# RURAL ECONOMY

**The Incorporation of Nontimber Goods and Services in Integrated Resource Management. I. An Introduction to the Alberta Moose Hunting Study**

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Project Report 93-12

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# The Incorporation of Nontimber Goods and Services in Integrated Resource Management. I. An Introduction to the Alberta Moose Hunting Study*
## Interim Project Report**

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## *1.0 Introduction*

Although participation in recreational hunting has been declining in Alberta throughout the mid 1980s and early 1990s, participation in moose hunting appears to have remained stable until about 1990 (Figure 1). The reasons for this comparative stability and the recent decline in participation are largely unknown. However the traditional nature of moose hunting with its provision of a supply of meat for participants may explain in part, its sustained level of participation. Moose hunting is also important in a regional sense in that expenditures made by participants in many communities provide important income and jobs. For these reasons moose hunting may be one of the most highly valued uses of the northern and foothill forest areas in the province. The recent expansion of the forest industry into areas important for moose hunters and the potential impact of the industry on hunting quality and associated values, justifies the incorporation of moose and moose hunting issues in integrated resource management decisions.

The authors began an investigation of various methods which could be used to incorporate values such as moose hunting in resource management decisions. Moose hunting in west central Alberta was chosen as the activity to examine. The study was conducted using 1992 hunters with the following objectives:

1. Examine various models which assess the importance of changes in attributes of a moose hunt
2. Determine the potential impacts of forestry on moose hunting
3. Test a method of structured public involvement in resource management decisions.

## *2.0 Methods*

### *2.1 Study Area*

An area of the province was required in which moose hunting was important and where a significant amount of forest industry activity was occurring. After examining a number of Wildlife Management Units (WMUs) and Forest Management Agreement Areas (FMAs) an area of west central Alberta was chosen (Figure 2). This area includes 15 WMUs and incorporates parts of FMAs held by Weldwood of Canada Ltd., Weyerhaeuser Canada Ltd., ANC Timber Ltd., and Canadian Forest Products Ltd. Moose hunting is a

significant activity in these areas involving about 10,000 hunters and the harvest of about 2100 moose in 1991[1]. In addition, considerable information exists on the levels of moose populations, habitat, and hunter use. The study area includes one regional office and 5 district offices of Fish and Wildlife Services of the Department of Environmental Protection. Table 1 provides a summary of various characteristics of the 15 WMUs found in the study area.

*2.2 Preliminary Examination of Moose Hunting Characteristics: The Focus Group*

In early October 1992, a meeting was held with a group of moose hunters. Most of these individuals were resource management specialists or biologists with high levels of knowledge about moose and forestry. They were also highly experienced moose hunters and all had hunted moose in the study area. It was apparent during the focus group discussion that forestry had primarily indirect impacts on moose hunting. These occurred through changes in access (due to logging road construction), congestion (due to changes in hunters using logged areas), road quality (resulting from changes in traffic patterns and construction), and moose numbers (as a result of changes in habitat from forest harvesting operations). The researchers, in conjunction with focus group participants, developed a list of hunting attributes and possible linkages with forestry operations. This list included the following attributes:

- size and condition of moose populations;
- access within the hunting area both in terms of availability and - quality of roads;
- congestion;
- direct presence of forest industry operations.

A number of questions such as "how many moose would you have to see during a day hunting in order to classify the day as a good day?"; or "how many other hunters would you have to encounter during a day to reduce the enjoyment of your trip?", provided an indication of different levels of the attributes. This information was used to construct the following list of attributes, their description and a number of discrete levels that provide measures of the attributes affecting a hunter's enjoyment of a day:

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[1] Reported in: *Harvest and Effort by Resident Big Game and Game Bird Hunters in 1991*, Fish and Wildlife Division, Alberta Forestry, Lands and Wildlife, 1992.

**Evidence of the Size of Moose Populations** - "seeing or hearing moose or seeing fresh sign such as tracks browse or droppings":

1. less than one moose per day
2. 1 to 2 moose per day
3. 3 moose per day
4. 4 moose per day

**Access within Hunting Area** - trails, cutlines or seismic lines

1. foot access only
2. ATV required
3. 4-wheel drive vehicles required
4. 2-wheel drive vehicles required

**Levels of Congestion** - "encountering (seeing and/or hearing) other hunters during the course of a hunting day"

1. no hunters
2. other hunters on foot
3. other hunters on ATV's
4. other hunters using vehicles

**Quality of Roads**

1. paved surfaces
2. gravel or dirt, essentially non-paved surfaces

**Presence of Forest Industry Operations**

1. evidence of recent logging (cutblocks, slash stumps etc.) within the last 10 years
2. no evidence of logging

**Distance from Home to the Hunting Site**

The focus group discussion formed the basis for developing an expanded study where the attributes were used to assess the impacts of forestry on moose hunting. The following sections describe the expanded study utilizing a random sample of moose hunters who held 1992 General Moose Licenses and the administration of a questionnaire in a face to face setting with other moose hunters.

*2.3 Questionnaire*

One goal of the questionnaire was to structure hunter input into the assessment of forestry impacts. We administered a questionnaire "in person" by inviting a sample of hunters to meetings in various towns in the study area. The instrument was designed to focus directly on the 15 WMUs included in the study area, and utilized changes in the attributes and levels derived from the moose hunter focus group.

The questionnaire consisted of five parts: i) a trip log outlining all moose hunting trips taken during the 1992 season; ii) a section gathering opinions on hunters' perception of various WMU characteristics such as distance, road quality, access, presence of other hunters, forestry activity, and moose populations; iii) a contingent behaviour question where individuals were asked whether or not they would be willing to travel extra distances to get to a specific WMU if the moose populations in this area were increased; iv) a site choice section where hunters were asked to trade off combinations of attributes[2] within 16 sets of two hypothetical sites; and v) a section collecting information on hunting equipment, preferences and demographic information such as age, income, hunting experience. A copy of the questionnaire is provided in Appendix 1.

One of the quality categories, distance, was presented to the hunters.

The information gathered in this questionnaire allows the comparison of three different resource valuation models: the travel cost model, the contingent behaviour method, and the choice experiment method. These models will be developed in future reports where they will be used to value changes in the various hunting attributes resulting from forestry activities. The questionnaire also enables resource managers to gather perceptions on the quality of the various WMUs used in the study area. This information is vital in interpreting the impact of resource management decisions on resource users.

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[2] One of the attributes, distance, was presented to respondents as a discrete variable. Four levels (50, 150, 250,and 350 km)were chosen to reflect distances from centres within the study area (e.g. Hinton) as well as those some distance away (e.g. Edmonton).

*2.4 The Administration of the Questionnaire*

A decision was made to utilize only the general moose hunting license holders because they could take a number of trips to a variety of WMUs during the season. The other available option was to sample the Calling Season Special License holders. These individuals are only able to hunt in one WMU of their choice which is allocated through a random lottery. Hunters could only hold one of these two moose licenses during the 1992 season.

In late November 1992, names, addresses and telephone numbers of about 1000 resident general moose license holders from the towns of Drayton Valley, Edson, Hinton, Edmonton, and Whitecourt were drawn from the computer data base at Fish & Wildlife office in Edmonton. This sample included all the available individuals on file from these towns at this particular time of the year. Unfortunately, only hunters who purchased their licenses near the beginning of the season were on file. This likely resulted in a sample biased in favour of bow hunters because these individuals are able to hunt earlier in the season than rifle hunters. Letters were sent to 404 hunters selected at random from the list provided by Fish and Wildlife. The letter informed them of the upcoming study and that they would receive a phone call asking them to participate in the study. A copy of the letter can be found in Appendix 2. The University of Alberta Population Research Laboratory (UAPRL) was contracted to phone and confirm each hunter's attendance, and once an individual indicated that he/she would attend, the UAPRL staff called as second time on the night before the meeting to confirm attendance. Incentives were offered in the form of cash prizes and every participant was provided with a special lapel pin which highlighted their participation in this study.

Approximately 20 - 30 hunters gathered in the meetings held in each town. The high interest in this study required the Whitecourt meeting to grow to approximately 55 people and in Edson, two separate sessions were held of 28 and 23 people each. In addition, three sessions were held in Edmonton (in an effort to accommodate the larger population of this city). The dates of the meetings were: Dec. 7 (Whitecourt), Dec.8 and 10 (Edson), Dec. 9 (Hinton), Dec. 14 (Drayton Valley), 1992, and Feb. 2, 3, and 4 (Edmonton), 1993.

Following introduction of the researchers and a brief description of the study, the questionnaire was discussed with participants. During this time a survey package containing the five part questionnaire, a map of

the study area, a glossary of terms, and a four month calendar from August to November was distributed. In addition, larger maps of the study area and the Alberta hunting regulation guide booklets were made available for reference. The order in which the questionnaire was organized differed for each meeting to eliminate possible bias associated with the ordering of the five part questionnaire. Refreshments were provided for the participants and they were urged to take a break when necessary. Participants were encouraged to ask any of the researchers to assist or interpret difficult questions at any time.

Following the administration of the questionnaire a general discussion focusing on moose hunting and forestry issues occurred. An attempt was made to have a Fish and Wildlife officer or biologist present at each meeting to respond to any questions particular to the area. One of the researchers took notes during this discussion and the entire discussion was taped. Participants were informed that they were being taped and that notes were being kept. They were also assured that their comments would be compiled and forwarded to appropriate authorities for their information.

## *3.0 Results*

### *3.1 Response to the Study*

Table 2 summarizes the response of the moose hunters to the sampling process. A first indication of the high level of interest in this study was that 18 referrals to invite other hunters were provided to the telephone staff at UAPRL. Many of these were provided because a potential hunter participant could not make a meeting so they provided the name of an alternate. Of the now 422 hunters, UAPRL staff confirmed that 312 individuals would attend meetings in their towns of residence. Some hunters had conflicts with the dates and offered to drive considerable distances to other neighbouring towns to attend meetings. Others who could not attend were disappointed and offered to participate in future studies of a similar nature. Of the 312 hunters who confirmed attendance, 271 attended the meetings. This represented an 87% response to the study.

*3.2 Discussions with Hunters*

The concern with respect to sample bias was borne out at the meetings. When asked, over one-third of the participants were early season bow hunters. However, virtually all of them hunted with a rifle during the general rifle moose season later in the year.

There was consensus from the hunters at each meeting that they appreciated the work that the researchers were conducting and were willing to participate in future studies if needed. The motivation driving this interest was an overwhelming concern for the moose populations and the desire for the continued existence of the hunting opportunity.

The open discussions following the survey provided a forum for hunters to express their views, concerns, and ideas about moose hunting in Alberta. In fact, many suggestions were put forth regarding season lengths, improving the dwindling moose populations, all terrain vehicle (ATV) use, access, forestry operations, and licensing and regulation. There were many concerns upon which the majority of moose hunters from all five towns agreed. These included a feeling that moose populations in the area were declining, that predation (wolves, ticks, and bears) were negatively affecting moose populations, and that native harvest of moose, if continued unchecked, would severely deplete moose numbers. The following sections outline a compilation of the comments put forth during the open discussions at each of the meetings.

*3.2.1 Moose Population Declines*

The majority of hunters surveyed agree that the moose populations are declining. Many of the rural hunters (Whitecourt, Edson, Hinton) were willing to give up hunting for one year, support rotating closures of some WMUs, or shorten the hunting season altogether. The feelings of many of the participants in Whitecourt, for example, were frequently punctuated with votes on various suggestions. These votes were not prompted in any way by the researchers.

The hunters did not generally agree on the reasons for the decline. Some suggested that the noise from ATV's was decreasing the amount of breeding while others argued that the animals should be accustomed to vehicle noise from other recreational vehicles year-round, and are thus not affected by ATV's. One hunter suggested that eliminating ATV use would bring the populations back up as few hunters are willing to carry a

moose very far. Another hunter suggested that if the season opened up at the same time as the deer season, there would be less pressure on the moose. As mentioned below, some argued that the calling season should be closed while others believe predation, increased access due to forestry activity, poaching, weather, and year-round unregulated hunting by natives was causing the decline of moose populations.

*3.2.2 Hunting Seasons*

Most hunters agreed that there are problems with the calling season draw license. For example, at times cows may or may not be bred due to the concentrated harvest of bulls. Restricting or cancelling this lottery hunt was felt by many to create more breeding in the future. A few defended the calling season, however, as they believe it is bringing the moose populations back up and that many hunters enjoy the opportunity to call moose. A few suggestions with regard to the calling season were to decrease the number of permits or perhaps alternate elk and moose calling seasons. Others felt that a calf season should be opened as the calves have a 50% mortality rate at the outset and this extra season would allow for an additional hunting opportunity.

Bow hunting is becoming increasingly popular as an alternate form of hunting. Figure 3 shows the increase in total bowhunting permit sales during the period from 1983-1992. Hunters are taking up bow hunting in addition to the general license hunt due to the additional opportunity. Many hunters voiced their interest in being outdoors and enjoying the surroundings, companionship, as well as the increased challenge when using a bow. A large portion of the hunters surveyed participated in the 1992 bow season and expressed interest in lengthening the bow season or designating certain WMUs strictly for bow hunting. There was also interest in black powder seasons and perhaps coordinating these with bow seasons, or some alternate combination in order to increase the opportunities to engage in black powder hunting.

*3.2.3 Fish and Game Association Membership*

Few hunters, less than 10% of those in the study, are members of the Fish & Game Association. When pressed for reasons why, they argued that nothing gets done in the organization, their opinions are not noted, and they are never informed in time to attend meetings. The researchers pointed out that if more hunters joined and became actively involved in the organization their views would have to be heard. The researchers

also noted some comments made by participants or fish and wildlife staff who attended that the opinions of the participants in this study were almost exactly opposite to those being proposed by the Fish and Game Association for moose management.

*3.2.4 Regulations*

Many participants agreed that all hunters should abide by the regulations and that one of the big issues surrounding regulation is hunter ethics. Areas of concern were: hunters using overhead racks with spotlights; restricting ATV use; not having cased weapons while riding on ATV's; clothing standards; and that penalties are small for infractions of hunting regulations. Whitecourt participants noted that Millar Western Forest Company staff have put tags on vehicles which are found on the side of the road to let the owners know that they are being watched in an attempt to curb poaching. Most felt this was a positive move and commended the company for this policy. One hunter suggested that clothing regulations be reinstated requiring individuals to wear red hats or vests as in earlier years. This allows hunters to be distinguished from the natural surroundings.

Most of the hunters surveyed believe that traditional Native hunting rights need to be regulated as well. Traditional hunting rights allow for year-round hunting (for subsistence purposes) with no limit on the number of animals to be harvested. The majority of hunters expressed concern over the dwindling moose populations and that perhaps in cases such as this, restrictions regarding hunting should apply to Native hunters as well.

Another suggestion was to require hunters by law to send in the incisor bars of harvested animals so the Fish and Wildlife Division can keep track of what is being bagged. This would enable biologists to better estimate the age structure of moose populations and propose limits.

A large portion of those surveyed believe that hunting licenses are becoming too expensive and that hunting will soon be an activity for the wealthy members of society. Many noted decreased interest in hunting by young people and argue that hunter education programs should be promoted. Also, because of the increase in license prices, a number of hunters believe that people may now take an additional big game animal (such as deer) because they paid for an extra license. Before, when licenses were less expensive, a hunter may purchase

a license but not fill the tag. In addition, a lot of hunters would like to see party-hunting legalized where two or three people have one specific big game tag for one animal.

A number of hunters in the Hinton and Edson meetings suggested that elk hunting is a substitute for moose hunting (probably due to the early season period of the rut and the amount of meat gained from a successful hunt). They proposed that a hunter should only be able to hold either an elk or moose licence. Many others, however, disagreed.

Another area of concern was the perception that outfitters are buying up a lot of the licenses. This enhanced the belief that non-resident hunters should be disallowed. Outfitters and biologists at the meetings informed the hunters that a large part of the revenue comes from non-resident hunters and that only a small percentage of licenses are allocated to outfitters. In fact, up to 10% of the available harvest is allocated to outfitters for non-resident hunters. This allocation figure may vary depending on local area success rates for residents.[3]

*3.2.5 ATV Use*

The topic of ATV use created great controversy with regard to designated ATV use areas, the time of day for ATV use, and general restrictions on ATV use. Many of the northern area hunters (Whitecourt, Edson) said that ATV use is a problem, whereas the Edmonton and Hinton hunters argued for their use in some capacity. The majority of hunters believed that ATV's should be permitted for retrieval of game and in special cases for handicapped individuals. Many would like to use ATV's to get into the bush and set up camp while others say that too many hunters ride up and down cutlines looking for game and at times shoot from their vehicle. One hunter in particular noted his recent experience of riding into a beautiful area that he would never have seen if it had not been for his ATV. The beauty of the natural surroundings is something to which many hunters look forward, in addition to the actual hunt.

There was a general feeling that legislation restricting the transport of loaded or unloaded guns on ATV's is needed. Some hunters indicated that they knew or heard of individuals who hunted from their ATV's and that Fish and Wildlife officers alone could not regulate hunters. Self-regulation was proposed as an

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[3]Source: personal communication with Harold Carr of the Fish and Wildlife Division on August 27, 1993.

alternative in addition to the officers. Another legislative issue was to designate certain WMUs for no ATV use and others permitting ATV use all day or at specified times during the day. The majority of hunters who participated in this survey do own or use off-highway vehicles when they go hunting.

In general, the researchers noted that while a number of participants were quite vocal about improper ATV use, many others remained quiet. It seemed at each meeting that a number of individuals had unpleasant experiences involving hunters and ATV use. When asked as a group, however, very few individuals admitted that they use an ATV for anything other than getting into the back country, scouting an area and fetching bagged game animals.

*3.2.6 Access*

The majority of hunters suggested that access needs to be restricted. Some argued that access increases poaching and that ditches, corridors, gates, and road closures are necessary in order to make it harder for individuals to get back into the bush easily. Only one individual suggested that access should be made easier so that hunters could get into the bush quickly, get their animal, and get out with little disturbance to the surroundings.

One of the only ways in which an area could be restricted was to declare the area a wildlife sanctuary. A drawback with this is that the area can be un-declared a sanctuary. However, public pressure intervenes in this process in many cases disallowing this change. Perhaps more efficient blockages of access and more careful and constructive site preparation after a cut would be more useful.

*3.2.7 Forestry Operations*

It was noteworthy that of all the comment categories, forestry operations as a whole were not a major concern among hunters. Despite this, however, hunters in the various towns had different concerns with respect to forestry operations. For example, hunters in Hinton complained about the state of the land after logging (scarification). They commented that is was not traversable by humans or animals. When pressed they suggested that scarification was a major concern in their opinion. Cut blocks were a concern for hunters in Edson where the size of cut blocks was raised and hunters in Whitecourt and Edmonton were concerned about their shape.

There was general agreement that forestry activity increases moose populations up to a point by providing new growth for browsing, but eventually negatively affects the populations by making areas more accessible. Every season the freshly logged areas attract moose from surrounding areas. This provides full access for the hunters who then shoot moose because there is not enough underbrush to protect the animals. Many argued that the cutblocks are too big, that there is too much clear cutting and that perhaps the forest companies should consider longer and narrower cuts so that game can cross into cover more easily. Smaller and more staggered cuts, or selective logging, was also suggested to provide aesthetically pleasing sites and allow moose to forage in corners in addition to providing protection for watersheds, rivers and headwaters.

Communication between local residents and the forestry, oil, and gas companies should be encouraged. A comment heard after the meeting, for example, by a participant in Hinton who may have been employed by Weldwood was that "the participants don't know much about local logging practices." This suggests that greater consultation, education and awareness is required if the promotion of integrated resource management and public involvement is a concern.

Reforestation efforts throughout the study area to date were not considered very successful by the hunters. They asserted in Hinton, for example, that nothing could possibly grow given the state in which the cuts are left. Once an area is cut, the operators leave plenty of fallen timber and ditches so that no animal or human could possibly walk through it. Also, the poorly cut sites do not promote regrowth of bush or forest for cover. Also, erosion, poor planting regimes and the inability of seedlings to take to the poor soil account for this state.

*3.2.8 Summary*

Comments provided by hunters at the meetings are summarized by town in Table 3. The comment categories are displayed in order of their apparent importance to the hunters as reasoned by the amount of discussion noted by the researchers. Moose population concerns are discussed the most, while comments about licensing and regulations were discussed the least. The information identifies some of the regional differences mentioned above.

### *3.3 Preliminary Results: Socioeconomic Characteristics of the Sample*

#### *3.3.1 Socioeconomic Characteristics of the Sample*

Table 4 summarizes some characteristics of the hunters who took part in the study. Their mean age was 39.4 years. The oldest individual in the group was 73 years of age. The hunters had an average of about 20 years of hunting experience and about 16 years of experience hunting moose. About half of those surveyed had completed high school, with 34% reporting some post secondary training. Most of the sample reported incomes in the ranges of $20,000-$60,000.

#### *3.3.2 Why they Hunt Moose*

The survey revealed that the most important reasons for moose hunting are for the meat and for companionship (Table 5) with over half of the sample choosing "meat in the freezer" and about 37% choosing "companionship of friends/family". Very few hunters indicated that they hunt for a trophy moose.

### *3.4 Preliminary Results: Characteristics of Hunting Trips*

#### *3.4.1 With whom, How, and When they Hunt*

About 70% of the sample reported that they hunt moose with one or two other people (Table 5). The most popular mode of transportation to a moose hunting site is a four-wheel drive highway vehicle. The three common forms of transportation while hunting are: hunting on foot (86%); ATV or trail bike (61%); and four wheel drive vehicles (58%).

Many hunters responded yes to the question of whether or not they use some of their vacation time to go moose hunting (Table 5). Thus, hunters consider moose hunting a recreational activity in addition to the possibility of having meat for the winter. The majority of hunters responded that they could be working on the days that they are hunting, implying the importance of this activity to hunters. This indicates a genuine preference for moose hunting and a desire to continue this recreational activity.

#### *3.4.2 Negative Factors*

Certain events may occur during the hunt which detract from one's hunting enjoyment. Two questions asked hunters to rank three events on a three point scale. Hearing shots from other hunters or voices was

chosen as the event which detracts the most from one's hunting enjoyment. This may be most bothersome as once other hunters are in "your area", the probability of a member of your party bagging an animal may decrease given the increase of hunters in the area. Also, hearing shots may suggest a "missed" opportunity to bag an animal. About 37% of those surveyed rated the sound of off-highway vehicles as detracting the most from their enjoyment; 33% stated that this disrupted their experience the least, and 23% rated this activity as one which disturbs their enjoyment only somewhat. These results suggest that many expect to hear or encounter off highway vehicles and perhaps resign themselves to that before embarking on a trip.

*3.4.3 Preferred WMUs*

The hunters were asked to check their preferred hunting areas from a list of 15 WMUs. This revealed that WMUs 346, 350 and 348 were the most popular hunting areas. Other popular WMUs included: 344, 338, and 340. The hunters were also asked to indicate if they had hunted in these WMUs previous to 1992. Responses to this question revealed that 177 hunters had hunted in WMU 346 previously and 152 had hunted in WMU 350 (Figure 4). These results are expected since these two WMUs were found to be the most preferred WMUs in the study area. Following these are WMU 352 which has been visited by 128 people, while 338, 348, and 340 had 100, 99 and 96 hunters respectively visiting these WMUs at some point during their years of hunting.

*3.4.4 Descriptions of 1992 Trips*

Each respondent provided the following information for each trip taken during 1992: the WMU visited, the distance travelled to the site, dates of travel, whether or not the hunter had hunted at the site before, the number of people in the party, the length of the trip in days, number of moose harvested by the hunter and total by the party, type of accommodation used during the trip, and the number of similar trips taken during the season. The hunters provided data for 1,007 trips to 14 WMUs during the 1992 season.

Many of the hunters took one-day trips this season, with 75% of those surveyed indicating that they took one or two day trips. Figure 5 displays the total number of trips taken by the sample and is subdivided into Edmonton and non-Edmonton hunters. Figure 6 displays the length of trips taken by the sample and is also subdivided in the same fashion. Clearly, hunters from Edson, Whitecourt, Hinton and Drayton Valley

collectively took almost three times as many hunting trips as the moose hunters from Edmonton. Approximately 60% of the hunters took three or fewer trips, with 22% taking one trip, another 22% taking two trips and 17% taking three trips.

The most popular WMU visited during the 1992 season by the sample was WMU 346 (Fig. 7). Approximately 22% of the hunters chose this site, followed by 21% of the hunters visiting 350 and 11% hunted in WMU 348. None of the respondents hunted in WMU 439 during the 1992 season. In addition, the majority of hunters had previously visited the site where they took a trip, whereas only 6% chose a new location in which to hunt. This suggests that the moose hunters sampled maintain a strong fidelity to hunting areas.

The four most popular hunting start dates reported from this survey are: October 12, November 2, November 11 & November 14. Also, the end of October and all of November receive much more hunting activity than August, September, or early October. The earliest dates that hunters went on a hunting trip are August 24 and 25 which is during the archery season.

The types of accommodation reported by the hunters are shown in Figure 8. Accommodation requirements for short duration trips are far less than for longer trips. The most common type of accommodation was staying at a home with 63% of the sample choosing this option. The next most popular types of accommodation were trailer/RV and tents with approximately 15% and 14% of hunters respectively choosing these.

A hunting party size of two individuals was the most common response reported by the sampled hunters (Fig. 9). Nearly 350 trips were taken by parties of two people, followed by single party trips occurring approximately 175 times. Just over 100 trips were made by parties of three hunters.

The success rates of the hunters for this season are not very high. Only 9% of the hunters harvested a moose themselves while 18% indicated that a member of their party had harvested a moose.

### *3.5 Perceptions of Hunting Quality in Various WMUs*

Collecting information about the sites with which hunters are familiar allows for the examination of the possible sites that a hunter may visit. One may interpolate information about the site quality or important

characteristics by analysing hunters visits or awareness of sites. Within an integrated management framework, this information can aid resource managers in determining which sites are being used most often or might benefit from improvement.

In this survey, there are two ways in which to examine the sites of which hunters are aware. The first way is to examine the sites in which hunters have previously hunted. Over 65% of the sample have hunted in WMU 346, followed by over 55% having hunted in 350, and over 45% in 352. Only four (of the fifteen) WMUs had fewer than 15% of the sample never having hunted there before.

The second way in which the question of awareness may be addressed is to examine the responses to the opinion table. If hunters responded "I don't know" when asked about their opinion of the characteristics of the WMUs, then one may assume that they are not aware of this site. However, this assumption may be incorrect. If a hunter does not know about some of the characteristics of a site he/she may still include that WMU in their set of possible hunting sites. Therefore excluding that WMU on the basis of an "I don't know" response may be premature.

One common approach to determine a respondent's awareness of sites is simply to ask "have you heard of this site before", or "are you aware of this site". The purpose for asking this question is two-fold. First, information about the sites of which people are aware enables resource managers to compare use patterns with awareness and determine which sites may benefit from improvements. This may also allow decisions to be made about site closures, opening new sites near areas with high use or to examine the attributes of the frequently used sites with an eye to increasing the quality of the sites which people are least aware. In addition, a marketing strategy to increase recreationists awareness of new or improved sites would be useful.

*3.5.1 Perceived vs. Actual Measures*

One section of the survey asked hunters their opinions about certain characteristics of the WMUs in the study. Objective (or true) measures of these six attributes were obtained from the Fish and Wildlife Division and are compared to the hunters perception of these characteristics. The six characteristics were:

i) distance from home to WMU

ii) road quality from home to the WMU

iii) access within the WMU

iv) encountering other hunters within WMU

v) presence or absence of forest activity and

vi) moose populations in the WMUs

Comparisons between the perceived and objective measures of three specific attributes in question, moose populations, congestion, and access are found in Tables 6, 7, and 8. This information suggests why hunters choose certain WMUs over others. Approximately half of the respondent's perceptions of access matched the objective measures provided by Fish & Wildlife. Slightly more than half of the perceptions of moose populations, and more than half of the perceptions of congestion matched the measures provided by Fish & Wildlife. This information provides insight into which attributes are preferred and whether attributes of other WMUs could be altered to provide more sites with similar characteristics.

Some reasons for the discrepancy between the hunter opinions and objective measures may be due to the size of the WMUs. Hunters may not visit the entire WMU and their opinions may reflect site level characteristics of that WMU.

### *4.0 Concluding Remarks*

The purpose of this interim report is to summarize the development, implementation, and objectives of this study and to present descriptive results from the survey. In addition, the commments of hunters at the meetings were summarized in order to provide details to interested individuals. Readers should be aware that the objectives of this study involve the assessment of economic and behavioural models for use in integrated resource management decisions. The sample used is biased because of the large percentage of bow hunters and early season license holders. However, most still hunted with a rifle after bow season.

We noted that the sampled individuals have a keen interest in the management of the resource and that they feel "left out" of many of the management decisions to date. The hunters remarked that there are few, if any, vehicles for them to express their concerns to the government. They viewed this study as a constructive way in which to voice their opinions. The Alberta Fish and Game Association is not generally viewed by these

hunters as an effective body by these individuals for tabling concerns to wildlife managers. This, coupled with comments from wildlife managers that the concerns noted in the meetings were not the same as those raised by the Fish and Game Association, suggest that new public involvement methods for wildlife management should be considered.

The researchers involved in this study are advocates of structured public involvement processes. This means the use of detailed surveys, polls, and organized discussion groups to gather information which provide knowledge about the scope of these concerns. What makes this study unique in terms of public involvement processes in Alberta to date was the process of gathering small groups at the meetings combined with the personal administration of a detailed questionnaire. We believe that combining the structured survey with a focus group discussion, although requiring more effort, allows the effectiveness of each method to be realized.

In this study we were surprised at the level of interest and response by the hunters to our requests for participation. Given the apparent lack of success at gathering useful information and low participation levels at previous public forums surrounding forestry issues in Alberta, we suggest that future work on incorporating public concerns in resource management issues consider methods similar to those described in this report.

Further analyses of the moose hunter data will be presented in subsequent reports. At present, effort is being directed at utilizing economic and behavioural models to examine resource and recreation trade offs. Techniques such as contingent valuation, travel cost models, and stated preference models are being considered.

Table 1

The Size and Density of Moose in 15 Wildlife Management Units in West-Central Alberta.[1]

| Wildlife Management Unit | Area ($km^2$) | Number of Moose | Moose Density (moose/$km^2$) |
|---|---|---|---|
| 337 | 1998 | 900 | 0.450 |
| 338 | 2562 | 1910 | 0.746 |
| 340 | 2541 | 1680 | 0.661 |
| 342 | 1507 | 890 | 0.591 |
| 344 | 3636 | 620 | 0.171 |
| 346 | 5220 | 4110 | 0.787 |
| 348 | 2989 | 4350 | 1.455 |
| 350 | 13041 | 11310 | 0.867 |
| 352 | 3449 | 1180 | 0.342 |
| 354 | 8590 | 4513 | 0.525 |
| 356 | 8768 | 3925 | 0.448 |
| 437 | 1087 | 190 | 0.175 |
| 438 | 1585 | 290 | 0.183 |
| 439 | 670 | 40 | 0.060 |
| 507 | 2774 | 1520 | 0.548 |

[1] Information provided by Fish and Wildlife Services, Alberta Department of Environmental Protection

Table 2

Response to Telephone and Mail Contacts Made by Moose Hunters in West-Central Alberta in 1992

| Town | No. of Hunters Contacted by Telephone | No. of Referrals | Total Contacts | No. who Confirmed Attendance at Meetings | No. of Hunters who Actually Attended | % Response |
|---|---|---|---|---|---|---|
| Whitecourt | 92 | 2 | 94 | 67 | 52 | 78 |
| Edson | 78 | 1 | 79 | 60 | 51 | 76 |
| Hinton | 49 | 1 | 50 | 39 | 31 | 78 |
| Drayton Valley | 35 | 1 | 36 | 30 | 25 | 83 |
| Edmonton | 150 | 13 | 163 | 116 | 112 | 71 |

Table 3

Areas of Concern Relating to Moose Hunting Revealed through Discussions with Hunters at Meetings in Various Towns in West-Central Alberta in 1992.

(**=primary *=secondary 0=not a concern)

| TOPIC | EDMONTON | DRAYTON VALLEY | WHITECOURT | EDSON | HINTON |
|---|---|---|---|---|---|
| MOOSE POPULATIONS dwindling due to: | | | | | |
| -ATV noise | | | * | ** | |
| -predation | ** | ** | ** | ** | ** |
| -traditional native hunting rights | ** | * | ** | ** | ** |
| MOOSE MORTALITY | | | | | |
| -wolves | ** | ** | | ** | ** |
| -ticks | ** | ** | ** | | |
| -bears | * | | | * | |
| ACCESS | | | | | |
| -restrict | ** | ** | ** | ** | ** |
| -consider corridors | | | ** | * | * |
| -gates/road closure | * | * | * | * | |
| ATV USE | | | | | |
| -restrict usage time/area | * | * | ** | * | * |
| -retrieval only | * | * | | ** | * |
| EFFECTS OF FORESTRY ACTIVITY | | | | | |
| -cut block size | | * | | ** | ** |
| -cut block shape/narrow | ** | | ** | | ** |
| -poor condition after area cut | ** | ** | | ** | ** |
| -increases then decreases moose populations | ** | ** | ** | ** | ** |
| -too many clear cuts | ** | | * | ** | ** |
| SEASONS: | | | | | |
| -shut season down | | 0 | | | * |
| -alter calling season | ** | | * | | ** |
| -rotate WMU closures | * | | * | ** | |
| -more Bow opportunity | * | | ** | ** | |
| -open other seasons at same time | | | ** | ** | ** |
| -open a calf season | | 0 | ** | ** | ** |
| -shorten season | | | ** | ** | |
| LICENSING & REGULATION | | | | | |
| -license too expensive | ** | ** | * | | * |
| -restrict ATV use | | | ** | ** | |
| -encase guns on ATV's | | ** | ** | ** | ** |
| -clothing standards | | | | | ** |
| -allow party hunting/ alter tag, 1 tag=1 animal | * | | ** | ** | ** |
| -put fees into conservation | ** | ** | ** | | ** |
| -poaching is a problem | ** | * | ** | | * |

Table 4

Socioeconomic and Hunting Experience Characteristics of the Sample of Moose Hunters used in the Study

| Variable | N | % | Mean | S.D. | Minimum | Maximum |
|---|---|---|---|---|---|---|
| AGE (yrs) | 270 | | 39.41 | 10.54 | 17 | 73 |
| GENDER (% male) | 269 | 98 | | | | |
| GENERAL HUNT EXP. (yrs) | 268 | | 20.11 | 10.53 | 2 | 56 |
| MOOSE HUNT EXP. (yrs) | 269 | | 16.66 | 10.30 | 1 | 56 |
| EDUCATION | 270 | | | | | |
| grades 1-9 | | 10 | | | | |
| grades 10-12 | | 50 | | | | |
| post secondary | | 33 | | | | |
| graduate degree | | 7 | | | | |
| INCOME ($) | 262 | | | | | |
| 20001-40000 | | 30 | | | | |
| 40001-60000 | | 32 | | | | |
| 60001-80000 | | 20 | | | | |

Table 5

Some Characteristics of Moose Hunting Trips taken by Moose Hunters in West-Central Alberta

| Question | Answer Choice | % who chose this response |
|---|---|---|
| Most important reason for moose hunting? | -to shoot a trophy moose | 4 |
| | -to put meat in the freezer | 56 |
| | -for companionship | 37 |
| Methods of transportation used while hunting | -2 wheel drive vehicle | 31 |
| | -4 wheel drive vehicle | 58 |
| | -trail bike or ATV | 61 |
| | -hunt on foot | 86 |
| | -horses | 5 |
| | -snowmobile | 3 |
| General size of hunting party | -alone | 15 |
| | -with one or two others | 70 |
| | -with three to five others | 14 |
| | -five or more | 1 |
| Do you use any of your vacation time when you go hunting? | -yes | 72 |
| | -no | 26 |

Table 6

Frequency of Moose Hunter Perceptions, Mean, and Objective Measures of Moose Populations for WMU's in Alberta

| WMU | Objective measures by F & W Division | Hunter Perceptions of Moose Populations In These Areas Evidence of Moose per day | | | | total who responded 1 - 4 | Mean perception rating | responded "I don't know" | total who responded 1 - 5 |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 less than 1 moose | 2 1 or 2 moose | 3 3 moose | 4 more than 4 moose | | | | |
| 337 | 2 | 40 (44.0%) | 36 (39.5%) | 8 (8.80%) | 7 (7.70%) | 91 | 1.8 | 122 (57.0%) | 213 |
| 338 | 3 | 47 (40.0%) | 48 (40.6%) | 11 (9.30%) | 12 (10.1%) | 118 | 1.9 | 95 (55.0%) | 213 |
| 340 | 2 | 48 (41.3%) | 49 (42.2%) | 12 (10.3%) | 7 (6.00%) | 116 | 1.8 | 98 (45.8%) | 214 |
| 342 | 1 | 48 (50.5%) | 37 (39.0%) | 9 (9.50%) | 1 (1.00%) | 95 | 1.6 | 115 (54.8%) | 210 |
| 344 | 1 | 51 (53.7%) | 27 (28.4%) | 13 (13.7%) | 4 (4.20%) | 95 | 1.7 | 122 (56.2%) | 217 |
| 346 | 3 | 61 (35.2%) | 61 (35.2%) | 32 (18.5%) | 19 (11.0%) | 173 | 2.1 | 59 (25.4%) | 232 |
| 348 | 4 | 46 (37.7%) | 34 (27.9%) | 21 (17.2%) | 21 (17.2%) | 122 | 2.1 | 94 (43.5%) | 216 |
| 350 | 2 | 56 (34.6%) | 68 (42.0%) | 19 (11.7%) | 19 (11.7%) | 162 | 2 | 82 (33.6%) | 244 |
| 352 | 1 | 46 (37.1%) | 46 (37.1%) | 22 (17.7%) | 10 (8.10%) | 124 | 2 | 103 (45.3%) | 227 |
| 354 | 2 | 31 (34.4%) | 34 (37.7%) | 17 (18.8%) | 8 (8.80%) | 90 | 2 | 131 (59.3%) | 221 |
| 356 | 2 | 16 (27.6%) | 23 (39.6%) | 14 (24.1%) | 5 (8.60%) | 58 | 2.1 | 156 (73.0%) | 214 |
| 437 | 2 | 27 (45.0%) | 22 (36.7%) | 7 (11.6%) | 4 (6.60%) | 60 | 1.8 | 154 (72.0%) | 214 |
| 438 | 2 | 36 (53.7%) | 17 (25.3%) | 8 (11.9%) | 6 (8.90%) | 67 | 1.8 | 146 (68.5%) | 213 |
| 439 | 1 | 34 (68.0%) | 10 (20.0%) | 3 (6.00%) | 3 (6.00%) | 50 | 1.5 | 161 (76.3%) | 211 |
| 507 | 2 | 27 (35.5%) | 31 (40.8%) | 8 (10.5%) | 10 (13.2%) | 76 | 2 | 142 (65.1%) | 218 |

* parentheses indicate percentage of respondents who answered question

Table 7

Frequency of Moose Hunter Perceptions, Mean, and Objective measures of Congestion for WMU's in Alberta

| WMU | Objective measures by F & W Division | Hunters Perception of Congestion Encountering hunters during the course of a hunting day | | | | total who responded 1 - 4 | Mean perception rating | responded "I don't know" | total who responded 1 - 5 |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 my party only | 2 hunters on foot | 3 hunters on ATV's | 4 hunters in trucks | | | | |
| 337 | 4 | 4 (3.70%) | 10 (9.25%) | 33 (30.5%) | 61 (56.5%) | 108 | 3.4 | 111 (50.7%) | 219 |
| 338 | 4 | 6 (4.40%) | 12 (8.80%) | 39 (28.7%) | 79 (58.0%) | 136 | 3.4 | 85 (36.50%) | 221 |
| 340 | 4 | 2 (1.60%) | 10 (7.80%) | 41 (32.0%) | 75 (58.6%) | 128 | 3.48 | 91 (41.50%) | 219 |
| 342 | 4 | 6 (5.40%) | 11 (9.80%) | 39 (34.8%) | 56 (50.0%) | 112 | 3.3 | 101 (47.4%) | 213 |
| 344 | 4 | 9 (7.80%) | 6 (5.20%) | 47 (40.9%) | 53 (46.0%) | 115 | 3.25 | 103 (47.2%) | 218 |
| 346 | 4 | 8 (4.30%) | 10 (5.40%) | 73 (39.5%) | 94 (50.8%) | 185 | 3.36 | 48 (20.60%) | 233 |
| 348 | 3 | 5 (3.40%) | 18 (12.2%) | 49 (33.3%) | 75 (51.0%) | 147 | 3.32 | 73 (33.20%) | 220 |
| 350 | 4 | 7 (4.10%) | 10 (5.80%) | 72 (42.1%) | 82 (48.0%) | 171 | 3.34 | 72 (29.60%) | 243 |
| 352 | 3 | 7 (5.20%) | 8 (5.90%) | 55 (40.4%) | 66 (48.5%) | 136 | 3.32 | 92 (40.40%) | 228 |
| 354 | 3 | 3 (2.90%) | 8 (7.70%) | 52 (50.5%) | 40 (38.8%) | 103 | 3.25 | 119 (55.6%) | 222 |
| 356 | 4 | 6 (9.40%) | 2 (3.10%) | 28 (43.7%) | 28 (43.7%) | 64 | 3.21 | 150 (70.1%) | 214 |
| 437 | 3 | 4 (5.50%) | 15 (20.8%) | 20 (27.8%) | 33 (45.8%) | 72 | 3.14 | 143 (66.5%) | 215 |
| 438 | 3 | 6 (7.80%) | 13 (16.8%) | 19 (24.7%) | 39 (50.7%) | 77 | 3.18 | 136 (63.9%) | 213 |
| 439 | 4 | 7 (10.8%) | 16 (24.6%) | 14 (21.5%) | 28 (43.0%) | 65 | 2.97 | 149 (69.6%) | 214 |
| 507 | 4 | 10 (11.9%) | 8 (9.50%) | 28 (33.3%) | 38 (45.2%) | 84 | 3.12 | 135 (61.6%) | 219 |

* parentheses indicate percentage of respondents who answered question

Table 8

Frequency of Moose Hunter Perceptions, Mean, and Objective Measures of Access for WMU's in Alberta

| WMU | Objective measures by F & W Division | Hunter Perception of Access Within These Hunting Areas Amount of Access | | | | total who responded 1 - 4 | Mean perception rating | responded "I don't know" | total who responded 1 - 5 |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 no trails, cutlines or seismic lines | 2 old trails ATV use only | 3 newer trails passable with 4WD | 4 newer trails passable with 2WD | | | | |
| 337 | 3 | 4 (3.6%) | 42 (37.5%) | 47 (42.0%) | 19 (17.0%) | 112 | 2.7 | 105 (48.0%) | 217 |
| 338 | 3 | 0 (0.0%) | 65 (45.7%) | 63 (44.0%) | 14 (9.80%) | 142 | 2.6 | 77 (35.0%) | 219 |
| 340 | 4 | 4 (2.8%) | 60 (43.0%) | 65 (46.0%) | 11 (7.80%) | 140 | 2.6 | 79 (52.0%) | 151 |
| 342 | 4 | 3 (2.5%) | 45 (37.8%) | 56 (47.0%) | 15 (12.6%) | 119 | 2.7 | 96 (44.6%) | 215 |
| 344 | 2 | 1 (0.8%) | 55 (43.3%) | 56 (44.1%) | 15 (1.20%) | 127 | 2.7 | 95 (42.8%) | 222 |
| 346 | 2 | 2 (1.0%) | 80 (42.5%) | 77 (41.0%) | 29 (15.4%) | 188 | 2.7 | 46 (19.7%) | 234 |
| 348 | 3 | 3 (2.0%) | 69 (47.0%) | 54 (36.7%) | 21 (14.3%) | 147 | 2.6 | 71 (32.5%) | 218 |
| 350 | 2 | 1 (0.5%) | 84 (47.5%) | 73 (41.0%) | 19 (10.7%) | 177 | 2.6 | 69 (28.0%) | 246 |
| 352 | 2 | 2 (1.3%) | 70 (46.0%) | 60 (39.5%) | 20 (13.1%) | 152 | 2.6 | 78 (34.0%) | 230 |
| 354 | 2 | 1 (0.9%) | 55 (47.0%) | 50 (42.7%) | 11 (9.40%) | 117 | 2.6 | 108 (48.0%) | 225 |
| 356 | 3 | 3 (3.8%) | 35 (45.5%) | 32 (41.6%) | 7 (9.00%) | 77 | 2.5 | 142 (64.8%) | 219 |
| 437 | 2 | 0 (0.0%) | 49 (56.0%) | 29 (33.0%) | 9 (10.3%) | 87 | 2.5 | 134 (60.6%) | 221 |
| 438 | 3 | 1 (1.1%) | 45 (50.0%) | 34 (37.7%) | 10 (11.1%) | 90 | 2.6 | 129 (59.0%) | 219 |
| 439 | 2 | 4 (5.5%) | 37 (50.7%) | 26 (35.6%) | 6 (8.20%) | 73 | 2.5 | 146 (66.7%) | 219 |
| 507 | 4 | 2 (2.1%) | 39 (41.5%) | 37 (39.3%) | 16 (17.0%) | 94 | 2.7 | 129 (57.8%) | 223 |

* parentheses indicate percentage of respondents who answered question

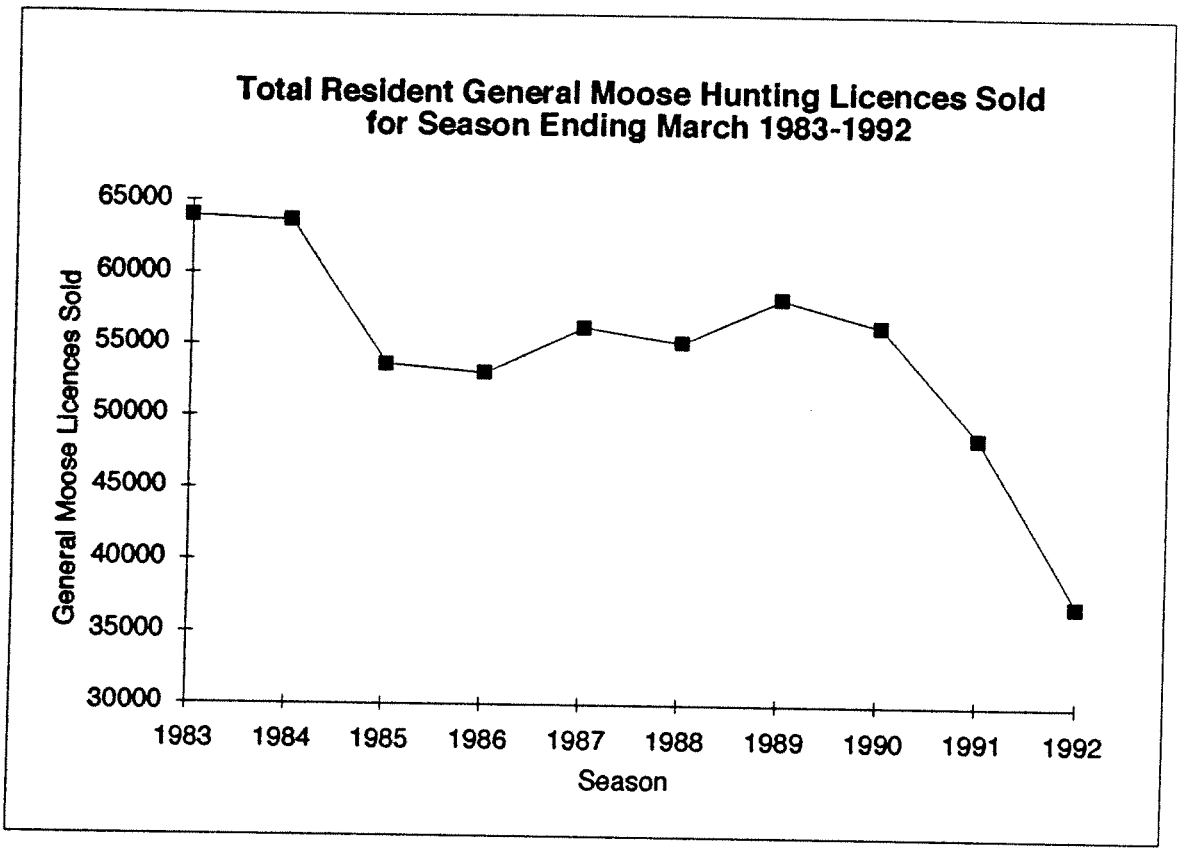
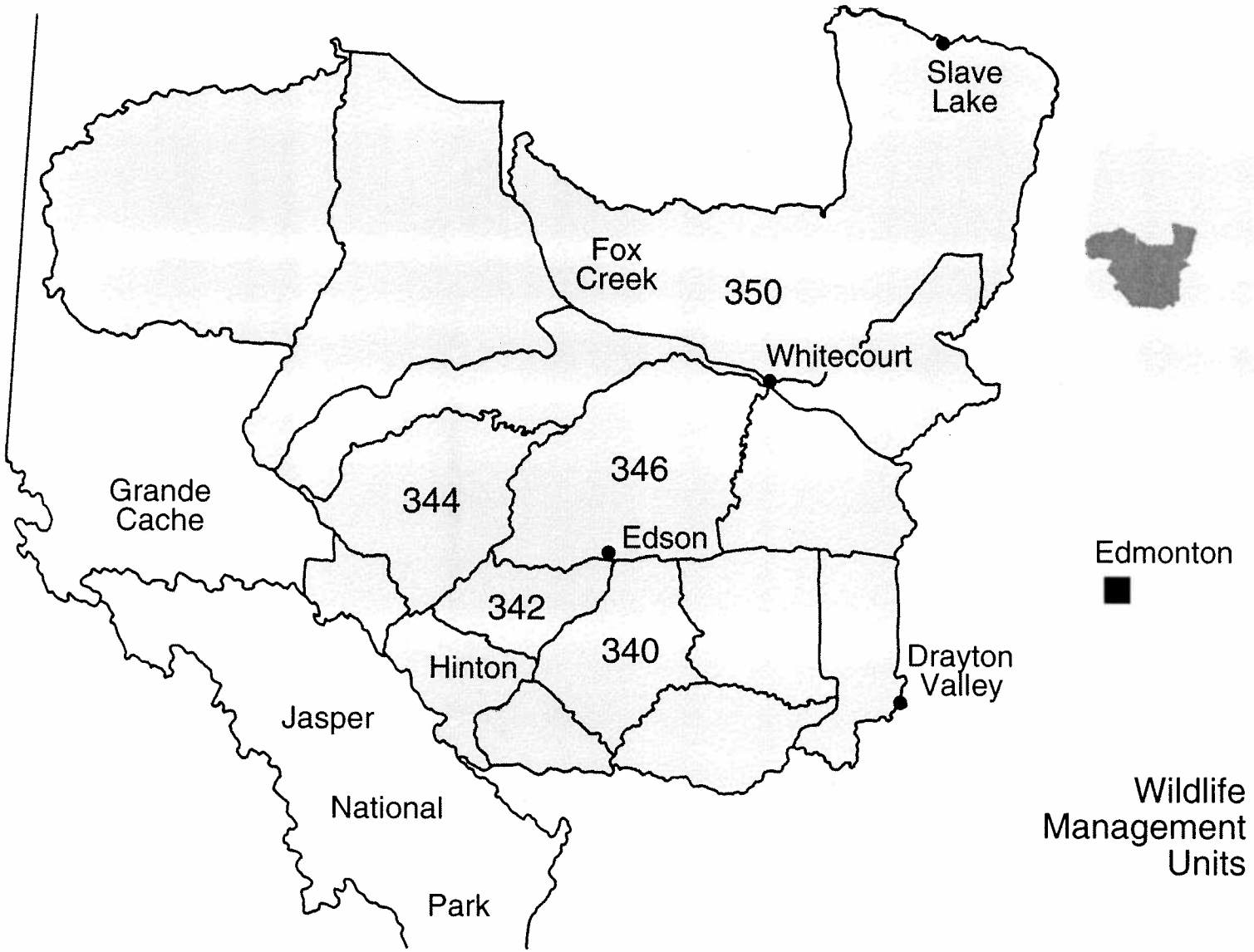



Figure 1

Source: ALBERTA FORESTRY LANDS and WILDLIFE Fish and Wildlife Division

* The 1992 moose license sales figure includes the calling season license sales as well

Figure 2. A map of the Wildlife Management Units used in the study



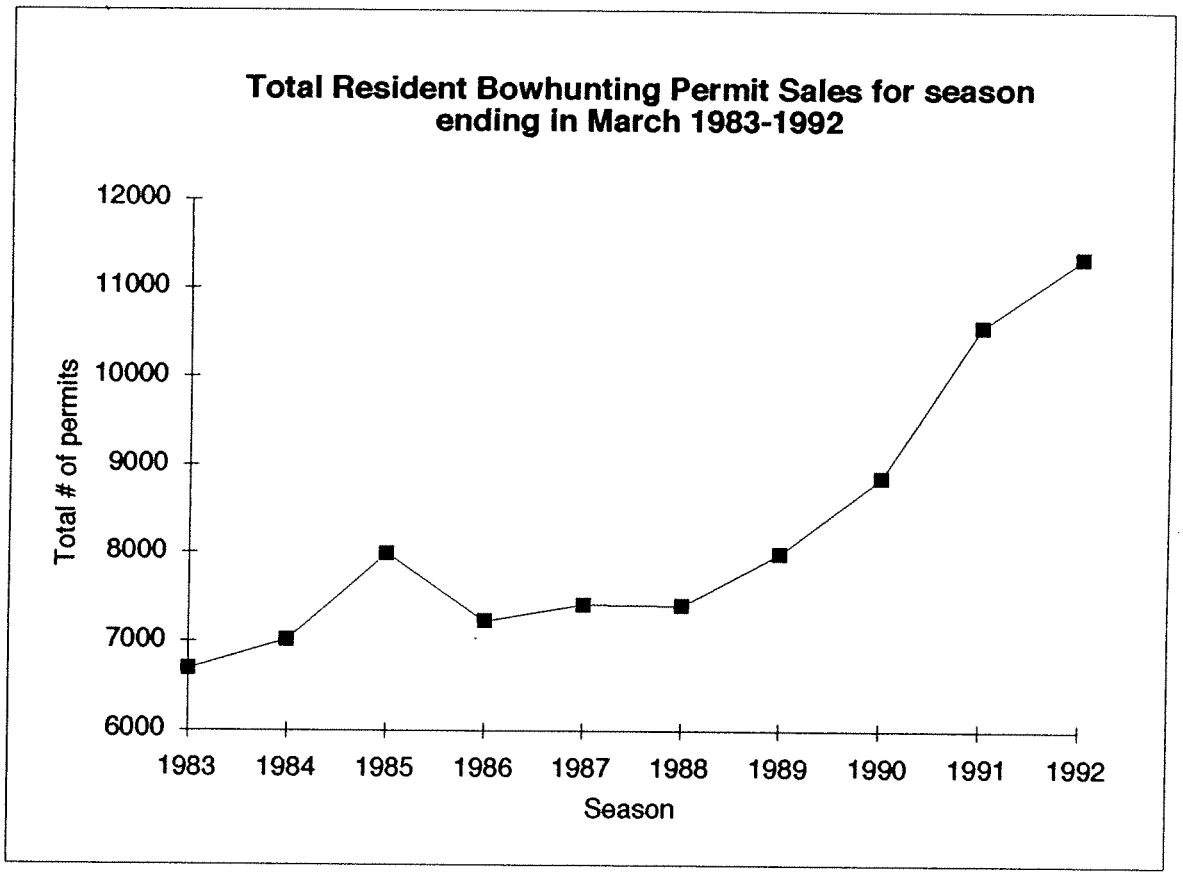



Figure 3

Source: ALBERTA FORESTRY LANDS and WILDLIFE Fish and Wildlife Division

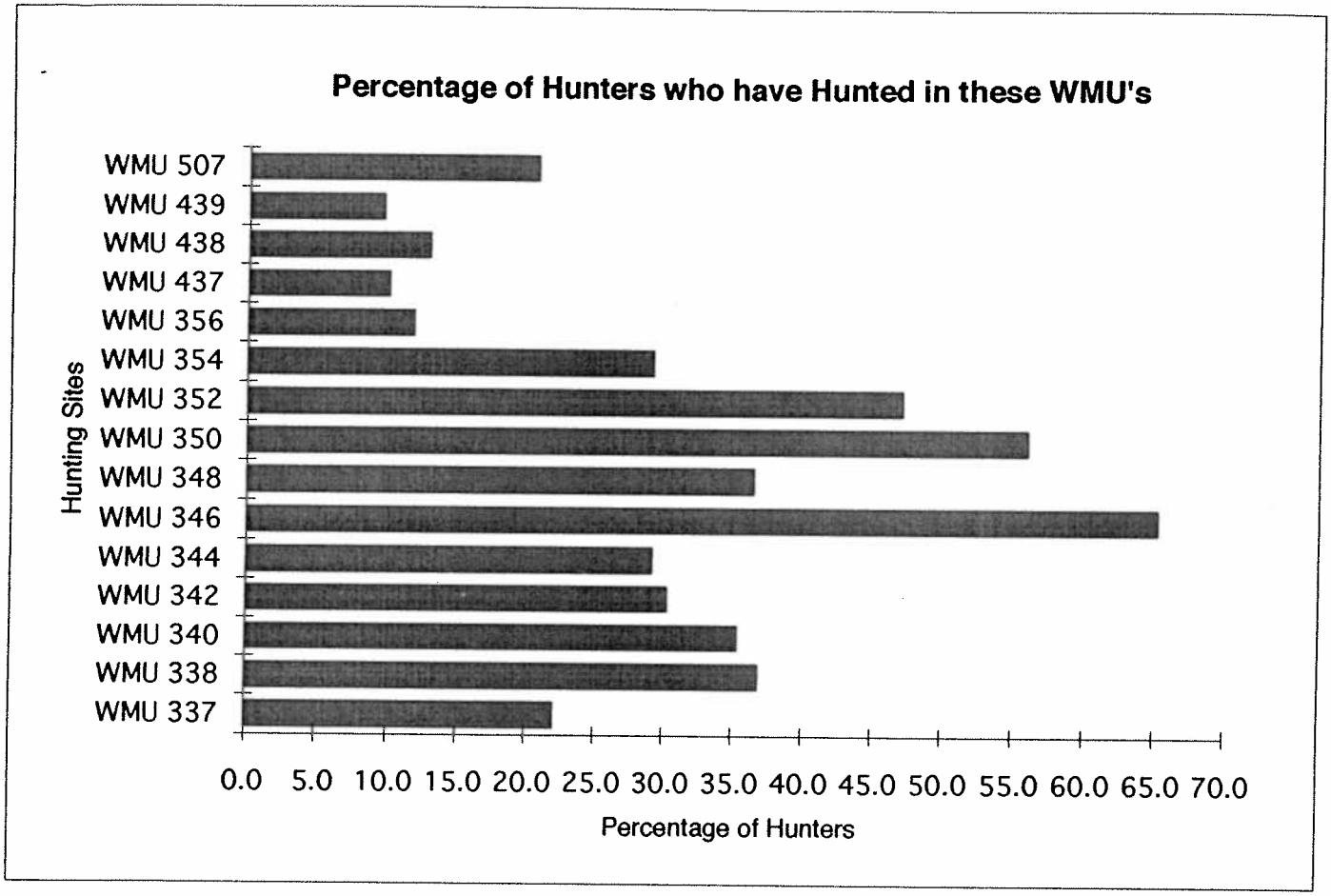

Percentage of Hunters who have Hunted in these WMU's
Hunting Sites
WMU 507
WMU 439
WMU 438
WMU 437
WMU 356
WMU 354
WMU 352
WMU 350
WMU 348
WMU 346
WMU 344
WMU 342
WMU 340
WMU 338
WMU 337
0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 45.0 50.0 55.0 60.0 65.0 70.0
Percentage of Hunters

Figure 4

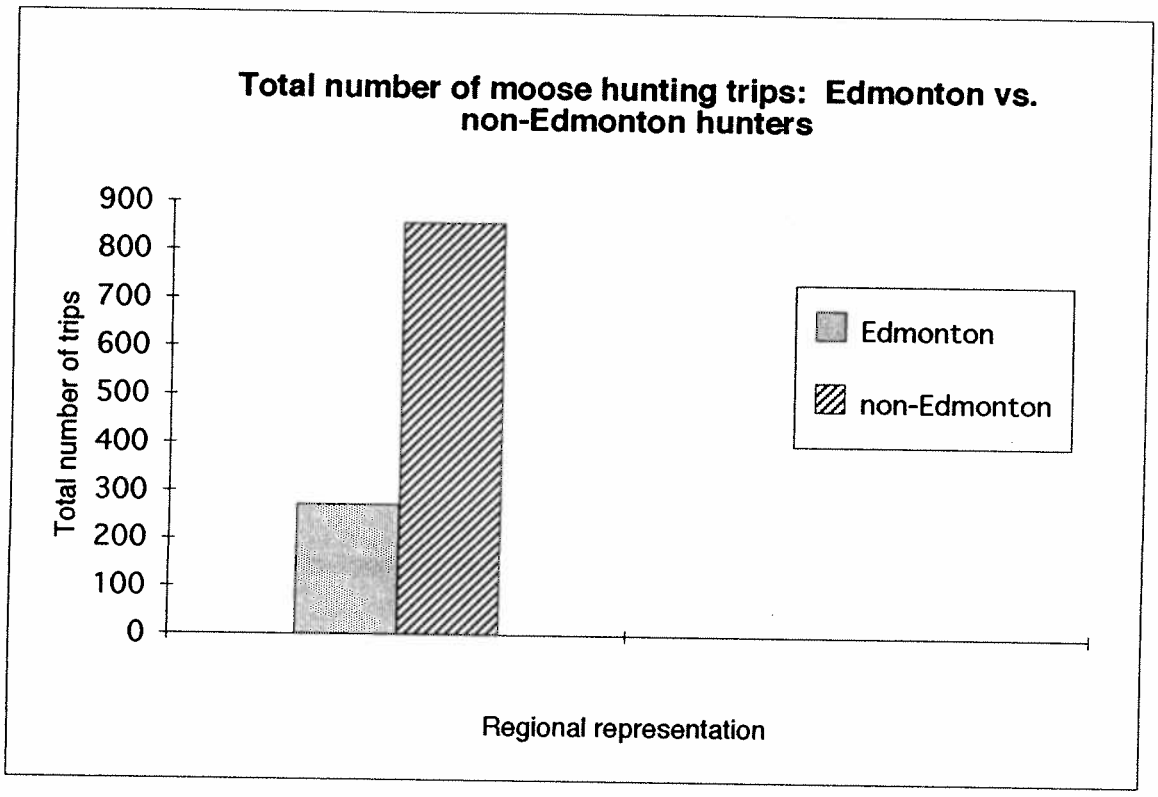



Figure 5

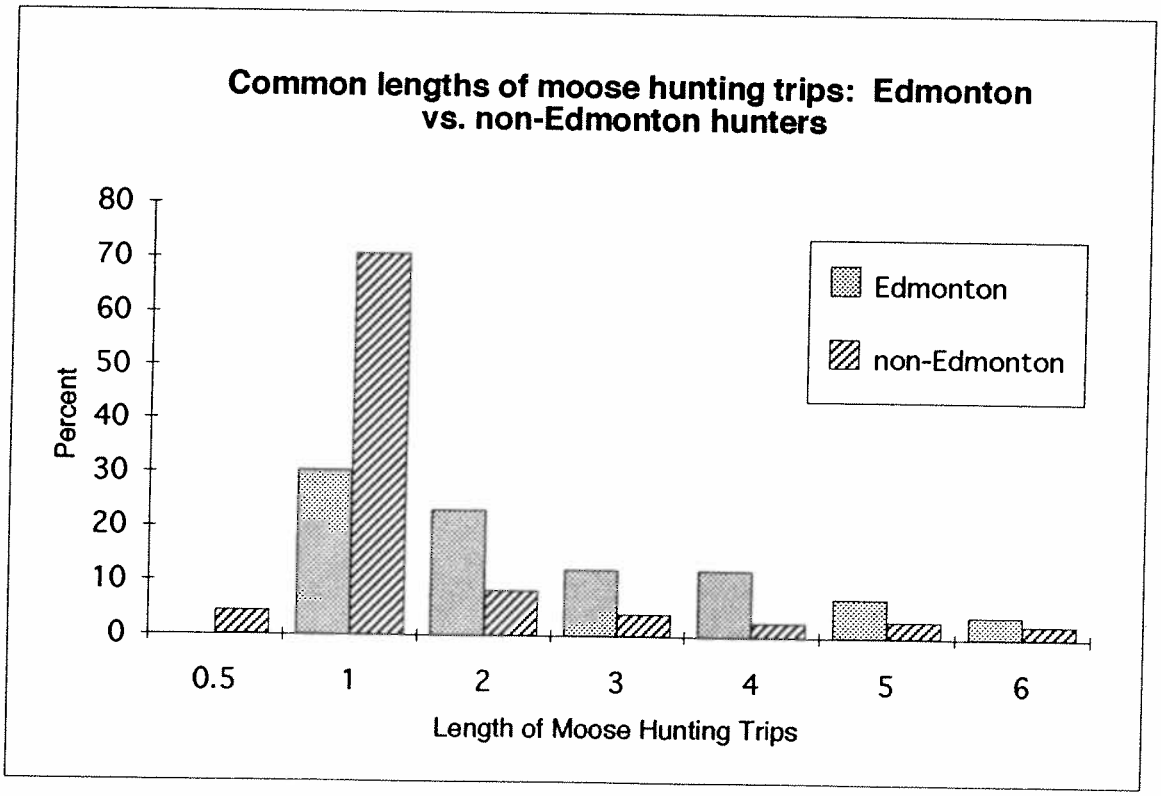



Figure 6

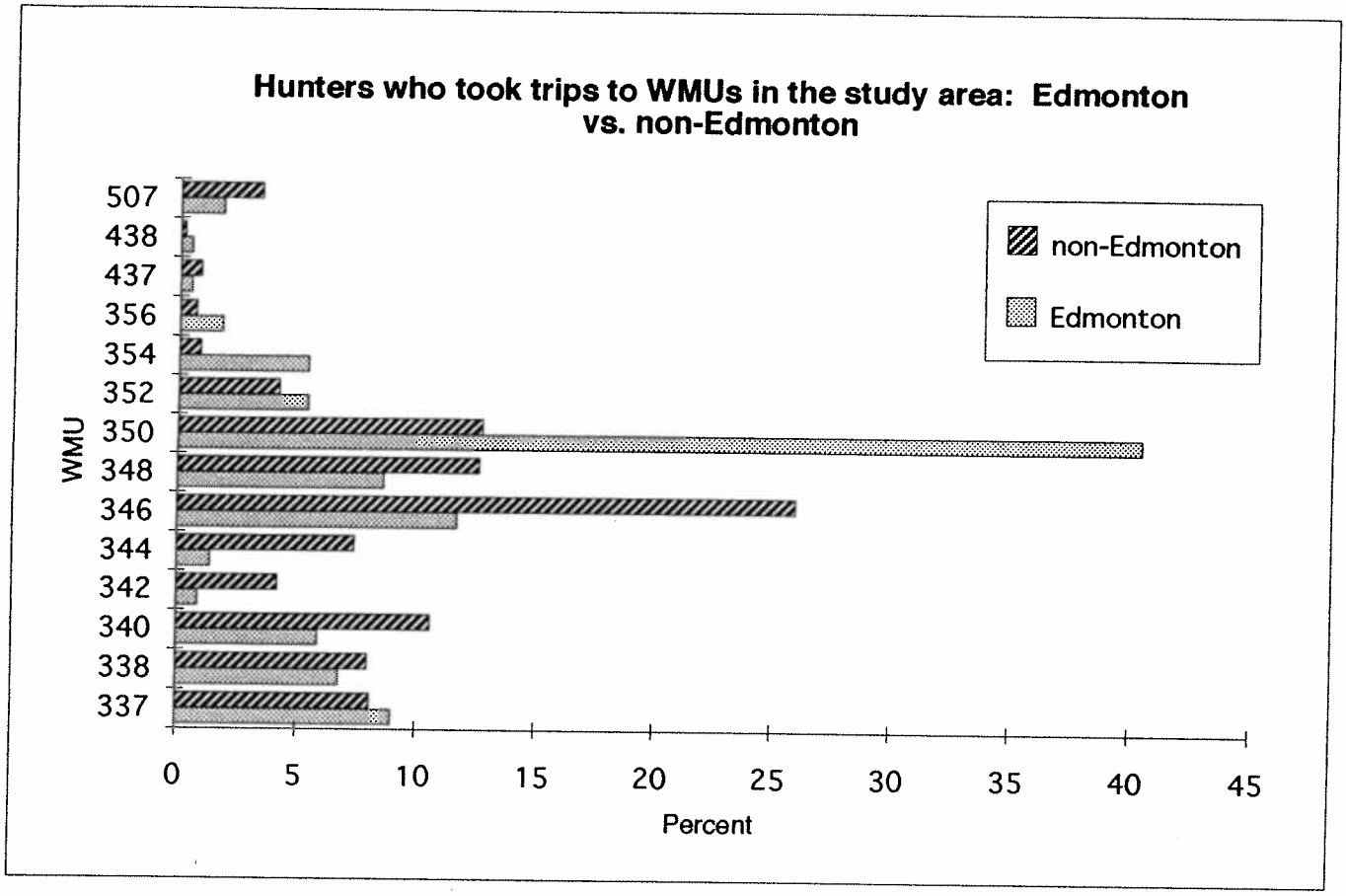

Hunters who took trips to WMUs in the study area: Edmonton vs. non-Edmonton
WMU
507
438
437
356
354
352
350
348
346
344
342
340
338
337
non-Edmonton
Edmonton
0
5
10
15
20
25
30
35
40
45
Percent

Figure 7

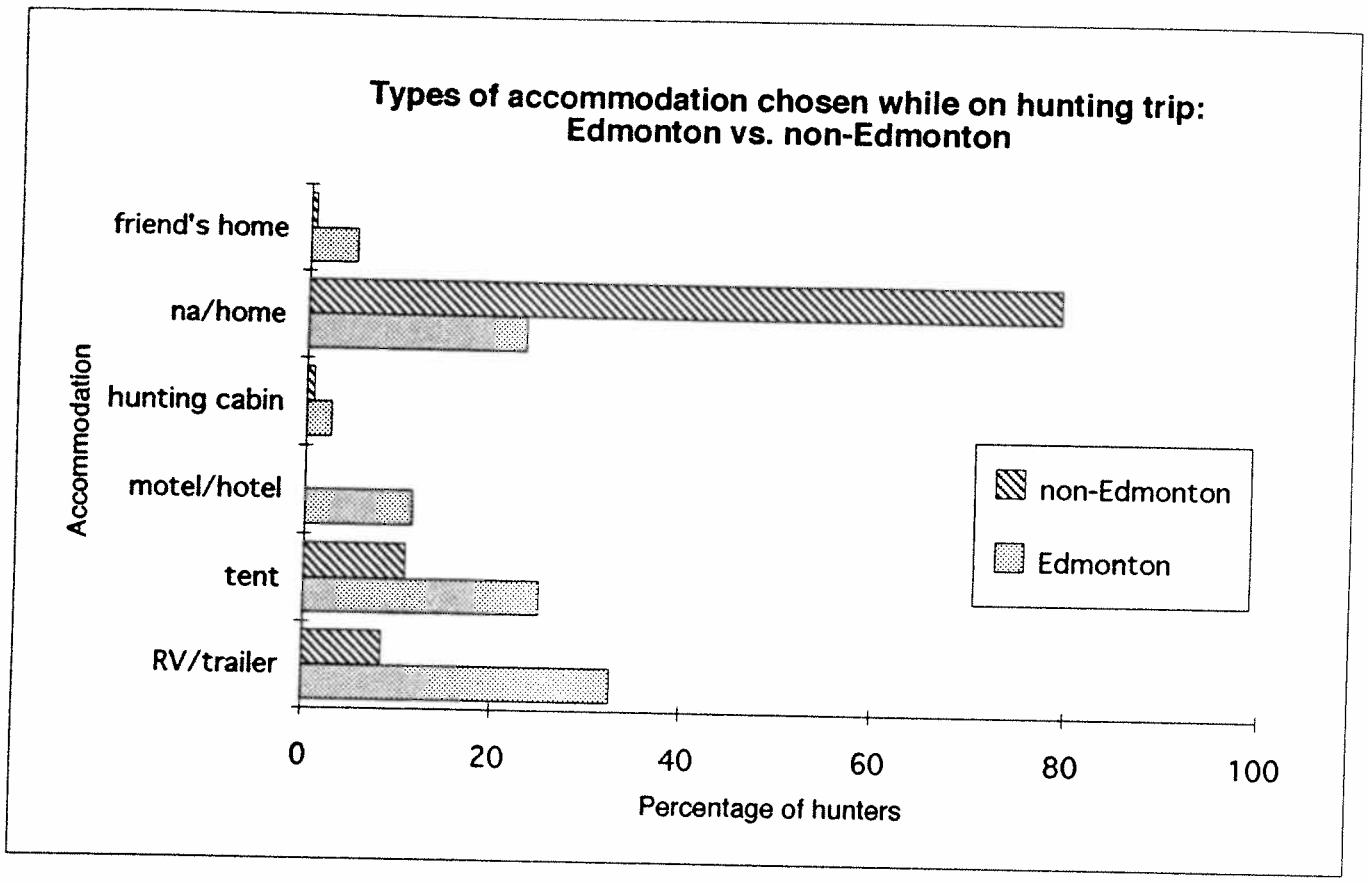



Figure 8

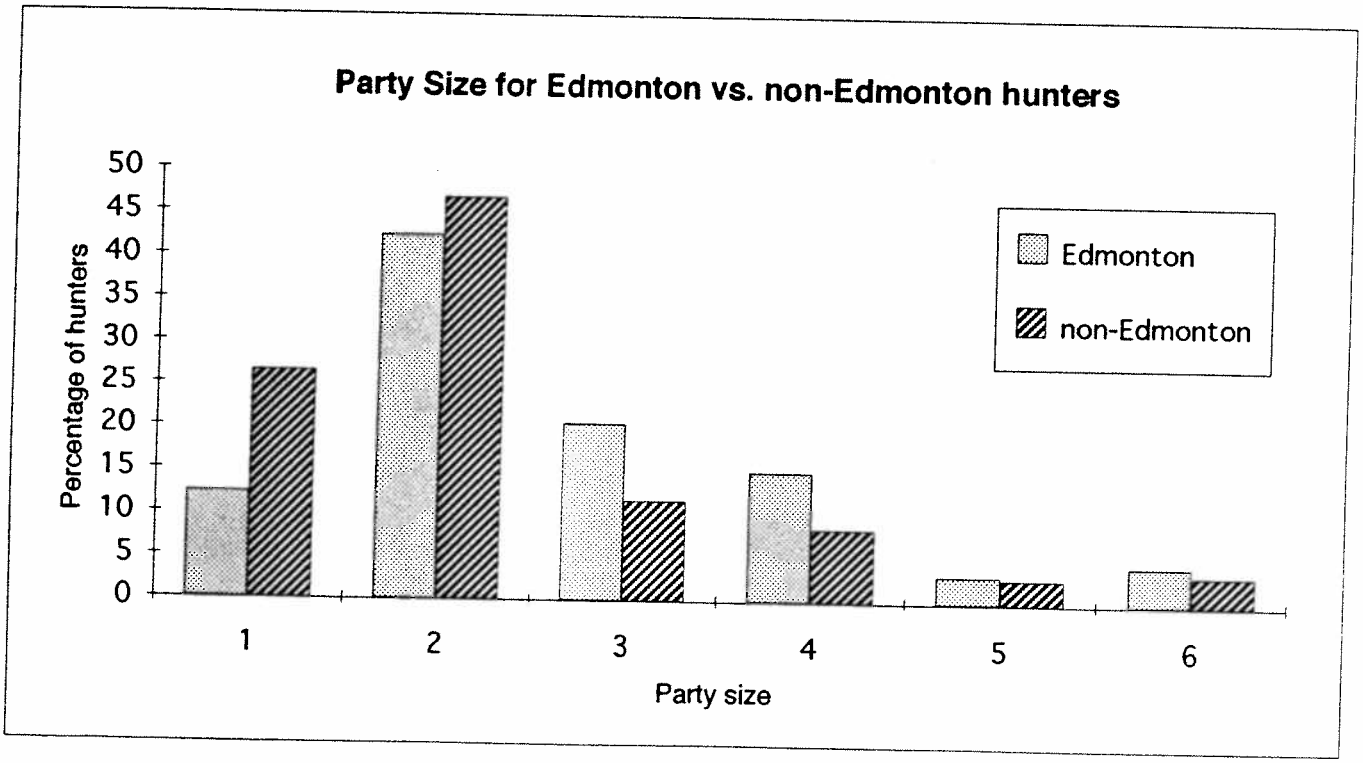



Figure 9

Appendix 1:

A copy of the questionnaire and glossary of terms used in the focus groups.

*Notes*: In the questionnaire section **The Value of Moose Hunting Improvements** the question asking "Would you be willing to travel an extra ___ kilometers.....", the distance provided to the respondent was a randomly generated distance from 1 to 350 km. In the section **Choice of Moose Hunting Site**, two versions of this section were utilized; only version 2 is shown. Two versions were necessary to provide the apporpriate number of alternatives to all respondents. These were divided among the focus group participants at random.

# Glossary of Terms

In the following section, you will be given a selection of hunting opportunities to choose from. Please familiarize yourself with the terms listed below before proceeding with the questions in this section.

WMU - a Wildlife Management Unit as designated in the 1992 Alberta Guide to Big Game Hunting and shown on the map provided.

## Distance to hunting area:

Hunting area - where you set up camp or begin to hunt within the Wildlife Management Unit.

## Quality of the road:

paved - all primary and secondary roads with a hard-top surface

gravel or dirt - any road or trail that does not have a paved surface

## Forestry operations:

evidence of recent logging - presence of clearcuts or cutblocks that are less than 10 years old and evident by the presence of stumps or slash

no evidence of logging - no signs of clearcuts or cutblocks

## Moose populations:

evidence of moose - seeing or hearing moose or seeing fresh sign such as tracks, browse or droppings by you or members of your party

less than 1 moose per day - one moose every 2 or more days

## Access within your hunting area:

trails, cutlines or seismic lines - trails in the forest that have been cleared for oil and gas exploration or forestry operations

not passable without an ATV - only passable on foot or with an all terrain vehicle or any motorized vehicle NOT licensed for highway use.

passable with a 4 wheel drive - passable on foot, with an ATV or with a highway vehicle that is a 4 wheel drive

## Encountering other hunters during the course of a hunting day:

no hunters - you only see or hear hunters who are part of your hunting party

other hunters on foot - you see or hear 1 or 2 hunting parties who are NOT part of your party and who are NOT hunting with a vehicle

other hunters on ATV's - you see or hear 1 or 2 hunting parties who are NOT part of your party; some are on foot and some driving ATV's

other hunters in trucks - you see or hear 1 or 2 hunting parties who are NOT part of your party; some are on foot or some driving ATV's and some are driving licensed highway vehicles

# Alberta Moose Hunting Study

**Sponsored by the University of Alberta and Forestry Canada**

# MOOSE HUNTING IN ALBERTA

The following questions ask about the characteristics of your moose hunting trips, experience, and travel preferences. Your answers are important as they will help us understand hunting preferences for more effective management of wildlife and resources.

1. Which WMU is your preferred moose hunting area? _____

2. Have you ever hunted moose in the following Wildlife Management Units (WMU's)? (please check all that apply)

| | | |
|---|---|---|
| ☐ 337 | ☐ 346 | ☐ 356 |
| ☐ 338 | ☐ 348 | ☐ 437 |
| ☐ 340 | ☐ 350 | ☐ 438 |
| ☐ 342 | ☐ 352 | ☐ 439 |
| ☐ 344 | ☐ 354 | ☐ 507 |

3 How many years of general hunting experience do you have? _____ years (enter number)

4. How many years have you been hunting moose? _____ years (enter number)

5. Do you typically go moose hunting alone or with other hunters? (please check one)

- ☐ Alone
- ☐ with one or two other people
- ☐ with three to five other people
- ☐ with five or more people

6. What type of transportation do you usually use to go **from your home to a moose hunting site**? (Please check one)

- ☐ two-wheel drive highway vehicle
- ☐ four-wheel drive highway vehicle
- ☐ camper/RV
- ☐ horse
- ☐ other (please specify) _____

7. **While hunting** on your typical hunting trip in 1992, did you? (please check all that apply)

| | |
|---|---|
| ☐ Use a two-wheel drive vehicle | ☐ Use horses |
| ☐ Use a four-wheel drive vehicle | ☐ Use a snowmobile |
| ☐ Use a trail bike or ATV | ☐ other (please specify) _____ |
| ☐ Hunt on foot | |

We would like to ask a few questions about you that will tell us about people who participate in hunting moose in Alberta. Strict confidentiality will be maintained, and your responses will be used only for academic research purposes.

8. Where do you live? (nearest city or town): _____

9. Are you: ☐ Male ☐ Female

10. What is your age? _____ years

11. Please indicate the highest level of education that you have completed.

- ☐ elementary/jr. high (grades 1 to 9)
- ☐ high school (grades 10 to 12)
- ☐ post secondary school (certificate, diploma, degree)
- ☐ graduate degree

12. Which of the following categories best represents your **total 1992 household income before taxes?** (please check one)

| | | |
|---|---|---|
| ☐ $0 - $20,000 | ☐ $20,001 - $40,000 | ☐ $40,001 - $60,000 |
| ☐ $60,001 - $80,000 | ☐ $80,001 - $100,000 | ☐ Over $100,000 |

13. Could you be working on the days that you take hunting trips? ☐ Yes ☐ No

14. Do you use some or all of your vacation time when you go hunting? ☐ Yes ☐ No

15. Please rank each of the following reasons for moose hunting from 1 to 3, where 1 is the most important reason and 3 is the least important reason.

| **Rank** | |
|---|---|
| ___ | Shooting a trophy moose |
| ___ | Putting meat in the freezer |
| ___ | Companionship of friends/family/relatives |

16. Please rank each of the following events according to the amount it detracts from your moose hunting enjoyment from 1 to 3, where 1 is the most detracting and 3 is the least detracting.

| **Rank** | |
|---|---|
| ___ | Hearing shots and voices or seeing other hunters |
| ___ | Hunters other than those in my hunting party |
| ___ | Hearing the sound of off-highway vehicles |

# Recent Moose Hunting Trip Descriptions

# Recent Moose Hunting Trip Descriptions

Please complete the following information for each moose hunting trip that you took during the 1992 hunting season.

| Trip No. | Distance from Home to Site (in km one way and travel time in hours) | WMU that you hunted in on this trip | Dates that you hunted in this WMU | Have you hunted in this WMU prior to 1992 | Number of Individuals in Hunting Party | Length of Trip (days) | Moose shot by Yourself and Total by Your Party | Type of Accommodation eg: tent/trailer/RV, outdoors/campground, cabin, lodge, motel, n/a. tents, camp outdoors |
|---|---|---|---|---|---|---|---|---|
| For Example → | 90 km, 1 hr | 350 | Nov. 12 - 15 | yes | 5 | 4 days | 0 moose myself, 2 moose party | Tent |
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |
| 7 | | | | | | | | |
| 8 | | | | | | | | |
| 9 | | | | | | | | |
| 10 | | | | | | | | |

If you need additional pages to record all your moose hunting trips notify one of the study officials present at the meeting.

# The Value of Moose Hunting Improvements

# The Value of Moose Hunting Improvements

This section tells us how you value improvements in hunting quality. The details that follow provide a reference point for your answers, and **do not reflect any specific management plans on behalf of the Government of Alberta or the Government of Canada.**

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Wildlife Management Unit 344 is located north of the town of Hinton and northeast of Edson (please see the attached map). This WMU has one of the lowest densities of Moose when compared with other WMUs in the area. For example, WMU 344 has an estimated moose density of .17 moose per square kilometer (about 1 moose per 6 square kilometers) while WMU 346 has a density of .79 moose per square kilometer (about 1 moose per 1¼ square kilometers) and WMU 348 has 1.45 moose per square kilometer (about 1 moose per 2/3 square kilometers). In 1991, about 34 moose were killed in WMU 344 and hunter success rates ranged from 17% for general license holders to 44% for special license holders; 88 moose were shot in WMU 346 and 259 were killed in WMU 348. Hunter success in these areas ranged from 18% to 57%.

Several organizations are interested in improving the quality of moose hunting in WMU 344. For example, it is possible to provide better moose hunting by improving moose habitat, limiting access and reducing disturbance, which may increase moose populations and result in higher success rates.

It is possible to improve the quality of WMU 344, but a successful program would require limiting access to the WMU. For example, suppose that some existing roads will be closed requiring hunters and others to travel further than they currently do to enter the WMU.

Currently, the average moose hunter, hunting in WMU 344, sees or finds evidence of (sounds, tracks, browse, droppings) **1 moose every 2 to 3 hunting days**. The proposed habitat improvement program and access limitation would increase moose populations, and the average hunter could expect to see or find evidence of **1-2 moose per hunting day**.

Would you be willing to travel an extra 195 kilometers to hunt in this WMU given the increase in the moose population? Please check YES or NO below.

☐ YES ☐ NO

If you answered NO to the question above is it because: (please check one or more of the statements below)

☐ The proposed changes are not good enough to justify the extra distance.

☐ There are many other sites in which I would hunt instead.

☐ This distance is too far to travel.

# Opinions About Wildlife Management Units

# Opinions About WMUs

In this section we would like you to tell us which characteristics (as described in the Glossary of Terms) best describe each Wildlife Management Unit listed below. Do this by checking one box for each characteristic (distance, quality of road, etc.) in each column. For example, if you think WMU 777 is 50km away, the roads are mostly paved, you don't know about access, other hunters in trucks are encountered, no evidence of logging and evidence of 3 moose per da You would indicate this as shown under WMU 777. Now, please indicate the characteristics which best describe the other 15 WMUs by checking the most appropriate boxes in each column.

| Characteristics: | Wildlife Management Units | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 777 | 337 | 338 | 340 | 342 | 344 | 346 | 3 |
| **I. Distance From Your Home to Possible Hunting Areas:** | | | | | | | | |
| 50 km | ✔ | | | | | | | |
| 150 km | | | | | | | | |
| 250 km | | | | | | | | |
| 350 km | | | | | | | | |
| I don't know | | | | | | | | |
| **II. Quality of the Road From Your Home to Hunting Areas:** | | | | | | | | |
| Mostly paved, some gravel or dirt | ✔ | | | | | | | |
| Mostly gravel or dirt, some paved | | | | | | | | |
| I don't know | | | | | | | | |
| **III. Access Within These Hunting Areas:** | | | | | | | | |
| No trails, cutlines or seismic lines | | | | | | | | |
| Old trails,cutlines or seismic ines,not passable without ATV | | | | | | | | |
| Newer trails, cutlines or seismic lines, passable with a 4WD | | | | | | | | |
| Newer trails, cutlines or seismic lines, passable with 2 WD | | | | | | | | |
| I don't know | ✔ | | | | | | | |
| **IV. Encountering Other Hunters, During the Course of a Hunting Day, in the Hunting Areas:** | | | | | | | | |
| No hunters, other than my hunting party, are encountered | | | | | | | | |
| Other hunters, hunting on foot, are encountered | | | | | | | | |
| Other hunters, on ATV's, are encountered | | | | | | | | |
| Other hunters, in trucks, are encountered | ✔ | | | | | | | |
| I don't know | | | | | | | | |
| **V. Forestry Operations in Your Hunting Areas:** | | | | | | | | |
| No evidence of logging | ✔ | | | | | | | |
| Some evidence of recent logging found in the area | | | | | | | | |
| I don't know | | | | | | | | |
| **VI. Moose Populations in These Hunting Areas:** | | | | | | | | |
| Evidence of less than 1 moose per day | | | | | | | | |
| Evidence of 1 or 2 moose per day | | | | | | | | |
| Evidence of 3 moose per day | ✔ | | | | | | | |
| Evidence of more than 4 moose per day | | | | | | | | |
| I don't know | | | | | | | | |

# Opinions About WMUs - continued

| Characteristics: | Wildlife Management Units 350 | 352 | 354 | 356 | 437 | 438 | 439 | 507 |
|---|---|---|---|---|---|---|---|---|
| **I. Distance From Your Home to Possible Hunting Areas:** | | | | | | | | |
| 50 km | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 150 km | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 250 km | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| 350 km | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| I don't know | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **II. Quality of the Road From Your Home to Hunting Areas:** | | | | | | | | |
| Mostly paved, some gravel or dirt | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Mostly gravel or dirt, some paved | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| I don't know | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **III. Access Within These Hunting Areas:** | | | | | | | | |
| No trails, cutlines or seismic lines | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Old trails,cutlines or seismic ines,not passable without ATV | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Newer trails, cutlines or seismic lines, passable with a 4WD | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Newer trails, cutlines or seismic lines, passable with 2 WD | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| I don't know | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **IV. Encountering Other Hunters, During the Course of a Hunting Day, in the Hunting Areas:** | | | | | | | | |
| No hunters, other than my hunting party, are encountered | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Other hunters, hunting on foot, are encountered | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Other hunters, on ATV's, are encountered | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Other hunters, in trucks, are encountered | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| I don't know | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **V. Forestry Operations in Your Hunting Areas:** | | | | | | | | |
| No evidence of logging | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Some evidence of recent logging found in the area | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| I don't know | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **VI. Moose Populations in These Hunting Areas:** | | | | | | | | |
| Evidence of less than 1 moose per day | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Evidence of 1 or 2 moose per day | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Evidence of 3 moose per day | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Evidence of more than 4 moose per day | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| I don't know | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

# Choice of Moose Hunting Site

Version 2

# Choice of Moose Hunting Site

In this section you will examine 16 different scenarios which offer you the choice of hunting moose at two different sites or not hunting. Please assume that the two sites presented in each scenario are the only sites that you can choose from for your next hunting trip. We want you to indicate for each scenario which site you would choose if either.

The enclosed information sheet entitled "Glossary of Terms" provides detailed information about the terms used in this section of the survey.

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## Example

Suppose after examining the descriptions of Site A and Site B below you feel that you would go moose hunting at one of these sites and you prefer Site B. You indicate this choice by checking the box under the Site B column as shown below.

1. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 50 kilometers | 50 kilometers | |
| Quality of road from home to hunting area | Mostly gravel or dirt, some paved | Mostly paved, some gravel or dirt | |
| Access within hunting area | Newer trails, cutlines or seismic lines, passable with 2 WD vehicle | Newer trails, cutlines or seismic lines, passable with 4 WD truck | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | No hunters, other than those in my hunting party, are encountered | Other hunters, on ATV's, are encountered | |
| Forestry activity | Some evidence of recent logging found in the area | No evidence of logging | |
| Moose population | Evidence of less than 1 moose per day | Evidence of less than 1 moose per day | |
| **Check ONE and only one box** | ☐ | ☑ | ☐ |

---

Please complete all 16 of the scenarios that follow. Missing any of these questions will not allow us to properly analyze your choices!

1. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 350 kilometers | 350 kilometers | |
| Quality of road from home to hunting area | Mostly gravel or dirt, some paved | Mostly paved, some gravel or dirt | |
| Access within hunting area | Newer trails, cutlines or seismic lines, passable with 4 WD truck | Newer trails, cutlines or seismic lines, passable with 4 WD truck | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | Other hunters, hunting on foot, are encountered | Other hunters, in trucks, are encountered | |
| Forestry activity | No evidence of logging | Some evidence of recent logging found in the area | |
| Moose population | Evidence of 1 to 2 moose per day | Evidence of less than 1 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

---

2. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 50 kilometers | 150 kilometers | |
| Quality of road from home to hunting area | Mostly gravel or dirt, some paved | Mostly paved, some gravel or dirt | |
| Access within hunting area | Old trails, cutlines or seismic lines, not passable without ATV | Old trails, cutlines or seismic lines, not passable without ATV | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | No hunters, other than those in my hunting party, are encountered | Other hunters, hunting on foot, are encountered | |
| Forestry activity | No evidence of logging | Some evidence of recent logging found in the area | |
| Moose population | Evidence of 3 moose per day | Evidence of more than 4 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

3. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 250 kilometers | 350 kilometers | |
| Quality of road from home to hunting area | Mostly paved, some gravel or dirt | Mostly paved, some gravel or dirt | |
| Access within hunting area | No trails, cutlines or seismic lines | Newer trails, cutlines or seismic lines, passable with 4 WD truck | Neither Site A or Site B |
| Encounters with other hunters | Other hunters, on ATV's, are encountered | Other hunters, hunting on foot, are encountered | I will NOT go moose hunting |
| Forestry activity | No evidence of logging | No evidence of logging | |
| Moose population | Evidence of less than 1 moose per day | Evidence of more than 4 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

---

4. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 150 kilometers | 250 kilometers | |
| Quality of road from home to hunting area | Mostly gravel or dirt, some paved | Mostly paved, some gravel or dirt | |
| Access within hunting area | Newer trails, cutlines or seismic lines, passable with 2 WD vehicle | Newer trails, cutlines or seismic lines, passable with 2 WD vehicle | Neither Site A or Site B |
| Encounters with other hunters | Other hunters, on ATV's, are encountered | No hunters, other than those in my hunting party, are encountered | I will NOT go moose hunting |
| Forestry activity | No evidence of logging | Some evidence of recent logging found in the area | |
| Moose population | Evidence of less than 1 moose per day | Evidence of 3 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

5. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 150 kilometers | 150 kilometers | |
| Quality of road from home to hunting area | Mostly paved, some gravel or dirt | Mostly paved, some gravel or dirt | |
| Access within hunting area | Newer trails, cutlines or seismic lines, passable with 2 WD vehicle | Old trails, cutlines or seismic lines, not passable without ATV | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | Other hunters, in trucks, are encountered | Other hunters, in trucks, are encountered | |
| Forestry activity | No evidence of logging | No evidence of logging | |
| Moose population | Evidence of more than 4 moose per day | Evidence of less than 1 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

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6. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 150 kilometers | 250 kilometers | |
| Quality of road from home to hunting area | Mostly gravel or dirt, some paved | Mostly gravel or dirt, some paved | |
| Access within hunting area | Newer trails, cutlines or seismic lines, passable with 4 WD truck | Newer trails, cutlines or seismic lines, passable with 4 WD truck | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | No hunters, other than those in my hunting party, are encountered | Other hunters, hunting on foot, are encountered | |
| Forestry activity | Some evidence of recent logging found in the area | Some evidence of recent logging found in the area | |
| Moose population | Evidence of more than 4 moose per day | Evidence of 1 to 2 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

7. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 250 kilometers | 50 kilometers | |
| Quality of road from home to hunting area | Mostly gravel or dirt, some paved | Mostly paved, some gravel or dirt | |
| Access within hunting area | No trails, cutlines or seismic lines | No trails, cutlines or seismic lines | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | Other hunters, in trucks, are encountered | Other hunters, on ATV's, are encountered | |
| Forestry activity | No evidence of logging | Some evidence of recent logging found in the area | |
| Moose population | Evidence of more than 4 moose per day | Evidence of 1 to 2 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

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8. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 250 kilometers | 350 kilometers | |
| Quality of road from home to hunting area | Mostly paved, some gravel or dirt | Mostly gravel or dirt, some paved | |
| Access within hunting area | Old trails, cutlines or seismic lines, not passable without ATV | Newer trails, cutlines or seismic lines, passable with 2 WD vehicle | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | No hunters, other than those in my hunting party, are encountered | No hunters, other than those in my hunting party, are encountered | |
| Forestry activity | Some evidence of recent logging found in the area | No evidence of logging | |
| Moose population | Evidence of more than 4 moose per day | Evidence of less than 1 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 350 kilometers | 50 kilometers | Neither Site A or Site B I will NOT go moose hunting |
| Quality of road from home to hunting area | Mostly paved, some gravel or dirt | Mostly gravel or dirt, some paved | |
| Access within hunting area | Newer trails, cutlines or seismic lines, passable with 2 WD vehicle | Old trails, cutlines or seismic lines, not passable without ATV | |
| Encounters with other hunters | Other hunters, on ATV's, are encountered | Other hunters, hunting on foot, are encountered | |
| Forestry activity | Some evidence of recent logging found in the area | No evidence of logging | |
| Moose population | Evidence of 1 to 2 moose per day | Evidence of 1 to 2 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

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10. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 350 kilometers | 350 kilometers | Neither Site A or Site B I will NOT go moose hunting |
| Quality of road from home to hunting area | Mostly gravel or dirt, some paved | Mostly gravel or dirt, some paved | |
| Access within hunting area | Newer trails, cutlines or seismic lines, passable with 2 WD vehicle | Newer trails, cutlines or seismic lines, passable with 2 WD vehicle | |
| Encounters with other hunters | Other hunters, in trucks, are encountered | Other hunters, on ATV's, are encountered | |
| Forestry activity | Some evidence of recent logging found in the area | Some evidence of recent logging found in the area | |
| Moose population | Evidence of 3 moose per day | Evidence of more than 4 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

11. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 350 kilometers | 50 kilometers | Neither Site A or Site B I will NOT go moose hunting |
| Quality of road from home to hunting area | Mostly paved, some gravel or dirt | Mostly paved, some gravel or dirt | |
| Access within hunting area | Newer trails, cutlines or seismic lines, passable with 4 WD truck | No trails, cutlines or seismic lines | |
| Encounters with other hunters | No hunters, other than those in my hunting party, are encountered | No hunters, other than those in my hunting party, are encountered | |
| Forestry activity | No evidence of logging | No evidence of logging | |
| Moose population | Evidence of 3 moose per day | Evidence of 3 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

---

12. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 150 kilometers | 150 kilometers | Neither Site A or Site B I will NOT go moose hunting |
| Quality of road from home to hunting area | Mostly paved, some gravel or dirt | Mostly gravel or dirt, some paved | |
| Access within hunting area | Newer trails, cutlines or seismic lines, passable with 4 WD truck | No trails, cutlines or seismic lines | |
| Encounters with other hunters | Other hunters, hunting on foot, are encountered | Other hunters, on ATV's, are encountered | |
| Forestry activity | Some evidence of recent logging found in the area | No evidence of logging | |
| Moose population | Evidence of less than 1 moose per day | Evidence of more than 4 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

13. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 50 kilometers | 250 kilometers | |
| Quality of road from home to hunting area | Mostly paved, some gravel or dirt | Mostly gravel or dirt, some paved | |
| Access within hunting area | No trails, cutlines or seismic lines | Newer trails, cutlines or seismic lines, passable with 4 WD truck | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | Other hunters, in trucks, are encountered | Other hunters, in trucks, are encountered | |
| Forestry activity | Some evidence of recent logging found in the area | No evidence of logging | |
| Moose population | Evidence of 3 moose per day | Evidence of 3 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

---

14. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 50 kilometers | 150 kilometers | |
| Quality of road from home to hunting area | Mostly gravel or dirt, some paved | Mostly gravel or dirt, some paved | |
| Access within hunting area | No trails, cutlines or seismic lines | No trails, cutlines or seismic lines | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | Other hunters, on ATV's, are encountered | No hunters, other than those in my hunting party, are encountered | |
| Forestry activity | Some evidence of recent logging found in the area | Some evidence of recent logging found in the area | |
| Moose population | Evidence of 1 to 2 moose per day | Evidence of less than 1 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

15. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 50 kilometers | 250 kilometers | |
| Quality of road from home to hunting area | Mostly paved, some gravel or dirt | Mostly paved, some gravel or dirt | |
| Access within hunting area | Old trails, cutlines or seismic lines, not passable without ATV | Newer trails, cutlines or seismic lines, passable with 2 WD vehicle | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | Other hunters, hunting on foot, are encountered | Other hunters, on ATV's, are encountered | |
| Forestry activity | No evidence of logging | No evidence of logging | |
| Moose population | Evidence of 1 to 2 moose per day | Evidence of 1 to 2 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

---

16. Assuming that the following hunting areas were the **ONLY** areas available, which one would you choose on your next hunting trip, if either?

| Features of Hunting Area | Site A | Site B | |
|---|---|---|---|
| Distance from home to hunting area | 250 kilometers | 50 kilometers | |
| Quality of road from home to hunting area | Mostly gravel or dirt, some paved | Mostly gravel or dirt, some paved | |
| Access within hunting area | Old trails, cutlines or seismic lines, not passable without ATV | Old trails, cutlines or seismic lines, not passable without ATV | Neither Site A or Site B I will NOT go moose hunting |
| Encounters with other hunters | Other hunters, hunting on foot, are encountered | Other hunters, in trucks, are encountered | |
| Forestry activity | Some evidence of recent logging found in the area | Some evidence of recent logging found in the area | |
| Moose population | Evidence of less than 1 moose per day | Evidence of 3 moose per day | |
| **Check ONE and only one box** | ☐ | ☐ | ☐ |

Appendix 2:

A copy of the first letter sent to potential participants in the moose hunter focus groups.

University of Alberta
Edmonton
Canada T6G 2H1

Department of Rural Economy
Faculty of Agriculture and Forestry
515 General Services Building, Telephone (403) 492-4225
Facsimile (403) 492-0268

January 20, 1993

Dear [redacted]

The Department of Rural Economy at the University of Alberta, in conjunction with Forestry Canada, is conducting a study on moose hunting and the quality of recreational hunting in Alberta. We would like to better understand participation in recreational hunting and hunting preferences.

We have obtained names of individuals who have recently purchased moose hunting permits from the Alberta Fish and Wildlife Division. You have been selected to participate in a unique study which may provide useful information for resource, wildlife and recreation management. Because only a small number of hunters can be surveyed, it is important that as many individuals as possible participate in this study.

In a few days you will be receiving a phone call from the University of Alberta Population Research Laboratory to inform you of the date that we will be in your area. On a specified date (in the first week of February), we will be meeting with other moose hunters in small groups of up to 30 people, in Edmonton. The purpose of this meeting is to obtain specific opinions concerning your moose hunting preferences through discussion and a questionnaire. We hope that you will be able to attend this session and assist us with our study.

Your participation in this study is critical to its success and important for the future of the wildlife resource in Alberta. To show our appreciation for your support, every participant will receive a complimentary **collector's pin**. In addition to the pin, we will hold a draw for a cash prize of **$50.00** at each meeting and have a grand prize cash draw of **$500.00** after all of the sessions have been completed.

We would be happy to answer any questions that you might have, so please write or call: 492-3610 and identify yourself as a participant in the **Alberta moose hunter study**.

Thank you for your help.

Sincerely,

Vic Adamowicz
Associate Professor

Peter C. Boxall
Non-Timber Valuation Economist