JAMES BAY CREE INDIAN MANAGEMENT AND MORAL CONSIDERATIONS OF FUR-BEARERS

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ABSTRACT: This paper reviews recent research on the use and management of fur-bearer populations by contemporary James Bay Cree hunters, and on the continuities and changes in their traditional systems of knowledge, territoriality and wildlife management. How James Bay Cree hunters collect information and evaluate their traditional hunting knowledge is summarized, based on Cree statements. It is shown that traditional knowledge is based on many of the same indicators of the condition of game populations as are used by wildlife biologists. Data on actual Cree hunting practices are evaluated using data from the results of biological surveys, work diaries, and harvesting questionnaires. The importance of the Cree system of hunting territories, and of Cree conceptions of the moral bonds between men and animals, are emphasized. It is argued that the Cree pass on their hunting management knowledge through a continuation of the traditional cultural and territorial organization of hunting, an organization which has gone through historical change and threats to its continuity. The James Bay and Northern Quebec Agreement (JBNQA) was intended to aid the Cree to reproduce this organization, and to manage the game populations more effectively. However recent threats to the continuity of these practices are noted in the post-JBNQA period.

1.0 INTRODUCTION

There are clear relationships between the interests of biologists on the one hand, and the interests of Native hunters on the other. Wildlife management always involves social policy making as well as wildlife and habitat manipulation, and it therefore requires both biological and socio-cultural knowledge. Native peoples have long recognized the dependence of their own distinctive cultures and social systems on extensive access to and maintenance of the biological milieu, an awareness attested to in both the continued existence of the wilderness areas of northern Canada to the present day, and in the struggles by Native peoples to preserve those environments.

Nevertheless, despite these obvious relationships, cultural differences and political polarizations have tended to separate the two groups with the greatest interest in the management and conservation of the northern environment, namely the government-mandated wildlife managers and the Native peoples. And similarly splits have developed between these two groups and sectors of the environmental movement. The result has not only been a limiting of the effectiveness of each, but also the creation of conditions in which each tends to operate with insufficient and often inaccurate information about the knowledge, practices, goals and degrees of success of the others. Anecdotes about other groups prevail where dialogue and the exploration of common causes are needed.

As a social scientist and an anthropologist, I find myself outside each of the major groups of actors in this drama, but also drawn by profession and personal commitments to each. I have thus been at various times, a student of the James Bay Cree hunting society,

and activist in and researcher of the environmental movements, and historical researcher into the development of wildlife management practices in Canada.

What I will try to do today is to indicate how social scientists have attempted to get away from the caricatures which predominate the images each group has of the others, and to renew the examination of basic questions about the knowledge, capabilities, and interests of each group.

The focus of the present paper is a study of the cultural ecology of a group of sub-arctic hunters, the Waswanipi Band of James Bay Cree Indians. It compliments an earlier paper on North American Native hunting and management of moose by focusing on the use and management of beaver populations, and in some sections both draws on and extends the conclusions of that earlier paper. The paper has three sections: an account of the system of Waswanipi Cree knowledge and ethics related to beaver use and management; an analysis of actual Waswanipi practices and their consequences; and an analysis of the processes and problems in the history of Waswanipi knowledge and practice over time.

The Waswanipi Indian people number approximately 1000 and live at a community on the Chibougamau-Senneterre highway, in northern Quebec, at 49° 45', 77° 45'W. Nearly all active adults participate in hunting activities on a seasonal basis, and approximately 40% of the population hunts as its major activity on an annual basis. In winter, and to a lesser degree in summer, most active hunters live dispersed among 40 to 50 isolated bush camps, spread over approximately 35,000 sq.km., where most wildlife harvesting is conducted. The fieldwork on which these data were primarily based were gathered from 1968 to 1971, and they were updated and re-analyzed based on additional fieldwork from 1981 to 1984.

2.0 WASWANIPI SYSTEMS OF KNOWLEDGE AND ETHICS

I studied Cree knowledge of beaver and beaver hunting by recording how hunters talk about their hunting practices and experiences. There were four major sources of statements by Cree: general discussions of how to hunt beaver; descriptions of specific hunts; discussions about the words and expressions which are used in the Cree language to talk about beaver hunting; and participation in casual everyday conversations.

At a first level of analysis I compared Cree knowledge of beaver physiological, behavioural and social adaptations to their environment with the currently available knowledge within the Western scientific tradition, and found a general coincidence of reported adaptations; although the Cree account and the Western account often differed with respect to the explanation offered, as I will indicate below. A detailed recounting of these comparisons is beyond the scope of the present paper, nevertheless a number of examples will be cited in the analyses presented below. These comparative studies indicated that there are Waswanipi concepts that have close analogies to the Western scientific concepts of: systemic relationships between various components of the natural world; sustained yield harvesting; and management by iterative steps which approach a goal.

2.1 ETHNO-ECOLOGY

In order to analyze Cree hunting I have to describe a specific culturally ordered image of the world in which the Waswanipi live and hunt, their ethno-ecology. Waswanipi hunters say that they only catch an animal when the animal is given to them. They say that in winter it is the spirits, especially the north wind, God and the animal spirits themselves

which give animals so the hunters and their families will have what they need to live and survive. In the culturally constructed world of the Waswanipi the animals, the winds, and many other phenomena are thought of as being "like persons", in that they act intelligently and have wills and idiosyncrasies, and understand and are understood by men. Causality in the Waswanipi world is not mechanical nor biological, it is personal.

The body of the animals a hunter receives nourishes him, but the soul returns to be reborn again, so that when men and animals are in balance, the animals are killed but not diminished and both men and animals survive. The balance is reciprocal, and in return for the gifts, the hunter has obligations to the animals and the spirits to act responsibly, to use what is given completely, and to act respectfully towards the bodies and souls of the animals by observing the highly structured procedures for retrieving the animal, butchering it, consuming the flesh, and disposing of the bones and remains. It is expected that men will kill animals swiftly, and avoid causing them undo suffering. It is also stated that men have the skill and technology to kill many animals, too many, and it is part of the responsibilities of the hunter not to kill more than he is given, not to kill animals for fun or self-aggrandizement.

Such a cultural view of the world must initially strike most non-Native people as odd, or worse as gratuitous, but it will be an aim in this paper to indicate how the Waswanipi concepts inform both the sophisticated practices, and also an ethically sensitive relationship of responsible action between men and animals.

2.2 HUNTING ECOLOGY

2.2.1 Hunting Methods

The practical task of establishing human-beaver encounters is complex because beaver are nocturnal, lodge living animals, and in winter they travel under the ice and out of the direct sight of men. These problems are resolved in several ways. One is to look for beaver during the brief daily period when beaver and men are both active, at dawn and dusk, and to shoot them. This strategy is only available before and after the formation of the ice cover. But most beaver hunting is a winter activity. The second method of encountering beaver is to set a device to capture beaver during the night when they are naturally active and men are not present. In winter the devices are set under the ice; in fall they are set in or accessible to water. The Waswanipi term for this practice would translate into English as "drowning", because they set their traps, or occasionally snares, so as to kill the animals by stunning or by drowning, and do not usually use sets that merely capture and immobilize beaver, as this would not meet the obligations to cause beaver the least suffering possible. Finally, men may meet beavers by arousing them during the daylight hours, driving them out of their lodges or burrows and taking them at holes cut in the ice, either catching them by hand or in a net, before dispatching them.

When comparing the two winter hunting methods the Waswanipi say that waking the beaver always results in the capture of some beaver, indeed usually most of the beaver in a colony. Thus they say it has a greater impact on colonies than trapping and that trapping should be preferred, although the former method produces a quicker harvest. The hunters say they must choose how to hunt, and how many to hunt, as well as where and when to hunt.

2.2.2 Customary Law and Organization of Territory and Hunting

The decisions concerning where to hunt and where not to hunt each year are organized by the Waswanipi around the system of hunting territories, which can range in size from approximately 250 to 1500 sq.km. Each hunting territory is under the supervision of a hunter, usually an active elder. The hunting territories have existed in

present form since at least the turn of the century. Although they have both existed and changed over longer periods of time, it is now thought that some hunting territory system is likely to have existed at times during the period before the arrival of Europeans.

Hunting territories have been recognized since the 1930's by the governments for the purposes of supervising beaver trapping, but the system of hunting territories clearly pre-dates official government recognition. The hunting territories serve the Waswanipi for a much wider range of harvesting activities than the harvesting of fur-bearers, as they are used to organize big game hunting, fishing and waterfowl hunting activities as well. Furthermore, the government efforts to provide supervision of Waswanipi beaver harvests had ceased in the mid-1960's, that is several years before the present research was begun, because the opening up of the region by southern Canadians was thought by the government to make strict control of fur pelt sales impossible. The data presented here therefore reflect Waswanipi systems of management.

The Waswanipi men who supervise the use of each territory are called "owners" by the Cree. However, they cannot alienate the land and they exercise a spiritual authority, based on their ties to spirits and the land, within a system of communal rights. Their role might better be described as one of stewardship. There are approximately fifty stewards among the approximately 225 adult Waswanipi men. Stewards generally have the right and the obligation to decide whether a hunting territory should be used for harvesting of big game and fur-bearers during any year, and they allocate long-term rights and seasonal privileges to use the territories to hunters who do not have their own. They can thus decide, roughly or precisely, how many hunters will use a territory, and they can indicate to those who do how many of various kinds of game animals they may harvest, and when and where they can be taken. Although this direction is normally kept to a minimum, and it often takes the form of discrete suggestions and providing information, thus respecting the autonomy of each hunter, their supervision is also usually respected.

The stewards, by repeatedly returning to the same tracts of land over the course of many years, have the opportunity to observe and assess the condition of the game populations on the territory. And, because they are also deciding, and informed of, the numbers of major game harvested, they are in a good position to relate trends in game population parameters to the impacts of hunting as well as to other factors. Stewards use this knowledge to direct hunting of major game populations on their territories. They recognize game which responds to such management, and other game populations which do not. They say for example that beaver and moose respond to how they hunt them, but that variations in hare and grouse populations are generally not responsive to how many are harvested.

2.2.3 Monitoring Game Populations

Information on the composition of beaver colonies is collected from signs of beaver around the hunting sites, from the sizes of the beaver caught, and from information collected in the process of butchering beaver. For example, the size of the last cohort of beaver born to a mating female can be determined if the female is caught, because women look for placental scars on the uterus when butchering the beaver.

Another factor providing information on colony composition is the previous knowledge of the history of hunting at a colony. Senior stewards who are in charge of hunting territories are able to mark on maps each of the active beaver colonies which they know in the areas they regularly use. And for each colony, sometimes over 100 in number, hunters can list the number, size and sex of each of the beavers they caught the last time they hunted it. This can often be done for two or three years previous, depending

on the individual. Furthermore, stewards can often also indicate how many beaver of each age and size they think were left at the colony after they last trapped it.

The information hunters gather about the game populations of the regions they hunt are synthesized in a number of ways. One is in these mental maps of colonies and their composition. Mature hunters can also usually state whether there are more beaver colonies now than there were a year ago, or five years ago, or when the hunter's first child was born, possibly thirty or fifty years before. They do not usually remember exact numbers, but report relative quantities or trends. Hunters can often comment on whether the number of beaver per colony has been going up or down, on whether females are having more or fewer young per year, on trends in the frequency of different age/size categories, on changes in "shyness" to traps, on changes in the rates of wolf and other predation, and on changes in forest composition, regeneration, and the availability of food for beaver.

The population parameters the Waswanipi hunters monitor are precisely those which biological scientists have found to be important indicators of the condition of the beaver populations, and important factors in determining the appropriate levels of harvesting. However, the Waswanipi phrase their knowledge in their culturally distinct system of concepts and values. The signs noted by the hunters are therefore understood as responses by the animals and spirits to the hunters previous hunting activities, i.e., to the number of game killed. The Waswanipi therefore say that they should and do adjust their current hunting efforts according to trends in the indicators of the condition of the game populations.

2.3 MORAL ECOLOGY

2.3.1 Hunting Ritual

The values and ethics of reciprocity which people say govern the hunt are reflected as well in rituals. At the beginning of each hunting year it is a common tradition for groups of hunters at the settlements, or in the fall camps, to have a feast with the first beaver caught. The first beaver is eviscerated and specially cooked on a open fire, while the internal organs are boiled. The beaver are then shared at a communal meal among all those present in the settlement or camp. Hunters say this is to show respect for the beaver and to request that the beavers give themselves to the hunters so that they may feed their families.

Beaver, two or more years of age, are estimated to typically provide 23 pounds of meat and edible viscera, and taking account of sub-adults in the harvest a typical food portion is 17 pounds per beaver. During the winter period, beaver were estimated to have provided Waswanipi families with between 25 and 45% of all calories available for human consumption at the hunting camps.

The beaver ritual reaffirms symbolically that the beaver is food, and that there should be no waste of the beaver food. The ritual beaver cooking method results in the burning off of the fur of the animal, and the cooked skin of the beaver is eaten under these special circumstances. The special cooking, which consumes the fur, also signifies that it is the food value of the beaver, not the commercially valuable pelt, which explains why beaver are willing to give themselves; and it is this value which must govern or have precedence in the hunters own decisions on when and how many beaver to try to capture. The rituals focus on hope for a good future hunt also re-emphasizes that the sustenance of humans in the longer term, throughout the coming winter and for coming years and generations, depends on the present proper respect for beaver.

The symbolism of the ritual is therefore based on reciprocity between men and animal (Scott 1983), reciprocity which includes respect for the needs of animals to survive

as a population, and which is complimented by animals respecting the needs for humans to subsist and survive as well. When hunting responds to the signs of when animals are giving themselves, then both animals and hunters find survival and healthy lives. This reciprocity is reflected both in the ritual, and in the way hunters conceptualize their hunting activities.

2.3.2 Hunting Ethics

If a hunter has bad luck in his hunting of beaver or another animal, without apparent natural causes, it may be a sign, in the view of the Waswanipi, that those animals do not want to give themselves. The hunter's possible responses are sanctioned by several proverb-like statements.

It is said that if a hunter does not have luck with beaver, for example, he will have luck with other animals. So one response may be to hunt other animals. Indeed if a hunter is having luck with other animals it may be a sign to wait until next year before trying to hunt beaver again. A corollary statement is that if there are three or four families living together, there has to be one or more that does not do well, and those that are having luck will help them out. Thus because people share, or because others are having success, a hunter may limit his catches. A second statement is that a hunter who does not have luck with beaver trapping may find beaver want be be caught in other ways. Thus, when a hunter believes he is having bad luck he may consider changing his hunting methods, or changing the animals he hunts. The signs and indicators of the beaver intentions will tell the hunter which choice is correct. It is difficult for hunters to articulate in words precisely how this understanding is reached, because it depends on such diverse knowledge of the history of the beaver populations being hunted, and on so many different indicators. Nevertheless, I would suggest that if the indicators are that beaver are still abundant and not declining the tendency will be for hunters to change their hunting methods, or to simply await a change of seasons and hunt beaver again; whereas if the indicators are of disturbance of the beaver populations, the tendency will be for hunters to abandon the hunt for a year or longer.

Such decisions may lead hunters to take fewer beaver in the coming year than in the past, or not to use a hunting territory in a given year. The decisions about hunting are therefore part of an extended process. They do not begin when the hunter goes looking for beaver lodges or to set traps. They are part of an ongoing process, and at many stages the signs or situational factors may convince a hunter not to pursue the capture or killing of a beaver at a particular colony, or any of the colonies on a particular territory. The hunter must, in the Waswanipi view, decide at each step if the beaver are being given to him.

This system of knowledge and ethical action is potentially highly responsive to the condition of the wildlife populations, and has the practical potential to conserve and manage the wildlife by linking decisions on the intensity of hunting effort to conditions of the hunted populations.

This stated responsibility for making harvesting levels respond to the perceived condition of the beaver populations, raises a pair of central questions for further analysis; Is this knowledge effectively applied in practice; and can the hunters' knowledge and practices effectively manage the beaver populations they harvest?

3.0 WASWANIPI HUNTING STRATEGIES AND MANAGEMENT IN PRACTICE

The extent to which Waswanipi hunting practices conform to cultural concepts and values was examined by analyzing separate data on hunting activities and game

populations. These data are derived from diaries of daily activities kept by hunters for my research, from interviews on actual hunting activities with a variety of Waswanipi hunters (most of whom were not included in the interviews on Cree knowledge reported above), and from the results of independent research, both biological surveys and social science harvesting research.

The behavioural features I examined are: a) the hunting strategies involved in choices among hunting methods; b) whether hunting intensity responds to hunting success; and c) whether there is evidence that Waswanipi hunters manage and conserve beaver populations.

3.1 HUNTING STRATEGIES

In order to assess the strategies involved in the choices among the different beaver hunting methods, I first evaluated the comparative reliability and efficiency of the methods based on work diaries kept by the hunters. Three of the detailed diaries, covering the activities of five hunters provided sufficient detail to calculate method-specific statistics.

Overall reliability, defined as the percentage of the days on which beaver were sought which resulted in the harvest of at least one beaver, was slightly higher for the method of waking the beaver than for trapping, although there was considerable variability and overlap on a hunter by hunter comparison.

Overall efficiency of hunting, defined as beaver harvested per man-day of work, was higher when waking the beaver. This method produced 0.8 beaver per man-day, compared to 0.6 for trapping. Waking beaver was consistently equal to or more efficient than trapping.

The work diaries indicate that the occasions on which people actually chose to wake the beaver were fourfold: when departing or returning to a bush camp and needing food for immediate use; when travelling through or stopping for short stays in an area, at which times food was again produced for immediate use; just before break-up, when food caches had to be supplemented in anticipation of a period of reduce harvests; and in one case when hunters had "bad-luck" with trapping and they changed their hunting method. In total about one-third of the colonies hunted by this sample of hunters were harvested by waking the beaver. However, I believe on the basis of general interviewing, that this sample over-estimates the community wide frequency of use.

In any case, the important finding was that while waking the beaver is more efficient and equally reliable, as compared with trapping, and while it could permit the capture of more beaver in total, it was in general ~~one~~ used in a restricted number of circumstances and in particular when there was an immediate subsistence need. The main reasons for explaining the limited utilization of this method are the conservational factors that weigh against its extensive use.

The choice not to use the technique of waking the beaver as the predominant hunting method is a clear indicator that hunters' choices limit their harvests, rather than any inability to harvest more beaver, because almost certainly more beaver could be caught if this technique was widely used. These initial findings make plausible the possibility that Waswanipi hunters are able to generally manage beaver populations, a hypothesis which may now be more carefully examined.

3.2 ASSESSMENT OF WASWANIPI MANAGEMENT IN PRACTICE

Several types of evidence were gathered to examine whether Cree regulate hunting effort in response to harvesting results, and whether they manage beaver populations effectively. The necessary data were available at the level of hunting territories and at the regional level.

3.2.1 Rotation of Hunting Territories and Hunting Effort

A first indicator of management decision making by stewards is that approximately two-thirds of the hunting territories being actively used by the Waswanipi hunters during this period, were used on an intermittent or rotational basis, in order for game to "grow" between harvests. On average, regularly hunted territories were used for 3.3 out of the 5 years for which data were available. However, the actual pattern of use is more complicated, because about 40% of hunting territories are divided into sections by their stewards. In these cases, the territories may be used every year, but the actual area being harvested can vary from year to year, a pattern of rotational harvests within hunting territories. When this factor is taken into account over three-quarters of hunting territories or sections are used on an intermittent or rotating basis. There are thus only about 23% of territories where the whole territory, or a section thereof, was used for five consecutive years. The first major conclusion is therefore that an active system of rotational use and management is widely used, and indeed is typical under conditions where it can be practiced.

The actual harvests were found to be related to these patterns of rotational use. Territories and sections were grouped for analysis into three categories, those which had been hunted the year previous to the recorded harvest, those which had not been hunted for one year previous, and those which had not been hunted for two or more years previous. The average beaver harvest per square kilometer was found to increase from the first to the last category, averaging 0.34 beaver per square kilometer for areas hunted the previous year, 0.45 for areas not hunted for one year previous, and 0.53 for those areas not used for two or more years previous to the recorded harvest. The difference between the first and the third categories of territories is significant at the 0.05 level. The trend and the differences indicate that after letting a hunting territory go unharvested for one or more years hunters take more intensive harvests of beaver per unit area. A similar but non-significant trend was found for moose harvests.

The mechanism by which this increased harvest occurs involves both the actual increases in the densities of beaver populations, and the decisions made by the stewards on the basis of their perception and interpretation of these changes. The stewards thus fallow their hunting territories, and regulate the harvests in response to the periods of fallow, and presumably to the actual and perceived changes in the densities of game.

3.2.2 Responses to Difficult Management Situations

While many territories are fallowed on a regular basis, the size of some territories, or the size of the families of the stewards who use them, or the presence of a settlement on the territory, make planned intermittent use of some territories more difficult, infrequent and irregular. These territories, where the man/land ratio is usually high, present an especially difficult management situation to the stewards. About 30% of the territories actively used during this period fell into this group.

There are some of these territories where multi-year declines in the condition of game populations occurred, despite efforts of stewards to reduce harvests to levels which would permit game populations to "grow again". Demographic indicators generally show that these territories have above average human population densities. I do not have

measures of trends in animal populations at the level of individual hunting territories, but stewards of these territories reported downward trends in game populations which extended over several years despite their initial efforts to alleviate the problem. These eight cases present a critical test of Waswanipi management practices.

In the eight cases where people said game populations are declining, over much of a territory during a several year period, five were cases where both beaver and moose were said to be declining and three were cases where only beaver were affected. Hunters reported that the game were not completely depleted, but the declines were perceived.

The reasons for these declines were without exception said by hunters to be over-harvesting. In seven of the eight cases the level of the harvests of the affected region had clearly been reduced to below the average for the region, but the decline was reported to be continuing, and clearly the initial reduction in harvest levels was not sufficient. I do not have data on the responses on the last of the eight territories where only a section was reported to be affected.

Six of the seven remaining cases, where most of the area of a hunting territory was affected, were fallowed on an ad hoc basis for one or more years when hunters said that it was clear that the effort to reduce harvests the previous year had not be sufficient. On a seventh area the hunters continued reduced harvests of big game, but stayed on the territory. The seven cases are all clear examples of reducing hunting effort in response to perceived declines in game populations.

In the five cases where I was able to monitor the short-term effect of letting the territory go fallow, the game populations on each territory were reported to have been re-established so that hunting could resume after one to three years. And, in the longer term, later harvest research questionnaire data showed that normal harvest levels were again achieved in succeeding years on all seven territories.

The relative speed of the recovery of harvests, and presumably of game populations, indicates that Waswanipi hunters respond to indicators of game population declines before those trends proceed so far that recovery by the game populations is endangered, or considerably lengthened. In summary, when territories which are not fallowed frequently show signs of over-hunting, the use of an ad hoc fallow, or reduced harvests, are fully effective responses by the stewards.

3.2.3. Regional Management and Conservation

The region-wide effectiveness of these territorial management strategies is best assessed by examining the available information on regional beaver populations and beaver harvests.

The first aerial survey of beaver colonies in the regions adjacent to the Waswanipi area was made by a university researcher (Drolet 1965), four years prior to the commencement of the field research on which this paper is based. Two years prior to the fieldwork, an aerial survey of beaver in the Waswanipi region was made under combined auspices of the Department of Indian Affairs and Northern Development and the Quebec Department of Tourism, Fish and Game (Emond 1967). And, six years after completion of the initial fieldwork, a second survey of beaver populations of the region was conducted by the Quebec government (Banville 1977). I have retabulated the data for the Waswanipi hunting territories and the immediately adjacent areas, and tabulated data from the maps of beaver colonies made by Cree hunters during the fieldwork period between the aerial surveys.

The first aerial survey just to the north of the Waswanipi area, four years before my research, indicated beaver colony densities of 0.13 colonies per square kilometer. The first government survey of the Waswanipi area, two years later, indicated 0.17 colonies per square kilometer. And the most recent government aerial survey six years after my initial research, indicated 0.14 colonies per square kilometer. The maps from Waswanipi hunters during the research indicated an estimated density of 0.14 colonies per square kilometer. The surveys in aggregate indicate relatively stable populations of beaver existed in the Waswanipi region over a period of thirteen years.

During the middle and latter parts of the same period, the estimated beaver harvests by Waswanipi hunters on their own hunting territories were 3193 and 3005 beaver respectively in 1968-69 and 1969-70. From 1972-73 to 1975-76, the harvests by Waswanipi hunters, estimated by the James Bay and Northern Quebec Native Harvesting Research, varied between 2242 and 3451 beaver per year, and averaged 2713. Given the inter-annual climatic variations, the range of harvest variation is modest. The twelve percent decline between the 1968-70 average and the 1972-76 average harvest is not considered significant, given the disruptions which were occurring in the region in the mid-1970's; indeed it is the relative stability of the harvests which stands out.

This relative stability of both beaver colony densities and beaver harvests are the best evidence of the success of Waswanipi management practices, as well as of the potential sustainability of the levels of harvesting being practiced.

On a harvest per colony basis, and taking into account not only the lands hunted in a particular year but all Waswanipi hunting territories, the 1968-69 and 1969-70 harvests represent catches of 0.77 and 0.71 beaver per active colony, which is below the probable sustainable yields of the populations, given research in other sub-arctic regions. According to government mandated wildlife managers the minimum permissible harvest in the region at Waswanipi would be 1.0 beaver per colony, and this level would normally permit some increase in the populations (pers. comm. in Feit 1978).

There is therefore clear biological evidence that beaver populations of the region were being managed and conserved by the Waswanipi. In a longer term view, the very presence of the beaver populations today attests to the long-term management of game populations by the Waswanipi, and to a general limiting of harvests to within sustainable limits.

4.0 WASWANIPI MANAGEMENT PRACTICES IN HISTORICAL PERSPECTIVE

Despite the recent success of Waswanipi management practices, the historical record and present circumstances indicate that the Waswanipi hunters are not always able to achieve comparable levels of success. The reasons for their difficulties give some insight into the problems they face today, trying to continue to manage wildlife populations in rapidly changing, often difficult, and sometimes impossible circumstances.

4.1 HISTORICAL PROBLEMS OF CONSERVATION

In the late 1920's and early 1930's, the beaver populations of the entire region were depleted. The Waswanipi elders attribute the depletion in their area to over-hunting on their part. The reasons for their over-hunting are indicated in the archival records of the period, which include correspondence from Waswanipi leaders, fur traders and missionaries. These sources all indicate that outside non-Native trappers began to enter the region during the period of high fur prices in the late 1920's and that they depleted one hunting territory

after another of fur bearers. Unable to stop the progressive depletion of the fur resources, the Waswanipi appear to have over-hunted the beaver and marten rather than let outside trappers take them all.

This period has been described in the scientific and popular literature as an example of the complete breakdown of conservation practices, but a detailed examination of the evidence does not support this interpretation. Throughout the period it is clear that Waswanipi hunters maintained the management and conservation of other fur bearers, of moose, and of other game populations which were not under threat of depletion by outside trappers. The fur pelt sales records show, for example, that normal harvests of other fur-bearers occurred throughout the period. Furthermore, none of the contemporary observers indicates any depletion of moose or fish populations during the period, and indeed Waswanipi today indicate that they survived the period by carefully managing these resources.

The actual pattern of trapping out also indicates careful choice and the influence of cultural rules. Thus, the record of beaver and marten pelt sales does not show any substantial increase in harvests, followed by a rapid decline. Rather it shows a slow but steady decline in harvests, extending over a ten year period. This suggests a rather reluctant over-harvest, taken not by extraordinarily large and uncontrolled trapping, but rather by failing to carefully fallow land and permit beaver to recover from continuous harvesting. This is consistent with the view that people continued to take only what they could use and consume, that is their harvest was limited by subsistence needs, even when they were convinced that interference from the outside would prevent them from conserving the beaver and marten populations as they desired. The slowness of the over harvesting also suggests that if the circumstances had changed, and outside trappers had left the region, then the depletion could have been stopped.

The Waswanipi were well aware of the dangers of over-hunting, and while they judged that they had little immediate choice, they also sought simultaneously to re-establish the conditions in which conservation of these resources would again be possible. To this end they petitioned the government to close the region to beaver trapping, a request the government met by recognizing the hunting territory system and setting up the beaver reserves in northern Quebec. At the same time, once the beaver were depleted, and presumably outside trappers had departed or at least been significantly reduced in numbers, the Waswanipi set up a closed season of their own to aid the recovery of the affected populations.

This historical example shows one of the sets of conditions under which Native management and conservation systems can be disrupted, namely when outside intervention makes the task of local management impossible to achieve.

4.2 CONTEMPORARY PROBLEMS OF MANAGEMENT

Today, disruptions of Waswanipi management take the form of inappropriate government regulations or policies, and of large scale industrial development of non-wildlife resources.

When I began working in the Waswanipi region in the late 1960's, conservation officers were trying to impose a directive that Waswanipi not hunt moose within ten miles of the roads or towns, that is in the areas in which the sport hunt of moose was concentrated. In the previous decade, the Waswanipi had seen the sport hunt of moose grow from just a few animals a year to nearly half their own harvest levels, and they indicated their own willingness to share this resource. But while they were prepared to

share, they did not accept the arbitrary attempt to exclude their own hunting activities from the areas also used by the sport hunters. The lands on which their hunting was to be restricted were clearly within their own system of hunting territories, and it was these easily accessible lands which were important areas for elderly hunters, and for those Waswanipi who camped near towns and roads in order to be near children going to school or in order to participate in part-time wage labor.

The result of the arbitrary government policy, and of the Waswanipi unwillingness to comply with what was perceived as an unjust intervention, was that the Waswanipi increased the kill of juvenile moose in these areas when they needed food, so that they would be less easily observed transporting or catching the animals. It was a practice the Waswanipi did not approve of, but it was the best alternative they could find under the circumstances.

Following signing the James Bay and Northern Quebec Agreement (JBNQA) in 1975, which recognized a broad Cree right to hunt and manage wildlife populations, some of these anomalies ceased, and a more acceptable pattern of co-management with government is being established.

Similarly the Waswanipi willingness to share the resources has continued to be demonstrated, as each year since the signing of the Agreement the Waswanipi have permitted a not insignificant number of sport hunters to take moose on the limited lands reserved for exclusive control by the Band. This is in addition to the fact that sport hunters continue, under provisions of the JBNQA, to hunt on all public lands outside the hunting reserves, that is the vast majority of land in the region. Indeed, developments in the area have resulted in new roads and have considerably increased the areas easily accessible to sportmen.

The Agreement has not however resolved all the problems the Waswanipi hunters face. I do not have time to examine the various managerial and regulatory problems here, but the problem of industrial development must be highlighted. In addition to ongoing hydro-electric developments, and the severe mercury problems now developing at the newly built reservoirs north of the Waswanipi region, the Waswanipi face the immediate problem of forestry operations on their lands.

Extensive clear-cutting has been going on with increasing intensity since the 1960's, and without consideration for the Waswanipi hunting territories and systems of wildlife management. Companies, and often governments, simply argue that a regenerated forest is good for wildlife, that clear-cutting is efficient, and that adequate protection for wildlife can be made by leaving uncut areas of immediate moose yarding and shoreline habitat; a total uncut area which represents a few percent of the total cut-over area. The result is that nearly whole hunting territories are being cut-over. The companies and governments say the Cree affected can hunt elsewhere for a few years, until forests and wildlife re-establish themselves. Leaving aside questions of the extensive cut-over areas that are not regenerating, and also of how long it takes the regeneration, Waswanipi hunters find these forestry practices devastating for their own use of wildlife.

As I have indicated above, the Waswanipi system is based on building up a detailed knowledge of the land and the wildlife of a hunting territory over decades of personal use. Stewards say that they conserve and respect wildlife not only for their own benefit, but to be able to pass the land on to the next generation of hunters. This involves not only passing on the territory but educating the next generation, passing onto them the knowledge of the history of the land and of the game, so that they can continue to manage the wildlife. This knowledge is not learned in the abstract, but concretely by learning how to hunt a

particular territory and particular game populations. This is how the Waswanipi reproduce the system of management, and it is this link in the social transmission of knowledge and skill from one generation to another which is broken when a trapline is cut over and must be abandoned for several years. The elders no longer have the specific knowledge and skills and history needed to manage the territory when it is again used. Both the social ties and the knowledge which are the very system of management are endangered.

In the few cases where I have asked hunters how they would share their hunting territories with those who want some use of the forests, they have generally said that if a carefully selected 40 to 50% block of a hunting territory were left uncut, they could continue to hunt on their lands. And, they said that when the cut area has been regenerated with forests, then the uncut area could be cut-over. This way they could continue to use their lands, and to pass on the land and the knowledge they have stewarded through a lifetime of care. This way the social fabric of management could be reproduced among generations and between men, animals and spirits.

This would clearly require additional pre-investment in forestry roads and hauling costs. But the costs have not been carefully evaluated in order to determine how substantial they would be. Indeed, so far the needs of the Waswanipi have not been understood nor adequately considered by the companies nor the governments.

Present conditions therefore threaten the Waswanipi management system which has been effective over many decades, and which has shown itself to be flexible and adaptive throughout the rapid changes which have occurred in this century. In particular, the Waswanipi have responded effectively to rapid Native population increases, important changes in hunting and transportation technology, increased access to commercial markets and commercial food supplies and consumer goods, more sedentary life-styles, and the introduction of formal education systems.

5.0 CONCLUSIONS

The complexity of this adaptation, as well as of the conditions in which it can be threatened, emphasize the need for research on both contemporary practices and on historical conditions in order to better understand: 1) how Waswanipi management and conservation has been responsive to a complex interplay of changing ecological, biological, technological and socio-economic conditions; 2) how under certain combinations of these conditions Waswanipi wildlife management of specific species has not succeeded, or has been abandoned; and, 3) under what conditions Waswanipi wildlife management has been continued or re-established.

The "discovery" of the effectiveness of Waswanipi management practices is not surprising, indeed it would be surprising if Native hunters who depend on localized resources for their own and their children's well-being did not try to find ways to manage and conserve resources. So long as the users are assured effective control of the resource, and continued access and control for future generations, and so long as they see the resource as the basis for long-term social well-being, it is clearly in their interest to try to conserve the resource, to the limits of their ability, and to the limits which circumstances allow.

We should therefore start from the assumption that such an interest and practice may exist, and be prepared to recognize its presence, or absence, but only after careful consideration of the evidence. Recently, similar practices and systems have been reported by researchers in other Native communities (see Berkes 1981, Brody 1981, Freeman 1985,

Nelson 1983, Scott 1983, Winterhalder 1983). Although the number of such studies is still small and we do not therefore yet know how widespread such practices are, they are certainly more common than has been previously recognized. Indeed, the issue may not be to determine how widespread indigenous management is, but rather the factors promoting its expansion or restricting its development at present.

What has been learned so far makes it clear that the often anecdotal stories of the success or failure of Native wildlife management, with which the lore of some wildlife managers and publicists and critics of the Native cause are replete, are insufficient for developing an accurate picture of how Native management works, how extensive it is in practice today, how extensive it was in the past, or how extensive it might be in the future.

It is not adequate, I argue, to cite examples of Native over-hunting, which certainly has and does occur at numerous times and places, as evidence that there is no Native interest or capability in wildlife management. We have to approach indigenous management of wildlife in the same way we approach scientific management, as a variety of integrated systems, each with a history of successes and failures, operating within some constraints beyond the practitioners control (e.g.,. development impacts), and therefore achieving only partial successes.

Both systems may not be practiced, or may not be working effectively in certain areas of the north today, but that is not to say that they cannot be expanded and adapted. And, both clearly have a future, and one which has to be recognized by practitioners of the other system.

I think that the future management of beaver and other wildlife populations in extensive parts of northern North America now depends on the effective joint participation of government mandated wildlife managers and Native wildlife managers. Native people can no longer use or manage the resources without extensive and effective means of participating in the decisions taken in the wider society which profoundly affect the future of the resources and their use. And government wildlife managers cannot protect or manage the wildlife resources without effective means of participating in the decisions taken in Native society which profoundly affect the future of the wildlife resources and their use. Joint management seems to be essential, despite the fact that some government wildlife managers and some Native wildlife managers would each claim exclusive rights of management. Exploring the forms of such joint management, given the real, but limited, effectiveness of each system in itself, will be one of the major challenges in wildlife management in the next several years.

The substantive findings of the research reported in this paper show that Native hunters can have a real and practical interest in the management and conservation of wildlife. Wider recognition of this conclusion could provide a basis for efforts to establish communication, and practical cooperation between government mandated wildlife managers and the Native managers. The need for cooperation among all groups has been pressed on everyone in recent decades by the increasing dangers to the wildlife resources. The new findings show that there is a basis for mutually respectful cooperation, and joint management. Indeed, more accurately, these data suggest that parallel management already is probably quite widespread. What is now needed is more joint management.

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