

***Ashkui* sites in the Low-Level Flight Training Area, Labrador**

**Report prepared under contract to the
Institute for Environmental Monitoring and Research,
Happy Valley-Goose Bay, Labrador.**



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Executive Summary

This report presents an analysis of the overlap of military low-level flying (LLF) activity in interior Labrador and areas known to Innu as *ashkui*. Under contract to the Institute for Environmental Monitoring and Research (IEMR), the Gorsebrook Research Institute for Atlantic Canada Studies (GRI) examined its existing qualitative interview database on Innu ecological knowledge to respond to four areas of interest identified by the IEMR. They are:

1. The temporal overlap of *ashkui* with low-level flight activity in Labrador;
2. The geographic overlap of *ashkui* with low-level flight training areas
3. The wildlife species use the *ashkui* in the low-level flight training area; and
4. How future *ashkui* research could contribute to the mandate of the IEMR.

The original data were collected with the objective of understanding Innu ecological knowledge as part of a broader social and cultural landscape. Interviews were conducted with 15 elders and experienced land users. As the original research predates any contact with the IEMR the interview protocol was not designed to specifically address any of the above topics although much information that was gathered corresponds to them. The limitations in responding to these questions with the existing data set are outlined for each section of the report.

Ashkui are sites of open water on lakes, river and the ocean when ice is present elsewhere. Some *ashkui* sites never freeze over and are open all winter. Others are the first openings in the ice that appear when the weather warms in the spring. An examination of the GRI's data found that these *ashkui* begin to appear from mid-April to mid-May, with the earliest appearing in late March and the latest opening in early June. There are annual variations in the time of openings. Low-level flying occurs from April to October in Labrador, which coincides with the period when *ashkui* are present. Hence, there is temporal overlap of LLF and *ashkui*.

Ashkui form on lakes and rivers throughout the LLF training area. Fifteen lakes and rivers with *ashkui* sites were identified within the training areas, some with more than one *ashkui*. The sites and their co-ordinates are given in this report, as are more general conditions for the formation of *ashkui*. There is no doubt that many others exist throughout the lakes and rivers of Labrador.

Wildlife, especially waterfowl, frequent *ashkui* in the spring time. Beavers, otters and muskrats come to *ashkui* and migratory waterfowl use *ashkui* as a stopping point as they move north or to nearby marshes. Some of the bird species associated with *ashkui* are: Canada goose, Harlequin

duck, Black duck, Barrow's Goldeneye, Common Goldeneye, Green-winged Teal, Black Scoter. These animals feed on resources at or near *ashkui*. *Ashkui* are known as good fishing spots and several species of fish are found at these areas. These include Lake trout, Brook trout, Whitefish, Suckers, Pike and Burbot. The Innu also note other wildlife resources found at *ashkui*. Innu campsites are often located near *ashkui* because of the abundance of wildlife and the full spectrum of the Innu harvest is gained from these sites and nearby areas.

Our research on Innu landscape generally and *ashkui* specifically is consistent with the IEMR's objective of considering indigenous environmental knowledge in its activities. The analysis clearly shows that *ashkui* are critical areas for a variety of migratory waterfowl, including some endangered species and are thus important components of river valley ecosystems – an IEMR research priority. Innu knowledge of *ashkui* is multigenerational and profound and could provide the basis for monitoring some of the effects of low-level flying. Understanding the ecological and human dynamics of *ashkui* is a first step toward developing a novel approach to monitoring the effects of low-level flying on birds, mammals, fish, and the people who depend on these resources. Finally, by looking at the landscape from the perspective of the Innu, the research will be more relevant to them, and future monitoring and mitigation measures more appropriate.

This reports demonstrates that low-level flying and *ashkui* coincide temporally and spatially and with undetermined effects on these environments and the people who use them. The IEMR is well within its mandate to support future cultural landscape and *ashkui* related research.

1. Introduction

In 1997, the Gorsebrook Research Institute formed a partnership with the Innu Nation and Environment Canada to incorporate Innu perspectives into future environmental studies, policies, and decision-making processes. Other organizations, such as the Canada Centre for Remote Sensing and Public Works and Government Services Canada, have joined the partnership. The partners are working to collect biophysical and cultural information on the Labrador environment. These data are needed to meet the requirements of federal and provincial environmental assessment legislation, and to assist the Innu Nation in assessing and responding to the potential effects of industrial development in the region.

The role of the Gorsebrook Research Institute in this project has been to document Indigenous Environmental Knowledge (IEK). However, we are following an iterative and collaborative research process in which Innu knowledge informs biophysical studies and the results of biophysical studies have been returned to Innu communities on an on-going basis. Innu co-researchers and elders have been involved in the project from the beginning and have helped shape the direction of the research. We have sought to develop an approach to ecological knowledge that is consistent with the perspectives of the Innu and are using landscape as an organisational principle to orient both the cultural and biophysical studies of the Labrador environment. Landscapes, in this perspective, are social and cultural processes of experiencing, learning about and occupying space as well as the biophysical characteristics of the particular space.

So far, these studies have proved fruitful; Innu landscape concepts have salience for science-based researchers who have transposed traditional scientific research methods onto Innu categories of landscape. Innu knowledge of the landscape thus centres the research program rather than becoming an addendum to science as can be the case when traditional ecological knowledge is “integrated” into scientific practice. In essence, Innu landscape concepts like *ashkui* provide a focal point where people from different intellectual traditions (Innu and Western, but also scientific and social science disciplines) can come together and their knowledge. In our experience the science-based researchers find working with Innu landscape features allows them to respond to and communicate with Innu people more effectively than when using traditional methods. The Innu participants are able to influence the kinds of questions that are being asked

by researchers, as well as the locations of research, and to quickly integrate the responses into their own priorities. In the future other elements of the Innu landscape will be investigated.

In 1999, the Gorsebrook Research Institute entered into a contract with the Institute for Environmental Monitoring and Research (IEMR). The contract required the Gorsebrook to examine their existing data set on indigenous ecological knowledge of *ashkui* for information on four subjects of interest to the IEMR. GRI was asked to:

1. Determine the temporal overlap of *ashkui* with low-level flight activity in Labrador;
2. Demonstrate the geographic overlap of *ashkui* with low-level flight training area and identify the precise co-ordinates of the *ashkui*;
3. Indicate which wildlife species use the *ashkui* in the low-level flight training area; and
4. Identify how future *ashkui* research could contribute to the mandate of the IEMR.

The field data collected to date were intended as a test of a landscape methodology developed as a way of understanding Innu ecological knowledge, with the dual aim of collecting knowledge about *ashkui* considered important by the Innu respondents and orienting future fieldwork and research on Innu knowledge. The data were not collected with the intention of responding to the four objectives listed above, consequently the findings from our research do not provide comprehensive information in response to those statements. Nevertheless during the original interviews these issues were addressed either directly or tangentially and we are able to respond to the questions in a general manner. In the future, fieldwork oriented to the questions could be conducted resulting in more detailed and comprehensive findings.

2. Defining *Ashkui*

The term *Ashkui* means “open water in the ice” (Sable 1998) or “clearwater area” (Mailhot 1999). They are sites of early or permanent open water on lakes, rivers and the ocean that are important to Innu as hunting and fishing sites. They are known to be productive areas that attract a variety of birds, fish and mammals, particularly in the spring. Additionally, a significant part of the Innu definition of *ashkui* is the element of danger. *Ashkui* were viewed as dangerous by participants in our research, and especially dangerous for children. One participant explained, “Near *ashkui* you have to be very careful, because sometimes it's really dangerous for kids to play around, but it's good for ducks and geese” (Participant 9). Because of the rich resources and despite the danger

– Innu have returned each spring to camp at favourite areas and make use of resources available at and near the *ashkui*. In this way, many *ashkui* sites are rich in cultural meaning and significant beyond the material resources available there.

In early project discussions with Innu elders, *ashkui* was identified as a generic term for an element of the landscape and selected as an appropriate starting point for this work. The Innu consider *ashkui* to be important features of the landscape, productive areas for wildlife and culturally significant. As one Innu elder commented, “It’s survival for the Innu to hunt in that area, where there’s open water” (Participant 5). Several different studies were oriented around *ashkui* as a test of the cultural landscape methodology.

At least two types of *ashkui* were distinguished in our fieldwork: sites which are ice-free year-round, which are used by some aquatic animals and are favoured Innu fishing spots in the winter, and sites that become free of ice early in the spring. Waterfowl that arrive in spring make use of both types of open sites. In the springtime both kinds of *ashkui* are visited by Innu who travel there to hunt or fish and the spring is an important time of year for the Innu at *ashkui*. Some participants discussed *ashkui* in salt or brackish water; however, most of the respondents focussed on *ashkui* in the Labrador interior, known as *nutshimit* or the country to the Innu.

3. Methods

The information found in this report is based on a series of interviews carried out in June 1998 by Trudy Sable, under contract to the Gorsebrook Research Institute. She worked with two Innu co-researchers/translators. Fifteen people were interviewed, twelve of whom were elders who had spent significant amounts of time in the country (*nutshimit*). The other three people were younger Innu who had spent a great deal of time in the country. In some cases more than one interview was carried out with the same person. Ms. Sable also spent a week in *nutshimit* living with an Innu family near several *ashkui* sites and made observations during that time. Over 35 hours of audio and video tape were collected as well as field notes.

The interviews focused on the meaning of *ashkui* in the springtime. The format and questions for the interviews were developed in collaboration with the co-researchers and others at the Innu Nation office. Interviews were semi-structured and lasted from 90 minutes to several hours over

a period of a few days. They were carried out in English and Innu-eimun, with most parts of the Innu-eimun sections verbally translated to English on the spot. The interviews were recorded on video or audio cassette and the sections in English were transcribed. However, parts of many of the interviews were in Innu-eimun and not translated or had key words that the translator was not able to translate at the time. For example, the translator did not know the English translations for all the Innu toponyms (in many cases there are none) or other specialised vocabulary. In order to assure accuracy in the data, segments of the interviews that referred to place names and waterfowl were reviewed and where possible, translated or verified in May 2000 in Sheshatshiu.

Interview participants were selected according to judgement sample – the researcher selected those who were deemed to be most knowledgeable about *ashkui*, using suggestions made by members of the Innu community. This approach is suitable for and typical of studies of indigenous, traditional, or experiential knowledge, where the quality of the information itself is important and statistical analyses are not needed or are of secondary importance. Accuracy of the information is judged by cross-verification with other participants in the study and by self-identification. In many cases participants are aware of the limitations of their own knowledge and place geographical, temporal, or other limits on the extent of their knowledge (e.g., “I travelled to area X every year for the last twenty years and I know it well but I have not travelled to area Y since I was a young child travelling with my grandparents”).

Photos of 16 different species of waterfowl were used as aids to discussion and those were labelled with Innu names. For some waterfowl, there seems to be no standardised name in Innu-eimun although family members and people who had spent time in the same areas used the same nomenclature. There are significant dialectical differences in the Innu-eimun spoken by people from Sheshatshiu and Utshimassit (Davis Inlet) as well as differences within those communities (Mailhot 1997). Linguistic variables are important in indigenous knowledge and may reflect, among other things, varying uses of resources and physical space as well as varying knowledge. Since most of our informants were based in Sheshatshiu, we likely captured the terminology used by people in that area rather than variants (if any) used in Utshimassit. All Innu-eimun names for waterfowl used by informants were documented. Discussion of waterfowl ranged beyond the 16 species for which there were photos.

Mapping was carried out during some of the interviews; however, many older Innu respondents did not use maps or had failing vision and felt more comfortable discussing *ashkui* sites without

referring to a map. Other respondents drew their own maps. For these reasons, locations of *ashkui* that are given are often general names, such as “Minipi Lake,” or in reference to physical features, such as “Minipi Lake near where the brook flows in.” In some cases Innu toponyms were collected that had no English equivalent and could not be precisely located on maps. Consequently, the precise location of some sites remains to be determined.

Most of the respondents had spent much of their lives based in the community of Sheshatshiu, although they may have spent many years, especially in the early part of their lives, travelling throughout the Quebec-Labrador Peninsula. For that reason, the knowledge of *ashkui* in this study is limited to the areas frequented by these individuals. Although some participants had spent time in the northern part of Labrador, most of the *ashkui* locations mentioned were from the more southerly regions of Labrador. Interviews carried out with people from Utshimassit would provide more *ashkui* locations in areas near that community and likely more salt or brackish water *ashkui* due to its coastal location.

A code book was developed around themes significant to the various research partners, as well as the themes pertaining to this report. For example, text was coded for particular waterfowl species and physical features. Codes were also suggested from the data itself; for example, discussion during interviews often touched on traditional observances of the Innu, such as the sweat tent and shaking tent. All the interviews were reviewed and coded. Coding was entered into Q.S.R. NUD*IST 4.0 (Qualitative Solutions & Research 1999), a qualitative research software package. This software makes it possible to quickly pull out all text related to a particular theme, as well as group material for overlapping and intersecting themes. Coding verification was carried out for the themes relevant to this report (for other themes, coding verification is on-going). Analysis was carried out using this software for the themes related to the questions posed by the IEMR.

Direct quotations from interviewees are used in this report to illustrate the research findings. To preserve confidentiality, interview participants are identified by number rather than by name.

4. The temporal overlap of *ashkui* and low-level flight training in Labrador

According to a background document prepared for the Flight Track Compliance Monitoring Workshop, low-level flying season in Labrador is from March to November (Royal Military

College 1999). However, other information released by 5 Wing Goose Bay states that flights occur from April to October (5 Wing Goose Bay n.d.). Permanent *Ashkui* obviously overlap with LLF activity. Early opening ashkui sites appear throughout the spring, until the ice is gone. Although there is weather related variation from year to year and from site-to-site, springtime *ashkui* generally begin to open in mid-April to mid-May, with openings as early as late March and as late as early June. By mid-June, ice has disappeared from lakes and rivers. There are annual variations in the times of opening, depending on weather.

Times of the ice opening for the sites within the low-level flight training area can be found in the following table. More detail will be given about these sites in the next section. Specific opening times were not given for all sites. More often interviewees gave the general response of “in the spring”. Because ice disappears from lakes and rivers in the spring and low-level flying occurs in the spring, it is safe to conclude that low-level flying in the spring coincides with *ashkui*.

Table 1. Times of *ashkui* opening in low-level flight training Area

Ashkui Location	Time of First Opening
a. Lake Shipiskan (several sites – one where Snegamook River flows out, others near other brook and stream outlets/inflows)	One year-round site, other sites opening in May
b. Kenamu River (mouth and other sites along its length)	Year-round
c. Lake Minipi (<i>Minai-nipi</i>)	Early – mid May
d. Minipi River	Late April – Early May
e. Ann Marie Lake (near river outlet to Lake Minipi)	<i>The spring*</i>
f. <i>Ashuapun</i> (Lake near Border Beacon)	<i>The spring</i>
g. <i>Maikan-nipi</i> (means Wolf Lake, one site at Metchin River outflow and one where a brook comes in)	The spring
h. <i>Maikan-nipiss</i> (means Little Wolf Lake; a site where the river goes through lake)	The spring
i. <i>Amishkunipi</i> (Beaver Lake)	The spring
j. Churchill River (mouth and other sites along its length)	March
k. <i>Snegamakush-shipu</i> (Snegamook River, runs between Shipiskan and Snegamook Lakes)	<i>The spring</i>
l. Snegamook Lake (several sites)	<i>The spring</i>
m. Naskaupi River (several sites along its length)	<i>The spring</i>
n. <i>Meshikamau</i> (Smallwood Reservoir)	<i>The spring</i>
o. <i>Mistamiskimit</i> (means Big Ice Lake)	The spring

*The *ashkui* sites with time of opening in italics are definitely open in the spring and may be open year-round.

5. The geographic overlap of *Ashkui* and low-level flight training in Labrador

There are *ashkui* throughout the low-level flying flight training area in Labrador; where there are lakes and rivers there will be *ashkui* sites. This section lists locations for some of the *ashkui* within the LLF training area and describes the conditions that cause *ashkui* to form. Again, it should be emphasized that the data were not collected for the purpose of finding locations of all *ashkui* within the LLF training area. Instead, the objective was to understand *ashkui* from an Innu perspective and some of that understanding came from discussing specific *ashkui* sites in Nitassinan.

In the table below, the co-ordinates are given for specific *ashkui* sites on the lake or river, where available. Where co-ordinates give the general location of the lake or river, as opposed to the specific location of the *ashkui* site, they are in italics. The location of sites h and o are were identified as being within the low-level flying zone but not specifically located on the maps used in interviews. Additionally, the Innu toponyms are not listed on existing maps.

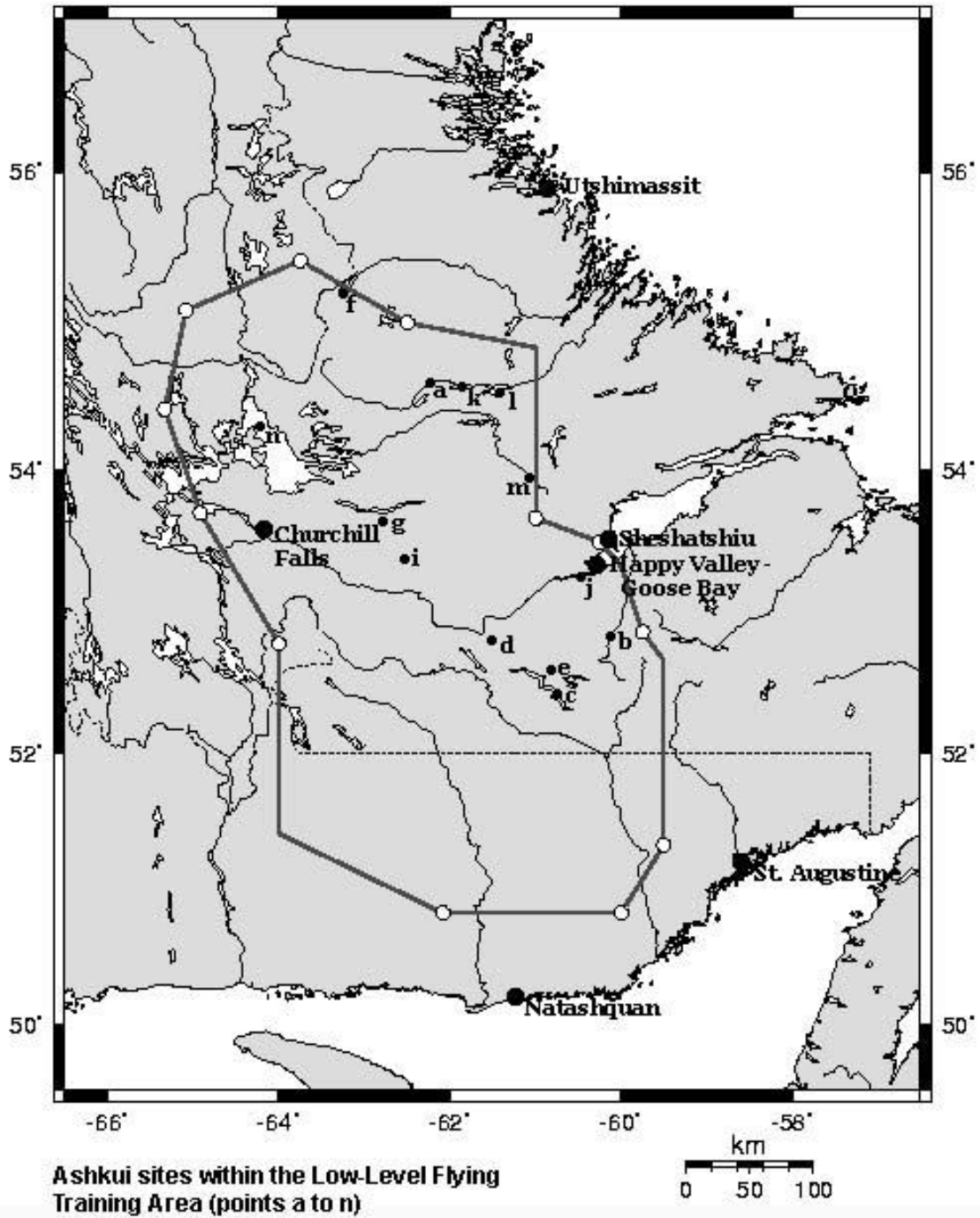
Table 2. Location of *ashkui* sites in the low-level flight training Area

Ashkui Site	Co-ordinates*
a. Lake Shipiskan (several sites – one where Snegamook River flows out, others near other brook and stream outlets/inflows)	54°37'09.5" N, 62°13'08.5"W 54°37'37"N, 62°13'53.3"W 54°39'23.7"N, 62°24'28.5" W 54°36'58.4"N, 62°13'07.4" W
b. Kenamu River (mouth and other sites along its length)	<i>52° 54' N, 60° 04' W (approximate)</i>
c. Lake Minipi (<i>Minai-nipi</i>)	<i>52° 25' 00" N, 60° 45' 00" W</i>
d. Minipi River	<i>52° 47' 00" N, 61° 30' 00" W</i>
e. Ann Marie Lake (near river outlet to Lake Minipi)	<i>52° 37' 00" N, 60° 51' 00" W</i>
f. <i>Ashuapun</i> (Lake near Border Beacon)	<i>55°12'N, 63°15' W (approximate)</i>
g. <i>Maikan-nipi</i> (means Wolf Lake; one site at Metchin River outflow and one where a brook comes in)	<i>53° 38' 00" N, 62° 50' 20" W</i>
h. <i>Maikan-nipiss</i> (means Little Wolf Lake; site where river goes through)	Precise location unknown, near <i>Maikan-nipi</i>
i. <i>Amishkunipi</i> (Beaver Lake)	<i>53° 24' 10" N, 62° 29' 40" W</i>
j. Churchill River (mouth and other sites along its length)	<i>53° 21' 37" N, 60° 10' 18" W</i>
k. <i>Snegamakush-shipu</i> (Snegamook River, runs between Shipiskan and Snegamook Lakes)	<i>54° 38' 00" N, 61° 50' 00" W (approximate)</i>
l. Snegamook Lake (several sites)	<i>54° 33' 00" N, 61° 27' 00" W</i>
m. Naskaupi River (several sites along its length)	<i>53° 55' N, 61° 05' W (approximate)</i>
n. <i>Meshikamau</i> (Smallwood Reservoir)	<i>54° 11' 00" N, 64° 00' 00" W</i>
o. <i>Mistamiskimit</i> (means Big Ice Lake)	Precise location unknown, near the head of Grand Lake.

*Co-ordinates in *italics* give the general location of the feature, rather than the specific location of the *ashkui* site.

Map 1 below show the approximate location of sites a – n and in Appendix A. the same points are plotted on a map with showing many of the waterways of Labrador and greater detail of the LLF training area.

Map 1. Approximate locations of *ashkui* in the LLF training area



Several other sites were mentioned that are just outside the LLF training area, such as Grand Lake at the mouth of the Cape Caribou River; at the head of Grand Lake, where the Beaver, Susan, and Naskaupi Rivers flow into the Lake; and off Northwest Point in Lake Melville.

As the original research was concerned primarily with the characteristics and local importance of *ashkui*, Innu participants were not asked to list every known *ashkui* site during the interviews but to discuss sites well-known to them and to explain the meaning of *ashkui*. Consequently, it can be assumed that there are many more occurrences of *ashkui* than those mentioned by interview participants, including more sites in the low-level flying training area. For example, a May 2000 meeting of project partners was held near an *ashkui* site at Seal Lake – a site well-known to many Innu yet one that was not discussed during the June 1998 interviews (general co-ordinates of lake, 54° 20' N, 61° 40' W). Wuchusk Lake (general co-ordinates, 54° 24' N, 61° 44' W), has another well-known *ashkui* site and was originally chosen as the site of the meeting. Our research partners have found other *ashkui* sites by doing flyovers and examining satellite imagery. One of the interview participants, when asked where to find *ashkui*, commented, “When it first opens, *ashkui*, in the springtime, there are lots and lots of *ashkui* in the spring, everywhere there’s some open water” (Participant 11). For this reason, it may be more meaningful to look at the general conditions for *ashkui* described by the interview participants in order to understand where and how *ashkui* are formed.

Ashkui often occur where a river or stream enters or leaves a lake, where there are fast-flowing currents, or where several currents coincide. These are areas where the ice begins to melt first or where formation is prevented by current. One participant noted, “Where the river flows in, you know that's where the *ashkui* will be, where the ice, that's where it floats.” She then used *Maikan-nipi* (literal meaning, Wolf Lake) as an example of this. “This is a big river coming from Churchill [out of *Maikan-nipi*]. And that's where the *ashkui* starts, right here, then it spreads and it gets bigger and bigger, you know, when the ice goes” (Participant 9).

Another participant discussed an area near the mouth of the Kenamu River where many different currents came together:

It's the changing of the water directions, there's... the *ashkui* here, right here, there's ice under the water. And because of the changing of the directions of the water flow -- sometimes it goes that way, sometimes it comes this way -- so that the ice cannot rest, so there is always an *ashkui* there, breaking up the ice on top from the bottom. The ice that's under the water goes back and forth, so that's why there's *ashkui*. (Participant 12)

Several participants noted that the ice breaks up quickly on rivers.

“It takes so long to melt the ice, where there's no rivers, it takes a lot to get the... to melt the ice. But the rivers just come up and the ice goes, just like that, it's really fast in the rivers, big rivers, where there's rapids, big rapids” (Participant 6).

Wind can speed up the process of ice break-up and melt. Conversely, cool weather may slow down the process – an *ashkui* may start to form and freeze over again in a cold snap. One participant explained that a sunny day was not enough to melt the ice, wind was needed to move the ice around and down the rivers (Participant 11).

From looking at our database for specific locations as well as applying the more general principles described by interview participants, it can be seen that many lakes and rivers within the LLF training area would have *ashkui* sites. These sites would exist all winter and spring or form in the period from April to June, which also coincides with the time that low-level flight training occurs. Although there are many *ashkui* sites, some are more favoured by the Innu than others:

The best place to go is where there's *ashkui*. That's where the Innu like to go, where there's early *ashkui*. The best spot to go is where there's big lakes with early *ashkui*. At small lakes there's only small *ashkui*. It's not very big. (Participant 5)

To determine where all *ashkui* occur within the LLF training area, research aimed directly at answering that question would need to be carried out. Further research could then determine which sites are considered the “best spots” by the Innu. The conditions that produce the most productive sites, and their locations, could also be investigated.

6. Wildlife Species that use *Ashkui* in the low-level flight training area

This section includes only the animals discussed by the interview respondents and may not include all animals that use *ashkui* sites. Many of the interview subjects discussed the wildlife that came to *ashkui* in a general sense, with few locations singled out as particularly good locations for a specific wildlife species. Consequently, it is not possible within the existing data set to distinguish between wildlife species that are found at *ashkui* outside the low-level flight

training area and those found within the training area. Wildlife were discussed in terms of their preferred habitat -- do they come to *ashkui* or not? -- rather than specific geographical location. It should be noted that most of the *ashkui* locations given by respondents were inside the low-level flight training area and the animals that come to *ashkui* range throughout much of the Quebec-Labrador peninsula.

Wildlife and its importance to the Innu was central to many respondents' perception of *ashkui*, as illustrated by this quotation:

Ashkui means to me that we are waiting for the geese and ducks, that is where they are at the *ashkui*, and that is where the people camped when they go to the country in the spring. Also people can fish there, because it is easy to put the hole in the ice because the ice is a little bit thin there. This is where the people go to hunt ducks, geese and other kind of animals. (Participant 4)

Indeed, the reason that *ashkui* was selected as a feature worthy of study by the Innu was because of the availability of wildlife at the sites. Animals mentioned during the interviews can be found in Table 3.

Table 3. Wildlife found at *ashkui*

Animals Mentioned during Interviews	Do they use/come to <i>Ashkui</i> ?
<i>Small/medium-sized mammals</i>	
Porcupine	no
Beaver	yes
Marten	no
Otter	yes
Mink	maybe
Muskrat	yes
Rabbit (Snowshoe hare)	no
Squirrel	no
Fox	no
Lynx	no
Mouse	no
Weasel	maybe
<i>Large mammals</i>	
Caribou	no
Moose	no
Wolverine	no
Bear	no
Wolf	No
<i>Marine mammals</i>	
Seal	Yes
<i>Waterfowl and Loons</i>	
Canada goose	Yes
Harlequin duck	Yes

Animals Mentioned during Interviews	Do they use/come to Ashkui?
<i>Waterfowl cont.</i>	
Black duck	yes
Ringnecked duck	yes
Common Goldeneye	yes
Barrow's Goldeneye	yes
Northern Pintail	yes
Green-winged Teal	yes
Black Scoter	yes
Surf Scoter	yes
White-Winged Scoter	unknown
Red-Breasted Merganser	yes
Common Merganser	yes
Loon (general)	unknown
Common eider	no
King eider	no
<i>Other bird species</i>	
Northern or boreal hawk owl	no
Grey Jay	no
Robin	no
Grouse	no
Owl	no
Eagle	no
American bittern	no
Boreal chickadee	no
Crow	no
Gull	no
<i>Fish</i>	
Lake trout	yes
Brook trout	yes
Salmon	unknown
Whitefish	yes
Suckers	yes
Pike	yes
Burbot	yes
<i>Other animals</i>	
Insects	unknown
Frogs	unknown

Aquatic mammals

Two respondents summed up the animals that came to *ashkui* – and how many interviewees felt about the animals there – in a few sentences:

“Some of the wildlife that use *ashkui* are beaver, muskrat, otter -- animals that spend a lot of time in the water. It makes us happy when there are *ashkui* because we know that animals are going to come around. Like the ducks, and the beaver, the otter, you know, any kind of animal that's... [...] any other kind of animals that be... be in the water...” (Participants 13 and 14).

Beaver, for example, use *ashkui* as a transportation corridor from the water to the shore. They leave their lodges and swim in search of fresh, leafy vegetation in the spring (Participant 15). One respondent suggested that aquatic plants begin to grow when the ice begins to break up, providing food for the beaver (Participant 11). However, other participants suggested that beavers prefer to spend time in the safety of the lodge until the water is more open and do not come to the earliest opening *ashkui* (Participants 9 and 10). Beavers do not appear to use year-round *ashkui*, but wait until fresh vegetation is growing before venturing out of the lodge. One respondent described the beaver's seasonal activities in relation to *ashkui* as follows: "When the river, when the pond is frozen he stays in his house all winter long. When the ice breaks up then he travels" (Participant 2).

Several interviewees stated that the otter liked to come to *ashkui* to feed off fish. One person explained that the otter liked to use the *ashkui* in the fall, before the ice completely closes, as well as in the spring when the ice first begins to break up, and at sites where the water is open year-round (Participant 7). Another respondent commented that *ashkui* sites were the otters' favourite spots when ice was on the lakes and rivers because "they like to dive and they eat fish" (Participant 1).

Muskrat also frequently use *ashkui* and were often mentioned in conjunction with otter and beaver as *ashkui* users.

Another animal mentioned, although in less detail, was mink. One respondent stated that mink came near *ashkui*, where the water was fast-moving, and fished. Other respondents mentioned mink and *ashkui* in general terms but did not specify their behaviour there or how extensively mink used *ashkui*. One respondent mentioned weasels as frequenters of *ashkui*.

Large land mammals

Caribou do not generally use the resources of *ashkui* but are central to Innu hunting life no matter what time of year. Caribou travel throughout the country in small groups in the spring, crossing lakes on the ice as they travel. For that reason, many respondents talked about hunting caribou in the vicinity of the *ashkui*, although the animals do not use the *ashkui* and it may even be dangerous for them. One person stated: "The caribou knows where the *ashkui* is. They're like human beings, they're afraid to go near. They're afraid of falling through ice. The animals know,

they're pretty smart”(Participant 14). He continued, “All the animals that are big, like caribou, they're really very careful with *ashkui*, when there are *ashkui* around. Caribou don't go near it.”

Bears generally do not go to *ashkui* but wait until the ice has gone before fishing. The same respondent that discussed how *ashkui* were dangerous for caribou related a story of how bears tended to avoid areas of open water in the ice.

Respondents who were asked about **moose** said they do not know much about moose. Moose is considered a newcomer to the area by many older Innu and Innu who travel to the country prefer to hunt and eat caribou, although moose are abundant in some areas. Moose do not use *ashkui*.

Fish

Ashkui are important sites for fishing in Innu land use. Almost all interview participants discussed fish in relation to *ashkui*. It is the preferred fishing spot of the Innu when ice is present, since “That’s where you get the fish, right close to *ashkui*. In the *ashkui*” (Participant 6). The Innu fish both by using a hook and line through a hole in the ice near the *ashkui*, and by using a net, either threading it through a series of holes in the ice or across the *ashkui*, complicated manoeuvres explained by two participants. Many species of fish are caught at *ashkui*; lake trout (*kukames*), brook trout (*matemek*), whitefish (*atikamek*), burbot (*minai*), pike, and suckers were some of the species mentioned.

Through the winter and spring, people fish through holes near *ashkui* sites. Although some winter fishing is carried out, one respondent explained that fishing was better when the ice began to melt in the spring:

[W]hen the ice gets more thin, water comes running out, you can fish anywhere along the shore, you know for ice fishing, be sure to get one or two. If you’re fishing in January or something like that, a lot of people say there’s no fish. Fish everywhere soon as the ice goes away.... [P]eople in early spring go fishing, ice fishing or rod, get a few fish, four or five, something like that. But in the winter, fishing, can’t get anything. Get the people saying there's no fish. (Participant 15)

Participants had various reasons explaining why fish were plentiful at *ashkui* sites. Interviewees speculated that the fish were attracted by the light shining on the water, that the water may be

warmer than other areas of lakes or rivers, or that the fish were eating new growth of aquatic plants that grew more quickly in *ashkui* than other areas.

Waterfowl

Waterfowl are central to many Innu peoples' discussion of *ashkui* and all study participants linked waterfowl migration in the spring with *ashkui*. Many interview participants stated that they timed their spring trips to the country to coincide with the arrival of waterfowl at *ashkui* (this is a relatively recent phenomenon, since before the Innu were settled in communities they would already be in the country). Some waterfowl species would be found only briefly at the *ashkui* sights frequented by our study participants, pausing on their migration further north to breeding grounds. Discussion of waterfowl centred on the 16 species for which there were photos: Black duck, Northern Pintail, Green-winged Teal, Harlequin duck, Common Eider, King Eider, Ring-necked duck, Greater Scaup, Common Goldeneye, Barrow's Goldeneye, Oldsquaw, Red-breasted Merganser, Surf Scoter, Black Scoter, White-winged Scoter, and Canada goose. Other species were mentioned by some participants.

All 16 species, except the eiders and perhaps the White-winged Scoter, come to *ashkui* in the country. Participants who recognized the King Eider and Common Eider identified them as coastal birds. They were not thought to come to *ashkui* in the country.

Ducks and geese eat the small fish and plants found at *ashkui* sites. The Innu note that these sites are productive feeding grounds for waterfowl and set up hunting blinds near *ashkui*.

Lots and lots of *ashkui* in the spring, everywhere's open. And that's where the animals, like the birds, eat in there, from the *ashkui*. (Participant 11)

The best place to hunt is around *ashkui*. Usually that's the best place, we'll go because of the open water. That's where they usually... like the ducks and geese, that's where they go, you know, because of the fast opening water there. (Participant 10)

Some waterfowl species would arrive in mid-April when waters were just opening up, such as Barrow's Goldeneye and Black Ducks. Oldsquaw ducks were also mentioned as early arrivers.

After that, many different species of waterfowl arrive, including Common Goldeneye, Black Scoters, Surf Scoters, scaups, mergansers, teals, Northern Pintail, loons, and Canada geese.

Ducks were generally considered to arrive at *ashkui* before geese and the Innu names for the months reflect this perception. The month of April is called *Shiship pishum* – duck moon/month, while May is called *Nissipishum* – geese moon/month. By the beginning of June, many of these birds would disperse to the marshes or other sites on shore to nest, as described by one respondent:

They [geese and ducks] usually spend time around *ashkui* and as soon as all the ice is gone, they're off somewhere to lay eggs. They all come to where *ashkui* is, and as soon as the ice is all gone, they split up. (Participant 7)

Harlequin ducks were mentioned as favouring sites with rapids, small waterfalls, and fast flowing water. In fact, their name in Innu-eimun, *nutshepaushtukueshish*, means “plays in the falls”. Harlequin ducks go to areas where there is open flowing water, with little or no ice. By contrast, the Oldsquaws like to perch near the edge of the ice, near the open water (Participants 9 and 10).

Other animals

Seals were mentioned as frequenting salt or brackish water *ashkui* sites. One respondent remembered when seals used to be found in Lake Melville near Sheshatshiu: “They usually came around there, to the *ashkui*. They even make their own *ashkui*, they just break up in there. In the springtime, they usually would... the *ashkui* was getting bigger and bigger, where the seals used to come up” (Participant 8). Seals no longer come to this *ashkui* site and the respondent was not sure why.

Many different species of animals were mentioned in relation to *ashkui*, especially waterfowl and animals that live in or near the water, such as fish and otter, beaver and muskrat. The Innu travel to *ashkui* in order to make use of these wildlife resources.

7. Future *Ashkui* research and the IEMR mandate

The collaborative work of the *ashkui* project represents a significant step in orienting scientific and social science studies to reflect the perspective of aboriginal people. Any future work on *ashkui* should recognize that this concept is from the Innu culture, and endeavour to make it relevant both to the pursuit of science and the interests of the Innu people.

Among the specific objectives of the IEMR we find "...inclusion or incorporation of Aboriginal environmental knowledge and cooperation in research and monitoring activities among the Department of Nation Defense (DND), scientific establishments, research institutions, consultants and universities interested in the mandate and objectives of the Institute." The approach taken by the Gorsebrook Research Institute represents an original and highly productive approach to achieving these goals. Supporting research based on the cultural landscape approach should thus be considered within the priorities of the IEMR.

The limitations in the data available exist because the questions addressed in this report were developed after the data were collected. While we are able to provide information in response to each question a systematic study designed to capture information on *ashkui* throughout the LLF area would provide more comprehensive responses. If the IEMR wishes to have information that systematically deals with all the *ashkui* within the LLF training area and the specific times these lakes and rivers become open, a project to collect information for that purpose should be funded. Further research could then be carried out to find out which of these sites are currently or were formerly used by the Innu or by wildlife species.

Numerous other areas of research relevant to the IEMR mandate are suggested by our work to date. For example, the existing data suggest that additional work on *ashkui* could contribute to the IEMR research initiative on river valley ecosystems. Some basic questions of ecology could be pursued: Why are fish attracted to *ashkui*? What invertebrates are found at *ashkui*? What kind of aquatic plants first appear when the ice begins to break up? How are fresh water *ashkui* different from salt or brackish water *ashkui*? Similarly, future *ashkui* work would seem likely to contribute to research priorities on migratory and endangered bird species in the LLF area. Research documenting the particular *ashkui* sites that are used by waterfowl during spring migration, and the characteristics of their usage, would add to our understanding of the movements of migratory birds. Some *ashkui* sites are likely of greater importance than others. In-depth work with Innu

would add to our knowledge of these sites and would assist avoidance and mitigation measures associated with low-level flying.

Innu knowledge is particularly suited for longitudinal studies for which little scientific data exists, such as changes in weather and climate. Some participants in our study commented that the time that the ice began to break up had changed. This topic was not fully pursued during the interviews. One participant commented that there are “more *ashkui* in the ice now” (Participant 10) and spring was coming earlier. Another mentioned that the ducks and geese were arriving earlier at Parke Lake, Dominion Lake, and other spots he went to in the country than they did 35 years ago (Participant 15). Further study on Innu perceptions of changes to the landscape could contribute to understanding cumulative impacts and help isolate macro level environmental changes from local ones.

The theme of impacts from development locally and globally was pervasive in the interviews examined here. The issue of low level flying impacts was the second most frequently mentioned (Churchill Falls dam and reservoir system was the most frequent) by interviewees. For example, one participant suggested that the noise created by low-level flying may be affecting when and how the ice breaks up in the lakes (Participant 15). Others mentioned the effects of noise on birds, fish and land mammals. Effects on *ashkui*, or on the wildlife that use them, caused by low-level flying activity impact ecosystem health and deeply concern the Innu people. Additional research on this topic would be a logical extension of the IEMR’s mandate.

Finally, given the often divergent opinions about the impacts of low level flying activity held by Innu land users and non-Innu scientists, we suggest that the cultural landscape approach should be integrated into environmental assessment, ongoing impact monitoring, and in the development of mitigation measures generally. The cultural landscape approach bridges the social sciences, scientific and indigenous knowledge allowing for a more balanced contribution of each perspective in environmental studies. This would require genuine commitment to funding research which is integrative and interdisciplinary, a move away from the strict disciplinary and geographic boundary definitions which are pervasive in standard environmental assessment methods used with respect to LLF.

8. Conclusions

The interview data used in the analysis presented in this report were not collected with the purpose of identifying or describing *ashkui* within the LLF training area specifically. Nevertheless interview participants did discuss some of the *ashkui* found within that area and a considerable amount of information pertinent to the four research questions is present.

Ashkui occur within the LLF training area in Labrador and during periods when low-level flying is occurring. A variety of wildlife species use *ashkui*, including many species of fish, waterfowl and mammals. The significance of *ashkui* to the Innu people is partially related to the abundance of wildlife found there as well as the tradition of staying near *ashkui* sites in the springtime. There are many topics related to *ashkui* that could be further explored, including further research on the location of the sites themselves, the wildlife that uses these sites, plants found nearby, and the potential effects of low-level flying and climate change.

Innu elders have selected *ashkui* as a feature of importance to the Innu. They see it as a productive area, rich with wildlife and culturally significant. They are concerned that changes in the environment could negatively affect *ashkui*. Since *ashkui* occur within the LLF training area, the IEMR should be involved in understanding the relationship between of low level flying and *ashkui*.

The challenges of researching indigenous knowledge and combining it with academic or scientific knowledge have been outlined in various published works (see for example, Berkes 1998, Cruikshank 1998, Sillitoe 1998). However, it is possible to document and incorporate indigenous knowledge in a comprehensive manner, without co-opting it. This project, which starts by using an Innu perspective on the landscape, is an example of how to collect indigenous knowledge of the environment in a collaborative manner that respects the intellectual and cultural traditions of the people in question. Since the Innu are some of the most vocal critics of low-level flying in Labrador and strongly believe that such activity affects themselves, their traditional lands, and the wildlife that live there, incorporating their perspectives in a meaningful manner should be a goal of impact related research. This project provides an example of how this can take place.

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Appendix A.

