

Researching Traditional Ecological Knowledge for Multiple Uses

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Particular and differing interests of researcher and community members were pulled together to produce research results that simultaneously met the needs of communities and fulfilled the expectations of research institutions. This article, written from the perspective of a field researcher charged with coordinating the on-the-ground research in the Gitxaala Nation describes how interviews and qualitative card sort methods for examining traditional ecological knowledge were developed to meet treaty, academic, and educational goals.

First Nations people and Indigenous communities around the world have always understood their knowledge of the environment to be important and valuable. They have developed, enhanced, and protected their knowledge forms, and have transmitted them to younger generations. Anthropologists and other social scientists have been learning from Indigenous peoples for several generations, documenting and interpreting Indigenous knowledge and seeking to understand the relationships between humans and their diverse environments. During the last two decades biological scientists and resource managers have begun to look to Indigenous ecological knowledge and practices as a source of wisdom regarding sustainable resource use and conservation.

The methodology of Traditional Ecological Knowledge (TEK) research is developing to meet a variety of goals and applications. This methodology must broach a number of complications and difficulties implicated in TEK research. Documenting, understanding, and applying Traditional Ecological Knowledge in non-traditional or post-colonial contexts involves complex methodological and ethical issues. Such research requires significant and meaningful attention to local protocol as well as disciplinary research ethics, and the recognition and affirmation of intellectual property rights. The successful documentation of TEK information requires multiple methods of data elicitation and long-term community-based research. Most importantly, the integration of TEK with resource management processes requires the sensitive and appropriate contextualization of TEK data in ways that do not transform the key characteristics of traditional ways of knowing (Nadasdy, 1999), nor erase its history of colonial oppression (Butler, n.d.). Finally, the required products of TEK research are often multiple and diverse, and reflect different interests and objectives.

Forests for the Future is one particular project where a number of diverse research needs and desires converged. The project was designed as an extremely collaborative research venture that would provide products that satisfied community research needs, as well as enhancing academic understandings of TEK in northwest coast ethnography. The Gitxaala treaty office, band council, hereditary leaders and Elders were involved in the establishment of protocol, hiring the research team, and development of research foci. The research was designed to meet a series of overlapping but discrete objectives, and to derive a series of different products. This paper describes the way in which community, academic, and educational priorities converged and diverged during the research process, and suggests research methods that can provide information relevant to multiple uses.

Three Streams: Treaty, Education, Academic

The TEK research was required to provide data to essentially three different interests:

1. Gitxaala resource management, specifically through the treaty office;
2. Educational curriculum;
3. Academic analysis.

These interests required different research products and thus different research methodologies to provide the relevant data.

1. The treaty office required a report that complemented and supported their efforts in establishing Gitxaala rights to the Nation's territories, and control over their resources. This involved documenting the geographic extent of resource use, the continuity and persistence of harvesting activities, and the structures of Indigenous resource management and ownership. This research goal required asking questions regarding historical activities, conservation and enhancement methods, and the impact of external forces on traditional practices. The key deliverable of this part of the research was a report documenting historical practices and the pattern of change since colonization. The discussion of traditional commercial fishing camps and the interaction of commercial and subsistence activities was key to this report.

2. The educational curriculum reflected two foci: Gitxaala resource use and TEK's relationship with "Western Modern Science" (Snively & Corsiglia, 2000). Traditional modes of transmission of Gitxaala knowledge continues in the community today, with families passing on knowledge to younger generations through established practices of learning and teaching. The inclusion of Gitxaala TEK in school curriculum was not intended to suggest an inadequacy in traditional transmission systems, nor to diminish the significance of these community practices. However, the benefits of children learning their language, history, and traditions in school has been emphasized by many Gitxaala community members. Furthermore, as the Prince Rupert School District # 52 works to incor-

porate First Nations curriculum into local education, the importance of children learning about Gitxaala specifically is also emphasized. There is growing curriculum on the Tsimshian Nation, however Gitxaala Elders highlight the specificity of their practices, language and stories.

The TEK interview material thus provided information regarding traditional foods and harvesting practices that was extremely particular and local in nature. The TEK data also provided a discussion of the relationship between Gitxaala knowledge and Euro-Canadian knowledge. This enhanced and expanded the science curriculum for several grade levels. The curriculum development required interview questions focused on harvesting and processing methods, taxonomy, and ecological relationships. This research component also focused on language: listing words for and related to foods and resources.

3. The academic component was focused on the relationship between the Gitxaala people and their territories and resources. The research stream involved more abstract questions regarding the way in which resources were thought about and acted upon:

- How are people thinking about these resources and harvesting activities?
- What are the local structures of resource management, and how have those structures shaped resource health and patterns of use?
- How does the sm'algyax reflect the traditions of resource use and management?
- How have resource abundance and traditional use been impacted by external forces?
- What do the intergeneration differences in practice and in TEK tell us about social and economic change?

The anticipated products of this research stream were a series of papers focused on the impact of the capitalist economy on Gitxaala TEK, local conceptions of space and territory, and the relationship between traditional management structures and contemporary governance.

Community Research Priorities

The collaborative design and execution of the *Forests for the Future* project allowed the research to address community needs and priorities. Community priorities shaped the research at three levels, that of design, implementation, and response.

In addition to establishing a research protocol that incorporated Gitxaala traditions of governance and concerns regarding intellectual property rights, the initial consultations allowed leaders and Elders to indicate the focal topics for research. There were specific issues and topics which they identified as being key areas for both interview questions and subsequent archival research. Many Elders were specifically interested in the educational components of the research and the textual documentation of

TEK. The general scope of the research and the key foci were developed according to the community priorities identified by the leaders and Elders.

At the level of implementation, the team interview process also facilitated the inclusion of community priorities. Interviews were conducted collaboratively by a university researcher and a community researcher. In addition to heightening the level of comfort for interview participants, the community researcher facilitated detailed questioning, and enhanced the inclusion of community concerns. The research goals of community members were reflected in the way in which community researchers directed questions towards key themes of importance to local harvesters. The community researchers had their own individual research priorities that were informed by their participation in Gitxaala life, but also, they were aware of some of the priorities of their neighbors and relatives. The community researchers were able, in the case of research participants that they knew well or were related to, to direct the interview questions to activities of importance to a particular participant, or subjects on which the individual was especially knowledgeable.

The individual priorities of community members were also incorporated into the research through the research methodology. Semi-structured interviews and open-ended questions allowed the research participants to direct the conversation towards specific topics of interest. The interviews were used by many community members to document their concerns regarding k'amksiwah resource use and resource control. Almost every interview included a discussion of the impact of commercial divers on the tidal resources, especially abalone. Many Elders wanted their complaints recorded regarding the requirement of licenses and permits for harvesting foods. The research project was viewed by many participants as a medium for the expression of their concerns to k'amksiwah (non-Native) institutions and power structures.

It is important to emphasize that local objectives were not homogeneous, but diverse and at times, conflicting. Using a research design that broached local concerns and goals at several levels, community and individual, and at various stages of the research process, ensured that the variety and complexity of local interests were reflected in the final products and deliverables. This was a crucial aspect of a collaborative methodology.

Forests for the Future: TEK Research Methodology

The development of the research protocol for *Forests for the Future* is dealt with elsewhere (see Lewis, Menzies, this issue). Below I outline the structure of the TEK research in Gitxaala territory, and the way in which the methodology contributed to the successful development of multiple research products.

Identification and contact of participants. During consultations with the band council, hereditary leaders and Elders, the research team was

directed to commence interviews with house leaders and Elders. Territories and resources are owned by particular lineages or houses (wilps). The hereditary leaders of these wilps are the stewards who care for, and can speak about, the territories. The Elders of the community are also looked to for leadership and wisdom regarding traditional practices and structures of governance.

Community experts were also suggested as potential research participants- individuals or families who are highly involved in resource harvesting and processing. Specific people are often associated with specific resources; one man is an avid duck hunter, a few young men provide the community with seal and sea lion meat, one woman dries a considerable amount of seaweed. While all community members have valuable contributions to make to the research, within Gitxaala, particular individuals and families are considered to be especially knowledgeable about specific resources and/or practices.

The community researcher and translator contacted potential research participants and arranged the interviews. Interviews were primarily conducted in the home of the participants, although some of the younger participants preferred to meet at the band council offices.

Informal Methods. Resource use-focused interviews were the primary method used in the TEK research component of the *Forests for the Future* project. The key aspects of these interviews are discussed below (differentiation, scale, frameworks, participation, and translation). However, it is important to emphasize that these interviews were complemented and supplemented with other research methods.

Wolf (2001) suggests that “anthropological research begins with immersion in local experience and local knowledge” (p. 51). The time restrictions on the *Forests for the Future* research meant that some of the methodological approaches of anthropology, such as long-term residence in a community (Menziés, 2001; see also Menziés this issue), were not feasible, nevertheless efforts were made to include more informal methods of investigation.

The university researchers participated in community events, including feasts, treaty and community meetings, bingo, basketball, and a traditional foods cooking contest. Attendance at these events established a presence in the community which contributed to research participants’ comfort and familiarity with the team. Participation in community events also provided another forum for learning about the context of resource use and a greater understanding of community issues and relationships.

The local knowledge research coordinator had the opportunity to accompany a few community members while they were harvesting traditional foods. A half-day was spent on a boat trolling for spring salmon, and an evening was spent hunting for octopus. These activities allowed

the opportunity for asking questions in context, and a “hands-on” learning experience.

TEK Interviews: Five key issues are discussed regarding the TEK interviews for the *Forests for the Future* research.

Differentiation: The TEK research essentially involved two rounds of interviews over the course of the two years of the project. The first year of research focused on the experiences and knowledge of Elders, hereditary leaders, and active harvesters. During the second year, interviews were conducted with younger members of the community in an effort to understand the changing context and experience of resource harvesting in Gitxaala territory.

Traditional knowledge is not homogeneous even within a small community. People in different positions, of different ages, know different things about the environment. Personal characteristics and their relation to the community and to outside forces shape their TEK. Researchers have identified the following ways in which TEK is differentiated within a community (Neis et al., 1999; Grenier, 1998; Sillitoe, 1998; Tsuji, 1996; Nazarea, 1998).

The *Forests for the Future* project focused on age, gender, and resource harvesting experience as key determinants of difference in TEK. In an effort to understand the breadth of Gitxaala knowledge and its change over time, age and gender ratios were balanced regarding interview participants. The chart below identifies the key characteristics of participants.

The particular experiences of these individuals were also recorded in order to contextualize their TEK. The “evaluation” of TEK data is crucial to its appropriate analysis and implementation (Johannes, 1993; Kuhn & Duerden, 1996; Lui, 1995). Information regarding the scope of each participant’s resource use experience was documented by asking questions regarding their work history, their residence patterns, and the frequency of harvesting activities, access to boats and equipment, and rights to territories.

TEK Differentiation

<i>Personal Attributes</i>	<i>Status Attributes</i>
Age	Education
Gender	Occupation
Clan/Class etc.	Involvement in commercial harvest
Level of curiosity	Income level
Observation skills	Social status
Ability to travel	Roles and responsibilities in community
Area of resource use	Technology and strategy of resource use
Place of residence	Degree of autonomy/control of resources

Total of 53 individuals for 68 interviews

<i>Women under 50 years</i>	<i>Men under 50 years</i>
10	15
2 interviewed 2 times	3 interviewed 3 times 1 interviewed 2 times
<i>Women over 50 years</i>	<i>Men over 50 years</i>
13	15
	1 interviewed 2 times 1 interviewed 3 times 1 interviewed 4 times

Scale: The first round of research involved two scales of interviews with key participants such as leaders, Elders and active harvesters. The initial interviews were designed to identify key resources, seasonal patterns, and areas of activity. Open-ended questions about harvesting activities allowed Elders and hereditary leaders to catalogue species, discuss harvesting and processing methods, and to establish the seasonal and geographical structure of Gitxaala subsistence.

The secondary interviews were more directed and structured. Questions were drawn from the initial transcripts. Participants were asked to elaborate on topics they had mentioned in the first interview, or were asked about issues or species that other participants had talked about. All the interview transcripts were reviewed by participants, which allowed them to clarify, expand, and edit the information.

Frameworks: Although the interviews were highly participant-directed and semi-structured, two general frameworks were utilized to provide an implicit structure to each round of interviews.

The primary interviews were structured by an activity-based framework. This framework provided information regarding general resource harvesting and processing patterns relevant to all three research streams, as well as providing the basic level data required to develop more detailed questions about the following:

- Foods from terrestrial resources;
- Foods from aquatic resources;
- Building materials, clothes, ropes, etc., from terrestrial resources.
- Building materials, clothes, ropes etc., from aquatic resources

The secondary interviews were structured by a resource-based framework which provided detailed information regarding species used in Gitxaala territory. This framework was used to generate a catalogue of species and to develop an educational field guide for the curriculum stream as illustrated in the chart below.

<i>Name of Species</i>	<i>English</i>	<i>Sm'algyx</i>
Location		
Found near		
Indicator species		
Time of year		
Method(s) of harvest		
Who harvests		
Method(s) of preservation		
Who processes		
Method(s) of cooking		
Eaten with		
Ceremonial uses		
Trade uses		
Commercial/Industrial uses		
Medicinal uses		
Stories about this species		
Ecological relationships with other species		

Interview participation: Most interviews were with individuals, some with married couples, and a few involved up to four members of a family. There were benefits to both individual and group interviews. The individual interviews allowed for more detailed questioning and providing information regarding life history and resource use history. Talking to couples often highlighted the gendered perspectives on resource use and provided complementary data regarding harvesting and processing. Talking to multi-generational groups allowed the researchers to explore generational differences. Often the children reminded their parents of stories that they had related at other times. The younger family members tended to direct the questions toward their interests, which were primarily about changes over time and Sm'algyx words and concepts.

Translation: Translation was necessary for most participants over 70 years of age. Questions were more frequently translated than answers, however, some participants found it difficult to describe certain concepts, activities or resources in English. Even younger participants who responded primarily in English, used Sm'algyx words to refer to most of the species. Sam Lewis, the community researcher translated responses immediately during the interview, and collaboratively transcribed some of the longer Sm'algyx passages later for greater precision.

Interviewing for three research streams

The three streams (treaty, education, and academic) required integrating different modes of questioning into the interviews, and focusing individual interviews on one or two of these research components. Different aspects and experiences of Gitxaala life and resource use contributed to

the particular research streams. The data from individual interviews reflected the traditional division of labor and participation in resource harvesting and process, and thus the intra-community differentiation of TEK. Interviews with people of each gender and different generations offered diverse information for analysis and the development of research products. In fact, the interviews tended to break down along the lines of age and gender regarding their relative relevance to each of the research streams.

For example, interviews with the most elderly (60 years plus) male community members tended to focus on documenting the extent of resource use and the combination of commercial and subsistence harvesting. These interviews were most useful for the academic and treaty streams. The interviews with elderly women tended to focus on processing methods, information that was primarily important for the education stream. Middle-aged (40-60 years) male participants were focused on traditional structures of resource management, language documentation, and the impact of external forces on Gitxaala practices (treaty and academic). Middle-aged female participants provided data on changing processing methods and the transformation of resource harvesting experiences (education and academic). Younger (20-40 years) participants, both female and male, emphasized contemporary changes, ecological relationships, and species decline (treaty and academic).

Researching TEK for multiple uses highlights the gendered and generational nature of knowledge. Different participants contributed different information, of varying relevance to each of the three research streams. Methodologically, these different endpoints for the information required two levels of interview direction. The three different streams converged in particular topics and issues and diverged in others. Particular questions within an interview were directed to a specific stream or set of topics. Secondly, the majority of the interview was devoted to the production of data for one particular product or stream. This decision was made based on the generalized ways in which TEK was differentiated within the community (see above), and in consideration of the particular interests and knowledge of the interview participant.

Card Sort Methodology

There are also research methods that can provide data relevant to diverse interests and products. During the *Forests for the Future* research, we developed a classification method that provided important information for all three streams and a variety of deliverables. The card sort activity used during this research reflected a re-working of an existing social research method. We took a structured, relatively quantitative method and transformed it into a qualitative and open-ended tool for the investigation of the abstract relationships between people and resources. The card sort was

one aspect of the research methodology where all three streams converged. The data informed treaty, education, and academic products.

During the second round of interviews, the extension coordinator requested that some of the interviews be directed towards understanding Gitxaala categorization of resources. The objective was to develop curriculum about Indigenous taxonomies and classification structures to complement the mainstream science curriculum. Students currently learn the Linnaean classification system. As part of the TEK education stream, it was considered important to expand the science curriculum to incorporate other ways of understanding the relationships between species. Indigenous methods of classification presented a focal point for discussing the differences and similarities between TEK and WMS (Western Modern Science).

Borrowing a method from ethnobiology, we incorporated a card sort activity into some of the interviews. Using Northwest Coast field guides, we created 75 cards (see Appendix) with pictures of local resources: birds, fish, land animals and tidal species. Participants were asked to sort the cards into meaningful categories or groups, and then indicate if there was a Sm'algx word for that group of resources. The card sort methodology had to be fine-tuned in light of the debates regarding Indigenous classification, and according to the specific data requirements of the *Forests for the Future* project.

Within ethnobiology there are differing approaches to Indigenous classification and taxonomies. The comparative approach promotes the idea of an underlying similarity in all methods of classification, a universality of key categories. The relativist approach emphasizes the differences between classification behavior across cultures.

Berlin (1992) among others suggests that there are natural groupings of species that suggest themselves easily to human observers, thus creating similarities across diverse cultures and environments. Classification is usually based on morphological and behavioral affinities and differences and these tendencies create a single, preferred ordering of six ranks that is fundamental to all human classification (Berlin, Breedlove, & Raven, 1973).

Roy Ellen (1993), on the other hand, has critiqued this theory of universal taxonomy because it does not consider the myriad of conflicting arrangements and cross-cutting ties that reflect the reality of much folk-classification. He suggests that the limitation of taxonomy to six fundamental ranks gives the illusion that knowledge is only about resemblances between species, and tends to decontextualize folk biology or TEK. Ellen points to the problems of methodology in the creation of Indigenous or folk taxonomies. The formalized questioning techniques tend to constrain answers and there is the need for non-directive techniques that

allow the researcher to understand the paradigms, typologies, and indices that are embedded in folk classification.

Ellen uses a card sort methodology in his study of Nualuan classification. He suggests that the cards stimulate participants' memories, as well as providing a medium for investigating classification principles. The danger of this technique is that the researcher is asking the participant to perform an essentially unnatural task. The blurry boundaries between Indigenous categories might be reified; where a participant might prefer to create a continuum or gradation between species, the activity requires discrete groupings. The order of the cards, and the space upon which they are to be sorted can impact the results and participants often use a single criterion to sort the cards.

A card sort activity can be a useful tool for general species data elicitation and towards an understanding of Indigenous classification. However, the directed creation of a hierarchical taxonomy can erase the cultural specificity of local classifications and emic categories. The card sort method must be relaxed and expanded in order to provide useful and relevant information about emic understandings of resources, their relationships to each other, and to human use.

The *Forests for the Future* team approached the card sort as a tool towards understanding Gitxaal categories, rather than for the development of a Gitxaala taxonomy. By using the card sort to ask open-ended questions about the ways in which resources could be related to one another, we avoided imposing a hierarchical, ranked structure on species classification.

Participants were asked to place the cards in groups that made sense to them for any reason, based on any criterion. They were asked to group the cards and explain them as if they were explaining to a child the way in which different resources were related to one another. Many expressed the desire to group the cards a certain way, and then rearranged the groups in order to explain more than one relationship. Thus, specific resources were attached to more than one category, or the cards were re-sorted according to different criteria. This open-ended and flexible methodology allowed the participants to discuss the nuanced and diverse local understandings of species.

This methodological approach that we can label a "liberated card sort" does not erase the individual and specific knowledge that informs classification. Ellen points out that people bring diverse knowledge to a classification activity. As noted above, TEK is differentiated within a community. This card sort method incorporated the diversity of Gitxaala knowledge; the categories that participants indicated were many and varied, and reflected the gendered, generational, and individual nature of traditional knowledge.

That said, the card sort data provided a description of Gitxaala resource use and key categories of resources. The key categories that Gitxaala people used to classify species were place and use.

Place: Every participant created categories based on the concept of place. There were two ways in which these place-based categories were defined. Some respondents grouped species that were found in the same environment. For example, one participant created a group containing cougar, deer, wolf, grouse, raven, jay, and crow and defined it as “found up in the mountain.” Another participant made a group of species “all live on Pitt Island” that included goat, cougar, grizzly, deer, and eagle.

Other participants created groups based on the proximity of the species to the village of Lack Klan. A group including grizzly, beaver, marten, goat, wolf eel, shark, sea lion, cougar, swan, oolichan, black bear and Kermode bear was designated “things found further away from the village.” Birds especially tended to be classified as species seen around the village, seen on the water, and seen in the forest etc.

Use: Many of the species, and particularly the tidal resources were classified according to whether they were eaten or not. One definition of a group that was articulated by multiple participants was “traditional delicacies” or “key traditional foods.” Another common category for a variety of species was “things we don’t use.” Wolf eel and skate tended to be included in this kind of group repeatedly.

Participants split the tidal resources into edible and non-edible species. The non-edible species tended to be starfish, barnacle, and sea anemone. However, older community members differentiated between species eaten today, and those that were formerly harvested but no longer eaten. Sea anemones and barnacles were thus moved between “non-edible” and “eaten in the past” groups. Finally, some the edible tidal resources were often sub-divided into categories of seasonal, and year-round (e.g., clams are harvested only in the winter months, whereas urchins are edible all year).

The themes of place and use are thus key concepts for the classification of Gitxaala resources. The liberated card sort also provided insights into some of the other nuances of ecological relationships. A popular grouping, which reflected the season in which we were conducting the card sort research, was “things that follow the herring” or “animals found in the Inlet during herring.” The majority of the card sort interviews were conducted in March 2003 when the herring were spawning in Kitkatla Inlet. Whales, seals, salmon, porpoise, sea lions, and a number of birds were identified as following the herring into the inlet. Many of these resources are harvested during the herring season.

The card sort data thus provided information regarding the main concepts used to categorize species, and also the local understandings of relationships between the resources. Predator-prey relationships were in-

dicated in the groupings, as well as cosmological links between species and between species and humans. This data was significant to both the academic and educational streams. The card sort data provided important information regarding the more abstract aspects of human-environment relations and particularly local ways of understanding resources. The groups also provided an example of a non-hierarchical way of classifying resources which were used in the curriculum to talk about the cultural production of taxonomies. The data also contributed to language curriculum through the labeling of species and groups.

Finally, the liberated card sort had also provided information that informed the treaty stream of the research. The emic system of classification supported an argument regarding the sustainability of traditional structures of resource management.

Some of the participants created groups of species that conformed to general Western categories: land birds, sea birds, sea mammals, and land mammals etc. When participants were asked about Sm'algyx words for these categories, it became clear that the language was very specific and that overarching categorical labels were few. There was no known word for groundfish, fish that are found on the bottom of the ocean. These fish were frequently grouped together, and separated from salmon, however an Aboriginal term could not be identified for the group. There were only names for each specific fish. Similarly, a word was provided for shellfish or tidal resources, but further questions revealed that this term was not generally used. One would not say: "I am going out to pick shellfish," rather one would indicate the specific resource "I am going to pick abalone." Only one resource was targeted at a time, and therefore the language was extremely specific.

The language pointed to a tradition of singular harvesting that had immense implications for resource management. Gitxaala people were generally not opportunistic harvesters, but rather, deliberately targeted a specific species during each harvesting expedition. The single-species mode of harvest suggested a micro-managing of resources that enhanced arguments regarding the sustainability of traditional practices.

The liberated card sort reflected the successful modification of a quantitative and generally hierarchical method of classification. Following Ellen (1993), the method avoided the problems of controlled elicitation and allowed participants the flexibility to create multiple categories of meaning and relevance. The locally and culturally specific nature of Gitxaala classification was not erased by a restricted sorting structure. The open-ended questions provided information about how people related to the resources, understood ecological linkages, and conceptualized the significance of particular species.

Conclusion

One research project can serve a variety of interests and can produce a variety of products. The *Forests for the Future* project combined university and community priorities through a collaborative process that integrated local goals into the design and methodology of the research. This collaborative structure ensured quality relevant research that did not perpetuate colonial power inequalities, and which contributed to the efforts of First Nations communities to secure autonomy of resource use and management.

The project provided data to three different research streams (treaty, education, and academic) through a diversified methodology. These three streams converged and diverged within the research process at various stages, and through various methodological tools. TEK data for multiple and multifarious uses was generated efficiently by combining several strategies of questioning and interview focus. Differentiated interviews allowed knowledge holders within the community to contribute varyingly to the three research streams. The liberated card sort methodology was designed as a flexible method that informed all three research interests. As a result there were a myriad of products and deliverables that were relevant to community needs, academic theory, and regional education and planning.

At the level of the individual, many of the community members who participated in the research were motivated by their desire for Gitxaala TEK to be documented for posterity, and that the impacts of colonialism and resource expropriation were to be publicized. At the community level, the educational curriculum was considered to be a new locally specific resource that complemented and supplemented existing general First Nations and Tsimshian material in the school system. At the regional level, the report on traditional harvesting and management practices informed and potentially shaped regional land use planning.

Traditional Ecological Knowledge has multiple uses and relevance to multiple issues and interests. TEK research that can provide data for different products and reports will be of increasing importance as the interest in TEK as a key information source in planning and resource management grows. The *Forests for the Future* TEK methodology reflects the development of a research design aimed at providing data for three different streams and multiple products. This collaborative and diversified methodology can be modified to the needs of a variety of TEK research contexts.

References

- Berlin, B. (1992). *Ethnobiological classification: principles of categorization of plants and animals in traditional societies*. Princeton, NJ: Princeton University Press.
- Berlin, B.D., Breedlove, & Raven, P. (1973). General principles of classification and nomenclature in folk biology. *American Anthropologist*, 75, 214-242.

- Butler, C. (in press). Politicizing Indigenous knowledge. In C. Menzies (Ed.), *Integrating local level ecological knowledge with natural resource management: Exploring the possibilities and obstacles*. Lincoln, NB: University of Nebraska Press.
- Ellen, R. (1992). *The cultural relations of classification: An analysis of Nuauulu animal categories from Central Seram*. Cambridge, UK: Cambridge University Press.
- Grenier, L. (1998). *Working with Indigenous knowledge: A guide for researchers*. Ottawa: International Development Research Centre.
- Johannes, R.E. (1993). Integrating traditional ecological knowledge and management with environmental impact assessment. In J.T. Inglis (Ed.), *Traditional ecological knowledge: Concepts and cases* (pp. 33-39). Ottawa: Canadian Museum of Nature.
- Kuhn, R., & Duerden, F. (1996). A review of traditional environmental knowledge: An interdisciplinary Canadian perspective. *Culture*, 16(1), 71-84.
- Lewis, J. (in press). Forests for the future: The view from Gitxaala. *Canadian Journal of Native Education*
- Lui, J. (1995). *The use of local knowledge and expert opinion in resource planning*. Victoria, BC: Ministry of Forests.
- Menzies, C.R. (2001). Reflections on research with, for, and among Indigenous peoples. *Canadian Journal of Native Education*, 25, 19-36.
- Menzies, C.R. (in press). Putting words into action: Negotiating collaborative research in Gitxaala. *Canadian Journal of Native Education*.
- Nadasdy, P. (1999). The politics of TEK: Power and the "integration" of knowledge. *Arctic Anthropology*, 36(1-2), 1-18.
- Nazarea, V.D. (1998). *Cultural memory and biodiversity*. Tucson, AZ: University of Arizona Press.
- Nies, B., et al. (1998). An interdisciplinary method for collecting and integrating Fisher's ecological knowledge into resource management. In D. Newell & R. Ommer (Eds.), *Fishing places fishing peoples: Traditions and issues in Canadian small-scale fisheries* (pp. 217-238). Toronto, ON: University of Toronto Press.
- Sillitoe, P. (1998). The development of Indigenous knowledge: A new applied Anthropology. *Current Anthropology*, 19, 223-235.
- Snively, G., & Corsiglia, J. (2001). Discovering Indigenous science: Implications for science education. *Science Education*, 85(1), 6-34.
- Tsuji, L. (1996). Cree traditional ecological knowledge and science: A case study of the sharp-tailed grouse. *Canadian Journal of Native Studies*, 91(1), 67-76.
- Wolf, E.R., & Silverman, S. (2001). *Pathways of power: Building an anthropology of the modern world*. Berkeley, CA: University of California Press.

Appendix

Card Sort Species

abalone	wolf
octopus	cougar
clam	goat
mussel	shark
giant mussel	bear (3 species)
cockle	seal (2 species)
crab	otter (2 species)
sea anemone	whale (3 species)
sea urchin	Dall porpoise
chiton (2 species)	kelp (2 varieties)
starfish	owl
barnacle	eagle
salmon (6 species)	gull
halibut	coot
lingcod	loon
cod (3 species)	murre
skate	goose
dogfish	swan
wolf eel	mallard
oolichan	murrelet
herring	grouse
mink	robin
marten	jay
weasel	hummingbird
beaver	kingfisher
deer	