

# **DOMESTIC HUNTING AND FISHING BY MANITOBA INDIANS: MAGNITUDE, COMPOSITION AND IMPLICATIONS FOR MANAGEMENT**

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## **ABSTRACT/RESUME**

Three hundred ninety-nine residents of 10 Indian reserves across Manitoba were surveyed regarding their consumption of wildlife. Residents of northern Reserves were found to have harvested more wildlife on an individual basis than residents of southern reserves. Consumption of mammals and birds by residents of northern reserves was comparable with studies conducted elsewhere, though waterfowl, deer, and moose harvest information contradicted a Manitoba government report. Reported consumption of fish varied widely between studies. Increased joint management efforts between provincial and Indian governments are necessary to identify all forces affecting wildlife populations and to formulate equitable and effective conservation programs.

On a fait une enquête sociologique auprès de trois cent quatre-vingt-dix-neuf résidents de dix réserves autochtones au Manitoba sur leur consommation de la faune. On a trouvé que les résidents des réserves du nord ont consommé, individuellement, plus de faune que les résidents des réserves du sud. La consommation de mammifères et d'oiseaux chez les résidents des réserves du nord a bien répondu aux études faites ailleurs, mais les renseignements qu'on a recueillis à propos de la consommation de l'oiseau d'eau, du cerf et de l'orignal ont démenti le rapport du gouvernement du Manitoba. Les rapports sur la consommation du poisson ont largement varié d'une étude à l'autre. Les efforts conjugués d'administration entre le gouvernement provincial et les gouvernements autochtones sont de plus en plus nécessaires pour identifier routes les forces qui concernent les populations de la faune et pour établir des programmes de préservation justes et efficaces.

## BACKGROUND

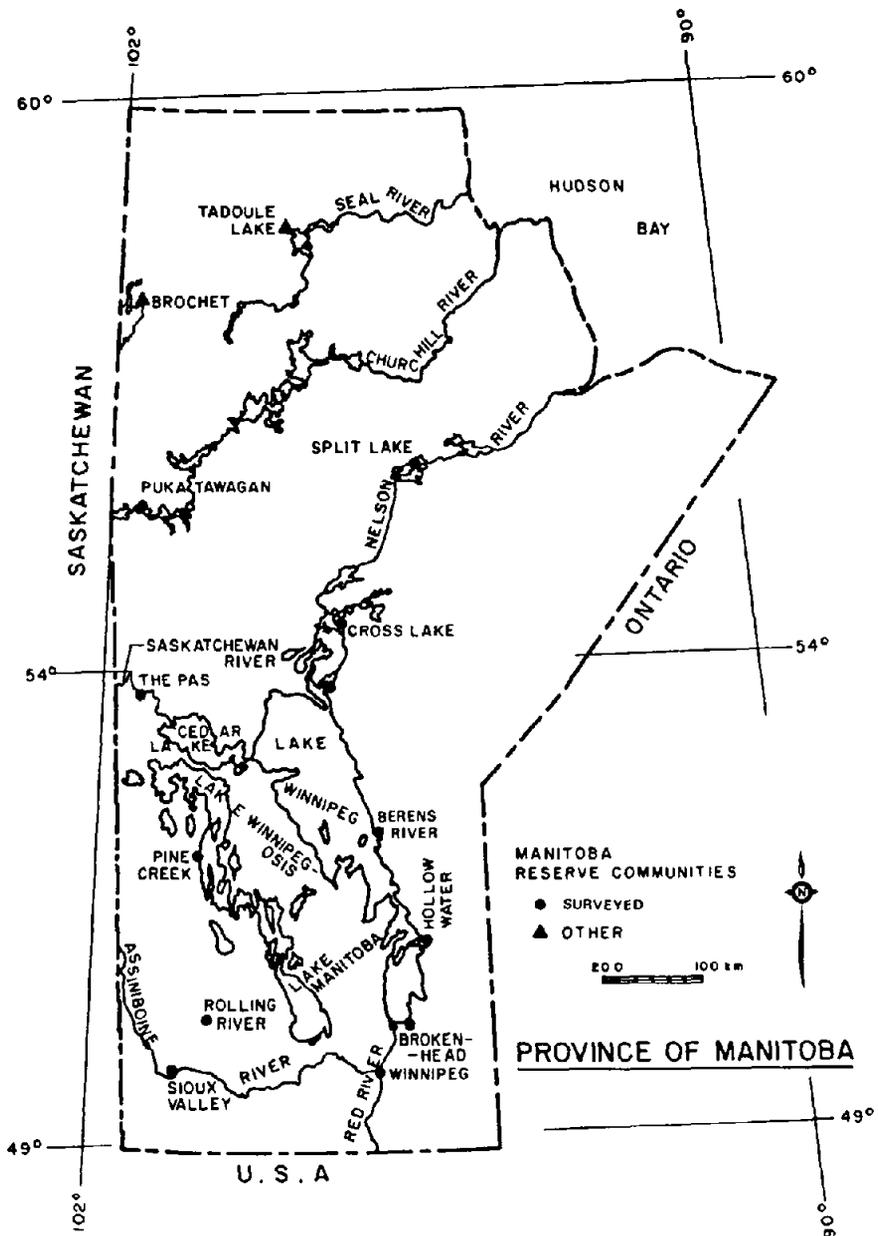
In the prairie provinces, Status Indian<sup>1</sup> (hereinafter Indian) people are entitled to hunt and fish for food at any time of year on unoccupied Crown lands and any other lands to which they have a right of access. They are allowed to do so under authority of the Natural Resources Transfer Agreements between Canada and each of the provinces of Manitoba, Saskatchewan, and Alberta. These Agreements were ratified by the British North America Act of 1950 and so became part of the Canadian Constitution. These rights are an affirmation of the treaty right to hunt and fish which Indian Bands residents in what are now the prairie provinces negotiated with the Government of Canada during the period 1871-1910 (McNeil, 1985). Indian hunting and fishing for food pursuant to the Manitoba Natural Resources Transfer Agreement is commonly termed "domestic" hunting and fishing.

Though some restrictions have gradually been placed on domestic hunting and fishing by federal legislation, most aspects of domestic harvesting remain unregulated. As a consequence, in Manitoba, size, composition and location of domestic harvests are not recorded. Neither has there been general sustained serious communication or cooperation regarding domestic harvesting between provincial and Indian governments, the two parties which have constitutional rights and responsibilities in the area of wildlife. The provincial government department responsible for wildlife allocates quotas to sport and commercial consumers without knowing the magnitude of domestic harvests. This situation has undoubtedly resulted in suboptimal harvests, judged by biological conservation, economic, and/or social equity criteria.

There has been occasional documentation of domestic harvests in Manitoba (Gaboury and Patalas, 1982; McIlveen, 1978; Peters and Wall, 1980). No province-wide studies to date have systematically described harvesting of a variety of species by a number of communities. Information published by the Manitoba Department of Natural Resources (MDNR) (1985) was felt, by Chiefs of Manitoba Indian Bands, to misrepresent Indian hunting and so provided the impetus to initiate the present study. The present study describes estimates of the magnitude and composition of domestic hunting and fishing harvests obtained during a survey of Indian reserve communities across Manitoba, compares these estimates to those of other studies, and discusses problems and possible solutions concerning the relationship of Indian and provincial governments regarding wildlife management.

## SAMPLING METHODS

Ten Indian reserve communities, Berens River, Brokenhead, Cross Lake, Hollow Water, Pine Creek, Pukatawagan, Rolling River, Sioux Valley, Split Lake, and The Pas, each from a different geographic area of the province, were selected and agreed to participate in the survey (Figure 1). Geographic areas from which communities were randomly selected were delineated based on prominent geographic features and on proximity to wildlife habitat and com-



mercial infrastructure.

The most northerly seven reserves are located in the boreal forest. In the present study the southern fringe of the boreal forest serves as a functional boundary between northern and southern reserves. Of the northern reserves, neither Berens River nor Pukatawagan are accessible by road. The main reserve of The Pas Indian Band borders on the town of the same name which has a population of approximately 8,000.

Of the three southern reserves, Brokenhead is located on the very edge of arable land. Sioux Valley and Rolling River are surrounded by prime farmland and have little remaining natural habitat in their vicinities.

Sampling of community members was conducted, where possible, by random selection from lists of men aged 18 and older. In communities where this method could not be followed random or haphazard sampling of available men aged 18 and older was conducted (Table 1). An in-person questionnaire survey was conducted from May to August, 1984. A total of 399 interviews were conducted successfully. Each interviewee was asked to describe the number of people in his household and the number of mammals and birds household members had killed and consumed during the 12 months preceding the interview. When commercial fur trappers were interviewed, the only animals considered were those which had been eaten. For moose and white-tailed deer,

TABLE 1: Sample Size, Populations, and Sampling Method  
Used on Each Reserve

Surveyed Reserve	Number of Interviews	Interviewees' Household Population	Reserve Population	Sampling Method rs=random sampling hp:haphazard
Berens River	57	372	780	rs fishermen, hunters, trappers
Brokenhead	21	77	190	rs men 18 and older
Cross Lake	71	461	1960	rs fishermen, hunters, trappers
Hollow Water	37	199	430	hp men 18 and older
Pine Creek	29	153	420	hp men 18 and older
Pukatawagan	41	300	1280	hp fishermen, hunters, trappers
Rolling River	23	123	250	rs fishermen, hunters, trappers
Sioux Valley	33	172	740	hp fishermen, hunters, trappers
Split Lake	38	244	1080	rs men 18 and older
The Pas	47	233	1280	rs men 18 and older

TABLE 2: Wildlife Harvest for 10 Manitoba Indian Reserves  
(number of animals)

	SOUTHERN RESERVES			NORTHERN RESERVES						
	Broken-head	Rolling River	Sioux Valley	Berens River	Cross Lake	Hollow Water	Pine Creek	Pukata-wagan	Split Lake	The Pas
Moose <sup>a</sup>	7	12	0	61	100	41	78	72	53	190
Elk	0	8	0	0	0	0	17	0	0	0
Woodland caribou	0	0	0	21	13	0	0	0	9	6
White-tailed deer	74	100	645	0	0	11	110	0	0	70
Beaver	17	55	150	320	1,180	420	45	1,090	800	450
Muskrat	67	270	210	560	13,400	516	3	2,830	2500	19,700
American black bear	0	2	0	2	8	4	0	17	4	6
Rabbit	150	260	580	380	220	160	33	1,630	750	580
Lynx	0	0	0	4	13	0	6	72	4	0
Duck	480	180	260	1 130	4,510	110	780	3 240	1,740	10,600
Goose	260	12	65	190	900	13	69	180	1,230	440
Grouse (ruffed and/or spruce)	0	35	250	120	8	13	61	470	300	240
Fish (kg)	2,450	270	2,660	7,510	22,500	3,120	3,710	34,500	11,500	15,000

<sup>a</sup> Species names are from Banfield (1974) and Godfrey (1966)

sex and maturity of animals killed was also ascertained.

Since it seemed unlikely that respondents would accurately recall the number of fish they had eaten, they were asked the number of times fish had been eaten, and which species had been eaten during the preceeding year. The average meal portion of fish used in calculations was 0.34kg (0.75 lb). Household fish consumption was calculated by multiplying the portion size times the number of household members times the number of occasions fish were reported to have been eaten. Fish information was recorded as amount of biomass consumed rather than as the number of individual animals harvested as was done for mammals and birds. Total consumption by a reserve community was calculated by multiplying the sampled households' consumption by the ratio of reserve population to sampled households' population.

## RESULTS

Significant numbers of wildlife were harvested by each community. Moose, beaver, and fish were taken in appreciable numbers at virtually every reserve (Table 2). Size of harvest of various species at different reserves corresponded largely to documented ranges of wildlife species (Weir, 1983) and to local availability of wildlife habitat. Large harvests of waterfowl and muskrat at The Pas, for instance, correspond to extensive marsh habitat in that region. Sioux Valley, the reserve most distant from extensive moose habitat, was the only community where interviewees had not killed any moose.

A second factor affecting community harvest composition was food preference. The large consumption of lynx at Pukatawagan correlates with the preference of local people for this species (M. Sinclair, Pukatawagan resident; personal communication).

As could be expected, communities in more sparsely populated northern areas produced larger harvests than did southern communities. This trend becomes more evident when numbers of animals harvested per interviewee are considered (Table 3). Harvests at the three southern reserves are, as a group, smaller than harvests of the northern reserves for each species group.

Because of the manner in which questions regarding fish consumption were structured, it was not possible to estimate the total number of times various fish species were eaten. At the community level only relative frequencies of consumption of different species could be obtained with any accuracy (Table 4) Generally, species eaten by a large number of households in a community were eaten relatively frequently by those households. Species eaten by fewer households were eaten less frequently by households which ate them. There were also indications that the size of meal portions of species eaten by a large number of households may have been larger than that of species eaten by fewer households.

There was some difference in fish species consumption between the three reserve communities located on Lake Winnipeg: Berens River, Brokenhead, and Hollow Water, and other reserves. Only residents of the Lake Winnipeg reserves ate sauger and catfish. The total number of households which ate perch

TABLE 3: Annual Mean Harvest Per Hunter/Fisherman for Ten Manitoba Indian Reserves  
(number of animals)

	SOUTHERN RESERVES			NORTHERN RESERVES						
	Broken- head	Rolling River	Sioux Valley	Berens River	Cross Lake	Hollow Water	Pine Creek	Pukata wagan	Split Lake	The Pas
Moose	0.14	0.26	0.0	0.50	0.34	0.51	0.97	0.41	0.32	0.74
Beaver	0.3	1.2	1.1	2.7	5.9	5.2	0.6	6.3	4.7	1.8
Fish (kg)	47.5	6.0	19.0	63.0	74.0	38.5	46.0	198.0	68.5	58.0

TABLE 4: Composition of Fish Consumption for 10 Manitoba Indian Reserves  
(number of surveyed households which ate each species)

Species	SOUTHERN RESERVES			NORTHERN RESERVES						
	Broken-head	Rolling River	Sioux Valley	Berens River	Cross Lake	Hollow Water	Pine Creek	Pukata-wagan	Split Lake	The Pas
Walleye <sup>a</sup>	14	1	13	49	55	24	16	29	15	29
Northern pike	5	11	15	29	51	10	12	31	19	30
Lake whitefish	1	0	1	46	61	11	2	18	17	9
Lake sturgeon	1	0	0	10	19	1	0	1	11	9
Sucker <sup>b</sup>	3	1	2	11	0	6	9	7	5	7
Sunfish <sup>c</sup>	10	0	0	0	0	15	0	0	1	9
Yellow perch	1	2	2	9	0	6	0	1	2	0
Sauger	2	0	0	13	0	7	0	0	0	0
Catfish <sup>d</sup>	1	0	0	7	0	5	0	0	0	0
Cisco	0	0	0	2	0	3	0	5	0	1
Burbot	0	0	1	5	0	2	0	1	0	0
Trout <sup>e</sup>	0	1	0	0	0	0	0	4	0	0
Goldeye	0	0	3	0	0	0	0	1	0	1
Bass	0	0	0	3	0	0	0	0	0	0

<sup>a</sup>species names are from Scott and Crossman (1973)

<sup>b</sup>longnose and white

<sup>c</sup>pumpkinseed

<sup>d</sup>channel catfish and/or brown bullhead

<sup>e</sup>lake and rainbow

was greater among the three Lake Winnipeg reserves than the total from the other seven reserves. Consumption of sunfish was concentrated at two of the Lake Winnipeg reserves. Although pike was consumed by a substantial number of Lake Winnipeg households its importance relative to other species was less than at other reserves.

## COMPARISONS WITH OTHER STUDIES

Other studies have documented domestic harvesting of communities located in the boreal forest region of Canada (Table 5). As only the seven northern reserves surveyed by the present study are located in the boreal forest, only information from these reserves is presented in Table 5.

Comparison of consumption levels of different communities is most readily understood when done on a per capita basis. Some studies included in Table 5 detailed consumption only to the household level, preventing a general comparison of per capita consumption. Where household composition could be determined it most typically consisted of about six members.

In addition to the information contained in Table 5, at Tadoule Lake, McIlveen (1978) reports that during the fall of 1977, 0.29 moose were taken per household and approximately six caribou were killed per household the following winter. As caribou migrate most closely to Tadoule Lake during the winter, this harvest was probably a large portion of annual household harvests.

Among the tabulated studies, variation in household harvest size and composition is evident between geographic areas and through time. In addition to species distribution and local food preference, differences in hunting methods and changes in animal and human population sizes and in hunting and fishing technology may have contributed to this variation.

Comparisons of different studies of domestic harvesting must be done bearing in mind that data collection methods used by each study, and, as a result, the sensitivity of a study to particular aspects of domestic harvesting may have varied as much as did the unique character of each community studied. Though they may not be absolutely commensurable, quantitative inventories of domestic harvests provide a useful platform for comparison of the significance of domestic harvesting to different communities and its impact on local wildlife populations.

Some of the variation in magnitude of consumption evident in Table 5 is likely due to differing data gathering strategies. Rogers (1963, 1975) describes the total domestic harvest inventory of a small number of households which actively pursued a hunting and fishing lifestyle. He makes no comment regarding how representative their activities were of other local households. Jarvenpa (1980) bases his data on four households whose members included active hunters and fishermen. As Jarvenpa (1980) intentionally sought out hunters in the community he studied, it is reasonable to assume that average household consumption of fish and wildlife in the community was lower than that of the particular households he documented. Brody (1981) also sought out active hunters in the communities he studied.

TABLE 5 Annual Household Consumption Estimates of Wildlife by Various Studies (number of animals)

Study	Present	FSI	Jarvenpa	Brody	Rogers <sup>a, b</sup>	Rogers <sup>a b</sup>	Rogers <sup>a,c</sup>
Location	Northern Manitoba	Northern Saskatchewan	Northern Saskatchewan	Northeast British Columbia	Central Quebec	Central Quebec	Central Quebec
Date	1983-84	c.1975	1971-72	1978-79	1912-13	1913-14	1953-54
Moose	0.54	0.54	7.5	3.44	1.57	0	6.67
Caribou	0.07	-	5.25	-	0	5	8
Deer	0.57 <sup>d</sup>	0.03 <sup>d</sup>	1.75 <sup>e</sup>	1 <sup>e</sup>	-	-	-
Beaver	5.6	4.1	26.2	-	88.5	100	36.6
Muskrat	23	17	258	12	59	82	80
Black bear	0.03	0.02	6.0	0.55	4.5	4.5	0.67
Rabbit	3	15	225	-	9020	2460	49
Lynx	0.1	0.2	31.2	-	-	-	-
Porcupine	-	1	3	-	-	-	5
Mink	-	-	-	-	14	6	99
Marten	-	-	-	-	80	52	3
Otter	-	0.5	-	-	15.5	12.0	7.3
Loon	-	-	4	-	27	0	8
Duck	15	7	75	-	60	210	101
Goose	2	-	4	-	0	0	8
Grouse	1	2	46	-	0	0	-
Ptarmigan	-	0.3	-	-	150	99	294 <sup>f</sup>
Owl	-	-	0.5	-	0	4.5	2
Fish (kg)	78	232	729	-	9930	4500	1010

<sup>a</sup>these data are extrapolated linearly from data describing fall, winter and spring harvests/consumption

<sup>b</sup>these are harvest, not consumption, data and include meat harvested for dogs

<sup>c</sup>includes meat fed to dogs; <sup>d</sup>white-tailed deer; <sup>e</sup>mule deer; <sup>f</sup>includes grouse

The present study and that conducted by the Federation of Saskatchewan Indians (FSI) (1976) obtained information from questionnaire surveys of general community populations. Their reported levels of average household consumption are generally lower than those of the studies which obtained information only from households with active hunters. Unfortunately it is not possible to determine precisely the extent of the real difference in community average household consumption between these two types of studies.

Findings of the present study and of the FSI (1976) are quite similar for some species. For moose, rounded off values of annual household consumption equal 0.54 in both studies. Nearness in geography and time of the two surveys may have contributed to this similarity.

Variation in harvest levels notwithstanding, other findings agree with the observation of the present study that moose, beaver, and fish are among the most heavily consumed animal species. Felt (1973) finds this pattern to be true of a central Quebec Indian community. Brody (1981) does not comment extensively on fish consumption but states that deer, in addition to moose and beaver, were the most important animals hunted by three British Columbia communities.

The present study found harvests of moose and deer to be composed of approximately 65% adult male animals, although interviewees did not recall details of all harvested animals (Table 6). McIlveen (1978) relates a similar sex composition for a seasonal kill of caribou at Brochet, Manitoba. Sex composition evaluations by the Manitoba government, described by their authors as being subjective and having relatively low accuracy (MDNR, 1985), estimated the provincial domestic kill of moose, deer, and elk to be composed of 75% adult female and immature animals. This value is in extreme contrast with the findings of the present study.

MDNR (1983) also estimated the province wide annual domestic kill of waterfowl at 10,000 birds. A very approximate estimate of province wide domestic waterfowl kill projected from data of the present study suggests a value perhaps ten times this figure. The Pas Band alone harvested 10,600 ducks. Judged on the basis of the sampling methods used, findings of the present study would be considered to be more accurate than the provincial government estimates.

The present study found walleye, lake whitefish, and northern pike to be the most widely eaten fish species, with lake sturgeon, suckers, and other species to be eaten less frequently. Feit (1973) states that walleye, whitefish, pike, sturgeon, and burbot were the most important fish in the diet of a central Quebec Indian community. Gaboury and Patalas (1982) state that walleye whitefish, pike, cisco, and suckers were eaten at Cross Lake. Respondents to the present study at Cross Lake stated they ate walleye, whitefish pike and sturgeon.

Magnitude of household fish consumption varies greatly between the tabulated studies. Considering the extensive network of lakes and rivers in most of the boreal forest region, differing accessibility to fish likely would not have played a large part in this variation. Annual average household consumption of

TABLE 6: Moose, Deer, and Caribou Harvest Sex and Age Composition

	Total Harvest	Adult Male	Adult Female	Immature Male	Immature Female	Age/Sex Not Reported
Moose	173	98	44	5	6	20
Percent	--	64	29	3	4	-
Deer	279	109	53	1	2	114
Percent	-	66	32	1	1	-
Caribou a	69	42	18	9b	-	0
Percent	100	61	26	13b	-	0

aMcIlveen (1978)

bIncludes immature female

the present study, 78 kg, is the lowest among the tabulated studies. The method by which the present study measured fish consumption, by estimating the number of times fish was eaten, rather than basing consumption on harvest, as did the other studies, may have caused this result. Peters and Wail (1980) assess the average annual fish consumption of six Native communities in northern Manitoba, including Cross Lake and Pukatawagan, to equal 133 kg for a six member household, another relatively low estimate. Rogers (1972) estimates a maximum value of 497 kg for a northwestern Ontario community.

At Cross Lake, Gaboury and Patalas (1982) report the live weight of the annual domestic catch of fish in 1980-81 as 103,116 kg, compared to the present study's value of 22,500 kg for actual human consumption. The ratio of weight of edible fillets to live weight of fish varies substantially from species to species and with size of individual fish. Pot walleye and whitefish 50% is a useable approximation for the range of ratios (P. Thompson, Canada Department of Fisheries and Oceans; personal communication) obtained from machine-filleted fish. Considering that some fishermen may not consistently fillet fish as efficiently as do machines, that some fish would have been wasted and some fed to dogs, domestic consumption from these two years at Cross Lake seems comparable.

#### IMPLICATIONS FOR MANAGEMENT

Aboriginal societies existed in Canada for centuries prior to the arrival of European explorers. To have existed in any area for as long a time as they did these hunting and gathering societies must have been non-disruptive elements of

the ecosystems of which they were part. A key feature of continued existence in an area would be sustainable harvesting practices of local wildlife populations. There has been limited documentation of traditional Indian wildlife management practices and philosophies. Though few, these studies have shown that even with use of modern hunting and fishing technology Indian harvesters may voluntarily limit the amount of animals taken (Berkes, 1977; Brody, 1981; Feit, 1973, 1986). These practices minimize waste in harvesting and demonstrate an understanding, intuitive or explicit, of the need to conduct harvesting in a sustainable yield fashion.

It is hardly surprising that people whose cultures have an oral tradition of transmitting knowledge should not feel compelled to record what they would view as everyday practice in scientific wildlife management literature. Rather it is disquieting that so few scholarly researchers or wildlife bureaucrats have recognized and chronicled the existence and significance of aboriginal wildlife management practices. Given this absence of record it is not surprising that many scientific wildlife managers have remained ignorant of the existence of functioning Indian management systems. As a consequence these managers and the non-Native public question the ability of Indian harvesters to conserve animal species. This lack of understanding results in debates which frequently focus on a need, as perceived by provincial bureaucracies and the non-Native public, to regulate domestic harvesting. Proposed management schemes are often based on what Usher (1986) colorfully and accurately calls "anecdote and horror story", rather than on any substantial facts.

Indian governments and individuals have sometimes been reluctant to provide domestic harvest information to non-Indian authorities, for fear of it somehow being used against their best interests. Though in some instances caution may have been warranted, it must be realized that unsubstantiated claims that domestic harvesters do not threaten animal populations will continue to be unconvincing to provincial governments and the non-Native public.

In Canada, management of wildlife, including freshwater fisheries, is constitutionally a provincial responsibility. Indian people in the prairie provinces, by virtue of treaties made with the government of Canada and the Natural Resources Transfer Agreements, enjoy rights in wildlife which no other sector of society does (McNeil, 1983). In Manitoba, a typical provincial jurisdiction, there are no provincial or Indian government programs for extensive systematic collection of domestic harvest information. This type of information is a crucial component of any coordinated system for wildlife management over a large geographic area.

To date, most assessments of domestic use of natural resources have been of two types. Studies have been done as part of comprehensive environmental and socio-economic impact analyses of large scale construction projects (McIlveen, 1978). Other studies have been done by solitary researchers who live in a Native community for a time and produce detailed accounts of domestic harvesting (Brody, 1981; Jarvenpa, 1980; Rogers, 1968, 1978). Though both types of studies provide valuable insights into domestic harvesting, they typically are too restricted in the geographic area considered or are of too short a

duration to provide the comprehensive databases which are required.

In contrast to domestic harvesting, commercial and sport activities open to Indians and non-Indians, are monitored and are controlled through quotas and licence restrictions. It is commonly accepted that, among other objectives a provincial government should manage wildlife to obtain maximum benefits for residents of the province. Without knowledge of the extent of domestic harvests it is unlikely that a provincial government could regulate size and composition of commercial and sport harvests to achieve optimal levels of resource use, consumptive or non-consumptive. Economic and recreational benefits to user groups may be less than what animal populations can support, or, more seriously, populations may decline from overharvesting. The lack of knowledge of size and composition of domestic harvests is a serious shortcoming of wildlife management in Manitoba and other jurisdictions.

Rational conservation of animal populations requires that one agency coordinate management plans. Two or more systems working without regard to each other could easily lead to depletion of animal numbers. The status quo has provincial governments with the greatest legal jurisdiction and administrative capacity regarding wildlife. Accordingly, initial movement to consolidate management efforts would be most effectively taken by a provincial government. Consolidating management, including the compilation of domestic harvest information will, on the part of a provincial government, require accommodation of interests of Indian governments located within the province. Indian governments can be expected to cooperate enthusiastically with a provincial government only if practical advantages are to be obtained, requisite financial assistance is provided, and there is evidence of respect for their jurisdictions. Indian governments, on their part, should realize that cooperation is in the best interest of all parties. Cooperation, in the form of substantive joint management, would include as essential components combined Indian-provincial government participation in policy and regulation formation and the systematic collection of domestic harvest information. Joint management administrative bodies would have authority over both Indian and non-Indian resource harvesting activities.

Such joint management schemes would promote a regime respected by all parties. Present provincially-dominated regimes often attempt to impose restrictions on domestic harvesting with little effective consultation with the people whose rights are affected. Joint management could protect the aboriginal, treaty, and constitutional rights of Indian peoples while ensuring continued vitality of wildlife populations.

In areas of a province with predominantly non-Native populations, where sport and commercial harvesting may far exceed the domestic kill, reduced Indian government authority in a joint management plan may warrant consideration. The legal interest in wildlife of Indian governments located in densely populated areas of a prairie province is identical to that of governments located in wilderness areas. Management schemes for different areas of a province would need to be developed taking individual circumstances into consideration. Joint management in any circumstances would require Indian government representative,, to be in constant communication with provincial representatives and to

have an assured role in policy making.

## CONCLUSION

Given the general paucity of domestic harvest information, any description, even an approximate one, of Indian hunting and fishing, can be used to improve both non-Indian understanding of these activities and provincial wildlife management plans. Even though the present study did not select all interviewees in an ideally random manner and so cannot withstand rigid statistical criticism, its findings meet the above necessarily elastic criterion of acceptability and hence are of value.

The present study presents domestic harvest and consumption data from ten Indian communities in Manitoba which are comparable to findings of other studies and which demonstrate that this type of information can be obtained given the will to do so.

The absence of domestic harvest records can lead to implementation of inappropriate regulation of commercial and sport harvests by management authorities as they attempt to manage wildlife without a complete description of forces affecting populations. Obtaining and utilizing domestic harvest information on a long term basis calls for innovative leadership in provincial and Indian governments. Both parties in the past have taken less of an interest in cooperative conservation efforts than the importance of this subject merits. Instances of cooperation have occurred typically because of a drop in wildlife numbers. Though laudable, cooperation in crises is no substitute for long term joint management planning. The continued existence of wildlife, domestic harvesting rights, and commercial, sport, and non-consumptive use of wildlife is in part, dependant on implementation of such cooperative management schemes.

## NOTES

1. Status Indians are people of aboriginal ancestry who are defined as Indians by the Indian Act, Revised Statutes of Canada, 1970, c. 1-6, as amended.

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