

INDIGENOUS LED CONSERVATION – A CRITICAL REVIEW OF  
TRADITIONAL ECOLOGICAL KNOWLEDGE

by

Ana V. Brown-Mantha

FACULTY OF NATURAL RESOURCES MANAGEMENT  
LAKEHEAD UNIVERSITY  
THUNDER BAY, ONTARIO

April 2022

INDIGENOUS LED CONSERVATION – A CRITICAL REVIEW OF  
TRADITIONAL ECOLOGICAL KNOWLEDGE

by

Ana V. Brown-Mantha

An Undergraduate Thesis Submitted in Partial Fulfillment of the Requirements for the  
Degree of Honours Bachelor of Environmental Management

Faculty of Natural Resources Management  
Lakehead University

April 2022

---

Dr. Martha Dowsley  
Major Advisor

---

Dr. Ashley Thomson  
Second Reader

LIBRARY RIGHTS STATEMENT

## A CAUTION TO THE READER

This HBEM thesis has been through a semi-formal process of review and comment by at least two faculty members. It is made available for loan by the Faculty of Natural Resources Management for the purpose of advancing the practice of professional and scientific forestry.

The reader should be aware that opinions and conclusions expressed in this document are those of the student and do not necessarily reflect the opinions of the thesis supervisor, the faculty, or Lakehead University.

## ABSTRACT

Brown – Mantha, A. V. 2022. Indigenous led conservation – a critical review of Traditional Ecological Knowledge.

Keywords: Traditional Knowledge/Traditional Ecological Knowledge, Indigenous knowledge, western – based science, Eurocentric biases, Fort William First Nation.

Evaluating the importance of Indigenous - Based Conservation with a critical review of Traditional Ecological Knowledge Studies can provide a useful framework for future management efforts. Traditional Knowledge and Traditional Ecological Knowledge have been used in the past few decades to collect and examine Indigenous - Knowledge and ecological knowledge Indigenous peoples have gained through oral teachings and traditional practices. Traditional Knowledge and Traditional Ecological Knowledge studies are thought to be inclusive frameworks to help represent Indigenous perspectives and values, for environmental assessment and management purposes, conservation management and environmental health studies. However, the development and implementation of the overall Traditional Knowledge framework and formation of theory, was developed through western-based perspectives and science, therefore resulting in heavy Euro-centric biases towards the topics and definitions of Traditional Knowledge and Traditional Ecological Knowledge studies. The idea and development for a new modern and Indigenous - based framework to discuss, form and collect Indigenous knowledge is both important, and necessary. To facilitate Indigenous self-determined and - defined Traditional Knowledge, interviews were conducted with Fort William First Nation band members to gain an understanding of the Indigenous perspective. Indigenous perspectives and self-definitions help to further the understandings of racially biased scientific protocols and to reduce these biases in environmental and conservation management.

## CONTENTS

ABSTRACT .....	iv
FIGURES.....	vi
INTRODUCTION.....	1
OBJECTIVE.....	3
LITERATURE REVIEW.....	4
Definitions of Traditional Knowledge and Traditional Ecological Knowledge	
Implications of Traditional Knowledge and Traditional Ecological Knowledge	
Current incorporation of Indigenous knowledge in management	
Eurocentric biases of Traditional Knowledge and Traditional Ecological Knowledge development and use within scientific frameworks	
Review of TK/TEK study involving the Ruby Range Sheep Steering Committee (RRSSC) and Kluane First Nation	
MATERIALS AND METHODS.....	12
RESULTS.....	14
DISCUSSION.....	25
CONCLUSION.....	27
LITERATURE CITED.....	28
APPENDICES.....	31

FIGURES

Figure	Page
1. Map showing the traditional territory of Fort William First Nation (FWFN), and current Reserve area	13

## ACKNOWLEDGMENTS

I would like to thank my thesis supervisor, Marth Dowsley for supporting me throughout this entire process and fueling my drive and passion for this topic. I would also like to thank Fort William First Nation and Maawandoon for their imperative role while conducting my research. Finally, I would like to thank my parents, Blair, and Diana for their immense support throughout my education.

I would also like to respectfully acknowledge the lands in which I collected research and wrote this thesis are the traditional lands of the Anishinabek Nation and the traditional territory of Fort William First Nation, Signatory to the Robinson Superior Treaty of 1850.



## INTRODUCTION

Changes in mainstream frameworks for conservational efforts have evolved due to declining biodiversity and ecosystem degradation (Peacock et al. 2020). The development of co-management strategies has allowed for increased knowledge of landscape(s), ecosystems, and wildlife patterns/information (Peacock et al. 2020). Co-management strategies allow for leadership and knowledge of information within a community or ecosystem to be collected. These strategies typically include knowledge and views of local Indigenous communities or private sector companies, such as environmental consultant companies or Indigenous-led consulting companies (Popp et al. 2018). By involving Indigenous communities in co-management, an increase of information and knowledge of ecological, traditional, historical, and cultural landscape values enhances the overall value of knowledge within a specific area (Spak 2005). The paradigm of Traditional Ecological Knowledge (TEK), first discussed in the late '80s, is a subset of Indigenous knowledge (IK), involving the emphasis on an Indigenous community's ecological and environmental knowledge and relationships with the natural world (Kim et al. 2017).

The collection and implementation of Traditional Ecological Knowledge gathered is presented through a 'Traditional Ecological Knowledge Study' (TEKs) or 'Traditional Knowledge Studies' (TKs) report. These studies are mandated within environmental assessment protocols (EAs). When a construction or management project involves a First Nation community integration of the Indigenous community is required and this is done so through TK/TEK studies.

Western-based perspectives influenced the early development and implementation of Traditional Ecological Knowledge studies, resulting in the improper and biased analysis of ecological knowledge and overall Indigenous knowledge (Nadasdy 2005). The further progression of TEK studies within scientific and environmental assessments required a 'conducting framework' to be developed for the cohesive and streamlined method to collect Traditional Ecological Knowledge (Nadasdy 2003b). This developed framework influences the authenticity of TEK studies and was developed from Western-based science interests to gain 'factual data' from knowledge holders and oral history teachings of Indigenous knowledge (Kim et al. 2017). This lack of Indigenous consultation in how to structure such studies had resulted in a Euro-centric bias as to what knowledge should be collected and deemed relevant to the questions at hand.

Current frameworks for Traditional Ecological Knowledge studies (TEKs) continue to force Indigenous peoples to conform to the western-based standards of what useful knowledge is and how it should be shared (Nadasdy 1999). The TEK framework forces Indigenous peoples to express themselves, their knowledge, and beliefs, and to conform to existing Governmental institutions and the scientific frameworks developed using Western-based science. Modern frameworks originating from Indigenous knowledge, with assistance from Indigenous communities, elders, land users (hunting, trapping, foraging), and Indigenous environmental consultants or mitigation companies, will help create an Indigenized framework (Hessami et al. 2021). When conducting the crucial interview phase of TEK studies, questions focusing on the study and implementation of TEKs are frequently formed by Governmental agencies or outside

affiliations, such as Universities. This influx of outside perspectives results in biased and insensitive questions being asked throughout the TEK study process, thus contributing to the Euro-centric view placed upon the collection of knowledge for Traditional Ecological Knowledge studies. Creating conversation for Indigenous self-defined and self-determined understandings of Traditional Knowledge and Traditional Ecological knowledge supports the importance for unbiased and educational perspectives of Indigenous cultural approaches. The purpose of research is to gain Indigenous perspectives and opinions on current practices and implementation of Indigenous Traditional Knowledge and Indigenous Traditional Ecological Knowledge in current environmental and conservation management practices.

The objective of this study was to review and analyze the current development and incorporation of Traditional Knowledge/ Traditional Ecological Knowledge studies in current environmental management and conservation strategies. This will provide insight into how Traditional Knowledge and Traditional Ecological Knowledge is used within current frameworks for conservation and environmental assessment purposes and to assess how things might progress in the future.

## LITERATURE REVIEW

### DEFINITIONS OF TRADITIONAL KNOWLEDGE AND TRADITIONAL ECOLOGICAL KNOWLEDGE

Current and past literature involving Indigenous knowledge identify it as two entities: Traditional Knowledge and Traditional Ecological Knowledge. Robert Johannes published the earliest collection of literature regarding early definitions of Traditional Knowledge. These publications define Traditional Knowledge, as the Indigenous peoples of Australia and Pacific Island Inhabitants as traditional peoples and by extension their overall knowledge, classifying this as 'Traditional Knowledge,' and their environmental knowledge as 'Traditional Ecological Knowledge (Johannes 1989).' Other literature expands on alternate definitions of Traditional Knowledge and Traditional Ecological Knowledge, noting Traditional Ecological Knowledge as a "form of cultural and intellectual appropriation that modifies Indigenous Knowledge to better fit conventional western-based scientific frameworks (Kim et al. 2017)". These various definitions hinder on the implementation and purpose of TK/TEK studies. Recent legislation, such as the Impact Assessment Act in 2019, requires that TEK/TK be integrated into the assessment (Government of Canada 2019). While the purpose is not meant to be exploitative but intended to ensure better outcomes in environmental assessment (EA), these various definitions and predefined aspects of TK/TEK done by government entities or other proponents creates issues as to how Indigenous knowledge will be implemented and guided with the project, thus clouding the opportunity for Indigenous - defined terms regarding Traditional Knowledge (Nadasdy 2005; Wenzel 1999). With various definitions of Traditional Knowledge and Traditional Ecological

Knowledge, these non-Indigenous definitions have been analyzed and debated by researchers and many Indigenous peoples and communities. Berkes (2008) documents no universally accepted definition of Traditional Knowledge and Traditional Ecological Knowledge since the terms used (i.e. Traditional Knowledge and Traditional Ecological Knowledge) are ambiguous. To better understand these terms the following may be useful: traditional refers to the history of culture and community (Inglis 1993). However, cultures and communities can develop and change over time, whether from inside or outside pressures. All Indigenous nations in Canada have a different perspective towards knowledge and traditional practices. Each community should have the opportunity to define what their knowledge means to them and how it should be used and implemented within management and conservation planning frameworks.

#### IMPLICATIONS OF TRADITIONAL KNOWLEDGE AND TRADITIONAL ECOLOGICAL KNOWLEDGE

The increase in implementation of Traditional Knowledge and Traditional Ecological Knowledge studies in environmental management and other conservation management strategies have resulted in some issues regarding environmental assessments (Usher 2000). Many commercial and government-led projects incorporate Indigenous values and knowledge within the environmental assessment process as there is a duty to consult. The duty to consult requires the responsibility of the government or companies to be knowledgeable about any adverse effects that may damage the local and surrounding environments and respective areas of cultural and environmental (Government of Canada 2021). Government agencies of other company proponents generate material predefining traditional knowledge to be used and mandated within the

project. Material out of cultural context is often created, resulting in the Traditional Knowledge and Traditional Ecological Knowledge that is collected, forced into non – Indigenous frameworks that may be fundamentally different from Indigenous culture and the community’s perspectives on what their knowledge means to them (Berkes 2008). These predefined TK/TEK methods assume that knowledge is a collection of products that could be isolated from their original socio-cultural context, resulting in a flawed and biased integration system (Nadasdy 2003b; Harris 2001). The current approach includes many assumptions regarding Indigenous perspective, culture and identity. These assumptions result in knowledge extracted from Indigenous culture and then inserted into Euro-North American institutional science frameworks and ideologies (Nadasdy 2003a; Parson 2001). These frameworks are often constricting and harmful to the collection and description of Indigenous knowledge and may influence future knowledge implementation and the willingness of communities to share within a biased framework against their peoples and culture. Aikenhead (2006) writes, "The responsibilities of forming new frameworks belongs to Indigenous communities and their leaders." The methods of cultural appropriation for the organization and presentation of TK/TEK results in the struggle of the overall implementation process (Usher 2000).

#### CO – MANANGEMENT STRUCTURES INVOLVING INDIGENOUS KNOWLEDGE

New approaches to science and management require collaboration, transparency, and accountability to create a learning environment based on experience. Systems perspective views human societies as necessary parts of ecosystems and management

(Berkes 2004; Nadasdy 1999). Early 2000's perspectives of community-based conservation emphasize the role of local communities much like government-driven command and control models (Berkes 2004). The current lack of progress towards knowledge integration involving Indigenous peoples is an effect of the complexity of the problems and difficulties in developing strategies and methodologies capable of respectful implementation and integration (Nadasdy 2003a; Hessami et al. 2021). Involving local Indigenous peoples can increase dialogue between community members and researchers to create understandings and sharing of knowledge (Bradshaw 2003). Local community-based management practices conducted by local Indigenous peoples would increase the development of local knowledge and increase participation within management practices. Knowledge of local hunting and fishing practices would increase understanding of local wildlife, population determination, and the health and wellness of species. Monitoring these aspects would improve current data and knowledge of environmental and ecosystem conditions (Popp et al. 2018). Recent co-management strategies involving Inuit communities in Nunavut have involved knowledge integration with conservation and wildlife management for Polar bears (Dowsley and Wenzel 2008). Inuit Traditional Knowledge, referred to as Qauijimajatuqangit or IQ, was incorporated for increased information regarding land, climate, and wildlife movement. The knowledge collection process included numerous interviews and questions to gain information on current strategies and conditions of management within the area. The IQ collected was mainly from a local geographic focus, providing functional IQ regarding population health and size benefitting information influx regarding population trends. Information regarding Caribou migration as part of Inuit community's traditional hunting practices also provides valuable species information (Dowsley and Wenzel

2008). Dowsley and Wenzel (2008) describe Traditional Knowledge as not observations of the environment; but a paradigm for viewing the world and the interaction and connection to the space humans inhabit.

#### EUROCENTRIC BIASES OF TRADITIONAL KNOWLEDGE AND TRADITIONAL ECOLOGICAL KNOWLEDGE DEVELOPMENT AND USE WITHIN SCIENTIFIC FRAMEWORKS

The presence of outdated frameworks within co-management strategies and knowledge integration hold biased views of eurocentrism within science-based research and management (Ludwig 2001). The terms Traditional Ecological Knowledge and Traditional Knowledge often include biased notions of non-Indigenous research predefining their understanding and viewpoints regarding Indigenous peoples, their culture, connection to the land and overall knowledge. In order to facilitate less biased scientific management, it is important to articulate Indigenous knowledge within scientific frameworks by involving Indigenous peoples throughout the process (Aikenhead 2006). Underlying presuppositions determine harmful biases within these frameworks; the expansions of these methods and concepts on Indigenous peoples and their communities are inappropriate for non-western societies. These constraints result in unreliable and unsuitable information and statistics (Brohman 1995; Barrett et al. 2001). Nadasdy (2003b) also describes many of the terms and language used within management and conservation planning. The definitions used to describe TK/TEK studies have no resonance to most Indigenous communities. Therefore, when interpreting traditional language, it can significantly affect the outcome and process of data and knowledge collection in terms of duty to consult and management planning (Fals-Borda and Mora-Osejo 2003). Scientists discount opinions and knowledge of



Indigenous peoples who do not live according to scientists' and researchers' preconceived notions of TK and TEK. The lives and experiences of Indigenous peoples cannot be compartmentalized in a way that corresponds to the categories of scientific management (Bear 2012). Exclusion of Indigenous knowledge within management planning forms the illusion that Indigenous peoples have nothing to provide with regards to management planning. The different paradigmatic understandings of Indigenous and western-based societies and frameworks show many differences. However, these differences in views and understandings should be inclusively involved in management strategies. Indigenous policies and management strategies should not be discounted by western society and western-based scientific research due to the ignorance or lack of understanding. In the Supreme Court of Canada case *R. v. Van der Peet*, the judges state, "The courts must not undervalue the evidence present by aboriginal [sic] claimants (...) because that evidence does not conform precisely with the (...) standards applied in other contexts" (Supreme Court of Canada 1996). Underrepresentation of Indigenous peoples and knowledge at the forefront of environmental and conservation management must change to reflect our communities, cultures, and knowledge, understanding and ideologies of the peoples who live and inhabit the area.

#### REVIEW OF TK/TEK STUDY INVOLVING THE RUBY RANGE SHEEP STEERING COMMITTEE (RRSSC) AND KLUANE FIRST NATION

In the fall of 1995, Kluane First Nation (KFN) held a meeting to discuss concerns regarding the decline in the local populations of Dall Sheep within the Ruby and Nisling mountain ranges (Nadasdy 2003c). The meeting led to the creation of the Ruby Range Sheep Steering Committee (RRSSC) and involved numerous parties; including the KFN community and peoples, the Yukon Umbrella Final Agreement

(UFA) containing local fish and wildlife councils with research scientists and wildlife biologists, the Champagne and Aishihik First Nations (CAFN), the local non-Indigenous peoples of the territory of Yukon who hunt and trap, as well as professional outfitters, hired by peoples out of province to hunt and trap for them within the territory (Nadasdy 2003c). The Dall Sheep within the region of the KFN community have a significant cultural and historical connection to the Kluane FN peoples. The Kluane FN peoples expressed how concerning the population drop was to them as they have watched and studied the populations and movement of the species for hundreds of years and have passed down information by traditional story telling of elders and hunters (Nadasdy 2003c). The RRSSC had a mandate in which a developed management strategy for Dall sheep within the Ruby Range could be further managed and maintained. Throughout the discourse it became clear the RRSSC had internal disagreements as to what constituted the question of 'knowledge' and the ideas of management and knowledge when concerning the Dall sheep population. However, the RRSSC illustrated that what the local KFN peoples claimed to know about the sheep as 'Traditional Knowledge' and what the research scientists, wildlife biologists and government officials knew regarding the sheep population as 'science' (Nadasdy 2003c). Throughout the meetings it became clear the scientists and government officials involved did not view the decline of Dall sheep population with the same urgency as the KFN peoples. Instead, they viewed the situation as an opportunity to learn about sheep management rather without prioritizing actions to preserve the population (Nadasdy 2003c). Local non-Indigenous peoples and hired outfitters who hunt and trap within the local area, like elders and KFN peoples who also utilize the land for hunting and trapping, have obtained their knowledge of sheep through significant time on the land observing and hunting the sheep (Nadasdy

2003c). However, most outfitters and non-Indigenous peoples lack the culturally specific set of knowledge, teachings, social relations, and values that KFN peoples have, providing meaningful context to a First Nations hunters visual observations of the Dall Sheep (Nadasdy 2003c). The researchers, and wildlife biologists involved in the RRSSC study completed a one-day informative study involving aerial imagery (Nadasdy 2003c). This was negatively viewed by the KFN peoples as they were concerned that low flying planes could cause distress to the Dall Sheep, triggering them to leave the area. However, the aerial imagery went ahead, providing quantitative data on numbers and size of species within the population (Nadasdy 2003c). It was felt that a less invasive approach to survey the population should have been used. For example, the KFN people might have invited researchers and wildlife biologists on a week- long excursion to gain familiarity with the local area(s), understanding of previous habitat sites, and to follow the movement of the population. Such an approach would have provided similar information as the aerial imagery but would also have provided deeper understanding of the species behaviour and movement, as well as involving the Indigenous peoples from KFN providing the needed integration for management strategies. This resulted in disagreements as to how the process of the study was completed, limited representation and integration of the local KFN peoples into the practices completed throughout the study did not represent the co-management strategy that was to be used and prioritized. This resulted in an unsuccessful TK/TEK study and management implementation process concerning the health and wellbeing of the Dall sheep population. Negative impacts towards the KFN peoples and the sheep population were a result and contributed to the standards set by conventional TK/TEK strategies, less representation and integration of Indigenous knowledge within science practices.

To successfully examine the conventional strategies used when completing TK/TEK studies and infiltration of co-management approaches a local TK/TEK study in Fort William First Nation was used to investigate how the study was completed, and to understand the local views of FWFN band members towards the study process.

## MATERIALS AND METHODS

### PURPOSE:

The research involved two sources, reviewing a conventional TK/TEK study recently conducted and second, to conduct a small interview process with Indigenous representation involved in the conventional study to hear and understand their thoughts on the completion of the TK/TEK study. Reviewing the case study allowed for insight and information of the conventional frameworks used for TK/TEK studies that are used and implemented in First Nation communities. The interview process included band members of Fort William First Nation (FWFN) located near the city of Thunder Bay, Ontario. Information was collected using video and consisted of seven questions. The survey questionnaire was distributed after obtaining Research Ethics Board (REB) approval, and consent forms were signed and dated prior to starting each interview. The data is stored at a secure location in the Faculty Natural Resources and Management. The entire process was guided by First Nations principles of ownership, control, access, and possession (OCAP).

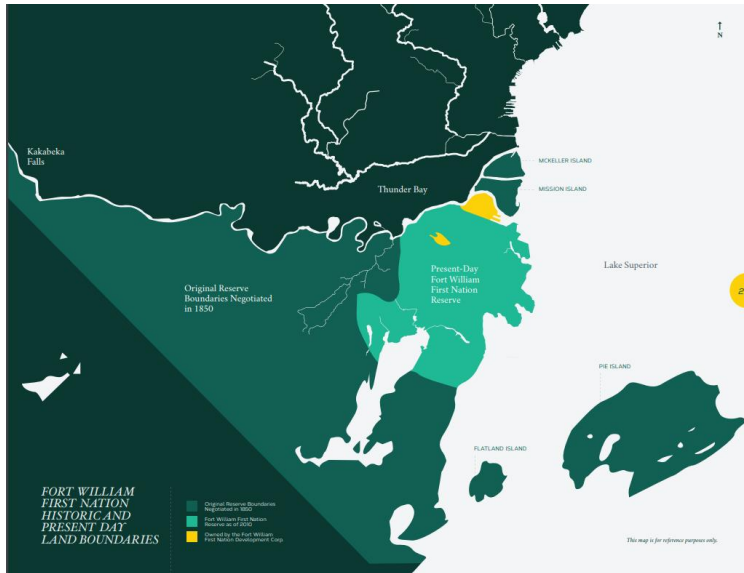


Figure 1. Map showing the traditional territory of Fort William First Nation (FWFN), and current Reserve area  
Source: Fort William First Nation Band Office.

#### RESEARCH METHODS:

Maawandoon, a local environmental consultant company based in FWFN was conducting Traditional Knowledge interviews with Fort William First Nation for the proposal of the Waasigan Transmission Line from September 2021- March 2022.

Maawandoon worked with the University of Manitoba as they have helped to facilitate other TK/TEK studies with various First Nations in Ontario and Manitoba in the past. Having access to the interview questions created via University of Manitoba, owned, facilitated, and directed via Maawandoon, gave insight on what a current Traditional Knowledge/Traditional Ecological Knowledge study looks like, in terms of length, topics, structure and question format. A review of the transcripts of interviews that were conducted for the FWFN TK/TEK study allowed for increased information as to how conventional TK/TEK studies are conducted as well as the process.

When establishing the interview questions for the research section, it was important to focus on the lack of Indigenous self-defined Traditional Knowledge and Traditional Ecological Knowledge terms. Each question centers around the objectives within this paper, involving self – definition, examining current environmental and conservation management practices and the inclusion of Indigenous - knowledge in scientific frameworks.

## RESULTS

### CASE STUDY

Reviewing the case study allowed for increased knowledge regarding the specific information and language that was used throughout the study; as well as the type of information and knowledge that was prioritized to complete the study. Upon reviewing the conventional study process and questionnaire, it was apparent that only information regarding specific locations and specific activities, such as hunting locations, housing information, trapping, fishing, and foraging of herbivorous plants were relayed throughout the study. Questions such as these are to be answered by placing the location on maps of traditional territory of the First Nation, and in this case the FWFN traditional territory. This process is called value -mapping, which allows for quantitative data and knowledge collection which can help to support a First Nation community to highlight the areas of the traditional territory that are deemed significant (environmentally, culturally, and historically). No questions allowing for Indigenous perspective on

management strategies, or the definitions and implementation of Traditional Knowledge and Traditional Ecological Knowledge were included within the conventional study.

## INTERVIEW PROCESS

With the help of my supervisor Dr. Martha Dowsley, I developed seven interview questions aimed at better understanding the potential weaknesses of conventional TK/TEK studies. I interviewed two staff members from Maawandoon, who are involved within the environmental assessment field and have participated in aiding First Nations with TK/TEK studies. These staff members were also involved in the completion of the FWFN TK/TEK study, the conventional framework examined within the results section as a case study.

### Interview Questions:

Q1: How would you describe your connection to your traditional land?

Q2: How would you describe your connection to your traditional land? Is your connection important to your professional role? Why or why not?

Q3: How would you define Traditional Knowledge, or Traditional Ecological Knowledge? Are these different?

Q4: Have you been involved in any conservation projects? How have these involved you personally and Indigenous communities more broadly?

Q5: Do you feel there has been any changes over the years with how Indigenous communities are involved in conservation? If so, how have things changed? Are the changes positive or negative?

Q6: Should Indigenous people have a different role in studies related to conservation or environmental management? What should their role be?

Q7: In what ways do current conservation efforts fail to incorporate Traditional Knowledge?

Throughout the interview process common themes could be noticed throughout the answers.

**Q1: How would you describe your connection to your traditional land?**

**R1 C:** “I don’t know how to quite put it into words but there is a feeling that you get when you’re on the land that you know is your home – and I don’t mean just where I live but the traditional territory of the land where you feel this connection that you belong and you feel good and at peace when you are out there, when I am out on the land on FWFN there is just places where it feels like your feet flow into the earth and you are a part of it.”

**R1 M:** “(...) the fact that my family has lived in this area for a long time, growing up here with my mother’s family and them showing me places and things they have appreciated from the land and me sharing that appreciation is beautiful.”



**Q2: Is your connection important to your professional role why or why not?**

**R2 C:** “Absolutely, I think it gives me a good understanding when I speak with other First Nation members not just FWFN but some of the many communities that I work with (as I work with many communities) It gives me a real honest understanding of their comments when they speak to the connection of the land it gives me a lot of empathy when they speak about issues of destruction/degradation on the land or development on the land that could create issues regarding their traditional land use.”

**R2 M:** “It is very important and comes into play a lot with my job. When I am working on things like Traditional Knowledge studies and interviews, even projects that protect the land, it has always been really important.”

**Q3: How would you define Traditional Knowledge, or Traditional Ecological Knowledge? Are these different?**

**R3 C:** “Traditional knowledge to me is what is up in the brains of the people who use the land – things like just recognizing things that others may not. The other aspect is understanding the stories from our elders and how our elders shared the stories historically – that is the transfer of traditional knowledge from one generation to another generation. The traditional ecological knowledge is to me the way the understanding of the environment more – the other thing about TEK is when you are out on the land, and you see things in the water – recognizing different areas on the land about the ecology of the natural environment”

**R3 M:** “So, for me, what I have always understood about traditional knowledge, is it is passed down from generations, and it is learning ways of doing things traditionally, and just teachings that you learn along the way, how to do certain things in a way that honours mother nature, but also our ancestors. I know that traditional knowledge can be defined in so many ways

And Traditional Ecological Knowledge, would be more geared towards the relationship with the environment, they are very similar. I guess it is a ‘belief’ and a ‘practice’ of human’s interactions with the environment, TEK could also be actions, like the government providing our rights back to us (Indigenous peoples) on our traditional land and allowing for us to have more impact and say regarding projects. It has most to do with passing down knowledge and listening to elders, and how they have gone through some of the things in their life and try to practice that throughout our own life. It is a huge scope, once you start conducting and working in TK it is not just animals and plants, it is knowing values such as taking what you need and leaving the rest for others and wildlife, and leaving the environment in the same conditions, having and practicing respect.”

**Q4: Have you been involved in any conservation projects? How have these involved you personally and Indigenous communities more broadly?**

**R4 C:** “A number of years ago – a wind turbine company – was trying to build a swath of wind turbines along one side of our mountain – and so I went to community meetings

to gain information and supply any concerns – we were successful in stopping the project – I wasn't a big part of it I was a community member who sat through the meetings listened to stories. Mount McKay is a sacred/spiritual mountain – with sacred items located within the mountain that needed protection – we also have an area of maple trees that we harvest the sap and community members harvest syrup. I am attending a lot of meetings with a mining company in Sunday Lake – protecting the land – I want to make sure some of the areas are protected.”

**R4 M:** “I have worked on environmental assessments, and while working on these projects, a lot of times the wording and terms of reference is so complex and sometimes I think Indigenous communities agree to things they are not always fully aware of. Its almost like the proponents use wording that is extremely complex, that can confuse people to the point where they may sign it. A lot of times the environmental and impact assessments provide communities with information but are not considering the input and feedback they are getting as much as it should, they brush over some of the comments and feedback they receive – as if they hear you but do nothing with that information. (...) The do-nothing clause is an example of this, if a community doesn't have time to communicate together, or don't have the ability to review the large documents and are in need of an environmental consult to provide lay terms, if there is nothing done due to these circumstances [access to time, resources and staff to review and go through it] it is accepted and agreeing everything in the proposal is okay. Sometimes the timelines for these projects are incredibly short, when asking communities for their input, they should be providing some sort of participant funding to all communities for help with the resources needed. It may be easy for a government proponent/agency with hundreds of

employees, with funding to create and go through these documents and review, but for Indigenous communities that are already struggling with shortages of staff, and other issues such as housing and infrastructure, they may need more time and hire experienced people explain to break down the wording of the document. Providing a lay term copy of the plan and documents may help to decrease the pressure.”

**Q5: Do you feel there has been any changes over the years with how Indigenous communities are involved in conservation? If so, how have things changed?**

**R5 C:** “There has definitely been a change – more education on both the government (proponent – mining company – government entity) and the Indigenous peoples themselves – and Indigenous peoples have always viewed themselves as guardians of the environment – and I think in the last 10/15 years the government has certainly recognized that and there is the duty to consult – both federal and provincial is committed to enforcing – that is a positive. The communities are embracing it – and are happy to be consulted – they should have always been – things that have happened historically – forced relocation for hydro to build dams and flood lands – that shouldn’t have happened, but it did – Because of the duty to consult and recognition of environmental causes – I don’t think that will happen again and if they do I think they will happen with the voice of the Indigenous community involved.

Negative – to a degree it has hurt the perception of the first nations – a lot of proponents and companies (not all) have the view that dealing with the first nation is not a priority and it is more of a box to tick – yes, we consulted but did they really is it genuine? They

should be looking at Indigenous peoples and communities treating us more collaboratively.”

**R5 M:** “They have definitely changed, and there have been some improvements from what I can see, I have talked to communities and people and have heard things in the past. I was in a community and people came up to me and told me about flash flooding, things happening without any warning, created by hydro companies to profit off collecting the water pressure and creating hydro and making money off of it. I think now a days things like that may not happen again, however how these things did happen in the past. More engagement and consultation have happened, and some communities have ownership and have become proponents within companies. It is nice to finally see indigenous representation at the table and starting to be more accepted and taken seriously in the business and environmental field, not only there because we are Indigenous, but we are there because we are educated and have the ability and the right to be here, due to hard work and dedication, and a lot of times in the past inclusion was not a priority. The increased perspectives within a project the better the outcome is. It is a shame to see how much money can change things, and project margins to be taken less into consideration sometimes and make sure even if it costs a few million more to do something the right way and sustainable way, that should be taken rather than saving money. I hope to see more knowledge implementation, and to see more control by Indigenous communities to stop a project if they do not approve.”

**Q6: Should Indigenous people have a different role in studies related to conservation or environmental management? What should their role be?**

**R6 C:** “Indigenous communities and people should have a role right from the very beginning and should be talking to the community they have been on the land the longest – there are areas I can go and I can tell you where land marks are or areas of importance and its critical to engage right from the get go – the engagement should be all encompassing – first thoughts and then to actual operation – it shouldn’t be – we will consult and find out info and then full steam ahead – the communities should be involved – not just monetarily wise but input wise and the input should be valued and incorporated. Whenever there is an EA going on TK should be gathered before the EA starts and should be incorporated into how the EA proceeds. – Not just incorporate knowledge but having physical representation on the ground and peoples to monitor - eyes on the field when they start to do planning and exploration.”

**R6 M:** “Indigenous roles need to be taken seriously. Some proponent projects can offer Indigenous peoples funding to act as environmental monitors within the project, however some projects oppose this protection and conservation of the environment, the government is providing funding to participate in the project and giving you the duty to protect the environment. How are they offering funding to be part of the projects but act negatively towards them when they try to complete their roles as environmental monitors, preserving the environment while being accepting of industrialized development. To want economic development and good jobs for your security and community – to protect the land and take into consideration the teachings from your elders, it is almost like they are creating people that are having to be okay with that conflicting role. Example – Attawapiskat and DeBeers – where it (the project) sounded

so good for the economic prosperity of their community and jobs, and to find out that it actually made their lives worse and disabled them, and then being left with a huge mess on traditional territory, seeing it go from so positive then just so negative for the community. They (government proponents and other companies) say they want to work with you then they offer them (the First Nation) nothing and will destroy your land for nothing.”

**Q7: In what ways do current conservation efforts fail to incorporate Traditional Knowledge?**

**R7 C:** “When you are starting a project there are rules that the ministry of the environment has that you have to follow and all governmental agencies have rules that must be followed and with those rules comes timelines – and sometimes the timelines don’t factor in how long it takes to gather the TK that is needed – causing issues where you are ready to move onto say an EA and the community hasn’t even finished gathering the TK – so how can they incorporate it in to their project and protect the lands if they don’t get the proper amount of time and some would argue if they give you an inch they will take a mile – so that’s why they have tight timelines so projects can move ahead – and I have some sympathy for the proponents they want their project they are sitting on money and expenses to put a project through – but it shouldn’t be at the risk of the land and environment. First Nations communities and peoples have their own way of doing things – some communities way want to go out on the land to ask the creator and land for guidance and that takes time or give chief and council guidance – a lot of proponents don’t recognize or understand that – understand that it’s not a cookie cutter solution –

each First Nation has their own protocol – some go to the land others have reports that they have done all around their territory – value maps – each First Nation is in different stages in the development of their traditional knowledge.”

**R7 M:** “I think where the fail is, [is] that TK is defined by them (government agencies and non-Indigenous peoples), they are doing what they want to do from the start and don’t take into consideration, that it is not them who should be deciding when it is not their land, and their livelihoods, and don’t have a connection to the areas of these projects and communities. They move forward by going ahead with the proposed plan and what they do in the field isn’t always what they say will happen. It is sad to know that, sometimes these projects can harm the community and traditional land due to negative effects, and leave things a disaster for the community to then have to figure out how to live with the state it is in.”



## DISCUSSION

After examining the interview responses, it became clear that common themes started to arise throughout the process. These themes included:

- I. The need for Indigenous input within the design of the TK/TEK project
- II. Use of Indigenous concepts to frame the questions and definition of Traditional Knowledge/Traditional Ecological Knowledge to capture what each First Nation community holds as values on the land
- III. Increased involvement in Indigenous communication in higher levels of management in the study process as well as involvement in the management of the larger project (stakeholder)

These common themes highlight what is most important for the future of environmental assessment and TK/TEK processes. Allowing for the knowledge and perspectives of Indigenous peoples and communities will increase the value in knowledge collected throughout the TK/TEK process. “Indigenous knowledge continues to be presented as an object for science rather than as a system of knowledge that could inform science. (Cruikshank 1974).”

Upon reviewing the case study of the conventional TK/TEK process used for FWFN created by the University of Manitoba, it became clear that only one type of information was to be collected and utilized within the TK/TEK study and that information only to be implemented and discussed with the proponent (Waasigan Transmission Line –

Hydro One). This information was procured through the TK/TEK study by completing and compiling data with numerous band members of FWFN who utilize the land ('land users'). While value mapping is an appropriate process to use for collecting data and knowledge regarding the land and specific areas of importance, it only collects and displays one specific knowledge of land use. Value mapping can also be utilized by the First Nation as a way of documenting and collecting the First Nations important land areas throughout the traditional territory and is then shared and documented within the community to use as information and for protection of traditional land and resources when proponents or government officials propose a project. Having their own maps would better prepare the community for various environmental assessments and development processes.

For the future of TK/TEK studies and overall knowledge collection process, would recommend that Traditional Knowledge and Traditional Ecological Knowledge studies and information to be presented and displayed through two forms.

- I. A value map, that proponents and environmental management projects desire to map and understand the layout and important areas of the traditional territory of that First Nation, and
- II. To generate a contextualized document containing Indigenous perspective and knowledge of the history and overall function of the ecosystems and environment within the traditional territory and lands, allowing for Indigenous perspective and Indigenous definitions of Traditional Knowledge and Traditional Ecological Knowledge as it pertains with each community.

## CONCLUSION

Promoting Indigenized frameworks will lead knowledge integration efforts to an Indigenous-controlled and prioritized outlook. Traditional Knowledge and Traditional Ecological Knowledge are currently confined to set definitions created with non-Indigenous perspectives and values. Transforming the current conventional framework to evolve and be an all-encompassing effort of collecting and implementing knowledge through both a value mapping effort and collection of local knowledge and perspectives will strengthen knowledge of the area, both environmentally and culturally and how these two elements interact. Re-analyzing the current conventional frameworks will help identify and correct changes, allowing for future management practices and knowledge integration with less bias.

## LITERATURE CITED

- Aikenhead, G. 2006. Towards decolonizing the pan-Canadian science framework. *Canadian Journal of Science Mathematics and Technology Education*. 6. 387-399. <http://dx.doi.org/10.1080/14926150609556712>
- Barrett, C.B., Brandon, K., Gibson, C. and Gjertsen, H., 2001. Conserving tropical biodiversity amid weak institutions. *BioScience*, 51(6), pp.497-502. Accessed October 29, 2021.
- Bear, L.L., 2012. Traditional Knowledge and humanities: A perspective by a Blackfoot. *Journal of Chinese philosophy*, 39(4), pp.518-527.
- Berkes, F. 2004. Rethinking Community Based Conservation. *Conservation Biology*, 18 (3), 621-630 <http://www.jstor.org/stable/3589072>
- Berkes, F. 2008 *Sacred Ecology*. Taylor & Francis, United States of America, Sheridan Books, Inc., MI. 275pp.
- Bradshaw, B., 2003. Questioning the credibility and capacity of community-based resource management. *Canadian Geographer/Le Géographe Canadien*, 47(2), pp.137-150. <https://doi.org/10.1111/1541-0064.t01-1-00001>
- Brohman, J. 1995. Universalism, Eurocentrism, and Ideological Bias in Development Studies: From Modernisation to Neoliberalism. *Third World Quarterly*, 16(1), 121–140. <http://www.jstor.org/stable/3992977>
- Constitution Act of 1982, Constitution Acts of 1867 to 1982. [https://laws-lois.justice.gc.ca/PDF/CONST\\_TRD.pdf](https://laws-lois.justice.gc.ca/PDF/CONST_TRD.pdf)
- Cruikshank, J. 1998. *The Social life of Stories: Narrative and Knowledge in the Yukon Native Elders*. Lincoln: University of Nebraska Press/Vancouver: UBC Press.
- Dowsley, M., & Wenzel, G. 2008. “The Time of the Most Polar Bears”: A Co-Management Conflict in Nunavut. *Arctic*, 61(2), 177–189. <http://www.jstor.org/stable/40513204>
- Fals-Borda, O. and Mora-Osejo, L.E., 2003. Context and diffusion of knowledge: A critique of Eurocentrism. *Action Research*, 1(1), pp.29-37.
- Gavin MC, McCarter J, Mead A, Berkes F, Stepp JR, Peterson D, Tang R. 2015. Defining biocultural approaches to conservation. *Trends Ecol Evol*. 2015 Mar;30(3):140-5. doi: 10.1016/j.tree.2014.12.005. Epub 2015 Jan 23. PMID: 25622889. Accessed October 31, 2021.
- Government of Canada. 2019. Impact Assessment Act (S.C. 2019, c. 28, s. 1). <https://laws.justice.gc.ca/eng/acts/I-2.75/FullText.html>

- Government of Canada. 2021. Government of Canada and the duty to consult.  
<https://www.rcaanc-cirnac.gc.ca/eng/1331832510888/1609421255810>
- Harris, Douglas. 2001. Fish, law and colonialism: the illegal capture of Salmon in British Columbia (Chapter 4). Toronto: University of Toronto Press, pp. 186-215.
- Hessami MA, Bowles E, Popp JN, and Ford AT. 2021. Indigenizing the North American Model of Wildlife Conservation. *FACETS* 6: 1285–1306. doi:10.1139/facets-2020-0088
- Inglis, J. 1993. *Traditional Ecological Knowledge: Concepts and Cases*. International Development Research Centre (Canada). Pp 142. ISBN: 0889366836, 1895926009
- Johannes, R. E. (1989). Introduction. In R. E. Johannes (Ed.), *Traditional ecological knowledge: A collection of essays* (pp. 5–9). Gland, Switzerland: IUCN (The World Conservation Union)
- Kim, E-J. A., Asghar, A., Jordan, S. 2017: A Critical Review of Traditional Ecological Knowledge (TEK) in Science Education, *Canadian Journal of Science, Mathematics and Technology Education*, DOI: 10.1080/14926156.2017.1380866
- Ludwig, D. 2001. The Era of Management Is over. *Ecosystems*, 4(8), 758–764.  
<http://www.jstor.org/stable/3659055>
- Nadasdy, P. 2005. Anti-Politics of TEK: The Institutionalization of Co - management Discourse and Practice. *Anthropologica*, 47(2), 215–232.  
<http://www.jstor.org/stable/25606237>
- Nadasdy, P. 2003a. “It’s Not Really ‘Knowledge’ at All, It’s More a Way of Life.” Pp 60-113 in Nadasdy, P. *Hunters and Bureaucrats: Power, Knowledge and Aboriginal – State relations in the Southwest Yukon*. UBC Press, Canada. 270pp. ISBN 0-7748-0983-3
- Nadasdy, P. 2003b. Re -evaluating the Co-management Success Story. *Arctic*, 56(4), 367–380. <http://www.jstor.org/stable/40513076>
- Nadasdy, P. 2003c. “Counting Sheep: The Ruby Range Sheep Steering Committee and the Construction of Knowledge.” Pp 147-180 in Nadasdy, P. *Hunters and Bureaucrats: Power, Knowledge and Aboriginal – State relations in the Southwest Yukon*. UBC Press, Canada. 270pp. ISBN 0-7748-0983-3
- Nadasdy, P. 1999. The Politics of Tek: Power and the “Integration” of Knowledge. *Arctic Anthropology*, 36(1/2), 1–18.  
<http://www.jstor.org/stable/40316502>

- Parson, E. A. 2001. *Governing the Environment: Persistent Challenges, Uncertain Innovations*. University of Toronto Press. Pp 73-123. ISBN: 9780802084064, 0802084060
- Peacock, S.J., Mavrot, F., Tomaselli, M., Hanke, A., Fenton, H., Nathoo, R., Aleuy, O.A., Francesco, J.D., Aguilar, X.F., Jutha, N., Kafle, P., Mosbacher, J., Goose, A., Ekaluktutiak Hunters and Trappers Organization, Kugluktuk Angoniatit Association, Olokhaktomiut Hunters and Trappers Committee, and Kutz, S.J. 2020. Linking co-monitoring to co-management: bringing together local, traditional, and scientific knowledge in a wildlife status assessment framework. *Arctic Science*. 6(3): 247-266. <https://doi.org/10.1139/as-2019-0019>
- Popp, J.N., Priadka, P., Kozmik. C. 2018.: The rise of moose co-management and integration of Indigenous Knowledge, *Human Dimensions of Wildlife*, DOI: 10.1080/10871209.2019.1545953
- Spak, S. 2005. The Position of Indigenous Knowledge in Canadian Co-management Organizations. *Anthropologica*, 47(2), 233–246. <http://www.jstor.org/stable/25606238>
- Supreme Court of Canada, R.v. Van der Peet [1996] 4 C.N.L.R. 177, Paragraph, 68 [https://decisions.scc-csc.ca/scc-csc/scc-csc/en/item/1407/index.do?site\\_preference=normal&pedisable=true](https://decisions.scc-csc.ca/scc-csc/scc-csc/en/item/1407/index.do?site_preference=normal&pedisable=true)
- Wenzel, G. W. 1999. Traditional Ecological Knowledge and Inuit: Reflections on TEK Research and Ethics. *Arctic*, 52(2), 113–124. <http://www.jstor.org/stable/40512224>
- Usher, P.J., 2000. Traditional ecological knowledge in environmental assessment and management. *Arctic*, pp.183-193. <https://www.jstor.org/stable/40512207>

## APPENDICES

## Research Ethics Board Letter of Approval:



Research Ethics Board  
t: (807) 343-8283  
research@lakeheadu.ca

March 11, 2022

**Principal Investigator:** Dr. Martha Dowsley  
**Student Investigator:** Ana Brown-Mantha  
Science and Environmental Studies/Anthropology  
Natural Resources Management  
Lakehead University  
955 Oliver Road  
Thunder Bay, ON P7B 5E1

Dear Dr. Dowsley and Ana:

**Re: Romeo File No: 1469081**  
**Granting Agency: N/A**  
**Agency Reference #: N/A**

On behalf of the Research Ethics Board, I am pleased to grant ethical approval to your research project titled, "Indigenous Based Conservation - A critical review of Traditional Ecological Knowledge".

Ethics approval is valid until March 11, 2023. Please submit a Request for Renewal to the Office of Research Services via the Romeo Research Portal by February 11, 2023 if your research involving human participants will continue for longer than one year. A Final Report must be submitted promptly upon completion of the project. Access the Romeo Research Portal by logging into myInfo at:

<https://erpwp.lakeheadu.ca/>

During the course of the study, any modifications to the protocol or forms must not be initiated without prior written approval from the REB. You must promptly notify the REB of any adverse events that may occur.

Best wishes for a successful research project.

Sincerely,

Dr. Kristin Burnett  
Chair, Research Ethics Board

/sw

955 Oliver Road, Thunder Bay, ON, Canada, P7B 5E1 | lakeheadu.ca

Final Interview Questions used throughout the interview process and approved by the Romeo Research Ethics Board (REB).

## Questionnaire:

I am looking to learn about how traditional knowledge experiences of Indigenous people are incorporated into conservation and environmental management projects led by the Government or Industries.

How would you describe your connection to your traditional land? Is your connection important to your professional role? Why or why not?

How would you define Traditional Knowledge, or Traditional Ecological Knowledge?  
Are these different?

Have you been involved in any conservation projects? How have these involved you personally and Indigenous communities more broadly?

Do you feel there has been any changes over the years with how Indigenous communities are involved in conservation? If so, how have things changed?

Are the changes positive or negative?

Should Indigenous people have a different role in studies related to conservation or environmental management? What should their role be?

In what ways do current conservation efforts fail to incorporate Traditional Knowledge?

Consent Forms for interview process:

**Lakehead UNIVERSITY**  
Department of Natural Resources Management  
Consent Form for Potential Participants

**MY CONSENT:**  
By checking the boxes below, I agree to the following:

- I have read and understand the information contained in the Information Letter
- I agree to participate in this study
- I understand the risks and benefits to the study
- I understand I am a volunteer and can withdraw from the study at any time, and may choose not to answer any question
- That the data will be securely stored at Lakehead University for a minimum period of 5 years following completion of the research project
- I understand that the research findings will be made available to me upon request
- All of my questions have been answered
- The research team will take my name and telephone number for COVID 19 contact tracing purposes
- I understand that the risk of contracting Covid-19 is increased by participating in in-person research
- By consenting to participate, I have not waived any rights to legal recourse in the event of research-related harm.

**SELECT 1:**  
 I wish for my name to be associated with the information I provide  
OR  
 I wish my information to remain confidential

X M. Catherine Bess  
Name (Printed)

X [Signature]  
Signature

X cathy.bessing@maawandon.ca  
Email Address





Department of Natural Resources Management  
Consent Form for Potential Participants

MY CONSENT:

By checking the boxes below, I agree to the following:

- I have read and understand the information contained in the Information Letter
- I agree to participate in this study
- I understand the risks and benefits to the study
- I understand I am a volunteer and can withdraw from the study at any time, and may choose not to answer any question
- That the data will be securely stored at Lakehead University for a minimum period of 5 years following completion of the research project
- I understand that the research findings will be made available to me upon request
- All of my questions have been answered
- The research team will take my name and telephone number for COVID 19 contact tracing purposes
- I understand that the risk of contracting Covid-19 is increased by participating in in-person research
- By consenting to participate, I have not waived any rights to legal recourse in the event of research-related harm.

SELECT 1:

- I wish for my name to be associated with the information I provide
- OR
- I wish my information to remain confidential

X Melanie A. Laforest  
Name (Printed)

X   
Signature

X March 16, 2022  
Email Address

Conventional TK/TEK study outline and questionnaire used:

Part 1

1. What is your date of birth? Where were you born? Your parents' names?  
Mother's maiden name?

Indicate the DOB and parents' names on the scribble pad or IRF

Part 2

In this part I am going to ask questions about places you or other \_\_\_\_\_ FN people have stayed overnight while trapping, hunting, fishing, social/community gathering, harvesting, travelling or working in the bush.

All overnight sites are to be mapped only as points, not lines or polygons.

Make sure the respondent knows the difference between a cabin and a shack-tent.

There are 2 base-map data-collection scales.  
Point features are to be indicated using 2-mm ink dot.

The study area is covered by a single sheet (Map A). At 1:250,000 scale, a 2-mm dot at this scale covers 39,500 square meters of ground and has a diameter of 500 m (this map will be hard to see details and is not recommended).

The study has a number of sheets. At 1:50,000 scale, a 2-mm dot at this scale covers 7,900 square meters and has a diameter of 100m.  
At 1:50,000 scale, 1 cm covers 500 m of ground.

6. Are there any places you have slept overnight in a TENT WITH A WOOD-BURNING STOVE. If yes indicate the spots. Whose tent was it? • Only  
TS
7. Are there any places that you stayed out overnight in a TENT that didn't have a wood-burning stove in it? If yes, indicate the spots. • Only  
TN
8. Are there any places that you stayed out overnight under a LEAN-TQ or under a tarp? If yes, indicate the spots. • Only  
LN
9. Are there any places that you stayed out overnight UNDER THE STARS? If yes, indicate the spots. • Only  
US
10. Are there any places you stayed overnight in any kind of OTHER OVERNIGHT structure? Examples might be wigwam, Teepee, travel trailer, truck camper, ice fishing shack, a forestry company building, a tourist camp or in a vehicle or boat. If "yes" indicate some spots. What did you sleep in at each spot? • Only  
OO

Indicate the code and kind of cultural site for all OO sites, in the IRF or scribble pad.

### Part 3

We're now going to talk about trapping.

11. Have you ever done TRAPPING anywhere on these maps? By trapping, we mean the setting of any kind of trap or snare for any kind of furbearers, including rabbits or bear. If 'yes' please indicate the areas. ~ or O  
TR
12. Have you ever trapped and killed BEAVER? If yes indicate the spots. • Only  
TB
13. Have you ever trapped and killed MUSKRAT? If yes indicate the spots. • Only  
TM
14. Have you ever trapped and killed OTHER SPECIES including mink, marten, rabbits or bears for use for clothing or food? • Only  
TO

## Part 4

I'm now going to ask questions about where you killed different kinds of animals – fish, birds and mammals. For this part of the interview we want to map only places where you killed animals to feed your family or community. 1) We only want to map spots you killed animals and took some home for eating or medicine or cultural or traditional purposes. 2) We don't want to mark a spot where you killed animals for commercial or peddling purposes unless you also took some home to eat. 3) We don't want to mark spots where you killed animals for tourists while you were guiding, unless you took some of the meat to eat. 4) We don't want to mark spots where you shot an animal but couldn't find it to take home. 5) We don't want to mark spots where you killed animals that were used only for dog food or trapping bait. Only places where you killed animals to eat.

All animal-kill sites are to be mapped only as points, not lines or polygons.

15. Are there any places that you harvested LAKE TROUT or STURGEON, HERRING, PIKE, PIRCH, WALLEYE, LARGE MOUTH SMALL MOUTH BASS, SPECKLE-  
RAINBOW-BROWN TROUT, STEALHEAD and took some home to feed your family? If yes, indicate the spots. • Only  
LT  
SG
16. Are there any places that you helped check a DOMESTIC NET, where you harvested fish and took some home to feed your family? If yes, indicate the spots. • Only  
DN
17. Are there any places that you helped check a COMMERCIAL NET, where you harvested fish and took some home to feed your family? If yes, indicate the spots? • Only  
CN
18. Are there any places that you used a ROD & REEL or any kind of hook and line gear, where you harvested fish and took some home to feed your family? If yes, indicate the spots. • Only  
RR
19. Are there any places that you used any kind of DIFFERENT GEAR, Ice Fishing gear – stick and string where you harvested fish and took some home to feed your family? • Only  
DG

- 26. Are there any places you harvested CARIBOU or DEER to feed your family? If yes indicate the spots. • Only  
CR  
DR
- 27. Are there any places you harvested RABBIT or PORCUPINE to feed your family? If yes indicate the spots. • Only  
RA  
PO
- 28. Are there any places you shot (not trapped) and harvested BEAVER or shot and killed MUSKRAT to feed your family? If yes indicate the spots. • Only  
SB  
SM
- 29. Are there any places you harvested any kind of OTHER MAMMAL that your family ate? Examples might be lynx, squirrel, groundhog, wolverine, etc. If yes indicate the spots. • Only  
OM

Indicate the code and kind of bird for all OM sites, in the IRF or on your scribble pad.

Part 5

I'm now going to ask questions about where you collected different kinds of plants and wood for direct family use. We don't want to mark spots where you collected plants or wood for commercial or peddling purposes.

Plant, wood and earth-material collecting sites are to be mapped as points, lines or polygons, depending on the extent of the area the respondent actually collected the plant or material. Remember we are mapping harvesting sites. We are not mapping habitat. We are not mapping the presence or absence of the resource.

Part 6

I'm now going to ask questions about other kinds of cultural sites. For all the questions about animals and plants up until now we've only been interested in places where you personally harvested things, anytime in your lifetime. For the rest of the questions, 1) We are interested in marking sites you know about, even if you did not personally use them. 2) We want to mark sites, even if they were before your time, as long as you know for sure that the site was used by your First Nation people in your lifetime, or in the lifetimes of your parents or grandparents. If a site was only used farther back in time than that, then we won't mark it.

Part 6 category sites are to be mapped as points, lines or polygons, depending on the extent of the area the site covers on the ground.

- 43. Do you know of any SETTLEMENTS? These are places where different families had cabins and lived together for a period of years, more or less on a year-round basis. If yes indicate the sites. •, ~ or O  
SL
- 44. Do you know of any GATHERING PLACES? There are places where different families came together at a particular time of year, and camped together in tents for a period of days for purposes of harvesting a particular resource or for a special social event. If yes indicate the sites. •, ~ or O  
G
- 45. Do you know of any WAGINOGANS, WIGWAMS or WICKIUP(Lean-to) sites (WG) or TEEPEE or TIPIS (TP) sites? •, ~ or O  
WG  
WK  
TP
- 46. Do you know of any shaking tent (SH) sites? •, ~ or O  
SH