Report on Driftwood Use Prepared for the Gwich'in Renewable Resource Board and Ross Wein, University of Alberta

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Preface

During a meeting of the researchers involved with this project at the University of Alberta in late May, 2001 a list of preliminary questions was sketched out in order to both effectively describe the quantity, quality and movement of driftwood in the Gwich'in Settlement Area and to ascertain what kind of local knowledge exists about driftwood, and how it is used by Gwich'in around Fort McPherson. At the request of Ross Wein, we then spent the first two weeks of August, 2001 in the community of Fort McPherson in order to confirm and elaborate upon observations about driftwood use which fit into this set of questions. These questions about the importance of driftwood came out of a project concerned with the past and present uses of forest resources in the Gwich'in Settlement Area, Dr. David Anderson (then of the University of Alberta, now of the University of Aberdeen) principle investigator. Robert Wishart's observations from field work during the spring seasons of 1999 and 2000 were particularly important to the formation of these questions. There were eight general questions which we have used as a guide for collecting information and writing this report.

1. How is driftwood used locally? Why are some types used or not used?
2. What is the inventory of driftwood? Where are points of high density, what is the inventory of logs at these points, and do photographs of such places exist? What is the quality of this wood?
3. As driftwood reaches its major peak of movement in the flow of ice during spring breakup, what are the typical points of ice jamming and does this have an effect on where driftwood is left?

4. Is it only summer flooding that takes logs higher on the bank, are they too frozen to be moved by ice during spring breakup?
5. How does driftwood contribute to erosion rates? Does driftwood contribute to the building up of banks in certain areas?
6. What is the prevalence and frequency of sunken logs?
7. What are some of the local concerns about driftwood? Is it possible that at a local level, some people would be negatively affected if an excessive amount of driftwood was removed?
8. Does literature exist that would inform and confirm the anthropological side of this project?

Introduction

> …I cleared out up the river-bank. I noticed some pieces of limbs and such things floating down, and a sprinkling of bark; so I knowed the river had begun to rise. I reckoned I would have great times now if I was over at the town. The June rise used to be always luck for me, because as soon as that rise begins here comes cordwood floating down, and pieces of log rafts—sometimes a dozen logs together, so all you have to do is catch them and sell them to the woodyards and the sawmill [*The Adventures of Huckleberry Finn*, MarkTwain 1946 (orig. 1884):227].

As one can see in the above quote from Mark Twain, the use of driftwood by people living along large river systems and other large bodies of water is certainly not a new idea and descriptions of these activities can be found in many popular media. However, to jump to question number eight in the preface for a moment, there is little that can be found about such uses within social science writings. As it concerns the Gwich'in living in what is now the Gwich'in Settlement Area we have found only one brief description of the use of driftwood in a book on Gwich'in plant use by Alestine Andre and Alan Fehr. Brief mention is given in this book to the use of driftwood by the people of Tsiigehtchic for smoking and drying fish. They write that "poplar driftwood found along the Mackenzie River is good for drying fish in a smoke house because it burns longer than other types of wood [used for this process]. Wood that is partly dry and partly green will burn for a long time. Poplar is also good for smoking moose hide as part of the tanning process" (Andre and Fehr 2001:24). The interest of the above quote will be addressed later in the report in a description of the local uses of driftwood, but one should realize that the lack of information concerning driftwood reflects a larger lack of literature concerning the social dimensions of the use of timber products by circumpolar peoples; i.e., while it is true that information abounds concerning the use of

natural resources such as animals and fish, there is very little which has been written about the use of the timber which provides for so many aspects of life in northern areas.

Recognizing this void in the literature, this report will address the questions proposed in the preface in the order in which they are written above. The exception is that question number eight requires an on-going advanced search of the literature which will be done in due course.

Question #1: Local Use of Driftwood:

The use of driftwood by Gwich'in can be broken down into three general categories:

- Building materials
- Fuel
- Tools, medicine and crafts

Building Materials:

Following from previous reports, we have sub-divided this category into large and small scale building purposes.

Large Scale:

In our experience, those individuals who are planing to construct a large scale structure (i.e., a house, permanent fish-house, warehouse, cache or other such structures) out of local timber will plan far in advance and may collect the raw material in the form of logs for many years before actually constructing the desired building. During spring break-up and shortly there-after, many logs from up-river will pass by locations where people are planning to build and people will watch for suitable building material floating by. When a suitable log is spotted the individual may go out with a boat and haul the log to shore and tie it to a tree so that when the water drops it can be retrieved from that location.

The selection process for drift-wood used for large scale building is similar to the process used when people harvest trees for these purposes. Large, straight logs are required for log buildings or for milling into large pieces of lumber. In effect, the search for driftwood mimics the actions that people take when harvesting building logs, except that it is natural forces which initially place the logs into the river rather than people purposefully floating them down.

One should be aware that suitable logs are a very small minority amongst the inventory of drift-wood. From our experience, we estimated that good sized logs (i.e., at least 3 meters long with at least a diameter of 18 cm at the top) account for perhaps 1/200 pieces of wood over a minimum of ½ meter in length on the water and of those perhaps only as few as 1/100 are suitable for large scale building of the local sort. For example, Thomas Koe spent several days during the spring of 2000 keeping an eye out for such logs and at the end of the run of driftwood he had only secured seven reasonably good logs. He roughly estimated that over these days more than 5 000 cords of wood had passed by. During this time he kept reminding all of the people in the camp to watch for straight, high floating logs. Many we spotted but often upon closer inspection they were useless for his purposes or the situation was too dangerous to approach the log. One category which was particularly sought after was logs which appeared to be red from a distance.

"Real red ones, come from way up river, " he said, "they come from those trees around Snake River all the way to Mayo area, and those trees grow really straight and just thick and the branches only start high-up on the tree." On more than one occasion a red tree would be spotted but the situation was too dangerous to retrieve it (such as when it is mixed up with other wood and ice making it impossible to approach safely), so he would use the

bush-radio to call down river to some of his relatives—who were also planning to build--so that they would be warned that a good piece of wood was heading their way.

What makes logs useless from the perspective of large scale building is if they are decayed (this criteria is usually established from a distance by looking to see how high the log is floating), the wrong species (often large logs turn out to be poplars upon closer inspection), if the log is somehow damaged (i.e., heavily cracked or split), or if the log is bent or warped. When good logs are found that are rejected for the last two criteria for building purposes, they will often be taken anyway in order to supply dry wood for heating.

The presence or absence of bark on the tree or log is not given much consideration. Most of the good logs have at least some of the bark removed from them and what bark remains is usually sufficiently loosened by the action of the water, ice and collisions with other logs that removal is a fairly simple task.

After the initial flow of ice and wood, people travel on the water with greater ease and during this time people are usually hunting for "black ducks" (njaa—white winged scoter and to a lesser extent deetree'aa—surf scoter), beaver and muskrat which are usually plentiful on the rivers at this time. While people are undertaking these activities, they will watch for good logs which have been left on the banks by the ice pushing them up or by the receding water. If the logs are in a good position to be either rolled into or dragged into the water, people will make use of these logs as well.

Small scale:

By small scale building we refer to smaller more temporary structures which are generally used for a brief period of time (a few hours to a few days). Such structures include

duck and goose blinds, temporary fish houses, tents, and wind shelters. The driftwood for these structures is generally found on location. For example, where the Peel meets the Mackenzie River at "Mouth of the Peel" there are two large sand bars on either side of the Peel. Both of the places are good locations for hunting ducks and geese because the bars attract the birds and there is ample driftwood from the previous year to make blinds. It usually does not take much effort to build these structures as a large piece of driftwood with its root structure intact will usually have accumulated more drift wood around it. All that is needed is to arrange the wood in such a way as to make the place as hidden and as comfortable as possible.

Photograph by Robert Wishart

The above photograph was taken on May 16, 1999 during the spring goose hunt. This blind, located at the "Mouth of the Peel", is fairly typical of the sort of structure which is fashioned out of already existing driftwood deposits. As one can see, all that needed to be done was to re-arrange some of the smaller pieces so that better cover is given to the hunters. One can also get a good feel for the size of the logs by the scale given by the tea cup (right of center) sitting on the end of the largest log and by the two shotguns (one at each end of the photograph) both of which have 30 inch barrels.

As Robert Wishart has noted in a previous report (1998) good ridge poles for setting up tents are a fairly rare commodity and one of the best places to find good poles that have already been stripped of their bark is in deposits of driftwood. These poles will often be used on location and may also be taken away to be used somewhere else later on.

The choice of a temporary place to stay in the summer and fall is often determined by how much driftwood is available. Places which always have an accumulation of driftwood are popular destinations when people go out on the land. The availability of building materials is important but the availability of fuel is of greater significance.

The Use of Driftwood for Fuel:

The use of driftwood for fuel can be further broken down into two categories: immediate use, and long term planned use.

Immediate Use:

As indicated in the previous section on small scale building, the choice of campsites where people will spend a limited amount of time (this may last from 1 hour to several days) takes into consideration the ease with which building materials and fuel may be obtained. During the summer and early fall, optimum places to stay along the rivers are those where an adequate supply of driftwood is present. The first thing that people do when they are setting up such camps is to get a good fire going. The fire serves multiple purposes including a source of warmth, a refuge from biting insects, a deterrent for bears and other potentially dangerous large mammals, and a place to cook and make tea (tea made on a driftwood fire is considered to be a treat).

The process of making such a fire usually begins by placing two large pieces of driftwood parallel to each other and parallel to the river. The gap between the logs is then filled with smaller driftwood and bark. If there is a supply of birch driftwood the bark will be stripped from the wood and used as a fire starter as this is considered to be the best way to light a quick fire. Indeed, if a good deal of birch bark can be obtained in that particular location, a considerable effort will be made to gather it and take it back to a main camp to be used to light future fires.

Photograph by Ara Murray

This photograph, taken on the west bank of the Mackenzie River near Point Separation on August 8, 2001, shows a small driftwood fire typical of the type made to make tea during a short rest while traveling. The birch bark drying by the fire was gathered at this location from birch driftwood. The bark was then stored in a canvas bag and taken away to be used later.

Such a fire is lit at which ever end faces the wind and the almost constant wind on the river will drive the fire into the heart of the fuel and create a fast, hot blaze even when it is raining. Large pieces of driftwood of any species will be placed on top to serve as long

lasting fuel and to create a temporary platform on which to place pots and pans. If people are planning to stay the night, large driftwood stumps will often be placed on the fire so that they will smolder throughout the night and thus discourage bears while at the same time making it easier to start a new fire in the morning by simply adding small dry pieces of driftwood to the embers.

The process of making dry fish during the summer and fall crosses the boundary between immediate use and planned use because the wood is usually gathered locally but it may also be stored. We learned that the type of fuel that is chosen for drying fish depends on several factors. People at the fish camps around Eight Miles told us that the local driftwood makes bad dry fish as it gives it a strong taste that overpowers the taste of the fish and gives it an unpleasant dark color. However, several of the people who now have fish camps at Eight Miles used to make dry fish at or near the Mouth of the Peel, and said that they would use Mackenzie driftwood at their fish camps there. Mackenzie River driftwood is apparently different from that that comes down the Peel River, and as Andre and Fehr report (ibid.), large poplars that come down the Mackenzie are often used for making dry fish. We were told that this wood was useful because big stumps could be used to burn all night long. The wood for making this dry fish was usually gathered from the sand bars where the Peel meets the Mackenzie and it was the job of teenage boys to gather this wood at the bequest of their elders.

Something to be considered is that at the time when these elders from Fort McPherson were making dry fish in the Mouth of the Peel area, they were drying large quantities of fish (including species such as herring and crooked-backs which today are not dried by many people) for dog food and taste would be of no significance. Whether or not they changed the

type of wood when making dry fish for people is yet to be determined. However, we are also of the impression that Mackenzie River driftwood differs enough from Peel River driftwood that when used to dry fish, the results are far more appealing than when Peel River driftwood is used.

At the present time, large willows are abundant at Eight Miles; however, this was not always the case. We have been told by Elizabeth Colin that when she was a young girl the banks of the Peel in the area of Nitainlaii (Eight Mile Creek) were covered in grass and spruce and not willows as they are now. The abundance of big green willows is possibly connected to current fuel and taste preferences of those people making dry-fish in the area.

Long term planned use:

As indicated in the section on large scale building, driftwood is often gathered during the spring break-up to use as heating and cooking fuel. This wood is generally gathered in the same two ways as that of building logs. It can be taken from the water as it floats by a camp, or people may search for good driftwood which has become stuck on a bank. The selection process of driftwood for the purpose of burning follows that of when people go out to cut dry wood for summer and fall use. Therefore, the wood should preferably be spruce, not overly twisted, of a good size, as dry in the interior of the log as possible, and there should be little or no dry rot. When a log is taken from the water only the first three of these criteria can be definitely ascertained as it is sometimes the case that a log which appears to be excellent for dry-wood fuel turns out to be ridden with a fungus which makes the interior wood poor for burning. Such wood is often put aside and used for outdoor cooking. Logs which are on a bank can be inspected more easily prior to being dragged into the water.

Photograph by Ara Murray

The above photograph was taken on the bank of the Peel River, near the mouth of Dry River on July 21, 2000. It shows the sort of driftwood which often gets left behind on the banks when the water drops. The top log was later cut at the point of its fulcrum on the bottom log and allowed to drop into the water where it was towed away by a boat. The bottom log was inspected and found to be of poor quality despite its considerable size.

Another method of retrieving driftwood for fuel purposes was told to us by a couple of different elders who had lived in Aklavik. They said that the people there are more dependent upon driftwood because their timber stocks are very low. They said that people will go out during the summer to the places where driftwood has accumulated on the shores of the river and mark these spots by erecting poles with a flag of some sort on top. In the fall after freeze up they return by snow mobile and dig down to the driftwood and then it is fairly simple to cut it up and take away using a wood sled.

The idea that people need the driftwood further downstream is one which we have heard expressed repeatedly. When we asked people why they do not use more floating driftwood around McPherson for fuel, we were told that it is better to let most of the big wood

pass because the people in Aklavik and further down-river depend upon that supply of large wood.

Tools, medicines and crafts:

In the past, wood of all sorts was used to construct tools and useful objects. While we have not heard about people using driftwood in what is now the GSA, it is certainly true that the wood which came from this area was put to good use further down river as raw material. Today the only tools constructed out of driftwood are poles that are used for getting boats unstuck from the mud. It is often the case that a boat will be left stuck in the mud due to fluctuating water levels or when a boat is loaded with more weight than when it arrived. In such circumstances, driftwood poles (which can usually be found quickly) are often used as levers to attempt to push the boat into deeper water.

Driftwood also allows for people to access areas by boat that they normally would not. In the summer, the banks of these rivers are often composed of deep silt which makes landing a boat and getting to shore a precarious task. A large piece of driftwood laying on the bank in such a way as to make a make-shift dock is often the best place to land. If such a log does not exist, then the lightest person will often land first and--fighting the mud--construct a landing place by laying smaller pieces of driftwood parallel to the shore so that those coming behind can get a better footing.

Occasionally people will make a fire to burn poplar driftwood exclusively. The desired product of such fires is not heat or smoke but the remaining ashes. These ashes are added to dog food for the medicinal purpose of de-worming dogs.

The only craft which we have seen driftwood used for are the carvings which young people make out of the pieces of bark from large poplars. This material which resembles a hard piece of cork is sometimes collected by others to give these young people the raw material to carve.

Question #2: Driftwood Inventory

The parts of this question which are relevant to local knowledge are those concerning the locations of high density driftwood deposits and the quality of the wood in them. From the information that we have received and from our observations while traveling about the waterways with people, driftwood accumulation is fairly predicable regarding the amounts. In other words, we have been told that there are places where you "always find lots of driftwood." Mapping out specific sites was not part of our research agenda, but typical places where driftwood accumulates are on the sand bars where two rivers meet, back channels where the wood gets pushed into when the water rises quickly in the spring, the mouths of creeks, back waters, and along the shores of the big lakes. The quality of the driftwood in these deposits varies greatly depending upon the type of tree it came from and whether the wood ever leaves the water. Other than these places of high-density, very good quality driftwood also occurs sporadically along the banks of all the rivers, creeks and lakes.

Question #3: Ice Jamming and Driftwood

According to the people we talked to, ice usually jams in the same general places each year. By going over these locations with a map in hand it is possible to see the types of places where ice usually jams. These are places where an island or shallow place in the river will

hang up large sheets of ice until the water behind rises sufficiently to lift the ice, places where two channels separate, places where the river takes a sharp turn, or where there is a narrowing of the river. The effect that ice jamming has is to force the water behind the jam to rise rapidly. This rise will take the driftwood behind the ice either up onto a bank or it will travel up back waters or creeks which during high water flow in the opposite direction than is normal. According to a couple of elders, this is why so much driftwood gets into the lakes. The high water may also lift wood off the forest floor and off the banks at which point it becomes driftwood.

Question #4: The Effect of High Water in Summer

As in the quote from Twain about the Mississippi, one of the first indications that people use in the GSA to determine if the water is starting to come up is the presence of floating sticks. Sometimes if the water comes up quickly, there might be so much floating debris (mostly small and medium sized sticks and bark) as to make navigation by boat difficult. During extremely high summer water, large logs will start to flow down the river and people will collect some of these pieces to use as indicated in the section on local use. These large floating logs may also cause the temporary shutdown of the ferries crossing the Peel and Mackenzie Rivers. The Peel River ferry is especially susceptible to the dangers of such log movements as the cable often snags moving trees and should others then accumulate behind the snagged one, the potential exists for the cable to break. From what we could ascertain, summer high water may push driftwood back into less accessible areas but not nearly as effectively as the violent movement of ice and water during breakup.

Question #5: Driftwood and Erosion

People are not sure if driftwood somehow contributes to erosion, but they are quick to note that the erosion of the banks certainly contributes to the amount of wood in the water. The place of driftwood in the shaping of the river is a concern and it is discussed in the section on local concerns later in this report.

Question#6: Prevalence and Frequency of Sunken Logs

Sunken logs present a very real danger to navigation by boat and people are quick to tell stories of people losing their motors or boats to these unseen hazards. Generally speaking, these logs tend to occur in the same places each year and it seems as though some logs have been stuck in the same place for years at a time. The removal of such obstacles is generally seen as a good thing, but people wonder what other effects this action may have. The places where the most sunken wood occurs are in the back-channels, the back waters, the lakes, and in those places along the river where the bank has recently fallen in. In some of these places, sunken wood is extremely plentiful.

Question #7: Local Concerns

One of the main concerns of the people that we spoke with about the possibility of the establishment of a driftwood based industry, was that the driftwood in the river systems likely serves unknown purposes and that problems would arise should too much be removed. For example, Eileen Koe suggested that because driftwood is often seen floating around in eddies, sunken logs might somehow contribute to the formation of these eddies. Several people mentioned that there are places in which so much wood accumulates that it might be less

harmful to remove some of it from these areas. Such places include the mouths of creeks where wood is pushed in the springtime and eventually accumulates along these creeks and on the lakes that they are joined to.

In response to our preliminary question concerning who would be negatively affected should a driftwood based industry be established, several people commented that those who support such an industry are not thinking appropriately about their children and grandchildren. It was explained to us that driftwood is essential for traveling through out the delta and along the rivers as it allows people to build fires quickly and easily for cooking and for warmth. In this light, driftwood is obviously essential, and those who are concerned about the future effects of a driftwood industry are concerned about the opportunities for future generations to spend time on the land if this resource is not available. For example, while traveling on the Mackenzie River with Thomas and Eileen Koe and some of their grand children this summer, we observed several different uses of driftwood that add to Robert Wishart's observations made during the spring seasons of 1999 and 2000. These uses include building a fire out of driftwood to warm up and to cook on, such a large fire would otherwise be extremely difficult to build so efficiently as gathering dry wood in areas where driftwood is not abundant is not a quick and simple task. Eileen Koe pointed out that travel along the rivers could possibly be dangerous if the resources for providing fast and strong heat were not available and at the very least uncomfortable, especially when traveling with children. Eileen also made it clear that by creating the possibility that this resource might not be available for future generations, people would be making a decision that would affect the future of Gwich'in culture. Taking large amounts of driftwood out of the rivers without fully understanding the consequences could affect the ability of Gwich'in people to "live on the land", in two basic ways. That is,

the short term absence of driftwood as it is taken away in large quantities could prove disastrous to those traveling on the land at that time, and also the possibility of a more general, long term impact on the rivers, eddies, banks might affect the options available to future generations. An overwhelming response was that those farther down river, in Aklavik and outside the GSA in places like Shingle Point depend on this source of wood and it would be devastating if it did not reach these people.

Photograph by Ara Murray

This photograph of Thomas Koe preparing ducks was taken at the Mouth of the Peel on August 29, 1998. The decision to set up camp at this location was made because of the large amount of available driftwood. As one can see, small pieces of driftwood are far more numerous than large ones. The intermediate sized pieces had already been used for fires.

Several people also brought up concerns about the ways in which local people might be employed in such an industry. For example, many are concerned that potential projects would follow the examples set by prior industries that require local employees and use the land in some way. These include projects from oil and gas companies and seismic activities to

local construction projects run by people from outside the community. The general opinion being that these companies hire young people who should otherwise be in school, therefore encouraging them to drop out of school by promising them training and a job. The reality of the situation is that these young people are given training for the types of jobs that may be neither long term nor valuable in terms of offering future local opportunities. There is a great deal of frustration with this system and with the fact that it will probably continue to grow. Many people who have worked for outside companies on Gwich'in land, in particular oil and gas projects are aware of the need that these companies have for various types of wood products, and in general most people are aware of the need that these companies have for local employees. Charlie Snowshoe told us that he had found it necessary to bring to the attention of those attending community meetings the fact that any decisions made about Gwich'in land and resources must necessarily be based on the understanding that social problems, changes in the community, the effects of economic opportunities etc. are strongly connected to decisions made about allowing industries to offer short term employment. He continued on to tell us about something that another elder had once told his brother. This elder had recently passed away and is dearly missed for many reasons, one of which is that he lived his own life in an exemplary fashion. The elder speaking with us reported that this person once told his brother, who was thinking about going to work for an oil and gas company that was then in the area, that it is no use going to work for this type of operation because, as he is quoted to have said "what is that oil and gas company going to do for you?". The elder speaking with us explained that this meant that there was no real long term opportunity involved in taking such a job and that the brother would have been better off without the job, despite the temporary income. The elder spoken about is widely considered to have lived his

life wisely as he recognized the lack of long term commitment that these jobs offered and chose to make decisions based on that realization.

Most people that we spoke to about the possibility of creating an industry based on driftwood said that the only way to proceed with such an idea is to ask the elders in the community and to listen to what they have to say. Not only because they have an intricate knowledge of the land and how it has changed, which is valuable information to any potential project based on the land and it's resources, but more importantly because they have the most comprehensive sense of the problems that the Gwich'in community faces, and what, according to what they know to have happened in their lifetime, might exacerbate these problems.

These concerns about the effects of short term, resource intensive projects, mixed with concerns about the opportunities for future generations to travel and stay out on the land were balanced by suggestions from several individuals that if a driftwood industry be established, the collection of driftwood should occur in a local manner. For example, one person with whom we spoke on several occasions about several different aspects of such a project, spoke about collecting driftwood himself, and about how it would be accomplished if individuals were paid when they delivered a certain amount of wood each spring. As we have learned over the past four years, this is the way that local fuel, construction wood, and pilings have been gathered in the past and the way that people continue to gather them. Most importantly, as Robert Wishart has pointed out this individualized, non-intensive method of collecting wood is done in conjunction with other activities and draws on community as well as individual knowledge of the land (2000:6).

Summary

The potential need for developing a driftwood based industry in the Gwich'in Settlement Area beyond that which already exists at a local level, seems to be recognized as a real possibility. Driftwood is already being used at a local level in many ways and for many purposes. Many of those who have been consulted concerning the expansion of this use to include the production of timber products at an industrial level are concerned that local practices may be negatively affected. One of the compromises between these two interests would be to allow the harvesting of driftwood for large quantities of timber products to follow the already existing local pattern and to be mindful of those places where the supply of driftwood is regularly used for other purposes.

Regarding the wood that is flowing down the river, one consideration should also be that those further downstream and, indeed, outside of the GSA may be negatively affected. The amount of driftwood available and the exact places from where it comes have not been established within this report but many people pointed out that the elders must be consulted in order to establish a locally meaningful methodology for expanding these aspects of the study.

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