of knowledge has enabled the project team to correlate traditional wisdom with the changes that have occurred within the traditional use areas. The following Section 6.0 provides a more detailed comparison of traditional perspectives with current developmental land uses, and the impact of the changes which have taken place in the last two centuries.

TRADITIONAL KNOWLEDGE MAP SERIES #2

5.1.8 FORT SMITH/FORT FITZGERALD MAP INFORMATION

The following maps have been developed to illustrate the traditional land use area from a historical and a present sense. This information reflects data that was collected from the sample groups of Fort Smith and Fort Fitzgerald combined.

Figure 5.1-17 illustrates the place names often referred to in the narrative information.
Figure 5.1-18 illustrates significant changes and impact of industry and development.

The traditional land use area encompasses the area where people have historically hunted, trapped and harvested from the land. Total square miles of traditional land use area documented through interview is 97,426.7 square kilometres.

5.2.8 LITTLE RED RIVER FIRST NATIONS MAP INFORMATION

The traditional land use area of the LRRFN, includes documentation from three communities, Fox Lake, Jean D'Or and Garden River. This data is representative of the sample group interviewed in these three communities. The area covers 43,905.1 square kilometres, and is based upon the hunting, trapping and harvesting knowledge from a present and historical context of the sample groups.

Figure 5.2-17 illustrates significant place names as referenced in the narrative data, and Figure 5.2-18 illustrates significant changes identified by the respondents of the LRRFN.

Overlaps are noted for LRRFN, TallCree and Fort Vermilion communities as many of the communities are interrelated by families and relatives of these communities.

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5.3.8 TALL CREE MAP INFORMATION

The Tall Cree traditional use area covers 23,430.8 square kilometres and is based upon a historical memory of individuals interviewed. This includes past hunting, trapping, and harvesting

from the land. Figure 5.3-17 outlines the boundaries of use and the place names referred to in the community findings section of the report. Land use changes are shown on Figure 5.3-18.

It should be noted that the traditional land use area over laps with LRRFN and Fort Vermilion communities. As stated previously these communities are linked through familial relationships.

5.4.8 FORT VERMILION MAP INFORMATION

The traditional land use area of the Fort Vermilion respondents covers an area of approximately 51,594 square kilometres, based on the knowledge of this community's residents.

The area is adjacent to the traditional areas of the Little Red River First Nations, especially those of Tall Cree and Jean D'Or.

This traditional land use area has been particularly impacted by industrialization. It should be noted that the community of Fort Vermilion vies with that of Fort Chipewyan far the "oldest community in Alberta" description. It is clear to all, therefore, that the period of impact extends over two full centuries.

The most significant changes noted by the respondents are shown on Figure 5.4-18 and the place names referred to are shown on Figure 5.4-17.

5.5.8 FORT CHIPEWYAN MAP INFORMATION

The traditional land use area of Fort Chipewyan respondents spans 31,009 square kilometres and is based upon the historical memory of the sample group. This encompasses past and present use. It should be noted that there are familiar ties through relations with The LRRFN communities.

Place names which are referred to are the communities results are included on Figure 5.5-17 and significant change sites illustrated on Figure 5.5-18.

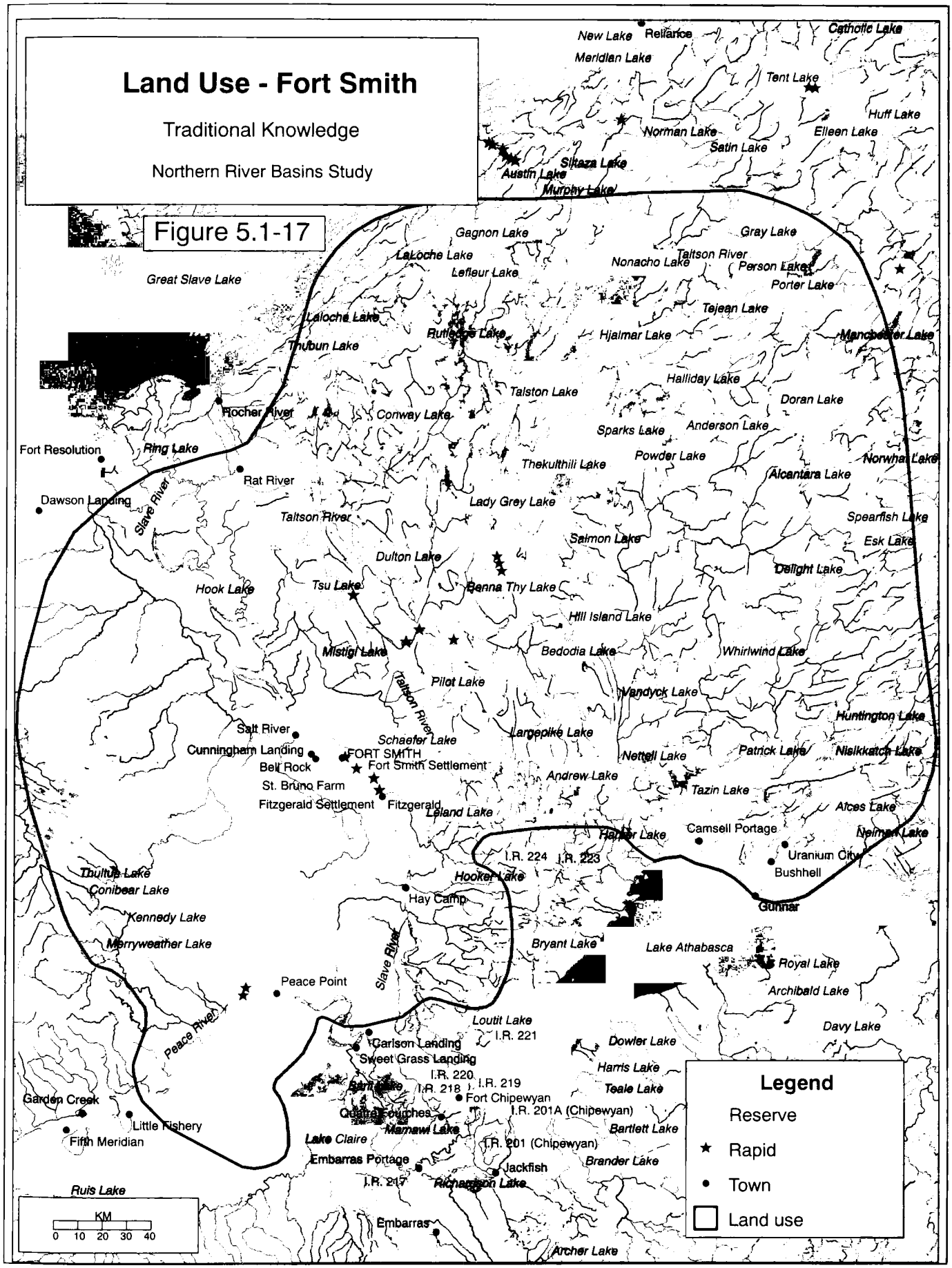
5.6.8 FORT RESOLUTION MAP INFORMATION

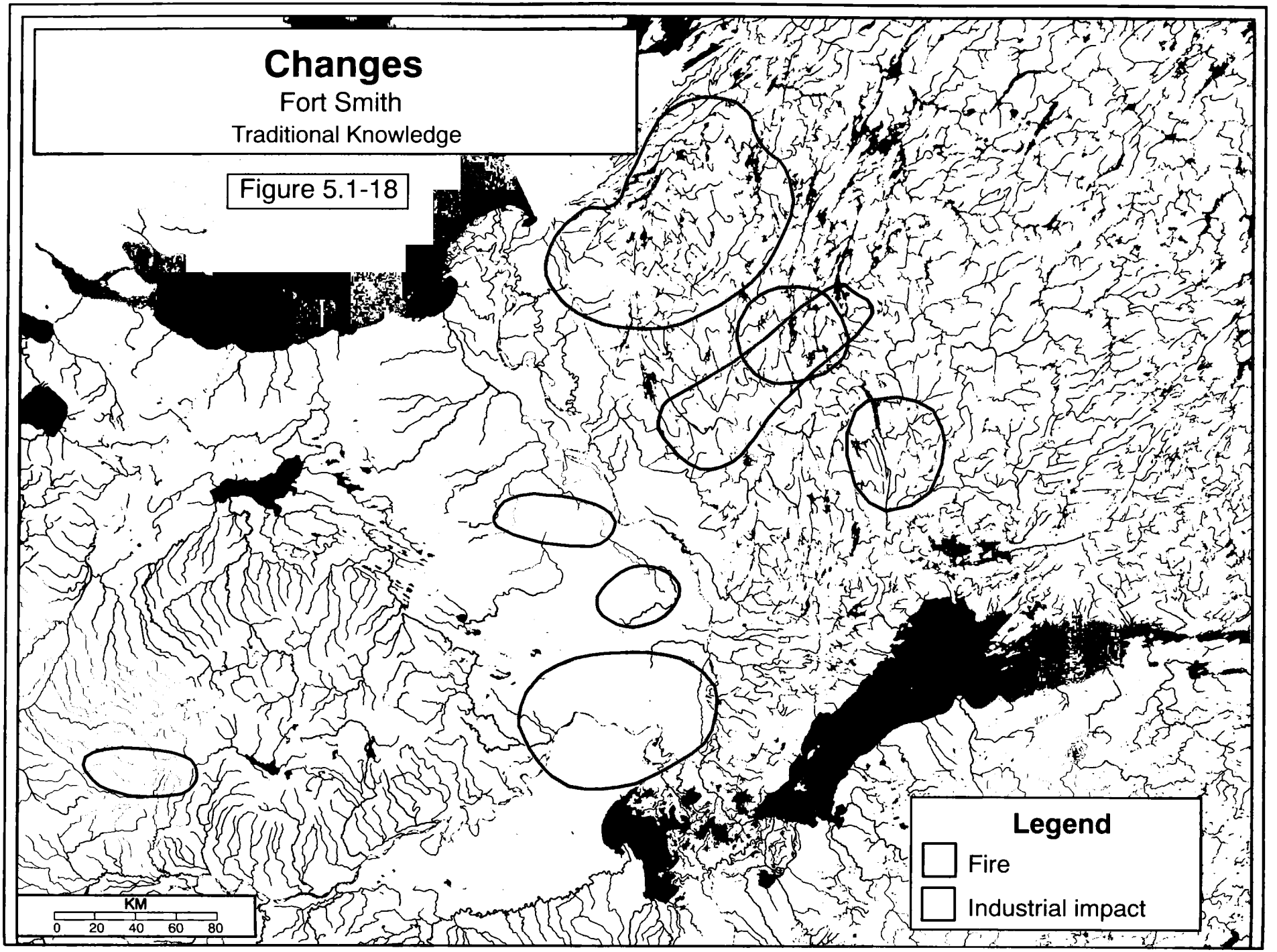
The Fort Resolution traditional use area spans 20,447 square kilometres and is based on the historical memory of the sample groups, hunting, trapping and harvesting practices past and present.

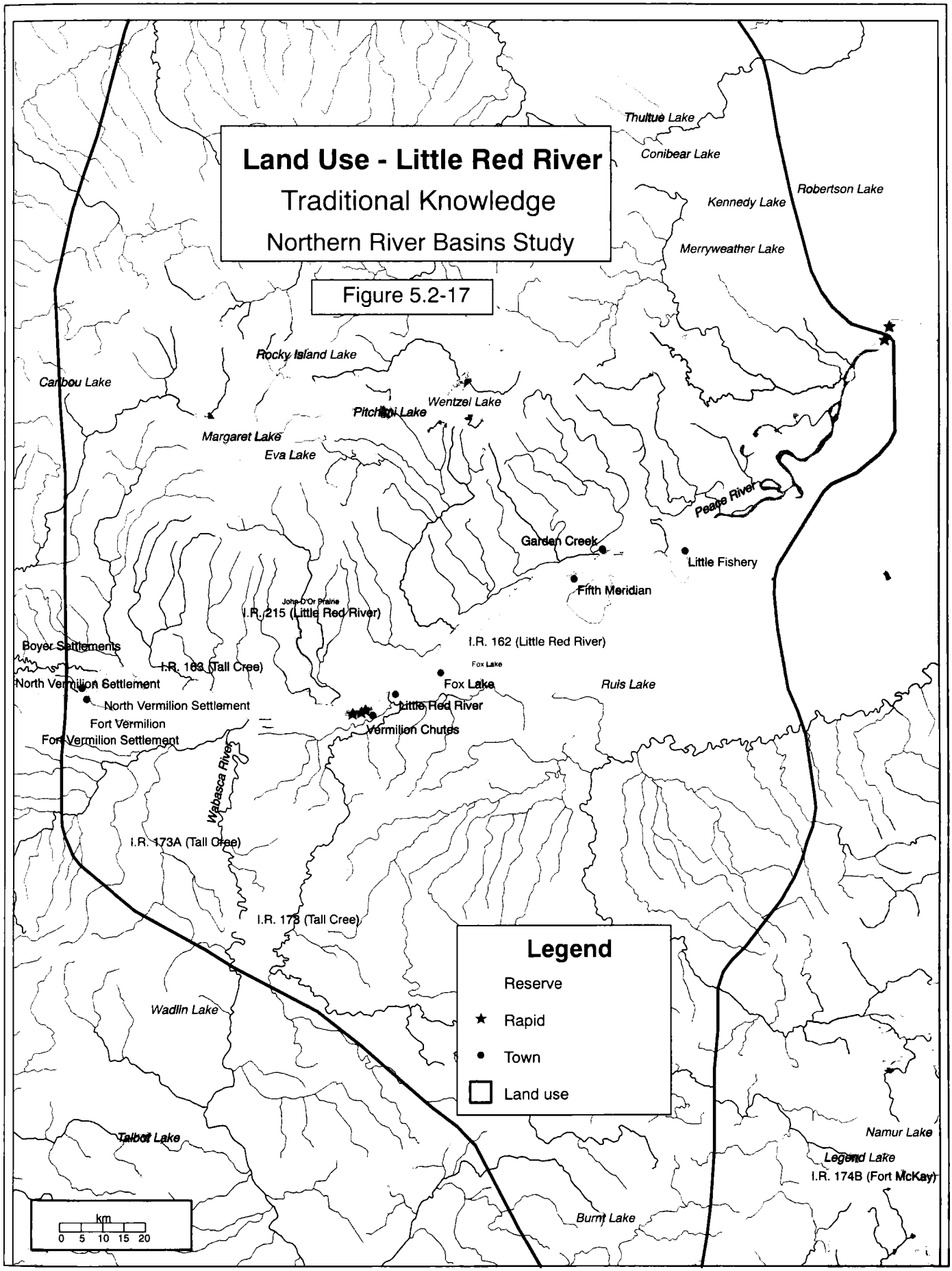
Figure 5.5-17 illustrates place names referred in the communities results section of this report and Figure 5.6-18 illustrates changes in the traditional use area.

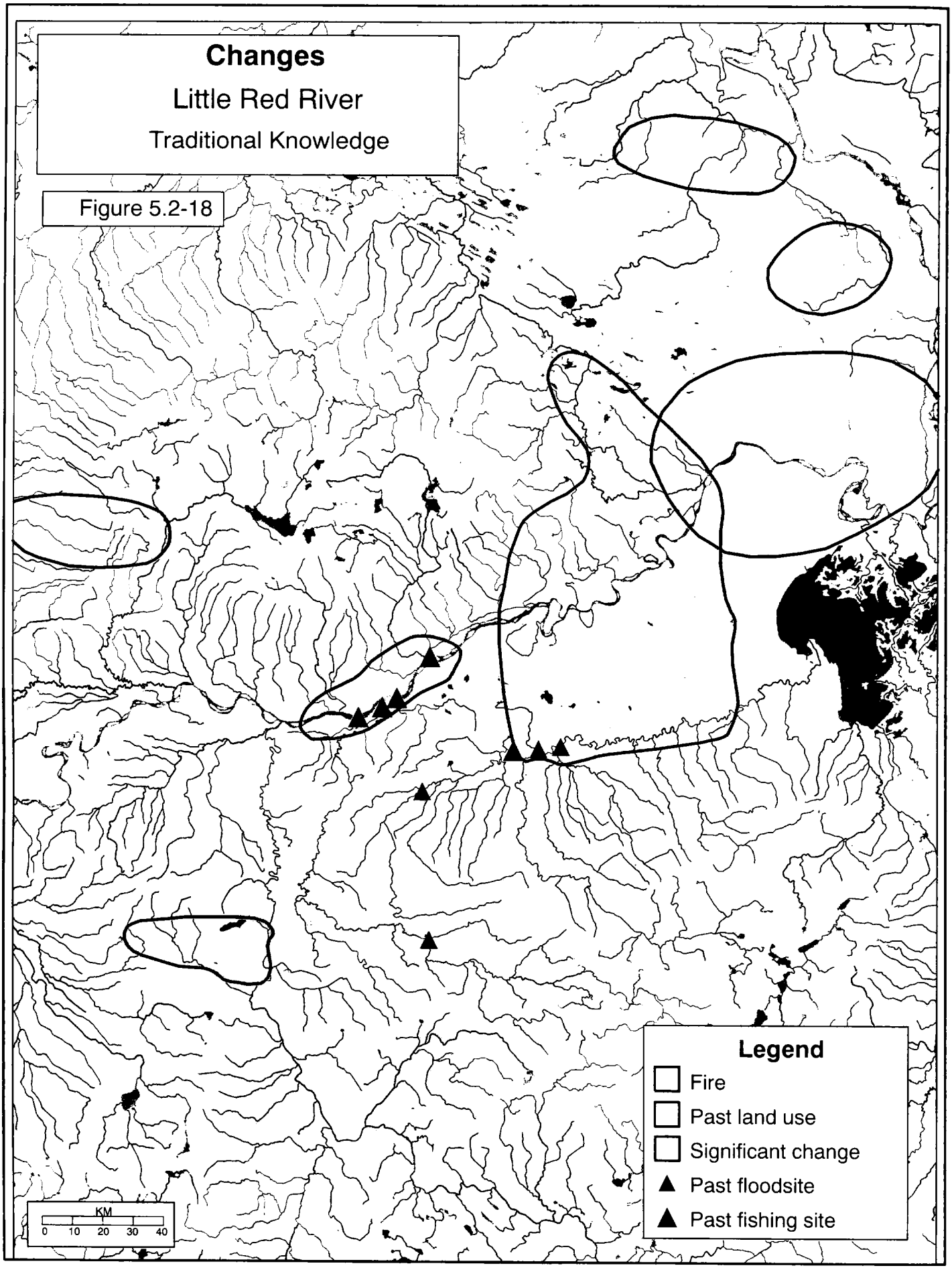
5.7.8 FORT MCMURRAY MAP INFORMATION

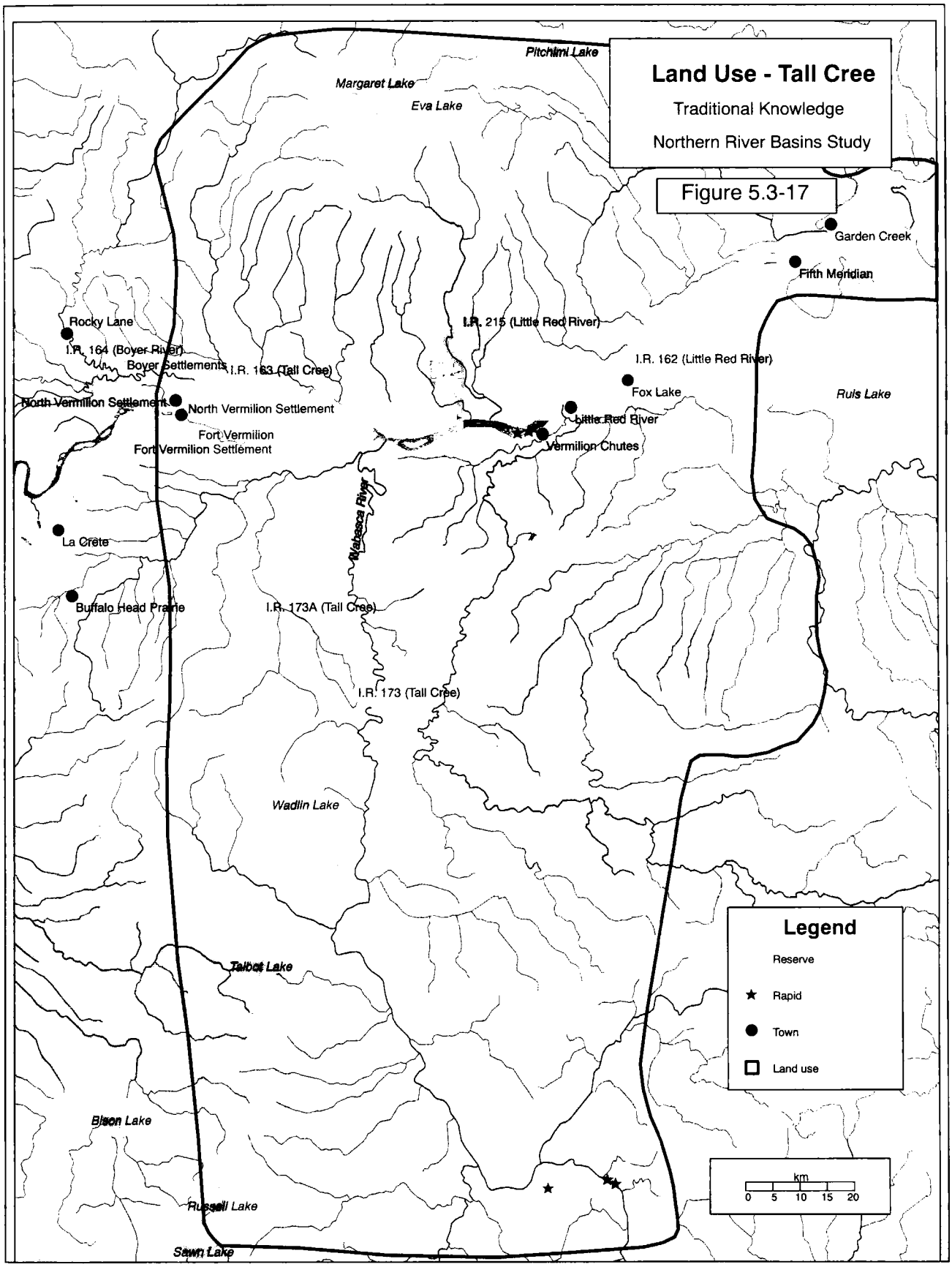
The Fort McMurray traditional use area spans an area that hugs the Athabasca River and Lake Athabasca. It encompasses 40,471 square kilometres. This information is representative of the sample groups interviewed in this community and is based upon the memory of past and present use. The Figure 5.7-17 illustrates place names often referred to in the community results section of this report and Figure 5.7-18 illustrates the changes noted by the respondents.

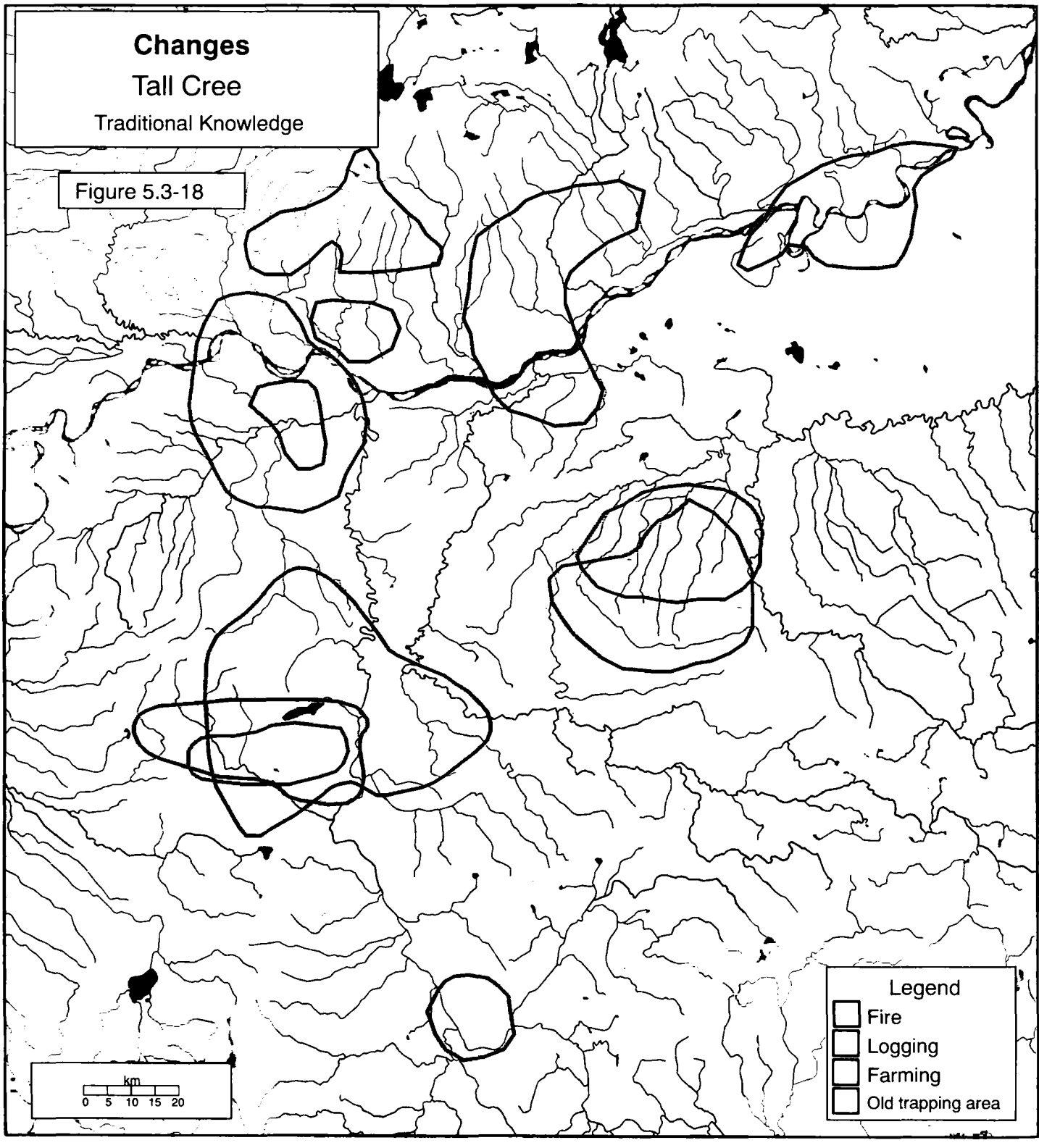

Land Use - Fort Smith
Traditional Knowledge
Northern River Basins Study
Figure 5.1-17
New Lake
Reliance
Meridian Lake
Catholic Lake
Tent Lake
Huff Lake
Norman Lake
Eileen Lake
Satin Lake
Siltaza Lake
Austin Lake
Murphy Lake
Gagnon Lake
Gray Lake
LaLoche Lake
Taltson River
Nonacho Lake
Person Lake
Lefleur Lake
Great Slave Lake
Porter Lake
Tejean Lake
Laloche Lake
Rutledge Lake
Hjalmar Lake
Manchester Lake
Thubun Lake
Halliday Lake
Talston Lake
Doran Lake
Rocher River
Conway Lake
Sparks Lake
Anderson Lake
Fort Resolution
Ring Lake
Powder Lake
Norwhar Lake
Thekulthili Lake
Alcantara Lake
Rat River
Dawson Landing
Slave River
Lady Grey Lake
Taltson River
Spearfish Lake
Salmon Lake
Esk Lake
Dulton Lake
Delight Lake
Hook Lake
Tsu Lake
Benna Thy Lake
Hill Island Lake
Mistigi Lake
Bedodia Lake
Whirlwind Lake
Pilot Lake
Vandyck Lake
Taltson River
Huntington Lake
Salt River
Largepike Lake
Schaefer Lake
Cunningham Landing
FORT SMITH
Nettell Lake
Patrick Lake
Nisikkatch Lake
Bell Rock
Fort Smith Settlement
Andrew Lake
St. Bruno Farm
Tazin Lake
Fitzgerald Settlement
Fitzgerald
Leland Lake
Aces Lake
Camsell Portage
Nelman Lake
I.R. 224
I.R. 223
Uranium City
Thultus Lake
Hooker Lake
Bushhell
Conibear Lake
Hay Camp
Gunnar
Kennedy Lake
Merryweather Lake
Bryant Lake
Lake Athabasca
Royal Lake
Peace Point
Slave River
Archibald Lake
Loutit Lake
Davy Lake
I.R. 221
Peace River
Carlson Landing
Dowler Lake
Sweet Grass Landing
Harris Lake
I.R. 220
I.R. 218
I.R. 219
Teale Lake
Garden Creek
Fort Chipewyan
I.R. 201A (Chipewyan)
Quatre Fourches
Little Fishery
Mamawi Lake
Bartlett Lake
Fifth Meridian
Lake Claire
I.R. 201 (Chipewyan)
Embarras Portage
Brander Lake
Jackfish
I.R. 217
Richardson Lake
Ruis Lake
Embarras
Archer Lake
KM
0 10 20 30 40
Legend
Reserve
Rapid
Town
Land use

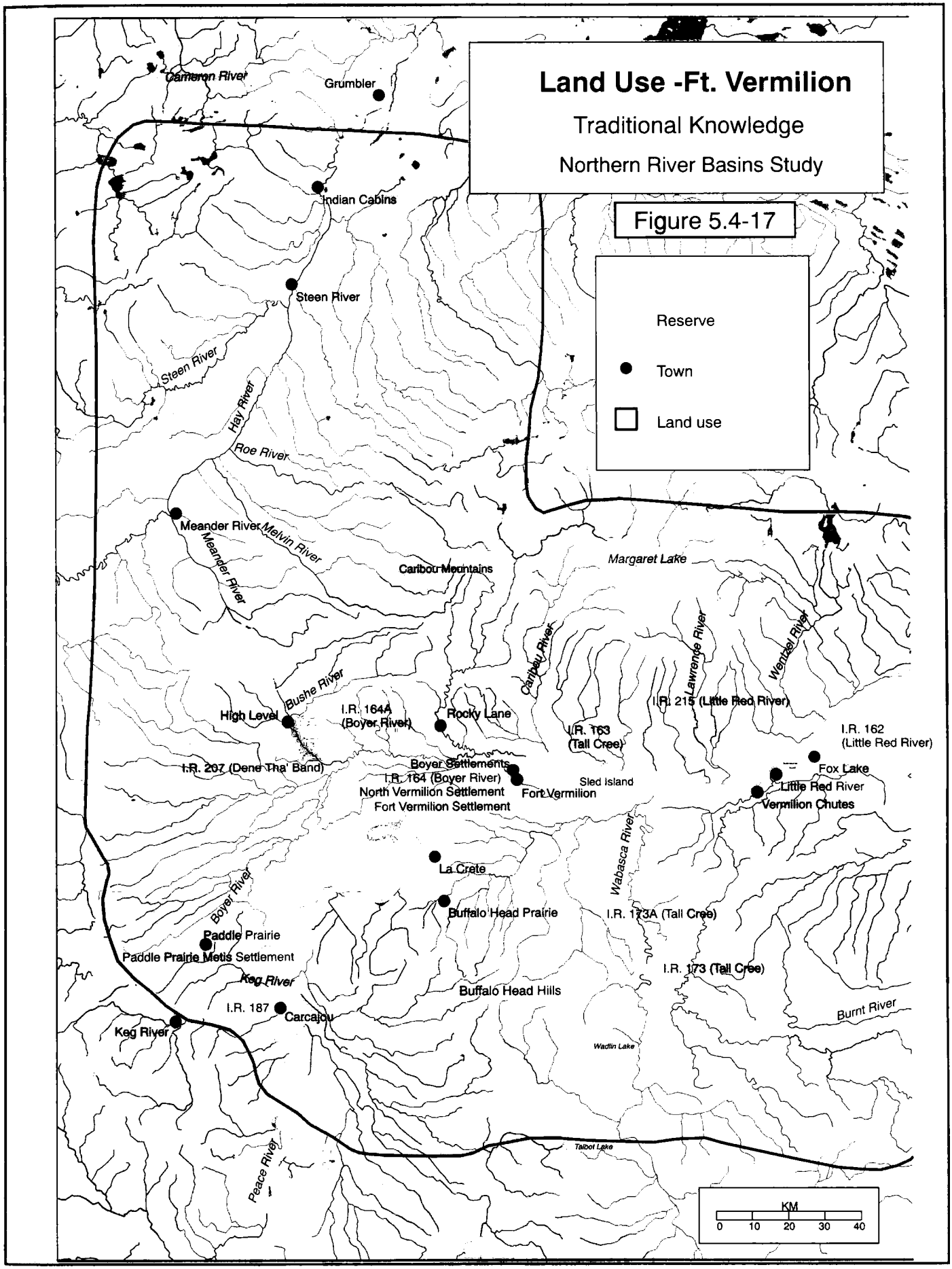

Changes
Fort Smith
Traditional Knowledge
Figure 5.1-18
KM
0 20 40 60 80
Legend
Fire
Industrial impact


Land Use - Little Red River
Traditional Knowledge
Northern River Basins Study
Figure 5.2-17
Thultue Lake
Conibear Lake
Robertson Lake
Kennedy Lake
Merryweather Lake
Rocky Island Lake
Caribou Lake
Wentzel Lake
Pitchimi Lake
Margaret Lake
Eva Lake
Peace River
Garden Creek
Little Fishery
Fifth Meridian
John D'Or Prairie
I.R. 215 (Little Red River)
I.R. 162 (Little Red River)
Boyer Settlements
I.R. 163 (Tall Cree)
North Vermilion Settlement
North Vermilion Settlement
Fort Vermilion
Fort Vermilion Settlement
Fox Lake
Fox Lake
Ruis Lake
Little Red River
Vermilion Chutes
Wabasca River
I.R. 173A (Tall Cree)
I.R. 173 (Tall Cree)
Wadlin Lake
Talbot Lake
Namur Lake
Legend Lake
I.R. 174B (Fort McKay)
Burnt Lake
Legend
Reserve
Rapid
Town
Land use
km
0 5 10 15 20


Changes
Little Red River
Traditional Knowledge
Figure 5.2-18
Legend
Fire
Past land use
Significant change
Past floodsite
Past fishing site
KM
0 10 20 30 40


Land Use - Tall Cree
Traditional Knowledge
Northern River Basins Study
Figure 5.3-17
Pitchimi Lake
Margaret Lake
Eva Lake
Garden Creek
Fifth Meridian
Rocky Lane
I.R. 164 (Boyer River)
Boyer Settlements
I.R. 163 (Tall Cree)
I.R. 215 (Little Red River)
I.R. 162 (Little Red River)
Fox Lake
Ruis Lake
North Vermilion Settlement
North Vermilion Settlement
Fort Vermilion
Fort Vermilion Settlement
Little Red River
Vermilion Chutes
Wabasca River
La Crete
Buffalo Head Prairie
I.R. 173A (Tall Cree)
I.R. 173 (Tall Cree)
Wadlin Lake
Talbot Lake
Bison Lake
Russell Lake
Sawn Lake
Legend
Reserve
Rapid
Town
Land use
km
0 5 10 15 20


Changes
Tall Cree
Traditional Knowledge
Figure 5.3-18
Legend
Fire
Logging
Farming
Old trapping area
km
0 5 10 15 20


Land Use -Ft. Vermilion
Traditional Knowledge
Northern River Basins Study
Figure 5.4-17
Reserve
Town
Land use
Cameron River
Grumbler
Indian Cabins
Steen River
Steen River
Hay River
Roe River
Meander River
Meander River
Melvin River
Caribou Mountains
Margaret Lake
Caribou River
Lawrence River
Wentzel River
Bushe River
High Level
I.R. 164A (Boyer River)
Rocky Lane
I.R. 163 (Tall Cree)
I.R. 215 (Little Red River)
I.R. 162 (Little Red River)
I.R. 207 (Dene Tha' Band)
Boyer Settlement
I.R. 164 (Boyer River)
North Vermilion Settlement
Fort Vermilion Settlement
Fort Vermilion
Sled Island
Fox Lake
Little Red River
Vermilion Chutes
La Crete
Wabasca River
Boyer River
Buffalo Head Prairie
I.R. 173A (Tall Cree)
Paddle Prairie
Paddle Prairie Metis Settlement
Keg River
I.R. 173 (Tall Cree)
Buffalo Head Hills
I.R. 187
Carcajou
Keg River
Burnt River
Wadlin Lake
Talbot Lake
Peace River
KM
0
10
20
30
40

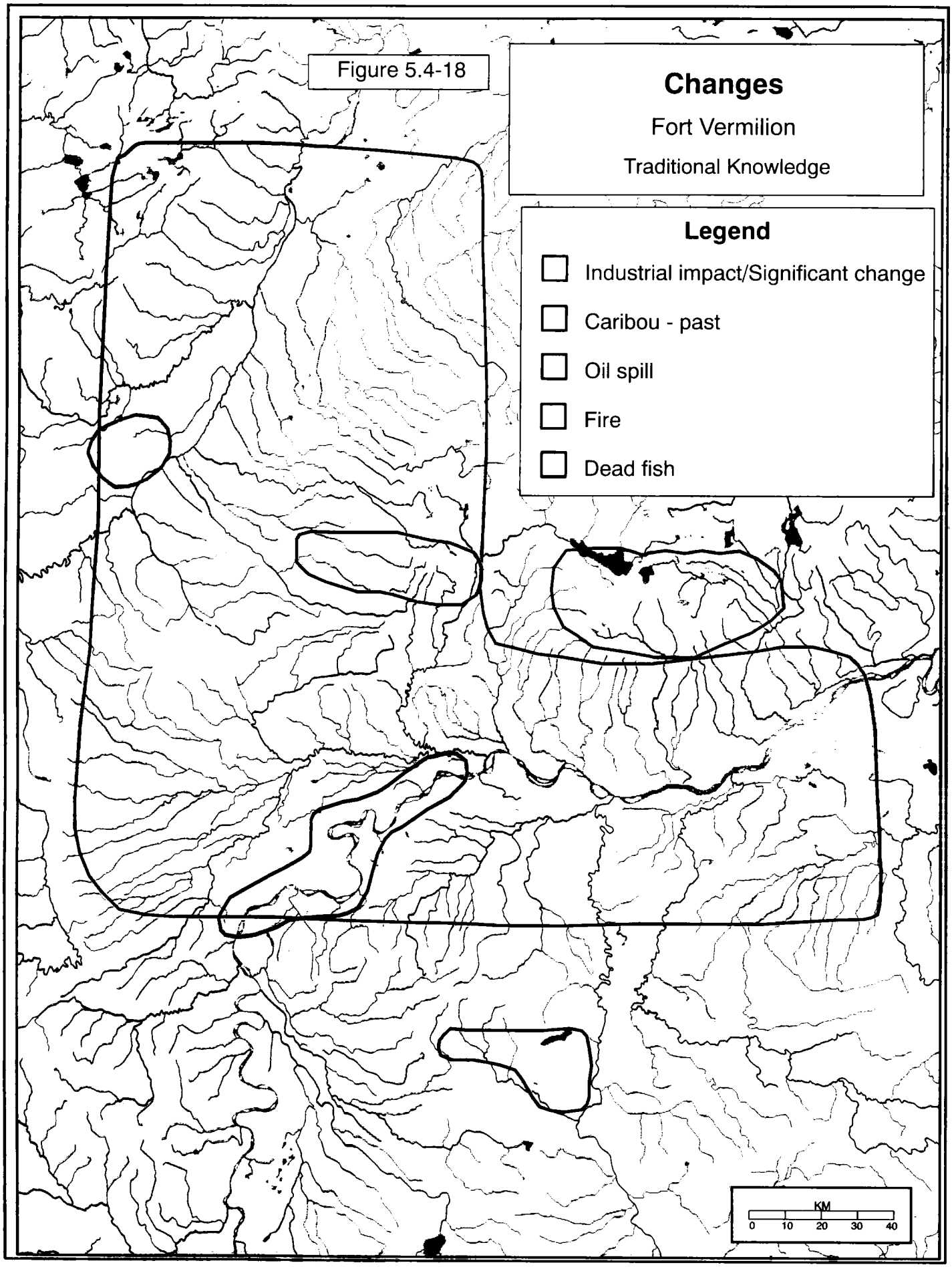
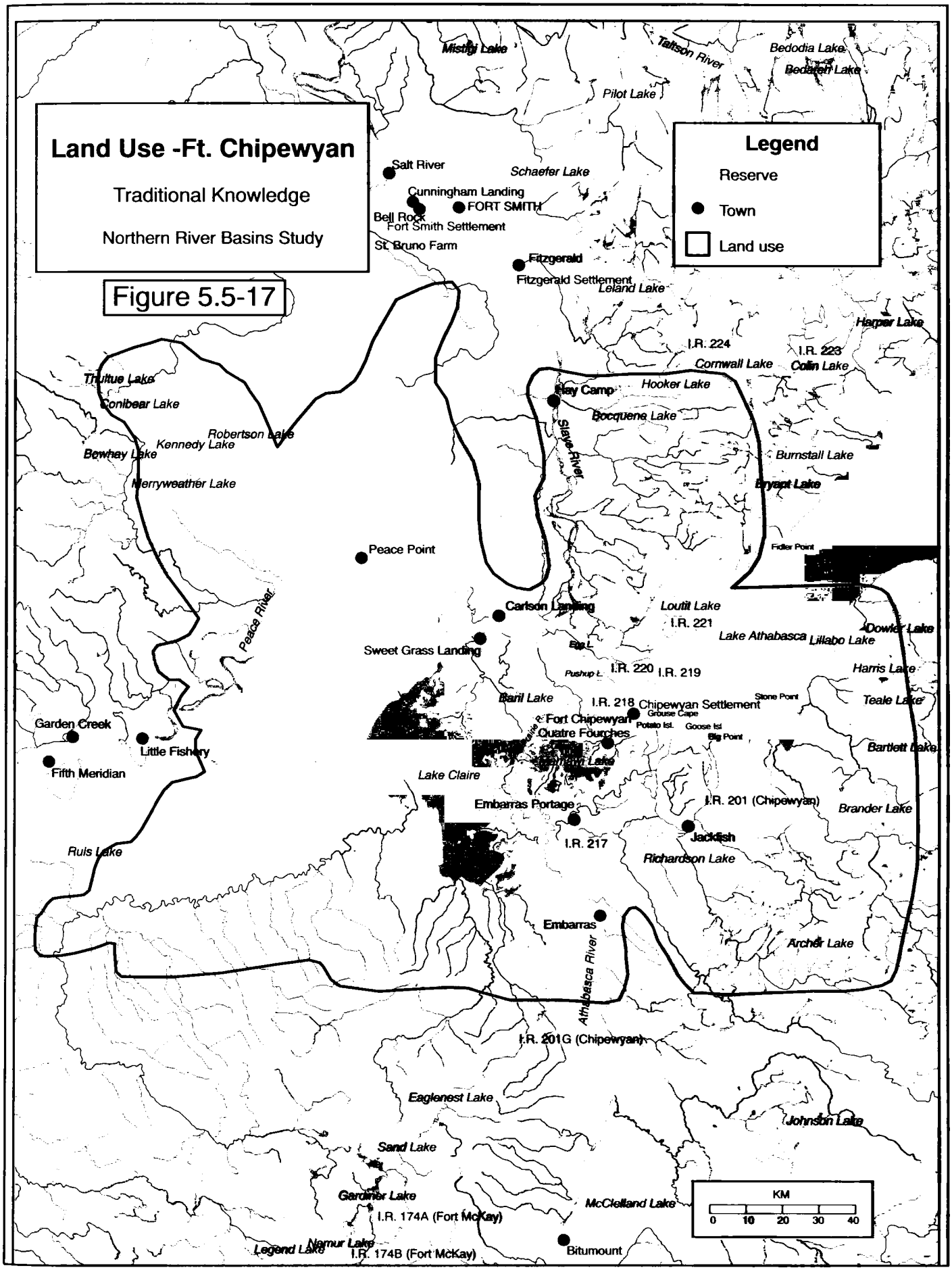
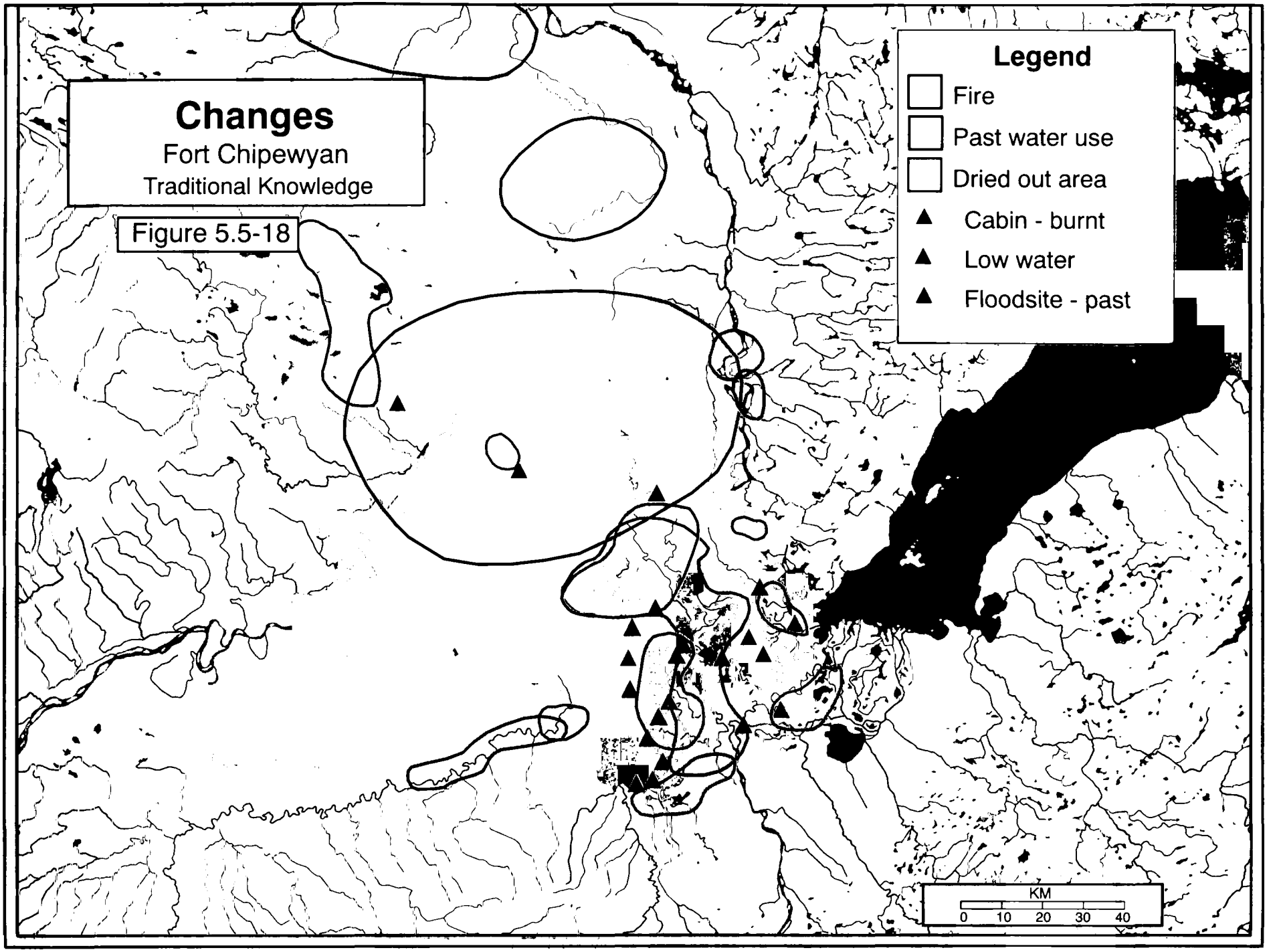
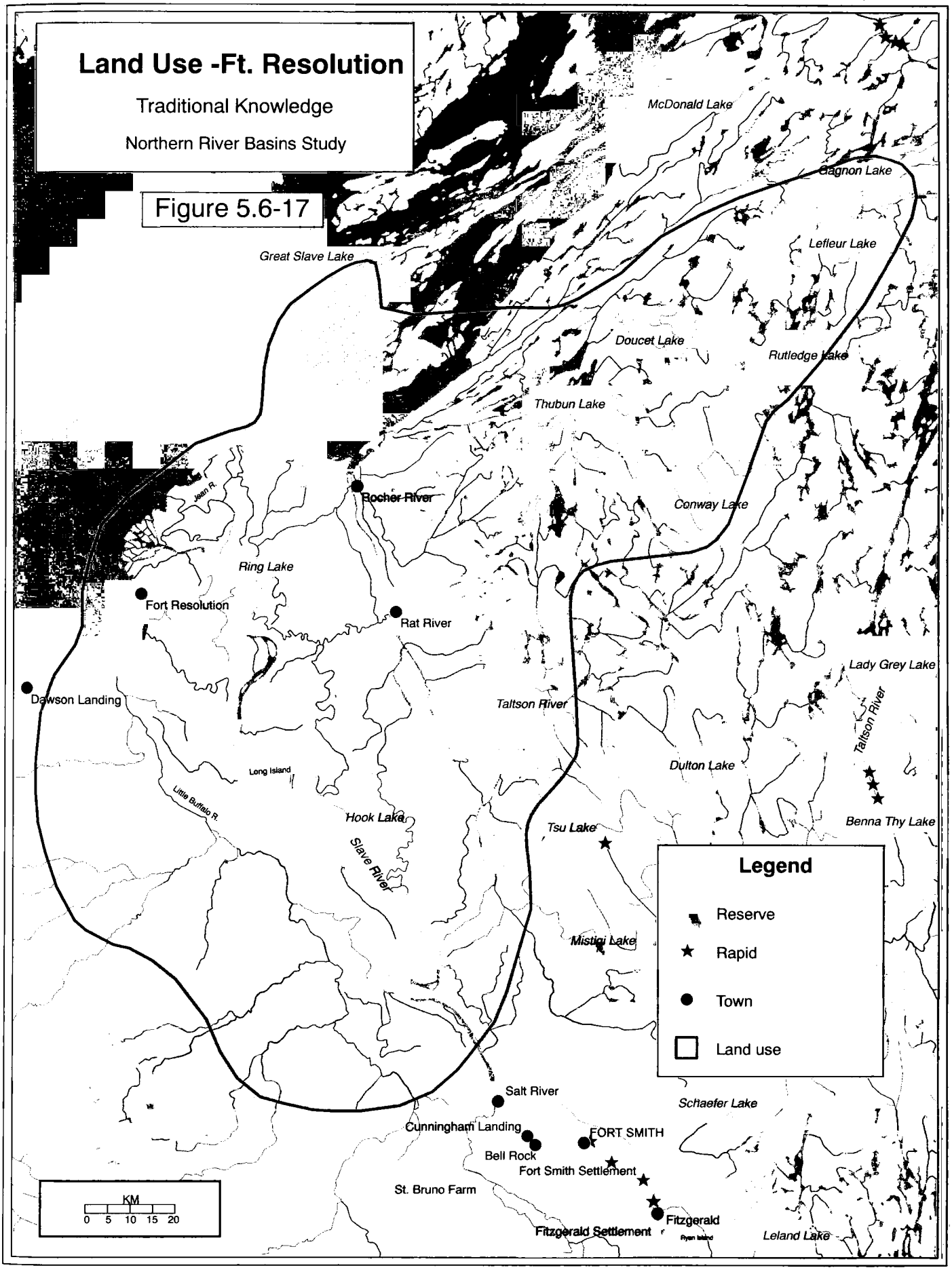
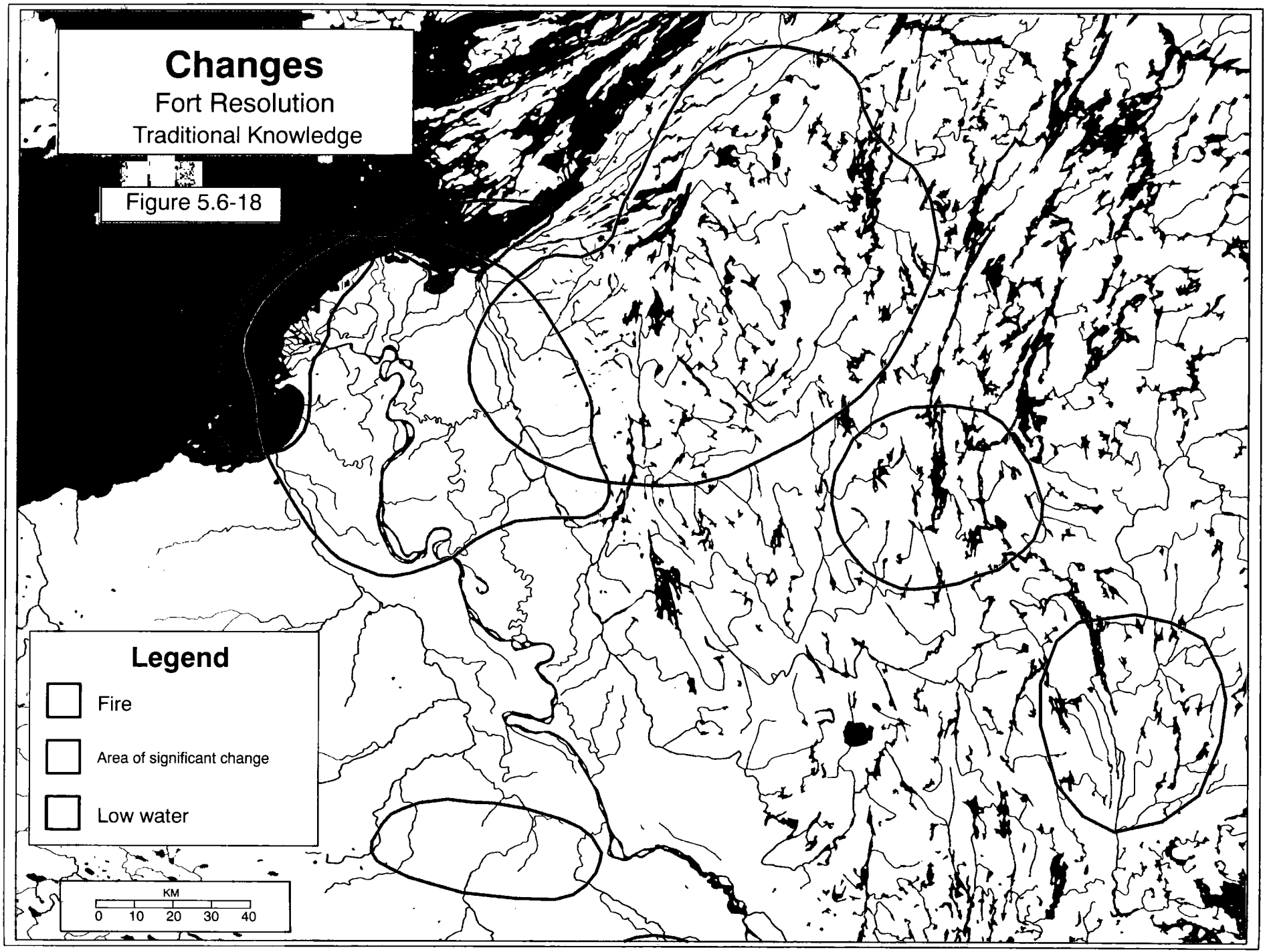


Figure 5.4-18
Changes
Fort Vermilion
Traditional Knowledge
Legend
Industrial impact/Significant change
Caribou - past
Oil spill
Fire
Dead fish
KM
0
10
20
30
40


Land Use -Ft. Chipewyan
Traditional Knowledge
Northern River Basins Study
Figure 5.5-17
Legend
Reserve
Town
Land use
Misty Lake
Talston River
Bedodia Lake
Bedaron Lake
Pilot Lake
Salt River
Schaefer Lake
Cunningham Landing
FORT SMITH
Bell Rock
Fort Smith Settlement
St. Bruno Farm
Fitzgerald
Fitzgerald Settlement
Leland Lake
Harper Lake
I.R. 224
I.R. 223
Cornwall Lake
Colin Lake
Thultue Lake
Conibear Lake
Hay Camp
Hooker Lake
Bocquene Lake
Robertson Lake
Kennedy Lake
Bewhay Lake
Slave River
Burnstall Lake
Merryweather Lake
Bryant Lake
Fidler Point
Peace Point
Peace River
Carlson Landing
Loutit Lake
I.R. 221
Lake Athabasca
Lillabo Lake
Dowler Lake
Sweet Grass Landing
Big L.
Pushup L.
I.R. 220
I.R. 219
Harris Lake
Baril Lake
I.R. 218
Chipewyan Settlement
Stone Point
Teale Lake
Grouse Cape
Fort Chipewyan
Potato Isl.
Goose Isl.
Big Point
Garden Creek
Quatre Fourches
Little Fishery
Bartlett Lake
Fifth Meridian
Lake Claire
Embarras Portage
I.R. 201 (Chipewyan)
Brander Lake
I.R. 217
Jackfish
Ruis Lake
Richardson Lake
Embarras
Archer Lake
Athabasca River
I.R. 201G (Chipewyan)
Eaglenest Lake
Johnston Lake
Sand Lake
Gardiner Lake
McClelland Lake
I.R. 174A (Fort McKay)
Namur Lake
Legend Lake
I.R. 174B (Fort McKay)
Bitumount
KM
0
10
20
30
40


Changes
Fort Chipewyan
Traditional Knowledge
Figure 5.5-18
Legend
Fire
Past water use
Dried out area
Cabin - burnt
Low water
Floodsite - past
KM
0 10 20 30 40


Land Use -Ft. Resolution
Traditional Knowledge
Northern River Basins Study
Figure 5.6-17
McDonald Lake
Gagnon Lake
Lefleur Lake
Great Slave Lake
Doucet Lake
Rutledge Lake
Thubun Lake
Jean R.
Rocher River
Conway Lake
Ring Lake
Fort Resolution
Rat River
Lady Grey Lake
Dawson Landing
Taltson River
Taltson River
Dulton Lake
Long Island
Little Buffalo R.
Hook Lake
Slave River
Tsu Lake
Benna Thy Lake
Legend
Reserve
Rapid
Town
Land use
Mistiqi Lake
Salt River
Schaefer Lake
Cunningham Landing
FORT SMITH
Bell Rock
Fort Smith Settlement
St. Bruno Farm
Fitzgerald
Fitzgerald Settlement
Ryan Island
Leland Lake
KM
0 5 10 15 20


Changes
Fort Resolution
Traditional Knowledge
Figure 5.6-18
Legend
Fire
Area of significant change
Low water
KM
0 10 20 30 40

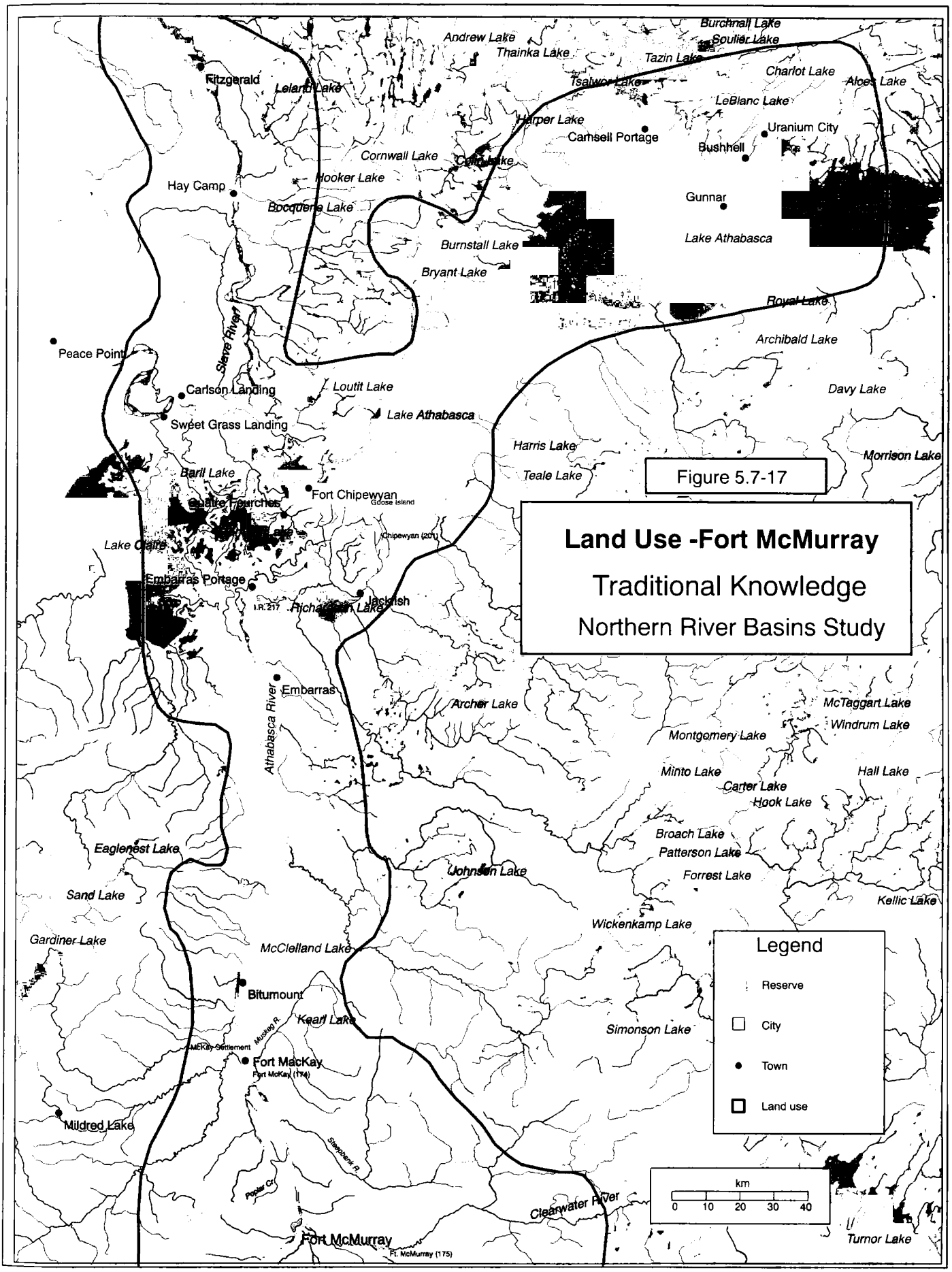
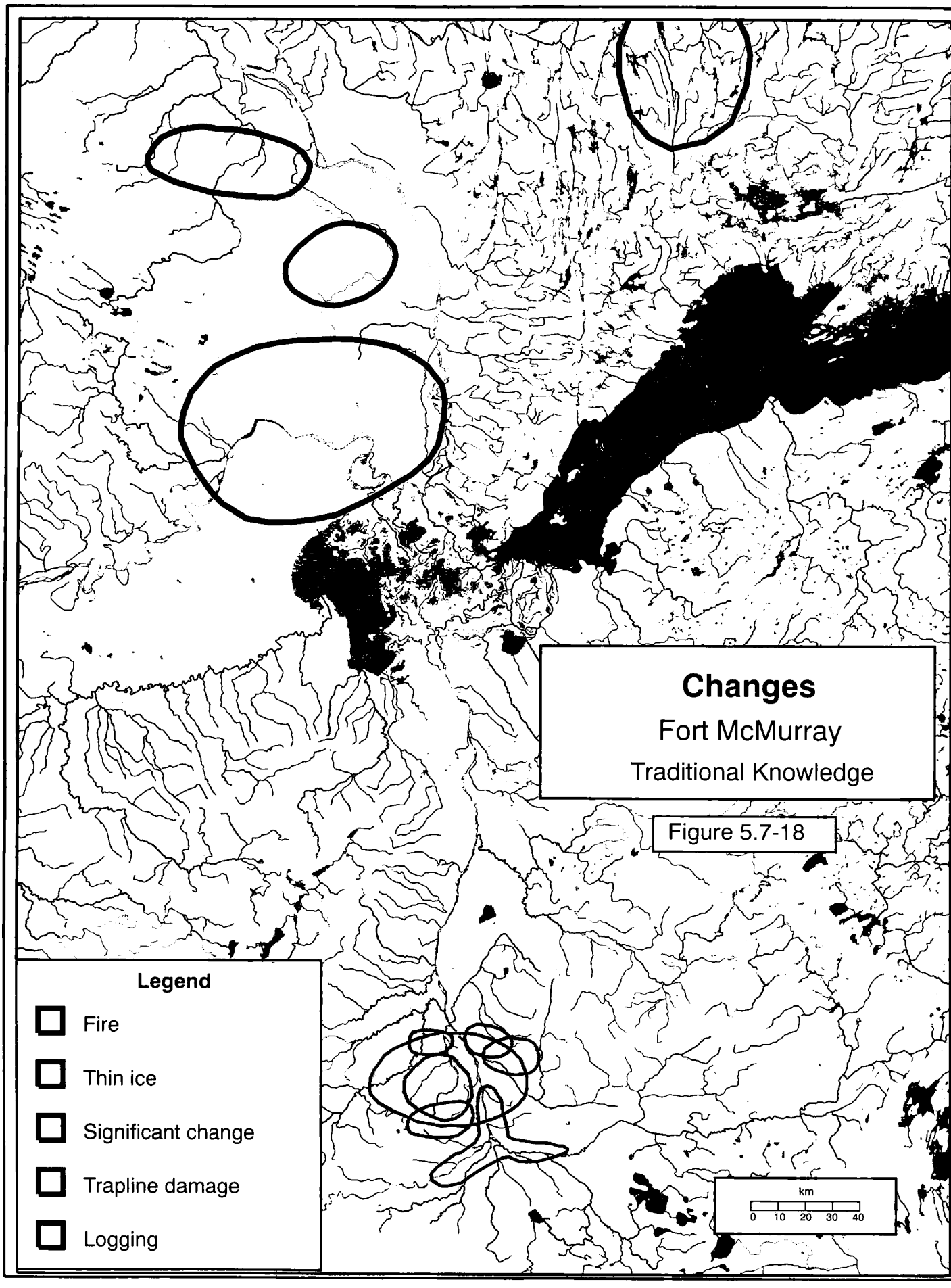


Figure 5.7-17
Land Use -Fort McMurray
Traditional Knowledge
Northern River Basins Study
Legend
Reserve
City
Town
Land use
km
0 10 20 30 40
Andrew Lake
Thainka Lake
Burchnall Lake
Souller Lake
Tazin Lake
Charlot Lake
Alces Lake
Tsalwor Lake
LeBlanc Lake
Harper Lake
Carnsell Portage
Uranium City
Bushhell
Fitzgerald
Leland Lake
Cornwall Lake
Hooker Lake
Hay Camp
Bocquene Lake
Gunnar
Lake Athabasca
Burnstall Lake
Bryant Lake
Royal Lake
Archibald Lake
Peace Point
Slave River
Carlson Landing
Loutit Lake
Davy Lake
Sweet Grass Landing
Lake Athabasca
Harris Lake
Morrison Lake
Baril Lake
Teale Lake
Fort Chipewyan
Goose Island
Chipewyan (201)
Lake Claire
Embarras Portage
I.R. 217
Richardson Lake
Jackfish
Embarras
Athabasca River
Archer Lake
McTaggart Lake
Windrum Lake
Montgomery Lake
Minto Lake
Hall Lake
Carter Lake
Hook Lake
Broach Lake
Patterson Lake
Eaglenest Lake
Johnson Lake
Forrest Lake
Sand Lake
Kellic Lake
Wickenkamp Lake
Gardiner Lake
McClelland Lake
Bitumount
Kearl Lake
Simonson Lake
Muskeg R.
McKay Settlement
Fort MacKay
Fort McKay (174)
Mildred Lake
Steepbank R.
Poplar Cr.
Clearwater River
Fort McMurray
Ft. McMurray (175)
Turnor Lake


Changes
Fort McMurray
Traditional Knowledge
Figure 5.7-18
Legend
Fire
Thin ice
Significant change
Trapline damage
Logging
km
0 10 20 30 40

6.0 SYNTHESIS OF KNOWLEDGE: THE PRESENT ENVIRONMENT

The work that has been completed provides an in-depth and unique view of the environment over a long period of time — the records and collective memory of the people span a period of two full centuries. The collection and coordination of data for such an extensive period has been a great undertaking. The volume of information acquired is vast. The information gathered and collated is presented to the reader using the medicine wheel concept, a process that brings together the individual components allowing us to approach the issues holistically. This concept encourages detection and identification of subtle changes, and to coordinate (as well as differentiate) those changes with the numerical data generated by the hard sciences. The four aspects of the medicine wheel represent the findings and conclusions drawn from the spiritual, emotional, physical and intellectual experiences acquired during the process of information collection, review and assessment.

The spiritual perspective addresses the gaps and the lessons of this study as well as the intricate link of spirit as it pertains to traditional knowledge, the relationship of knowledge holders with the environment, and the expectations of the people who spoke on behalf of their community and in particular for the sustainer of all life "Earth".

The spirit of this work has brought a greater understanding of the value of traditional knowledge and increases the potential for it to be used for future planning and development in a more respectful and holistic way. It needs to be noted that the spirit of this work originated from the people who intuitively knew that the environment (earth) needed their voice to speak on her behalf.

The emotional aspect of this knowledge base has been the mover of this project in that it motivated people to begin a process that others have not attempted. Its presence throughout the knowledge base must not be seen as a weakness, but rather a reflector of an increased need to work toward a greater acceptance of a perspective that may enhance the scientific knowledge base that predominates our world. The emotional element of this report reflects the state of the environment from the perspective of environmental value, and its ability to provide nourishment to its stewards and the products generated from choices and decisions.

The physical aspect of this work has generated an abundant source of knowledge as is shown with the information presented in map format. For First Nations it is a physical validation of a knowledge base held in the minds and hearts of the holders. Its presence will no doubt bring about a greater understanding of the impacts humanity has had on the physical environment, including all life forms. The physical element of this report provides the evidence of change created by choice, and the resulting effects of choice on our physical environment. The data attempt to present the physical evidence by highlighting geographical sites of significant change and effect on the creatures and elements that provide humanity with the capacity to exist in a physical sense.

The intellectual environment, which has posed great challenges and limits of the capacity of all levels of knowledge, has broadened to some degree and hopefully will continue to expand. The intellect of

the past and the present are merged here to bring about a greater understanding of the process and its lasting effects on humanity and on the creatures. The intellectual aspect of this report attempts to provide a perspective of understanding and knowledge that will enable a greater understanding of environmental change and its effects on life. This perspective is presented through the experiences of traditional users and through a serious review of the change that has occurred over a period of two hundred years. It is hoped that this reflection will expand and open the minds and hearts of decision-makers and individuals who are in a position to influence the way in which humanity will continue to utilize the environment for life itself.

The following section provides a collective perspective of the state of the Northern River Basin from an archival, and a Traditional Knowledge perspective. The archival data have been used to provide an historical overview of the land, the water, their resources, and the people who were originally part of the ecosystem. The intent and purpose of this work is to provide a unique perspective from an historical and a present sense, ultimately providing the reader with a picture of the degree of change and the impact that industry and development have had on the spiritual, emotional, physical and intellectual aspect of users. Included in that picture are the environment-dependant elements such as the creatures, who are innocent victims of a mind set that serves mankind only.

6.1 THE SPIRITUAL ENVIRONMENT

The historical research reflects none of the spirituality that may have been part of the traders' lives. Nowhere in the post records is there mention of worship services, belief in the hereafter, or in a mutually respectful attitude between the men (there were no female traders) and their god.

Few if any expressions of connectedness with the land were evident in the records that constitute the ARCHIVES data base. However, records from the diaries of Roman Catholic (Oblate) priests, as well as records from the Anglican diocese of Athabasca, were reviewed. The priests and the ministers themselves must have felt a strong sense of their own religious spirituality, and a strong commitment to their god, to have left their homes and their religious communities to come to this "new" land. The priests and the ministers brought the message of the Christian god to the First Nations peoples, in a manner that was the norm of the era. They provided schooling and health care along with their religious education. Their diaries provide many details of the masses they held, and of the people to whom pastoral visits were made, throughout the area of this study.

By the mid-1800's, the federal government was in need of assistance in implementing the policy of the day — that of re-training the Aboriginal peoples to support themselves through agricultural industries. The government and the churches also recognized that formal education was (and is) important. The federal government paid the churches a per-capita allowance to educate and board the children of the Aboriginal peoples. That there was a culturally destructive element to this process may not have been fully realized at the time; additional information on this process is included in the following Section 6.4.

Katherine Hughes, the first Provincial Archivist, recorded the source of some place names which reflected certain elements of Aboriginal spirituality or traditional knowledge, such as the "resting knoll", and the background to the name "Spirit River" (ID #215, abstract 13). She also mentioned (as did others) that "Peace Point" carries an element of sacredness or spirituality, as it was the place at which the Cree and the Montagnais forged a lasting peace.

The spiritual beliefs of the First Nations people, especially those associated with wildlife resources, were recorded in a few of the documents incorporated in the ARCHIVES database (ID #183, abstract 109; ID #58, abstract 16).

It should be noted here that, when the researchers undertook the review of archival records, it was with the intent of finding environmental (not spiritual) information. Notwithstanding that assignment, the overall tone of the archival records gives little indication that the Euro-Canadians felt the same sense of connectedness with the land as did the Aboriginal peoples, until the immigration of those who lived directly and closely on the land (that is, the farming settlers). Due to the restrictions of time, few diaries or records from the settlers were included in the activities of this project.

The community researchers specifically sought information with or from the elders, to identify the sense of spirituality that is shared between the people and their environment. Throughout the narrative, the people expressed their sense of respect for the land and its inhabitants (both animal and plant, as well as the "inanimate" components of the land).

The elders consistently told the interviewers of their respect for the land, and their feeling that their connection with the land is integral to life itself. They indicated that the First Nations ceremonies are a way of showing their gratitude and acknowledgement for the land and its parts.

The elders mentioned that the importance and sacredness of some of their traditional ceremonial or sacred sites have been disregarded by Euro-Canadians. For example, the Alberta Housing building in Fort Vermilion was erected on a site that has spiritual significance to the First Nations peoples, and a Roman Catholic church grotto was destroyed for highway construction close to Ft. McMurray.

There is little or no mention in the ARCHIVES database of medicinal plants or of healing practices. The narrative does contain a few references to traditional healing, and the use of medicinal plants. This information is not lightly discussed, however, as healing and spirituality are closely intertwined and are intensely personal and private. Neither do the narratives discuss, in detail, these matters. It is obvious however, that some elements of healing are practised by First Nations people, but that those practices are not open to discussion with outsiders.

6.2 THE EMOTIONAL ENVIRONMENT

The emotional connectivity of the elders and those who took part in the community research project is clear and obvious in the way in which they refer to the land and its resources. That connection with

the land is only occasionally shown by those whose records were included in the ARCHIVES database, and is most apparent with those who live closely in tune with natural occurrences. The two women whose diaries are included within the ARCHIVES database records wrote with an apparent understanding of, and connection with, their environment.

Emotional perceptions and spiritual concepts are closely aligned with one another. For example, William Ogilvie, the Dominion Land Surveyor, mentions in his record (ID# 52, abstract 20, 1883) regarding the Caribou Mountains: "The Indians speak of beautiful many-coloured stones seen in them..". The people of today recognize, as did their ancestors, the special status of these mountains.

A few of the records in the ARCHIVES database, notably the diaries of some settlers and that of the provincial archivist (Katherine Hughes), indicate that many of those people did develop a love for, and connectedness with, the land. For example, Katherine Hughes described the land in descriptive, sensitive terms totally unrelated to the terms used by those who perceived the land and its resources from a purely market economy perspective.

Those who survive through traditional means practice their respect for the land and its resources in ways that ensure consistent, long-term mutuality. For example, the First Nations peoples noted that when beaver are harvested at a den, at least two young ones from each litter are left to carry on the partnership. The situation today appears to be that:

1. The elders and those who have lived closely with the land, regardless of racial heritage, feel a strong respect for the land, its intricacies and inter-relationships.

2. There is an equally strong sense that governments and business feel none of that respect; indeed, that those institutions view the land as a set of resources which are owned by those institutions and are there for the express purpose of exploiting the resources without putting back into the land that which has been taken.

3. There is a resurgence of native spirituality throughout the nation; that spirituality incorporates knowledge of, and respect for, the land.

4. The Aboriginal peoples are willing to share their knowledge and their connectedness, as part of a mutually beneficial partnership, with governments and industry.

5. The relationship developed by those with traditional knowledge, with the land and with each other, is seen as a foundation upon which to form partnerships that will benefit all parties in the short term, as well as providing long-term appropriate maintenance of the environment.

Those who are in touch and "in tune" with the rhythm of the land clearly have strong emotional links with the environment and the elements that together make up the whole. That there is intrinsic value to

environmental integrity is as obvious to those people as is the current lack of overall environmental respect. Significantly, those who live with and love the land do not expect a cessation of development; rather, they support dvelopment exercised in a loving and respectful way.

6.3 THE PHYSICAL ENVIRONMENT

6.3.1 The Water

Within the Northern River Basin Study area, the availability and quality of water has been and currently remains a cornerstone to the support and quality of life. The presence and quality of water effects human occupation, transportation, sustenance, and the presence or absence of plants and animals comprising ecological systems dependent on standing or flowing water.

Although the predominant hydrologic elements of the region appear to have remained essentially the same since European immigration occurred in the 1700's, comparisons between the ARCHIVES database and current traditional ecological knowledge suggest that changes have occurred in both the quality and quantity of the waters in the region, as well as in the time at which climatological activity took place.

From the absence of frequent or common reference to water quality in the ARCHIVES database, it must be assumed that the quality of both standing and running water throughout the region was high, or at least was suitable for the uses to which it was put. On only rare occasions, such as those encountered in the Salt River basin (ID#179, abstract 4) and during low water levels in Lesser Slave Lake (ID# 139, abstract 2), was the quality of water for human use identified as being problematic. Based on the analysis of traditional knowledge sources throughout the northern portion of the region, consistent reference was made to the fact that in the past, the quality of drinking water was not a problem because water, especially running water, was abundant and clean. There are references throughout the database to rivers and streams that contain sparkling, clear water. In more recent times, however (that is, for about the last fifteen years), drinking water has had to be carried for use while travelling.

The only record in the ARCHIVES database which contains reference to drinking water that is of poor quality because of water-borne vegetable matter was that of ID#139. At the time the record was created (December 1905), the water levels were very low, a result of several abnormally dry seasons. The water of Lesser Slave Lake became unfit for human consumption. There is no other mention of high vegetation growth, including algae growth, anywhere in the archival records of the study area's water environment. At present, fishing nets placed in Lake Athabasca must be cleaned of algae at least twice a day.

The cause for concern over the quality of drinking water taken from rivers such as the Peace and Athabasca, relate to the belief that "poisons" have been deposited in them by the pulp and paper mills. There has been an increase in the turbidity in rivers such as the Peace River, rivers in the region have occasional oily film on them, and treated water from towns have a strong bleach flavour which many people believe contributes to various physical ailments.

The ARCHIVES database makes little reference to the use of snow or ice being used for the purpose of drinking water during the winter. Based on the traditional knowledge of Aboriginal people in the region, snow and ice were undoubtedly commonly used during the winter months by both First Nations persons and the newer residents of the area (traders, settlers, police, and others). The community research shows that snow and ice were commonly used by Aboriginal people living in the region, up until the past fifteen years. The practice of using snow and ice as a source of water has gradually been curtailed in recent years due to the belief that local precipitation is contaminated with pollutants such as chemicals and particulate matter from industrial discharge, and ash contamination from large forest fires. It was quite common, during the community research, to have individuals comment that they had observed "dirty" snow.

Although localized scarcity of water was recorded in a few of the ARCHIVES records (ID #37, abstract 12; ID #224, abstract 24), generally there was extensive standing and flowing water present in most of the region during the period of early occupation by Europeans. Surface water in the form of bogs, fens, marshes, ponds and lakes were apparently abundant during this period and were referenced in the ARCHIVES database as being obvious features of the landscape at that time (ID #52, abstract 5, 17, and 19; ID #200, abstract 7; ID #241, abstract 18). From a traditional knowledge perspective, there is general acknowledgement that the land has less moisture now than it had in past times. This condition is considered to be due, in part, to less precipitation as well as a reduction in the moisture retaining capacity of the land. The land's reduced ability to retain moisture is generally attributed to deforestation caused by industrial activity. In the view of the majority of those consulted, from a traditional knowledge perspective, water levels have dropped markedly over the past fifteen years. In the past, overland travel during the summer resulted in an individual getting wet due to the standing water present on the land. Today this would not occur because there is significantly less standing water on the land than was previously true. This condition was further corroborated by the common observation that many of the smaller lakes and streams are dry where once they were full of water.

In the larger rivers, turbidity was prevalent and documented in the ARCHIVES records. The most vivid description of the turbidity in the Peace, Smoky and Athabasca Rivers was in 1908 (ID #238, abstract 10) where these waterways were described as being "...too muddy for any [fish] but char and mud pouts. Eels might thrive...". From a traditional knowledge viewpoint, the larger rivers are recognized as having greater turbidity during the periods of increased runoff in the spring and summer months. However, it is a commonly shared view that in the past, the water in these larger rivers cleared during the late fall and winter months. Turbidity and increased sediment loads are viewed by the Aboriginal people in the region as being year round occurrences today suggesting changes in the flow regimes and drainage stability of these river systems.

Changes in the seasonal flow regimes of rivers were well documented in the ARCHIVES database due to the dependence of travellers on either ice free rivers or rivers that were frozen to afford safe travel on the ice. Rapid upward fluctuations in the flow of these rivers were common during the spring breakup and, baring unusual precipitation, a gradual reduction in river flows occurred in late summer and fall with the lowest flows being maintained throughout the winter months. Generally speaking, ice

formation on rivers occurred during the low water regimes of late fall and early winter. This ice formation resulted in an ice/water interface that was relatively stable throughout the winter unless unusually warm thaws occurred during the winter months. ARCHIVES database record #183, an extract from Peter Fidler's journal of two hundred years ago, indicates that the Athabasca River ice was so strong that it bruised the bark of the trees more than thirty (30) feet above the normal water level of the river. The archival records frequently refer to the effects of ice jams in the spring, such as those along the Slave River, recorded by Dewey Soper in 1933. In 1909, William Pearce recorded the ice jams on the Peace River; those jams caused rapid rises and falls in river levels (two or three feet in a few hours was common). The environmental impact of these ice-jam caused floods was undoubtedly significant and needs to be further studied and understood. Those people having traditional knowledge of this region indicate that with the stabilization of the annual flows of the Peace River, the ice is now thinner, weaker, more porous and dirtier due to increased year-round turbidity.

The presence and formation of islands and sand bars in the Peace, Athabasca and Slave Rivers was commonly recorded in the ARCHIVES database (ID #52, abstract 13; ID #226, abstract 1). Observations by Aboriginal people in the region suggest that island and sand bar formation is occurring at a more frequent rate than experienced in the past. In addition, there are also more noticeable changes in river currents and channels than have occurred in the past.

The normal cycle of low water levels from late fall until early spring is clearly documented in the archival records. Typically, low water levels began to affect transportation by mid-October, with significant increases in levels again apparent by approximately the end of May each year.

Flooding of the Peace and Athabasca Rivers as well as the Peace-Athabasca Delta and Slave River Delta, particularly during the spring break-up and early summer, was an event regularly recorded in the ARCHIVES database (ID #216, abstract 9; ID #27, abstract 40; ID #214; ID #135, abstract 1 - 3; ID #228; ID #229, abstract 5; etc.). From a traditional knowledge perspective, flooding is considered a "washing of the land" and a time of rejuvenation of the living things supported by the land. It is believed that "...even the flowers seem to be brighter and more beautiful after a flood." The benefits of flooding, as perceived from a traditional knowledge viewpoint, focus on the scouring of shorelines along major rivers which allows for the convenient use and access of these shorelines when water levels recede, and the rejuvenation of vitality in perched basins and flooded lowlands through annual enrichment with silt laden waters. Aboriginal people noted a reduction in seasonal flooding of the major rivers, particularly the Peace River, during the spring and early summer periods when these rivers have historically flooded. The change in flow patterns of these rivers is attributed to either the damming of the rivers or diversion of waters for industrial or municipal use. Stabilization of the flows of these major rivers is considered by those having traditional knowledge of the region as contributing to a reduction in the productivity of the lands that were historically flooded and marked encroachment of plant species that are not tolerant to flooding. In general, those having extensive traditional knowledge experience believe these changes to have negative impacts on the land and the resources that have historically occupied this region.

It was common, in previous years, to see animals such as deer and black bear close to the river in the Dunvegan area, such as was recorded by the "Last of the Bourgeois" (ID#158). Deer are seldom found in the Dunvegan area today.

The lakes in the study area were commonly used as sources of food fish, according to the ARCHIVES records. Frequent references are made to fishing (especially by Aboriginal peoples) in the lakes of the Caribou Mountains especially, as well as Lake Athabasca, Lesser Slave Lake, and numerous other smaller lakes.

The large lakes, especially Lake Athabasca, vary considerably from side to side, end to end, and all along the shorelines. The ARCHIVES database records clearly show that certain bays were safe havens during storms, were good (or unproductive) for fishing, were relatively easy to pull boats up onto shore for the night, or were productive places from which to take wood for the steamboats. These variations are clearly described both by the Geological Survey of Canada records of the late 1800's (ID#146, 147) and by the records of early explorers such as Peter Fidler (ID #183). A detailed comparative exploration of these microclimates could be considered for use in defining the current environmental status, as well as the changes that have occurred in the past two centuries.

Elders from Aboriginal communities recognize water as "...the giver of life" and believe water is the most significant factor in determining change. The elders spoke of the vitalness of water to the livelihood of the people and the inter-relationship it has to all elements of the region. They recognize that wildlife, fish, the land, and the people depend on the presence of water for their existence and the continuance of a traditional lifestyle. The Aboriginal people advocated that there is a need for greater respect for the water by all people, particularly governments and industry, if the future well-being of Mother Earth is to be maintained for future generations.

6.3.2 The Land

The land was described in the ARCHIVES database primarily from the perspective of basic landform and geology for the purpose of logistical requirements (i.e. transportation), forestry resources, agricultural potential, or mineral potential (ID #183, abstract 18; ID #226, abstract 1; ID #52, abstract 3 and 17; ID #238, abstract 8; ID #205, abstract 5; ID #216, abstract 5).

Traditional knowledge and lifestyles focus on the land in an entirely different way than is reflected by the observations in the ARCHIVES database. From a traditional knowledge viewpoint, the land is viewed as being connected with the people in a way that promotes mutual well being. The land encompasses all of the elements of creation (i.e., biological, geological, meteorological, and astrological) and fosters a close and mutually beneficial interrelationship. Land is considered sacred to the holders of traditional knowledge. Access to the land in a traditional manner substantiates the ideology of Aboriginal people and is fundamental to maintaining their traditional ways. The land is seen as a gift to be used in a respectful manner. Human beings were allowed to use the earth's resources; the earth expected that men and women would do so with respect and that they would return the resources to the land.

Those with traditional knowledge have gained their knowledge through familiarity with the land, going back for generations. Trails were developed over the years by traditional travellers, and were acknowledged in records such as those of the geologist Robert Bell (ID#133, abstract 1, 1909), who described the trails that "go out from Vermilion in all directions. One of these goes north. By following it for 2 days journey you come to the Caribou Mountains."

There are various areas related to treatment of the land that are of concern to the holders of traditional knowledge. Deforestation is generally considered to have both immediate and long-term detrimental effects on the land. This activity is viewed to have detrimental effects on the hydrology of the region causing a reduction in the capacity of the land to retain water and subsequently to disrupt the flow of water off of the land into the rivers and water bodies of the region. This situation is further exacerbated by the agricultural practice of draining wetlands in the region. It is believed that this combination of factors has contributed to a general drying effect on the region which has further contributed to the vulnerability of the region to forest and grass fires. In the view of some of the holders of traditional knowledge, the removal of forests through logging and agriculture has also contributed to an increase in the frequency and velocity of winds experienced in recent years.

From a traditional knowledge perspective, there is a need to work with the land in a more harmonious way. Toward this end, it was advocated that there is a need to protect forested areas from further tree removal and to accelerate reforestation efforts in areas already cut. Consideration should also be given to go back to selective logging techniques as a more ecologically sensitive approach to logging than clear cutting. Although not explicitly stated, it was clearly implied that land use in the form of logging and agriculture be approached from a more holistic perspective with greater consideration for the overall ecological health of the region as opposed to a narrow resource sector viewpoint. With regard to agricultural development, cessation of wetland drainage and the use of alternatives to agricultural chemicals (ie. pesticides, herbicides, and fertilizers) be seriously considered.

6.3.3 Plants

The plants found in the study area were described in great detail by those who were responsible for recording environmental information related to the study area, and which are now found in the ARCHIVES database. For example, William Ogilvie (Dominion Land Survey, 1883) recorded the size of the alders (8" diameter), birch (6 - 7" diameter), spruce (12 to 14" diameter, and 100 to 120 feet high), and poplar (small, large) along the Athabasca River.

Few trees of these sizes were mentioned by the community elders. The environmental impact of no longer having a vast amount of trees in that earlier-recorded size range has not been measured by the Northern River Basins study components.

6.3.4 Climate

The climate, including both normal and unusual climatic occurrences, is critically important to those who live on the land. Indeed, the understanding of such occurrences and their impact is often a matter of immediate life or death. Similarly, the climate may well impact life or death on a longer-range basis through variation from the norm of precipitation, wind, and temperature. The ARCHIVES records contain excellent and detailed descriptions of the area's climate. The norm appears to be that, with some exceptions, autumn temperature drops to below freezing occurred prior to the onset of snow. The database records provide detailed information on the dates of early and late frosts, snowfall (such as the snowfall at Ft. Chipewyan on October 24, followed by a heavy frost as recorded in ID#52, abstract 10). Record #183 records a sharp frost, followed by continual snow starting on September 25 — preceded by a strong rain on September 17). The winter of 1886-87 was severe, but with lots of snow. Throughout the study area, heavy rainfalls in April or May were not uncommon during the period covered by the archival records. Great winds were recorded in 1791 and 1872. Thunderstorms were common, especially in the Lake Athabasca area. Chinooks occurred in the Peace River region.

The traditional knowledge recollections indicate that it is much more common today to experience snow falls prior to below freezing temperature drops, than was true in the more distant past. The effect of snow falling before, rather than after, the onset of ground freezing is important to plant life, to the life and activity of small mammals, to the soil micro-organisms.

Detailed weather records were created at each of the Hudson's Bay posts. To our knowledge, those records have not been extracted and converted to machine-readable form for analytical purposes. This process, once accomplished, would provide the researcher with firm data for comparative purposes.

6.3.5 Fire

Throughout the records of the ARCHIVES database, references to forest or ground fires shows that Europeans used terms such as "devastated", "only windfall", "sorely marred" to describe areas through which fire had burned. There were essentially no comments on the positive effects of fire.

Neither did the Europeans distinguish the differences among ground fire, grass fire, brush fire, forest fire. The effects of these fires are, in fact, highly significant for subsequent regrowth. For example, in areas where fire is a frequent occurrence, the new growth at any given time consists of grasses, sedges, and smaller shrubs or trees. In such an environment, there is insufficient fuel to enable a fire to reach extremely high temperatures. As a result, little damage is done to the soil and its micro-organisms. On the other hand, where fire occurs infrequently, tree size becomes significantly greater than would otherwise be the case; fires that burn through those areas may reach very high temperatures. The resultant damage to the soil prevents rapid regrowth and, therefore, encourages erosion.

The occurrence of fire, or of areas burned over prior to records generation, is commonly noted in the ARCHIVES records. For example, Robert Bell, Dominion Land Surveyor, recorded that a large portion

of the Birch mountains had been burned over but were (at that time) covered by windfall and scrub (1915). Many other specific areas are noted in the archival records. The current ecological status of those areas has not been addressed in this study.

Fire played an integral role in the life and practices of traditional land users, including the First Nations people as well as Euro-Canadian settlers and farmers, until the time that fire became an entity that was perceived as requiring control.

6.3.6 The Wildlife and Fish

European immigrants brought with them a different set of values regarding wildlife than those held by the indigenous people occupying the region. These immigrants left behind a system of access and ownership of wildlife that limited the benefits of these resources to the wealthy and to those of royal blood. In defiance of this system, European immigrants fostered a view that access to, and use of, fish and wildlife resources was openly available to them. Over the years this philosophy was eventually translated into the legal position that the ownership of wildlife was with the Crown for the people.

Europeans also introduced the concept that wildlife or parts of wildlife could have a commercial or market value. Although the Aboriginal peoples of Canada commonly exchanged or gifted wildlife and fish, the European concept brought with it the idea that commerce or monetary gain could be made from wildlife so long as there was a product that had a market demand.

Extensive references are made throughout the ARCHIVES database to fish and wildlife resources. With minor exceptions, those who scribed the records in the ARCHIVES database did so from the perspective that fish or wildlife were viewed as commodities (eg. fur bearing animals) or important elements of the provisions (ie. food) needed to support the fur trade infrastructure. The underlying philosophy of those who wrote the documents included in the ARCHIVES database appears to have been either a profit motive or a cost effectiveness motive. Few documents containing information about either fish or wildlife were prepared for any other apparent reason. This situation is understandable when one considers the fact that the basic thrust of the fur trade was that of profit; furthermore, the fur trade industry was highly competitive. It is not an exaggeration to conclude that the tone and concise nature of the fish and wildlife records, as created by the traders, give a distinct impression that the early European immigrants considered the land's resources to have been there solely for the economic benefit of those traders.

A few exceptions to the preceding philosophy do, however, exist. For example, records generated from Jasper National Park tend to focus on the fish and wildlife resources from a conservation and preservationist viewpoint (ID #102 - 105; and ID #109 - 110). Furthermore, as time went on immigrants having interests other than in the fur trade began to move into the region. Some of these individuals, such as Katherine Hughes, displayed not only a keen interest in the environment and ecology of the region but they also reflected exceptional descriptive detail in the records of their observations (ID #216, abstract 26).

The holders of traditional knowledge view wildlife and fish resources from a much different viewpoint than that reflected by the early European immigrants to the region as well as most Euro-Canadians of today. As noted in greater detail in other parts of this report, Aboriginal culture views fish and wildlife from a more holistic perspective as integral extensions of Mother Earth. Each living entity is bestowed spiritual meaning and purpose. Such recognition further acknowledges that living things receive a high degree of respect and reverence in their treatment. From an holistic viewpoint, the abundance and health of the fish and wildlife in a region signify a healthy environment. Within the realm of traditional knowledge, birds not only are viewed as a resource that the Creator put on the earth for people to use as well as having an important place in the web of life, but "... birds also bring beautiful sounds and happiness to the land". Although Aboriginal people harvest fish and wildlife for their use for food, clothing or shelter, the taking of these resources is done with considerable sensitivity to the health and well being of the population as a whole so that over-harvest does not occur. In particular, Aboriginal people recognize that respect for the land and the environment that supports the fish and wildlife resources is an over-riding principle that is fundamental to the perpetuation of these resources. This respect for the land, and the animals that are produced from the land, forms an important aspect of Aboriginal spirituality. For example, in parts of the region the Aboriginal people place the bones of animals in trees located at specific sites as a sign of respect for the animals they have taken. It is interesting to note that one of the earliest recorded observations in the ARCHIVES database (ID #183, abstract 109, 1791) was made of a spiritual ceremony conducted by Indians after they had killed a black bear. During this ceremony, the hide of the bear was burnt and "...the large bones of the bear were cast to the four cardinal points." This observation is one of the few in the ARCHIVES database which reflects the connection and spiritual aspect of the Aboriginal people with the animals who shared the environment.

Generally speaking, information generated from traditional knowledge suggests that, with some exceptions, fish and wildlife populations have gradually decreased, within the living memory of those involved. The causes of these decreases have been attributed to changes in the flow patterns of rivers and a drying of the land, intensive fires in the summer and fall, mining, logging and road development. Each of these factors, either individually or in combination, are viewed to have contributed and continue to contribute to changes in the environment. Those changes are believed to reduce or eliminate the capacity of the land to support healthy fish and wildlife populations. Alternatively, these same factors are believed to have contributed to an increased harvest of the fish and wildlife resources due to a reduction in the security level of the animals involved.

Although examples of these effects can be gleaned from the traditional knowledge, community research documentation, the following specific examples have been chosen as representative of the concerns involved. Reduced flow patterns of the rivers forming the Peace-Athabasca Delta are attributed as the cause for significant reductions in muskrat populations over the past twenty years, but most noticeably in the last ten years. When water levels are high and the perched basins get flooded and preferred food becomes available, muskrats quickly respond with up to three litters of young, each of which may consist of up to twelve young. The experienced hunters and trappers in the area indicate that, in the absence of additional flooding, the muskrat habitat and populations continue to do well for about two years. In the opinion of those involved, the last high water year was in 1937. Trappers noted that in

advance of the muskrat population decline, the muskrats become skinny and exhibit marks on their liver and lungs. Some muskrats may also have a pus accumulation around the heart and liver.

Low water flows are thought to have caused the decline in bison (buffalo) on the Peace-Athabasca Delta. The changes in plant communities with increased willow and forested areas occurring along with a steady reduction in "prairie" or sedge meadow habitat are viewed by Aboriginal people as the specific cause of the reduction in bison populations on the Delta. There are some who also believe that the decline in bison began to increase when the government initiated disease control efforts in the area (i.e., through inoculations).

Consistent with the observations of increased willow and forest encroachment on the Peace-Athabasca Delta, Aboriginal hunters from the area indicated that moose populations had increased and stabilized in recent years. Clearly this change in plant composition of the Delta may favour moose, which prefer willow and shrubs for food along with mature forested areas for security from the weather and predators. In areas west and south of the Peace-Athabasca Delta within the region, moose populations are considered in some difficulty because of extensive logging, land clearing, and increased road access created from logging and industrial activity resulting in a more efficient harvest by both Aboriginal and recreational hunters. Of particular concern to Aboriginal people is the harvest of male moose during the breeding season. It is believed that male moose should not be harassed during that period because of their increased vulnerability, as well as the reduction in calves which results from human interference with the rut.

Migratory bird use of the Peace-Athabasca Delta is also considered to be much reduced for both breeding and staging during the spring and fall migrations. In particular, ducks and geese are believed to use the delta area significantly less than was previously true. The reduction in use of this area is believed to be caused by reduced water levels. There is further belief that the shift in the fall migration to the Peace River country has resulted from increased availability of grain fields for fall feeding. White geese, white cranes (whooping cranes), sandhill cranes and ducks historically staged in the fall on "Going Through the Birds Lake" on the Delta. This event no longer occurs.

Another occurrence that was recorded by Peter Fidler in 1791, but which has not been seen for many years, is that of great flocks of geese on the Slave River, so thick that "they appeared at a little distance as if the river was quite choked up with floating drift wood — that we had nothing else to do but paddle the canoe in the middle of them & kill as many as we pleased with a stick. . ." (ID#183). Almost a century later (1870), egg gathering activities succeeded in the collection of 1,000 eggs at Buffalo Lake; eggs are no longer gathered at this lake, and no mention was made of such plentitude by the elders of the Little Red River communities.

The observation that was consistent from all areas during the community research project was that the land was becoming drier. Where once a person travelling in the forested areas would encounter extensive surface water in the form of sloughs, ponds, small lakes, marshes, bogs and swamps, today one would either not encounter any water at all or much less water than in the past. This drying of the

land is considered to be a major factor in the severity of the forest fires that have occurred throughout the region in recent years. Severe forest fires have been identified as one of the key factors in the destruction of winter range for both woodland and barren ground caribou. The dam building activities of beaver populations are seen by those having traditional knowledge of the region as an attempt on the part of the beaver to "help the land retain water."

With a few minor exceptions, the general perspective of the Aboriginal people in this region is that fish and wildlife populations have decreased in their memory. Cyclic species such as rabbit (snowshoe hare) and lynx are thought to have longer periods between cyclic lows and highs with the cyclic highs never reaching the levels in population witnessed in the past. Rabbit and muskrat are viewed by Aboriginal people as key food species for animals such as mink, fox, coyote, wolf and lynx. So long as rabbit and muskrat remain low in numbers then the predators that use them will also remain low in numbers. A consistent observation throughout the region was that song birds are no longer as prevalent as in the past. It was noted that "...in the past there had been many kinds of smaller birds and the land was musical", but that this musical environment no longer occurs.

The animals most frequently noted historically include beaver, marten, muskrat, mink, fisher, otter, lynx, and black bear as fur-bearers. Animals most commonly noted as sources of food include rabbits, caribou, moose, buffalo, and deer. Beaver population declines were noted in the 1820's and 1850's; by 1883 these animals were close to extinction in some area. The beaver trapping season was halted for six years in 1883. In 1905, the rabbit population was high, while in 1925, 1936, and 1937 this creature suffered a decrease in population. These and other population variations are shown in tabular form below:

Table 6.3-1: **Game Population Highs and Lows**

Animal	High population	Low population
Bear	1909	
Beaver	1820's	1850's
Caribou	1852 (Ft. Chip.) - Feb., March	December
Moose	1909	1800 (Ft. Chip.)
Rabbits	1905	1925 1936 1937
White tail deer		rare to absent

The elders consistently stated their view that fish numbers had declined over the past fifty (50) years. They also indicated that some shifts in species populations may have occurred, certain sites where fish existed in the past no longer exist, and fish is some areas appear unhealthy. A number of the traditional fishing sites were located along rivers and lakes where creeks and streams entered. Many of these creeks and streams no longer exist. A place referred to as the "fish hole" on the Rat River where fishing occurred all summer long no longer exists; it has completely dried out.

Although a number of specific examples relating to fish exist in the database, only a few have been selected to emphasize specific points or concerns. During the late summer in the past, fish swam against the current in the Peace River and fishing used to be good below the rapids on the Horse River; today the area is considered devoid of fish. In the past, September was considered the best time to fish for goldeye and pickerel on the Peace River, but this fall run does not happen anymore. It is the view of most Aboriginal people in the region that today there are less jackfish, goldeye, pickerel and suckers in the Peace River than in the past. The posting of mercury warnings by the provincial government throughout the region has further discouraged most people from fishing. Specific species of fish were recorded in the ARCHIVES database, as fish which had been caught either for human food or for use as dog food, including lake whitefish (tickameg), tullibee, lake trout, rainbow trout, jackfish, walleye, burbot (ling cod), grayling, connie, yellow perch, goldeye, and suckers.

Within the memory of Aboriginal people using the Slave River, whitefish were once caught all summer long but those fish are no longer available. In the past, fish taken from the Slave River system were also thought to be larger and more firmer with better eating qualities than is true today. Trout caught in the inland lakes are reported to have white spots and internal tape worms. Deformed fish, including trout, whitefish and pickerel, have been prevalent for many years at Nanacho Lake. These fish exhibit large heads with underdeveloped bodies, characteristics that are indicative of starvation. Aboriginal people in the region believe that some of these problems might have been caused during the 1950's when wolf poisons were placed on lake ice and were then allowed to sink into the lake as the ice thawed.

The ARCHIVES database also records the size of the fish caught, including lake trout weighing up to forty pounds, from Lake Athabasca and Great Slave Lake; and grayling found in the rivers and weighing up to six pounds. Fish of these sizes are no longer commonly found in the area.

In the Peace-Athabasca Delta area, those having traditional knowledge believe that goldeye populations nearly became extinct due to excessive commercial fishing. Pickerel once spawned extensively in Richardson Lake but, due to the silting of the channels in the area, pickerel have not been able to spawn to the extent that they used to in this area even though some of the channels have opened in recent years. Elders in the area believe that fish do not taste as good as in the past and fish are not as abundant. As a result, fishing is not regularly practised as much as it used to be. In recent years, the jackfish in the Pine Creek area have begun to exhibit wart-like growths and their blood vessels appear more blue colour. Fish livers and intestines historically were eaten regularly by the Aboriginal people in the Delta area. However, in recent years, the livers of fish have had spots, growths, and inconsistent colour and

the intestines have a very yellow liquid in them. As a result, these parts of the fish are now only rarely eaten by the people in the area.

TRADITIONAL KNOWLEGDE MAP SERIES #3

6.4 ALL COMMUNITY MAP INFORMATION

The following maps illustrate cumulative data from all communities visited and illustrate overall traditional land use. Figure 6.5-1 illustrates traditional land use area. Figure 6.5-2 illustrates water use areas and natural processes such as flood and ice jam sites.

Wildlife, fish and birds distribution and changes have been put into categories to better illustrate data clearly and protect endangered species. Figure 6.5-3 illustrates the area used by Lynx and dogs.

Figure 6.5-4 illustrates the distribution of weasels and small rodents. Figure 6.5-5 illustrates the distribution of beaver, porcupine, muskrat and otters.

Figure 6.5-6 outlines movement and distribution of deer.

Figure 6.5-7 illustrates the movement and distribution of barren and woodland caribou from a present and a historical context.

Figure 6.5-8 shows the presence and distribution of bison historically and presently.

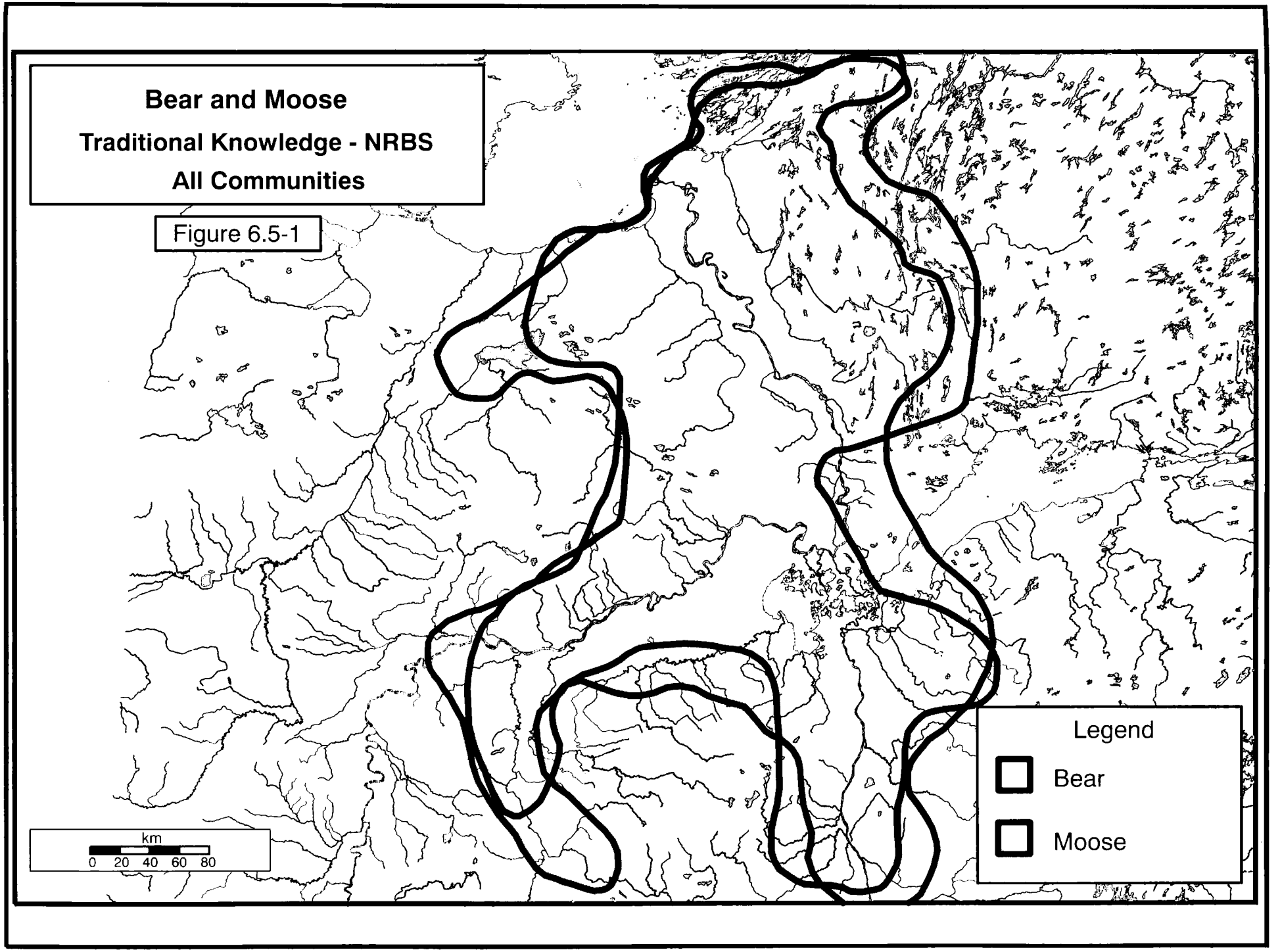
Figure 6.5-9 shows the presence of moose and bear.

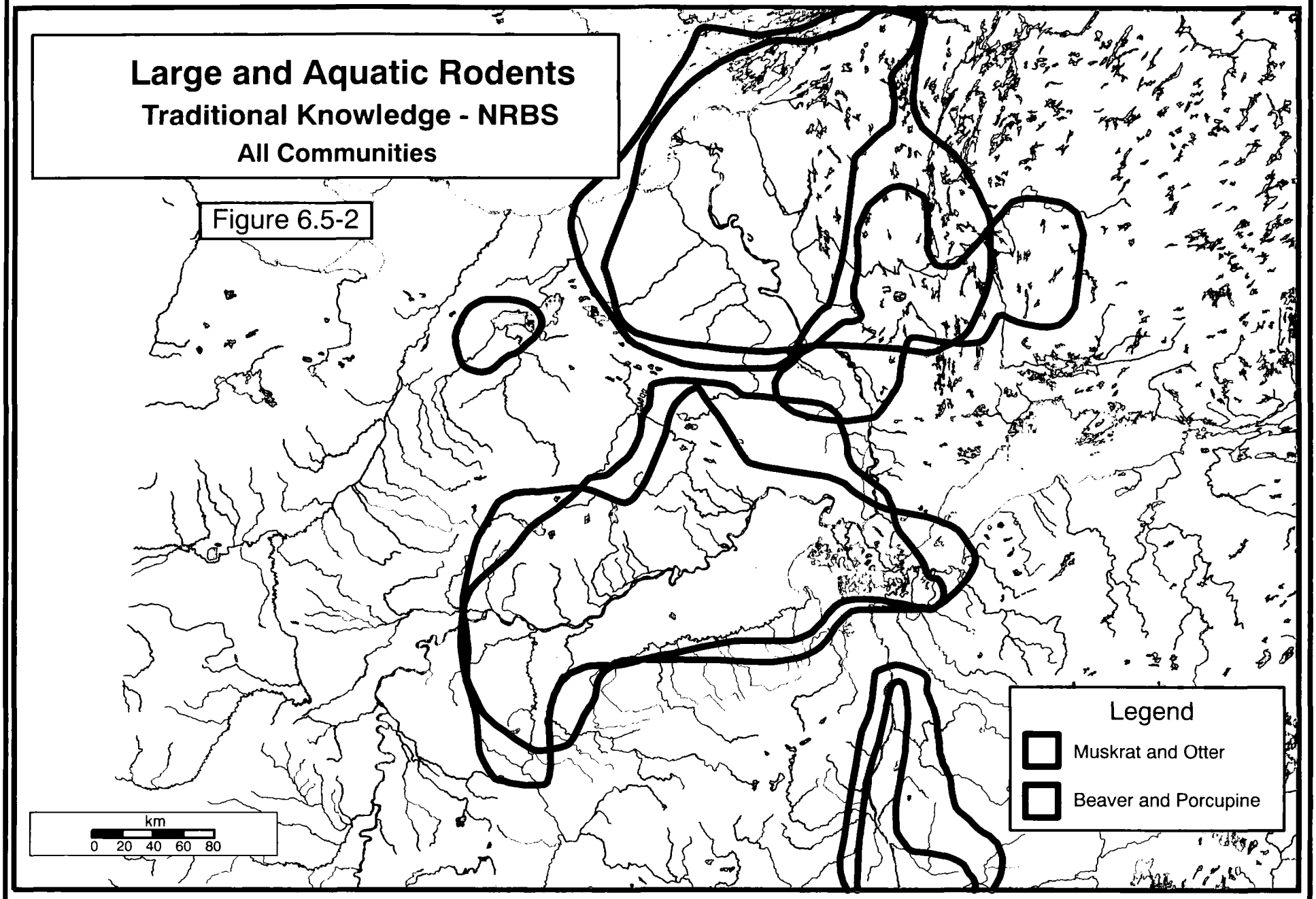
Figure 6.5-10 shows the primary water fowl used by the communities such as all geese and ducks. The past and present flyways and staging and nestings sites.

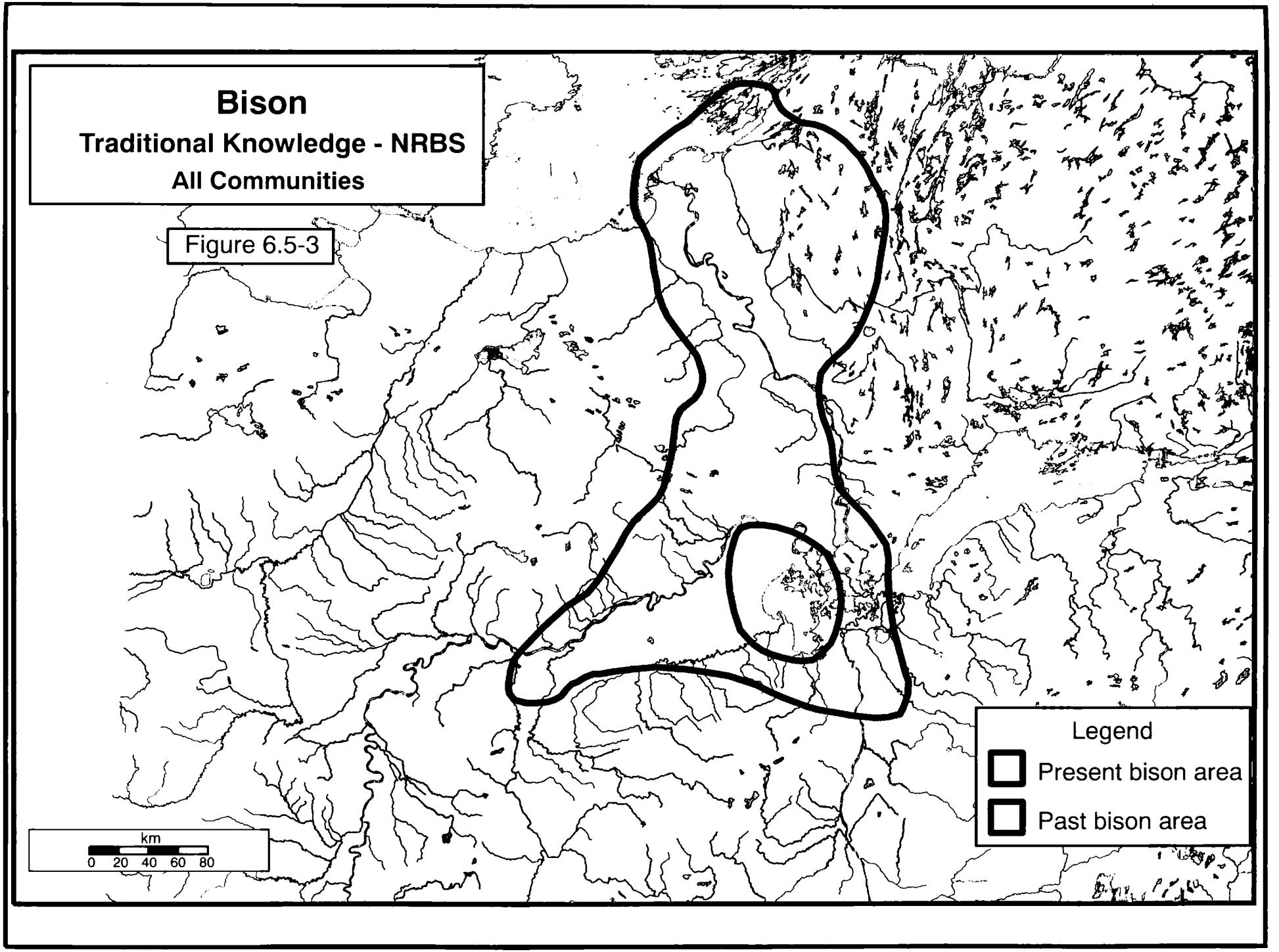
Figure 6.5-11 covers other birds such as bald eagle, whooping crane, sandhill crane, peregrine falcon, grouse and ptarmigans.

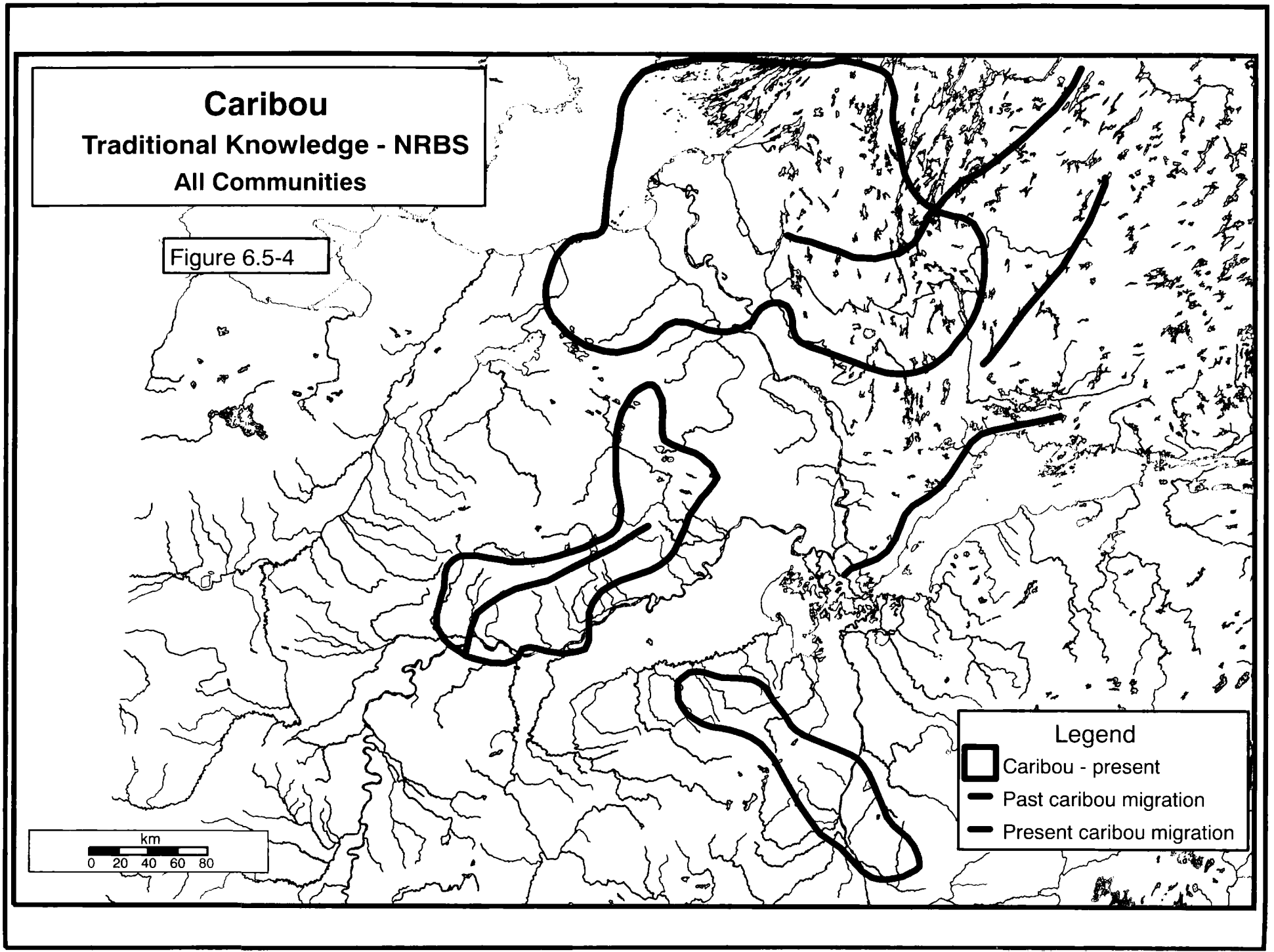
Fish have been divided into two categories, predator and prey fish. Figure 6.5-12 Predator fish includes; burbot, ling, northern pike, jackfish, walleye, pickerel, coney, inconue and perch. Figure 6.5-13 Prey Fish; chubs, cold eye, lake and mountain whitefish, suckers, rainbow trout, tullibies, cisco and arctic grayling. These Figures illustrate distribution and spawning sites of fish species identified to be present in the area by all community respondents.

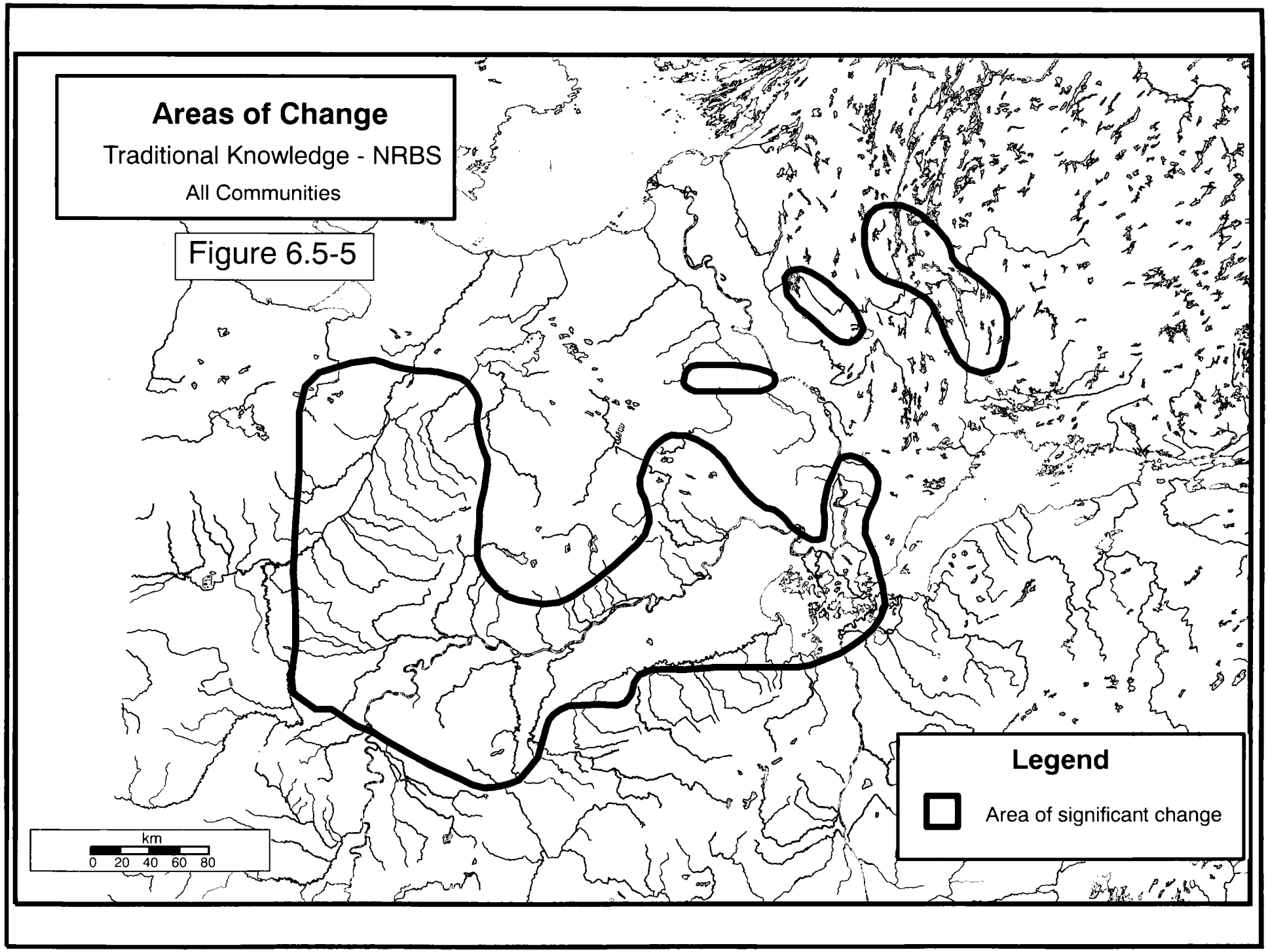
Figure 6.5-14 and Figure 6.5-15 illustrate the industrial use areas, and the natural change created by fire and where floods have been known to occur.

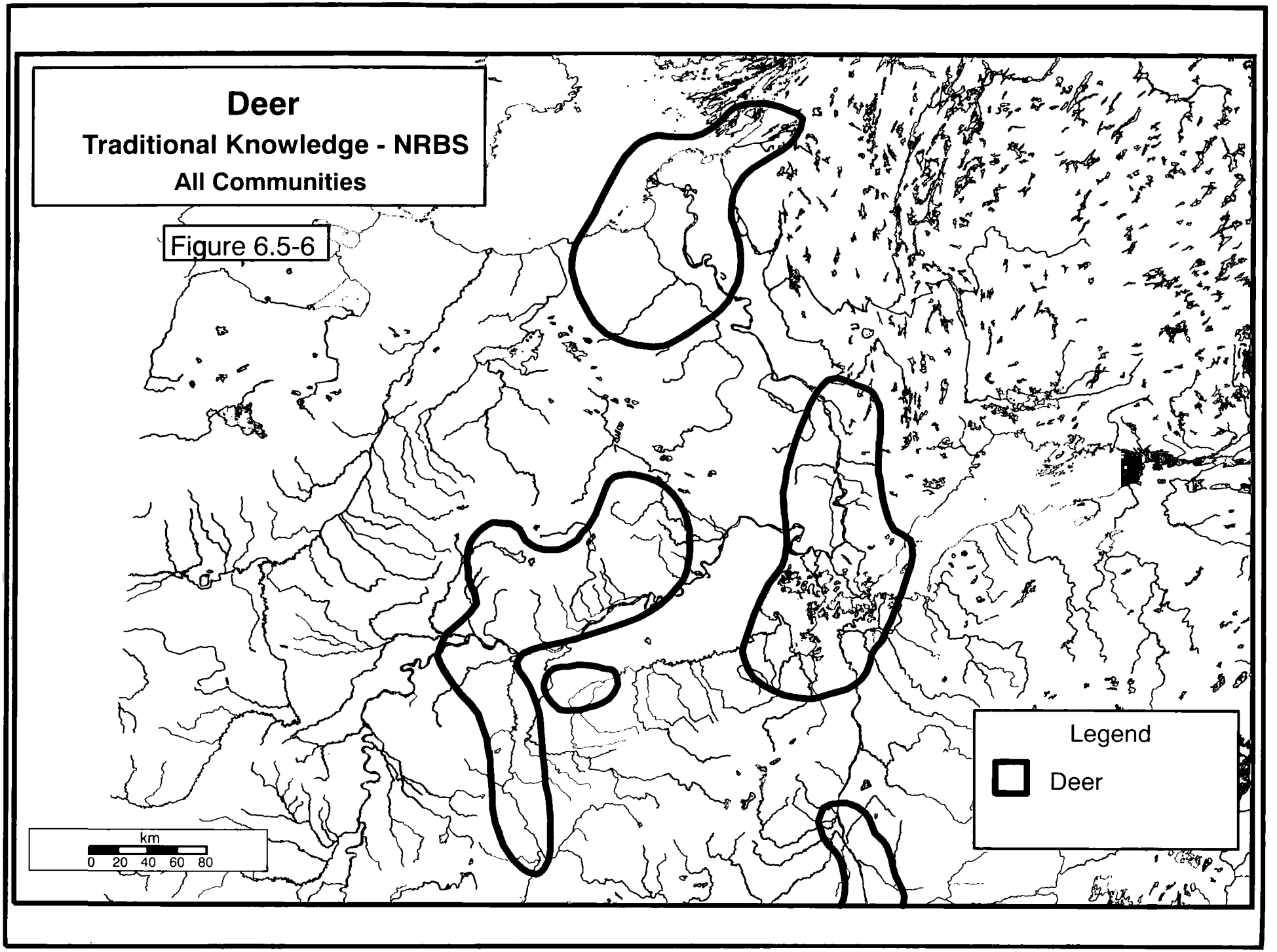

Bear and Moose
Traditional Knowledge - NRBS
All Communities
Figure 6.5-1
Legend
Bear
Moose
km
0 20 40 60 80

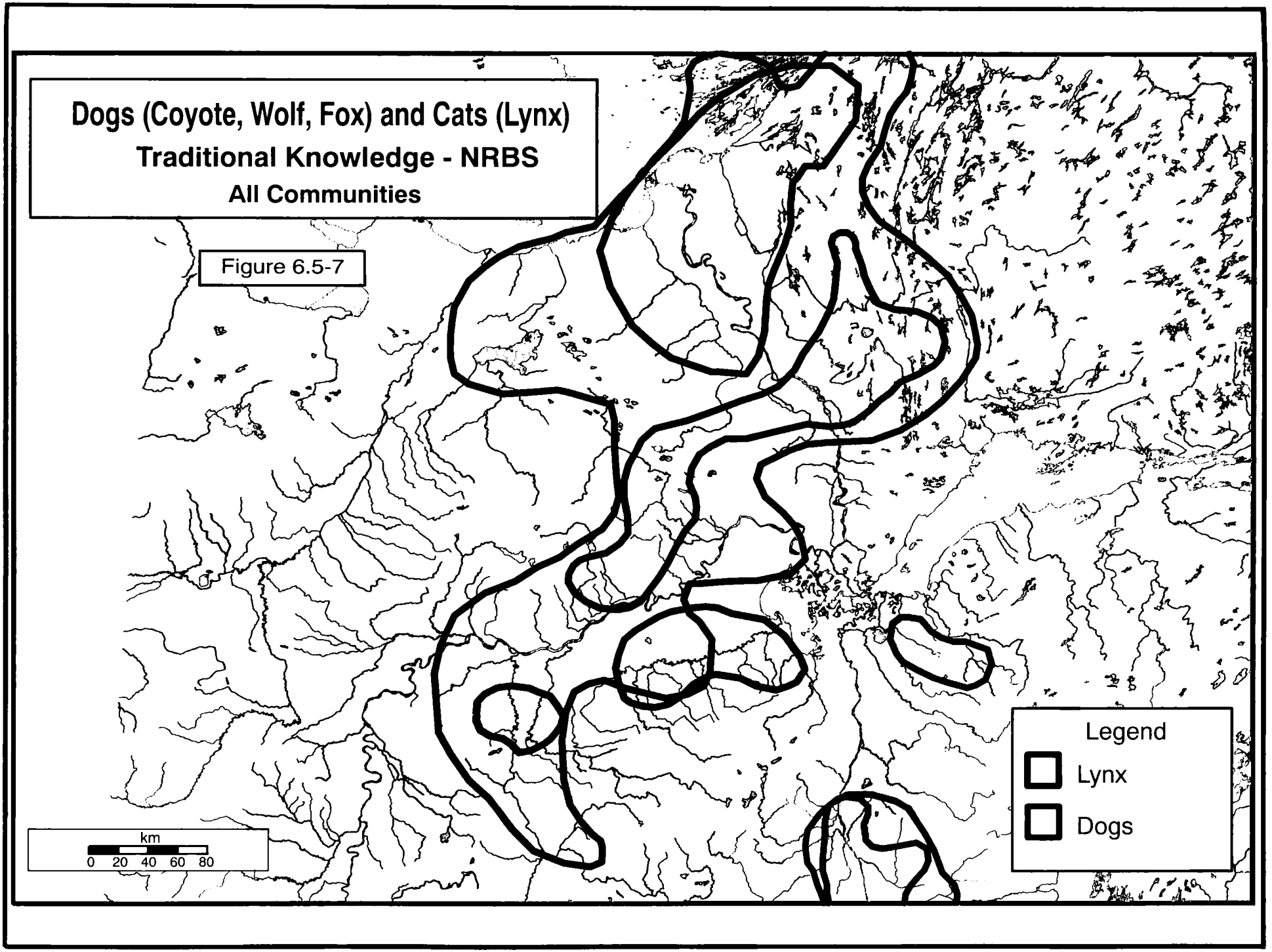

Large and Aquatic Rodents
Traditional Knowledge - NRBS
All Communities
Figure 6.5-2
Legend
Muskrat and Otter
Beaver and Porcupine
km
0 20 40 60 80


Bison
Traditional Knowledge - NRBS
All Communities
Figure 6.5-3
Legend
Present bison area
Past bison area
km
0 20 40 60 80


Caribou
Traditional Knowledge - NRBS
All Communities
Figure 6.5-4
Legend
Caribou - present
Past caribou migration
Present caribou migration
km
0 20 40 60 80


Areas of Change
Traditional Knowledge - NRBS
All Communities
Figure 6.5-5
Legend
Area of significant change
km
0 20 40 60 80


Deer
Traditional Knowledge - NRBS
All Communities
Figure 6.5-6
Legend
Deer
km
0 20 40 60 80

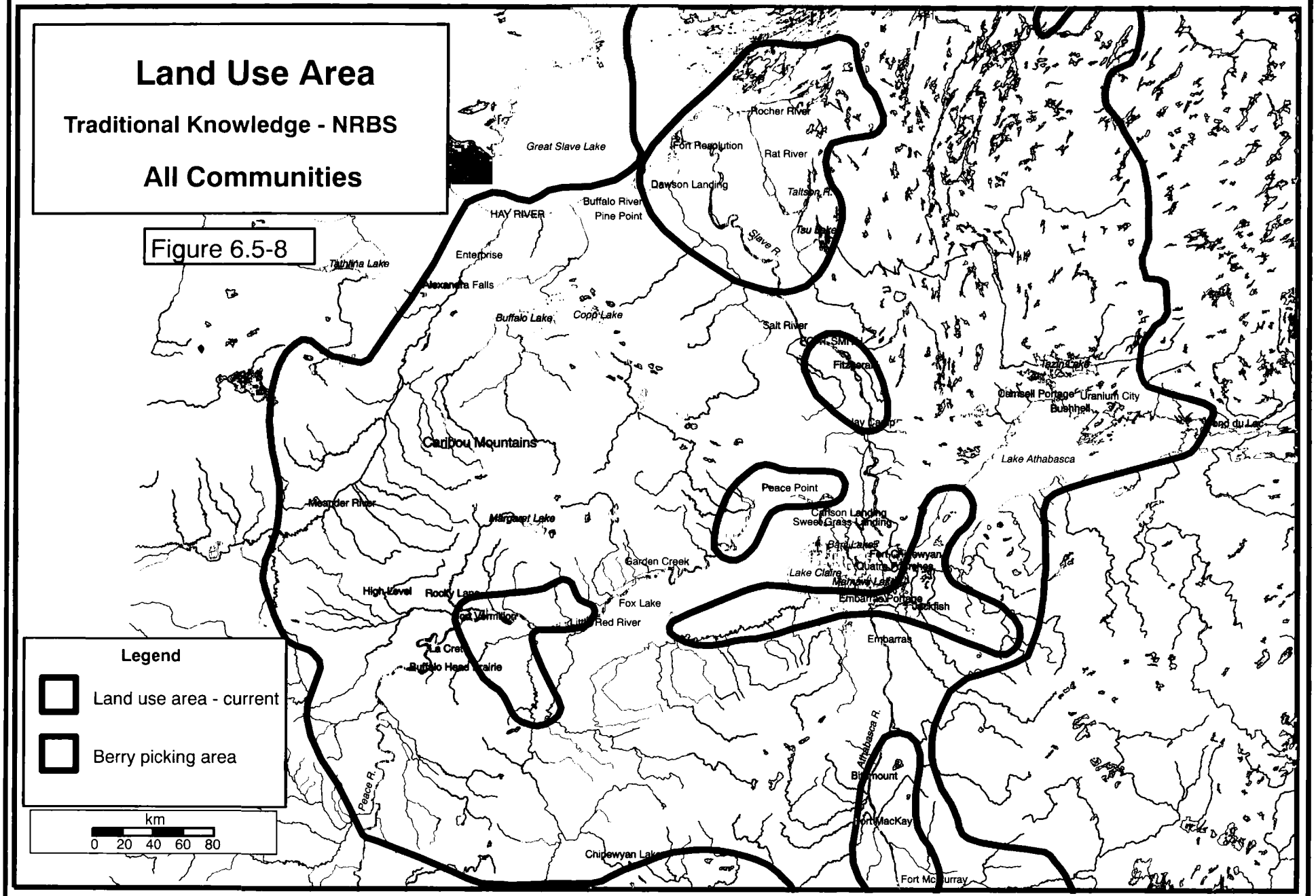

Dogs (Coyote, Wolf, Fox) and Cats (Lynx)
Traditional Knowledge - NRBS
All Communities
Figure 6.5-7
Legend
Lynx
Dogs
km
0 20 40 60 80

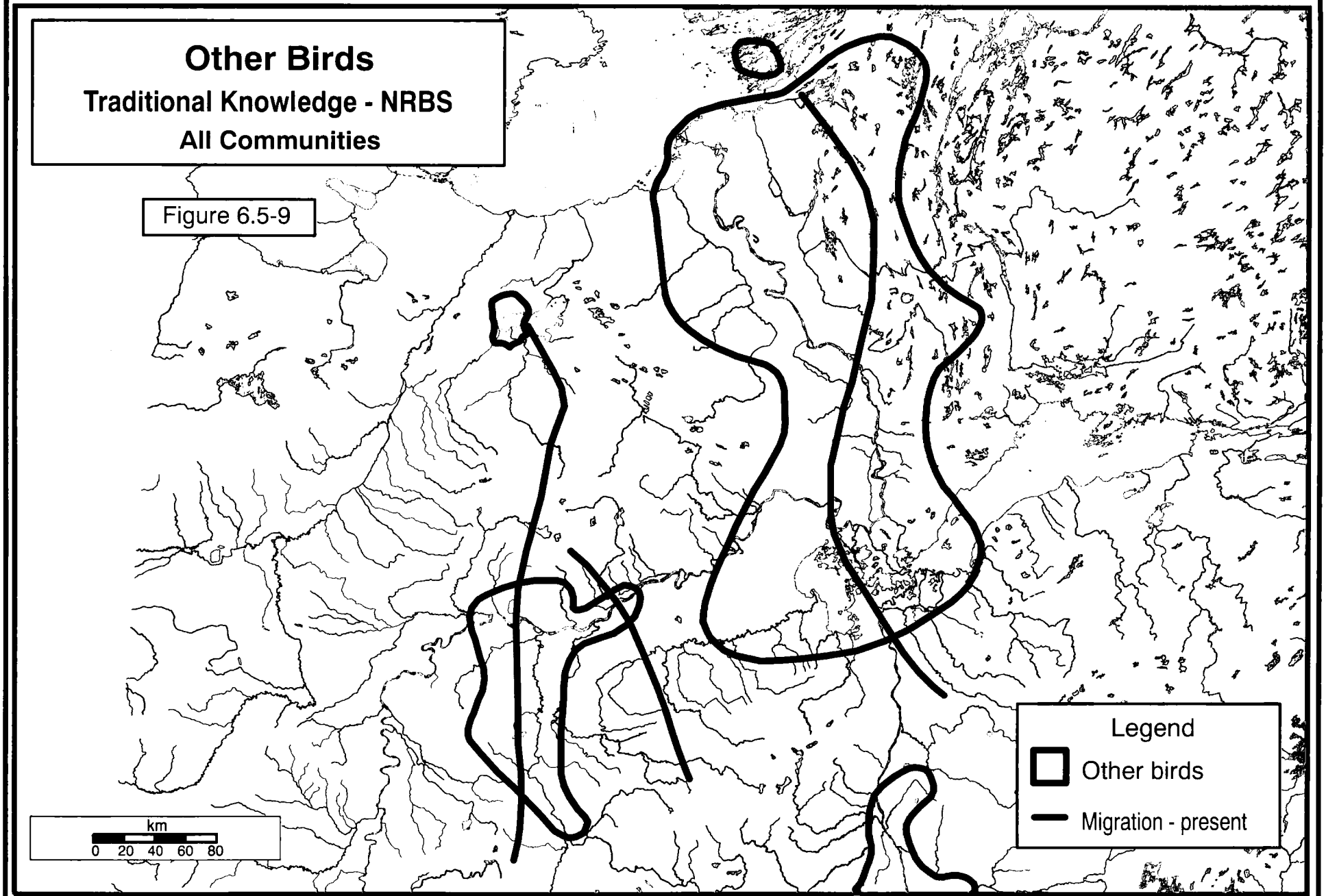
Land Use Area

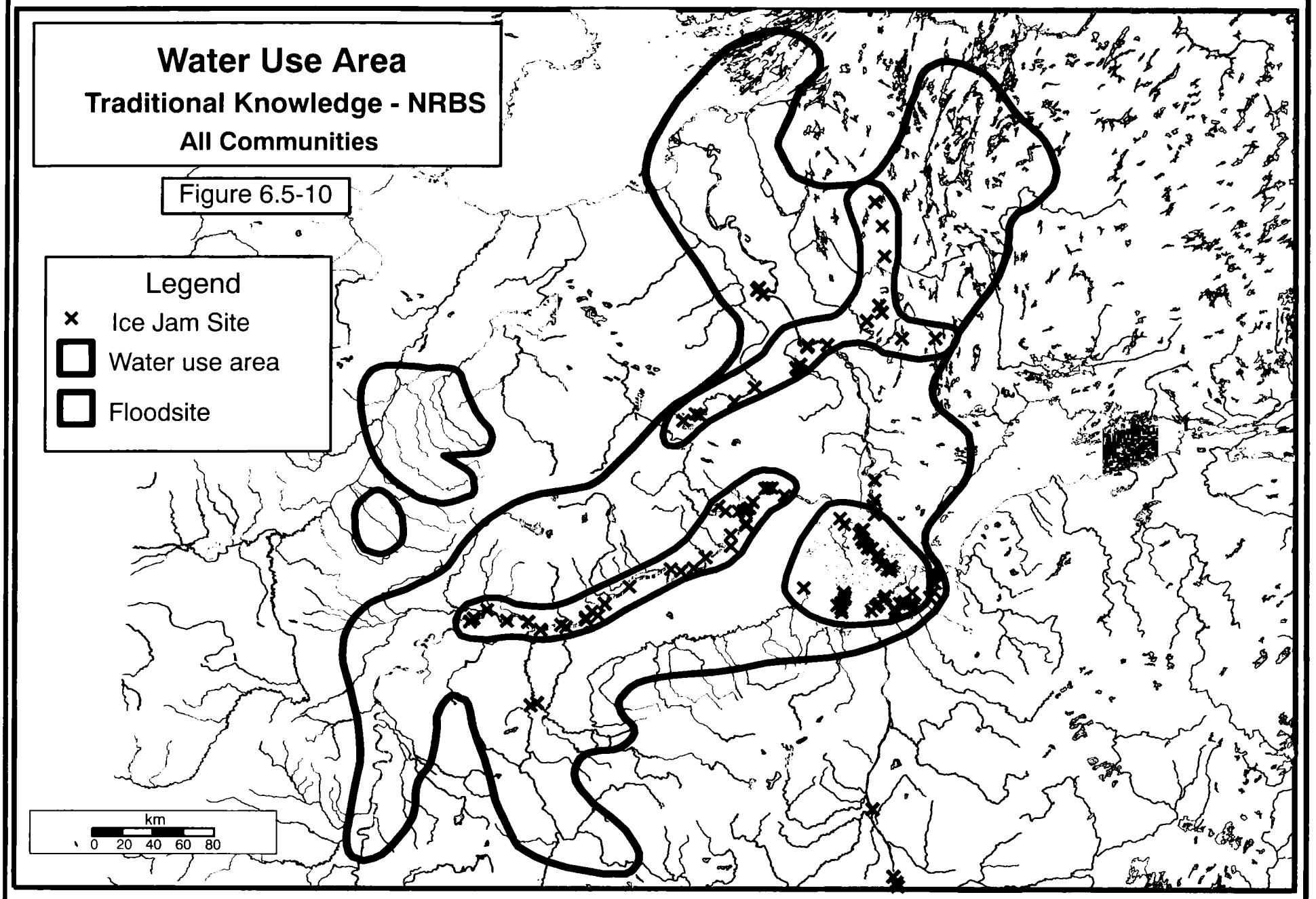
Traditional Knowledge - NRBS

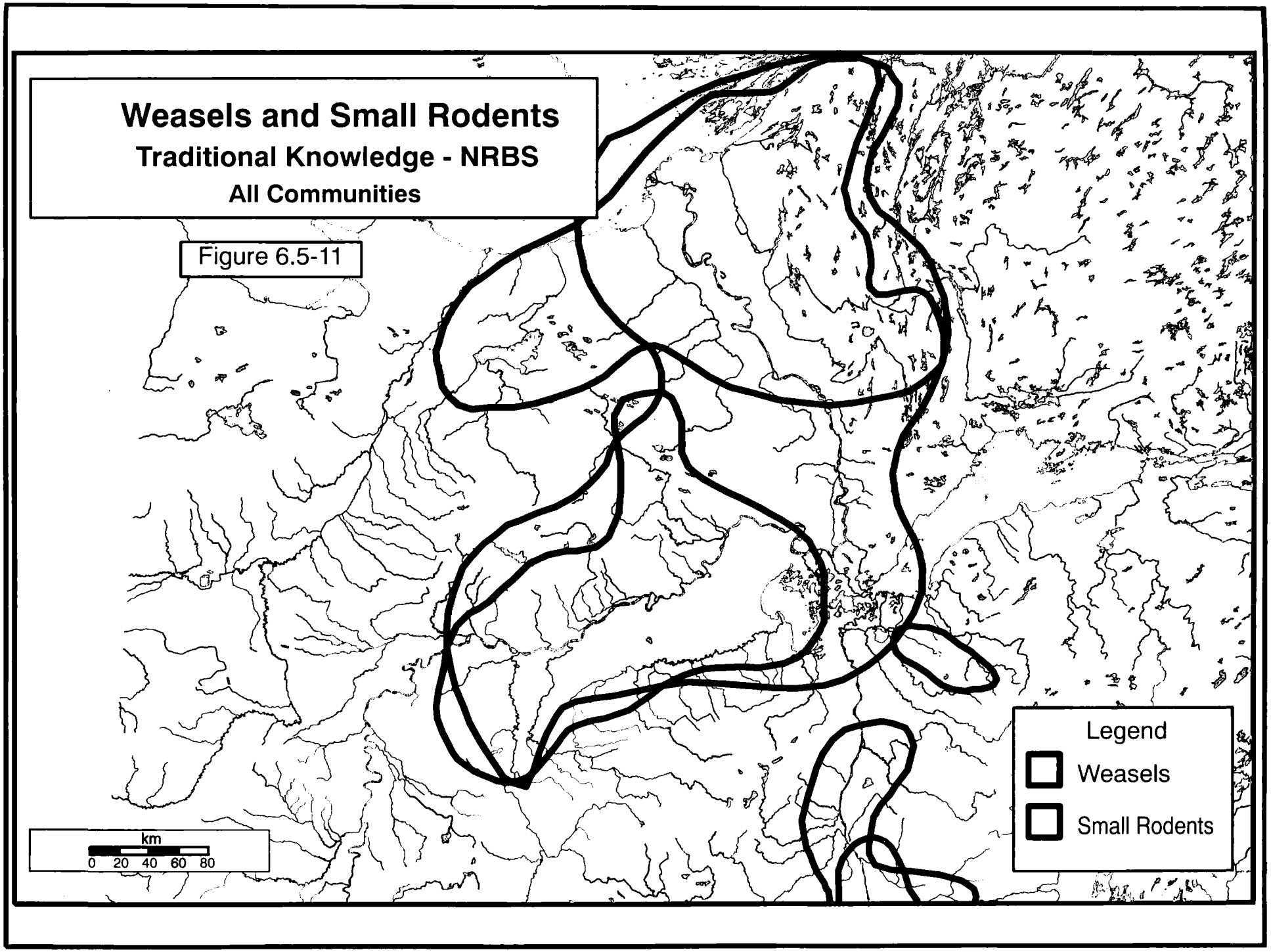
All Communities

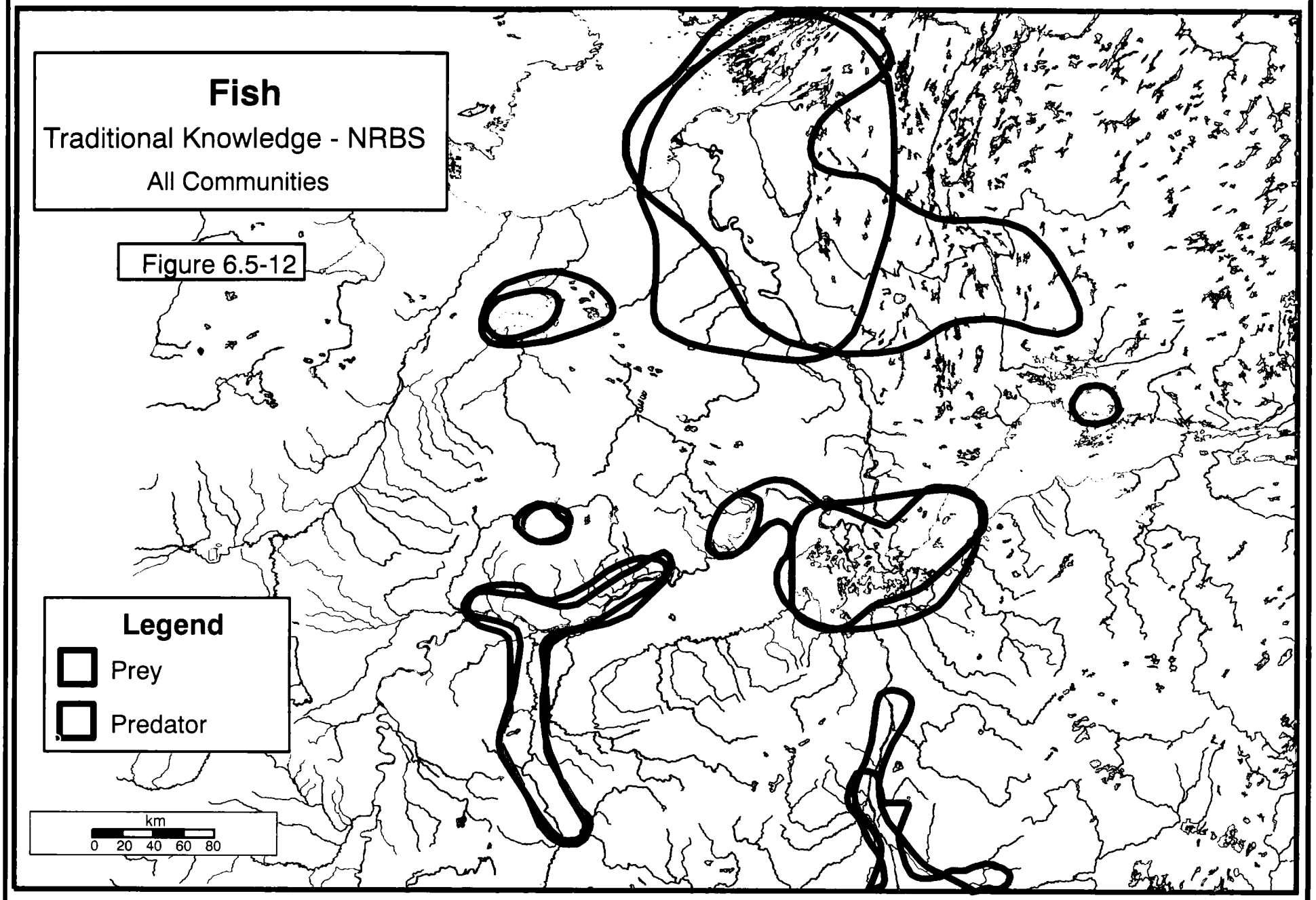
Figure 6.5-8

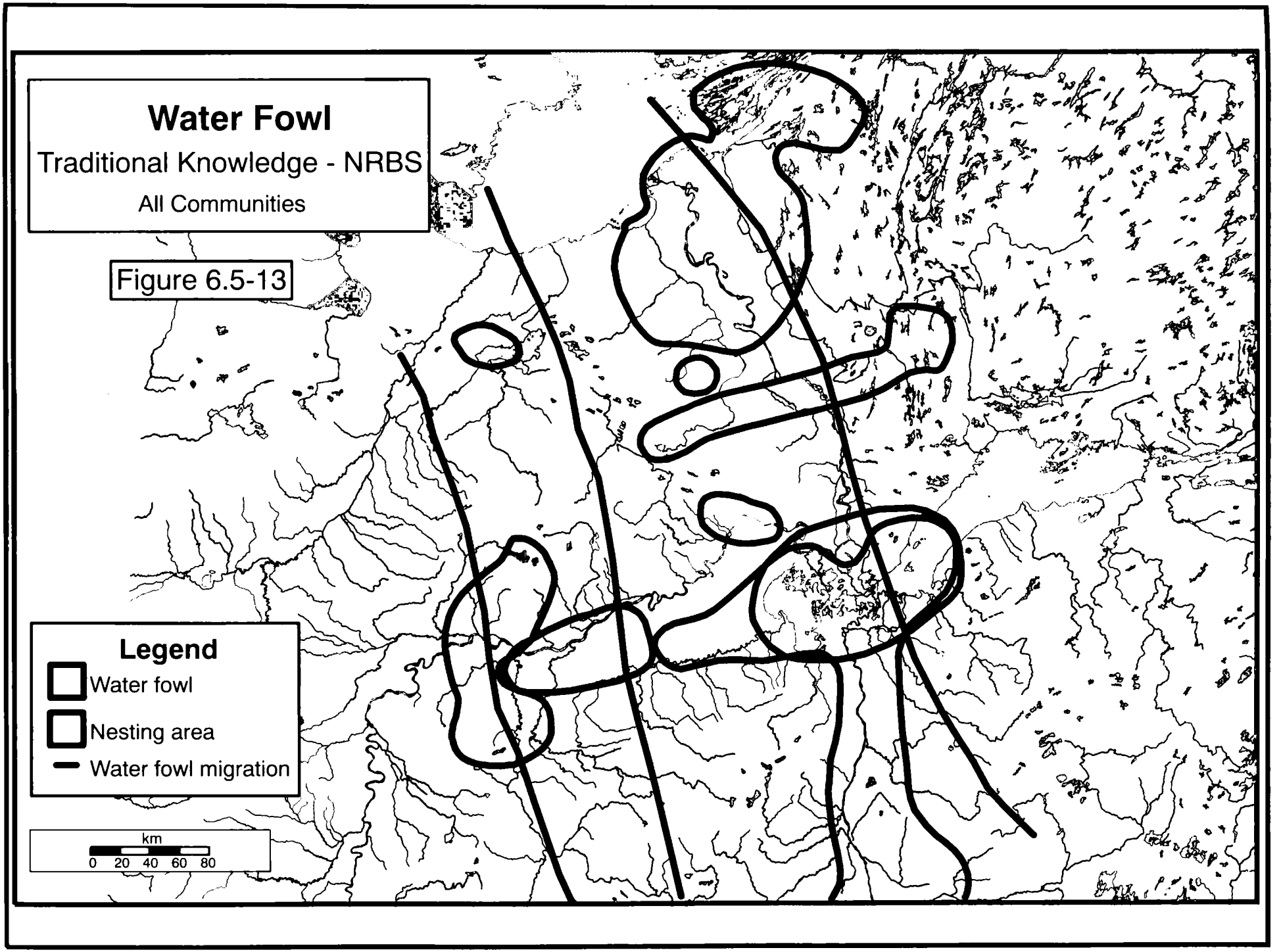


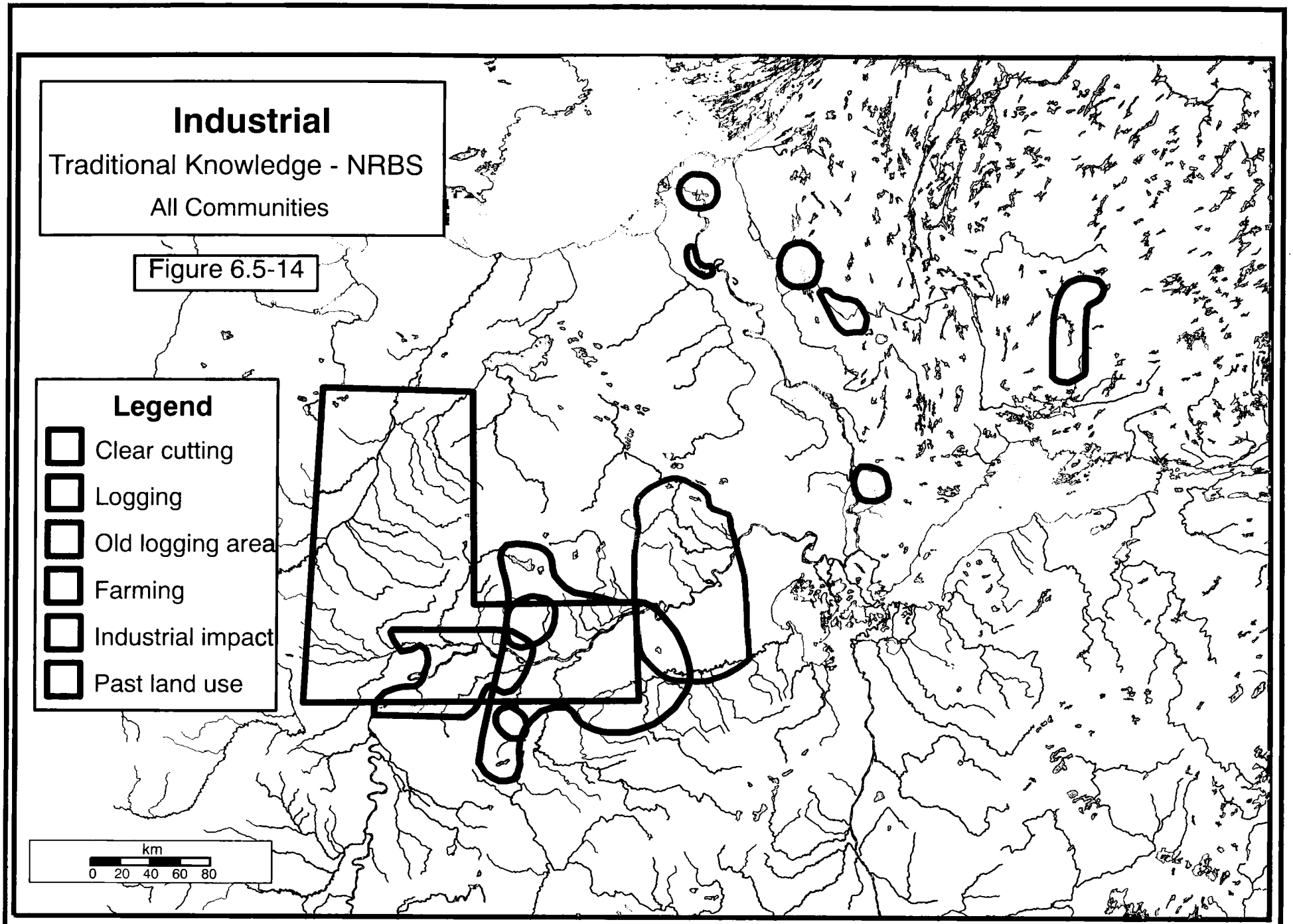

Other Birds
Traditional Knowledge - NRBS
All Communities
Figure 6.5-9
Legend
Other birds
Migration - present
km
0 20 40 60 80

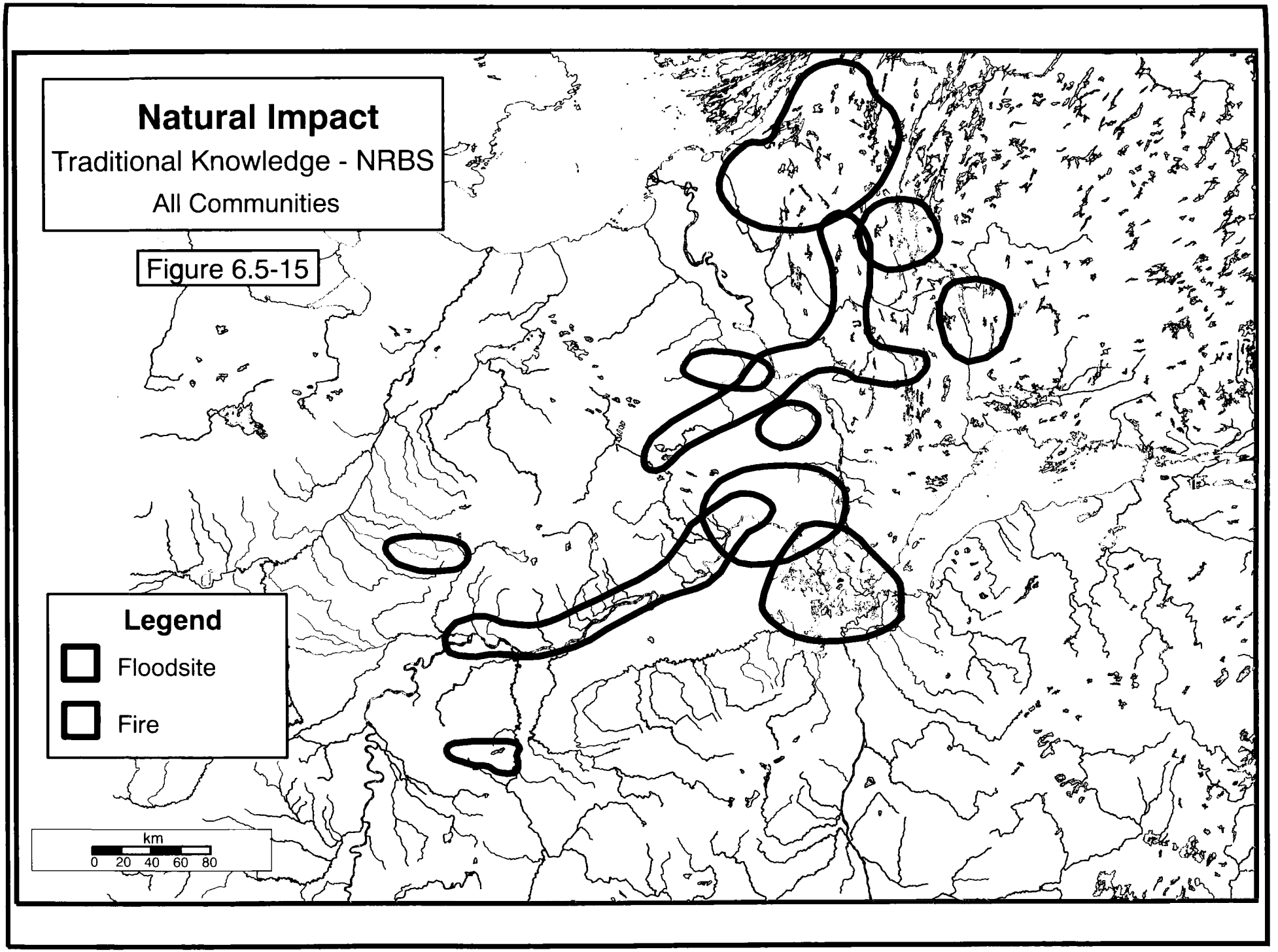

Water Use Area
Traditional Knowledge - NRBS
All Communities
Figure 6.5-10
Legend
Ice Jam Site
Water use area
Floodsite
km
0 20 40 60 80


Weasels and Small Rodents
Traditional Knowledge - NRBS
All Communities
Figure 6.5-11
Legend
Weasels
Small Rodents
km
0 20 40 60 80


Fish
Traditional Knowledge - NRBS
All Communities
Figure 6.5-12
Legend
Prey
Predator
km
0 20 40 60 80


Water Fowl
Traditional Knowledge - NRBS
All Communities
Figure 6.5-13
Legend
Water fowl
Nesting area
Water fowl migration
km
0 20 40 60 80


Industrial
Traditional Knowledge - NRBS
All Communities
Figure 6.5-14
Legend
Clear cutting
Logging
Old logging area
Farming
Industrial impact
Past land use
km
0 20 40 60 80


Natural Impact
Traditional Knowledge - NRBS
All Communities
Figure 6.5-15
Legend
Floodsite
Fire
km
0 20 40 60 80

6.3.7 Health

The influx of Europeans associated with the fur trade brought change to this region and to the Aboriginal peoples who lived there. Indian people were introduced to liquor even though the Hudson's Bay Company took measures to eliminate the use of liquor in its trading practices. As is the case today, liquor began to take both a physical and socio-cultural toll on all sectors of society including Aboriginal people. Even today the elders see such things as alcohol, drugs, smoking, video games and television as distractions that promote impetuousness and interfere with the ability of Aboriginal people, particularly youth, to use their minds constructively. There is a firm view held by the elders that the addictive and destructive nature of alcohol is a root cause of many of the physical illnesses found in their communities such as heart problems, cancer, diabetes and high blood pressure.

Also associated with the movement of Europeans into the region were diseases that devastated Aboriginal and non-Aboriginal people alike. In the 1920's, F.H. Kitto of the Interior Department summarized the situation with respect to Aboriginal peoples of the Mackenzie District (ID #199, abstract 14):

> ...A layman is struck with two main thoughts, i.e. ... that the Indian population has lost its vitality and the race in consequence is gradually dying out...Information supplied me indicated that Indians suffer from various causes, including lack of proper nourishment; unsanitary and inadequate living quarters; hardships and exposures increased by the conditions just mentioned; tuberculosis; scrofula [tuberculosis of the lymph nodes]; whooping cough, measles; venereal diseases and inter-marriage. The lot of the Indian in this district is not an easy or a happy one. Living conditions are getting harder every year and the Indians eke out an existence under anything but cheerful conditions...

Throughout the ARCHIVES database, there are references made to starvation among the Aboriginal peoples. Sometimes the traders at the forts were able to provide food; later on, the police and the church took on the role of caregivers when required to do so to stave off death by starvation. The references to starvation appear to begin in the archival records in the late 1810's and early 1820's — following about thirty years of heavy pressures upon the game populations.

Elders consulted during the compilation of traditional knowledge indicated that changes in diet and a lack of physical activity on the land were major contributing factors to the unhealthy state of their communities. In addition, one of the other major concerns was that the clearing of forested lands for logging, agriculture and other industrial purposes was rapidly destroying natural herbs used for traditional healing.

6.5 THE INTELLECTUAL ENVIRONMENT

The family unit is the essential core of the First Nations' social structure. That unit is, in turn, the cornerstone of the individual bands, which in turn form the building blocks of dialectic (linguistically affiliated) tribes. The entire culture of the First Nations, including the governing structure, is built around the concept of family.

The family concept was, and still is, different in Aboriginal culture than that perceived by Europeans. The Aboriginal family is an "extended" family that may involve individuals such as aunts, uncles, grand parents, and others who, because of their social relationships, are considered part of a family nucleus. The children and the elders are an integral part of the Aboriginal family structure and hold a special and respected place within the overall social structure.

Historically, the First Nations' system of justice was based on the social and moral code of the people. Enforcement of the code and penalties for violation of this code were carried out by the family or the community at large (once again being seen in the "sentencing circle" used occasionally when Euro-Canadian and First Nations concepts are coordinated within the judicial process). The First Nations' judicial institutions were strongly impacted by the European institutions relating to policing and justice. The spirituality of the people was, and generally remains, based on their respect and reverence toward the natural world, the grandfathers and grandmothers, and other human beings rather than being focussed in the narrower perspective professed by the organized religions.

6.4.1 <u>The Institutional Impact</u>

The fur trade brought to the Northern River Basins area not just European trade goods. The traders also brought with them their institutional structures and concepts of government, religion, capitalism, and family relationships. The traders' concepts were, of course, the only ones with which they were familiar. The fur trade's greatest activity and expansion occurred during the late eighteenth and early nineteenth centuries, which was also the time of the greatest colonial expansion on a world-wide basis. The attitudinal norm at that time was that the colonists (or traders) owned the only true knowledge of institutional structures and concepts. Those concepts were, therefore, imposed upon the peoples with whom the expansionists came in contact.

During the period beginning in the 1700's through the mid 1800's, even though the British Imperial Government was responsible for relations with Aboriginal people in North America, the Hudson's Bay Company's chartered authority constituted Britain's initial dealings with Aboriginal peoples in the region.

Because European fur traders initially focused on the area around Hudson Bay, the first Aboriginal peoples to be influenced by the fur trade were the Cree who lived in that region. This initial contact allowed the Cree to obtain European goods, including firearms, and to commence trading European articles with other Aboriginal peoples to the west of the Hudson Bay. As the Cree exhausted their trapping grounds in the Hudson Bay region, they began to move westward taking over areas previously

occupied by other tribes. In approximately 1750, the Cree drove the Beaver Indians out of the lower Peace and Athabasca River basins, including the Peace-Athabasca Delta, using firearms to gain superiority. Thus the initial introduction of Aboriginal peoples living in northern Alberta to European culture was indirectly through the use of European firearms by the advancing Cree.

The movement of the Cree into northern Alberta occurred during the same approximate period when the Chipewyan also made advances into the northeast corner of the Province. The advances of the Cree and Chipewyan resulted in the Cree becoming securely established throughout north central Alberta and the Chipewyan securing the land base in northeastern Alberta. The Beaver tribe was shifted to the far western edge of north central Alberta and their numbers were drastically reduced. In the extract from the report from W. Ogilvie of 1883 (ID# 52, abstract 8) he stated:

> I think it will be found, whenever a treaty is made for that part of the country [Peace Athabasca Delta], that the original Indians will be very few compared with those who have immigrated into it from the south and east [Cree] - many of them quite recently. The original tribe of this country - the Beaver Indians - are fast dying out, through starvation and disease.

The Slave Indians were forced to move north and Northwest of their original lands, finally settling in the extreme Northwest corner of Alberta as well as in northeastern British Columbia, the southern Northwest Territories and the southeastern Yukon Territories.

The Sekani, Sarce, and Assiniboine were displaced from their original lands in north central Alberta to the extreme western edge of the Province. The Cree also extended their range southward past the current site of Edmonton thus moving the northern range of the Blackfoot people farther south.

In summary, the initial consequence of the fur trade was a significant redistribution of the Aboriginal tribes occupying northern Alberta and the region encompassed by the Northern River Basin Study.

The fur trade formally reached Alberta in 1778-79 when the Northwest Company, through the efforts of Peter Pond, reached the lower Athabasca River where he traded furs from a winter base camp located about 64 kilometres south of Lake Athabasca. In 1788, Alexander Mackenzie established a permanent post at Fort Chipewyan on Lake Athabasca. The Hudson's Bay Company finally established trading posts in the lower Athabasca River basin in 1799, following Peter Fidler's 1791 voyage. The Northwest Company and the Hudson's Bay Company remained in fierce competition until the two companies merged in 1820. Throughout that period, both companies built and staffed posts throughout the region.

The expansion of the fur trade into the region also changed the nomadic hunting economy of the Aboriginal people to the trapping or market economy. The lifestyle associated with trapping and the fur trade focused the native people of the fur trading posts where, in exchange for furs or provisions such as game meat, they obtained items such as blankets, clothing and other dry goods from European

markets. This change allowed for a certain amount of control to be placed in the hands of the trader and it subtly but firmly created an associated dependency of Aboriginal people on the trader.

Marriages of the traders to Aboriginal women also took place. These marriages were of strategic importance to the traders because they enabled more permanent linkages with the Aboriginal communities. Such marriages encouraged and increased the dependence of Aboriginal peoples on the traders, and was responsible for the development of a "new nation" of Aboriginal people: the Metis, who became the backbone of the fur trade labour force.

One of the major ramifications of the fur trade and its movement into this region was the effect on the fish and wildlife resources. As fish and wildlife populations became exposed to increased levels of harvest for the production of either fur or food in support of the fur trade infrastructure, these populations were significantly reduced. This wide-spread destruction of wildlife and fisheries resources throughout the region in support of the insatiable appetite of the fur industry removed these important resources from the traditional hunting pursuits of Aboriginal people. With the depletion of their traditional sustenance resources, the Aboriginal people became further dependent on the trading posts for their basic food needs. Those who tried to continue a hunting economy found it extremely difficult to secure enough fish and game to meet their staple requirements. As a result, the Aboriginal people either became viewed as nuisances around the trading posts or they were observed in continual state of starvation, or both. The ARCHIVES database is replete with observations such as "...We cannot get rid of these starving Crees" (ID #27, abstract 16).

The cumulative negative impact of the fur trade on the socio-cultural fabric of Aboriginal people can only be speculated on at this time in history. However, it is a high probability that the integrity of all levels of Aboriginal social organization from the extended family to the tribe were negatively and significantly affected. It is also safe to speculate that these effects have been enduring through to the present day.

As the fur trade continued, the Roman Catholic Church established permanent missions at Lac La Biche and Fond du Lac respectively in 1852 and 1853. The Roman Catholic Church rapidly established additional permanent missions throughout the region. The role of the Church and its missionaries was to provide Aboriginal people with Christian teachings, to assist in the development of their education and health, and to provide them with advice on any matter. The Church eventually assumed a custodian role on behalf of Aboriginal people.

The missionaries took immediate action to educate the Aboriginal people, particularly the youth, in the European ways. One of the requirements imposed by the Church was that the Aboriginal children were required to live in residences at the schools. Because of the importance of the children to the Aboriginal family, this requirement of the Church compelled the Aboriginal people to establish a sedentary life-style and further removed them from the traditional hunting economy that had existed prior to European immigration. This sedentary life-style also created a further dependency of the Aboriginal people on the Church missions and European immigrants for their basic needs such as food and shelter.

The teachings of the Church focussed on such subjects as sewing, "fancy work," cooking and general house work for the girls, and building, agriculture, and other subjects for the boys. The children were also taught English and French along with Christian religious instruction and lessons in health, cleanliness, sanitation, nursing and first aid. Children were severely punished in the schools for speaking their native language or acknowledging Aboriginal spiritual beliefs. The result of these teachings was a form of cultural genocide that alienated the Aboriginal youth from their families and their cultural identity.

Those Aboriginal people that continued to attempt to live a hunting economy found it extremely difficult or impossible to do so due to the severe impact that the fur trade and immigration in general had on fish and wildlife resources in the region. The ARCHIVES database has a number of recorded observations confirming this situation. For example, with respect to the Beaver Lake Chipewyans, it was noted that (ID #189, abstract 1)

> Beaver Lake fishing has proved failure and that as a consequence of this and scarcity of game the Band [is] in destitute circumstances ... are unable to procure leather ... owing to the absence of deer.

This situation compelled Aboriginal people to assume a life-style that brought them into alignment with the European teachings.

> Beaver Lake Band are anxious to farm as they no longer can support themselves by hunting, they have no fish to feed their dogs ... the hunting has entirely failed and their efforts to catch fish, both by net and hook, have also proved unsuccessful.

Elders of the existing Aboriginal communities in the region believe that the change in life-style from a hunting economy to a more sedentary way of life has been the root cause of problems for the Aboriginal people of today. This perspective is clearly summarized in the statement:

> People travelled on foot or by dog team which kept the people healthy in body, mind and spirit. Illnesses such as cancer, diabetes, and high blood pressure were unknown to people until recently.

The elders indicated that the incidence of cancer, diabetes and high blood pressure had increased in their communities. They considered tuberculosis and flu to be diseases of the past. Many of the elders felt that the lack of "movement" (ie. physical exercise) and the change in food habits of Aboriginal people were the primary cause of the diseases they identified. Store food was mentioned on many occasions as having too many additives to be healthy for the people compared to "ordinary food" (wild food) which did not have any chemical additives.

The elders also spoke of the detrimental changes to the family structure as a result of lost traditional practices such as hunting, fishing and trapping that were induced by the effects of the European "institutions" such as reserves and mission schools.

The religious teachings of the Church created a spiritual dilemma for the Aboriginal people whose existing spirituality was condemned by the Christian missionaries. It is interesting to note that even though the majority of Aboriginal people claim to be Roman Catholic throughout the region as a result of the teachings of the missionaries, most Aboriginal people also reflect a cultural value system and beliefs consistent with the spiritual teachings of their Aboriginal ancestors.

The elders of Aboriginal communities in the region identified several concepts that exist in the traditional way of living, but which the European system does not address. These concepts include:

1. The community members, particularly the elders, were responsible for teaching and advising the young people.

2. The youth were expected to seek guidance from the elders.

3. Everyone was taught to share work together and, as well, they were also taught to share food and harvests from the land.

4. Everyone was taught the over-riding principle of respect for the land and other people's property.

5. All were taught to follow nature and the movement of the animals and to keep the land beautiful.

6. Everyone was taught survival skills such as drying meat, fish, berries and the identification of herbs used for health and healing.

7. Other practical skills were also taught such as birch tree tapping, moose hide tanning, garment making, the construction of tools, and the construction of snowshoes.

8. It was also considered important to have knowledge about how to build lodges for accommodation and for ceremonies. In addition, having knowledge of the building materials such as trees and mosses was also considered important.

9. A knowledge of plants was considered essential with respect to such things as the use of willow bark and the roots of birch and spruce to make rope, nets, and binding for the canoes.

10. It was extremely important to learn and accept the responsibility for certain ceremonies that were used to express gratitude and acknowledgement for the gifts of the land and the role and importance of the elders as advisors at these ceremonies.

11. At these ceremonies the elders gave advice to the community on living a peaceful life and they also spoke of premonitions or messages that they believed should be shared with the people of the community about the future.

12. Emphasis was placed on peaceful and educational disciplinary methods for children rather than physical discipline.

The elders of Aboriginal communities in the region believe that the manner in which children are taught in schools had created much detrimental change in the way children behave. The children are losing their interest, understanding and respect for the traditional ways of their people.

Following Canada's confederation in 1867, the Canadian Government's roles and responsibilities with respect to Aboriginal people were initially assigned to the Secretary of State. This responsibility was eventually transferred to the newly-created Department of Indian Affairs in 1880. This Department quickly moved to provide support to the missionary-run schools. This action created a visible alliance between the Church and the Government of Canada with respect to the provision of education and welfare for the Aboriginal people of this region.

As interest in, and the development of, resources in western and northern Canada grew, it became critical that the Government of Canada show permanent interest in the people and the resources of the region. By the late 1890's, rumours of gold had begun to stimulate further interest in the region.

One of the responses of the Government of Canada to this situation was the establishment of a permanent outpost of the North West Mounted Police (NWMP) at Athabasca Landing. The roles and responsibilities of the NWMP were described as follows:

> Justice of the peace; police were required to introduce, to explain, and to interpret the laws. Their chief functions lay in controlling illegal use of liquor, regulating the rush of [gold miners], assisting in the establishment of Treaty #8; enforcing and undoubtedly ameliorating game laws, and reporting on the need to control natural resource development.

The arrival of the NWMP was viewed by Aboriginal peoples as:

> ... A new phenomenon to them, and therefore confusing. It must have seemed to the Indians that the Police had no sensible reason for being in this country. Unlike the missionaries they were not there specifically for the Indians' good; unlike the traders, they were not there for their own good.

Although the ARCHIVES database is scant with respect to records reflecting the impact of the NWMP on Aboriginal people in the region, it is clear that the presence of a new and alien system of policing and justice must have introduced further confusion into the changing socio-cultural values of the Aboriginal people. Where once the Aboriginal "justice" system prevailed their now existed a new set of European values and procedures that were imposed on the people of the region. The problems associated with this situation prevail even to the present day.

By the late 1800's and early 1900's the Government of Canada began to escalate its efforts to improve transportation systems into the region. During this period a number of major transportation projects were initiated in western Canada including the Grand Trunk Pacific Railway, additional road construction and increased traffic on the waterways.

With the advent of the Klondike Gold Rush of 1896 and the escalation of mineral development throughout western North America, the influx of new immigrants into the region forced the Government to formalize agreements with the Aboriginal people in the region. In this regard, a concerted effort was put into finalizing Treaty #8, and in 1899 this Treaty was ratified. An immediate follow-up was the establishment of Indian reserves throughout the region. Indian reserves fulfilled the commitment of the Government of Canada to secure a land base, provide for recognition of specific rights, and provide a technical and financial support mechanism for Aboriginal people. However, the establishment of reserves also further removed the Aboriginal people from their traditional life-style and created an increased dependence of these people on the Government of Canada for the provision of such essential needs as living accommodations, employment, education, medical assistance, etc. The federal legislation (ie. the Indian Act and Regulations) also introduced a trust relationship between the Government of Canada and the Indian people. This relationship gave the Government of Canada, through the Department of Indian Affairs, considerable influence over the form and functioning of local governments on the Indian Reserves. The Department's view of the governance on the Indian Reserves was modelled after European style "municipal" government and it was not sensitive to the traditional forms of governance of Aboriginal people. To this day, this situation has caused considerable difficulty within Aboriginal communities due to their attempts to blend traditional practice with the law. Recent expressions of "self-government" and "self-determination" are a reflection of the frustration that has been encountered by First Nations people in dealing with the matter of governance.

In the late 1800's, the Government of Canada passed An Act for the Protection of Game in the Unorganized Portion of the Northwest Territories of Canada. Although this Act dealt with all game animals, fur bearers, and birds, the main thrust of the legislation was the protection of wood bison. This legislation was found to be confusing to both the NWMP and the Aboriginal people who occupied the region between the Peace-Athabasca Delta and Fort Resolution. This legislation was developed without any input from the Aboriginal people in the region and, as one would expect, it did little to enhance the relationship and understanding between the newly established NWMP and the Aboriginal people involved.

In 1905, Alberta became a Province within the Dominion of Canada, but the Government of Canada retained ownership and control of all natural resources. Although this had little direct impact on the

Aboriginal people of the region, it did introduce additional confusion due to the recognition of another level of government.

In acknowledgement of Canada's interests and concerns for natural resource management and conservation in the area, the Government of Canada established the Forestry Branch of the Department of the Interior in 1912. This agency immediately initiated action to protect the timber resources throughout the region. Of particular concern was the apparent in discriminant approach that the steamboat companies were using with respect to the harvest of wood supplies along the waterways in the region. The Branch approached the conservation and management of timber resources by introducing "forest reserves." These forest reserves created considerable conflict with Aboriginal people in the region by excluding certain traditional uses of the land. In addition, the Branch also launched an aggressive program of wildlife regulation, fire control, and enforcement. These initiatives brought the Branch into further conflict with the indigenous people of the region by imposing poorly designed and mis-understood regulations on Aboriginal people that resulted in direct conflict with their traditional way of life.

In 1916, the Migratory Bird Treaty was signed between Britain (on behalf of Canada) and the United States. This Treaty was followed in 1917 with the proclamation of the Migratory Birds Convention Act and Regulations. This new legislation brought to an end the traditional spring harvest of waterfowl and their eggs, an action taken without consultation between the governments and the Aboriginal people of the area. This federal legislation has generated considerable ill feeling between federal and provincial resource management agencies and Aboriginal people throughout Canada due to the impractical and un-enforceable provisions of the Act and Regulations.

The formation of Wood Buffalo National Park in 1922 had further negative impact on the traditional use of this region by Aboriginal people. Again, this action by the Federal Government was done with little consultation or consideration for the Aboriginal people who had traditionally hunted and trapped the area.

The Natural Resources Transfer Agreement was passed in 1930. The passage of this Agreement transferred the ownership and authority for natural resources from the Government of Canada to the Province of Alberta. This transfer placed an onus on Alberta to respect the constitutional rights (including those encompassed by the Treaty) of Aboriginal people relating to natural resources such as wildlife. The adjudication of this relationship has tended to fall to the courts for resolution. Over the years, considerable case law has been developed in the courts relating to the interpretation of the Transfer Agreement with regard to the rights of Aboriginal people.

In summary, the Aboriginal people of this region have been exposed to extensive and complex institutional change that has introduced significant socio-cultural trauma into the communities involved. The following table documents the concerns felt by those with traditional, intimate knowledge of the land and its resources.

Table 6.4-1: Table of Future Development Concerns

Future Development Concern	Percent of Respondents
Pulp and paper mills/saw mills	26%
Logging	24%
Mining	14%
None/no future development concerns	11%
Hydroelectric dams/damming	8%
Land development/road construction	3%
Oil exploration/tar sands	2%
Water pollution	2%
Farming	1%
Tourism	1%
Chemical pollution	1%
Land claims	1%
Air pollution/ozone layer	1%
Everything/all development	1%
Effect on people and animals	1%
Impact on water levels	1%
Number Respondents	144

Opportunities exist to positively address the issues that have been identified and the reader is referred to the Recommendations section of this report that follows for more specific thoughts to deal with the issues involved.

7.0 RECOMMENDATIONS

The Traditional Knowledge Component of the Northern River Basins Study recommends that:

1. Traditional knowledge research of the Northern River Basin Study be extended to include all Aboriginal communities within the NRBS study area, especially those in the southern portions of the area; these locations were not included in the present study due to fiscal constraints.

2. A comprehensive study be conducted to assess the economics of a traditional hunting/trapping economy within the Northern River Basin Study area.

   Comment:

   There currently prevails a "doctrine of inevitability" which is a powerful idea held by prominent and influential people that supporting and sustaining the hunting/trapping economy is a futile exercise.

   This doctrine is based on the myth that the human race has progressed by stages from hunting/gathering, to nomadic pastoralism, then to horticulture and agriculture, and finally to industrial society. This perspective is one with which we are so familiar that we take it as common sense. It is a basic cultural theme which biases the way in which, those who subscribe to this myth view the world. If one accepts this myth, it is clear that hunting and trapping cannot be taken seriously, because these activities are seen as an economic form that has historically been superseded. As such, those who partake in hunting and trapping are viewed as existing in an evolutionary backwater and they are thought, by those who subscribe to the myth, to have a need to move into a "more progressive," modern way of life.

   There is a dearth of comprehensive research on the true economics of a hunting and trapping economy. The only fact that can be stated with confidence is that the people who devote labour at hunting and trapping do so to secure sustenance for economic reasons. It is, therefore, imperative that the fiscal realities of such an economy be carefully assessed and understood, and that sound methodology be developed in order that the true value (ie. economic, social, cultural, spiritual, health, ecological, etc.) can be identified. This research will enable the hunting and trapping economy to be weighed more realistically, and to be reviewed in context with other development initiatives that may negatively impact on this life-style.

3. A "Handbook on Methodology for Traditional Knowledge Research" be developed for application on a local, national and international basis, and that the handbook be based on the experience gained by the Northern River Basin Study.

4. A comprehensive research and monitoring program be established, incorporating both traditional knowledge and conventional science, to assess the effects of land-use practices (eg. agricultural

land clearing, logging, industrial development, municipal development, etc.) on the capacity of river basins to sustain ecologically desirable hydrologic regimes (surface and ground water) for future needs, and to recommend land-use management requirements to achieve this goal.

5. A water quality monitoring program be initiated throughout the Northern River Basin Study area, integrating traditional knowledge and conventional scientific methodologies.

6. Natural Resource Co-management Agreements (or cooperative management agreements) reflecting a partnership relationship between the Province of Alberta and the Aboriginal people inhabiting the Northern River Basin Study area be developed and implemented. Such agreements will integrate traditional knowledge and conventional science throughout the information-gathering processes, information interpretation, management, and decision-making processes on all matters relating to renewable natural resources within the region.

7. A comprehensive economic development strategy and implementation plan for the region encompassed by the Northern River Basin Study be developed, focusing on opportunities for local people using traditional knowledge as the key factor in pursuing economic development within the region.

8. A traditional knowledge transfer and extension program be developed and implemented to encourage the perpetuation of traditional knowledge from Aboriginal elders to the youth, as well as to other sectors of society.

9. An extensive literature search and information analysis be conducted to obtain the information that others have prepared, following analysis of specific aspects of archival and non-archival records relevant to this study.

10. Additional archival studies be undertaken to expand the present database, to ensure comprehensive coverage of relevant environmental information within the study area.

11. The Hudson Bay Company records of weather be studied and analyzed, then correlated with the data now included in the database(s) of Environment Canada; determine the extent to which decreased precipitation has been caused by developmental change factors.

12. Health-related issues that have been alluded to throughout the community research component, but for which no detailed documentation exists, be the subject of extensive studies.

13. Industrial sites such as the now-closed mine at Pine Point be forced to adhere to environmental regulations, and to not contravene the ecological wisdom of those who live in close liaison with the land.

14. The climatological effect of land stripped of trees and used for agricultural purposes, compared with farm land left with 30 to 50 foot strips of trees along road allowances or in rows throughout the land mass of the larger farms, be specifically studied and analyzed.

15. A protocol be developed jointly and immediately by the Province of Alberta and the First Nations/Metis, to ensure that the knowledge and the respectfulness of the First Nations/Metis peoples toward the land is incorporated into each industrial process now in existence or contemplated for future development.

16. An elder of the First Nations/Metis community be appointed to a senior consultancy position with each major industry now operating or being planned, to ensure that the wisdom of the ages is incorporated into the day-to-day operational practices of the industries. Support by the First Nations/Metis community, of the elder and his/her appointment, is implicit and essential.

APPENDIX A

COMMUNITY INTERVIEWS: FORT MCMURRAY
Metis President: Grant Golosky

Community Researcher: Lila Thompson

Respondents - *Elders
Auger, Edward*
Auger, Gilbert*
Bacon, Edna*
Bird, Billy*
Bird, Ethel*
Bird, Rod
Brooks, Archie*
Brooks, Marion
Cardinal, Mary
Castor, William*
Caster, Gerty
Defoe, Edie*
Dragon, James
Evans, Rita*
Furber, Gerry*
Gladue, Christine*
Golosky, Grant
Golosky, Jack
Goodwin, Norman
Harpe, Arthur
Hawkins, Roy*
Horrocks, Marion
Hyska, Elsie*
Korbut, Fred*
Martin, Real*
Mitchell, Charlotte*
Paquette, Eva & James*
Pelton, Selina*
Sanderson, Katie*
Stroud, Hugh*
Tymchuk, Marie*
Weber, Tom
Wigmore, Rosa*
Wylie, Leslie

COMMUNITY INTERVIEWS: TALL CREE
Chief Bernie Meneen

Community Researchers: Micheal Hamelin

Respondents - *Elders
Alook, Celestine*
Alook, Isabel
Alook, Theresa
Alook, Pierre
Auger, Clifford
Auger, Elsie
Auger, Hilda
Auger, Louie*
Auger, Richard
Auger, Terry
Cardinal, Conrad
Cardinal, John
Hamelin, Charlie
Hamelin, Henry*
Hamelin, Mary Anne*
Hamelin, Pat
Hamelin, Samuel
Loonskin, Lily
Loonskin, Ronald
Meneen, Alex
Meneen, Evelyn*
Moberly, Angus
Moberly, Betsy
Moberly, Clifford
Moberly, Emily
Moberly, Maude*
Moberly, Narcisse*
Moberly, Paul
Moberly, Ralph
Peters, Clara*
Roberts, Edward*
Sewepagaham, Albert

COMMUNITY INTERVIEWS: LITTLE RED RIVER CREE NATION
Chief Johnsen Sewepagaham

Community Researchers:
Dwaine Laboucan
Dorothy Shupac
Lester St. Arnault

Respondents - *Elders

Jean D'Or
Auger, Isadore
Blesse, Mary Louise*
Courtoreille, Larry*
Dumas, Albert*
Kaskamin, Maurice*
Metsikassus, Benjamin*
Metsikassus, Narcise*
Noskey, August*
Sewepagaham, Andrew*
St. Arnault, Bernard*
St. Arnault, Ernest*
St. Arnault, Margaret*
Tallcree, William*
Wapoose, Charlie*

Fox Lake
Blesse, Bart*
Laboucan, Angela*
Laboucan, Isadore*
Laboucan, J.B.
Laboucan, Rose Marie
Laboucan, Sammy*
Loonskin, Daniel
Meneen, Alexis*
Nanooch, Elizabeth*
Nanooch, John*
Ribbonleg, Emile*
Ribbonleg, John*
Ribbonleg, Noel*

Garden River
D'Or, Billy*
D'Or, Gordon
Loonskin, Moses*
Nanooch, Alexander*
Nanooch, Isaac
Nanooch, Randy
Tallcree, Paul*

COMMUNITY INTERVIEWS: FORT CHIPEWYAN
Chief Archie Waquan
Chief Archie Cyprien
Metis President: Lloyd (Sonny) Flett
Metis Vice President: Fred (Jumbo) Fraser

Community Researchers:
Fred Fraser
Stella Marten
Larry Mercredi

Respondents - *Elders
Antoine, John*
Campbell, David
Campbell, Len*
Courtoreille, Willie*
Flett, Scott
Fraser, Roderick*
Gibot, Gerald*
Granath, Carl*
Ladoucheur, Raymond*
Marcel, Joe
Marten, George*
Marten, Helgi*
Marten, Jocelyn
Marten, John*
Marten, Larry*
Marten, Philomene*
Marten, Sal*
Mckay, Donald*
Mckay, Reggie*
Micheal, Ray*
Nelson, Bill*
Tuckaroo, Sammy*
Vermillion, Lawrence
Voyageur, Charlie*
Wanderingspirit, George*
Whiteknife, Alex*
Whiteknife, George
Whiteknife, Jackson*
Whiteknife, Willie*

COMMUNITY INTERVIEWS: FORT SMITH/FORT FITZGERALD
Chief Jerry Paulette
Metis President: George Kurszewski

Community Researchers: Eileen Beaver
Allen Kogiak
Sharon Maldaver
Kevin Mercredi

Respondents - *Elders
Abraham, Nap*
Auger, Victor*
Beaulieu, Arthur*
Beaulieu, Fred*
Beaulieu, Louise
Beaulieu, Maggie*
Beaulieu, Oliver*
Beaulieu, Wilfred*
Benwell, Mary*
Benwell, Xavier*
Bourke, Archie*
Bourke, Charles
Bourke, Delia*
Bourke, Raymond
Cheezie, Philip*
Cummings, Paul
Desjarlais, Dorothy
Desjarlais, Jack
Emile, Jack
Hoffman,Karl & Champagne,Vina
Kennedy, Philip*
Laroque, Archie*
Masson, Gordon
Macdonald, Fred*
Macdonald, Sonny*
Mercredi, Georgina*
Mercredi, Rene*
Mercredi, Richard
Power, Dave
Sanderson, Irene*
Sanderson, Raymond
Schaefer, Bill
Vermillion, Shirley

COMMUNITY INTERVIEWS: FORT RESOLUTION
Chief Don Balsillie
Metis President: Violet Beaulieu

Community Researchers:
Violet Beaulieu

Respondents - *Elders
Beaulieu, Angus*
Beaulieu, Edward*
Beaulieu, Ernest
Beaulieu, Gordon
Beaulieu, Henry*
Beaulieu, Jonas*
Beaulieu, Leonard
Beaulieu, Martha
Beaulieu, Tommy
Beaulieu, Velma
Beck, Eric & Raymond*
Beck, Raymond
Biscaye, Paul*
Boucher, Kevin
Boucher, Marie Rose*
Buggins, Philip*
Calumet, Henry*
Cardinal, Dora*
Casaway, John*
Delorme, Angus
Delorme, Warren
Eklina, Robert*
Fabien, Ernie
Giroux, George
Giroux, Wilfred*
Jerome, Charlotte*
Jerome, Joseph*
King, Henry*
King Sr, Roy*
Lafferty, Eddie
Lafferty, Edward*
Lafferty, Frank
Lafferty, Frederick*
Lafferty, Gabriel*
Lafferty, Victoria*

Lockhart, Billie*
Lockhart, Noel*
Mandeville, Albert
Mandeville, Harry*
Mckay, Melvin
Norn, Gene*
Pierrot, Henry*
Pierrot, Mary*
Sayine, Edward*
Sayine, Fred
Sayine, Margaret*
Simon, Johnny*
Smallgeese, John
Yelle, Henry*

COMMUNITY INTERVIEWS: FORT VERMILION
Stan Smith - Vice Chair Mackenzie District
Metis President: William Ducharme

Community Researchers:
Valerie Courtoreille

Respondents - *Elders
Auger, Arthur
Auger, Sylvester
Bulldog, Harry*
Cardinal, Louise*
Courtoreille, Agnes*
Courtoreille, Michael*
Ducharme, Daniel*
Ducharme, Iola*
Hamelin, Alfred*
Lafleur, John*
Lambert, Mac*
Lambert, Nora*
Lizotte, Amos*
Lizotte, Delmar
Lizotte, Henry
Lizotte, Hillaire*
Lizotte, Jane*
Lizotte, William*
Mercredi, Dorothy & Wilfred*
Mclean, Robert
Mitchell, Cecil & Theresa*
Mitchell, Helen*
Murray, Howard*
Sanderson, Harold & Stella*
Smith, Arthur*
Smith, Clifford*
Smith, Stan*
Wanotch, Frank*
Ward, Mina*

APPENDIX B

PROTOCOL OF

THE NORTHERN RIVER BASINS STUDY

Re: Procedural Guidelines for Cooperative Interaction Between the Northern River Basins Study and the First Nations of Treaty 8

Prepared by the Grand Council of Treaty 8 First Nations
Environment Committee
for

The Northern River Basins Study

November 3, 1993

Updated November 8, 1994

I. INTRODUCTION

WHEREAS existing Treaty Rights of Treaty 8 First Nation peoples are recognized and affirmed by s. 35 of the Constitution Act, 1982; and include the exercise of hunting, fishing, gathering and trapping rights on unoccupied Crown lands and waters found within the Treaty 8 area.

AND WHEREAS in light of a mutual recognition of the importance of combining scientific and traditional knowledge in the understanding of the ecological workings of the Northern river basin environments, and a desire to improve the quality of the information acquired through the Northern River Basins Study, the Grand Council Environment Committee undertook to develop a Protocol pursuant to an agreement with the Board dated October 19, 1992;

AND WHEREAS the Environment Committee of the Grand Council of Treaty 8 First Nations has developed this Protocol to guide and inform relations between the Grand Council, its respective member First Nations, and the Board (its members, employees, committees, Study Groups, and professional contractors), acting within the mandate and authority of the Board;

AND WHEREAS the Grand Council of Treaty 8 First Nations has been given direction by the member First Nations, acting through resolution, to establish this Protocol.

B. OBJECTIVES

As outlined in the agreement between the Grand Council of Treaty 8 and the Board, this Protocol has been assembled to address several main objectives:

1. To enable the Board, The Grand Council, and First Nations to proceed with collaborative consultation and study processes within a framework of mutual trust and cooperation;

2. To enable First Nation leaders and elders to effectively participate in this consultation process and develop a consensual decision making process with the Board regarding study processes that will impact First Nation communities;

3. To enable the study processes and procedures to proceed in a manner that is culturally sensitive and relevant to Treaty 8 First Nations; and

4. To enable the accurate collection and interpretation of all data relevant to the interest and concerns of Treaty 8 First Nations.

C. DEFINITIONS

For the purpose of this Protocol:

1. "Board" means the Northern River Basins Study Board and includes its agents, committees, subcontractors, and staff;

2. "Consultation": shall mean a formal process of dialogue and joint decision making between the Board and designated representatives of the First Nations, Tribal Councils, and Grand Council as set out in this Protocol;

3. "Protocol": as defined in the Agreement of October 19, 1992, means "a form of code describing certain etiquette and procedures" to be adopted by the Board in its relationships with Treaty 8 First Nations and with the Grand Council.

4. The "Grand Council" means the Grand Council of Treaty 8 First Nations and includes its agents, committees, subcontractors, and staff.

5. "Tribal Council" means the Athabasca Tribal Corporation, the Lesser Slave Lake Indian Regional Council, the High Level Tribal Council, the NWT Treaty 8 Tribal Council and the Treaty 8 Tribal Association of B.C.

D. TASKS AND OBJECTIVES OF THE FIRST NATION COMMITTEE OF THE NRBS

1. The First Nations having membership on the Northern River Basins Study Board are constituted as a First Nation Committee under the terms of the minutes of the meeting #14 of the Board held on the 9th day of September, 1993, at Fort McMurray, Alberta.

2. All aspects of study processes that impact upon First Nation communities and reserves shall be subject to review and comment by the First Nation Committee, including:
   - the need to establish a bridge between the cultures based on mutual trust, respect, and appropriate consultation or involvement in order to work together for mutual benefit;
   - to advise the Board on appropriate means of consultation with or involvement of First Nations in the study process;
   - ensuring that study processes and procedures are culturally sensitive and relevant;
   - the views of Treaty 8 First Nations on the special relationship that exists between First Nation peoples, Alberta and Canada;
   - the merit of employing local persons to the greatest extent possible;

- the merit of identifying contributions of local individuals by name in scientific reports;
- the right of First Nation people to withhold certain private information (eg. spiritual) as an agreed to exception to the Data Release Protocol;
- to advise on the oral tradition of Aboriginal cultures;
- other matters as appropriate.

3. All study processes and organizational structures that are designed or intended to collect, use, or rely on information or perspectives of First Nation peoples, shall be undertaken in consideration of the policy recommendations of the First Nation Committee. This shall include the Traditional Knowledge Group, the Human Food Group, and the Other Uses Group.

4. The Board, acting under advice and recommendation of the First Nation Committee, shall consider modification of a study process, or aspect of a study process, as appropriate.

5. The First Nations Committee shall make presentations to the Board concerning issues or concerns not resolved through the consultation process directly between the First Nation and Board and request the Board to jointly resolve these matters. The Board shall advise the First Nations and the Grand Council of its decision in this matter.

E. GUIDELINES FOR CONSULTATION BETWEEN THE BOARD AND TREATY 8 FIRST NATIONS

1. The procedures and processes of the study, or any aspect of the study, which are likely to impact on First Nations shall be communicated to the appropriate First Nation and Grand Council representatives in a timely fashion, prior to implementation, so as to allow sufficient time for the First Nations to review the information and respond in an appropriate and timely manner with concerns or questions.

2. The Board shall advise First Nations of any procedures relating to the collection of samples of natural resources, including water, soils, fish, riparian waterlife, flora or fauna, prior to commencing collections. Where appropriate, the First Nation peoples in the collection area should be appropriately involved in these activities.

3. The Board is committed to receiving concerns, comments, and suggestions from First Nation communities through regular community gatherings, meetings, and other opportunities for First Nation participation, which are mutually agreed upon and arranged through the proper contacts as specified in this Protocol. On request of the First Nation or the Grand Council, the Board will meet directly with the designated representatives of First Nations in order to fully consult prior to implementation of the study process or collection of samples in their area.

4. As part of the consultation process with First Nations, the parties should jointly identify the procedures, impacts, alternatives, and mitigation measures related to the proposed study processes that will impact on First Nations.

5. The Board shall document the outcomes of the consultation processes and forward copies to the First Nations Committee, First Nations, and the Grand Council.

6. In particular, the Board shall obtain permission from the First Nations prior to entering onto First Nation reserves and communities. The Board shall advise of any activities which may interfere with activities of First Nation peoples, and consult with First Nations and the Grand Council prior to commencement of these activities.

7. The Study Board will communicate scientific results and recommendations to First Nations and the Grand Council in a clear and timely manner.

8. Other guidelines as may be appropriate or necessary from time to time.

F. COMMUNICATION BETWEEN THE BOARD AND TREATY 8 FIRST NATIONS

1. The Environment Committee of the Grand Council of Treaty 8 First Nations is the appropriate body for communication between the Board and the Grand Council.

2. In those instances where the Board needs to communicate directly with the First Nations, Tribal Councils, or Tribal Corporation within Treaty 8, the respective Chief from that Council or Corporation, having membership on the Grand Council Environment Committee, shall be the designated representative to be contacted.

3. Where the Board needs to directly communicate with a specific First Nation, the Chief of that First Nation, or his designate as identified by the Chief, shall be the designated contact. Unless directed otherwise by the First Nation, all communications should be copied to the Chairperson of the Environment Committee, and the Chief of the Council, or Corporation having membership on the Environment Committee.

G. CONCLUDING COMMENTS

- The terms of the Protocol have been set out in a spirit of cooperation and collaboration and are not intended to limit the powers of the Board, or hinder its efficient operations.

- This document has been compiled with the intent to provide an initial set of guidelines for a positive working relationship between the Board and Treaty 8 First Nations. It is not, at this time, comprehensive in its nature and additional practices that would serve to further the objectives of the Board and this Protocol will be reviewed as necessary.

WHEREAS the Northern River Basins Study Board desires to conduct its relations with First Nations in a manner that recognizes the interest and concerns of First Nations in regard to the work being undertaken by the Board;

AND WHEREAS the First Nations in Treaty #8, through the Grand Council of Treaty #8, have proposed a Protocol outlining the processes, procedures, and guidelines they wish the Board to adopt in conducting their relationships with First Nations when undertaking the work of the Board.

THEREFORE BE IT RESOLVED AS FOLLOWS:

1. The Board hereby accepts the Protocol tabled by the Grand Council of Treaty 8 and agrees that it will follow the procedural guidelines for consultation and cooperative interaction set out in the Protocol in conducting its work where it affects the interests and concerns of First Nations.

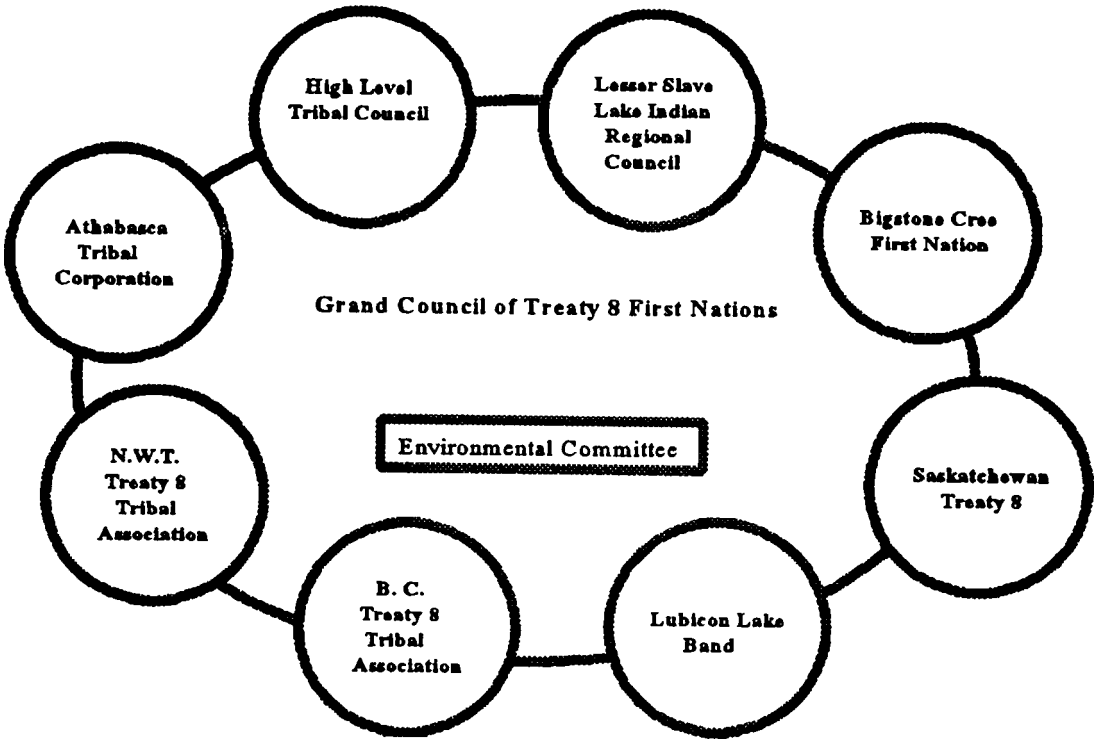
2. The Board will advise all its staff and consultants to conduct their relations with First Nations in accordance with the Protocol.

3. Subject to an approved budget, the Board shall pay reasonable costs associated with the consultation.

4. A proposed annual budget will be prepared and submitted to the Board for approval, on or before the next Board meeting on December 16, 1993, for the purpose of undertaking the consultation processes described in the Protocol.

APPENDIX B

Treaty 8 Organizational Relationships



APPENDIX B

GRAND COUNCIL OF TREATY 8 FIRST NATIONS
ENVIRONMENT COMMITTEE

NAME	REPRESENTING
Chief Mel Grandjambe FORT MCKAY BAND Box 5360 Fort McMurray, AB T9H 3G4 Phone:403-828-422-4220 Fax:403-828-4394	ATHABASCA TRIBAL CORPORATION 9206 McCormick Drive Fort McMurray, AB T9H 1C7 Phone: 403-791-6538 Fax: 403-791-0946
Chief George Desjarlais WEST MOBERLY FIRST NATION General Delivery Moberly Lake, BC V0C 1X0 Phone: 604-788-3663 Fax: 604-788-9793	B.C. TREATY 8 TRIBAL ASSOCIATION 10233 - 100 Avenue Fort St. John, BC V1J 1Y8 Phone: 604-785-0612 Fax: 604-785-2021
Chief Johnsen Sewepagaham LITTLE RED RIVER CREE NATION Box 1165 High Level, AB T0H 1Z0 Phone: 403-759-3912 Fax: 403-759-3780	HIGH LEVEL TRIBAL COUNCIL P.O. Box 270 High Level, AB T0H 1Z0 Phone: 403-926-3446 Fax: 403-926-4075

Chief Eddie Tallman
WHITEFISH LAKE BAND
General Delivery
Atikameg, AB T0G 0C0

Phone: 403-767-3914
Fax: 403-767-3814

LESSER SLAVE LAKE INDIAN
REGIONAL COUNCIL
P.O. Box 269
Slave Lake, AB T0G 2A0

Phone: 403-849-4943
Fax: 403-849-4975

Chief Don Balsillie
DENINU K'UE FIRST NATION
Box 1899
Fort Resolution, NT X0E 0M0

Phone: 403-394-4335/4336
Fax: 403-394-5122

N.W.T. TREATY 8 TRIBAL COUNCIL
General Delivery
Fort Resolution, NT X0E 0M0

Phone: 403-394-3313
Fax: 403-394-3413

Chief Gordon Auger

BIGSTONE CREE FIRST NATION
General Delivery
Desmarais, AB T0G 0T0

Phone: 403-891-3836
Fax: 403-891-3942

TREATY 8 REGIONAL COUNCILS

ATHABASCA TRIBAL CORPORATION
9206 McCormick Drive
Fort McMurray, AB
T9H 1C7

Phone: 403-791-6535
Fax: 403-791-0946

EXECUTIVE DIRECTOR: Mr. Tony Punko

MEMBER BANDS:
Athabasca Chipewyan First Nation
Fort McMurray Band #468
Mikisew Cree First Nation
Fort McKay Band
Janvier Indian Band

HIGH LEVEL TRIBAL COUNCIL
Box 1889
High Level, AB
T0H 1Z0

Phone: 403-926-3446
Fax: 403-926-4075

EXECUTIVE DIRECTOR: Mr. Ron Henriet

MEMBER BANDS:
Beaver First Nation
Little Red River Cree Nation
Lubicon Lake Band
Dene Tha' Band
Tallcree Tribal Government

LESSER SLAVE LAKE INDIAN REGIONAL COUNCIL
P.O. Box 1740
High Prairie, AB
T0G 1E0

Phone: 403-523-4401
Fax: 403-523-4406

P.O. Box 269
Slave Lake, AB
T0G 2A0

Phone: 403-849-4943
Fax: 403-849-4975

EXECUTIVE DIRECTOR: (Acting) Ms. Darlene Plomondon

MEMBER BANDS:
Duncan's Band
Sawridge Band
Swan River Band
Sturgeon Lake Band
Kapawe'no First Nation
Driftpile Band
Horse Lake Band
Sucker Creek Band
Whitefish Lake Band

TREATY 8 REGIONAL COUNCILS

N.W.T. TREATY 8 TRIBAL COUNCIL
General Delivery
Fort Resolution, NT
X0E 0M0

Phone: 403-394-3313
Fax: 403-394-3413

EXECUTIVE DIRECTOR: Ms. Karen Balsillie

MEMBER BANDS:
Yellowknives Dene Band (Dettah)
Yellowknives Dene Band (Ndilo)
Lutsel K'E Dene Band
Fort Fitgerald Dene Band
Salt Plain First Nation
Deninu K'ue First Nation

B.C. TREATY 8 TRIBAL ASSOCIATION
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Phone: 604-785-0612
Fax: 604-785-2021

EXECUTIVE DIRECTOR: Mr. Jim Webb

MEMBER BANDS:
Blueberry River Indian Band
Doig River Indian Band

Prophet River Indian Band
West Moberly First Nation
Fort Nelson Indian Band

Halfway River Indian Band
Saulteau Indian Band

PRINCE ALBERT GRAND COUNCIL
3601 - 5 Avenue East
Box 2350
Prince Albert, SK
S6V 6Z1

Phone: 306-953-7200
Fax: 306-764-6272

CONTACT:

Vice-Chief - Mr. John Danto

MEMBER BANDS:
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Big C Band

Fond Du Lac Band

Unaffiliated Bands

BIGSTONE CREE FIRST NATION
General Delivery
Desmarais, AB
T0G 0T0

Phone: 403-891-3836
Fax: 403-891-3942

GRAND COUNCIL OF TREATY 8 FIRST NATIONS

BIGSTONE CREE FIRST NATION General Delivery Desmarais, AB T0G 0T0 #458 Phone: 403-891-3836/891-3888 Fax: 403-891-3942 CHIEF GORDON AUGER	BEAVER FIRST NATION Box 270 High Level, AB T0H 1Z0 #445 Phone: 403-927-3544 Fax: 403-927-3496 CHIEF HARVEY BULLDOG
DENE THA' BAND Box 120 Chateh, AB T0H 0S0 #448 Phone: 403-321-3842 Fax: 403-321-3886 CHIEF JAMES ANNASSAY	DRIFTPILE BAND General Delivery Driftpile, AB T0G 0V0 #450 Phone: 403-355-3868 Fax: 403-355-3650 CHIEF CLIFFORD FREEMAN
DUNCAN'S BAND Box 148 Brownvale, AB T0H 0L0 #451 Phone: 403-597-3777 Fax: 403-597-3920 CHIEF IRVIN KNOTT	ATHABASCA CHIPEWYAN FIRST NATION Box 366 Fort Chipewyan, AB T0P 1B0 #201 Phone: 403-697-3730 Fax: 403-697-3500 CHIEF TONY MERCREDI

FORT McKAY BAND Box 5360 Fort McMurray, AB T9H 3G4 #467 Phone: 403-828-4220 Fax: 403-828-4393 CHIEF MEL GRANDJAMB	FORT McMURRAY BAND Box 6130 Fort McMurray, AB T9H 1W1 #468 Phone: 403-334-2446 Fax: 403-334-2457 CHIEF BERNICE CREE
KAPAWE'NO FIRST NATION General Delivery Grouard, AB T0G 1C0 #452 Phone: 403-751-3800 Fax: 403-751-3864 CHIEF FRANK HALCROW	HORSE LAKE BAND Box 303 Hythe, AB T0H 2C0 #449 Phone: 403-356-2248 Fax: 403-356-3666 CHIEF ROBERT HORSEMAN

GRAND COUNCIL OF TREATY 8 FIRST NATIONS

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LUBICON LAKE BAND Box 6731 Peace River, AB T8S 1S5 #453 Phone: 403-629-3945 Fax: 403-629-3939 CHIEF BERNARD OMINIYAK	MIKISEW CREE FIRST NATION Box 90 Fort Chipewyan, AB T0P 1B0 #461 Phone: 403-697-3740 Fax: 403-697-3826 CHIEF ARCHIE WAQUAN
SAWRIDGE BAND Box 326 Slave Lake, AB T0G 2A0 #454 Phone: 403-849-4331 Fax: 403-849-3446 CHIEF WALTER TWINN	STURGEON LAKE BAND Box 757 Valleyview, AB T0H 3N0 #455 Phone: 403-524-3307 Fax: 403-524-2711 CHIEF ALFRED GOODSWIMMER

SUCKER CREEK BAND Box 65 Enilda, AB T0G OWO #456 Phone: 403-523-4426 Fax: 403-523-3111 CHIEF JAMES BADGER	SWAN RIVER BAND Box 270 Kinuso, AB T0G 1K0 #457 Phone: 403-775-3536 Fax: 403-775-3796 CHIEF CHARLIE CHALIFOUX
TALLCREE TRIBAL GOVERNMENT Box 367 Fort Vermilion, AB T0H 1N0 #446 Phone: 403-927-3727 Fax: 403-927-4375 CHIEF BERNIE MENEEN	WHITEFISH LAKE BAND General Delivery Atikameg, AB T0G 0C0 #459 Phone: 403-767-3914 Fax: 403-767-3814 CHIEF EDDIE TALLMAN

GRAND COUNCIL OF TREATY 8 FIRST NATIONS

BRITISH COLUMBIA

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FORT NELSON INDIAN BAND RR1 Miles 293 Alaska Highway Fort Nelson, BC V0C 1R0 #543 Phone: 604-774-7257 Fax: 604-774-7260 CHIEF GLEN BODINE	HALFWAY RIVER INDIAN BAND Box 59 Wonowon, BC V0C 2N0 #546 Phone: 604-787-4451 Fax: 604-785-2021 CHIEF BERNIE METACHEAH
PROPHET RIVER INDIAN BAND Box 3250 Fort Nelson, BC V0C 1R0 #544 Phone: 604-773-6555 Fax: 604-774-2270 CHIEF LIZA WOLF	SAULTEAU INDIAN BAND Box 414 Chetwynd, BC V0C 1J0 #542 Phone: 604-788-3955 Fax: 604-788-9158 CHIEF (VACANT)

WEST MOBERLY FIRST NATION General Delivery Moberly Lake, BC V0C 1X0 #545 Phone: 604-788-3663 Fax: 604-788-9792 CHIEF GEORGE DESJARLAIS	

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YELLOWKNIVES DENE BAND (DETTAH) Box 2514 Yellowknife, NT X1A 2P8 Phone: 403-873-4307 Fax: 403-873-5969 CHIEF JONAS SANGRIS	YELLOWKNIVES DENE BAND (NDILO) Box 2514 Yellowknife, NT X1A 2P8 Phone: 403-873-6533 Fax: 403-873-8545 CHIEF DARRELL BEAULIEU

SASKATCHEWAN

FOND DU LAC BAND General Delivery Fond Du Lac, SK S0J 0W0 #351 Phone: 306-686-2102 Fax: 306-686-2040 CHIEF ADOLPHUS MERCREDI	BLACK LAKE BAND General Delivery Black Lake, SK S0J 0H0 Phone: 306-284-2044 Fax: 306-284-2101 CHIEF DONALD SAYAZIE
BIG C BAND Box 389 La Loche, SK S0M 1G0 Phone: 306-822-2021 Fax: 306-822-2250 CHIEF ROY CHEECHAM	

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RETURN JUL 11 '97	
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The Northern River Basins Study was established to examine the relationship between industrial, municipal, agricultural and other development and the Peace, Athabasca and Slave river basins.

Over four and one half years, about 150 projects, or "mini studies" were contracted by the Study under eight component categories including contaminants, drinking water, nutrients, traditional knowledge, hydrology/hydraulics, synthesis and modelling, food chain and other river uses. The results of these projects, and other work and analyses conducted by the Study are provided in a series of synthesis reports.

This Synthesis Report documents the scientific findings and scientific recommendations of one of these component groups. This Synthesis Report is one of a series of documents which make up the Northern River Basins Study's final report. A separate document, the Final Report, provides further discussion on a number of scientific and river management issues, and outlines the Study Board's recommendations to the Ministers.

Project reports, synthesis reports, the Final Report and other NRBS documents are available to the public and to other interested parties.