



Saskatchewan
Environment

Final Report Economic Evaluation of Hunting in Saskatchewan

December, 2006



Prepared for:

Michele Arscott
Manager, Program Evaluation
Saskatchewan Environment
Fifth Floor, 3211 Albert Street
Regina, Saskatchewan
S4S 5W6

Prepared by:

Derek Murray Consulting Associates
241 Leopold Crescent
Regina, Saskatchewan
S4T 6N5

Contents

Executive Summary	1
Study Purpose and Methodology	1
Hunting Patterns.....	1
Survey Results	2
1.0 Introduction	6
1.1 Study Purpose and Objectives	6
1.2 Methodology	7
2.0 Background.....	12
2.1 Historic Licence Sales.....	12
2.2 Tourism and the Saskatchewan Economy.....	14
3.0 Survey Overview and Results.....	18
3.1 Hunting Patterns.....	18
<i>3.1.1 – Repeat Visitation</i>	<i>18</i>
<i>3.1.2 – Types of Animal Hunted</i>	<i>19</i>
<i>3.1.3 – Hunting Travel Patterns</i>	<i>22</i>
<i>3.1.4 – Trip Generation.....</i>	<i>22</i>
3.2 Survey Comments.....	23
4.0 The Economic Impact of Non-Outfitted Hunting	25
4.1 Key Assumptions	25
4.2 Gross Economic Activity.....	26
<i>4.2.1 – Average Trip Expenditures</i>	<i>26</i>
<i>4.2.2 – Determination of the Number of Trips Generated.....</i>	<i>27</i>
<i>4.2.3 – Total Expenditure Generated</i>	<i>30</i>
4.3 Economic Impact Analysis	31
<i>4.3.1 – Total Expenditure Impact</i>	<i>31</i>
<i>4.3.2 – Determination of Direct and Indirect GDP and Employment Impact</i>	<i>32</i>
<i>4.3.3 – Determination of Induced GDP and Employment Impact</i>	<i>33</i>
<i>4.3.4 – Employment Created</i>	<i>35</i>
<i>4.3.5 – Determination of Tax Impacts</i>	<i>35</i>
4.4 Economic Impact of Provincial and Rural Expenditures	36
4.5 Regional Impacts	37
5.0 Environmental and Social Impacts	44
5.1 Environmental Impact of Non-Outfitted Hunting	44
5.2 Social Impacts of Non-Outfitted Hunting.....	48

6.0 Inter-Jurisdictional Comparisons.....	51
6.1 Regulatory Environment	51
Appendix 1 – License Price Elasticity	54

Executive Summary

Study Purpose and Methodology

This economic impact evaluation was undertaken by the Department to provide a basis of information in ongoing policy and decision making processes. This study acknowledges the environmental and social externalities associated with the industry and provides some context and analysis on these impacts. The methodology utilized throughout this economic evaluation was discussed with Department of Finance staff in the Economic and Fiscal Policy Branch. This study will be used in conjunction with existing information as a performance measure and as a method of comparing the impacts of various activities on the economy.

This study focuses on the primary theme of economic impact and secondarily on the social and environmental impacts of non-outfitted hunting in the province. As well, analysis of long-term hunting trends, elasticity of demand regarding license fees, and an inter-jurisdictional analysis were undertaken. Three populations were identified for study including:

- Non-Outfitted Saskatchewan Resident Big Game and Bird Hunters
- Non-Outfitted Canadian Resident Big Game and Bird Hunters
- Non-Outfitted Non-Resident¹ Bird Hunters

A survey was developed and administered to over 1,000 hunters that had hunted in Saskatchewan recently. The survey asked hunters to respond to questions regarding their hunting patterns, expenditure data, attitudinal data, demographic information, and travel patterns.

Two other reports were commissioned by Saskatchewan Environment. These reports utilized the same methodology found in this report in evaluating the impacts of the outfitting industry and sport and commercial fishing in the province. The results of these reports have been included in this report wherever relevant. Together, these reports provide a complete picture of the components of the hunting and fishing industry in the province. Each study includes an analysis of the marginal expenditure impact, GDP impact, and employment impact. The studies also identify relevant information such as regional and rural impacts, average trip expenditures, and total expenditures.

Hunting Patterns

Hunting throughout North America has seen a steady decline over the past 20 years, however, the decline has begun to level off, and some forms of hunting are actually growing in popularity. American hunter interest in ducks and geese grew significantly from 1991 to 2001 and deer hunting has remained steady. The most significant drop in hunting activity

¹ Non-resident includes all non-Canadian hunters.

has been in the area of small game such as rabbit and pheasant hunting. In the United States there is a growing market for Saskatchewan's hunting product. This is part of the reason why there has been such strong growth in out of-province over the last decade. Out-of-province license sales have increased from 9.4% of all license sales to 16.3%.

Survey Results

Hunting Pattern Observations

Saskatchewan and Canadian hunters primarily hunted big game. Saskatchewan hunters that did pursue birds hunted primarily upland birds, as opposed to migratory birds. Canadian and non-resident hunters who hunted birds were primarily hunting migratory waterfowl birds, as opposed to upland birds.

Saskatchewan residents did not travel far to hunt. Less than 1% of Saskatchewan residents went outside the province to hunt, and only a quarter of trips inside the province required residents to travel over 80 kilometres.

It is estimated that there is a resident hunting market of 64,000 hunters, 42,000 of which were active in 2004. Saskatchewan residents make the vast majority of hunting trips. There were a total of 509,941 non-outfitted hunting trips by Saskatchewan residents compared to 12,851 trips by non-Saskatchewan residents. Resident hunting trips outnumbered out-of-province hunting trips 40 to 1.

The per trip expenditures for Saskatchewan residents were very low compared with out-of-province hunters, however, the volume of Saskatchewan resident hunting was extremely high.

Average Per Trip Expenditures			
	Saskatchewan Hunters	Canadian Hunters	Non-Resident Hunters
Total Trip Expenditure	\$ 105.95	\$ 872.22	\$ 1,285.61
Average Times Hunting	12.08	1.40	1.07
Annual Expenditure	\$ 1,279.88	\$ 1,221.11	\$ 1,375.60

Economic Impacts

The total non-outfitted hunting expenditures in the province are \$68.3 million. This is not, however, a realistic assessment of the net marginal increase of economic activity in Saskatchewan. This figure includes double counting, money already in the Saskatchewan economy, and other unrealistic assumptions. To say the economic impact is \$68.3 million would be misleading and would not equitably compare to other properly performed economic impact analyses.

The \$14.3 million injected into the Saskatchewan economy from hunting related expenditures by non-Saskatchewan residents is combined with \$9.8 million in import substitution associated with Saskatchewan residents to form the basis for the economic impact. The primary economic impact of non-outfitted hunting in the province is comprised of the tourism expenditures made by out-of-province hunters while hunting in Saskatchewan.

The \$14.3 million in out-of-province non-outfitted hunting related expenditures forms the basis of the economic impact. Out-of-province expenditures are a positive economic impact because they are a form of export. Tourism is actually an export industry because it sells goods and services to other jurisdictions. Import substitution is included as an impact because it is the level of leakage prevented by the existence of hunting in the province.

With the \$24.1 million in marginal benefits to the economy calculated, the economic impact is calculated by identifying the value added in Saskatchewan or gross domestic product (GDP). The model analyzes the value added within Saskatchewan and provides a precise measure of the economic activity stimulated within Saskatchewan. The employment positions and expenditures were also calculated relative to only new positions created within Saskatchewan. The underlying model for the GDP generation is based on the Statistics Canada Input Output Tables. These tables identify the specific activity triggered in the economy by various demand shocks. GDP is also the measure of economic activity that is most widely accepted and realistic to the Provincial Department of finance, Statistics Canada, and other economists.

The total direct and indirect GDP impact of non-outfitted hunting is \$8.9 million. Including the induced impact the total GDP impact is \$11.3 million as the following table shows.

Total GDP Impact			
	Direct and Indirect Impacts	Induced GDP	Total GDP Impact
GDP Generated	\$ 8,914,139	\$ 2,380,100	\$ 11,294,239
Total Employment Income	\$ 5,812,858	\$ 1,311,630	\$ 7,124,488
Total Jobs (FTE)	269.2	42.8	312.0

With the direct and indirect labour expenditure of \$5.8 million and the induced impacts, the total labour expenditure is \$7.1 million. Direct, indirect, and induced labour expenditures generate 312 full-time equivalent jobs (269 without induced impacts). Provincial tax revenue generated would be \$1.6 million. Out-of-province non-outfitted hunters will also spend \$1.7 million on licensing fees.

The total direct and indirect GDP impact of non-outfitted hunting is \$5.9 million. There is also \$3.6 million in labour income and 171 full-time equivalent jobs. Provincial tax revenue generated would be \$0.8 million. Out-of-province non-outfitted hunters will also spend \$1.1 million on licensing fees.

Regionally, the economic impacts are primarily felt in the southern half of the province with very little hunting occurring above the forest line. There is also a significant transfer of money within the province. Through non-outfitted hunting, \$6.0 million was transferred from Saskatchewan's urban regions to rural regions. The economic impacts of this transfer could not be estimated because of model limitations.

Combined Impacts of Outfitted and Non-Outfitted Hunting

While it is useful to analyze the impacts of outfitted and non-outfitted hunting separately, it is also valuable to analyze the total hunting industry. Hunting in Saskatchewan generates \$107.6 million in gross expenditures, \$63.4 million of which are the marginal impact to the economy. While non-outfitted hunting is a larger industry in terms of economic activity the marginal expenditures are not as high because a much smaller proportion of non-outfitted hunting is new money to the province or import substitution. All outfitting related expenditures are new money to the province making the marginal impact equal to the gross expenditure. The following table outlines the combined impacts of hunting in the province.

Impacts of Outfitted Non-Outfitted Hunting				
	Gross Expenditure	Marginal Expenditure	GDP Impact	FTE Employment
Outfitted Hunting	\$ 39,239,384	\$ 39,239,384	\$ 27,611,353	742.6
Non-Outfitted Hunting	\$ 68,339,991	\$ 24,141,587	\$ 8,914,139	269.2
Total Impacts	\$ 107,579,375	\$ 63,380,971	\$ 36,525,492	1,011.8

The total hunting industry will create over 1,000 FTE jobs in the province and have a GDP impact of \$36.5 million. The combined impacts of fishing have a comparatively larger marginal impact at \$107.2 million with a GDP impact of \$53.7 million. This economic impact does not include the effects of urban to rural transfer of money.

Environmental and Social impacts

Environmental Impacts

Through their attachment to the land, hunters give value to habitat and other aspects of environmental stewardship. Hunters have a vested interest in the environment that coincides with several environmental objectives such as animal population maintenance and habitat preservation. Groups such as the Saskatchewan Wildlife Federation and Ducks Unlimited are examples of hunting organizations that are very active in conservation and maintaining natural habitat. Essentially, a 64,000 member environmentally aware reference group is formed and reinforced through hunting activity. It is worth noting that the Saskatchewan Wildlife Federation is the largest not-for-profit organization per capita in North America.

Animal population control and monitoring is another positive benefit provided by hunters in

the province. Hunting is one of the most humane mechanisms available to wildlife managers in terms of population control.

Hunters in Saskatchewan pay, as part of their hunting licenses, into a Fish and Wildlife Development Fund (FWDF) which is used to secure, monitor and improve both fish and wildlife habitat throughout Saskatchewan. This money is then used directly, and through third party agencies, to secure the existence of natural wildlife habitats. Together the Saskatchewan Wildlife Federation, Ducks Unlimited, and the Nature Conservancy of Canada own or manage 180,000 acres of land. These groups receive grant funding from the FWDF to support the acquisition of conservation lands.

As well, Ducks Unlimited brings in a substantial amount of out-of-province funding. Of the average \$13.5 million dollar budget, approximately \$11.5 million comes from outside the province. Saskatchewan's importance as staging and nesting grounds for migratory birds in North America increases the province's importance in terms of the North American bird populations. As such, additional funding is injected into Saskatchewan from the United States, as well as other regions of Canada.

Inadvertent impacts on the environment through greenhouse gas emissions and energy usage were also reviewed. Statistics Canada measures the level of greenhouse gas emissions based on the various components of the industry such as transportation and manufacturing in supporting industries. The fishing, hunting and trapping sector has slightly below average energy use and greenhouse gas emissions than other industries in Saskatchewan. However, fishing, hunting, and trapping relative to other leisure time activities (arts, entertainment and recreation; scenic and sightseeing transportation; and accommodation and food services) has far greater energy demands. The higher transportation demands associated with fishing, hunting, and trapping make it more energy intensive and consequently more taxing in terms of greenhouse gas emissions.

Social Impacts

Hunters were also surveyed² on their social and emotional attachment to hunting. Hunters highly valued being outdoors, relaxation, recreation, and camaraderie as reasons for hunting. The preference for wild meats and trophy opportunities were ranked quite low by hunters. Hunters also felt, to a large extent, that hunting was a part of culture, lifestyle, and tradition that allowed opportunities to spend time with friends and family.

Survey respondents were also asked to rate hunting in terms of their other leisure time activities. Non-resident hunters valued hunting the highest relative to other leisure time activities. This is not surprising given that these hunters likely traveled the farthest to hunt in Saskatchewan. The average ranking (on a scale of 1 to 10, with 10 being the best) was Saskatchewan residents at 7.9, Canadian Residents at 8.5 and non-residents at 8.8.

² The survey group of 1,100 was randomly selected from the provincial hunting licenses sold. This does not include Aboriginal or subsistence hunters who are not required to purchase provincial hunting licenses.

1.0 Introduction

This report has been prepared for Saskatchewan Environment (SE). It has been developed in response to SE's request for an independent assessment of the economic impact resulting from Saskatchewan's resident and non-resident non-outfitted hunting within Saskatchewan. This report will provide analysis on the economic, social, and environmental impacts of resident and non-resident hunting in Saskatchewan. This includes the following populations:

- Saskatchewan resident big game and bird hunters who did not use the services of an outfitter
- Canadian resident big game and bird hunters who did not utilize the services of an outfitter
- Non-resident³ bird hunters

The sample population was drawn from provincial hunting license sales. As such the sample does not include Aboriginal or subsistence hunting.

1.1 Study Purpose and Objectives

This study focuses on three primary themes including the economic, social, and environmental impacts of non-outfitted hunting in the province. Also included in this report is an analysis of long-term hunting trends, elasticity of demand regarding license fees, and an inter-jurisdictional analysis. The economic analysis will focus on the actual GDP generated by hunting activities, as well as other factors such as labour expenditures and employment created. The social aspects of hunting will focus on the level of emotional and cultural attachment to hunting. The environmental aspects of hunting will be analyzed in terms of both the positive and negative environmental impacts.

Two other reports were commissioned by Saskatchewan Environment. These reports utilized the same methodology found in this report in evaluating the impacts of the outfitting industry and sport and commercial fishing in the province. The results of these reports have been included in this report wherever relevant. Together, these reports provide a complete picture of the components of the hunting and fishing industry in the province. Each study includes an analysis of the marginal expenditure impact, GDP impact, and employment impact. The studies also identify relevant information such as regional and rural impacts, average trip expenditures, and total expenditures.

³ Non-resident includes all non-Canadian hunters.

1.2 Methodology

Survey Methodology

To determine the economic and social impacts of non-outfitted hunting in Saskatchewan data on hunting expenditures was required. A survey of non-outfitted hunters was determined to be the optimal methodology for data gathering. While there was some existing data, it was deemed to be either unreliable because of the size of the sample, or because the sample was not representative of the overall Saskatchewan population.

A telephone survey was chosen as the optimal methodology for gathering data on social and economic impacts as it would yield the most statistically relevant data within a reasonable period of time. Internet surveys lack the response rate required for relevant data. Mail-in responses have the potential to solicit responses more heavily from unrepresentative samples with specific interests producing skewed results.

The survey itself gathered information on four main areas including: hunting patterns, expenditure data, attitudinal data, and demographic data. The complete surveys have been appended.

Standard survey methodology was utilized to determine the survey sample sizes. It was determined that there were three distinct populations to be analyzed. As such, three separate samples were required. To get a sample with a confidence level of 95% and a margin of error of 5%, the samples required were as follows:

- Saskatchewan Residents (375)
- Canadian Residents (349)
- Non-Residents (376)
- **Total = 1,100**

Stakeholder Interviews

Structured interviews were also utilized in gathering relevant background, regulatory, expenditure, and hunting pattern information. Some of the stakeholder interviews included Tourism Saskatchewan, Saskatchewan Wildlife Federation, Saskatchewan Environment, regulatory bodies for each of the provinces, regulatory bodies for each of the United States, hunters (provincial and out-of-province), rural hotel owners, rural restaurant operators, Ducks Unlimited, Nature Conservancy of Canada, Statistics Canada, Heritage Canada, the Conference Board of Canada, and the Canadian Sport Tourism Alliance.

Economic Impact Model

Input-Output Tables – The economic impact model is based on Statistics Canada’s input-output tables. These tables look at the inter-relationships between Canada’s industries through the system of national accounts. The model projects the level of economic activity being stimulated in various parts of the economy based on the initial demand placed on the economy by the expenditures being analyzed. For instance, in the case of tourism

expenditures, the model would produce an estimate of the related economic activity required to supply the demand created by \$1 million in transportation related expenditures.

The model also estimates the level of economic activity actually occurring within Saskatchewan. Factors of production imported to Saskatchewan to meet the industrial demand within Saskatchewan are removed, as they are economic impacts associated with other jurisdictions. This is necessary because economic activity translates into economic impacts very differently based on the type of industry, as well as location. As an example, we can compare two businesses and their respective impacts on the economy, a car dealership and a hotel operation located in Saskatchewan. Both the car dealership and the hotel did \$10.0 million in business last year, net of taxes. The car dealership has a 20% markup on the cars that they import from Ontario (Saskatchewan does not supply any of the cars). The 20% or \$2.0 million markup is the gross profit over and above the cost of importing the cars.

The \$2.0 million is used to pay sales staff wages, operating costs, and amortization with the remainder as profit for the Saskatchewan-based owners. Of the operating expenditures, 50% (\$1.0 million) will be labour expenditures. Because the employees are all Saskatchewan-based, the entire \$1.0 million would remain in Saskatchewan.

\$400,000 will be spent on operational goods and services, half of which (\$200,000) will be supplied within the province. \$300,000 in amortization will also be allocated, 50% of which was originally paid to out-of-province suppliers. The remaining \$300,000 is profit for the Saskatchewan-based owners. The input output tables would calculate, from the total \$10 million in economic activity, the actual economic impact in Saskatchewan. In this example, the actual economic impact is \$1.65 million based on the level of car importation (\$8.0 million) and \$350,000 in other out-of-province imports.

The hotel operation is operating at operational margins of 40% labour, 40% operating expenditures, 10% amortization, and 10% profit. The 40% labour expenditure, or \$4 million, is paid entirely to Saskatchewan-based employees and, therefore, remains in Saskatchewan. Of the 50% operating expenditures (which include a wide assortment of goods and services ranging from plumbing to sheets) approximately 50% will be supplied by Saskatchewan businesses and therefore remain in Saskatchewan. Of the 10% amortization, half was originally paid to out-of-province suppliers with the other half remaining in the province as a provincial economic impact. \$1.0 million is profit for the Saskatchewan-based owners.

As such, the total economic impact of \$10.0 million in hotel expenditures is \$7.5 million, compared to the \$1.65 million in for the car dealership. In general, the economic impact of service based industries is much higher because they have a low cost of goods sold and higher labour expenditures. The following table shows the different levels of economic impacts.

Sample Economic Impacts for Car Dealership and Hotel Operation				
	Car Dealership		Hotel	
	Total Expenditure	Saskatchewan Economic Impact	Total Expenditure	Saskatchewan Economic Impact
Labour	\$ 1,000,000	\$ 1,000,000	\$ 4,000,000	\$ 4,000,000
Cost of Goods Sold ⁴	\$ 8,000,000			
Operational Expenditures	\$ 400,000	\$ 200,000	\$ 4,000,000	\$ 2,000,000
Amortization	\$ 300,000	\$ 150,000	\$ 1,000,000	\$ 500,000
Profit	\$ 300,000	\$ 300,000	\$ 1,000,000	\$ 1,000,000
Total	\$ 10,000,000	\$ 1,650,000	\$ 10,000,000	\$ 7,500,000

While this is a highly simplified assessment of the economic impacts, it does give a general overview of how differently expenditures can impact the economy. If the economic impact were being done on a Canada-wide basis, it would be much higher for the car dealership because it would include the economic activity spurred within the Ontario auto industry, as well as goods produced in other provinces.

Open Model – The model described here is termed an open model. The open model includes only the direct and indirect effects generated by a specific economic activity, excluding induced or spin-off effects. This model calculates only the value added within the economy being analyzed and does not include any induced or spin-off effects.

To run the Statistics Canada simulations, the Parks Economic Impact Model (PEIM), developed by Canadian Heritage and Statistics Canada, was used to assess the impact of the expenditures at a provincial level. Because PEIM utilizes Statistics Canada input output tables as the basis for calculating economic impacts, it is a very accurate and broadly accepted way of calculating economic impacts. PEIM generates the GDP, employment expenditures, and employment impacts.

Expenditure data, collected in the form of transportation, vehicle rentals, other vehicle, accommodation, food and beverage, recreation and entertainment, and retail/other expenditures, was input into the PEIM model to simulate impacts on the economy. A separate impact analysis was run for each of these categories. The resulting data was the direct and indirect impacts. This model yielded the direct and indirect gross domestic product (GDP), employment expenditures, employment positions, as well as identifying some federal tax revenues.

⁴ Because the hotel is primarily selling a service, there are no costs of goods sold as in the case of the raw goods required for a manufacturing or sales company. While individual hotels would likely report the cost of goods sold in their profit and loss accounts, for the sake of simplicity we are assuming that the costs are all reported as operational expenditures such as marketing and administration.

This model is very beneficial as it is extremely accurate in terms of its assessment of the GDP and employment created. It also is consistent and comparable with the previous economic assessment of Saskatchewan's Provincial Parks. However, the model is lacking in two ways. First, the model only estimates some federal taxes. Second, the model does not calculate any of the induced impacts created by economic activity via labour expenditures.

Induced Impacts and the Closed Model – While economists, including Statistics Canada, have been reluctant in the past to include induced impacts, there has been some reconsideration on this front. Induced impacts, while being acknowledged, have long been regarded as somewhat inaccurate and misleading. However, Statistics Canada is now considering adding back in to their calculations the induced impacts. A formula generated by Statistics Canada was utilized to calculate the induced impacts of non-outfitted hunting. A model calculating the induced or spin-off activities, as well as the direct and indirect impacts, is termed a closed or partially closed model (as opposed to the open model described earlier).

Determining the spin-off or induced impacts involves calculating the total labour expenditures generated through the direct and indirect expenditures and determining the impact the labour expenditures have. This is done by first determining the level of taxation and saving to determine the propensity to consume. Actual consumption is determined by the total propensity to consume times the typical basket of goods purchased by a wage earner. Once the actual expenditures have been assessed, the provincial expenditure model is run again based on the typical expenditures made by a wage earner in Saskatchewan.

Final Results – The direct and indirect impacts are reported separately from the induced impacts for two reasons. Firstly, it is important to identify the direct and indirect GDP impacts, as these impacts can easily be compared to other industries for which a similar model (the open model) has been applied. These results will compare easily with other economic impact assessments for which no induced impact was calculated.

Second, it will also be important to have the induced impacts reported separately as these results are not as generally accepted as the direct and indirect impacts. However, with growing acceptance, it may be important in the future to include the induced impacts in order to be comparable to other economic impact analyses.

Taxation Impacts - Additional work was done to assess the taxations impacts of hunting. The Conference Board of Canada has developed an economic impact model for the Canadian Sport Tourism Alliance based on Statistics Canada input output data. The taxation portion of this model calculates tax at the federal, provincial, and municipal levels. Because of the breadth of this model it was utilized to calculate the total tax impacts.

The Sports Tourism Economic Assessment Model (STEAM) assesses the impact of sport related tourism expenditures. The taxation portion of this model was adapted to identify the tax revenue generated by non-outfitted hunting related expenditures. The STEAM model was used because it has the reliability of being constructed by the Conference Board, and provides a level of detail in the taxation impact not provided in other economic impact models. To ensure consistency, the tax impacts were calculated based on the GDP impact calculated in the PEIM model, with the tax impact structure from the STEAM model.

Social and Environmental Analysis

The social and environmental impacts are far more difficult to assess as they are not typically quantifiable, as in the case of economic impacts. In terms of the social impact of hunting, survey questions were used to create a level of quantification of respondents' sentiments towards hunting. Respondents were asked to rate the importance of various factors related to hunting. Respondents were also asked to rate hunting in relation to other leisure sport activities. In terms of financial commitments, respondents were also asked to predict changes in hunting behaviour when faced with increased licensing costs.

The environmental impact of hunting was assessed through stakeholder interviews. Stakeholder groups such as the Saskatchewan Wildlife Federation, Nature Conservancy of Canada, Ducks Unlimited, and Saskatchewan Environment were interviewed with regard to the impact of hunting on the environment. The existing body of research looking at the relationship between hunting and the environment was also explored. This included an examination of the specific impacts of hunting in relation to other forms of tourism.

The analysis contained within this report, as indicated above, is based on responses from the survey questions and conversations with key stakeholders. A broader understanding of social and environmental factors associated with this industry is required in order to give Government decision makers the fullest understanding of the impact of their decisions.

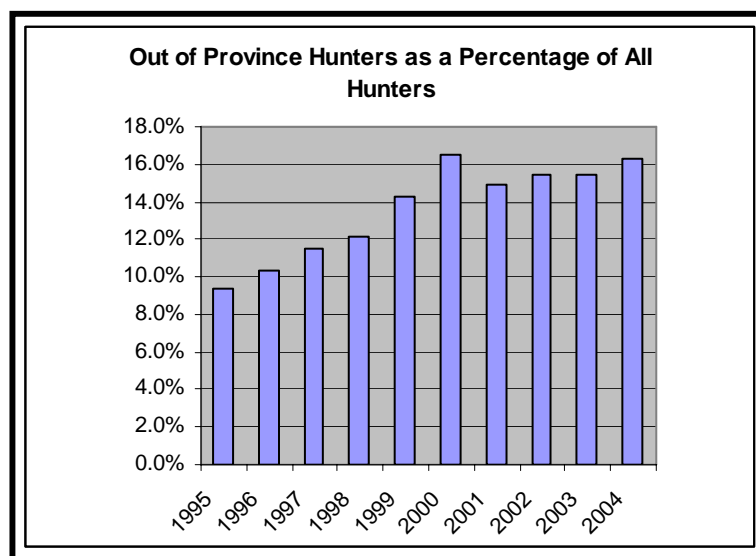
2.0 Background

2.1 Historic Licence Sales

Hunting license sales have been declining in Saskatchewan and throughout North America for the last decade. At the same time there has been a steady increase in out of province hunting visitation to Saskatchewan. Saskatchewan resident license sales have declined in the last decade, but have remained relatively stable since 2000.

Table 1 – Saskatchewan License Sales										
License Type	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total Saskatchewan Licenses	123,150	106,935	103,333	108,481	101,594	87,072	87,057	87,833	95,129	87,465
Total Canadian Licenses	3,252	3,242	3,586	3,982	4,239	4,489	3,651	4,120	4,491	4,296
Total Non-Resident Licenses	11,163	10,859	12,098	13,665	16,435	17,422	15,179	15,914	17,121	17,413
% out of province	10.5%	11.7%	13.2%	14.0%	16.9%	20.1%	17.8%	18.6%	18.5%	19.9%
Total License	137,565	121,036	119,017	126,128	122,268	108,983	105,887	107,867	116,741	109,174⁵

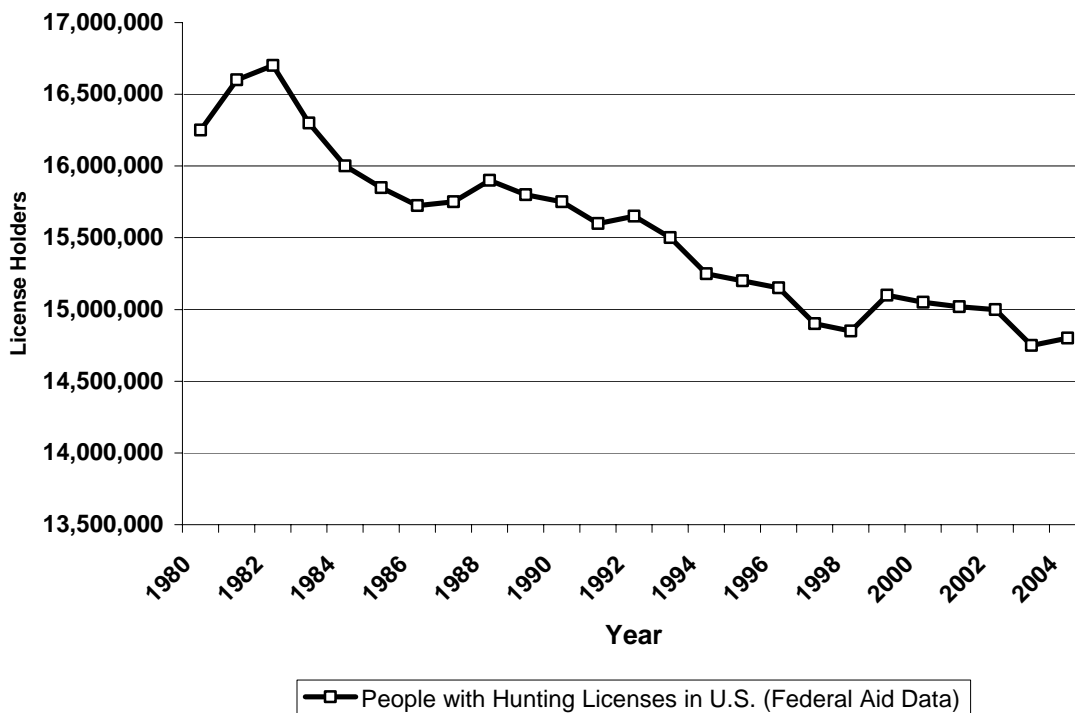
Regarding out-of-province hunter visitation Saskatchewan is bucking international trends that have seen declines in hunting populations. Saskatchewan appears to be attracting a growing percentage of a shrinking market. The following graph shows out-of-province hunter licensing as a percentage of total hunter licenses.



⁵ Includes youth licenses – the total adult licenses sold are 102,858. Youth are not included in the expenditures portion of the report.

The following table shows the American hunting license sales for the past 24 years. Even given the growing US population, American hunting rates have been consistently falling for over 20 years. While clearly there has been a decline in hunters there has been some levelling off in recent years.

Figure 1: American Hunting License Holders⁶



The overall decline in hunting does not reflect the entire picture. For specific types of hunting, there has been growth in participation rates. The United States Fish and Wildlife Service performs a national survey of fishing, hunting, and wildlife associated recreation. The most recent survey in 2001 showed that hunting, while in decline, had shown growth in some areas, particularly in waterfowl hunting.

⁶ United States Fish and Wildlife Service Data

Table 2 – Selected American Hunting License Sales (1991 – 2001)⁷			
	1991 (000's)	2001 (000's)	Percentage Change
Deer Hunters	10,277	10,911	2%
Duck Hunters	1,164	1,589	37%
Geese Hunters	882	1,000	13%
Other Small Game Hunters (pheasant, rabbit, and squirrel)	7,642	5,434	(29%)

Trends in the United States indicate that the type of hunting offered in Saskatchewan is growing in popularity within the US market. This in part suggests why Saskatchewan is bucking declining hunting trends and capturing a greater share of the American hunting market. Other market factors, such as increasing urbanization in the United States and loss of natural habitat, also likely play a role in the increasing hunter visitation. Out-of-province hunting visitation is likely to continue to grow, becoming an increasingly important part of the hunting population in Saskatchewan.

2.2 Tourism and the Saskatchewan Economy

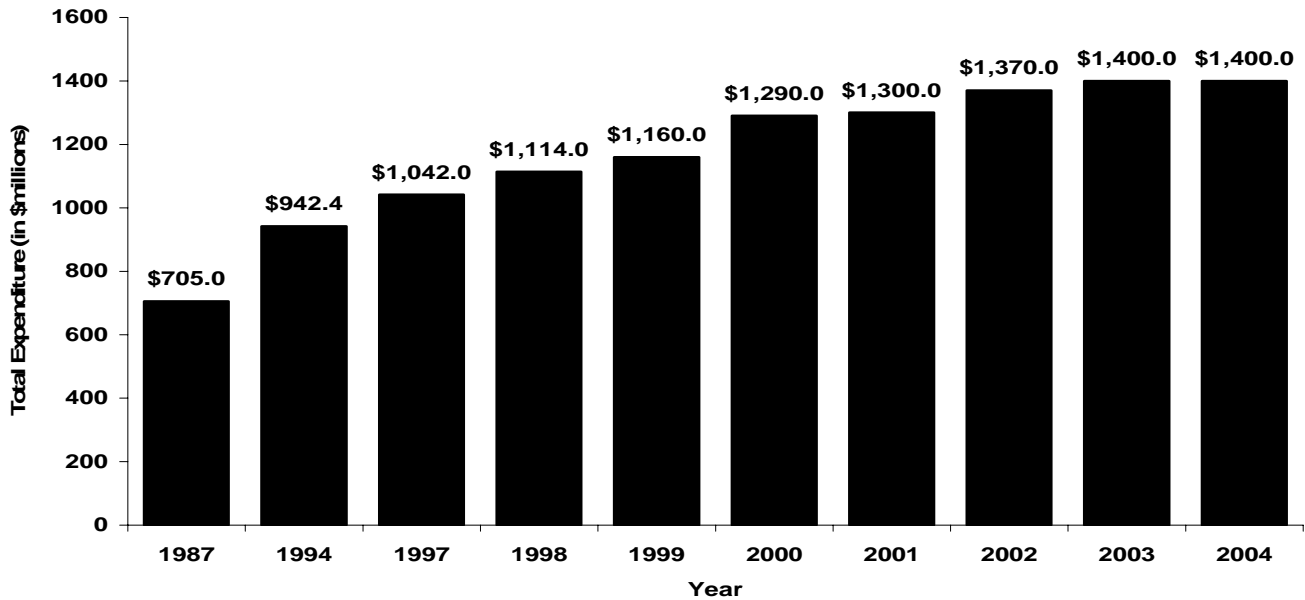
The economic impact associated with non-outfitted hunting in the province is based on the tourism expenditures triggered by the out-of-province visitation. As such it is important to assess the impact tourism has on the Saskatchewan economy. Tourism is a significant and growing part of the Saskatchewan economy. Tourism has grown to become Saskatchewan's fourth largest export according to Saskatchewan Industry and Resources. The industry directly employs 22,000 people through 3,400 tourism related businesses making it one of the largest employers in Saskatchewan.

Tourism in Saskatchewan generated \$1.4 billion in expenditures in 2004, of which \$1.177 billion were made by visitors to or within the province⁸, and \$225 million were made by Saskatchewan residents on departure fares. Tourism expenditures in Saskatchewan have doubled over the last 15 years as the following graph shows.

⁷ United States Fish and Wildlife Service Data

⁸ Of the \$1.77 billion, \$0.664 billion was made by Saskatchewan residents. Saskatchewan residents are considered tourists if they have traveled over 80 kilometres.

Figure 2 – Tourism Revenue in Saskatchewan – 1987 to 2004



Source: Tourism Saskatchewan and the Canadian Travel Survey.⁹

Visitor tourism expenditures are comprised of four categories. Expenditures by Saskatchewan residents include expenditures made by residents traveling over 80 kilometres.

Table 3 Saskatchewan Tourism Expenditures	
Visitor Source	Expenditures (millions)
Saskatchewan	\$ 664.4
Other Canada	\$ 357.6
USA	\$ 128.5
Overseas	\$ 27.2
Total Visitor Expenditures	\$ 1,177.7
Departure Expenditures	\$ 225.0
Total Expenditures	\$ 1,402.7

⁹ There have been significant changes in the way tourism expenditures are tallied over the years. While this is an excellent account of the general pattern of tourism expenditures in Saskatchewan, the year-to-year totals may not be entirely comparable.

The bulk of total Saskatchewan tourist expenditures are generated by Saskatchewan residents. Expenditures by out-of-province visitors totaled \$513 million in 2004. It is the \$513 million that accounts for export revenues, and is also representative of the actual increase in revenues to the province.

In terms of non-Saskatchewan resident tourist expenditures, non-outfitted tourist expenditures comprised \$14.3 million of the total \$513.0 million¹⁰ of all out-of-province tourist expenditures. Non-outfitted expenditures comprise 2.8% of total out of province tourist visitor expenditures.

While the tourism expenditures made by Saskatchewan residents while traveling do not have incremental economic impacts for the province's GDP, they are important to the primarily rural communities in which the expenditures are made. While these expenditures fall outside the realm of a typical economic impact assessment, they are impacts regardless. This report will look at the type of impacts generated by intra-provincial tourism. For comparative purposes the following table shows the typical visitation levels to other major Saskatchewan tourism attractions.

Table 4			
Attractor Levels – Comparative Visitation Between Hunting and Other Saskatchewan Attractions			
	Total Visitation	Local Visitation	Tourist Visitation
Gaming (SIGA and SGC)	4,000,000	2,716,000	1,284,000
Saskatchewan Fishing	1,100,000¹¹	623,000	477,000¹²
Prairieland Exhibition Park	1,000,000	700,000	300,000
Meewasin Valley	900,000	n/a	n/a
Saskatchewan Hunting	535,000¹³	355,000	180,000¹⁴
Saskatchewan Roughriders	264,000	185,000	79,000
National Parks ¹⁵	191,000	10,000	181,000
Mendel Art Gallery	178,000	142,400	35,600
McKenzie Art Gallery	88,000	n/a	n/a

¹⁰ Includes other Canada, United States, and overseas visitation.

¹¹ Total sport fishing trips generated. Includes 17,000 outfitted fishing visits. Including hunting, outfitting generates 28,000 tourist visits.

¹² Includes out-of-province visitation as well as Saskatchewan residents that have traveled over 80 kilometres.

¹³ Includes outfitted hunting.

¹⁴ Includes out-of-province visitation as well as Saskatchewan residents that have traveled over 80 kilometres.

¹⁵ Includes averages for Prince Albert National Park and Grasslands National Park.

Saskatchewan's hunting and fishing products are a significant part of Saskatchewan's tourism economy. 15% of Canadian visits and 19% of American visits to the province will involve a fishing activity while 2% of Canadian visits and 6% of American visits will involve hunting activity¹⁶. Clearly, hunting and fishing are some of the primary reasons people visit the province. The 657,000 hunting and fishing related tourist visits comprise 8.1% of all tourist visitation in the province.

¹⁶ 2004 Canadian Travel Survey Data – Tourism Saskatchewan.

3.0 Survey Overview and Results

Each respondent was asked to respond to a series of questions relating to their hunting habits, expenditures, attachment to hunting, and some comparative situational questions. The following is an overview of the findings of the surveys.

3.1 Hunting Patterns

3.1.1 – Repeat Visitation

Repeat visitation is important to identify both in terms of customer loyalty, as well as identifying the actual market size. Saskatchewan resident hunters totalled 48,930 in 2005, 90.7 % of which hunted in the previous year. It appears that the vast majority of Saskatchewan hunters are hunting on an annual basis. It can also be concluded that the base of hunters in Saskatchewan is not significantly larger than the 50,000 hunters hunting on an annual basis. If we assume that over a three year period that 95% of the active hunters in the province have hunted at least once, the total number of hunters is approximately 64,000 or 6.5% of the population. This is slightly more than the participation rate for hunting in the United States (6%¹⁷ for 2004).

Non-resident non-outfitted bird hunters actually have a higher loyalty rate than the Canadian hunters. Repeat visitation of 66.8% for Non-resident hunters is 4% higher than Canadian residents. Non-resident hunter loyalty is very high. Typical pleasure tourists would not have this level of repeat visitation. Tourists typically seek out new attractions with each excursion. The high level of repeat visitation is indicative of a high quality hunting product.

	Total # of Hunters Surveyed	Hunted Again in 2005	
		#	%
Saskatchewan Residents	375	342	91.2%
Canadian Residents	349	219	62.8%
Non-Residents	376	251	66.8%
Total	1,100	812	73.8%

¹⁷ Source – United States Fish and Wildlife Service, Division of Federal Assistance.

3.1.2 – Types of Animal Hunted

The types of animals hunted varied greatly based on origin. Three significant patterns emerged from the responses regarding the types of animals hunted.

- (1) Saskatchewan and Canadian hunters primarily hunted big game.
- (2) Saskatchewan hunters that did pursue birds overwhelmingly hunted upland birds, as opposed to migratory birds.
- (3) Canadian and non-resident hunters who hunted birds were primarily hunting migratory waterfowl birds, as opposed to upland birds.

Saskatchewan Hunters

Saskatchewan hunters primarily hunted big game with 85% of hunters hunting big game alone, or big game and bird. Nearly 30% of hunters pursued birds, or birds in combination with big game. License sales reconfirmed the reliability of the survey data. Of the 43,000 Saskatchewan hunters 30.7% hunted for birds and only half of those hunted for birds exclusively. Clearly, Saskatchewan hunters favour big game hunting.

Table 6 – Saskatchewan Hunters – Animals Hunted		
Animal Hunted	# That Hunted	% That Hunted
Bird Only	56	14.9%
Both Big Game and Bird	58	15.4%
Big Game Only	263	69.8%
Total	377	100.0%

Of the Saskatchewan bird hunters, 54.4% obtained a migratory license to either hunt waterfowl birds alone, or in combination with upland birds.

Table 7 – Saskatchewan Hunters – Bird Hunting		
Bird Type Hunted	# that Hunted	% That Hunted by Bird Type
Waterfowl Birds	21	18.4%
Upland Birds	52	45.6%
Both Waterfowl and Upland	41	36.0%
Total	114	100.0%

Canadian Hunters

Canadian residents primarily hunted big game, but the dominance was not as great as with Saskatchewan hunters. Of Canadian hunters, 34.4 % pursued birds, while 64.5% pursued big game. This ratio was re-confirmed by the license sales data with 1,550 (38.0%) of the 4,076 Canadian hunters that came to Saskatchewan hunting birds. Only a fraction of hunters pursued both big game and bird prey, in contrast to Saskatchewan hunters for which 36.0% of the hunters hunted both big game and birds.

Table 8 – Canadian Hunters – Animals Hunted¹⁸		
Animal Hunted	# That Hunted	% That Hunted
Bird Only	120	34.4%
Both Big Game and Bird	4	1.2%
Big Game Only	225	64.5%
Total	349	100.1%

Canadian hunters have a much greater interest in hunting waterfowl birds over upland birds. Of the Canadian hunter respondents that hunted birds, the majority (87.9%) hunted waterfowl or waterfowl and upland bird and 53.2% of the hunters hunted upland birds exclusively, or in combination with waterfowl birds. Clearly, waterfowl hunting is the primary draw for bird hunters. Much of the upland bird hunting was likely done only as a secondary activity to waterfowl hunting. Only 12% of Canadian bird hunters hunted upland birds exclusively compared to 46.8% who hunted waterfowl exclusively.

Table 9 – Canadian Hunters – Bird Hunting		
Bird Type Hunted	# that Hunted	% That Hunted by Bird Type
Waterfowl Birds	58	46.8%
Upland Birds	15	12.1%
Both Waterfowl and Upland	51	41.1%
Total	124	100.0%

¹⁸ Table may not add due to rounding.

Non-Resident Hunters

Because non-residents cannot hunt big game without an outfitter, non-outfitted hunting is 100% bird hunting. Waterfowl hunting is the primary draw for non-resident hunters with 94.9% of hunters hunting for waterfowl. It is evident that waterfowl hunting is the primary draw with upland bird hunting acting as a secondary activity. Of the bird hunters only 5% hunted exclusively for upland birds.

Table 10 – Non-Resident Hunters – Bird Hunting		
Bird Type Hunted	# that Hunted	% That Hunted by Bird Type
Waterfowl Birds	267	71.0%
Upland Birds	19	5.1%
Both Waterfowl and Upland	90	23.9%
Total	376	100.0%

Migratory Bird License Sales

Non-residents purchased the majority of the federal migratory bird permits sold in Saskatchewan with 95.9% of non-resident hunters obtaining migratory licenses. Non-residents are clearly drawn by migratory bird hunting. If migratory bird hunting were to be negatively impacted by a change in habitat, a reduction in bird populations, or other restrictions on license sales, a significant portion of the non-resident hunter market would be lost.

Table 11 – Migratory Bird Hunting License Sales			
	Saskatchewan Bird License Sales	% Purchasing Federal Migratory Licenses	Total Migratory Licenses Purchased
Saskatchewan Resident	13,096	54.5%	7,138
Canadian Resident	1,648	88.8%	1,464
Non-Resident	10,085	95.9%	9,671
	24,829		18,273

3.1.3 – Hunting Travel Patterns

Respondents were asked if they had hunted in jurisdictions outside of Saskatchewan in the past two years. Less than 1% of Saskatchewan respondents had traveled outside Saskatchewan in the past two years to hunt.

Canadian and non-residents travel patterns are not comparable to the Saskatchewan results as they have already displayed a propensity for hunting related travel. However, the propensity to travel, combined with repeat visitation, shows non-resident hunters to be the more loyal customer group. Non-residents do not hunt outside of Saskatchewan as often, and they have higher repeat visitation (Canadians at 62.8% and non-residents at 66.8% return visitation).

Table 12 – Respondents Hunting in Jurisdictions Outside of Saskatchewan	
Saskatchewan Residents	0.8 %
Canadian Residents	79.7 %
Non-Residents	69.9 %

To further expand on Saskatchewan resident hunting patterns, respondents were asked how often their hunting trips took them over 80 kilometres¹⁹. One quarter of respondents' hunting trips were over 80 kilometres. Saskatchewan hunters are primarily hunting in close proximity to their homes with less than 1% traveling out of the province, and only 25% traveling more than 80 kilometres. This would indicate that the majority of hunting trips generated by Saskatchewan residents are a matter of opportunity. While Saskatchewan residents are generating a significant number of hunting trips, only one-quarter of those could be considered tourist trips.

Table 13 – Saskatchewan Resident Hunting Patterns	
	Average Per Hunter
Total Number of Times Hunting	12.08
Hunting Trips over 80 km	3.04
% over 80 km	25.1 %

3.1.4 – Trip Generation

Saskatchewan residents generated the highest number of trips per hunter with bird hunters having the highest trip generation overall. It is critical to determine the level of trip generation as the economic impact analysis is calculated based on per trip expenditures.

¹⁹ 80 kms was utilized because it is the standard travel distance utilized to signify a tourist trip.

Table 14 – Hunting Trip Generation	
	# of Times Hunting
Saskatchewan Residents	12.08
Canadian Residents	1.40
Non-Residents	1.10

Clearly, the volume of hunting trips generated by Saskatchewan residents is very high, however, only 25% of these trips are considered actual tourism trips while 100% of the Canadian and non-resident trips are considered tourist trips. In essence the total tourist trips generated by Saskatchewan hunters is only 3.04 tourist trips or 25% of 12.08 total trips.

3.2 Survey Comments

As part of the survey, hunters were asked if they had any additional comments on hunting in Saskatchewan. There was an unusually high response rate on this question indicating a very strong interest in the topic on the part of those surveyed. Non-resident respondents made additional comments 70% of the time, Canadian respondents 56% of the time, and Saskatchewan respondents 51% of the time. Each population also had a distinct set of concerns and comment that were voiced.

Saskatchewan Hunter Survey Comments

The comment most often made by respondents was to voice concerns over the raising of license fees. Thirty-five Saskatchewan respondents felt licensing fees were high enough, and several thought prices should come down, if anything.

Aboriginal hunting rights were also a major concern with 33 respondents making additional comments regarding hunting rights. Concerns ranged from a general disagreement with the principle of Aboriginal hunting rights to specific sustainability concerns.

Interestingly, a number of respondents felt there should be an increased presence of resource officers. Eighteen people made comments indicating that they felt there should be an increased presence of resource officers and/or more wildlife protection. Because of the perceived lack of resource officers to enforce regulations, some felt this may make regulatory changes difficult to enforce.

The majority of the remainder of the comments related to specific regulatory concerns. Several respondents also took this opportunity to voice displeasure with the gun registry (20 comments). Respondents also voiced concerns with the draw system and a desire for Sunday hunting (10 comments each).

Canadian Hunter Survey Comments

For the Canadian hunters the most common additional comment was related to how much the respondent enjoyed their visit to Saskatchewan. Similar to the non-resident respondents, the majority of these types of responses specifically named the people as the most enjoyable feature, over and above other factors such as animals or habitat.

There were several (46) comments regarding the desire for additional hunting rights for Canadian hunters. Hunters primarily wanted longer seasons, the right to hunt mule deer, and extra deer tags. There were also some comments regarding perceived additional rights afforded to non-resident hunters over Canadian hunters. A longer hunting season for non-resident hunters was cited as an issue.

Issues related to Aboriginal hunting rights were not as much a concern as they were with Saskatchewan hunters. While there were six mentions of Aboriginal hunting rights as an issue, this was clearly far less of an issue than with Saskatchewan hunters.

While the concept of mandatory outfitting was not introduced in the survey, eight respondents made comments indicating that they do not want to be forced to utilize the services of an outfitter. Clearly there is some discussion in the hunting community regarding this matter. Ten respondents also indicated they had issues with outfitters tying up land and reducing the possibility for access.

Raising fees was also somewhat of an issue with 19 respondents making further comments to that effect. There were some regulatory issues as well, with Sunday hunting being the most significant at 8 mentions. (Sunday hunting was not mentioned within the survey.)

Non-Resident Hunter Comments Summary

Of the 263 comments, 168 (64%) indicated that they were opposed to mandatory outfitting. Further to this, 53 respondents indicated that outfitting simply would not add value to their hunt and would in fact detract from their experience. A number of hunters indicated that activities such as asking land owners for permission to hunt on their lands, meeting local residents, discussing where the best hunting is, setting up decoys/spread, and other activities are just as much a part of the hunt as anything. Many hunters indicated that outfitted hunting was not a style of hunting they are interested in, regardless of cost.

Of the survey respondents, 86 felt compelled to make additional comments on how much they enjoyed hunting in Saskatchewan, and how much they enjoyed the people. A high percentage of the respondents indicated that the people were the primary reason for enjoying their trip to Saskatchewan, more so than respondents mentioned the birds or habitat.

License pricing was not a major issue with only six respondents making additional comments regarding the increase of fees. The only group for which licensing fees were a major concern was with the Saskatchewan hunters.

4.0 The Economic Impact of Non-Outfitted Hunting

The first step in creating the economic impact is to perform an expenditure analysis. The expenditure profiles can be generated from raw or existing data. For non-outfitted hunting primary research was undertaken in the form of a survey in order to assess the actual expenditures associated with hunting expenditures in the province. From the survey data a detailed expenditure profile was developed for each of the hunting populations: Saskatchewan resident, Canadian resident, and non-resident.

The actual number of hunting trips was also assessed to determine the level of visitation. More specifically, the out-of-province visitation must be determined in order to isolate new money being injected into the province's economy. The total trips generated, combined with the per trip expenditure levels render the gross expenditures.

The gross expenditure is the basis for forming the economic impact. The gross expenditures in various sectors of the economy have various impacts on the economy and as such, are analyzed separately. From the gross expenditures the GDP, labour expenditures, and employment are generated. GDP is used as the measure of economic activity because it is the most precise measure of economic activity specific to Saskatchewan.

4.1 Key Assumptions

Several key assumptions were made in the generation of the economic impact as outlined below:

- ***New Money*** – The economic impact of hunting in Saskatchewan has been calculated on the basis of new money being injected into the economy. It is the new monies brought into the province by other Canadian and non-resident visitors that provides a true net addition to the province's wealth. Surveys were designed to solicit information on expenditures made within the province of Saskatchewan.
- ***GDP Impact Calculation*** – The economic impact analysis is being calculated based on the GDP generated by the gross economic activity. The GDP analyzes the value added within Saskatchewan and provides a precise measure of the economic activity stimulated within Saskatchewan. The employment positions and expenditures were also calculated relative to only new positions created within Saskatchewan.
- ***Regional Analysis*** – The calculation of the economic impact of hunting on the province of Saskatchewan does not include regional expenditure impacts stimulated by Saskatchewan residents within the province.
- ***“With versus Without” Framework*** – This economic impact analysis (and economic impact analyses in general) utilizes a “with versus without” framework. Essentially, what is the economic impact of having hunting in Saskatchewan versus not having hunting within Saskatchewan? If a hunting product was not available in Saskatchewan, would there be a significant outflow of expenditures to other regions where a hunting product was available.

4.2 Gross Economic Activity

To generate the gross economic activity triggered by non-outfitted hunting three factors must be identified; the average trip expenditures, the total number of hunters, and the total number of trips taken.

4.2.1 – Average Trip Expenditures

Average trip expenditures were identified through survey data. Saskatchewan resident survey respondents were asked to identify their total annual expenditures. The total annual expenditures were then divided by the total number of trips. This was done to avoid more heavily weighting the survey with any one particular hunting season, depending on the timing of the survey.

Out-of-province hunters were simply asked to report the hunting expenditures made within the province based on their last visit. The per visit expenditure, combined with the number of annual visits provides an estimate of the total annual hunter expenditures.

Table 15 – Average Per Trip Expenditures					
	Saskatchewan		Canadian		Non-Resident
	Big Game	Bird	Big Game	Bird	Bird
Transportation	31.77	36.75	236.74	203.19	333.25
Food/Beverage	10.33	10.37	224.77	221.46	307.11
Recreation and Entertainment	3.24	2.06	51.49	52.84	47.46
Lodging and Accommodation	3.80	3.19	131.20	109.63	291.46
Retail and Other Expenditures	3.90	3.41	45.06	58.23	81.89
Meat Processing	11.11	5.70	10.71	30.42	25.49
Gun Purchases	10.34	13.79	6.38	3.33	0.00
Ammunition	3.55	6.27	10.20	42.96	32.55
Licensing	9.05	4.79	142.77	75.27	131.90
ATV's ²⁰	21.25	3.63	0.00	0.00	0.00
Vehicle Rentals	0.00	2.79	10.00	6.20	12.21
Other Expenditures	4.49	4.01	36.04	24.17	22.29
Average Trip Expenditure	\$ 112.83	\$ 96.76	\$ 905.36	\$ 827.70	\$ 1,285.61

²⁰ Average ATV use dedicated to hunting is 34% according to a 2005 Saskatchewan Wildlife Federation survey.

Major one-time expenditures such as guns and ATV's have been allocated on a per trip basis. ATV expenditures have also been allocated based on actual hunting usage. According to a Saskatchewan Wildlife Federation survey undertaken in 2005 the actual portion of ATV usage dedicated to hunting is 34%.

On a per trip basis, out-of-province hunters have much greater expenditures than resident hunters. While non-resident per trip expenditures are 12 times that of resident expenditures, this does not take into account the number of times hunters typically hunt in a year. The following table shows the hunting expenditures for hunters if the hunting expenditures are converted to an annual number. On an annual basis, hunting expenditures level out because of the high number of times residents hunt in a year.

Table 16 – Average Per Trip Expenditures			
	Saskatchewan Hunters	Canadian Hunters	Non-Resident Hunters
Trip Expenditure	\$105.95	\$872.22	1,285.61
Average Times Hunting	12.08	1.40	1.07
Annual Expenditure	\$1,279.88	\$1,221.11	1,375.60

Note: Survey respondents were asked to provide an estimate of their annual expenditures and the number of hunting trips conducted in a year. Expenditure per trip is computed using these two pieces of information.

4.2.2 – Determination of the Number of Trips Generated

Determining the number of trips generated is a critical step in determining the economic impact of non-outfitted hunting. Working from Saskatchewan Environment licence sales, combined with the survey results, the total number of hunters was determined. The total number of habitat licences gives us the actual number of hunters. Utilizing the total licences purchased by hunters, and the number of hunters that hunted more than one animal, all of the licenses sold were accounted for in terms of the total number of hunters.

The following table shows the generation of the number of hunting trips.

Table 17 – Total Hunters		
Hunter Type	Total Licenses Sold²¹	Total Hunters²²
Saskatchewan Resident		
Saskatchewan Resident Game Bird	13,096	6,663
Saskatchewan Resident Both Big Game and Bird		6,433
Resident Big Game	68,090	29,122
Total Saskatchewan	81,186	42,218
Canadian Resident		
Canadian Resident Game Bird	1,648	1,599
Canadian Resident Big Game	2,638	2,494
Canadian Resident Both Big Game and Bird		49
Total Canadian	4,286	4,142
Non-Resident		
Non-Resident Game Bird	10,058	10,058
Non-Resident Big Game	7,328	6,552
Non-Resident Total	17,386	16,610
Totals Non-Resident	102,858	62,970

With the total number of hunters established, the number of trips taken by each hunter type has also been isolated. The number and type of trips taken by each hunter was determined using survey data. The average trips taken, combined with the total number of hunters, renders the total level of visitation by non-outfitted hunters. From the total trips generated the outfitted trips must be removed to arrive at only the non-outfitted trips generated.

²¹ Based on Saskatchewan Environment Data.

²² Actual hunter numbers were generated based on survey data regarding average number of licenses purchased per population correlated with the total habitat licenses sold.

Table 18 – Non-Outfitted Hunting Trips				
Hunter Type	Total Hunters²³	Trips per Category	Total Trips Generated²⁴	Number of Non-Outfitted Hunting Trips
Saskatchewan Resident	42,218	12.08	510,158	509,941
Canadian Resident	4,142	1.40	5,790	5,352
Non-Resident Total	16,610	1.07	17,747	7,499
Totals	62,970		533,695	522,792

Clearly, Saskatchewan hunting trips dominate the total visitation. There were a total of 509,941 non-outfitted hunting trips by Saskatchewan residents compared to 12,851 trips by non-Saskatchewan residents. Resident hunting trips outnumbered out-of-province hunting trips 40 to 1.

²³ Actual hunter numbers were generated based on survey data regarding average number of licenses purchased per population correlated with the total habitat licenses sold.

²⁴ Based on survey data yielding the total number of trips taken by each population.

4.2.3 – Total Expenditure Generated

Table 19 – Total Annual Expenditures Triggered			
Hunter Type	Number of Non-Outfitted Hunting Trips	Expenditure Per Trip	Gross Annual Expenditures
Saskatchewan Resident			
Saskatchewan Resident Game Bird Only	127,603	\$ 96.76	\$12,346,866
Both Big Game and Bird			
• Bird	90,358	\$ 96.76	\$8,743,040
• Big Game	40,657	\$ 112.82	\$4,586,923
Resident Big Game Only	251,323	\$ 112.82	\$28,354,261
Total Saskatchewan	509,941	\$ 105.95	\$54,031,090
Canadian Resident			
Canadian Resident Game Bird Only	2,208	\$ 827.70	\$1,827,562
Canadian Big Game Only	3,010	\$ 905.36	\$2,725,134
Both Big Game and Bird			
• Bird	76	\$ 827.70	\$62,905
• Big Game	58	\$ 905.36	52,511
Total Canadian	5,352	\$ 872.22	\$ 4,668,112
Non-Resident			
Non-Resident Game Bird Only	7,499	\$ 1,285.61	\$9,640,789
Non-Resident Big Game Only	0		
Non-Resident Total	7,499	\$ 1,285.61	\$ 9,640,789
Totals	522,792		\$ 68,339,991

Note: Survey respondents were asked to provide an estimate of their annual expenditures based solely on which economic analysis is conducted. They were asked additional questions to describe hunting behaviour such as number of hunting trips conducted in a year. Expenditure per trip is computed using these two pieces of information.

While non-outfitted hunting in the province generated \$68.3 million in expenditures, only the new money being injected into the economy is included in the economic impact. As such, the gross expenditure by out of province hunters is \$14.3 million.

4.3 Economic Impact Analysis

4.3.1 – Total Expenditure Impact

While non-outfitted hunting in the province of Saskatchewan generated \$68.3 million in expenditures, only the \$14.3 million in expenditures made by visitors from outside the province is actually new money to the province. However, in calculating the total marginal benefit to Saskatchewan the total impact of not having hunting in Saskatchewan must be calculated. While some hunters would give up hunting or choose another product to consume, some hunters will choose to pursue their sport in other jurisdictions causing leakage from the Saskatchewan economy. The leakage that is prevented by having a hunting product within Saskatchewan is termed import substitution²⁵.

Import substitution is a concept that looks at the extent to which supplying goods or services within a jurisdiction prevents individuals from importing those goods or services from other jurisdictions. In other words, if there were no hunting in Saskatchewan, would there be a significant increase in out-of-province expenditures by Saskatchewan residents on hunting?

It is difficult to estimate what percentage of Saskatchewan hunters would have otherwise travelled outside the province to hunt. However, it can be assumed that the farther individuals are travelling within the province, the more likely they are to travel outside the province to consume a similar product.

For the purposes of this analysis, hunters travelling over 200 kilometres within Saskatchewan will be assumed to have a high propensity to travel outside of Saskatchewan to hunt if no hunting were available within Saskatchewan. The 200 kilometre and greater range was chosen because it is beyond the threshold for an average day trip. Most travellers travelling over 200 kilometres will be staying overnight. When already considering an overnight trip, most hunters will have the time and inclination to travel out-of-province to consume a comparable product outside the province.

The survey performed as part of this report indicates that 25.1% of hunting trips by Saskatchewan residents are over 80 kilometres. Canadian Travel Survey Data indicates that of those trips over 80 kilometres, 59.9% are over 200 kilometres. As well, this group will, on average, have higher expenditure than the hunters travelling shorter distances. Saskatchewan resident hunting trips over 200 kilometres generated \$9.8 million in expenditures.

The second part of the marginal impact of outfitted hunting is the expenditures generated by non-resident and Canadian hunting visits. Canadian resident expenditures within Saskatchewan were \$4.7 million and non-resident expenditures were \$9.6 million. The total marginal impact of hunting expenditures is \$24.1 million as the following table demonstrates.

²⁵ Tourism, in terms of the economy, is considered an export product. Individuals leaving the province to consume tourism products in other jurisdictions are essentially importing that service.

Table 20 – Total Marginal Expenditures Generated by Non-Outfitted Hunting			
Hunter Type	Number of Non-Outfitted Hunting Trips	Gross Annual Expenditures	Marginal Expenditure Impact to Saskatchewan
Saskatchewan Resident	509,941	\$54,031,090	\$9,832,686
Canadian Resident	5,352	\$ 4,668,112	\$ 4,668,112
Non-Resident	7,499	\$ 9,640,789	\$ 9,640,789
Totals	522,792	\$ 68,339,991	\$24,141,587

4.3.2 – Determination of Direct and Indirect GDP and Employment Impact

The determination of the direct and indirect GDP impact was based on the Parks Economic Impact Model (PEIM). The model, created by Heritage Canada, utilizes Statistics Canada Input/Output data to simulate the impact of tourist expenditures on the Saskatchewan economy in the areas of transportation, vehicle rentals, other vehicle, accommodation, food and beverage, recreation and entertainment, and retail/other expenditures. Because the model uses Statistics Canada Input Output data it is highly accurate in terms of GDP and employment generation. As GDP is the most comparable assessment of economic impacts, this model was the most appropriate for assessing the economic impact of hunting. Through this run, the direct GDP, indirect GDP, and employment impacts can be determined.

The following table has amalgamated the expenditure data for out-of-province visitors into six categories. For each of these expenditures a separate analysis was run to determine the precise impact on the respective sectors of the economy.

Table 21 – Expenditures by Impact Category	
Category	Expenditures
Transportation	\$ 6,689,026
Vehicle Rentals	\$ 222,251
Lodging and Accommodation	\$ 3,206,830
Food/Beverage	\$ 4,582,245
Recreation and Entertainment	\$ 944,897
Retail and Other Expenditures	\$ 6,781,509
License Fees Paid	\$ 1,714,829
Total	\$ 24,141,587

GDP was utilized as the measure of economic impact because it is the most precise measure of actual economic activity that has occurred within the province. GDP measures the actual value added by Saskatchewan companies within the province. The value added is the sum of

all economic activity less the inputs required that were supplied extra-provincially. The total direct and indirect GDP generated by \$24.1 million in expenditures is \$8.9 million.

Table 22 – GDP Impact				
	Direct Expenditure	Direct GDP²⁶ Impact	Indirect GDP Impact	Total GDP Impact
Impacts	\$24,141,587	5,468,232	\$3,445,907	\$8,914,139

The direct and indirect employment generated by tourist expenditures associated with non-outfitted hunting generated 269.2 full-time equivalent positions in the province with \$5.8 million in labour income. Similar to the economic impact, employment impacts are based on out-of-province hunting expenditures and the import substitution impact.

The economic analysis presented here is based on \$24 million expenditures made by those hunters who traveled more than 200 kilometers for hunting trips. The economic impacts of remaining of the expenditures (\$44 million) made by hunters who travel short distance have impacts on local rural economy, which could not be estimated because of model and data limitations.

Table 23 – Employment Impact			
	Direct Employment Impact	Indirect Employment Impact	Total Employment Impact
Total Expenditure	\$4,220,832	\$1,592,026	\$5,812,858
Total Jobs	204.0	65.2	269.2

This model is very beneficial as it is extremely accurate in terms of its assessment of the GDP and employment created. It also is consistent and comparable with the previous economic assessment of Saskatchewan’s Provincial Parks. However, the model is lacking in two ways. First, the model only estimates federal taxes. Second, the model does not calculate any of the induced impacts created by economic activity.

4.3.3 – Determination of Induced GDP and Employment Impact

While widely acknowledged, economists have been reluctant in the past to include induced impacts in calculations as they are open to interpretation, as well as inflation. Induced impacts have long been regarded as somewhat inaccurate and misleading, as well as open to exaggeration. Increasingly, however, induced impacts are gaining acceptance, provided they

²⁶ Gross Domestic Product (GDP) is the measure of the value of the total outputs of an industry less the total inputs.

are calculated based on reliable modeling.

Statistics Canada is considering adding back into their calculations the induced impacts of economic activity. A formula generated by Statistics Canada was utilized to calculate the induced impacts of non-outfitted hunting. The formula essentially assesses the impact labour expenditures have on the economy. The previous analysis shows that the total labour expenditure generated is \$5.8 million. After accounting for taxes and savings, the \$5.8 million in labour expenditures generates \$5.0 million in induced expenditures. These expenditures are run through the economic impact model again, based on the typical basket of goods purchased by a wage earner in Saskatchewan.

These induced expenditures create an additional \$2.4 million in GDP. The following tables show the total induced GDP impact generated from the induced labour expenditures.

Table 24 – Induced GDP Impact				
	Direct Expenditure	Direct GDP Impact	Indirect GDP Impact	Total GDP Impact
Induced Expenditures	\$ 5,028,122	\$ 1,919,435	\$ 460,665	\$ 2,380,100

The total direct, indirect, and induced impact of non-outfitted hunting in Saskatchewan is \$11.3 million generating 312.0 full-time equivalent positions. The total labour income generated is \$7.1 million or \$22,835 per position. Given the fact that the majority of these positions are in the service sector, it is reasonable that the average wage would be \$22,835.

Table 25 – Total GDP Impact			
	Direct and Indirect Impacts	Induced GDP	Total GDP Impact
GDP Generated	\$ 8,914,139	\$ 2,380,100	\$ 11,294,239
Total Employment Income	\$ 5,812,858	\$ 1,311,630	\$ 7,124,488
Total Jobs (FTE)	269.2	42.8	312.0

The direct and indirect impacts have been reported separately as to be easily separated from the induced impacts. This allows the results of this economic impact to be easily compared to other economic impacts, whether they have calculated the induced impacts or not.

4.3.4 – Employment Created

The majority of the 312 full-time equivalent jobs created would be in the service sector. The expenditures triggered by non-outfitted hunters would be tourism expenditures, primarily made in the service sector. These expenditures would support only a portion of the employment in the hunting industry itself.

Employment impacts in hunting related fields such as taxidermy, dog training, and bird plucking would be supported primarily by expenditures made by Saskatchewan residents, and to some extent, outfitted hunters. Currently, there are only 105 licensed taxidermists and less than 20 licensed bird dog trainers in the province. Only a portion of these positions would be created by the impact on non-outfitted hunting in the province.

As well, the \$1.7 million in licensing revenue will create employment within government. Some of the government services related to hunting are conservation officers, habitat management, and resource management.

4.3.5 – Determination of Tax Impacts

The Parks model also lacks the type of tax information that would be useful at the provincial level. As such, a separate tax model was utilized. The Sport Tourism Economic Assessment Model (STEAM), developed by Statistics Canada, the Conference Board of Canada, and the Canadian Sport Tourism Alliance provides more detailed analysis of the tax modeling. To ensure that the tax analysis was consistent with the previous findings the tax impact was generated relative to the direct and indirect GDP activity already calculated. Non-outfitted hunting creates the following marginal tax impacts, based on the previous GDP impact estimates.

Table 26 – Total Tax Impact			
	Federal	Provincial	Municipal
Impacts	\$ 1,710,833	\$ 1,593,840	\$ 388,277

4.3.6 – Combined Impact of Outfitted and Non-Outfitted Hunting

While it is useful to analyze the impacts of outfitted and non-outfitted hunting separately, it is also valuable to analyze the total hunting industry. Hunting in Saskatchewan generates \$107.6 million in gross expenditures, \$63.4 million of which are the marginal impact to the economy. While non-outfitted hunting is a larger industry in terms of economic activity the marginal expenditures are not as high because a much smaller proportion of non-outfitted hunting is new money to the province or import substitution. All outfitting related expenditures are new money to the province making the marginal impact equal to the gross expenditure. The following table outlines the combined impacts of hunting in the province.

Table 27 - Impacts of Outfitted Non-Outfitted Hunting

	Gross Expenditure	Marginal Expenditure	GDP Impact	FTE Employment
Outfitted Hunting	\$ 39,239,384	\$ 39,239,384	\$ 27,611,353	742.6
Non-Outfitted Hunting	\$ 68,339,991	\$ 24,141,587	\$ 8,914,139	269.2
Total Impacts	\$ 107,579,375	\$ 63,380,971	\$ 36,525,492	1,011.8

The total hunting industry will create over 1,000 FTE jobs in the province and have a GDP impact of \$36.5 million. The combined impacts of fishing have a comparatively larger marginal impact at \$107.2 million with a GDP impact of \$53.7 million.

4.4 Economic Impact of Provincial and Rural Expenditures

Traditional economic impacts regarding tourist expenditures treat only “new money” to the economy as part of the economic impact. However, there is also a significant intra-provincial impact that takes place through the transference of expenditures from urban²⁷ to rural jurisdictions. While this does not have an impact at the provincial level, there is a significant impact on the communities in which the expenditures are made.

Of the 42,218 hunters in Saskatchewan 12,327 (29.2%) are based in urban centres according to survey respondents. These hunters made on average 9.8 hunting trips annually, however, only half of those trips were over 80 kilometres²⁸. The total number of hunting trips that were over 80 kilometres taken by urban residents was 61,924.

The average trip expenditure includes expenditures on transportation, food/beverage, lodging, recreation and entertainment, and retail. Purchases likely made at the point of origin such as ammunition, gun and ATV purchases have been excluded. The average trip expenditure is \$96.52 with gross expenditures of \$6.0 million annually.

Table 28 – Urban Trips Generated

Total Saskatchewan Hunters	Urban Based Hunters	Hunting Trips Generated	Total Urban Expenditure
42,218	12,3118	61,924	\$ 5,976,889

There is a symbiotic relationship between urban and rural jurisdictions. Healthy rural economies support urban economies, while healthy urban economies lead to expenditures in

²⁷ Respondents were deemed to be urban if they listed their home as one of the province’s cities.

²⁸ Only trips over 80 kilometres are considered to have actually impacted rural areas. Expenditures on trips shorter than 80 kilometres would still be primarily felt within the urban areas they originated in.

rural areas, as evidenced here. Rural businesses supporting urban hunters leads to a stronger regional economy. While the majority of these expenditures will eventually wind their way through the retail economy back to the major centres, it is an excellent illustration of the symbiotic relationship between rural and urban centres in Saskatchewan.

Similarly, out-of-province expenditures in Saskatchewan’s rural regions have a positive impact on the urban economies of the province. Melfort and Prince Albert are excellent examples of how rural expenditures in urban settings can drive the retail economy.

Table 29 – Per Capita Retail Purchases	
Location	Retail Sales per Capita
Melfort	16,585
Prince Albert	16,294
Weyburn	15,461
Yorkton	14,409
Moose Jaw	13,532
North Battleford	13,202
Humboldt	12,021
Swift Current	11,567
Estevan	10,895
Regina	10,256
Saskatoon	10,214
Canada	10,404
Saskatchewan	9,570

Table 29 demonstrates that the retail sales are being drawn into the urban settings. Expenditures are being made by hunters in rural settings, supporting rural businesses. However, the goods and services required to run those businesses are being acquired, in part, in urban areas. The residents employed by the rural businesses, are also making their major purchases in urban settings, helping to drive up the average retail sales in urban settings. Clearly, strong retail expenditures in rural regions of Saskatchewan result in economic activity in urban Saskatchewan.

4.5 Regional Impacts

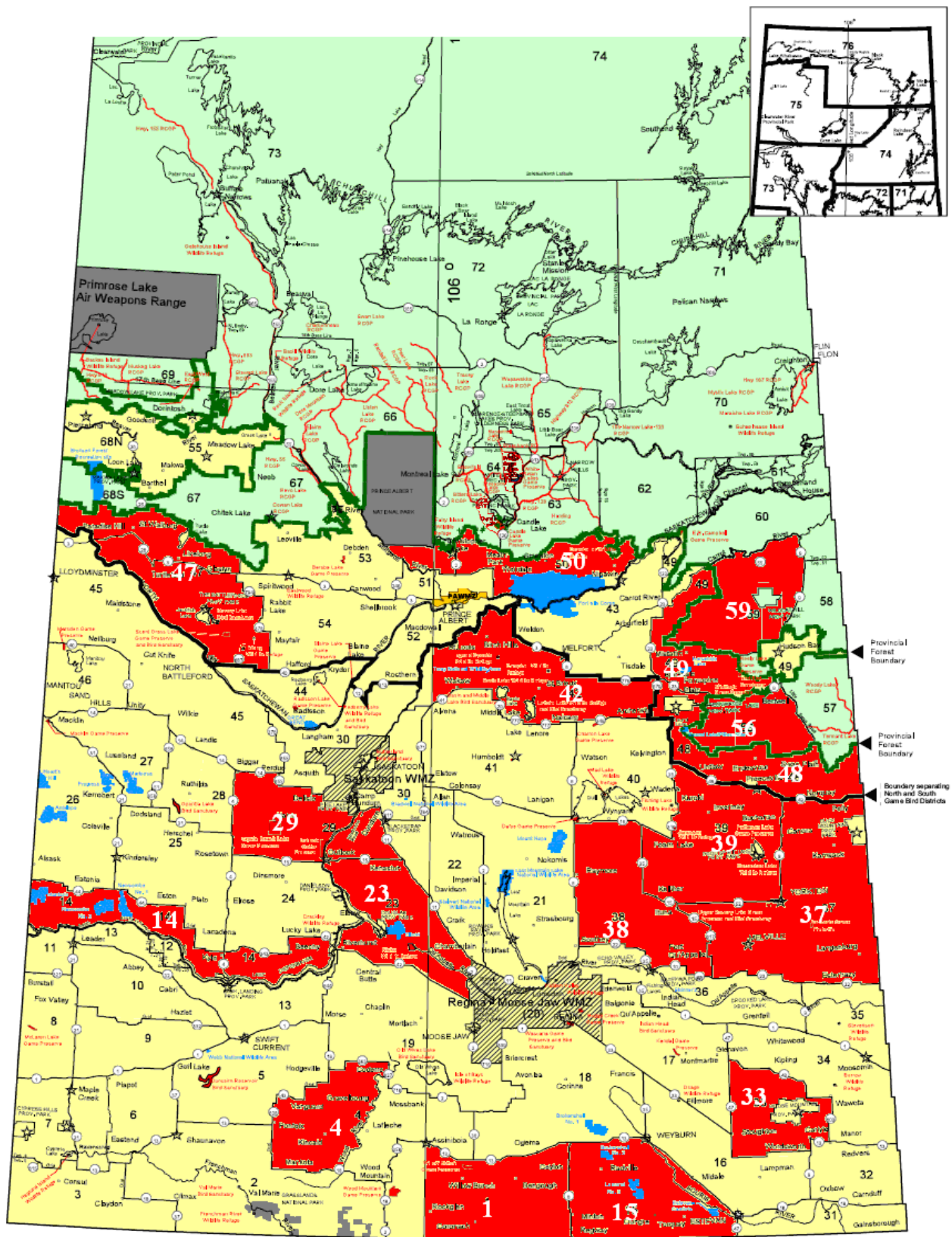
Regional impacts are based on the destination of Saskatchewan hunters, as well as the destinations for out of province visitation. There are 76 hunting zones in the province. Respondents to the hunting survey were asked to indicate the zones they had hunted. From these responses an image emerged as to the hunting destinations. To assist with recognizing the patterns, the regions zones with higher visitation have been highlighted using the Wildlife Management Zones Map.

Saskatchewan Visitation

Zones capturing more than 2% of the province's visitation were highlighted as having above average visitation. The following table shows the zones capturing more than 2% of the total visitation followed by a map that highlights these regions in red. Saskatchewan hunter visitation is the most evenly distributed of the three hunting populations. Because hunters are not travelling far to hunt, the distribution of hunting destinations is as broadly based as the population itself. Because the hunter distribution was so dispersed, only 49.88% of the total visitation is represented here.

Table 30 – Saskatchewan Hunting by Most Visited Zones			
Zone	% of All Visitation	Zone	% of All Visitation
WMZ 1	2.35	WMZ 39	2.24
WMZ 4	2.12	WMZ 42	2.47
WMZ 14	2.94	WMZ 47	2.47
WMZ 15	2.47	WMZ 48	6.00
WMZ 23	3.06	WMZ 49	3.53
WMZ 29	3.06	WMZ 50	2.59
WMZ 33	2.00	WMZ 56	3.76
WMZ 37	4.12	WMZ 59	2.47
WMZ 38	2.24	Total	49.88

The most visited region in the province, in terms of Saskatchewan based hunting, is the eastern portion of the province. Zones 37 and 39 were significant destinations for Canadian and non-resident hunters as well. The visitation levels are an indicator of where the economic impacts are felt. It should also be noted that less than 15% of the provincial visitation occurs above the provincial forest boundary. The majority of Saskatchewan based expenditures are being made in the southern half of the province.

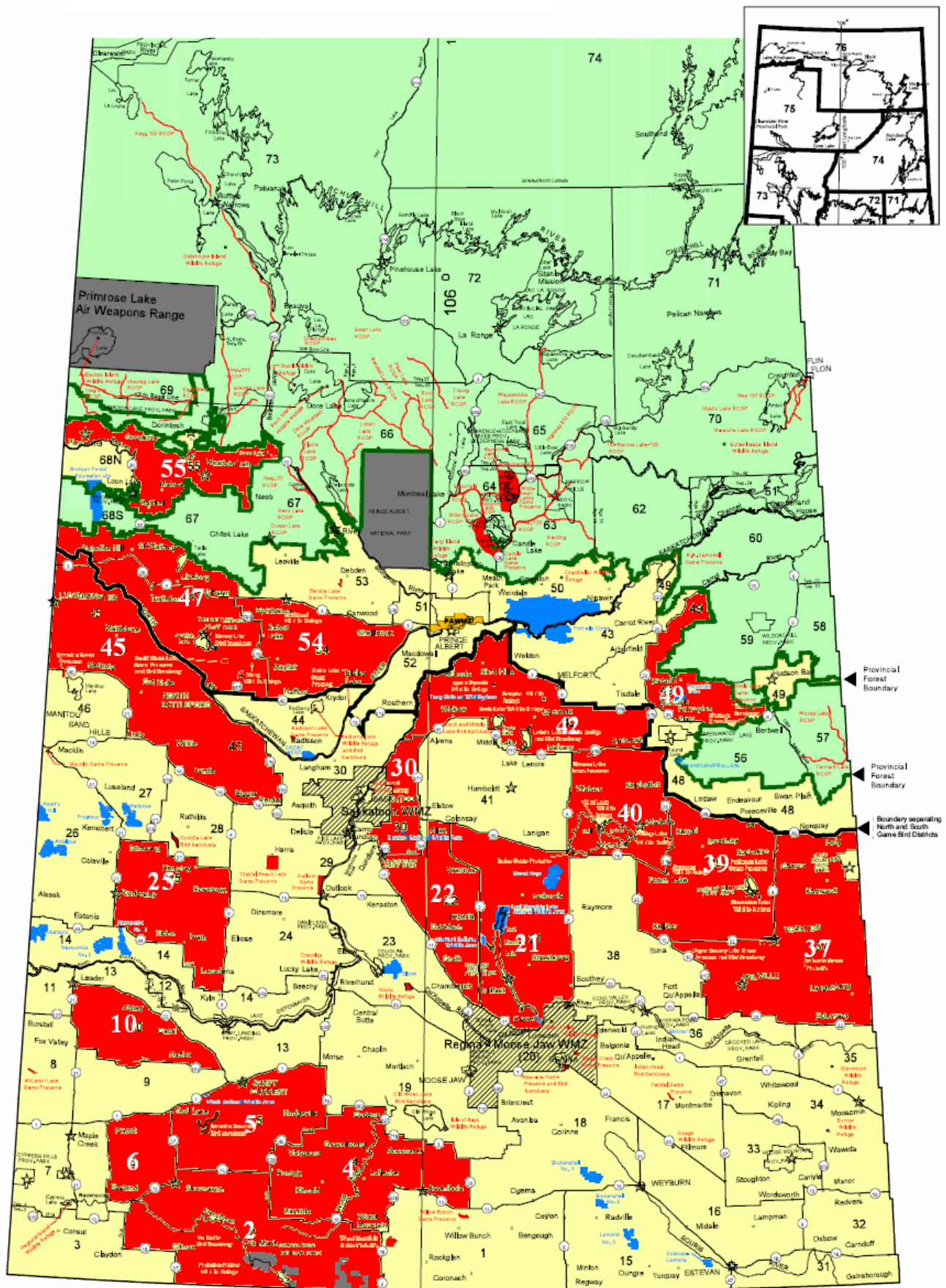


Canadian Visitation

Canadian visitation was also widely distributed. Canadian hunters were concentrated just below the forest boundary, and in the south west portion of the province. As visitation is the best indicator of expenditures, it is clear that hunting expenditures are impacting the rural areas of the province.

The zones represented in the map comprise 58.24% of all Canadian hunting visitations, slightly more concentrated than the Saskatchewan hunter distribution.

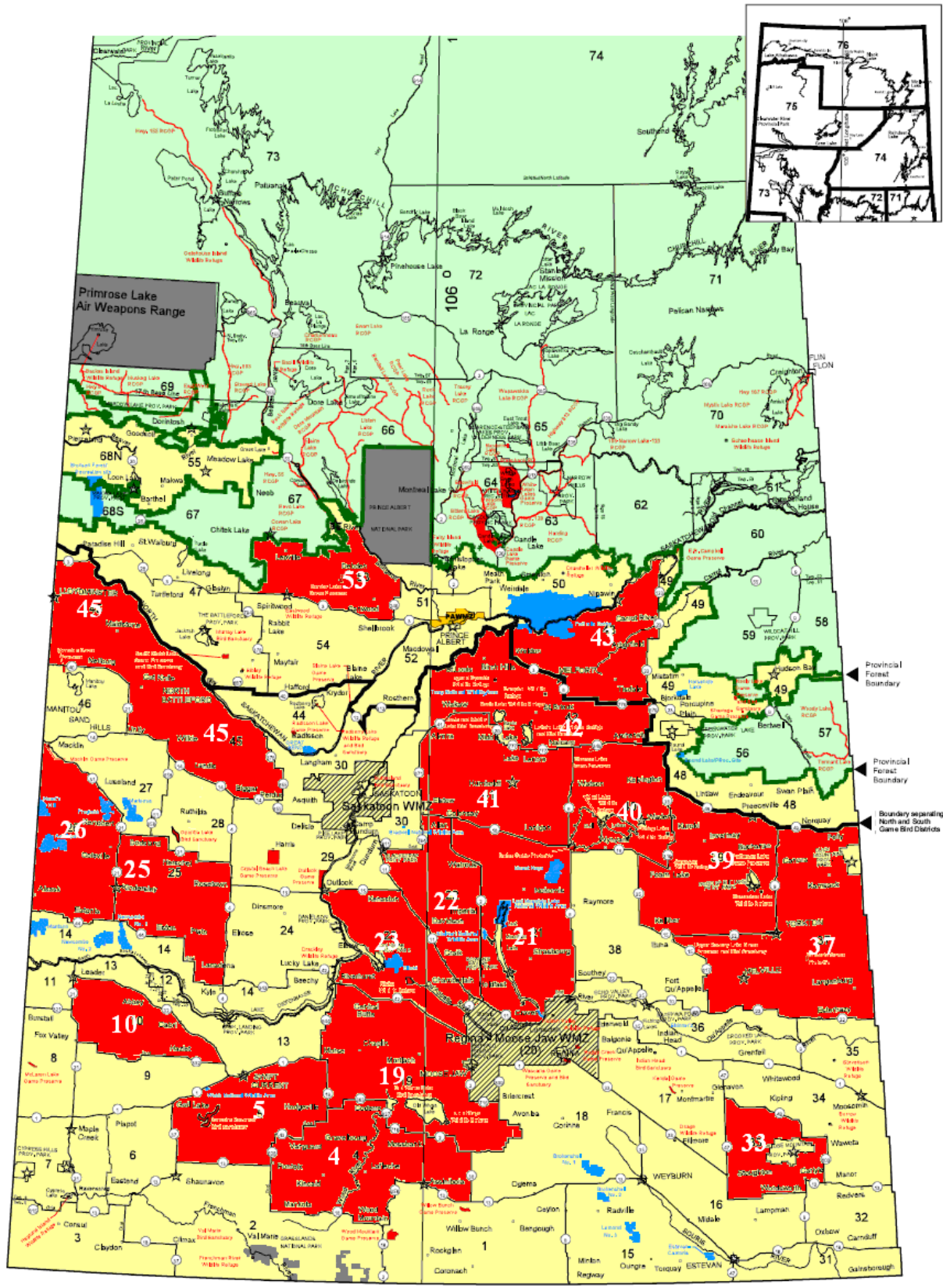
Table 31 – Canadian Hunting by Most Visited Zones			
Zone	% of All Visitation	Zone	% of All Visitation
WMZ 2	2.00	WMZ 37	4.83
WMZ 4	3.00	WMZ 39	3.00
WMZ 5	4.33	WMZ 40	3.33
WMZ 6	2.50	WMZ 42	2.66
WMZ 10	2.00	WMZ 45	4.33
WMZ 21	3.83	WMZ 47	3.66
WMZ 22	5.49	WMZ 49	2.16
WMZ 25	2.50	WMZ 54	2.66
WMZ 30	3.33	WMZ 55	2.66
		Total	58.24



Non-Resident Visitation

Non-resident hunting had the most concentrated hunting patterns. Zones 19, 21, and 40 (outlined in yellow on the following map attracted over 31% of the province's non-resident hunting visitation. Non-resident visitation was highly concentrated. The 19 zones highlighted on the map represent 85.2% of all non-resident visitation.

Table 32 – Non-Resident Hunting by Most Visited Zones			
Zone	% of All Visitation	Zone	% of All Visitation
WMZ 4	5.45	WMZ 33	2.27
WMZ 5	2.73	WMZ 37	3.86
WMZ 10	3.86	WMZ 39	4.09
WMZ 19	7.05	WMZ 40	13.41
WMZ 20	2.50	WMZ 41	3.18
WMZ 21	10.45	WMZ 42	2.05
WMZ 22	2.50	WMZ 43	3.64
WMZ 23	2.27	WMZ 45	4.55
WMZ 25	5.00	WMZ 53	2.27
WMZ 26	4.09	Total	85.24



5.0 Environmental and Social Impacts

5.1 Environmental Impact of Non-Outfitted Hunting

The environmental impact analysis in this report is included to provide the background and context to fully consider the economic evaluation in terms of the full cost of these activities. This is not a complete environmental impact analysis.

Hunting in Saskatchewan creates both positive and negative externalities. While it is not an actual public good²⁹, hunting does create non-market benefits to society such as providing natural habitat. Hunting is largely a symbiotic relationship with both the environment and landowners. Hunters do have an inadvertent impact on private lands and the environment, simply through their presence in natural habitats, however, they also have positive impacts. Hunters have a positive impact on the environment because hunting fosters a vested interest in the environment such as animal population maintenance and habitat preservation.

Animal Population Control and the Potential for Stock Depletion

One of the strongest environmental benefits of hunting is animal population control and monitoring. Hunters are frequently used as an animal population control mechanism. Animal population control is essential to minimize harm to the species itself from starvation, as well as mitigating impacts to other species, environments, livestock, and crops.

Hunting is considered by wildlife experts to be one of the most humane methods of wildlife control. Increasing hunting pressure is often the simplest, most cost effective and humane way of controlling animal populations. Some comparative methods for controlling animal populations are listed below.

In general, herd density and herd health are negatively correlated. Over-population has negative impacts on the herd's overall health and reproductive capacity.

Herd health is not the only concern. Another aim of animal population control is to maintain animal levels at what is termed the cultural carrying capacity (CCC)³⁰. The CCC is defined as the maximum number of animals that can coexist compatibly with humans in a given area. CCC must be maintained if crop destruction, animal-vehicle accidents, and wildlife encroachment on urban areas are to be kept at a minimum. If the animal population grows beyond acceptable levels, there will be pressure from the public to reduce the animal population.

Strong environmental and regulatory stewardship is required to ensure hunting does not have a negative impact on animal populations. Several North American jurisdictions have had animal populations negatively impacted by over harvesting. The Maritimes, for example, has drastically reduced its big game population through over hunting. Alberta has lost a significant portion of its fish stocks in recent years. While declines in animal populations are

²⁹ Public goods are goods or services that are non-excludable and non-rival in consumption. They are said to have positive externalities that benefit society.

³⁰ Virginia Department of Game and Inland Fisheries.

generally caused by a combination of factors, the environmental stewardship of the hunting regulatory body must be quick to react to changes in animal populations.

Animal Population Control Methods³¹	
Predator Reintroduction	The mobility of the predators, the close proximity to humans, and the potential for predators to kill non-target species make this method unsuitable in most situations.
Sharpshooting Program	Sharpshooting has a similar impact on animal populations when compared to hunting, however, it is at a financial cost to the wildlife management body as opposed to a benefit.
Trap-and-Kill Programs	Animals are trapped and subsequently killed. Trap-and-kill methods generally are considered less humane than sharpshooting because the animals endure a greater level of stress prior to being killed.
Fertility Control	Most fertility control methods are still experimental and unproven at the population level for use in deer control.
Live Capture and Relocate	This method is stressful to the animals, and actually has a high rate of mortality for the relocated animals. Often it is difficult to find locations to which large populations of deer can be directed. The cost is also very high, ranging from \$261 to \$567 per deer.

Environmentally Focused Reference Group and Natural Habitat Preservation

Hunters’ interests coincide with environmental objectives and foster an attachment to the environment. Hunters in Saskatchewan pay, as part of their hunting licenses, into a Fish and Wildlife Development Fund (FWDF) which is used to secure, monitor and improve both fish and wildlife habitat throughout Saskatchewan. This money is then used directly, and through third party agencies, to secure the existence of natural wildlife habitats.

Groups such as the Saskatchewan Wildlife Federation and Ducks Unlimited own land that they maintain as natural habitat. The Nature Conservancy of Canada, while not primarily a hunting centred organization, also owns land in the province which they maintain as natural habitat and allow hunting. Together the Saskatchewan Wildlife Federation, Ducks Unlimited, and the Nature Conservancy of Canada own or manage 180,000 acres of land. These groups also receive funding from the FWDF.

Consumption Impacts of Hunting on the Environment

Virtually all human activity has some impact on the environment. It is important to understand the impact activities have relative to other potential activities. Statistics Canada rates the environmental impacts of various sectors of the economy. While the analysis does not go to the level of hunting itself, it is broken down to the level of fishing, hunting, and trapping.

The activity of hunting itself does not have significant energy demands, however, there are significant energy demands associated with the travel required for hunting as evidenced by

³¹ Policy Center, Deer Management – Maryland, US.

the transportation costs listed by surveyed hunters. It must also be noted that because Saskatchewan hunters travel very short distances (75% of hunting trips are less than 80 kilometres) they likely have a slightly lower than average impact on the environment than the average hunter.

The following table rates the relative emissions and energy usage by industry. Energy use is measured in gigajoules with the intensity of production measured as direct plus indirect energy use per thousand dollars of production (in current dollars). Direct energy use is that associated with the industry's own production; indirect use is that associated with the production of the goods and services that are used by the industry.

The greenhouse gas emissions are measured as direct plus indirect emissions per thousand dollars of production (in current dollars). Direct emissions are those associated with the industry's own production; indirect emissions are those associated with the production of the goods and services that are used by the industry.

Table 33 – Canadian Environmental Sustainability Indicators: Socioeconomic Information – 2005 ³²		
	Energy Use Intensity per \$1,000 in Production	Greenhouse Gas Emissions per \$1000 in Production
Fishing, hunting and trapping	14.2	1.0
Scenic and sightseeing transportation and support activities for transport	6.5	0.4
Arts, entertainment and recreation	5.1	0.3
Accommodation and food services	6.5	0.5
Travel and entertainment	14.6	1.1
Crop and animal production	15.5	3.0
Forestry and logging	10.8	0.8
Support activities for agriculture and forestry	11.7	0.8
Oil and gas extraction	17.6	1.6
Coal mining	17.2	1.8
Meat product manufacturing	12.5	2.0
Wood product manufacturing	9.4	0.6
Pulp, paper and paperboard mills	24.9	1.1
Pesticides, fertilizer and other agricultural chemical manufacturing	36.3	5.2
Primary metal manufacturing	27.5	1.5
Retail trade	6.8	0.4
Air transportation	23.1	1.6
Truck transportation	14.8	1.3
Transit and ground passenger transportation	13.1	0.9
Average	14.41	1.30

³² Statistics Canada, <http://www.statcan.ca/english/freepub/16-253-XIE/2005000/bfront2.htm>.

The fishing, hunting and trapping sector has slightly below average energy use and greenhouse gas emissions than other industries located in Saskatchewan. However, Fishing, hunting, and trapping relative to other leisure time activities (arts, entertainment and recreation; scenic and sightseeing transportation; and accommodation and food services) has far greater energy demands. The travel and entertainment sector is more comparable in terms of environmental impacts.

Environmental Impacts to Non-Hunters

Hunting clearly has direct impacts on the hunting population; however, hunters are not the only population impacted by hunting activity. Hunting has both positive and negative externalities for the remainder of the population.

Positive Externalities	
Animal Population Control	Farmers and the general population benefit through maintenance of health population levels and reduction in animal populations that have grown to the point where they are deemed pests.
Animal Monitoring	Hunters in the field can act as a valuable monitoring tool for disease (Chronic Wasting Disease, Avian Bird Flu and others) as well as changes in animal populations and habitat. The general public benefits from the environmental stewardship provided by hunters.
Environmentally Focused Reference Group	Because hunters are so reliant on the environment for their activity, they are very active in terms of natural habitat maintenance. A significant number of residents (64,000 in Saskatchewan) have a vested interest in the environment that they may not otherwise have.
Natural Habitat Preservation	Natural habitats are preserved through ownership or conservation easements that will provide utility for future generations.

Negative Externalities	
Possible Over Hunting of Animals	While there are safeguards in place, the possibility remains that over-hunting could negatively impact the animal populations.
Impact of Hunters on the Habitat	During hunting seasons, natural habitats open to hunting are not easily shared with other leisure time activities.

Energy Consumption	The activities of fishing, hunting, and trapping have far greater energy demands and greenhouse gas emissions than other leisure time and travel activities outlined in the Environmental Sustainability Factor table.
---------------------------	---

5.2 Social Impacts of Non-Outfitted Hunting

The value of the economic impacts of a product can be measured with some certainty. Market forces determine the value of the product within the economy and the subsequent economic impact is determined based on that value. Social impacts are somewhat more difficult to quantify. Through the survey analysis, attitudes and personal attachment was quantified to some extent.

Importance of Hunting Attributes

To assess the social and personal attachment aspects to hunting, survey respondents were asked to rate, on a scale of one to ten (ten being the most important), the level of importance for various hunting related attributes. Through this rating system it is possible to quantify the level of personal attachment to various aspects of hunting. Each variable was ranked independently, not relatively (i.e., all the variables could be ranked as ten, or all could be ranked as one).

Table 34 – Importance of Hunting Attributes						
	Saskatchewan Residents		Canadian Residents		Non-Resident	
	Average	Rank	Average	Rank	Average	Rank
Being outdoors	9.541	1	9.564	1	9.590	1
As a form of relaxation	9.188	2	9.043	3	9.024	4
For recreation value and to challenge yourself	9.077	3	9.020	4	8.979	5
Camaraderie with friends and/or relatives	9.021	4	9.513	2	9.497	2
Hunting is part of culture, lifestyle, or tradition	8.125	5	8.805	5	9.170	3
The satisfaction of self sustenance	7.340	6	6.951	8	6.809	6
The value of meat	7.127	7	7.261	7	6.301	7
The preference of wild game meats	6.883	8	7.272	6	6.266	8
Hunting is a competitive activity to allow for trophy opportunities	5.528	9	5.688	9	3.910	9

The ranking of importance between the populations was remarkably similar. Being outdoors, relaxation, recreation, and camaraderie all ranked very high for the respondents. The preference for wild meats, and trophy opportunities were ranked quite low by each population. Some major observations regarding the attachment hunting included:

Saskatchewan Hunters

- All three populations ranked being outdoors the highest in terms of importance.
- Camaraderie with friends and relatives was less important to Saskatchewan residents than to Canadian and non-resident hunters.
- Saskatchewan residents were less likely to consider hunting to be important in terms of culture, lifestyle, and tradition.

Canadian Hunters

- Canadian hunters had the highest preference for wild game meats.
- Canadian hunters also ranked camaraderie with friends and relatives the highest out of the populations.

Non-resident Hunters

- Similar to Canadians, non-resident hunters ranked being outdoors and camaraderie with friends and relatives the highest.
- Non-resident hunters felt most strongly that hunting was important in terms of culture, lifestyle, and tradition.
- Non-residents ranked the value of the meat the lowest of the three populations. Difficulties in taking meat across the border likely played a role in this.
- Trophy opportunities were ranked last by each of the populations, however, non-residents ranked trophy opportunities significantly less important than did the other two populations.

Overall it should be noted that the level of attachment to hunting was very high. None of the variables were ranked less than five with each group ranking at least four variables over nine. The hunter respondents have a great deal of attachment to hunting and have ranked hunting quite high in relative terms to other leisure activities as the next section shows.

Importance of Hunting

Respondents were also asked to rate the importance of hunting in terms of other leisure time activities. Specifically respondents were asked, ‘In comparison to all of the other different leisure time activities (such as other sports, cultural, or social activities) that you participate in, please rate the importance of hunting to you on a scale of “1 to 10”’.

Table 35 – Relative Importance of Hunting			
	Saskatchewan Residents	Canadian	Non-Resident
Importance of Hunting (average)	7.923	8.355	8.750
Percentage that ranked hunting number one	32.4%	37.8%	49.2%

Non-resident hunters valued hunting the highest relative to other leisure time activities. This is not surprising given that these hunters likely traveled the farthest to hunt in Saskatchewan. Non-residents ranked hunting as the most important leisure time activity half the time.

Clearly, all of the populations sampled valued hunting quite highly in terms of their leisure time activities.

6.0 Inter-Jurisdictional Comparisons

6.1 Regulatory Environment

Hunting and fishing in Canada is primarily regulated at the Provincial level, with the exception of migratory birds. Migratory bird hunting requires both a provincial hunting license as well as a federal migratory bird licence.

The following table provides an overview of Canada's regulatory environment, at the provincial level.

Canadian Regulatory Environment

Table 36 – Provincial Hunting Regulations			
Province	Mandatory Outfitting for Bird Hunting	Mandatory Outfitting for Big Game Hunting	Hunter Host Program
British Columbia	No	Yes	Yes
Alberta	No	Yes	Yes
Saskatchewan	No	Yes	No
Manitoba	No	Yes	No
Ontario	No	Bear Only	Yes
Quebec	No, except for Woodcocks	Bear Only	No
New Brunswick	Guide only	Guide only	Yes
Nova Scotia	Guide only	Guide only	Yes
Prince Edward Island	Guide only	N/A	Yes
Newfoundland and Labrador	No	Yes	Yes
Northwest Territories	No	Yes	No
Yukon	No	Yes	Yes
Nunavut	No	Yes	No

Guide Versus Outfitter

Several jurisdictions in Canada have restrictions for non-residents in terms of mandatory outfitting and guiding. Mandatory guiding, as opposed to mandatory outfitting, has a much different application as explained by the following descriptions:

- **Guiding** – In general terms guiding is the act of accompanying hunters in the field for the purposes of assisting with hunting.
- **Outfitting** – An outfitted hunting trip is defined as having a single operator providing at least two services including lodging or accommodations, guiding services, access to a hunting area, or hunting equipment.

Mandatory outfitting is primarily found in Western Canada while mandatory guiding is a policy more commonly found in Eastern Canada. It should also be noted that migratory bird hunting in Eastern Canada is, in some cases, a more technical form of hunting. A higher percentage of bird hunting in Eastern Canada is done from boats. Hunting in Eastern Canada necessitates guiding arguably more than hunting in the Prairie Provinces.

Mandatory Outfitting for Bird Hunting

Migratory (Waterfowl) Bird Product	Upland Bird Product
Spring Snow Goose	Hungarian Partridge
Canada Geese	Sharp Tailed Grouse
White Geese	Spruce Grouse
Sandhill Cranes	Ruffed Grouse
White Fronted Geese	Pheasant
Dark Geese	Ptarmigan
Ducks	
Coots/Snipe	

The only jurisdiction in North America that requires outfitting for bird hunting is Quebec. Quebec requires hunters of the American Woodcock to have the services of an outfitter.

Prince Edward Island (PEI), Nova Scotia, and New Brunswick require mandatory guiding for bird hunting. PEI has recently introduced mandatory outfitting for their bird hunting. While it is too early to report the impact mandatory guiding has had on non-resident hunting in PEI, the jurisdiction may be able to provide some information on the impacts a regulatory change such as this has on hunting in the province.

Recently, Alberta, Manitoba, and Saskatchewan have all considered implementing mandatory outfitting for bird hunting. Manitoba has since ruled this option out. Alberta and Saskatchewan continue to debate the concept.

Mandatory Outfitting for Big Game Hunting

Big Game Product
White-tailed Deer
Moose
Black Bear

The majority of Canadian provinces have mandatory outfitting or guiding for big game, in some form. Ontario and Quebec have mandatory outfitting for bear only, while Nova Scotia and New Brunswick have mandatory guiding only. All other jurisdictions have mandatory outfitting for big game.

In the United States the only state that has mandatory outfitting for big game is Alaska. In some regions access is such an issue that outfitters are essentially mandatory to gain access land, however, there are no regulations to this effect.

Hunter Host Program

Many jurisdictions with mandatory outfitting or guiding will also make an allowance for provincial residents to allow them to act as outfitters for the sake of meeting regulatory requirements. In practice, it allows friends and family to “host” an out-of-province guest for a hunting experience without having to engage the services of an outfitter or guide.

Resident versus Non-Resident

One of the biggest regulatory differences between Saskatchewan and the other provinces is the regulatory term non-resident. For Saskatchewan, the term non-resident refers to a non-Canadian resident. Generally speaking, the remainder of the provinces consider non-resident to be a person who is not a resident of that province. Subsequently, non-Canadians are referred to as non-resident aliens. As such, Saskatchewan’s policies regarding non-residents affect only non-Canadian residents, where other provinces’ regulations regarding non-residents affect other Canadians.

Provinces, such as Manitoba, give non-resident hunters the same rights as resident hunters, even allowing access to big game draws. Saskatchewan allows Canadian residents the right to hunt for white-tailed deer and bear without the services of an outfitter. British Columbia and New Brunswick afford Canadians additional rights over non-Canadians regarding their ability to participate in the Hunter Host Program.

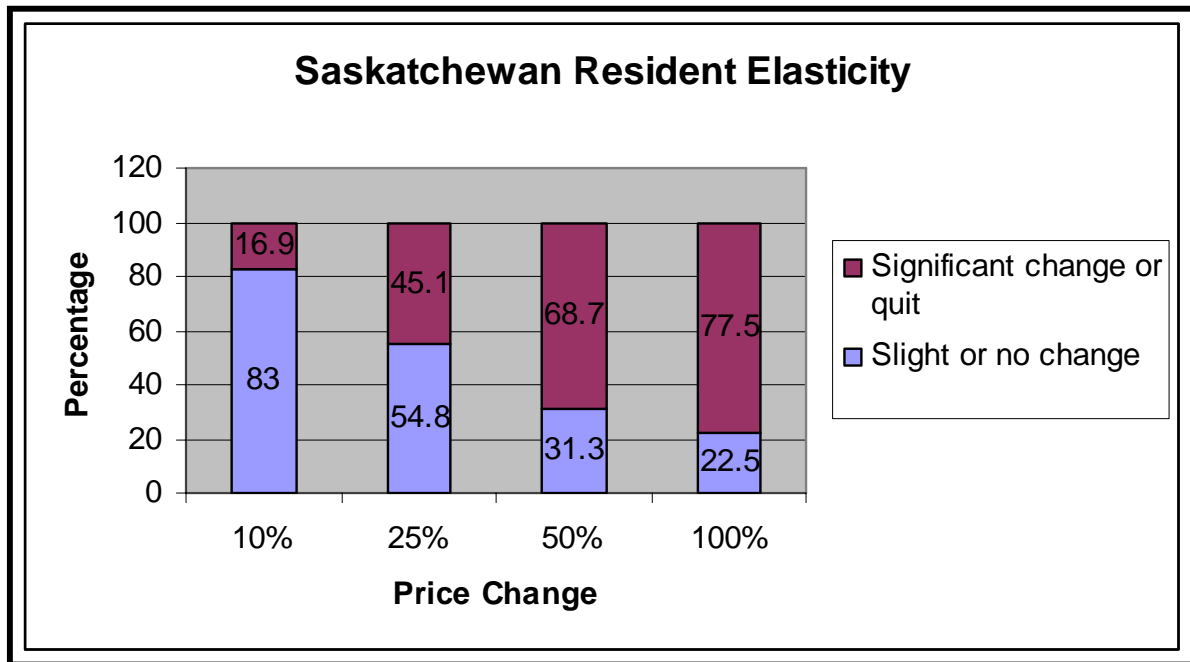
Alberta, Nova Scotia, Ontario, Quebec, Nova Scotia, Newfoundland and Labrador and the Territories do not afford Canadian residents any additional rights over non-Canadian residents regarding mandatory outfitting or guiding.

Appendix 1 – License Price Elasticity

Saskatchewan Hunters

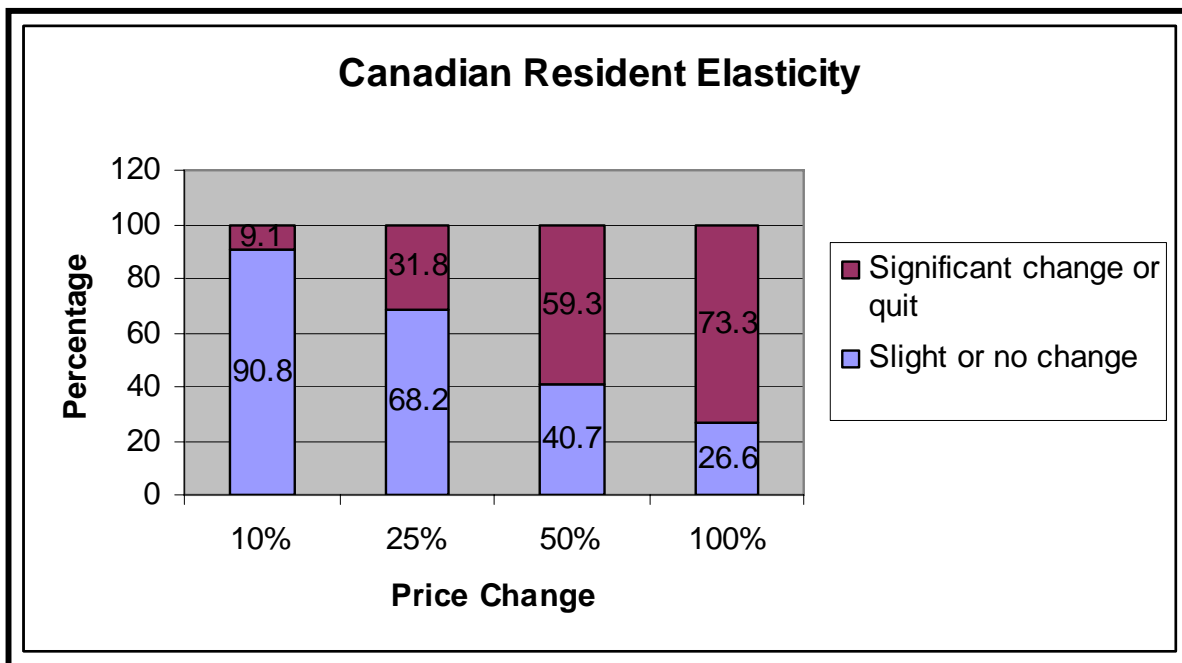
Saskatchewan residents had the lowest threshold for price increases. At a 10% price increase in license fees, 17% of respondents said they would significantly reduce their hunting activity or quit altogether. At the highest price increase, 77.5% of Saskatchewan respondents said they would quit or significantly reduce their hunting activities.

It should be noted that Saskatchewan residents have the lowest priced license costs of the three populations. Because the price increases are expressed as a percentage of the existing fees, Saskatchewan residents would be facing the lowest actual price increases.



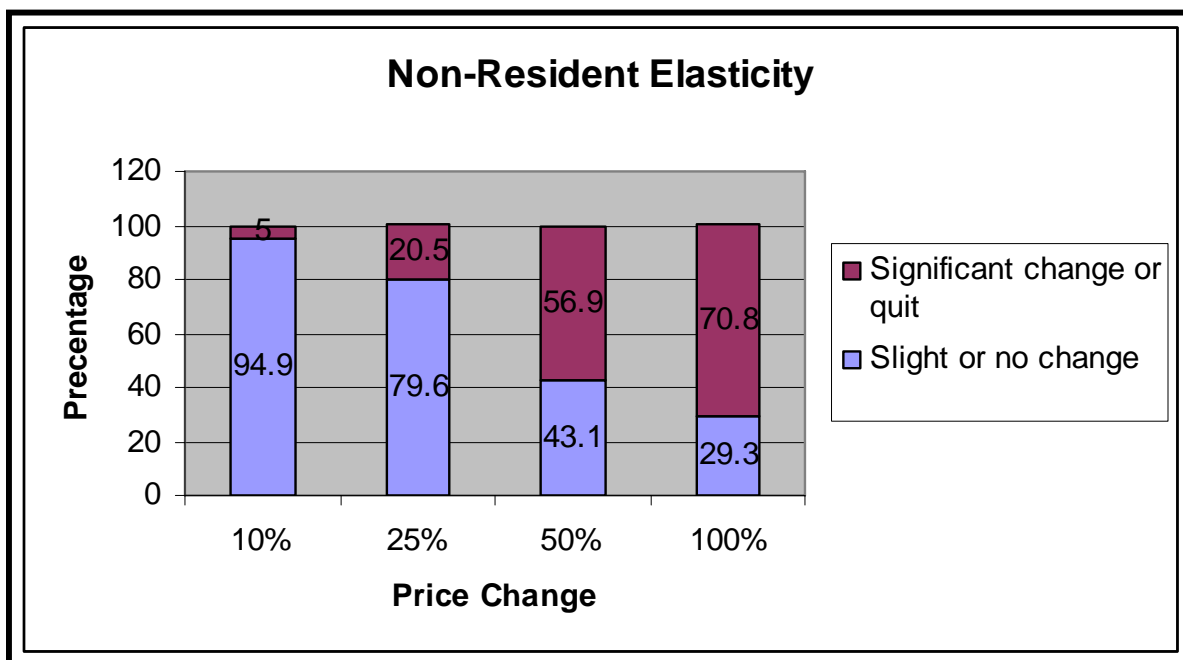
Canadian Hunters

9.1% of Canadian resident hunters indicated they would quit or significantly alter their hunting activities if faced with a 10% increase in license fees. If faced with a 100% increase in license fees, 73.3% of respondents said they would quit or significantly alter their hunting activities.



Non-Resident Hunters

Non-resident hunters had the highest tolerance for price increases. If faced with a 10% license fee increase only 5% of respondents would quit or significantly alter their hunting activities. If license fees doubled, 70.8% of respondents would quit or significantly alter their hunting activities.



Historic Impact of Fee Increases

While it is valuable to survey populations on their intended hunting patterns given a hypothetical rise in hunting fees, it is also valuable to assess the actual impact of historic price changes. The most significant change in hunting fees occurred in 1996 and 1997 when an \$11.00 Big Game Damage Fund License was instituted. Because the additional expense was fixed, it represents a different percentage increase for Saskatchewan, Canadian, and non-resident license fees. The following table shows the actual percentage increase by hunting group.

Hunting Fee Percentage Increase ³³			
	Saskatchewan	Canadian	Non-Resident
Average Licensing Expenditure	84.09	130.22	\$128.36
Fee Increase	\$11	\$11	\$11
Percentage Increase	13.08%	8.45%	8.57%

The following table shows how the \$11 Big Game Damage Fund License impacted license sales. While 16.9% of Saskatchewan hunters said they would quit or significantly reduce their hunting in the survey, only half that amount (8.36%) actually did quit hunting when faced with a 13.08% increase. As might be expected, the respondents have exaggerated their response to potential fee increases.

Change in Hunting Behavior – 1995 to 1999 Additional \$11 Hunting Fee in Years 1996 and 1997					
	1995	1996	1997	1998	1999
Total Saskatchewan Licenses ³⁴	118,867	108,931	105,330	104,936	98,396
Percentage Increase		-8.36%	-3.31%	-0.37%	-6.23%
Total Canadian Licenses	3252	3242	3586	3982	4239
Percentage Increase		-0.31%	10.61%	11.04%	6.45%
Total American Licenses	11,163	10,859	12,098	13,665	16,435
Percentage Increase		-2.72%	11.41%	12.95%	20.27%
Fee Increase		\$11	\$11		

³³ Based on 2004 hunting patterns.

³⁴ In 1996 and 1997 a court decision mandated that Métis people were not required to purchase hunting licenses to hunt in Saskatchewan. This decision was stayed in 1998. To control for this factor Métis hunting has been removed from the remainder of the years. It is assumed that Métis people participate in hunting at the same rate as non-Métis people.

Similarly for Canadian non-resident hunters, the projected reaction to fee increases in the survey is greater than the reaction that took place when actual fee increases were implemented. Of the Canadian respondents, 9.1% felt they would quit or significantly alter their hunting activities, however, there was only a 0.31% decrease in sales based on a 8.45% increase. Of non-residents, 5.1%, when faced with a 10% increase in fees, felt they would quit or significantly alter their hunting activities, compared to an actual 2.72% reduction in hunting. It should be noted that the following year, while the additional license fee was still in place, American hunting licenses went up 11.41%.

It would appear, from historical data, that the reactions to fee increases may be exaggerated. While the survey data is still valuable, it should not be used as an unqualified projection of the market elasticity.