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Fee Hunting in North and South Dakota

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Highlights

The purpose of this study was to describe and compare social and economic aspects of fee hunting in South and North Dakota from hunter and provider perspectives. Objectives included identifying costs and benefits of fee hunting, estimating the extent and economic impact of fee hunting, and assessing fee hunting's potential for rural economic development.

Over 12 percent of South Dakota (1990 hunting season) and 3 percent of North Dakota (1988 hunting season) hunters paid fees to hunt. Over 40 percent of South Dakota and 30 percent of North Dakota hunters would be willing to pay fees for hunting access in the future. Significantly more South Dakota hunters would be willing to pay an access fee in the future than North Dakota hunters.

South Dakota fee hunters paid an average access fee of \$122. North Dakota fee hunters paid an average of \$75. No statistically significant difference was found in average access fees North and South Dakota hunters paid. Over 50 percent of South Dakota fee hunters indicated paying an access fee did not cause them to spend more to hunt. South Dakota hunters paid over \$1.2 million in hunting access fees, while North Dakota hunters paid less than \$0.2 million.

Landowners will use part of the fee to improve habitat and landowners will have restrictions to ensure that other hunters behave in a sportsmanlike manner were the primary benefits North and South Dakota hunters associated with fee hunting. North Dakota fee hunters agreed that these were the primary benefits of fee hunting. However, a quality hunting experience, a controlled area in which to introduce children/friends to hunting, exclusive hunting rights, and landowner restrictions to ensure that other hunters behave in a sportsmanlike manner were important fee hunting benefits for South Dakota fee hunters.

Fewer hunters was the primary drawback North Dakota hunters associated with fee hunting. Hunters spend more money to hunt was the primary drawback South Dakota hunters associated with fee hunting. Public land is over-hunted and only the wealthy can afford to hunt were additional drawbacks of fee hunting. North and South Dakota hunters and fee hunters agreed on fee hunting drawbacks.

Other drawbacks South Dakota hunters identified were alteration of hunting tradition, hunters spend more money to hunt, and loss of access to land formerly hunted. Public land is over-hunted was a cost South Dakota fee hunters associated with fee hunting.

Significantly more North Dakota hunters (12 percent) hunted in another state than did South Dakota hunters (7 percent). No statistically significant difference was found between the average out-of-state expenditures of North and South Dakota hunters. North Dakota hunters spent over \$6 million and South Dakota hunters spent over \$3 million in other states.

Raising and enhancing wildlife and improving economic conditions of the local community were primary benefits of operating a fee hunting operation according to North and South Dakota providers. Providers disagreed that operating a fee hunting operation caused local hunter resentment, reduced time spent with family/friends, increased financial uncertainty, and jeopardized relations with neighbors.

North Dakota fee hunting providers had average annual gross receipts of nearly \$11,000 from fee hunting compared to South Dakota providers' average annual gross receipts of over \$29,000. North and South Dakota providers spent on average over \$50,000 establishing a fee hunting operation. The total

direct impact on the North and South Dakota economies were \$2.1 million and \$5.6 million, respectively.

North and South Dakota providers spent an average of \$9,500 and \$17,500, respectively, on annual operation and maintenance costs. The total direct impact of annual maintenance expenditures on the North and South Dakota economies was \$400,000 and \$2.0 million, respectively. Annual North Dakota provider expenditures generated over \$1.2 million in total business activity and provided employment equivalent to over 20 full-time jobs.

FEE HUNTING IN NORTH AND SOUTH DAKOTA

James F. Baltezore, Jay A. Leitch,
and Preston F. Schutt*

Introduction

Fee hunting is controversial, especially in states with long-standing "free" (without charge) hunting traditions, such as North Dakota (Schutt 1990). Much of the controversy exists because many hunters think they are entitled to hunting access without charge since wildlife is a common property resource that all individuals in society own. The conflict persists because hunters desire access to private land to hunt, while private landowners control access to the land, which produces two-thirds of the nation's wildlife (Kwong 1988). Government agencies are drawn into the issue trying to manage wildlife and mediate disputes between hunters and landowners.

A functioning market does not exist for wildlife inputs in the hunting experience. Landowners receive few, if any, public benefits from producing wildlife, causing wildlife inputs to be undervalued. Consequently, landowners face incentives to use their land in ways often detrimental to wildlife. Producing crops and livestock, harvesting timber, or constructing residential and commercial property often provide landowners greater market returns than producing wildlife. However, introducing a "fee" for hunting access creates a surrogate market for wildlife that is part of the hunting experience. Access fees increase landowners' returns from wildlife habitat production, providing a closer proxy for overall wildlife value. The landowner who appreciates the values of nonmarket goods or who charges access fees is in a better position to compare returns among alternative land uses.

Production agriculture (crop and livestock) is the primary alternative land use in direct competition with wildlife production in the Upper Great Plains. Cash receipts from production agriculture have declined considerably over the last 10 years in North Dakota¹ (Figure 1). Declining revenues have prompted North Dakota landowners to consider alternative income sources. Producing wildlife and introducing fee hunting may be an economically feasible alternative land use. Approximately 86,500 hunting licenses in North Dakota and 90,000 in South Dakota are sold each year.

Purpose

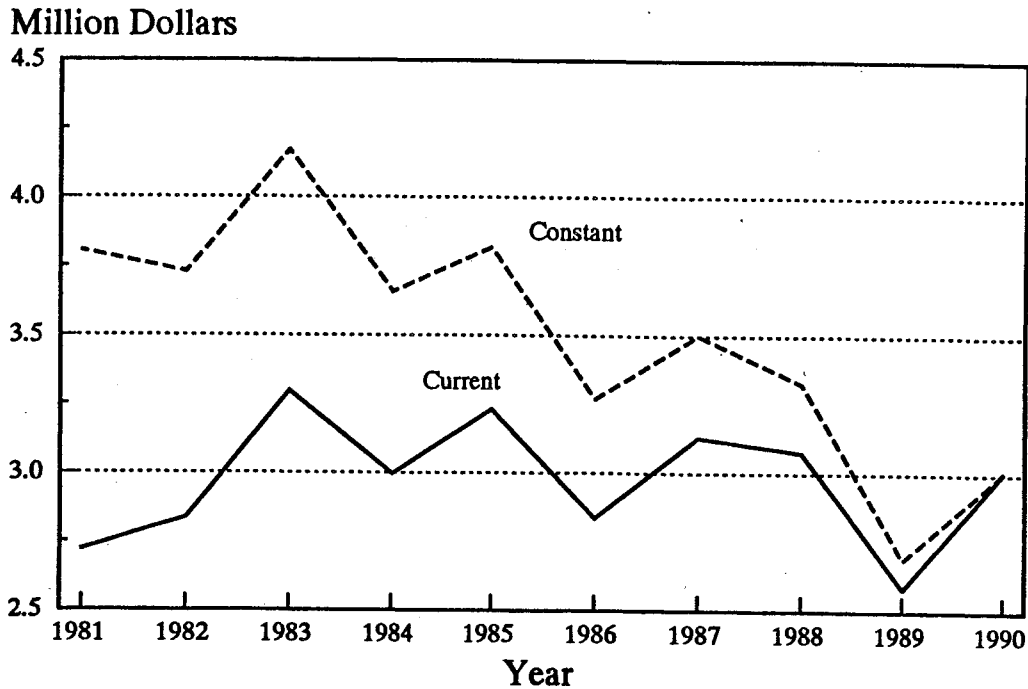
The purpose of this study is to describe and compare social and economic aspects of fee hunting in North and South Dakota from hunter and provider perspectives. Specific objectives are to

- identify costs and benefits of fee hunting from hunter and provider perspectives,
- estimate the extent and economic impact of fee hunting in North and South Dakota, and
- assess fee hunting's potential for rural economic development.

Information collected may be useful to landowners interested in developing fee hunting operations. The study provides public agencies insight concerning

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¹Cash receipts represent crop and livestock marketings and government payments.



Source: North Dakota Agricultural Statistics Service. 1991. North Dakota Agricultural Statistics. North Dakota State University Agricultural Experiment Station and the USDA, various issues.

Figure 1. Cash Receipts, Farm Marketings and Government Payments, Current and 1990 Constant Dollars, North Dakota, 1981-90

their potential role and involvement in fee hunting. Bureaucrats and politicians will have a stronger foundation for developing policies about fee hunting issues. The study should enhance overall understanding of fee hunting issues from hunter and provider perspectives. Identifying and addressing actual fee hunting concerns may help mitigate emotions surrounding the fee hunting debate.

Fee Hunting Overview

Fee hunting is broadly defined as any arrangement where a hunter pays a landowner/provider money or gratuity (i.e., gifts, labor) for hunting rights. However, in practice and for this study, the line from free to fee hunting is crossed when money is exchanged. (For a detailed discussion of fee hunting and associated terminology, refer to Schutt [1990].) Leases between hunters and landowners describing the terms of hunting access can be informal (e.g., verbal agreement) or formal (e.g., signed contract documenting rights and responsibilities of both parties). Terms of the lease might include services provided, access rights, restrictions, liabilities, and prices. Lease types are day, limited duration (hunting season), bag, and year-round. The hunting lease user and the type of land leased characterize fee hunting leases. Fee hunting leases include

- private lease of private land,
- private lease of company land,
- private lease of public land,
- public agency lease of private land,
- brokering of private, public, and company land, and
- shooting preserves and hunting clubs.

Four general levels or types of fee hunting operations can be identified, according to level of management and resources invested (Schutt 1990). A **Type I**, minimal effort, operation offers only hunting access. Landowners/providers generally have limited resources (capital and labor) to invest in a fee hunting operation. A farmer or rancher would be a common manager of a **Type I** operation, providing hunting access to limited numbers of hunters. **Type I** operations allow farmers to capitalize on wildlife present on their land through reallocating only minimal resources from their existing farm business. Fees and returns are usually lower for **Type I** operations, compared to other fee hunting businesses.

Type II operations offer limited services, such as goose pits, hunting dogs, deer stands, guides, lodging, meals, and/or transportation. Landowners/providers of **Type II** fee hunting operations invest more labor and capital and generally have greater returns from fee hunting than **Type I** operations.

Landowners/providers of **Type III** operations invest in habitat enhancement and in habitat development in addition to providing limited services. Habitat enhancements include creating or restoring wetlands, establishing food plots, planting trees, seeding cover, and adjusting farming practices to accommodate wildlife production. **Type III** operations generally would have more capital and labor invested and would realize higher returns than **Type II**. Operators include fee hunting considerations as an essential part of farm or ranch management decisions.

Type IV operations include businesses, such as shooting preserves, outfitters, and recreation brokers which intensively manage or specialize in fee hunting. Many services in various combinations may be offered to hunters. Extensive habitat improvements may be made, such as conversion of cropland into wildlife habitat. Labor and capital invested and returns are generally highest for **Type IV** operations. Operations may be a full-time business for all or part of the year, rather than a sideline.

Legal Setting

Two legal issues contribute to some of the misunderstandings about fee hunting. First, property rights are not always well defined. Second, liability questions are not easy to answer. Conflicts associated with fee hunting center around the landowner's rights to control access to private property, wildlife's dependency on habitat, and hunters' desires for access to wildlife. Confusion surrounding wildlife ownership rights and fee hunting evolve from a common property resource (wildlife), primarily found on private land. Wildlife only becomes private property when they are legally harvested or designated so by state agencies (Ernst 1987). Wildlife's transient nature between public and private land further complicates property rights issues. Courts and legislatures have begun to more precisely specify property rights by addressing hunter and landowner rights and limits of agency intervention (Kwong 1988). Charging fees for hunting access, although controversial, is within landowners' bundle of property rights (Ernst 1987).

Liability is a major fee hunting issue. The fee hunting liability continuum ranges from the hunter to the provider, depending upon the participants and the particular situation. State laws do, to some extent, address liability concerns. However, liability issues must be examined more closely to define exact points on the fee hunting liability continuum.

Procedures

The study included a mail survey of 1990 South Dakota hunters. A similar survey of 1988 North Dakota hunters had been conducted (Schutt 1990). Questionnaires were similar to facilitate comparisons between states concerning attitudes, extents, and impacts of fee hunting.² South Dakota was selected for comparison because fee hunting is relatively common, hunters have first-hand experience with many fee hunting issues, game types available to hunt are similar, and various types of fee hunting operations are represented in the state. The study also included a mail survey of North and South Dakota fee hunting providers about their attitudes toward fee hunting, types of fee hunting operations, services provided, and resources required to develop and maintain a fee hunting operation.

Various methods were used to administer surveys, estimate benefits and costs, conduct significance tests, and estimate economic impacts for hunters and providers. The following discussions identify specific methods and steps taken in this study. Procedures outlined in a previous study of North Dakota hunters (Schutt 1990) were replicated, when possible, to facilitate comparisons.

Hunter Survey

Primary survey data were licensed hunters' responses to a mail questionnaire. The South Dakota Department of Game, Fish, and Parks provided a randomly selected set of names and addresses from the 1989 licensed hunter population. The sample included both basic and sportsman license types. A sportsman license which permits both hunting small game or waterfowl and fishing and to which big game stamps are to be applied can be purchased. A basic license (carrier) which is necessary if you hunt or only fish can be purchased with fishing or hunting licenses such as small game, waterfowl, or big game added at will.

Survey Instrument

A survey instrument was designed to assess hunter attitudes, determine benefits and costs, and estimate extents and impacts associated with fee hunting (Appendix A). The questionnaire was similar to the the North Dakota questionnaire for survey comparisons. Personnel within the South Dakota Department of Game, Fish, and Parks (Division of Wildlife) and the North Dakota Game and Fish Department reviewed the questionnaire to confirm study objectives would be met and to identify ambiguous, inflammatory, or unnecessary sections.

Sample Size

Prior statistics on South Dakota hunters were not available to determine a "theoretical" sample size. Consequently, an aggregate sample size was based on a desired statistical sample of 250, adjusted upward for potential turnover of individuals, who purchase licenses from one year to the next, and incorrect addresses. License sales in 1989 were used to develop a sample of 1990 licensed hunters. A 25 percent turnover in license sales and incorrect addresses was assumed, based on past experience (Baltezare and Leitch 1992). An aggregate sample size of 1,990 was needed to achieve the 250 observations, based on an expected 20 percent response rate.

²Although the surveys were conducted two years apart, there is little evidence to suggest the hunter characteristics, attitudes, and expenditures in either state changed significantly from 1988 to 1990.

Mailings

An initial mailing to 1,990 possible hunters was sent January 2, 1991. A second mailing to 1,426 hunters was sent January 28, 1991, including a brief reminder to encourage a response (Appendix B). Mailings were sent bulk rate.

Response

Response rate equaled

$$\frac{\text{number of questionnaires returned}}{\text{number of first mailing questionnaires} - \text{refusals and undeliverable questionnaires.}}$$

More than 28 percent from the first mailing and 29 percent from the second mailing questionnaires were returned. The overall hunter response rate was nearly 43 percent (Table 1) or 745 observations.

TABLE 1. SURVEY RESPONSE RATE, SOUTH DAKOTA RESIDENT HUNTERS, 1990

Mailing	Questionnaires Mailed	Refusals or Undelivered	Returned	Response Rate ^a
	----- number of questionnaires -----			- percent -
First	1,990	124	440	
Second	1,426	<u>114</u>	<u>305</u>	
Total		238	745	42.5

^aResponse rate equals total returned questionnaires divided by the difference of total questionnaires mailed less refusals or undelivered.

Sample Groups

Resident hunter responses were arranged into several statistical sample groups. Various statistical tests were conducted to test for differences in responses among sample groups. Respondents were classified into groups by

- fee payment,
- region,
- residence, and
- age.

The fee payment sample group stratifies responding hunters into those paying fees (fee hunters) and those not paying fees (nonfee hunters) to hunt (Table 2). Responding resident hunters were considered fee hunters if they

- paid a landowner for access rights to hunt or trap (checked one of the shaded boxes in question 4b) and/or
- hunted at a shooting preserve or used a guide service (checked one of the shaded boxes in question 4c).

Responses were compared to test for differences in attitudes, characteristics, and expenditures between fee and nonfee hunters.

TABLE 2. NUMBER AND PERCENTAGE OF RESPONDENTS, BY SAMPLE GROUPS, SOUTH DAKOTA RESIDENT HUNTERS, 1990

Sample Group	Number of Respondents	Percentage of Respondents
Fee Payment		
Yes (Fee Hunters)	57	12.5
No (Nonfee Hunters)	399	87.5
Region		
Region 1	94	20.6
Region 2	44	9.6
Region 3	318	69.7
Residence		
Rural	200	51.0
Urban	192	49.0
Age (years)		
34 or less	133	33.8
35 - 44	133	33.8
45 and over	127	32.3

Respondents were classified into regions according to their county of residence (Figure 2). The majority of responding hunters (70 percent) lived in Region III (Table 2). Responses were compared to isolate differences in socioeconomic characteristics, based on where the respondent lived in the state.

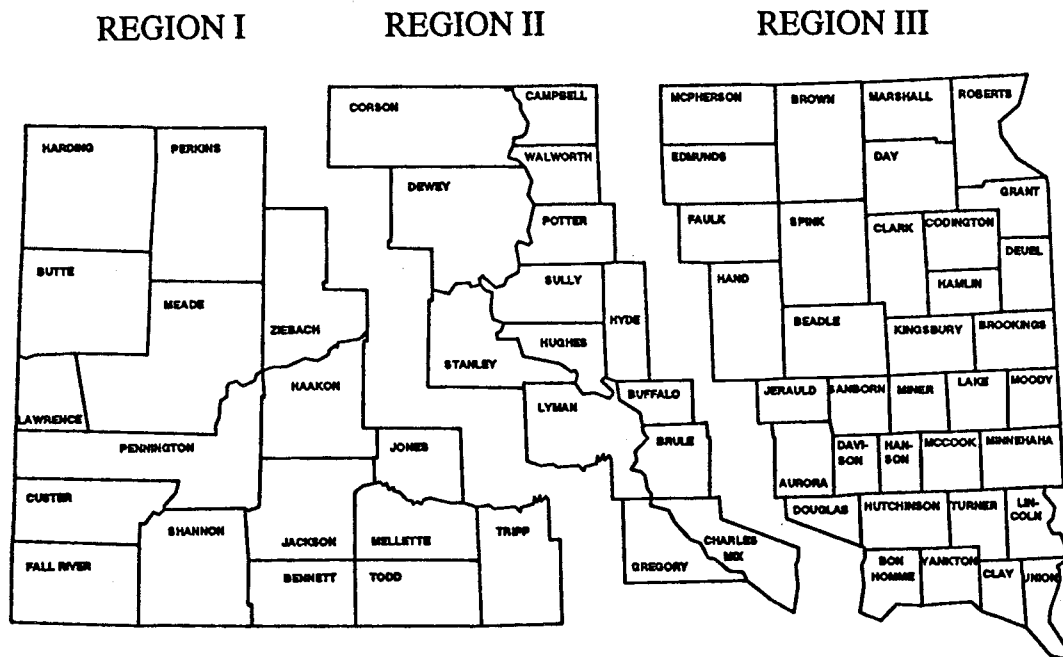


Figure 2. South Dakota Hunting Regions

Responding hunters were classified as urban or rural, according to their residence. Urban hunters lived in cities with populations of 2,500 or more. Rural hunters lived in cities with populations less than 2,500, on a farm or ranch, or in a rural nonfarm setting. Slightly more than half of the respondents lived in urban areas (Table 2). Hunter responses were compared to test for socioeconomic differences among urban and rural residents, concerning their hunting activities and experiences.

Respondents were placed into three equally sized age categories. Age groups were 34 years or less, 35 years to 44 years, and 45 years and older. Responses were compared among age groups to determine differences in attitudes, characteristics, and expenditures of young adults, middle-aged adults, and older adults and retirement-age hunters. Each age category included approximately one-third of the respondents (Table 2).

Provider Surveys

Primary survey data were providers' responses to a mail questionnaire. The South Dakota Department of Game, Fish, and Parks provided a listing of 1990 licensed shooting preserve operators. Additional fee hunting operators were identified in a directory of pay-to-hunt providers (*Dakota Outdoors* 1990). The North Dakota Game and Fish Department provided a listing of 1990 licensed shooting preserve operators, propagators, and guides. These lists are not all inclusive since some fee hunting providers are not necessarily required to be licensed (i.e., individual, landowner who charges a fee only for hunting access).

Survey Instrument

A questionnaire was designed to identify provider services, leases, attitudes, and extents and impacts affiliated with fee hunting (Appendix C). The same questionnaire was used for both North Dakota and South Dakota providers. The South Dakota Department of Game, Fish, and Parks (Division of Wildlife) and North Dakota Game and Fish Department personnel reviewed the questionnaire to confirm study objectives would be met and to identify ambiguous, inflammatory, or unnecessary sections.

Sample Size

The limited number of fee hunting providers in both states necessitated surveying the population of known operations. The populations of known providers in 1990 in North and South Dakota were 89 and 124, respectively.

Mailings

The initial mailing to 89 North Dakota providers was sent January 7, 1991. A second mailing to 67 providers was sent January 28, 1991, including a brief reminder (Appendix B). Mailings were sent first class since the small number of questionnaires did not meet minimum bulk mailing requirements.

The initial mailing to 124 South Dakota providers was sent January 2, 1991. A second mailing to 90 providers was sent January 28, 1991, including a brief reminder to encourage response (Appendix B). Mailings were sent bulk rate.

Response

Nearly 47 percent (58 providers) of the South Dakota providers surveyed returned a questionnaire after two mailings (Table 3). The response rate for North Dakota providers was similar nearly 48 percent (42 respondents).

TABLE 3. SURVEY RESPONSE RATES, SOUTH AND NORTH DAKOTA PROVIDERS, 1990

Mailing	Questionnaires Mailed	Refusals or Undelivered	Returned	Response Rate ^a
	----- number of questionnaires -----			- percent -
South Dakota				
First	124	3	31	
Second	90	<u>8</u>	<u>22</u>	
Total		11	53	46.9
North Dakota				
First	89	1	21	
Second	67	<u>0</u>	<u>21</u>	
Total		1	42	47.7

^aResponse rate equals total returned questionnaires divided by the difference of total questionnaires mailed less refusals or undelivered.

Sample Groups

Sample groups were all providers, North Dakota providers, and South Dakota providers. A relatively small number of observations precluded any further statistical groupings. Various statistical tests were conducted to determine differences in responses between providers in the two states. With only a limited number of observations, few significant differences were detected. However, in those instances where a significant difference was found, the confidence that a statistical difference existed was high.

Importance Index

An importance index was developed to compare responses among resident hunter sample groups. The index provided a central tendency measure comparable among group responses. The importance index for a particular group response equaled

(percent responding somewhat important x 1) plus
(percent responding moderately important x 2) plus
(percent responding very important x 3) plus
(percent responding extremely important x 4).

The index showed the relative importance a particular group assigns to potential fee hunting benefits in their decision to pay fees.

Agreement Index

An agreement index was developed to determine the extent respondents agree with statements about fee hunting. The agreement index for a particular group response equaled

(percent responding strongly agree x 2) plus
(percent responding agree x 1) less
(percent responding disagree x 1) less
(percent responding strongly disagree x 2).

A positive index indicated a sample group generally agreed with a specific issue. A negative index indicated a group generally disagreed.

Significance Tests

Various significance tests were used to determine if differences existed among sample groups for nonparametric (attitudinal) and parametric (ordinal) parameters. A Kruskal-Wallis test (used to test attitudinal parameters) or a T-test (used to test ordinal parameters) was used to determine if significant differences existed among sample groups' responses to various survey questions.

A Kruskal-Wallis test detects differences in responses among sample groups for questions with yes/no and ranking (i.e., strongly agree, agree, disagree, strongly disagree) responses. Kruskal-Wallis one-way analysis of variance by ranks is useful to test whether independent samples are from different populations (Daniel 1978). The test determines if differences among samples represent merely chance variations or genuine population differences (Seigel 1956). The test converts scores to ranks, using more of the information in the observation than just a means test, and is useful in situations where a normality assumption (homoscedasticity) does not hold or is not critical (Mendenhall et al. 1974). A 90 percent confidence level ($\alpha=0.05$) was used to determine significant differences.

A T-test was used to determine if the means from two different sample groups were the same. The T-test accommodates the assumption that variances from sample groups were unequal. The T-test assumes variables are normally and independently distributed within each sample group (SAS Institute Inc. 1985). A 90 percent confidence level ($\alpha=0.05$) was used for significance testing.

Economic Impacts

Various economic impacts associated with fee hunting activities of both hunters and providers were examined. Hunters generate economic activity, purchasing inputs--goods and services--for the hunting experience. Providers create economic activity, purchasing goods and services to establish and to maintain a hunting environment to meet hunter demands.

Hunters

Hunters purchase goods and services, preparing for and participating in hunting activities. Hunter expenditures generate economic activity at local, regional, and state levels. Hunting opportunities within a particular state help to retain resident money in local and regional economies. This is called "import substitution" since some hunters would have gone to another area or state to hunt in the absence of local hunting opportunities. Hunting opportunities offered in other states permit money to be transferred or "leaked" as hunters purchase goods and services traveling to and participating in out-of-state hunting activities. Such actions reduce economic activity in the hunters' state of residence.

Hunting Expenditures

Hunters were asked to estimate money spent to hunt. Respondent expenditures were used to estimate the aggregate level of hunting expenditures for all hunters. Average hunter expenditures were multiplied by the number of active hunters to estimate total or aggregate expenditures. License sales multiplied by the percentage of hunters participating provides an estimate of the number of active hunters.

Out-of-state Hunting Expenditures

Hunters were asked if they hunted in another state and to estimate expenditures for each out-of-state hunting trip. Trip expenditures were aggregated and compared among sample groups to identify differences in out-of-state expenditures.

Out-of-state hunter trip expenditures were aggregated to estimate the amount of money leaving both North Dakota and South Dakota to finance hunting in other states. Total out-of-state hunter expenditures were estimated by multiplying the average out-of-state hunter expenditures by the number of hunters hunting in another state. The number of active hunters multiplied by the percentage of survey respondents hunting in other states provided an estimate of the number of hunters hunting in other states.

Fees Paid

Hunters were asked to estimate fees paid for each type of hunting (i.e., big game, upland, waterfowl, and other) in which they participated. Results were used to estimate the amount of fees all hunters paid. Total hunter fees paid were estimated by multiplying the average fee paid by the number of fee-paying hunters. The percentage of fee-paying hunters was based on survey results.

Providers

Providers purchase goods and services to create and maintain hunting experiences. These expenditures generate economic activity at local, regional, and state levels. Initial investment expenditures to create a fee operation represent a one-time economic contribution. Annual expenditures represent the yearly economic contribution of maintaining a fee hunting operation.

Provider economic impacts were separated into direct and indirect. Direct impacts were the total dollar value of provider expenditures for the initial start up and annual maintenance of a fee operation. Indirect impacts were the added economic activity generated from respending direct expenditures. Changes in total business activity, retail trade sales, and employment represented the indirect impacts.

Initial Investment Expenditure

The provider questionnaire contained questions concerning investments operators made to establish fee hunting operations. Initial expenditure categories included

- creating/restoring wetlands,
- establishing food plots,
- seeding cover,
- planting trees,

- constructing lodging facilities,
- constructing access roads,
- building fences,
- purchasing equipment, and
- constructing storage buildings.

An "other" category was included so respondents could list initial expenditures not represented by categories listed in the questionnaire.

Responses to individual expenditure categories were summed to estimate an average total initial investment for responding providers among sample groups. The average initial provider investment was multiplied by the total number of providers to determine the aggregate, or total, investment of providers collectively and within each state. Investments were compared between North and South Dakota providers to identify differences in expenditures.

Annual Expenditures

The provider survey instrument contained questions concerning annual costs providers incurred to maintain their fee hunting operations. Expenditure categories included

- advertising and marketing,
- insurance,
- game stocking,
- licenses,
- maintenance, and
- administration.

An "other" category was included so respondents could list additional annual expenditures not itemized in the questionnaire.

Responses to individual expenditure categories were summed to estimate an average annual total expenditure for responding providers among sample groups. The average annual provider expenditure was multiplied by the total number of providers to determine the aggregate annual expenditures of all providers within the state. Annual expenditures were compared between North Dakota and South Dakota providers to identify further differences in expenditures.

North Dakota

The economic impact of initial startup and annual operating expenditures of North Dakota providers on the state's economy was estimated, using the North Dakota Input/Output Model (Coon et al. 1990). Individual initial and annual expenditure categories were organized into economic sectors for model use. Expenditures and associated economic sectors were

<u>Expenditure Category</u>	<u>Economic Sector</u>
Initial Investment:	
Wetland restoration/construction	Contract construction
Food plots	Agriculture, crops
Cover	Agriculture, crops
Trees	Business and personal services
Lodging facilities	Contract construction
Roads	Contract construction
Fences	Business and personal services
Equipment	Retail trade
Storage buildings	Contract construction
Other	Retail trade

Annual Costs:

Advertising and marketing
Insurance

Game stocking
Licenses
Maintenance
Administration
Other

Business and personal services
Finance, insurance, and real estate
Agriculture, livestock
Government
Business and personal services
Professional and social services
Retail trade.

Expenditures were used to estimate total business activity, personal income, and employment from fee hunting operations in North Dakota.

Initial investment expenditures generate a one-time boost in economic activity during the construction phase of the project. The estimated economic activity generated from the initial investment is a conservative estimate since it does not consider the time value of money (i.e., expenditures in previous years were not inflated to constant dollars). Annual expenditures generate economic activity each year the provider maintains a fee hunting operation. Annual total business activity, personal income, and employment generated from maintaining fee hunting operations represented the long-term contribution of fee hunting providers to the North Dakota economy.

Fee Hunting Participants

Hunters participate in fee hunting because they receive benefits that exceed their costs. However, benefits fee hunters receive may represent costs to, or impose negative impacts on, nonfee hunters. Describing fee hunting costs and benefits is complicated since benefits for one individual or group may represent costs for another. The divergence in fee hunting benefits (i.e., reasons hunters support paying fees) and costs (reasons hunters oppose paying fees) among fee/nonfee hunters helps to explain the controversy surrounding the fee hunting issue.

Benefits

Benefits of fee hunting can be expressed in monetary and nonmonetary terms (Schutt 1990). The primary monetary benefit hunters enjoy from fee hunting is the time and money saved finding hunting land. Paying a fee to secure a place to hunt could reduce overall hunter expenditures if the fee is less than the costs of searching for accessible hunting land with the quantity/quality of game desired. This situation is especially true for urban hunters (hunters residing in cities with a population of 2,500 or more) having limited access to hunting land or those hunters who would like to hunt on land far from their home.

States such as North and South Dakota have become more urban as the trend toward fewer, larger farms continues. Urban hunters will have less contact with individuals (i.e., friends and relatives) who own hunting land than their rural counterparts. Access expenses increase as hunter contacts with landowners are reduced and as succeeding generations become urbanized (Heberlein 1987).

Larger farms lead to larger farm machinery. Larger farm machinery is not compatible with farm fields containing perceived nuisances such as wetlands or shelterbelts. The cost of avoiding such obstacles increases with the size of farm machinery (Baltezare et al. 1987). Rising avoidance costs will place additional economic pressure on landowners to rid the landscape of these areas that are a vital source of wildlife habitat. Eliminating these natural features will destroy the landscape's natural mosaic pattern. A fee

system may provide a sufficient economic incentive to discourage additional alteration of the natural landscape.

Nonmonetary benefits of fee hunting are the satisfaction or utility a hunter receives from the quality of the hunting experience. Hunters may consider nonmonetary benefits more important than monetary benefits in their fee hunting decisions. Potential nonmonetary benefits are

- added privacy and safety,
- increased habitat and game, and
- improved hunter/landowner relations.

Fee hunting enhances the quality of the hunting experience through the added privacy and safety of having fewer hunters (Guynn and Schmidt 1984). Landowner restrictions help to ensure sportsman-like behavior of other hunters. Fees assure hunters of exclusive hunting rights.

Another fee hunting benefit is increased habitat and game for hunting. Fees encourage landowners to produce wildlife through habitat creation, restoration, and enhancement (Morrill 1987); to reduce or eliminate livestock grazing (Loomis and Fitzhugh 1989); and to open additional hunting land (Jordan and Workman 1989). Fees provide landowners an incentive to produce trophy animals and increase the probability of hunter success (Guynn and Schmidt 1984). Game produced on fee hunting operations has a spillover effect on adjacent land. Hunting is improved for nonfee hunters on nearby land as game produced exceeds game harvested (Farrar 1987).

Improved landowner/hunter relations on nearby land has been identified as a fee hunting benefit. Fee hunters tended to "police their own ranks" to maintain good landowner relations (Marion and Gates 1987). Fee hunting in some areas has changed landowner philosophies about wildlife and hunting from "look what wildlife has done to me" to "look what wildlife and hunting can do for me" (Loomis and Fitzhugh 1989).

Costs

Monetary costs represent added hunter expenditures directly attributable to fee hunting. Monetary costs of fee hunting are

- increased total hunting expenditures and
- lost investment in wildlife.

Hunter expenditures may increase from paying fees or traveling to other states to avoid fees. However, fees do not necessarily increase hunter expenditures. Hunters could pay fees to hunt and reduce other costs associated with hunting (i.e., less time and money spent searching for land and wildlife). Alternatively, hunters who allocate more money to their recreation budget to hunt because of fees would incur added monetary costs. Increased hunting costs associated with fee hunting may exclude some hunters (Swenson 1983). Fee hunting excludes hunters with low incomes and those unable to reallocate expenditures (i.e., reduce other hunting expenditures) or receive other economic benefits equal to or greater than the fee paid (Geist 1988).

Some hunters may lose past investments in wildlife if fees are introduced (Tomlinson 1985). Hunters priced out of the market may have spent money enhancing wildlife in the area. Those forced out either must find new areas to hunt or quit hunting entirely.

Nonmonetary costs of fee hunting are diminished hunting satisfaction. Hunters place considerable importance on nonmonetary costs in their hunting decisions. Nonmonetary costs associated with fee hunting are

- altered hunting tradition,
- reduced wildlife ownership rights,
- strained hunter/landowner relations,
- impaired resident/nonresident hunter relations, and
- increased competition for access and game on non-fee land.

A common complaint of hunters is that fee hunting alters hunting traditions (Williamson 1987). Traditional hunting in this country and especially the upper midwest implies free, although not necessarily unrestricted, access to hunting land and wildlife. The act of assigning a price to hunting diminishes the hunting experience for some hunters.

Fee hunting leads to altered wildlife ownership rights (Matthews 1986, Ernst 1987). Wildlife is usually considered a resource that the public or state agencies acting on the public's behalf own. Wildlife is private property only when it is legally harvested or designated so by public agencies.

Fee hunting has strained hunter/landowner relations (Geist 1989). Fee hunting increased hunter poaching and trespassing in Texas. Some landowners have established armed patrols to prevent hunters from trespassing, which increases the potential for conflict.

Fee hunting may impair resident/nonresident relations. Residents fear wealthy, nonresident hunters will monopolize hunting lands (Geist 1988). Nonresidents pay premium prices for access, often excluding resident hunters who are unwilling or unable to pay for hunting access (Morrill 1988).

Fee hunting may increase competition for access and game on public land (Severson and Gartner 1971). Hunters unwilling to pay fees either quit hunting or hunt on free-access lands. Public land is mostly free access and is the primary alternative to fee hunting private land. However, public land could become overhunted if fee hunting becomes wide-spread and hunters are unable or unwilling to pay fees.

Fee Hunting Providers

Landowners provide fee hunting when the benefits exceed the costs. Again, outlining costs and benefits is difficult since benefits for some individuals are costs for others. Potential provider monetary benefits and costs associated with fee hunting include (Schutt 1990)

<u>Benefits</u>	<u>Costs</u>
Increased landowner income	Initial investment
Improved land values	Annual operating costs
Defrayed hunter costs	
Alternative uses of marginal land.	

Some providers are concerned with nonmonetary benefits, such as personal use and aesthetic reasons (Farrar 1987). Potential nonmonetary benefits and costs are

<u>Benefits</u>	<u>Costs</u>
Increased control of hunters	Local hunter resentment
Improved landowner/hunter relations	Jeopardized relations with neighbors
Added satisfaction or utility	Reduced family time
	Financial uncertainty.

Comparing monetary and nonmonetary benefits and costs is necessary to assess the potential viability of establishing a fee hunting operation.

Benefits

Landowners can supplement income by capitalizing on previously nonmarketed wildlife resources. For some landowners, wildlife have become such a nuisance that they are causing economic damage to crops and reducing the livestock carrying capacity of rangeland (Al-Humadi and Colyer 1992, Mooney 1992, Bahls 1991, Johnson 1991). Hunting enables landowners to increase their income by charging a fee for hunting access and, at the same time, to reduce damage from wildlife.

Profits from fee hunting may increase land values (Pope et al. 1983). Higher per acre returns to land become capitalized into land values. Income from fee hunting has increased land values in some areas from \$12 to \$35 per acre (Shelton 1987).

Fee hunting helps to offset hunter costs (Jordan and Workman 1989). Providers have indicated problems with trespassing, vandalism, and littering by hunters and the general public when denying or permitting access to everyone. Some landowners found that charging a minimal fee was the best solution to reducing or defraying hunter costs (Guynn and Schmidt 1984, Wright et al. 1988).

Fee hunting provides landowners an alternative land use (Luken 1986, Morrill 1987). Most farmers view crops and livestock as farmland's only beneficial use. Fee hunting offers an alternative land use for marginal cropland and land adjacent to existing wildlife habitat. Higher returns are possible since inputs of time and money can be concentrated on more productive cropland while hunting land inputs can be applied at more opportune times.

Increased control of hunters is an important nonmonetary aspect of fee hunting. Controlling hunter activity can be a greater incentive to some providers than the extra income from fees (Guynn and Schmidt 1984). More control of hunters has improved hunter/landowner relations and opened new land for hunting (Morrill 1987).

Fee hunting has added satisfaction for some providers. The aesthetic value of wildlife and owning land for hunting provides satisfaction beyond the income captured from hunting leases (Pope et al. 1983). Enhancing habitat and wildlife, meeting new people, and contributing to community development are fee hunting rewards that increase providers' satisfaction (Vinton 1987).

Costs

Initial investment capital is often necessary to establish a fee hunting business (Wunderlich et al. 1990). Some operations invest in habitat enhancement to accommodate wildlife and hunters (Farrar 1987). Enhancement projects include restoring wetlands, establishing food plots, seeding cover, and planting trees. Other initial investments may include lodging facilities, access roads, fences, equipment, and storage buildings.

Annual operating costs generally include licenses to operate (Frerich et al. 1989) and advertising (Wilkins 1988). Marketing strategies are needed to match hunting experiences with the hunters' demands. Additional operating costs may include game stocking, habitat maintenance, and administration (Vinton 1987).

A major cost to fee operations is liability insurance (Marion 1989, Vinton 1987, Wilkins 1988). Liability concerns can be traced to early English Common Law (Cordell et al. 1985). Laws originally protecting landowners evolved to provide compensation for accidental injuries to users. Users include

- trespassers (no owner permission--receive little legal protection),
- licensees (having owner permission--receive moderate protection), and
- invitees (entering by permission and paying a fee--receive the most legal protection).

Most fee hunters are invitees, which implies fee operations must have liability coverage (Brownback 1987). Liability laws differ among states and some states have reduced landowner liability through statute modification (Cordell et al. 1985). Some changes in state law were intended to increase possibilities of landowners opening additional land to hunting access. Many landowners with land closed to hunting needed more protection from potential lawsuits to convince them to open the land, despite rare occurrences of such lawsuits (Brown 1981).

Provider disincentives include local hunter resentment and jeopardized neighbor relations, especially in areas with long-standing free hunting traditions (Vinton 1987). Providers have less time for family commitments as time is spent meeting the needs of the clientele. Providers face financial uncertainty trying to create and maintain a profitable fee operation (Loomis and Fitzhugh 1989). The inexperience of some providers increases the financial uncertainty of a fee operation (Vinton 1987).

Agency Management Considerations

Wildlife management agencies are in the middle of the fee hunting debate among major constituents--hunters, landowners, and wildlife. Wildlife management agencies are often forced to negotiate disputes between hunters and landowners. The fee hunting issue presents both positive and negative aspects for wildlife management agencies.

Potential positive effects of fee hunting related to agency responsibilities include

- increased wildlife values to provide incentives for landowners to improve habitat,
- improved wildlife research quantity and quality,
- enhanced wildlife production on private and public land,
- reduced number of hunters on public land,
- improved resource management efficiency, and
- eased political and funding problems.

Higher landowner returns to wildlife may entice them to manage more of their land for wildlife production (Loomis and Fitzhugh 1989, Marion and Gates 1987, and Morrill 1987), relaxing demands on public agencies.

A national survey of state wildlife management agencies indicated that introduction of hunting access fees may enhance wildlife production (Wiggers and Rootes 1987). Fee hunting may lead to more wildlife on both public and private lands and may lessen hunting pressure on public lands. The addition of wildlife and hunting land reduces the potential for overcrowding on existing land. Fee hunting may improve state agencies' political and economic situations through resource management efficiencies, expanded programs, and basic and applied research tailored to capitalize on fee hunting's economic incentives (Morrill 1987). Wildlife research may increase as private organizations become involved and as landowners conduct research with universities and private foundations. Fees help to assign dollar values to wildlife, facilitating economic comparisons among alternative public goods and services within the political environment.

Potential negative effects of fee hunting related to agency responsibilities include

- landowner mismanagement of wildlife,
- deteriorated wildlife management abilities,
- landowners not investing in habitat improvements,
- dissatisfied hunters,
- decreased hunter participation,
- prime habitat use limited to wealthy hunters,
- reduced hunter opportunities on public land,
- decreased agency license revenue,
- reduced public support rendering less political and financial support, and
- increased costs as a result of additional programs and enforcement.

Mismanagement of wildlife could include eradicating predators, introducing exotics, and culling game species (Geist 1988). Widespread landowner participation in fee hunting could deteriorate wildlife agencies' management capabilities as wildlife management shifts from public agencies to private landowners. Some state agencies have reported that fee hunting economic gains did not persuade landowners to improve habitat (Wiggers and Rootes 1987).

Fees can increase hunting costs and reduce the number of hunters, further limiting prime hunting land to wealthy hunters (Geist 1988). Fee hunting can reduce hunter opportunities on public land (Frerich et al. 1989) and limit overall hunter opportunities (Wiggers and Rootes 1987). Fee hunting has the potential to reduce hunter numbers which could, in turn, lead to lower revenue for management agencies. Lack of public interest in wildlife translates into less political and financial support for wildlife agencies and their programs. Fee hunting increases costs for some state agencies from additional management responsibilities associated with fee hunting (Frerich et al. 1989).

The relative strengths and weaknesses of positive and negative aspects of fee hunting will determine the role management agencies play in deciding fee hunting issues. Wildlife managers will need to evaluate how fee hunting might fit into the agency's overall management plan. However, the political environment within the state likely will determine agency effectiveness in implementing a wildlife management plan that includes fee hunting.

State Perspective

Government goals or objectives include economic stability or growth, efficiency, and equity. Specific policies are developed and implemented at federal, state, and local levels of government to achieve some or all of these objectives. Fee hunting provides government institutions a mechanism with the potential to achieve policy goals in each of these areas.

Economic Stability or Growth

Fee hunting has the potential to maintain economic stability or stimulate growth at state and local levels. Stability or growth are possible if the total number of hunters could be maintained or increased when habitat is expanded or made available through fee hunting. Fee hunting can retain residents who would have hunted out of state and can attract nonresident hunters, thereby stabilizing or even increasing the total number of hunters within a state or region.

Retain Resident Out-of-State Hunters

Residents create a "leakage" from their home state's economy when they purchase goods and services while hunting in other states. North Dakota hunters contributed over \$5 million to the economies of other states in 1988

from out-of-state hunting activities (Schutt 1990). Retaining any portion of these expenditures represents additional economic activity for the state.

Residents hunt in other states for several reasons including (Baltezare and Leitch 1992)

- desire to hunt a specific type of game,
- better hunting opportunities,
- land and people,
- friends/relatives live there, and
- availability of licenses for specific game.

Except for the reason that friends/relatives live there, residents hunt in other states because of the availability of hunting opportunities and the quality of the hunting experience. Over 10 percent of North Dakota hunters taking out-of-state hunting trips in 1988 paid access fees in other states (Schutt 1990).

Fee hunting operations may help to retain a portion of these hunters. A successful fee hunting operation could provide hunting opportunities and experiences not currently available. Meeting resident hunter demands in-state reduces hunters' dollars leaking to other states. The direct economic impact to the state's economy would be equal to the reduction in out-of-state hunter expenditures. This import substitution could be considered new wealth to the home state and, thus, a contribution to economic development.

Attract Additional Nonresident Hunters

North Dakota had only 8,000 nonresident hunters in 1985 compared to 45,000 in South Dakota (Harmoning 1992). Additional nonresident hunters within a state increases hunting-related expenditures, *ceteris paribus*. The primary factor affecting the number of nonresident hunting licenses (up to quotas) issued in North Dakota is game population levels (Schutt 1990). Resident demand for hunting licenses also can affect the number of nonresident hunting licenses and license quotas.

Nonresident expenditures represent "new money" to the state. New money is essential to maintain economic stability and enhance economic growth. Nonresident expenditures generate economic activity across the state and are of considerable importance to rural communities.

Game populations fluctuate from year to year, based on weather, disease, hunter success from the previous year, and management efforts. For the most part, attempts to increase game populations have focused on public or publicly controlled land. Efforts to enhance wildlife on both public and private land have been limited because of government budget constraints, but some public programs do exist to entice private landowners to produce more wildlife. Private landowners are unlikely to make management changes or investments necessary to increase game populations without monetary incentives.

Resident demand for North Dakota hunting licenses is declining. Reduced demand is attributed to a declining state population and percentage of residents who hunt (Baltezare and Leitch 1992). Nonresident license sales have remained stable. Fewer resident hunters may lead to an additional capacity for nonresident hunters, *ceteris paribus*.

Economic returns from fee hunting may be sufficient to entice private landowners to enhance wildlife habitat, thereby producing additional wildlife and ensuring stable and possibly increasing game populations. Fee hunting could enhance game populations through private-market forces, reducing the need for further public investment in wildlife. North Dakota seems particularly suited to big game and upland game fee hunting operations because

these game animals do not migrate. This allows additional time and opportunities for wildlife enhancement.

Economic Efficiency

Wildlife is considered a common property resource since all individuals within a society own wildlife in common. Wildlife only becomes private property when harvested or when state law designates them so. Treating wildlife as common property often leads to market failure since wildlife values are not expressed in dollar terms similar to privately produced goods and services. Consequently, landowners use their resources to produce other goods and services, such as crops and livestock, which offer higher private-market returns. Generally, private-market alternative land uses are deleterious to wildlife.

A barrier to increased fee hunting is perceived to exist with the supply of land (landowners) rather than with the demand for hunting experiences (hunters) (Connelly et al. 1991). Landowners were not interested in fee operations because of liability concerns, hunter perceptions, land use preferences, and low potential returns. Despite demand for wildlife, landowners are economically unable to produce wildlife outputs that offer returns that can compete with traditional alternative land uses.

Access fees create a pseudo-market for wildlife. The market develops as more landowners enter the market to provide expanded hunting opportunities and experiences, based on hunter demands. Landowners enter the market when the opportunity costs of resources used for wildlife production are less than for other production alternatives. Landowners will shift resources to wildlife production when projected returns from fee hunting exceed expected returns from crop and livestock production, *ceteris paribus*.

Introducing or establishing a market for wildlife through fee hunting could increase efficiency in the allocation of resource inputs into the hunting experience. Wildlife production will become most efficient when resources in the hunting experience are being used at their lowest opportunity cost. Introducing a fee system will help to equalize supply and demand for wildlife, thereby minimizing potential wildlife shortages and surpluses.

Equity

Equity or fairness is a normative concept. Equity discussions focus on the way things should be rather than the way things are. Certain inequities are associated with wildlife because they are a common property resource (yet the majority of the wildlife is produced on private land) and they inhabit primarily rural areas. Given the inherent nature of wildlife and their regional environment, specific segments of the population, primarily rural residents, bear most of the burden associated with producing wildlife and maintaining wildlife resources (Al-Humadi and Colyer 1992, Mooney 1992, Bahls 1991). Rural residents, in general, and landowners, in particular, incur most of the costs and receive few of the benefits associated with wildlife.

A fee hunting system would provide landowners and rural residents monetary compensation for costs incurred as a result of producing wildlife. Fees paid to landowners provide economic compensation for damages wildlife cause those landowners. Fees would create a system of income redistribution as urban residents pay rural landowners for hunting access.

Compensation for Wildlife Damages

Currently, landowners supply most of the natural resource inputs for the production of wildlife. Yet landowners receive few tangible benefits. In fact, landowners across the United States may incur as much as \$1 billion a year in damages from wildlife (Mooney 1992). Wildlife kill livestock, destroy crops, consume nonharvested and harvested feedstuffs, and damage fences.

Many landowners prefer to receive compensation for economic damages incurred from wildlife on their property. Private landowners own the land producing the majority of the wildlife and represent the best source for producing additional wildlife. Wildlife managers should consider strategies to garner landowner support to ensure adequate wildlife resources for the future.

Ruralization of Hunter Expenditures

Expenditures are "ruralized" when urban residents and nonresidents purchase goods and services in rural areas of the state. Hunting opportunities bring resident hunters from urban areas and nonresident hunters to rural areas of the state. Urban residents and nonresidents spend money in these areas in the process. Urban areas are cities with populations equal to or greater than 2,500, where urban residents live. Rural areas are cities with populations less than 2,500, where rural residents live. These definitions are consistent with those of the Bureau of the Census.

Resident expenditures occur in either rural or urban areas of the state. Money is transferred between urban and rural areas to the extent that urban (rural) residents purchase hunting-related goods and services in rural (urban) areas. Urban resident expenditures in rural areas from hunting opportunities represent a ruralization of expenditures (Figure 3). Over \$26.4 million or nearly 40 percent of total urban resident hunter expenditures were ruralized in North Dakota in 1990 (Baltezare and Leitch 1992).

Nonresident hunters purchased goods and services in rural areas because of hunting opportunities (Figure 3). Nonresident expenditures in rural areas also represent ruralized expenditures. Over \$2.8 million or over 70 percent of total nonresident hunter expenditures were ruralized in North Dakota (Baltezare and Leitch 1992a).

Access fees may lead to increased ruralization of hunter dollars, *ceteras paribus*, or at least remain constant, regardless of changes the fee causes in the allocation of hunter expenditures. Dollars ruralized will increase as fees cause hunters to spend more of their recreation budget in rural areas, assuming their budget reallocation does not affect dollars that were originally spent in rural areas. The fee effectively increases the percentage of hunter expenditures in rural areas, allowing a redistribution of expenditures from urban to rural areas.

Summary

The ability of fee hunting to (1) retain resident out-of-state hunters, (2) attract additional nonresident hunters, and (3) redistribute income will affect its usefulness as a rural economic development tool. Studies have shown hunting, in general, could contribute considerably to rural economic development (Grafton et al. 1990). However, the ultimate decision to endorse a fee system is political. The principles of economics and wildlife

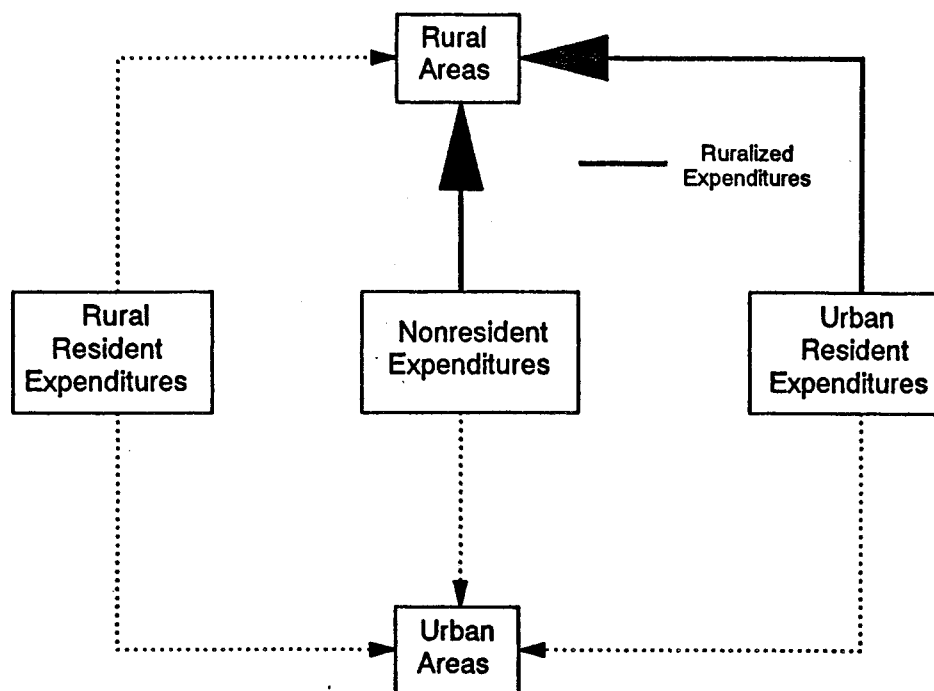


Figure 3. Flow of Urban and Rural Resident and Nonresident Hunting Expenditures

management can be used to both support or oppose fee hunting. Market forces will ultimately determine the number of providers and the demand for fee hunting in both North and South Dakota.

Results

Results are organized into four general areas -- hunter characteristics, fee hunting attributes, attitudes, and economic impacts. Summary statistics are presented for hunters and fee hunting providers. Further distinctions are made among sample groups within each of these areas.

Hunter Characteristics

Nearly 70 percent of all South Dakota hunters lived in Region 3 (Table 4 and Figure 2). This is expected since the majority of South Dakota residents (439,000 or 63 percent) live in Region 3. The percentages of fee and nonfee hunters were similar among regions. Slightly more fee hunters were found in Region 1 (25 percent) compared to nonfee hunters (20 percent).

The percentage of South Dakota hunters living in rural and urban areas was the same. However, over 70 percent of fee hunters lived in urban areas

TABLE 4. SELECTED CHARACTERISTICS OF SOUTH DAKOTA HUNTERS,
1990

Characteristic	All	Fee	Nonfee
	Hunters	percent	
Region 1	20.6	24.6	20.1
Region 2	9.6	10.5	9.5
Region 3	69.7	64.9	70.4
Rural	51.0	28.0	54.4
Urban	49.0	72.0	45.6
Age (years)			
less than 34	33.8	20.0	35.9
35 - 44	33.8	34.0	33.8
45 and over	32.3	46.0	30.3
Occupations			
Farming	20.5	4.0	22.9
Professional/management	23.5	46.0	20.2
Technical, sales, or administration	16.6	14.0	17.0
Service jobs	8.4	8.0	8.5
Precision production, craft	12.5	10.0	12.9
Equipment operators	7.7	4.0	8.2
Other	10.8	14.0	10.3
Income			
Under \$5,000	1.6	0.0	1.9
\$5,000 - \$10,000	4.1	2.0	4.4
\$10,001 - \$15,000	6.3	4.1	6.6
\$15,001 - \$20,000	11.7	6.1	12.5
\$20,001 - \$25,000	11.4	10.2	11.6
\$25,001 - \$30,000	12.2	2.0	13.8
\$30,001 - \$35,000	12.8	8.2	13.5
\$35,001 - \$40,000	8.4	14.3	7.5
Over \$40,000	31.5	53.1	28.2

compared to 47 percent for nonfee hunters. A slightly smaller majority of North Dakota fee hunters (59 percent) live in urban areas (Schutt 1990).

Fee hunters generally were older and had higher annual incomes than nonfee hunters. Over 45 percent of fee hunters were 45 years of age or older compared to 30 percent of nonfee hunters. Over half of the fee hunters had annual incomes over \$40,000 compared to less than 30 percent of nonfee hunters. Similar findings were presented in a survey of North Dakota hunters (Schutt 1990).

The primary occupation of fee hunters was professional/management (46 percent). Common nonfee hunter occupations were farming (23 percent) and professional/management (20 percent).

No significant difference was detected in the number of years hunted between South Dakota fee and nonfee hunters.³ The average South Dakota hunter had hunted 22 years as a South Dakota resident. The average South Dakota fee hunter hunted as a resident for 25 years.

Fee Hunting Attributes

Over 75 percent of South Dakota hunters who hunted public or private lands, where no payment of fee was requested and/or given, hunted big game (Table 5). Sixty-five percent hunted upland game. Over 70 percent of hunters, who gave gifts to landowners in appreciation for hunting access, hunted big game. This is considered fee hunting since a gratuity was provided for hunting access.

TABLE 5. TYPE OF HUNTING BY FEE AND NONFEE HUNTERS, BY GAME TYPE, SOUTH DAKOTA, 1990

Hunting Type	Big Game	Upland	Waterfowl	Other
	----- percent -----			
All Hunters				
Hunted public or private lands where no fee is needed	77.7	65.0	37.3	21.8
Gave gifts to landowners in appreciation for hunting access	71.2	36.9	12.8	11.5
Fee Hunters^a				
Hunted public or private lands where no fee is needed	73.3	82.2	60.8	32.3
Gave gifts to landowners in appreciation for hunting access	69.5	50.1	16.7	22.3
Paid a landowner for access	24.2	30.3	54.5	6.1
Hunted at a shooting preserve or used a S.D. guide service	14.0	47.3	58.4	8.3
Nonfee Hunters				
Hunted public or private lands where no fee is needed	78.2	62.4	33.8	20.1
Gave gifts to landowners in appreciation for hunting access	72.0	33.0	11.8	8.5

^aHunters who paid a landowner a fee for hunting access, hunted at a shooting preserve, and/or used a guide service.

³A T-Test was used with a 90 percent confidence level ($\alpha = .05$).

Over 80 percent and nearly 75 percent of fee hunters, who hunted private or public lands where no fee was needed, hunted upland game and big game, respectively. Nearly 55 percent of South Dakota hunters, who paid a landowner for access, hunted waterfowl. Over 30 percent paid fees for hunting access to upland game. Nearly 60 percent of fee hunters, hunting at a shooting preserve or using a guide service, hunted waterfowl.

A larger percentage of nonfee hunters hunted big game on public or private lands than did fee hunters. However, a larger percentage of fee hunters hunted upland game, waterfowl, and other game on public or private lands than did nonfee hunters. A larger percentage of fee hunters gave gifts to landowners in appreciation for hunting access to hunt upland game, waterfowl, and other game than did nonfee hunters.

The average fee paid among game types ranged from \$25 for other game to \$100 for waterfowl (Table 6). The majority of fee hunters (53 percent) indicated that fee hunting did not cause them to spend more money overall for hunting (Table 7). Hunters, who indicated that fees did cause them to spend more, spent an average of 35 percent more. (A 90 percent confidence interval ranged from 23 to 48 percent more money spent.)

A day lease was the most common fee agreement (Table 6). Average acreage leased ranged from nearly 2,000 acres for waterfowl to just under 8,000 acres for big game. Most fee hunters also hunted the same game on public land. Fee hunters were satisfied with the quality of the hunts they received, relative to the fee paid. Over 75 percent of fee hunters indicated they were willing to participate in future fee arrangements. The South Dakota county hunted most often varied, based on the type of game hunted.

South Dakota fee hunters paid average total access fees of \$112 in 1990 (Table 8). Average total fees paid among hunters' region of residence ranged from a low of \$77 (Region 1) to a high of \$207 (Region 2). No significant difference in total average fees paid among regions was detected. Urban fee hunters had significantly higher average total fees paid than did rural fee hunters. Fee hunters 45 years of age or older paid a significantly higher average total fee than did fee hunters younger than 34 years of age.

There was no significant difference in the average total access fee North or South Dakota fee hunters paid (Table 9). Rural North Dakota fee hunters paid higher average total fees than did rural South Dakota fee hunters, while urban South Dakota fee hunters paid higher total fees than did urban North Dakota fee hunters. However, no significant differences were observed in the average total access fees paid between states' rural and urban sample groups.

Hunter Attitudes

Hunter attitudes are presented on several topics, including fee hunting, Conservation Reserve Program, fee hunting benefits, fee hunting costs, hunting substitutes, and fee hunting management. Statistical comparisons were made among South Dakota survey sample groups and between North and South Dakota hunter groups when appropriate. Comparisons of attitudes among North and South Dakota hunter groups were used to identify differences in fee hunting benefits and costs between hunters in the two states.

Fee Hunting

Nearly 80 percent of all South Dakota hunters thought South Dakota landowners have a right to charge for hunting access (Table 10). Of the 20 percent who thought landowners did not have a right to charge for hunting access, 70 percent said landowners did not pay for the game on their land, and

TABLE 6. FEE HUNTING ATTRIBUTES, BY GAME TYPE, SOUTH DAKOTA HUNTERS, 1990

Attribute	Big Game	Upland	Waterfowl	Other
Average Fee Paid	\$51	\$96	\$100	\$25
Lease Types				
Day	64.7%	83.3%	80.0%	100.0%
Season	23.5%	16.7%	17.1%	0.0%
Until Game Bagged	5.9%	0.0%	2.9%	0.0%
Weekly	5.9%	0.0%	0.0%	0.0%
Average Acres Leased	7,943	3,199	1,957	5,300
Hunted Same Game On Public Land				
Yes	50.0%	68.4%	56.4%	100.0%
No	50.0%	31.6%	43.6%	0.0%
Satisfied With The Quality Of Hunt Paid For				
Yes	85.7%	100.0%	76.3%	100.0%
No	14.3%	0.0%	23.7%	0.0%
Participate In Future Fee Arrangements				
Yes	86.7%	100.0%	72.2%	100.0%
No	13.3%	0.0%	27.8%	0.0%
Counties Hunted Most	Harding Meade	Brown Tripp	Hughes Sully	Jerauld Pennington

TABLE 7. RESPONSES TO "DID FEE HUNTING CAUSE YOU TO SPEND MORE MONEY OVERALL FOR HUNTING?" SOUTH DAKOTA FEE HUNTERS, 1990

Question/ Response	Number of Responses	Percentage	Range
Spend More			
Yes	22	46.8	--
No	25	53.2	--
How Much More? (mean)	20	35.4	1 - 100

30 percent said that charging for access takes future hunting opportunities away from young hunters.

While a higher percentage of fee hunters thought landowners had a right to charge for hunting access than did nonfee hunters, the difference was not significant. Nor were any significant differences found among region, residence, or age groups in responses to landowners' rights to charge fees.

TABLE 8. AVERAGE TOTAL ACCESS FEES PAID, SOUTH DAKOTA HUNTERS, BY SAMPLE GROUP, 1990

Sample Group	Average Access Fee	Significant Difference ^a		
		1 vs 2	1 vs 3	2 vs 3
- dollars -				
All Hunters	112			
(1) Region 1	77	N	N	N
(2) Region 2	207			
(3) Region 3	108			
(1) Rural	31	Y		
(2) Urban	161			
Age (years)				
(1) less than 34	35	N	Y	N
(2) 35 - 44	117			
(3) 45 and over	176			

^aA "Y" means yes there is a significant difference using a T-Test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 9. AVERAGE TOTAL ACCESS FEES PAID, 1990 DOLLARS, NORTH AND SOUTH DAKOTA FEE HUNTERS, BY SAMPLE GROUP, 1990

Sample Group	Average Access Fee	Significant Difference ^a
(1) All North Dakota Fee Hunters	75	N
(2) All South Dakota Fee Hunters	112	
(1) North Dakota Fee Hunters-Rural	65	N
(2) South Dakota Fee Hunters-Rural	31	
(1) North Dakota Fee Hunters-Urban	90	N
(2) South Dakota Fee Hunters-Urban	161	

^aA "Y" means yes there is a significant difference using a T-Test with a 90 percent confidence level. An "N" means there is no significant difference.

^bNorth Dakota fees were adjusted to 1990 dollars, using the Gross National Product (GNP) Implicit Price Deflator.

TABLE 10. RESPONSES TO "DO YOU THINK SOUTH DAKOTA LANDOWNERS HAVE THE RIGHT TO CHARGE FOR HUNTING ACCESS?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Yes	No	Significant Difference*		
			1 vs 2	1 vs 3	2 vs 3
	-- percent --				
All Hunters	79.6	20.4			
(1) Fee	86.0	14.0	N		
(2) Nonfee	78.7	21.3			
(1) Region 1	81.5	18.5	N	N	N
(2) Region 2	84.1	15.9			
(3) Region 3	78.4	21.6			
(1) Rural	82.6	17.4	N		
(2) Urban	77.8	22.2			
Age (years)					
(1) less than 34	78.3	21.7	N	N	N
(2) 35 - 44	84.0	16.0			
(3) 45 and over	77.6	22.4			

*A "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

Less than half of the North Dakota hunters surveyed thought landowners had a right to charge for hunting access (Table 11). A significantly higher percentage of South Dakota hunters thought landowners had a right to charge for hunting access than did North Dakota hunters. Significant differences were found among fee, nonfee, rural, and urban North and South Dakota hunters. Generally, over 75 percent of South Dakota hunters and less than 50 percent of North Dakota hunters among sample groups thought landowners had a right to charge for hunting access.

Nearly 85 percent of all South Dakota hunters thought charging a fee to hunt would become more common in South Dakota (Table 12). A significantly higher percentage of fee hunters thought charging fees would become more common in South Dakota. A significantly larger percentage of older hunters thought fees would become more common.

Over 65 percent of North Dakota hunters thought charging fees for hunting access would become more common (Table 13). A significantly lower percentage of North Dakota hunters thought charging fees would become more common than did South Dakota hunters. Significant differences were found among fee, nonfee, rural, and urban North and South Dakota hunters. Generally, the majority of hunters in both states thought hunting access fees would become more common.

Less than half of all South Dakota hunters were willing to pay fees for hunting access in the future if landowners provided the type of hunting the hunters wanted (Table 14). Of those hunters willing to pay fees in the future, nearly 70 percent and over 65 percent were willing to pay fees to hunt big game and upland game, respectively.

TABLE 11. A COMPARISON OF RESPONSES TO "DO YOU THINK LANDOWNERS HAVE THE RIGHT TO CHARGE FOR HUNTING ACCESS?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Yes	No	Significant Difference ^a
(1) North Dakota Hunters	47.0	53.0	Y
(2) South Dakota Hunters	79.6	20.4	
(1) North Dakota Fee Hunters	45.8	54.2	Y
(2) South Dakota Fee Hunters	86.0	14.0	
(1) North Dakota Nonfee Hunters	47.1	52.9	Y
(2) South Dakota Nonfee Hunters	78.7	21.3	
(1) North Dakota Hunters-Rural	51.0	49.0	Y
(2) South Dakota Hunters-Rural	82.6	17.4	
(1) North Dakota Hunters-Urban	42.8	57.2	Y
(2) South Dakota Hunters-Urban	77.8	22.2	

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 12. RESPONSES TO "DO YOU THINK CHARGING A FEE FOR THE PRIVILEGE OF HUNTING WILL BECOME MORE COMMON IN SOUTH DAKOTA?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Yes	No	Significant Difference ^a		
			1 vs 2	1 vs 3	2 vs 3
	-- percent --				
All Hunters	84.5	15.5			
(1) Fee	94.5	5.5	Y		
(2) Nonfee	83.1	16.9			
(1) Region 1	88.8	11.2	N	N	N
(2) Region 2	88.4	11.6			
(3) Region 3	82.7	17.3			
(1) Rural	83.3	16.7	N		
(2) Urban	87.8	12.2			
Age (years)					
(1) less than 34	76.7	23.3	Y	Y	N
(2) 35 - 44	87.7	12.3			
(3) 45 and over	93.4	6.6			

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 13. A COMPARISON OF RESPONSES TO "DO YOU THINK CHARGING A FEE FOR THE PRIVILEGE OF HUNTING WILL BECOME MORE COMMON?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Yes	No	Significant Difference ^a
	-- percent --		
(1) North Dakota Hunters	66.8	33.2	Y
(2) South Dakota Hunters	84.5	15.5	
(1) North Dakota Fee Hunters	78.7	21.3	Y
(2) South Dakota Fee Hunters	94.5	5.5	
(1) North Dakota Nonfee Hunters	66.5	33.5	Y
(2) South Dakota Nonfee Hunters	83.1	16.9	
(1) North Dakota Hunters-Rural	66.2	33.8	Y
(2) South Dakota Hunters-Rural	83.3	16.7	
(1) North Dakota Hunters-Urban	68.3	31.7	Y
(2) South Dakota Hunters-Urban	87.8	12.2	

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

A significantly higher percentage of fee hunters were willing to pay fees for hunting access in the future than were nonfee hunters. Fee hunters willing to pay fees in the future wanted to hunt primarily upland game and waterfowl, while nonfee hunters wanted to hunt big game and upland game. No significant differences were found among region, residence, or age sample groups.

Over 40 percent of South Dakota hunters and 30 percent of North Dakota hunters were willing to pay for hunting access in the future (Table 15). A significantly lower percentage of North Dakota hunters were willing to pay than were South Dakota hunters. However, over half of North Dakota and nearly 75 percent of South Dakota fee hunters were willing to pay fees in the future. Significant differences were found among nonfee, rural, and urban North Dakota and South Dakota hunter sample groups. However, the majority of respondents within these groups were not willing to pay for hunting access.

Conservation Reserve Program

Half of South Dakota's hunters hunted on land enrolled in the Conservation Reserve Program (CRP) during the 1990 hunting season (Table 16). Nearly 80 percent and 55 percent of the hunters using CRP land hunted upland and big game, respectively. Less than 30 percent of the hunters in Region 1 hunted on CRP land compared to over 55 percent for Region 3. (Part of the difference could be a function of the number of CRP areas enrolled within each area.) Younger hunters tended to hunt on CRP land more than older hunters.

Of the 55 percent of fee hunters who hunted CRP land, over 90 percent hunted upland game. Slightly more than 10 percent of fee hunters paid a fee to hunt on land enrolled in CRP during the 1990 hunting season (Table 17). Upland game (40 percent) and waterfowl (40 percent) were the primary game hunted.

TABLE 14. RESPONSES TO "ARE YOU WILLING TO PAY A FEE FOR HUNTING ACCESS IN THE FUTURE, IF THE LANDOWNER PROVIDES THE TYPE OF HUNTING YOU WANT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Yes	No	Significant Difference ^a			Game Hunted			
			1 vs 2	1 vs 3	2 vs 3	Big Game	Upland	Waterfowl	Other
	-- percent --								
All Hunters	40.5	59.5				69.8	66.5	42.0	1.1
(1) Fee	74.1	25.9	Y			51.3	74.4	69.2	0.0
(2) Nonfee	35.9	64.1				75.2	64.3	34.4	1.5
(1) Region 1	39.1	60.9	N	N	N	88.3	58.8	29.4	0.0
(2) Region 2	40.9	59.1				58.0	68.5	42.1	5.3
(3) Region 3	40.9	59.1				66.6	68.3	45.5	0.8
(1) Rural	43.8	56.2	N			75.1	64.4	39.4	1.2
(2) Urban	36.7	63.3				59.3	70.9	47.7	0.0
Age (years)									
(1) less than 34	36.9	63.1	N	N	N	85.4	58.3	35.5	2.1
(2) 35 - 44	42.3	57.7				58.5	71.8	37.8	0.0
(3) 45 and over	43.1	56.9				63.5	69.2	55.7	0.0

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 15. A COMPARISON OF RESPONSES TO "ARE YOU WILLING TO PAY FOR HUNTING ACCESS IN THE THE FUTURE, IF THE LANDOWNER PROVIDES THE TYPE OF HUNTING YOU WANT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Yes	No	Significant Difference ^a
-- percent --			
(1) North Dakota Hunters	31.5	68.5	Y
(2) South Dakota Hunters	40.5	59.5	
(1) North Dakota Fee Hunters	51.1	48.9	Y
(2) South Dakota Fee Hunters	74.1	25.9	
(1) North Dakota Nonfee Hunters	30.9	69.1	Y
(2) South Dakota Nonfee Hunters	35.9	64.1	
(1) North Dakota Hunters-Rural	35.2	64.8	Y
(2) South Dakota Hunters-Rural	43.8	56.2	
(1) North Dakota Hunters-Urban	27.4	72.6	Y
(2) South Dakota Hunters-Urban	36.7	63.3	

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 16. RESPONSES TO "DID YOU HUNT ON ANY LAND ENROLLED IN CONSERVATION RESERVE PROGRAM (CRP) DURING THE 1990 HUNTING SEASON?", SOUTH DAKOTA HUNTERS

Sample Group	Yes	No	Don't Know	Game Hunted			
				Big Game	Upland	Waterfowl	Other
----- percent -----							
All Hunters	49.9	37.5	12.6	53.8	77.6	6.9	4.2
Fee	56.1	28.1	15.8	35.5	90.3	12.9	9.7
Nonfee	49.0	38.8	12.2	56.8	75.3	6.0	3.2
Region 1	28.0	51.6	20.4	45.9	79.2	16.7	12.5
Region 2	40.9	50.0	9.1	35.3	94.1	5.9	0.0
Region 3	57.6	31.5	10.8	56.7	75.8	5.8	3.5
Rural	52.3	39.6	8.1	61.5	74.3	6.0	3.0
Urban	47.9	32.6	19.5	41.3	84.9	9.6	2.4
Age (years)							
less than 34	53.0	26.5	20.5	66.2	73.9	6.2	1.5
35 - 44	49.2	40.9	9.8	53.1	83.7	9.6	6.4
45 and over	46.8	42.7	10.5	36.2	79.2	6.8	0.0

TABLE 17. RESPONSES TO "DID YOU PAY A FEE TO HUNT ON LAND ENROLLED IN THE CONSERVATION RESERVE PROGRAM (CRP) DURING THE 1990 HUNTING SEASON?", SOUTH DAKOTA FEE HUNTERS

Response	Number of Responses	Percentage
Yes	6	10.2
No	46	78.0
Don't Know	7	11.8
Game Hunted		
Big game	2	20.0
Upland game	4	40.0
Waterfowl	2	40.0
Other	0	0.0

South Dakota hunters (73 percent) stated that landowners should not be allowed to charge fees to hunt on land enrolled in the CRP (Table 18). The primary reason given for not allowing landowners to charge fees was that the government is already paying landowners. The primary reason for allowing landowners to charge fees was that the landowner is paid for idling land and not for hunting access. No significant differences were found among fee/nonfee, region, or age sample groups. However, a significantly higher percentage of rural hunters (35 percent) thought landowners should be allowed to charge fees to hunt on CRP land than did urban hunters (22 percent).

Fee Hunting Benefits⁴

South Dakota hunters considered a *greater chance of getting a trophy animal* to be significantly more important than did North Dakota hunters in their decision to pay fees to hunt (Table 19). Significant differences in attitudes were found among North and South Dakota fee, nonfee, rural, and urban hunters. In all cases, South Dakota hunters considered a greater chance of getting a trophy animal to be a more important benefit than did North Dakota hunters.

South Dakota hunters considered a *greater chance of getting any game* to be significantly more important than did North Dakota hunters in their decision to pay fees (Table 20). However, no significant difference was found between North Dakota and South Dakota fee and rural hunters. Significant differences were found between nonfee and urban hunters with South Dakota hunters considering a chance of getting any game to be a more important benefit of fee hunting than did North Dakota hunters.

No significant differences between North and South Dakota hunters were found on the issue of *privacy and safety of having fewer other hunters* (Table 21). No differences in attitudes were found among fee, nonfee, rural, or urban hunters. The relatively high importance index suggests that privacy and safety were primary fee hunting benefits.

⁴Fee hunting benefits among South Dakota sample groups are presented in Appendix D.

TABLE 18. RESPONSES TO "SHOULD LANDOWNERS BE ALLOWED TO CHARGE A FEE TO HUNT ON LAND ENROLLED IN THE CONSERVATION RESERVE PROGRAM (CRP)?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Yes	No	Significant Difference ^a		
			1 vs 2	1 vs 3	2 vs 3
	-- percent --				
All Hunters	27.3	72.7			
(1) Fee	32.1	67.9	N		
(2) Nonfee	26.6	73.4			
(1) Region 1	26.4	73.6	N	N	N
(2) Region 2	37.2	62.8			
(3) Region 3	26.2	73.8			
(1) Rural	34.9	65.1	Y		
(2) Urban	21.6	78.4			
Age (years)					
(1) less than 34	30.2	69.8	N	N	N
(2) 35 - 44	24.2	75.8			
(3) 45 and over	30.3	69.7			

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 19. A COMPARISON OF RESPONSES TO "HOW IMPORTANT IS A GREATER CHANCE OF GETTING A TROPHY ANIMAL IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	113	Y
(2) South Dakota Hunters	139	
(1) North Dakota Fee Hunters	119	Y
(2) South Dakota Fee Hunters	132	
(1) North Dakota Nonfee Hunters	113	Y
(2) South Dakota Nonfee Hunters	140	
(1) North Dakota Hunters-Rural	122	Y
(2) South Dakota Hunters-Rural	138	
(1) North Dakota Hunters-Urban	105	Y
(2) South Dakota Hunters-Urban	139	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 20. A COMPARISON OF RESPONSES TO "HOW IMPORTANT IS A GREATER CHANCE OF GETTING ANY GAME IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	149	Y
(2) South Dakota Hunters	166	
(1) North Dakota Fee Hunters	169	N
(2) South Dakota Fee Hunters	205	
(1) North Dakota Nonfee Hunters	149	Y
(2) South Dakota Nonfee Hunters	160	
(1) North Dakota Hunters-Rural	149	N
(2) South Dakota Hunters-Rural	167	
(1) North Dakota Hunters-Urban	144	Y
(2) South Dakota Hunters-Urban	167	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 21. A COMPARISON OF RESPONSES TO "HOW IMPORTANT IS PRIVACY AND SAFETY OF HAVING FEWER OTHER HUNTERS IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	195	N
(2) South Dakota Hunters	201	
(1) North Dakota Fee Hunters	203	N
(2) South Dakota Fee Hunters	200	
(1) North Dakota Nonfee Hunters	195	N
(2) South Dakota Nonfee Hunters	200	
(1) North Dakota Hunters-Rural	199	N
(2) South Dakota Hunters-Rural	212	
(1) North Dakota Hunters-Urban	185	N
(2) South Dakota Hunters-Urban	194	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

South Dakota hunters placed significantly more importance on *exclusive hunting rights that assure me of a place to hunt* in their decisions to pay fees to hunt than did North Dakota hunters (Table 22). Significant differences between North and South Dakota hunters were found among fee, nonfee, rural, and urban sample groups. South Dakota hunters considered exclusive hunting rights to be a more important benefit in their decision to pay a fee to hunt than did North Dakota hunters.

No significant difference was found between North and South Dakota hunters concerning the importance of *private land where I want to hunt is posted* in their decision to pay fees to hunt (Table 23). However, North Dakota fee hunters placed significantly more importance on this than did South Dakota fee hunters. No significant differences were found between North and South Dakota hunters among nonfee, rural, and urban sample groups.

South Dakota hunters placed significantly more importance on *landowner's restrictions ensuring other hunters behave in a sportsmanlike manner* in their decisions to pay a fee to hunt than did North Dakota hunters (Table 24). No significant differences were found between North and South Dakota fee and urban hunters. However, significant differences were discovered between nonfee and rural hunters.

North Dakota hunters, as a group, did not reach a consensus as to whether *there are fewer slob hunters* when landowners charge fees for hunting access (Table 25). South Dakota hunters disagreed that fees reduced the number of slob hunters. A significant difference was found between all South and North Dakota hunters. Significant differences were also discovered between North and South Dakota hunters among fee, nonfee, rural, and urban sample groups.

South Dakota hunters placed significantly more importance on *having a controlled area where they could introduce their children/friends to hunting* than did North Dakota hunters in their decision to pay fees to hunt (Table 26). Significant differences were found between North and South Dakota hunters among all sample groups. The high importance index among groups suggests that both North and South Dakota hunters consider this to be an important fee hunting benefit.

South Dakota hunters placed significantly more importance on a *quality hunting experience* in their decision to pay fees than did North Dakota hunters (Table 27). No significant difference in importance was found between South and North Dakota fee hunters. Relatively high importance indexes among sample groups imply hunters consider a quality hunting experience to be an important attribute in their decisions to pay fees.

Both North and South Dakota hunters placed little importance on the *availability of lodging, guides, and other services* in their decision to pay fees (Table 28). However, South Dakota hunters placed significantly more importance on this attribute than did North Dakota hunters. Significant differences also were found for nonfee and urban hunters. No significant difference was found between North and South Dakota fee hunters.

Hunters considered *game will be released before they arrived* to be of little importance in their decision to pay fees (Table 29). No significant difference was found between North and South Dakota hunter, nonfee, rural, or urban sample groups. However, North Dakota fee hunters placed significantly more importance on this benefit than did South Dakota fee hunters.

Hunters, as a group, were undecided about whether there were *fewer hunter-landowner conflicts* when landowners charge fees for hunting access (Table 30). No significant differences between North and South Dakota hunters were found among fee, nonfee, rural, and urban hunters.

TABLE 22. A COMPARISON OF RESPONSES TO "HOW IMPORTANT IS EXCLUSIVE HUNTING RIGHTS THAT ASSURE ME OF A PLACE TO HUNT IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	159	Y
(2) South Dakota Hunters	190	
(1) North Dakota Fee Hunters	187	Y
(2) South Dakota Fee Hunters	239	
(1) North Dakota Nonfee Hunters	155	Y
(2) South Dakota Nonfee Hunters	182	
(1) North Dakota Hunters-Rural	153	Y
(2) South Dakota Hunters-Rural	183	
(1) North Dakota Hunters-Urban	157	Y
(2) South Dakota Hunters-Urban	202	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 23. A COMPARISON OF RESPONSES TO "HOW IMPORTANT IS PRIVATE LAND WHERE I WANT TO HUNT IS POSTED IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	155	N
(2) South Dakota Hunters	154	
(1) North Dakota Fee Hunters	208	Y
(2) South Dakota Fee Hunters	155	
(1) North Dakota Nonfee Hunters	146	N
(2) South Dakota Nonfee Hunters	153	
(1) North Dakota Hunters-Rural	153	N
(2) South Dakota Hunters-Rural	155	
(1) North Dakota Hunters-Urban	156	N
(2) South Dakota Hunters-Urban	159	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 24. A COMPARISON OF RESPONSES TO "HOW IMPORTANT IS LANDOWNER'S RESTRICTIONS ENSURING OTHER HUNTERS BEHAVE IN A SPORTSMANLIKE MANNER IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	226	Y
(2) South Dakota Hunters	245	
(1) North Dakota Fee Hunters	249	N
(2) South Dakota Fee Hunters	278	
(1) North Dakota Nonfee Hunters	224	Y
(2) South Dakota Nonfee Hunters	240	
(1) North Dakota Hunters-Rural	197	Y
(2) South Dakota Hunters-Rural	258	
(1) North Dakota Hunters-Urban	219	N
(2) South Dakota Hunters-Urban	235	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 25. A COMPARISON OF RESPONSES TO "THERE ARE FEWER SLOB HUNTERS AS LANDOWNERS CHARGE A FEE FOR HUNTING ACCESS," NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Agreement Index ^a	Significant Difference ^b
(1) North Dakota Hunters	5	Y
(2) South Dakota Hunters	-29	
(1) North Dakota Fee Hunters	56	Y
(2) South Dakota Fee Hunters	-29	
(1) North Dakota Nonfee Hunters	5	Y
(2) South Dakota Nonfee Hunters	-29	
(1) North Dakota Hunters-Rural	20	Y
(2) South Dakota Hunters-Rural	-22	
(1) North Dakota Hunters-Urban	-10	Y
(2) South Dakota Hunters-Urban	-45	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 26. A COMPARISON OF RESPONSES TO "HOW IMPORTANT IS HAVING A CONTROLLED AREA WHERE I COULD INTRODUCE MY CHILDREN/FRIENDS TO HUNTING IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	181	Y
(2) South Dakota Hunters	212	
(1) North Dakota Fee Hunters	205	Y
(2) South Dakota Fee Hunters	258	
(1) North Dakota Nonfee Hunters	181	Y
(2) South Dakota Nonfee Hunters	204	
(1) North Dakota Hunters-Rural	185	Y
(2) South Dakota Hunters-Rural	209	
(1) North Dakota Hunters-Urban	176	Y
(2) South Dakota Hunters-Urban	217	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 27. A COMPARISON OF RESPONSES TO "HOW IMPORTANT IS A QUALITY HUNTING EXPERIENCE IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	186	Y
(2) South Dakota Hunters	215	
(1) North Dakota Fee Hunters	226	N
(2) South Dakota Fee Hunters	271	
(1) North Dakota Nonfee Hunters	184	Y
(2) South Dakota Nonfee Hunters	206	
(1) North Dakota Hunters-Rural	187	N
(2) South Dakota Hunters-Rural	206	
(1) North Dakota Hunters-Urban	183	Y
(2) South Dakota Hunters-Urban	223	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 28. A COMPARISON OF RESPONSES TO "HOW IMPORTANT ARE AVAILABLE LODGING, GUIDES, AND OTHER SERVICES IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	56	Y
(2) South Dakota Hunters	65	
(1) North Dakota Fee Hunters	64	N
(2) South Dakota Fee Hunters	64	
(1) North Dakota Nonfee Hunters	54	Y
(2) South Dakota Nonfee Hunters	65	
(1) North Dakota Hunters-Rural	54	N
(2) South Dakota Hunters-Rural	66	
(1) North Dakota Hunters-Urban	54	Y
(2) South Dakota Hunters-Urban	67	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 29. A COMPARISON OF RESPONSES TO "HOW IMPORTANT IS GAME WILL BE RELEASED BEFORE I ARRIVE IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	49	N
(2) South Dakota Hunters	47	
(1) North Dakota Fee Hunters	74	Y
(2) South Dakota Fee Hunters	43	
(1) North Dakota Nonfee Hunters	48	N
(2) South Dakota Nonfee Hunters	48	
(1) North Dakota Hunters-Rural	46	N
(2) South Dakota Hunters-Rural	42	
(1) North Dakota Hunters-Urban	52	N
(2) South Dakota Hunters-Urban	50	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 30. A COMPARISON OF RESPONSES TO "THERE ARE FEWER HUNTER-LANDOWNER CONFLICTS AS LANDOWNERS CHARGE A FEE FOR HUNTING ACCESS," NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Agreement Index ^a	Significant Difference ^b
(1) North Dakota Hunters	-5	N
(2) South Dakota Hunters	-6	
(1) North Dakota Fee Hunters	-1	N
(2) South Dakota Fee Hunters	7	
(1) North Dakota Nonfee Hunters	-5	N
(2) South Dakota Nonfee Hunters	-8	
(1) North Dakota Hunters-Rural	3	N
(2) South Dakota Hunters-Rural	0	
(1) North Dakota Hunters-Urban	-13	N
(2) South Dakota Hunters-Urban	-20	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

Both North and South Dakota hunters indicated that it was important *the landowner use part of the fee to improve wildlife habitat* in their decision to pay fees (Table 31). The relatively high importance index suggests this benefit was a primary concern of hunters. No significant differences were found between North and South Dakota hunters among sample groups.

North Dakota hunters generally disagreed that *landowners improved their wildlife habitat* when landowners charge fees for hunting access (Table 32). South Dakota hunters were undecided on this attribute. Significant differences were found between North and South Dakota hunters for all sample groups except for fee hunters.

Both North and South Dakota hunters generally disagreed that *there are more wildlife to hunt* when landowners charge fees for hunting access (Table 33). No significant differences were found among sample groups.

Fee Hunting Costs⁵

North Dakota hunters agreed significantly more strongly compared to South Dakota hunters that *there are fewer hunters* as landowners charge fees for hunting access (Table 34). North Dakota hunters, among all sample groups, agreed significantly more strongly than South Dakota hunters that there would be fewer hunters with fee hunting.

⁵Fee hunting costs among South Dakota sample groups are presented in Appendix E.

TABLE 31. A COMPARISON OF RESPONSES TO "HOW IMPORTANT IS THE LANDOWNER WILL USE PART OF THE FEE TO IMPROVE WILDLIFE HABITAT IN YOUR DECISION TO PAY A FEE TO HUNT?", NORTH DAKOTA AND SOUTH DAKOTA

Sample Group	Importance Index ^a	Significant Difference ^b
(1) North Dakota Hunters	239	N
(2) South Dakota Hunters	238	
(1) North Dakota Fee Hunters	283	N
(2) South Dakota Fee Hunters	237	
(1) North Dakota Nonfee Hunters	239	N
(2) South Dakota Nonfee Hunters	238	
(1) North Dakota Hunters-Rural	232	N
(2) South Dakota Hunters-Rural	223	
(1) North Dakota Hunters-Urban	247	N
(2) South Dakota Hunters-Urban	258	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 32. A COMPARISON OF RESPONSES TO "LANDOWNERS IMPROVED THEIR WILDLIFE HABITAT AS LANDOWNERS CHARGE A FEE FOR HUNTING ACCESS," NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Agreement Index ^a	Significant Difference ^b
(1) North Dakota Hunters	-43	Y
(2) South Dakota Hunters	-7	
(1) North Dakota Fee Hunters	-19	N
(2) South Dakota Fee Hunters	11	
(1) North Dakota Nonfee Hunters	-45	Y
(2) South Dakota Nonfee Hunters	-9	
(1) North Dakota Hunters-Rural	-29	Y
(2) South Dakota Hunters-Rural	16	
(1) North Dakota Hunters-Urban	-58	Y
(2) South Dakota Hunters-Urban	-27	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 33. A COMPARISON OF RESPONSES TO "THERE ARE MORE WILDLIFE TO HUNT AS LANDOWNERS CHARGE A FEE FOR HUNTING ACCESS," NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Agreement Index ^a	Significant Difference ^b
(1) North Dakota Hunters	-33	N
(2) South Dakota Hunters	-28	
(1) North Dakota Fee Hunters	-22	N
(2) South Dakota Fee Hunters	-9	
(1) North Dakota Nonfee Hunters	-33	N
(2) South Dakota Nonfee Hunters	-31	
(1) North Dakota Hunters-Rural	-36	N
(2) South Dakota Hunters-Rural	-14	
(1) North Dakota Hunters-Urban	-43	N
(2) South Dakota Hunters-Urban	-42	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 34. A COMPARISON OF RESPONSES TO "THERE ARE FEWER HUNTERS AS LANDOWNERS CHARGE A FEE FOR HUNTING ACCESS," NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Agreement Index ^a	Significant Difference ^b
(1) North Dakota Hunters	141	Y
(2) South Dakota Hunters	47	
(1) North Dakota Fee Hunters	151	Y
(2) South Dakota Fee Hunters	22	
(1) North Dakota Nonfee Hunters	137	Y
(2) South Dakota Nonfee Hunters	51	
(1) North Dakota Hunters-Rural	132	Y
(2) South Dakota Hunters-Rural	41	
(1) North Dakota Hunters-Urban	146	Y
(2) South Dakota Hunters-Urban	58	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

North and South Dakota hunters agreed that *hunters spend less time hunting* as landowners charge fees for hunting access (Table 35). Significant differences were discovered among sample groups. North Dakota fee hunters agreed, but responses of South Dakota hunters varied.

Both North and South Dakota hunters agreed that *hunters spend more money to hunt* as landowners charge fees for hunting access (Table 36). Significant differences were discovered among all sample groups except for fee hunters. Generally, South Dakota hunters agreed more strongly than did North Dakota hunters that fees increase hunting expenditures.

Hunters somewhat agreed that *the quality of hunting has decreased* as landowners charge fees for hunting access (Table 37). A significant difference was found between North and South Dakota rural hunters. South Dakota rural hunters agreed more strongly than North Dakota rural hunters. North and South Dakota fee hunters had not reached a consensus on whether fees reduced the quality of the hunting experience.

Hunters agreed that *public land is overhunted* when landowners charge fees for hunting access (Table 38). North Dakota hunters agreed significantly more than South Dakota hunters among all sample groups except for fee hunters. Relatively high agreement indexes among groups suggest hunters view this issue as a legitimate fee hunting cost.

Hunters agreed *only the wealthy can afford to hunt* as landowners charge fees for hunting access (Table 39). Significant differences were found among all sample groups. North Dakota hunters agreed significantly more strongly than did South Dakota hunters.

South Dakota hunters somewhat agreed that *more resident/nonresident conflicts have resulted* as more landowners charge fees for hunting access (Table 40). No significant differences were found among sample groups except for hunters less than 34 years of age when compared to hunters 45 years of age or older. Younger hunters agreed more strongly than did older hunters.

South Dakota hunters agreed that there is a *loss of access to land formerly hunted* as more landowners charge fees for hunting access (Table 41). Urban hunters agreed significantly more strongly than did rural hunters.

South Dakota hunters were asked several questions concerning their reactions if all landowners in South Dakota charged fees to hunt. Over 70 percent of all South Dakota hunters would *hunt fewer days in South Dakota* if all landowners charged fees (Table 42). Nonfee hunters agreed significantly more strongly than did fee hunters that they would hunt fewer days. Urban hunters also agreed significantly more strongly than did rural hunters.

Over 60 percent of all South Dakota hunters said they would *hunt only on public land* if all landowners charged fees (Table 43). South Dakota nonfee hunters agreed significantly more strongly than did fee hunters. Hunter responses from Region 2 differed significantly from Region 1 and Region 3 hunter responses. Urban hunters agreed significantly more strongly than did rural hunters that they would hunt only on public land.

Less than 30 percent of South Dakota hunters would *travel to another state to hunt* if all landowners in South Dakota charged fees for hunting access (Table 44). Fee hunters were significantly less likely to travel to another state to hunt than were nonfee hunters. Hunters from Region 1 were significantly more likely to travel to another state than were hunters in Regions 2 and 3.

TABLE 35. A COMPARISON OF RESPONSES TO "HUNTERS SPEND LESS TIME HUNTING AS LANDOWNERS CHARGE A FEE FOR HUNTING ACCESS," NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Agreement Index ^a	Significant Difference ^b
(1) North Dakota Hunters	71	Y
(2) South Dakota Hunters	28	
(1) North Dakota Fee Hunters	84	Y
(2) South Dakota Fee Hunters	-4	
(1) North Dakota Nonfee Hunters	73	Y
(2) South Dakota Nonfee Hunters	32	
(1) North Dakota Hunters-Rural	66	Y
(2) South Dakota Hunters-Rural	22	
(1) North Dakota Hunters-Urban	81	Y
(2) South Dakota Hunters-Urban	29	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 36. A COMPARISON OF RESPONSES TO "HUNTERS SPEND MORE MONEY TO HUNT AS LANDOWNERS CHARGE A FEE FOR HUNTING ACCESS," NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Agreement Index ^a	Significant Difference ^b
(1) North Dakota Hunters	46	Y
(2) South Dakota Hunters	92	
(1) North Dakota Fee Hunters	49	N
(2) South Dakota Fee Hunters	86	
(1) North Dakota Nonfee Hunters	48	Y
(2) South Dakota Nonfee Hunters	92	
(1) North Dakota Hunters-Rural	44	Y
(2) South Dakota Hunters-Rural	98	
(1) North Dakota Hunters-Urban	49	Y
(2) South Dakota Hunters-Urban	85	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 37. A COMPARISON OF RESPONSES TO "THE QUALITY OF HUNTING HAS DECREASED AS LANDOWNERS CHARGE A FEE FOR HUNTING ACCESS," NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Agreement Index ^a	Significant Difference ^b
(1) North Dakota Hunters	27	N
(2) South Dakota Hunters	34	
(1) North Dakota Fee Hunters	-5	N
(2) South Dakota Fee Hunters	14	
(1) North Dakota Nonfee Hunters	27	N
(2) South Dakota Nonfee Hunters	37	
(1) North Dakota Hunters-Rural	15	Y
(2) South Dakota Hunters-Rural	33	
(1) North Dakota Hunters-Urban	41	N
(2) South Dakota Hunters-Urban	32	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 38. A COMPARISON OF RESPONSES TO "PUBLIC LAND IS OVERHUNTED AS LANDOWNERS CHARGE A FEE FOR HUNTING ACCESS," NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Agreement Index ^a	Significant Difference ^b
(1) North Dakota Hunters	111	Y
(2) South Dakota Hunters	87	
(1) North Dakota Fee Hunters	98	N
(2) South Dakota Fee Hunters	95	
(1) North Dakota Nonfee Hunters	110	Y
(2) South Dakota Nonfee Hunters	86	
(1) North Dakota Hunters-Rural	100	Y
(2) South Dakota Hunters-Rural	82	
(1) North Dakota Hunters-Urban	126	Y
(2) South Dakota Hunters-Urban	93	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 39. A COMPARISON OF RESPONSES TO "ONLY THE WEALTHY CAN AFFORD TO HUNT AS LANDOWNERS CHARGE A FEE FOR HUNTING ACCESS," NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Agreement Index ^a	Significant Difference ^b
(1) North Dakota Hunters	90	Y
(2) South Dakota Hunters	74	
(1) North Dakota Fee Hunters	82	Y
(2) South Dakota Fee Hunters	37	
(1) North Dakota Nonfee Hunters	87	Y
(2) South Dakota Nonfee Hunters	79	
(1) North Dakota Hunters-Rural	79	N
(2) South Dakota Hunters-Rural	67	
(1) North Dakota Hunters-Urban	103	Y
(2) South Dakota Hunters-Urban	76	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

Slightly more than 30 percent of South Dakota hunters would *stop hunting* if all landowners in South Dakota charged fees for hunting access (Table 45). Fee hunters were significantly less likely to stop hunting than were nonfee hunters. Significant differences were found among age groups with younger hunters less likely to stop hunting than were older hunters.

South Dakota hunters also were asked several questions concerning their reactions should their hunting expenditures increase 0, 5, 10, 25, and 50 percent. Over 55 percent of South Dakota hunters indicated their expenditures would have to increase 25 percent or more before they would hunt fewer days (Table 46 and Figure 4). Fee hunters were significantly less likely to hunt fewer days as hunting expenditures were increased. Hunters in Region 1 were significantly more likely to hunt fewer days as expenditures increased than were hunters in Regions 2 and 3.

Over 65 percent of South Dakota hunters responded that their hunting expenditures would have to increase by 25 percent or more before they would hunt in another state (Table 47 and Figure 4). Older hunters were significantly more likely to hunt in another state as expenditures were increased.

Over 60 percent of all South Dakota hunters indicated their expenditures would have to increase by 50 percent before they would stop hunting (Table 48 and Figure 4). Over 55 percent of the hunters among all sample groups indicated their expenditures would have to increase by at least 50 percent before they would stop hunting. Hunters 45 years of age or older were significantly more likely to stop hunting as expenditures increased than were hunters younger than 34 years of age.

Hunting Substitutes

South Dakota hunters were asked what they would do with the additional time and money if for some reason they decided not to hunt in South Dakota.

TABLE 40. RESPONSES TO "MORE RESIDENT/NONRESIDENT CONFLICTS AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	<u>Significant Difference^b</u>		
	----- percent -----						1 vs 2	1 vs 3	2 vs 3
All Hunters	22.0	26.5	31.4	17.6	2.5	47.9			
(1) Fee	12.3	36.8	24.6	26.3	0.0	35.1	N		
(2) Nonfee	23.4	25.0	32.4	16.3	2.9	49.7			
(1) Region 1	27.8	21.1	27.8	22.2	1.1	52.3	N	N	N
(2) Region 2	22.7	22.7	25.0	29.5	0.0	38.6			
(3) Region 3	20.1	28.7	33.3	14.5	3.3	47.8			
(1) Rural	21.3	23.9	34.6	18.1	2.1	44.2	N		
(2) Urban	22.8	27.5	30.2	16.9	2.6	51.0			
Age (years)									
(1) less than 34	21.2	32.6	33.3	12.1	0.8	61.3	N	Y	N
(2) 35 - 44	24.6	20.8	30.8	19.2	4.6	41.6			
(3) 45 and over	19.8	24.1	32.8	21.6	1.7	38.7			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 41. RESPONSES TO "LOSS OF ACCESS TO LAND FORMERLY HUNTED AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b		
	percent						1 vs 2	1 vs 3	2 vs 3
All Hunters	32.2	39.9	15.9	10.2	1.8	90.5			
(1) Fee	26.3	45.6	12.3	14.0	1.8	80.6	N		
(2) Nonfee	33.1	39.1	16.4	9.6	1.8	92.1			
(1) Region 1	36.7	37.8	14.4	11.1	0.0	100.1	N	N	N
(2) Region 2	27.3	45.5	13.6	11.4	2.3	84.1			
(3) Region 3	31.6	39.7	16.6	9.8	2.3	88.5			
(1) Rural	30.2	34.4	20.3	13.0	2.1	77.6	Y		
(2) Urban	34.0	45.2	12.2	8.5	0.0	104.7			
Age (years)									
(1) less than 34	27.3	40.2	22.0	9.1	1.5	82.7	N	N	N
(2) 35 - 44	35.7	38.0	12.4	12.4	1.6	93.8			
(3) 45 and over	33.3	41.7	14.2	10.8	0.0	97.5			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 42. RESPONSES TO "HUNT FEWER DAYS IN SOUTH DAKOTA IF ALL LANDOWNERS IN SOUTH DAKOTA CHARGED A FEE FOR THE PRIVILEGE OF HUNTING," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly	Agree	Undecided	Disagree	Strongly	Agreement	<u>Significant Difference^b</u>		
	Agree				Disagree	Index ^a	1 vs 2	1 vs 3	2 vs 3
----- percent -----									
All Hunters	43.2	29.0	12.8	10.8	4.2	96.2			
(1) Fee	33.9	25.0	23.2	10.7	7.1	67.9	Y		
(2) Nonfee	44.7	29.6	11.1	10.8	3.7	100.8			
(1) Region 1	45.8	26.5	9.6	13.3	4.8	95.2	N	N	N
(2) Region 2	36.8	31.6	7.9	18.4	5.3	76.2			
(3) Region 3	43.4	29.4	14.3	9.1	3.8	99.5			
(1) Rural	41.7	30.0	11.7	12.2	4.4	92.4	Y		
(2) Urban	48.6	29.1	12.6	8.6	1.1	115.5			
Age (years)									
(1) less than 34	41.6	33.6	12.8	8.8	3.2	101.6	N	N	N
(2) 35 - 44	45.8	26.7	10.8	13.3	3.3	98.4			
(3) 45 and over	46.8	28.8	13.5	9.0	1.8	109.8			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 43. RESPONSES TO "HUNT ONLY ON PUBLIC LAND IF ALL LANDOWNERS IN SOUTH DAKOTA CHARGED A FEE FOR THE PRIVILEGE OF HUNTING," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b		
	----- percent -----						1 vs 2	1 vs 3	2 vs 3
All Hunters	32.9	28.2	20.0	13.7	5.2	69.9			
(1) Fee	20.8	24.5	15.1	30.2	9.4	17.1	Y		
(2) Nonfee	34.8	28.7	20.7	11.2	4.6	77.9			
(1) Region 1	34.9	32.5	13.3	13.3	6.0	77.0	Y	N	Y
(2) Region 2	24.3	10.8	24.3	29.7	10.8	8.1			
(3) Region 3	33.5	29.2	21.4	11.7	4.3	75.9			
(1) Rural	27.0	27.0	23.6	16.1	6.3	52.3	Y		
(2) Urban	38.3	27.4	18.3	13.1	2.9	85.1			
Age (years)									
(1) less than 34	26.4	33.6	24.8	11.2	4.0	67.2	N	N	N
(2) 35 - 44	36.7	28.3	15.0	14.2	5.8	75.9			
(3) 45 and over	35.8	18.9	22.6	18.9	3.8	64.0			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 44. RESPONSES TO "TRAVEL TO ANOTHER STATE TO HUNT IF ALL LANDOWNERS IN SOUTH DAKOTA CHARGED A FEE FOR THE PRIVILEGE OF HUNTING," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	15.1	12.3	28.2	27.7	16.7	-18.6				
(1) Fee	5.9	5.9	27.5	37.3	23.5	-66.6	Y			
(2) Nonfee	16.6	13.3	28.3	26.2	15.7	-11.1				
(1) Region 1	20.5	14.1	24.4	29.5	11.5	2.6	Y	N	N	
(2) Region 2	10.8	2.7	35.1	29.7	21.6	-48.6				
(3) Region 3	14.2	13.1	28.4	26.9	17.5	-20.4				
(1) Rural	13.6	11.8	35.5	23.1	16.0	-16.1	N			
(2) Urban	17.2	11.7	25.2	27.6	18.4	-18.3				
Age (years)										
(1) less than 34	12.2	15.4	33.3	23.6	15.4	-14.6	N	N	N	
(2) 35 - 44	18.6	9.7	26.5	28.3	16.8	-15.0				
(3) 45 and over	15.3	9.2	30.6	25.5	19.4	-24.5				

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 45. RESPONSES TO "STOP HUNTING IF ALL LANDOWNERS IN SOUTH DAKOTA CHARGED A FEE FOR THE PRIVILEGE OF HUNTING," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly	Agree	Undecided	Disagree	Strongly	Agreement	<u>Significant Difference^b</u>		
	Agree				Disagree	Index ^a	1 vs 2	1 vs 3	2 vs 3
----- percent -----									
All Hunters	21.9	8.7	22.2	15.7	31.6	-26.4			
(1) Fee	7.7	9.6	19.2	17.3	46.2	-84.7	Y		
(2) Nonfee	24.0	8.5	22.6	15.4	29.5	-17.9			
(1) Region 1	24.4	4.7	16.3	14.0	40.7	-41.9	N	N	N
(2) Region 2	21.4	7.1	19.0	14.3	38.1	-40.6			
(3) Region 3	21.3	10.1	24.4	16.4	27.9	-19.5			
(1) Rural	20.7	6.5	21.7	16.8	34.2	-37.3	N		
(2) Urban	22.5	11.2	22.5	15.2	28.7	-16.4			
Age (years)									
(1) less than 34	12.8	8.8	21.6	15.2	41.6	-64.0	Y	Y	Y
(2) 35 - 44	19.4	8.9	24.2	17.7	29.8	-29.6			
(3) 45 and over	33.9	9.6	20.9	13.9	21.7	20.1			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 46. RESPONSES TO "HOW MUCH WOULD YOUR HUNTING EXPENDITURES IN SOUTH DAKOTA HAVE TO INCREASE BEFORE YOU WOULD HUNT FEWER DAYS?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Increase					Significant Difference ^a		
	0 %	5 %	10 %	25 %	50 %	1 vs 2	1 vs 3	2 vs 3
	----- percent -----							
All Hunters	9.4	12.0	23.2	26.2	29.3			
(1) Fee	7.5	7.5	18.9	20.8	45.3	Y		
(2) Nonfee	9.7	12.6	23.8	27.1	26.8			
(1) Region 1	12.7	8.9	34.2	29.1	15.2	Y	Y	N
(2) Region 2	11.1	8.3	16.7	22.2	41.7			
(3) Region 3	8.3	13.3	20.9	25.9	31.7			
(1) Rural	9.4	11.2	22.9	25.3	31.2	N		
(2) Urban	11.0	11.0	22.0	29.5	26.6			
Age (years)								
(1) less than 34	10.4	12.0	24.8	26.4	26.4	N	N	N
(2) 35 - 44	11.8	12.6	24.4	21.8	29.4			
(3) 45 and over	7.9	7.9	18.8	34.7	30.7			

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

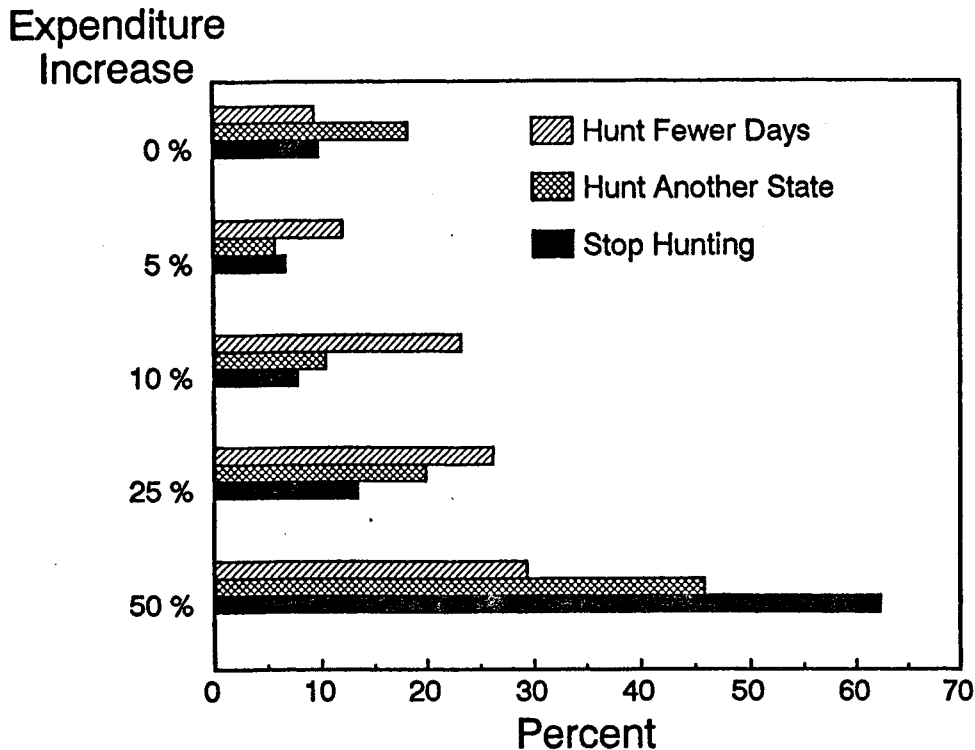


Figure 4. South Dakota Hunter Reactions to Increases in Hunting Expenditures, 1990

Over 75 percent of the hunters responded that they would spend their additional time and money on another activity available in South Dakota. Less than 15 percent indicated they would hunt in another state. Another 10 percent said they would save the additional money. In comparison, over 40 percent of North Dakota hunters would hunt out of state if they could not hunt in North Dakota (Baltezare and Leitch 1992).

Fee Hunting Management

Over 40 percent of all South Dakota hunters said the South Dakota Game, Fish, and Parks Department should discourage fee hunting (Table 49). However, nearly 50 percent of fee hunters indicated the department should actively or passively regulate fee hunting compared to 30 percent of nonfee hunters. Nearly 25 percent of rural hunters thought the department should do nothing about fee hunting, while over 30 percent of urban hunters thought the department should actively regulate fee hunting. No significant differences were found among regions or age groups.

Nearly 75 percent of all South Dakota hunters agreed **landowners** should be responsible for maintaining and improving South Dakota's wildlife resources (Table 50). Rural residents agreed significantly more strongly than urban residents that landowners should be responsible for enhancing wildlife resources.

TABLE 47. RESPONSES TO "HOW MUCH WOULD YOUR HUNTING EXPENDITURES IN SOUTH DAKOTA HAVE TO INCREASE BEFORE YOU WOULD HUNT IN ANOTHER STATE?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Increase					Significant Difference ^a		
	0 %	5 %	10 %	25 %	50 %	1 vs 2	1 vs 3	2 vs 3
	----- percent -----							
All Hunters	18.3	5.7	10.4	19.9	45.8			
(1) Fee	23.4	8.5	8.5	19.1	40.4	N		
(2) Nonfee	17.5	5.3	10.6	20.0	46.6			
(1) Region 1	15.8	6.6	10.5	30.3	36.8	N	N	N
(2) Region 2	17.6	0.0	14.7	14.7	52.9			
(3) Region 3	19.1	6.2	9.7	17.5	47.5			
(1) Rural	18.4	3.7	8.0	20.9	49.1	N		
(2) Urban	19.4	7.5	11.3	18.1	43.8			
Age (years)								
(1) less than 34	11.4	8.9	8.9	25.2	45.5	N	Y	Y
(2) 35 - 44	18.4	7.0	9.6	10.5	54.4			
(3) 45 and over	30.7	1.1	10.2	22.7	35.2			

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 48. RESPONSES TO "HOW MUCH WOULD YOUR HUNTING EXPENDITURES IN SOUTH DAKOTA HAVE TO INCREASE BEFORE YOU WOULD STOP HUNTING?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Increase					Significant Difference ^a		
	0 %	5 %	10 %	25 %	50 %	1 vs 2	1 vs 3	2 vs 3
	----- percent -----							
All Hunters	9.8	6.7	7.8	13.4	62.3			
(1) Fee	13.0	6.5	6.5	8.7	65.2	N		
(2) Nonfee	9.4	6.7	7.9	14.1	61.9			
(1) Region 1	10.1	6.3	5.1	12.7	65.8	N	N	N
(2) Region 2	11.1	8.3	8.3	11.1	61.1			
(3) Region 3	9.6	6.6	8.5	14.0	61.4			
(1) Rural	9.9	4.7	8.1	10.5	66.9	N		
(2) Urban	10.3	7.9	6.1	16.4	59.4			
Age (years)								
(1) less than 34	5.8	4.1	8.3	13.2	68.6	N	Y	N
(2) 35 - 44	12.1	7.8	9.5	8.6	62.1			
(3) 45 and over	11.8	7.8	3.9	19.6	56.9			

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 49. RESPONSES TO "SHOULD GAME, FISH, AND PARKS DEPARTMENT . . . FEE HUNTING?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Promote	Actively Regulate	Passively Regulate	Discourage	Do Nothing	Significant Difference*		
						1 vs 2	1 vs 3	2 vs 3
All Hunters	4.4	22.2	11.5	40.6	21.3			
(1) Fee	7.3	36.4	12.7	23.6	20.0	Y		
(2) Nonfee	3.9	20.2	11.3	43.0	21.5			
(1) Region 1	8.9	22.2	7.8	40.0	21.1	N	N	N
(2) Region 2	4.7	23.3	18.6	34.9	18.6			
(3) Region 3	3.0	22.1	11.6	41.6	21.8			
(1) Rural	5.2	15.7	14.7	39.8	24.6	Y		
(2) Urban	3.2	30.2	9.0	40.2	17.5			
Age (years)								
(1) less than 34	1.6	24.8	14.0	42.6	17.1	N	N	N
(2) 35 - 44	3.9	23.3	10.9	41.1	20.9			
(3) 45 and over	7.3	20.3	10.6	36.6	25.2			

*A "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 50. RESPONSES TO "LANDOWNERS SHOULD BE RESPONSIBLE FOR MAINTAINING AND IMPROVING SOUTH DAKOTA'S WILDLIFE RESOURCES," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b		
	----- percent -----						1 vs 2	1 vs 3	2 vs 3
All Hunters	32.1	41.4	13.7	9.0	3.8	89.0			
(1) Fee	35.4	39.6	12.5	10.4	2.1	95.8	N		
(2) Nonfee	31.5	41.6	13.9	8.8	4.1	87.6			
(1) Region 1	24.3	47.3	10.8	13.5	4.1	74.2	N	N	N
(2) Region 2	36.1	41.7	13.9	5.6	2.8	102.7			
(3) Region 3	33.7	39.6	14.5	8.2	3.9	91.0			
(1) Rural	33.9	44.8	12.0	6.6	2.7	100.6	Y		
(2) Urban	30.7	38.0	15.6	11.2	4.5	79.2			
Age (years)									
(1) less than 34	27.5	42.0	15.3	8.4	6.9	74.8	Y	N	N
(2) 35 - 44	34.1	43.4	17.8	4.7	0.0	106.9			
(3) 45 and over	35.0	37.9	6.8	15.5	4.9	82.6			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 51. RESPONSES TO "HUNTERS SHOULD BE RESPONSIBLE FOR MAINTAINING AND IMPROVING SOUTH DAKOTA'S WILDLIFE RESOURCES," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	47.7	41.7	6.0	2.4	2.2	130.3				
(1) Fee	46.8	51.1	2.1	0.0	0.0	144.7	N			
(2) Nonfee	47.8	40.4	6.5	2.8	2.5	128.2				
(1) Region 1	46.7	42.7	6.7	2.7	1.3	130.8	N	N	N	
(2) Region 2	40.5	45.9	8.1	5.4	0.0	121.5				
(3) Region 3	49.0	40.9	5.4	1.9	2.7	131.6				
(1) Rural	46.5	42.2	6.5	3.2	1.6	128.8	N			
(2) Urban	49.2	41.4	5.0	1.7	2.8	132.5				
Age (years)										
(1) less than 34	48.5	36.4	8.3	3.0	3.8	122.8	N	N	N	
(2) 35 - 44	48.1	47.3	2.3	1.6	0.8	140.3				
(3) 45 and over	46.2	41.5	7.5	2.8	1.9	127.3				

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

Nearly 90 percent of South Dakota hunters agreed state agencies should be responsible for maintaining and improving South Dakota's wildlife resources (Table 52). Fee hunters agreed (98 percent) significantly more strongly than nonfee hunters (89 percent) that state agencies should be responsible. Urban residents agreed significantly more strongly than rural residents that state agencies should be responsible for managing South Dakota's wildlife resources.

Over 75 percent of all South Dakota hunters agreed that federal agencies should be responsible for South Dakota's wildlife resources (Table 53). Fee hunters agreed significantly more than nonfee hunters that federal agencies should be responsible. Hunters in Regions 1 and 2 and rural hunters were significantly less likely to want federal agencies to be responsible for wildlife resources.

Hunter Economic Impacts

Hunter economic impacts were separated into three areas--hunting expenditures, total fees paid, and total out-of-state expenditures. Statistical comparisons were made among South Dakota sample groups and North and South Dakota hunter groups whenever possible.

Expenditures

South Dakota hunters spent an average of \$363 to hunt during the 1990 hunting season (Table 54). The average South Dakota fee hunter's expenditure (\$835) was significantly larger than the average nonfee hunter's expenditure (\$290). The average urban hunter's expenditure (\$417) was significantly larger than the average rural hunter's expenditure (\$288).

Total Fees Paid

Total fees paid were estimated from the South and North Dakota surveys. Total fees hunters paid from a particular state equaled (total hunters) x (percentage of fee hunters) x (average fee paid). South Dakota fee hunters paid \$1,223,390 in hunting fees.⁶ North Dakota fee hunters paid \$177,560 in hunting fees during the 1990 hunting season.⁷

Total Out-of-State Expenditures

Slightly more than 7 percent of South Dakota hunters hunted in another state during the 1990 hunting season (Table 55). Over 10 percent of fee and less than 7 percent of nonfee hunters hunted in another state in 1990. No significant differences were found among sample groups.

Significantly more North Dakota hunters hunted in another state than did South Dakota hunters (Table 56). Significant differences in out-of-state hunting were discovered between North and South Dakota hunters among fee, nonfee, and urban sample groups. In these cases, North Dakota hunters hunted in another state more often than did South Dakota hunters.

⁶This estimate is based on a total of 87,385 South Dakota hunters when 12.5 percent were fee hunters paying an average fee of \$112. The South Dakota Department of Game, Fish, and Parks provided the estimate of total South Dakota hunters during the 1990 season.

⁷This estimate is based on a total of 81,637 North Dakota hunters when 2.9 percent were fee hunters paying an average fee of \$75. The North Dakota Game and Fish Department provided the estimate of total North Dakota hunters during the 1990 season. The average fee paid was adjusted to 1990 dollars, using the Gross National Product (GNP) implicit price deflator.

TABLE 52. RESPONSES TO "STATE AGENCIES SHOULD BE RESPONSIBLE FOR MAINTAINING AND IMPROVING SOUTH DAKOTA'S WILDLIFE RESOURCES," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b		
	----- percent -----						1 vs 2	1 vs 3	2 vs 3
All Hunters	51.7	38.2	4.2	3.4	2.6	133.0			
(1) Fee	62.0	36.0	0.0	2.0	0.0	158.0	Y		
(2) Nonfee	50.1	38.5	4.8	3.6	3.0	129.1			
(1) Region 1	51.9	36.7	5.1	5.1	1.3	132.8	N	N	N
(2) Region 2	48.6	43.2	2.7	5.4	0.0	135.0			
(3) Region 3	52.0	37.9	4.1	2.6	3.3	132.7			
(1) Rural	45.1	40.9	6.2	4.7	3.1	120.2	Y		
(2) Urban	59.3	34.9	2.1	2.1	1.6	148.2			
Age (years)									
(1) less than 34	53.4	35.3	3.8	3.8	3.8	130.7	N	N	N
(2) 35 - 44	45.5	45.5	3.8	3.8	1.5	129.7			
(3) 45 and over	55.9	33.9	5.1	2.5	2.5	138.2			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 53. RESPONSES TO "FEDERAL AGENCIES SHOULD BE RESPONSIBLE FOR MAINTAINING AND IMPROVING SOUTH DAKOTA'S WILDLIFE RESOURCES," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	40.1	35.4	9.3	7.9	7.4	92.9				
(1) Fee	56.5	26.1	4.3	8.7	4.3	121.8	Y			
(2) Nonfee	37.7	36.8	10.0	7.8	7.8	88.8				
(1) Region 1	31.1	29.7	14.9	13.5	10.8	56.8	N	Y	Y	
(2) Region 2	34.3	28.6	11.4	17.1	8.6	62.9				
(3) Region 3	43.4	38.0	7.4	5.0	6.2	107.4				
(1) Rural	34.4	37.7	11.5	8.2	8.2	81.9	Y			
(2) Urban	46.4	32.6	7.2	7.7	6.1	105.5				
Age (years)										
(1) less than 34	41.7	31.1	9.8	9.1	8.3	88.8	N	N	N	
(2) 35 - 44	37.5	43.0	7.0	7.0	5.5	100.0				
(3) 45 and over	40.0	32.4	11.4	7.6	8.6	87.6				

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 54. SOUTH DAKOTA HUNTER EXPENDITURES IN 1990

Sample Group	n	Average Expenditure	Significant Difference ^a		
			1 vs 2	1 vs 3	2 vs 3
- dollars -					
All Hunters	383	363			
(1) Fee	51	835	Y		
(2) Nonfee	332	290			
(1) Region 1	76	342	N	N	Y
(2) Region 2	39	261			
(3) Region 3	268	384			
(1) Rural	172	288	Y		
(2) Urban	162	417			
Age (years)					
(1) less than 34	116	312	N	N	N
(2) 35 - 44	116	372			
(3) 45 and over	103	369			

^aA "Y" means yes there is a significant difference using a T-Test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 55. PERCENT WHO HUNT OUT OF STATE, SOUTH DAKOTA HUNTERS, 1990

Sample Group	n	Yes Responses	Significant Difference ^a		
			1 vs 2	1 vs 3	2 vs 3
- percent -					
All Hunters	451	7.3			
(1) Fee	56	10.7	N		
(2) Nonfee	395	6.8			
(1) Region 1	93	5.4	N	N	N
(2) Region 2	44	6.8			
(3) Region 3	314	8.0			
(1) Rural	199	5.5	N		
(2) Urban	192	8.3			
Age (years)					
(1) less than 34	132	5.3	N	N	N
(2) 35 - 44	133	6.8			
(3) 45 and over	127	7.9			

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 56. HUNTING OUT OF STATE, NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Yes Responses	Significant Difference ^a
	- percent -	
(1) North Dakota Hunters	11.6	Y
(2) South Dakota Hunters	7.3	
(1) North Dakota Fee Hunters	25.0	Y
(2) South Dakota Fee Hunters	10.7	
(1) North Dakota Nonfee Hunters	11.2	Y
(2) South Dakota Nonfee Hunters	6.8	
(1) North Dakota Hunters-Rural	8.5	N
(2) South Dakota Hunters-Rural	5.5	
(1) North Dakota Hunters-Urban	14.9	Y
(2) South Dakota Hunters-Urban	8.3	

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

South Dakota hunters spent an average of \$515 hunting in other states during the 1990 season (Table 57). No significant differences were found among South Dakota sample groups.

No significant difference was found between the average total expenditure of North and South Dakota hunters in other states (Table 58). No significant difference in hunting expenditures in other states was found between North and South Dakota hunters among sample groups, except for urban hunters. The average total hunting expenditure of North Dakota urban hunters in other states was significantly larger than South Dakota urban hunters' expenditures in other states.

North Dakota hunters spent over \$6.0 million hunting in other states in 1990 (based on 81,637 total hunters of whom 11.6 percent hunted in other states and spent an average of \$638). In comparison, South Dakota hunters spent over \$3.3 million hunting in other states (based on 87,385 total hunters of which 7.3 percent hunted in other states and spent an average of \$515).

Of those South Dakota hunters who hunted in another state, 10 percent paid access fees in other states (Table 59). No significant differences were found among South Dakota sample groups. Additionally, no significant differences were found between North and South Dakota hunters among sample groups (Table 60).

Provider Characteristics

Thirty-five percent of the North Dakota providers offered hunting access and services, and 25 percent were licensed shooting preserves or hunting clubs (Table 61). Over half of the South Dakota providers offered hunting access and services and enhanced or created wildlife habitat. Just under 25 percent were licensed shooting preserves or hunting clubs. The average North Dakota provider had been operating a fee operation for six years, compared to an average of seven years for South Dakota providers.

TABLE 57. HUNTING EXPENDITURES OUT OF STATE, SOUTH DAKOTA HUNTERS, 1990

Sample Group	n	Average Total Expenditure	Significant Difference ^a		
			1 vs 2	1 vs 3	2 vs 3
- dollars -					
All Hunters	32	515			
(1) Fee	6	675	N		
(2) Nonfee	26	478			
(1) Region 1	5	698	N	N	N
(2) Region 2	3	533			
(3) Region 3	24	474			
(1) Rural	11	654	N		
(2) Urban	16	421			
Age (years)					
(1) less than 34	7	350	N	N	N
(2) 35 - 44	9	628			
(3) 45 and over	10	574			

^aA "Y" means yes there is a significant difference using a T-Test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 58. HUNTING EXPENDITURES OUT OF STATE, NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990, 1990 DOLLARS

Sample Group	Average Total Expenditure	Significant Difference ^a
(1) North Dakota Hunters	638	N
(2) South Dakota Hunters	515	
(1) North Dakota Fee Hunters	940	N
(2) South Dakota Fee Hunters	675	
(1) North Dakota Nonfee Hunters	613	N
(2) South Dakota Nonfee Hunters	478	
(1) North Dakota Hunters-Rural	527	N
(2) South Dakota Hunters-Rural	654	
(1) North Dakota Hunters-Urban	705	Y
(2) South Dakota Hunters-Urban	421	

^aA "Y" means yes there is a significant difference using a T-Test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 59. ACCESS FEES PAID HUNTING OUT OF STATE, SOUTH DAKOTA HUNTERS, 1990

Sample Group	n	Yes Responses	Significant Difference ^a		
			1 vs 2	1 vs 3	2 vs 3
		- percent -			
All Hunters	67	10.4			
(1) Fee	12	8.3	N		
(2) Nonfee	55	10.9			
(1) Region 1	10	0.0	N	N	N
(2) Region 2	9	11.1			
(3) Region 3	48	12.5			
(1) Rural	31	9.7	N		
(2) Urban	25	16.0			
Age (years)					
(1) less than 34	18	11.1	N	N	N
(2) 35 - 44	19	10.5			
(3) 45 and over	17	17.6			

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 60. ACCESS FEES PAID HUNTING OUT OF STATE, NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Sample Group	Yes Responses	Significant Difference ^a
(1) North Dakota Hunters	9.5	N
(2) South Dakota Hunters	10.4	
(1) North Dakota Fee Hunters	18.2	N
(2) South Dakota Fee Hunters	8.3	
(1) North Dakota Nonfee Hunters	8.9	N
(2) South Dakota Nonfee Hunters	10.9	
(1) North Dakota Hunters-Rural	13.1	N
(2) South Dakota Hunters-Rural	9.7	
(1) North Dakota Hunters-Urban	7.5	N
(2) South Dakota Hunters-Urban	16.0	

^aA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 61. SELECTED CHARACTERISTICS OF FEE HUNTING OPERATIONS, NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Characteristic/ responses	North Dakota	South Dakota	Combined
----- percent -----			
Type of fee hunting operation			
Offer only hunting access	0.0	4.3	3.0
Offer hunting access and services	35.0	19.1	23.9
Offer hunting access and services and enhance or create wildlife habitat	20.0	53.2	43.3
Licensed shooting preserve or hunting club	25.0	23.4	23.9
Outfitter or recreation broker	20.0	0.0	6.0
Other	0.0	0.0	0.0
Years fee hunting operation has been operated/managed	5.7	6.8	6.5
----- mean -----			
Type of game hunting available			
Big game	10.0	31.9	25.5
Upland game	75.0	91.4	86.7
Waterfowl	60.0	38.2	44.9
Other	0.0	10.6	7.5
----- percent -----			
Acres of land in fee hunting operation	4,174	6,371	5,887
----- mean -----			
Hunting land enrolled in Conservation Reserve Program (CRP)			
Yes	38.9	51.1	47.7
No	61.1	48.9	52.3
----- percent -----			
Number of acres	455	482	477
----- mean -----			
Lease agreements/hunting permits			
Informal lease	66.7	74.0	72.0
Formal lease	27.8	41.3	37.6
Other	22.4	6.5	11.1
----- percent -----			

The average North Dakota provider had over 4,000 areas of land in their hunting operation, compared to over 6,000 acres for South Dakota providers. North Dakota and South Dakota fee hunting providers were spread across the entire state (Figures 5 and 6).

Under 40 percent and over 50 percent of North and South Dakota providers, respectively, had hunting land enrolled in the Conservation Reserve Program (CRP). North Dakota providers had an average of 455 acres enrolled, compared to an average of 482 for South Dakota providers.

Upland game and waterfowl were the primary types of hunting both North and South Dakota providers made available. Upland game hunting was available from over 90 percent of South Dakota providers and 75 percent of North Dakota providers. Waterfowl hunting was available from 60 percent of North Dakota providers and less than 40 percent of South Dakota providers.

An informal lease was the primary agreement that North and South Dakota providers used. Average North Dakota provider prices among lease type ranged from \$12 for an upland game bag lease to \$1,000 for a season upland game lease (Table 62). Average South Dakota provider prices ranged from \$20 for a waterfowl bag lease to \$758 for a big game bag lease. The majority of North and South Dakota providers did not vary their prices from the beginning of the season to the end (Table 63).

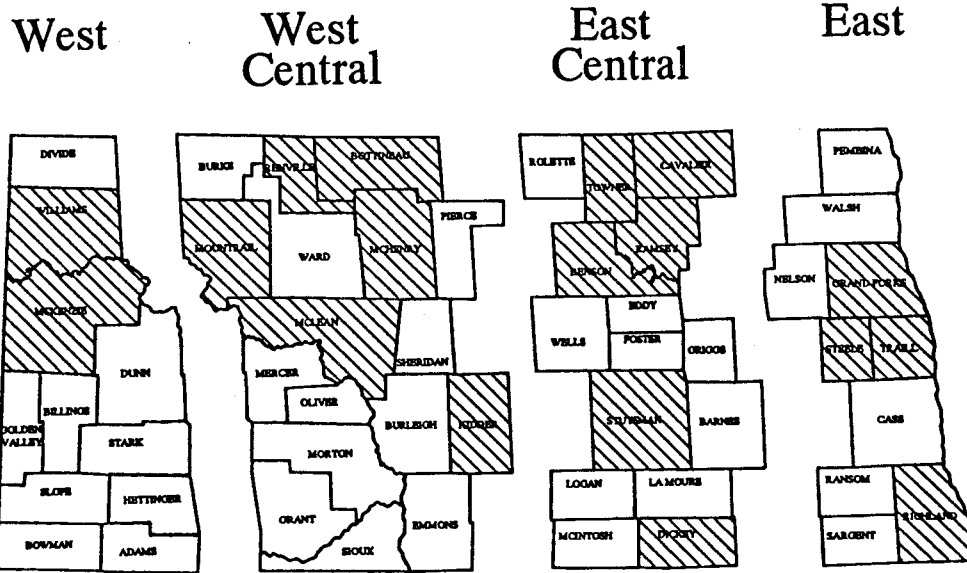


Figure 5. North Dakota Counties Containing Fee Hunting Operations, 1990

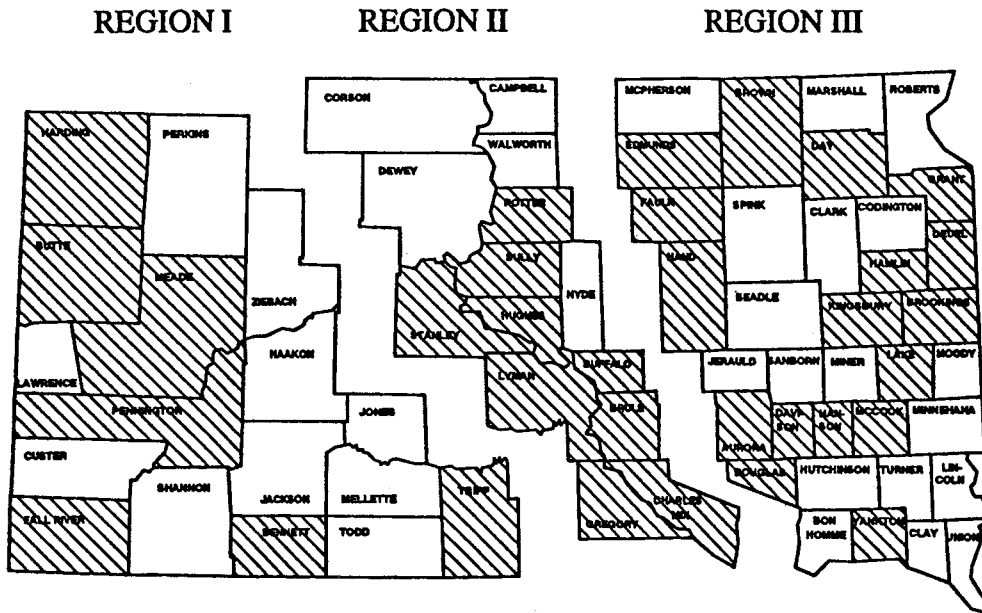


Figure 6. South Dakota Counties Containing Fee Hunting Operations, 1990

TABLE 62. AVERAGE PROVIDER HUNTER PRICES, BY LEASE TYPE AND GAME HUNTED, NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Lease Type	Game Hunted ^a		
	Big Game	Upland Game	Waterfowl
----- dollars -----			
North Dakota			
Day	175 (2)	128 (7)	86 (8)
Season	n/a	1,000 (1)	n/a
Bag	n/a	12 (1)	n/a
Day/bag	n/a	129 (5)	160 (1)
South Dakota			
Day	136 (6)	127 (26)	84 (11)
Season	750 (3)	538 (4)	750 (1)
Bag	758 (3)	26 (6)	20 (1)
Day/bag	277 (5)	121 (8)	109 (5)
Combined			
Day	145 (8)	128 (33)	85 (19)
Season	750 (3)	630 (5)	750 (1)
Bag	758 (3)	24 (7)	20 (1)
Day/bag	277 (5)	124 (13)	118 (6)

^aNumbers in parentheses are the number of responses for each question.

TABLE 63. RESPONSES TO "DO PRICES VARY FROM THE BEGINNING OF THE SEASON TO THE END?", NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Responses	North Dakota	South Dakota	Combined
	----- percent -----		
Prices vary			
Yes	0.0	14.9	10.4
No	100.0	85.1	89.6

Primary services North Dakota providers offered were guides, group and individual hunts, transportation, and dogs (Table 64). Principal services South Dakota providers offered were group and individual hunts, guides, and transportation. Generally, a higher percentage of South Dakota providers offered more services than did North Dakota providers.

Nearly 75 percent of North Dakota providers and 100 percent of South Dakota providers indicated their fee hunting operation established or enhanced wildlife habitat (Table 65). Over half of the North Dakota providers changed farming practices (i.e., tillage operations, crop rotations, reduced grazing) to enhance wildlife. Over 40 percent planted food plots. Over 80 percent of South Dakota providers planted food plots and trees and changed farming practices to enhance wildlife habitat. The average North Dakota provider

TABLE 64. FEE HUNTING SERVICES, NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Services	North Dakota	South Dakota	Combined
	----- percent -----		
Lodging	55	72	67
Meals	45	79	69
Transportation	65	87	81
Guides	95	89	91
Licenses	35	49	45
Individual hunts	85	85	85
Group hunts	90	96	94
Game processing	65	70	69
Ammunition	30	40	37
Dogs	60	70	67
Other	5	13	10

TABLE 65. FEE HUNTING OPERATIONS ESTABLISHING OR ENHANCING WILDLIFE HABITAT AND TYPE OF ENHANCEMENT, NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Question/ Response	North Dakota	South Dakota	Combined
	----- percent -----		
Established or enhanced wildlife			
Yes	74	100	92
No	26	0	8
Enhancements			
Restored wetlands	26	30	32
Planted food plots	42	94	85
Planted tree	37	87	78
Seeded cropland into native grasses	32	63	58
Changed farming practices	53	80	78
Other	37	9	18

restored 3 acres of wetlands, while the average South Dakota provider restored 17 acres.

The average North Dakota provider had annual gross receipts in 1990 from fee hunting of nearly \$11,000, compared to over \$29,000 for South Dakota providers. Annual gross receipts in 1990 from fee hunting were significantly higher for South Dakota than for North Dakota providers.

Provider Attitudes

Discussions of provider attitudes were divided into several areas to include benefits and costs of managing a fee hunting operation and issues concerning fee hunting management. Statistical comparisons were made between North and South Dakota provider attitudes in these areas.

Benefits

Over 55 percent of both North and South Dakota providers indicated *increased income* was a very or extremely important consideration in their decision to manage a fee hunting operation (Table 66). Over 50 percent of North and South Dakota providers ranked *raising and enhancing wildlife* as an extremely important consideration. Over 45 percent regarded *improved economic conditions of the local community* as extremely important. *Increased land values* was significantly more important to North Dakota providers than to South Dakota providers.

Costs

Over 80 percent of South Dakota and 50 percent of North Dakota providers either strongly disagreed or disagreed that operating a fee hunting operation *jeopardized relations with neighbors* (Table 67). Only 11 percent of South and North Dakota providers agreed that operating a fee hunting operation *increased their financial uncertainty*.

Fee Hunting Management

Over 40 percent of North Dakota providers thought the state game management agency should not be involved with fee hunting (Table 68). Over 25 percent thought the state should promote fee hunting, while over 65 percent of South Dakota providers thought the state game management agency should promote fee hunting.

Over half of the North and South Dakota providers strongly agreed that landowners, hunters, state agencies, and federal agencies should be responsible for maintaining and improving wildlife resources (Table 69). Over 40 percent of the providers thought landowners should be responsible. North Dakota providers agreed significantly more strongly than did South Dakota providers that hunters and state and federal agencies should be responsible for enhancing wildlife resources.

Provider Economic Impacts

Economic impacts were separated into direct and indirect. Direct impacts were separated into initial investment and annual maintenance. Direct impacts for both North and South Dakota providers were estimated. Indirect economic impacts were estimated only for North Dakota providers.

Direct Impacts

Direct impacts are total expenditures to initially establish a fee hunting operation and annual costs to maintain its operation. Total initial investment expenditures and annual operating expenses were estimated by multiplying the average total initial investment and the annual operating expenditures by the number of providers in each state.

Initial Investment

North Dakota providers spent an average of over \$50,000 establishing fee hunting operations (Table 70). Lodging facilities was the initial investment with the largest average expenditure. South Dakota providers spent an average of over \$51,000 establishing fee hunting operations and had an average lodging facility expenditure of nearly \$25,000. No significant difference in average initial investment expenditures was found between North and South Dakota providers.

TABLE 66. RESPONSES TO "HOW IMPORTANT IS EACH OF THE FOLLOWING IN YOUR DECISION TO MANAGE A FEE HUNTING OPERATION?", NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Question/ Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference 1 vs 2 ^b
	----- percent -----						
Increased Income							
Combined	6.1	4.5	30.3	22.7	36.4	278.8	
(1) North Dakota	5.3	10.5	21.1	31.6	31.5	273.5	N
(2) South Dakota	6.4	2.1	34.0	19.1	38.4	281.0	
Increased Land Values							
Combined	50.8	20.6	12.7	9.5	6.4	100.1	
(1) North Dakota	77.8	11.1	5.6	0.0	5.5	44.3	Y
(2) South Dakota	40.0	24.4	15.6	13.3	6.7	122.3	
Minimize Costs of Allowing Hunters on Your Land							
Combined	40.3	17.7	22.7	12.9	6.4	127.4	
(1) North Dakota	50.0	5.6	27.8	5.6	11.0	122.0	N
(2) South Dakota	36.4	22.7	20.5	15.9	4.5	129.4	
Alternative use for Marginal Land							
Combined	20.6	9.5	25.4	25.4	19.1	212.9	
(1) North Dakota	22.2	16.7	11.1	16.7	33.3	222.2	N
(2) South Dakota	20.0	6.7	31.1	28.9	13.3	208.8	
Better Control of Hunters							
Combined	17.5	9.5	12.7	25.4	34.9	250.7	
(1) North Dakota	26.3	5.3	15.8	5.3	47.3	242.0	N
(2) South Dakota	13.6	11.4	11.4	34.1	29.5	254.5	
Improved Landowner-Hunter Relations							
Combined	14.1	7.8	17.2	18.8	42.1	267.0	
(1) North Dakota	15.8	5.3	15.8	10.5	52.6	278.8	N
(2) South Dakota	13.3	8.9	17.8	22.2	37.8	262.3	

-- continued --

TABLE 66. (continued)

Question/ Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference 1 vs 2 ^b
	----- percent -----						
Raising and Enhancing Wildlife							
Combined	3.1	4.6	9.2	29.2	53.9	326.2	
(1) North Dakota	5.3	10.5	21.1	10.5	52.6	294.6	N
(2) South Dakota	2.2	2.2	4.3	37.0	54.3	339.0	
Meeting New People							
Combined	9.4	6.3	23.4	31.3	29.6	265.4	
(1) North Dakota	21.1	5.3	15.8	21.1	36.7	247.0	N
(2) South Dakota	4.4	6.7	26.7	35.6	26.6	273.3	
Improved Economic Conditions of the Local Community							
Combined	9.0	4.5	13.4	23.9	49.2	299.8	
(1) North Dakota	15.0	0.0	20.0	10.0	55.0	290.0	N
(2) South Dakota	6.4	6.4	10.6	29.8	46.8	304.2	

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 67. RESPONSES TO "HAS OPERATING A FEE HUNTING OPERATION," NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Question/ Sample Group	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Agreement Index ^a	Significant Difference 1 vs 2 ^b
----- percent -----							
Caused Local Hunter Resentment							
Combined	17.2	29.7	14.1	32.8	6.2	-18.9	
(1) North Dakota	22.2	16.7	11.1	44.4	5.6	-5.5	N
(2) South Dakota	15.2	34.8	15.2	28.3	6.5	-23.9	
Jeopardized Relations With Neighbors							
Combined	36.5	38.1	7.9	14.3	3.2	-90.4	
(1) North Dakota	44.4	5.6	16.7	33.3	0.0	-61.1	N
(2) South Dakota	33.3	51.1	4.4	6.7	4.5	-102.0	
Reduced Time Spent With Family/Friends							
Combined	19.0	33.3	9.5	28.6	9.6	-23.5	
(1) North Dakota	16.7	22.2	5.6	38.9	16.6	16.5	N
(2) South Dakota	20.0	37.8	11.1	24.4	6.7	-40.0	
Increased Financial Uncertainty							
Combined	22.2	52.4	14.3	7.9	3.2	-82.5	
(1) North Dakota	27.8	44.4	16.7	11.1	0.0	-88.9	N
(2) South Dakota	20.0	55.6	13.3	6.7	4.4	-80.1	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 68. RESPONSES TO "SHOULD THE STATE GAME MANAGEMENT AGENCY,"
NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Response	North Dakota	South Dakota	Combined
	----- percent -----		
Promote fee hunting	26.3	65.2	53.8
Actively regulate fee hunting	15.8	2.2	6.2
Passively regulate fee hunting	10.5	13.0	12.3
Discourage fee hunting	5.3	0.0	1.5
Do nothing about fee hunting	42.1	17.4	24.6
Other	0.0	2.2	1.5

TABLE 69. RESPONSES TO "WHO DO YOU THINK SHOULD BE RESPONSIBLE FOR MAINTAINING AND IMPROVING WILDLIFE
RESOURCES?", NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Response/ Sample Group	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Agreement Index ^a	Significant Difference 1 vs 2 ^b
	----- percent -----						
Landowners							
Combined	2.3	4.7	7.0	39.5	46.5	123.2	
(1) North Dakota	6.3	6.3	6.3	25.0	56.1	118.3	N
(2) South Dakota	0.0	3.7	7.4	48.1	40.8	126.0	
Hunters							
Combined	4.8	11.9	9.5	33.3	40.5	92.8	
(1) North Dakota	0.0	6.3	0.0	18.7	75.0	162.4	Y
(2) South Dakota	7.7	15.4	15.4	42.3	19.2	49.9	
State Agencies							
Combined	12.2	7.3	9.8	39.0	31.7	70.7	
(1) North Dakota	7.1	7.1	7.1	21.4	57.3	114.7	Y
(2) South Dakota	14.8	7.4	11.1	48.1	18.6	48.3	
Federal Agencies							
Combined	15.0	10.0	17.5	30.0	27.5	45.0	
(1) North Dakota	13.3	6.7	6.7	26.7	46.6	86.6	Y
(2) South Dakota	16.0	12.0	24.0	32.0	16.0	20.0	
All of the Above							
Combined	5.8	1.9	3.8	32.7	55.8	130.8	
(1) North Dakota	11.8	0.0	5.9	23.5	58.8	117.5	N
(2) South Dakota	2.9	2.9	2.9	37.1	54.3	137.0	

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

TABLE 70. AVERAGE INITIAL EXPENDITURES ESTABLISHING FEE HUNTING OPERATIONS, NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Initial Investments	Combined		North Dakota		South Dakota	
	n	Average Expenditure	n	Average Expenditure	n	Average Expenditure
		- dollars -		- dollars -		- dollars -
Creating or Restoring Wetlands	59	919	18	833	41	957
Establishing Food Plots	57	2,195	18	739	39	2,867
Seeding Cover	58	695	18	622	40	728
Planting Trees	57	2,635	17	600	40	3,500
Lodging Facilities	59	23,233	18	19,861	41	24,713
Access Roads	59	478	18	555	41	444
Fences	59	649	18	778	41	593
Equipment	59	8,692	18	8,989	41	8,561
Storage Buildings	59	4,417	18	7,989	41	2,849
Other 1*	59	6,567	18	8,906	41	5,540
Other 2*	56	607	17	529	39	641
Total	59	50,894	18	50,342	41	51,137

*Additional initial investments not specifically listed.

The total direct impact of initial investment expenditures on the North Dakota economy was over \$2.1 million, based on a total of 42 North Dakota provider responses (20 fee hunting providers extrapolated to a population of 89 potential providers). The direct impact on the South Dakota economy was over \$5.6 million, based on a total of 110 South Dakota provider responses (47 fee hunting providers extrapolated to a population of 124 potential providers).

Maintenance

The average North Dakota provider spent \$9,500 on operation and maintenance in 1990 (Table 71) while the average South Dakota provider spent \$17,800. These annual costs did not differ significantly. The largest expense providers in both states incurred was game stocking.

The total direct impact of providers' annual operation and maintenance expenditures on the North Dakota economy was \$400,000. In comparison, the total direct impact of annual maintenance expenditures in South Dakota was almost \$2 million.

Indirect Impact

Initial North Dakota provider expenditures have generated \$5.0 million in total business activity in North Dakota (Table 72). Over \$1 million has been generated in the retail trade and household sectors. Annual North Dakota provider expenditures generated over \$1.2 million in total business activity in North Dakota during 1990. Over \$300,000 was generated in the retail trade and household sectors. These expenditures supported employment equivalent to over 20 full-time jobs.

Summary

Over 12 percent of South Dakota hunters pay fees to hunt, compared to 3 percent of North Dakota hunters. Nearly 75 percent of South Dakota and over 50 percent of North Dakota hunters, who had paid fees, were willing to pay for hunting access in the future. Over 40 percent of all South Dakota and 30 percent of all North Dakota hunters would pay fees for hunting access in the future. Over 30 percent of North Dakota and 35 percent of South Dakota nonfee hunters would pay for hunting access in the future if the landowner provided the type of hunting they wanted.

The majority of fee hunters in both North and South Dakota reside in urban areas. Fee hunters in both states were older and had higher incomes than nonfee hunters. The primary occupation of fee hunters in both states was professional/management.

South Dakota fee hunters paid an average total hunting access fee of \$122 in 1990. North Dakota fee hunters paid an average of \$75 in 1988. No significant difference was found in the average fees North and South Dakota hunters paid. Over 50 percent of the South Dakota fee hunters indicated paying an access fee did not cause them to spend more money overall to hunt.

Half of the South Dakota hunters hunted on land enrolled in the CRP, primarily to hunt upland and big game. More than 10 percent of fee hunters paid a fee to hunt on CRP land. Nearly 75 percent of South Dakota hunters thought landowners should not be allowed to charge fees to hunt on CRP land.

Landowners will use part of the fee to improve habitat and landowner restrictions ensuring other hunters behave in a sportsmanlike manner were the two primary benefits North and South Dakota hunters associated with fee

TABLE 71. ANNUAL COSTS MAINTAINING FEE HUNTING OPERATIONS, NORTH AND SOUTH DAKOTA PROVIDER SURVEYS, 1990

Annual Costs	Combined		North Dakota		South Dakota	
	n	Average Expenditure	n	Average Expenditure	n	Average Expenditure
		- dollars -		- dollars -		- dollars -
Advertising and Marketing	54	1,209	17	1,147	37	1,237
Liability Insurance	54	1,302	17	876	37	1,498
Game Stocking	53	5,237	17	1,959	36	6,785
Operation Licenses	54	542	17	239	37	682
Maintenance	54	1,851	17	1,528	37	1,999
Administration	53	2,132	17	1,418	36	2,469
Other 1 ^a	54	2,726	17	1,187	37	3,433
Other 2 ^a	50	390	16	1,217	34	0
Total	54	15,223	17	9,499	37	17,853

^aAdditional annual costs not specifically listed.

TABLE 72. RETAIL TRADE, PERSONAL INCOME, TOTAL BUSINESS ACTIVITY, AND EMPLOYMENT GENERATED BY NORTH DAKOTA PROVIDER INITIAL INVESTMENT EXPENDITURES AND ANNUAL OPERATING COSTS IN NORTH DAKOTA, 1990

Expenditure ^a	Retail Trade	Personal Income	Total Business Activity	Secondary Employment
	----- thousand dollars -----			
Initial Investment	1,562	1,157	4,984	68 ^b
Annual Operating	302	314	1,234	22 ^c

^aExpenditures shown in Tables 70 and 71 were put into the ND I-O Model (Coon et al. 1990).

^bThese jobs last only as long as initial investment expenditures are made.

^cThese jobs last as long as the operations are in business.

hunting (Table 73). Available lodging, guides, and other services and game will be released before I arrive were the least important potential fee hunting benefits.

North Dakota fee hunters indicated that private land where I want to hunt is posted was a more important potential fee hunting benefit than privacy and safety of having fewer other hunters. Other than this exception, North Dakota fee hunter rankings were similar for all North Dakota hunters.

Rankings of potential benefits by South Dakota fee hunters were considerably different from the other hunter groups. A quality hunting experience, having a controlled area where I could introduce my children/friends to hunting, and exclusive hunting rights that assure me a place to hunt were important potential fee hunting benefits in addition to landowner restrictions ensuring other hunters behave in a sportsmanlike manner.

Both North and South Dakota hunters had not reached a consensus or slightly disagreed that fee hunting would lead to fewer slob hunters, fewer hunter/landowner conflicts, more wildlife, or improve wildlife habitat (Table 74). These were the primary benefits hunters demanded if they paid a fee. However, hunters in both states were not certain whether landowners would actually provide these benefits.

Fewer hunters was the primary drawback associated with fee hunting, according to North Dakota hunters (Table 75). However, hunters spend more money to hunt was the primary drawback South Dakota hunters associated with fee hunting. Public land is overhunted and only the wealthy can afford to hunt were costs of fee hunting, according to hunters in both states.

Hunting tradition has been altered, hunters spend more money to hunt, and loss of access to land formerly hunted were costs South Dakota hunters associated with fee hunting. South Dakota fee hunters ranked public land is overhunted as a primary cost of fee hunting.

State agencies and hunters should be responsible for maintaining and improving South Dakota's wildlife resources, according to South Dakota hunters (Table 76). Similar results were found among fee, nonfee, rural, and urban hunters.

TABLE 73. RANKINGS OF POTENTIAL FEE HUNTING BENEFITS BASED ON IMPORTANCE INDEX (IN PARENTHESES), BY GROUP, NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Benefits	North Dakota Hunters	South Dakota Hunters	North Dakota Fee Hunters	South Dakota Fee Hunters	North Dakota Nonfee Hunters	South Dakota Nonfee Hunters
The landowner will use part of the fee to improve habitat	1 (239)	2 (238)	1 (283)	5 (237)	1 (239)	2 (238)
Landowner restrictions ensuring other hunters behave in a sportsmanlike manner	2 (226)	1 (245)	2 (249)	1 (278)	2 (224)	1 (240)
Privacy and safety of having fewer other hunters	3 (195)	5 (201)	6 (203)	7 (200)	3 (195)	5 (200)
A quality hunting experience	4 (186)	3 (215)	3 (226)	2 (271)	4 (184)	3 (206)
Having a controlled area where I could introduce my children/friends to hunting	5 (181)	4 (212)	5 (205)	3 (258)	5 (181)	4 (204)
Exclusive hunting rights that assure me a place to hunt	6 (159)	6 (190)	7 (187)	4 (239)	6 (155)	6 (182)
Private land where I want to hunt is posted	7 (155)	8 (154)	4 (208)	8 (155)	8 (146)	8 (153)
A greater chance of getting any game	8 (149)	7 (166)	8 (169)	6 (205)	7 (149)	7 (160)
A greater chance of getting a trophy animal	9 (113)	9 (139)	9 (119)	9 (132)	9 (113)	9 (140)
Available lodging, guides, and other services	10 (56)	11 (65)	11 (64)	11 (64)	10 (54)	11 (65)
Game will be released before I arrive	11 (49)	12 (47)	10 (74)	12 (43)	11 (48)	12 (48)
Saving time and money looking for hunting land*	--	10 (116)	--	10 (130)	--	10 (114)

*Question was not asked on the North Dakota survey.

TABLE 74. RANKINGS OF POTENTIAL FEE HUNTING BENEFITS BASED ON AGREEMENT INDEX (IN PARENTHESES), BY GROUP, NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Benefits	North Dakota Hunters	South Dakota Hunters	North Dakota Fee Hunters	South Dakota Fee Hunters	North Dakota Nonfee Hunters	South Dakota Nonfee Hunters
Fewer "slob" hunters	1 (5)	4 (-29)	1 (56)	4 (-29)	1 (5)	3 (29)
Fewer hunter/landowner conflicts	2 (-5)	1 (-6)	2 (-1)	2 (7)	2 (-5)	1 (-8)
More wildlife	3 (-33)	3 (-28)	4 (-22)	3 (-9)	3 (-33)	4 (-31)
Improve habitat	4 (-43)	2 (-7)	3 (-19)	1 (11)	4 (-45)	2 (-9)

TABLE 75. RANKINGS OF POTENTIAL FEE HUNTING COSTS BASED ON AGREEMENT INDEX (IN PARENTHESES), BY GROUP, NORTH DAKOTA HUNTERS, 1988, AND SOUTH DAKOTA HUNTERS, 1990

Costs	North Dakota Hunters	South Dakota Hunters	North Dakota Fee Hunters	South Dakota Fee Hunters	North Dakota Nonfee Hunters	South Dakota Nonfee Hunters
There are fewer hunters	1 (141)	7 (47)	1 (151)	7 (22)	1 (137)	6 (51)
Public land is over-hunted	2 (111)	4 (87)	2 (98)	1 (95)	2 (110)	4 (86)
Only wealthy can afford to hunt	3 (90)	5 (74)	4 (82)	5 (37)	3 (87)	5 (79)
Hunters spend less time hunting	4 (71)	9 (28)	3 (84)	9 (-4)	4 (73)	9 (32)
Hunters spend more money to hunt	5 (46)	2 (92)	5 (49)	3 (86)	5 (48)	3 (92)
The quality of hunting has decreased	6 (27)	8 (34)	6 (-5)	8 (14)	6 (27)	8 (37)
Hunting tradition has been altered ^a	--	1 (108)	--	2 (88)	--	1 (111)
More resident/nonresident conflicts ^a	--	6 (48)	--	6 (35)	--	7 (50)
Loss of access to land formerly hunted ^a	--	3 (91)	--	4 (81)	--	2 (92)

^aQuestion was not asked on the North Dakota survey.

TABLE 76. RANKINGS OF WHO SHOULD BE RESPONSIBLE FOR MAINTAINING AND IMPROVING SOUTH DAKOTA'S WILDLIFE RESOURCES BY AGREEMENT INDEX (IN PARENTHESES), BY GROUP, SOUTH DAKOTA HUNTERS

Group	All Hunters	Fee Hunters	Nonfee Hunters	Rural	Urban
State agencies	1 (133)	1 (158)	1 (129)	2 (120)	1 (148)
Hunters	2 (130)	2 (145)	2 (128)	1 (129)	2 (133)
Federal agencies	3 (93)	3 (122)	3 (89)	4 (82)	3 (106)
Landowners	4 (89)	4 (96)	4 (88)	3 (101)	4 (79)

South Dakota hunters paid over \$1.2 million in hunting fees during the 1990 hunting season. In comparison, North Dakota hunters paid less than \$0.2 million in fees in 1990.

Significantly more North Dakota hunters (12 percent) hunted in another state than did South Dakota hunters (7 percent). No significant difference was found between the average expenditures of North and South Dakota hunters who hunted in other states. North Dakota hunters spent a total of over \$6 million hunting in other states compared to over \$3 million for South Dakota hunters in 1990.

Upland game and waterfowl were the primary types of game hunting available from both North and South Dakota providers. An informal lease (verbal agreement between hunter and landowner) was the most common lease agreement/hunting permit used. Primary services providers offered were group hunts, individual hunts, and guides.

Three-fourths of North Dakota providers and all South Dakota providers established or enhanced wildlife habitat. Habitat enhancement methods included changing farming practices and planting food plots and trees. North Dakota providers restored an average of three wetland acres compared to an average of 17 acres for South Dakota providers.

Raising and enhancing wildlife and improving economic conditions of the local community were primary benefits of operating a fee hunting operation in both North and South Dakota (Table 77). Providers in both states disagreed that any of the potential costs enumerated in the questionnaire were costs they associated with managing a fee hunting operation (Table 78).

North Dakota providers indicated hunters and landowners should be responsible for maintaining and improving wildlife resources (Table 79). South Dakota providers indicated landowners, hunters, and state and federal agencies together should be responsible.

North Dakota providers had annual average gross receipts of \$11,000 from fee hunting in 1990 compared to over \$29,000 for South Dakota providers. North and South Dakota providers spent, on average, over \$50,000 establishing a fee hunting operation. The total direct impact on the North and South Dakota economies were \$2.1 million and \$5.6 million, respectively.

The average North Dakota provider spent \$9,500 on annual operating and maintenance costs in 1990, compared to \$17,800 for South Dakota providers. The largest expense providers incurred was stocking game. The total direct impact of provider annual maintenance expenditures on the North and South Dakota economies was \$400,000 and \$2.0 million, respectively, in 1990.

Initial North Dakota provider expenditures have generated \$5.0 million in total business activity in North Dakota. Over \$1 million has been generated in the retail trade and household sectors. Annual North Dakota provider expenditures generated over \$1.2 million in total business activity

TABLE 77. RANKINGS OF POTENTIAL FEE HUNTING BENEFITS BASED ON IMPORTANCE INDEX (IN PARENTHESES), BY GROUP, NORTH DAKOTA AND SOUTH DAKOTA PROVIDERS, 1990

Benefit	Combined	North Dakota	South Dakota
Raising and Enhancing Wildlife	1 (326)	1 (295)	1 (339)
Improve Economic Conditions of the Local Community	2 (300)	2 (290)	2 (304)
Increased Income	3 (279)	4 (274)	3 (281)
Improved Landowner-Hunter Relations	4 (267)	3 (279)	5 (262)
Meeting New People	5 (265)	5 (247)	4 (273)
Better Control of Hunters	6 (251)	6 (242)	6 (255)
Alternative Use for Marginal Land	7 (213)	7 (222)	7 (209)
Minimize Costs of Allowing Hunters on Your Land	8 (127)	8 (122)	8 (129)
Increased Land Values	9 (100)	9 (44)	9 (122)

TABLE 78. RANKINGS OF POTENTIAL FEE HUNTING COSTS BASED ON AGREEMENT INDEX (IN PARENTHESES), BY GROUP, NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Costs	Combined	North Dakota	South Dakota
Caused Local Hunter Resentment	1 (-19)	2 (-6)	1 (-24)
Reduced Time Spent With Family/Friends	2 (-24)	1 (17)	2 (-40)
Increased Financial Uncertainty	3 (-83)	4 (-89)	3 (-80)
Jeopardized Relations With Neighbors	4 (-90)	3 (-61)	4 (-102)

TABLE 79 . RANKINGS OF WHO SHOULD BE RESPONSIBLE FOR MAINTAINING AND IMPROVING WILDLIFE RESOURCES BASED ON AGREEMENT INDEX (IN PARENTHESES), BY GROUP, NORTH AND SOUTH DAKOTA PROVIDERS, 1990

Entity	Combined	North Dakota	South Dakota
All of the Above	1 (131)	3 (118)	1 (137)
Landowner	2 (123)	2 (118)	2 (126)
Hunters	3 (93)	1 (162)	3 (50)
State Agencies	4 (71)	4 (115)	4 (48)
Federal Agencies	5 (45)	5 (87)	5 (20)

in North Dakota during 1990. Over \$300,000 was generated in the retail trade and household sectors. These expenditures provided employment equivalent to over 20 full-time jobs.

Conclusions

Fee hunting is more common in South Dakota than in North Dakota, based on the number of hunters paying fees and providers operating in each state. South Dakota has four times more fee hunters and nearly three times more fee hunting providers than does North Dakota. The economic activity generated from fee hunting activities--both fee hunters and providers--is considerably higher in South Dakota than in North Dakota.

Public land is overhunted and hunters spend more money to hunt are the primary costs associated with fee hunting. However, paying a fee for hunting access does not necessarily cause hunters to spend more money overall for hunting. Fee hunting increases expenditures for some hunters. However, other hunters either realize other monetary benefits (i.e., less time and money searching for a place to hunt) equivalent to the fee paid or reduce other expenditures within their hunting budget equal to the amount of the fee. Comparing total expenditures with and without fee hunting and comparing total expenditures relative to a single expenditure, such as an access fee, might partially explain the apparent inconsistency.

Landowner will use part of the fee to improve habitat, landowner restrictions ensuring other hunters behave in a sportsmanlike manner, and a quality hunting experience are primary benefits of fee hunting. Primary benefits hunters associate with fee hunting tend to be nonmonetary, while costs hunters associate with fee hunting tend to be both nonmonetary and monetary.

Other costs and benefits typically cited probably represent the concerns of a minority group of hunters. The intent of these individuals is to influence the direction of the political debate by distorting the actual impact of fee hunting. In the end, fee hunters are willing to pay more or reallocate their hunting expenditures to enhance the quality of their hunting experience.

Fees provide landowners monetary incentives to produce wildlife. Landowners post their land to restrict hunting access to ensure adequate wildlife for hunters willing to pay access fees. As the amount of private land posted increases, nonfee hunters are forced to hunt public land. The result is that public land tends to be overhunted.

Providers operate a fee operation to raise and enhance wildlife and to improve the economic conditions of the local community. Thus, providers use fees hunters pay to improve wildlife habitat, one of the most important factors in a hunter's decision to pay a fee to hunt.

Attitudes differ concerning who is responsible for maintaining and improving wildlife resources. Hunters thought state agencies and hunters are mostly responsible while providers said landowners and hunters are responsible. Responsibility likely resides with all three--landowners, hunters, and state agencies. The interests and concerns of the three groups should be represented in any decisions concerning future fee hunting activities.

South Dakota fee hunters, in total, paid over seven times more in fees than did North Dakota fee hunters. Yet, significantly more North Dakota hunters hunted in other states than did South Dakota hunters. North Dakota hunters spent nearly twice as much hunting in other states than did South Dakota hunters.

Fees may encourage providers to supply the type of hunting experiences hunters demand, helping to retain resident out-of-state hunters. Hunters are

less willing to spend time and money traveling to and hunting in other states if they can get a quality hunting experience within their own state, keeping more money in the state.

Retained expenditures represent new money to both cities and rural communities. These dollars are especially important to rural communities, helping them to diversify and strengthen their economic bases.

South Dakota had over twice as many nonresident hunters in 1985 as North Dakota, which can be partially attributed to fee hunting. Providers advertise to attract nonresidents and nonresidents come knowing they can purchase hunting access. (More stringent rules governing nonresident hunters in North Dakota may also contribute to the disparity between states.) Fee hunting can increase the amount of wildlife available as landowners enhance habitat and produce wildlife to meet the demands of both resident and nonresident hunters. More wildlife allows game management agencies to issue more nonresident permits, increasing nonresident hunter numbers and expenditures within the state.

Expanding fee hunting opportunities in North Dakota might provide new economic activity by retaining resident out-of-state hunters, attracting additional nonresident hunters, and constructing and operating fee hunting operations. If fee hunting in North Dakota approached the levels that exist in South Dakota, North Dakota could realize a substantial increase in economic activity. A considerable portion of this activity would benefit rural communities.

References

- Al-Humadi, Ahmad H. and Dale Colyer. 1992. Deer Damages and Benefits as Perceived by Rural Landowners in West Virginia. Publication No. 92/3, Division of Resource Management, College of Agriculture and Forestry, West Virginia University, Morgantown.
- Bahls, Jane E. 1991. *When Wildlife is a Cash Crop*. Farm Journal 115(1):AC-6.
- Baltezare, James F. and Jay A. Leitch. 1992. Characteristics, Expenditures, and Economic Impact of Resident and Nonresident Hunters and Anglers in North Dakota, 1990-91 Season. AE92003, Department of Agricultural Economics, Agricultural Experiment Station, North Dakota State University, Fargo.
- Baltezare, James F. and Jay A. Leitch. 1992a. Expenditures and Economic Impact of Resident and Nonresident Hunters and Anglers in North Dakota, 1990-91 Season. Agricultural Economics Report No. 289, Department of Agricultural Economics, Agricultural Experiment Station, North Dakota State University, Fargo.
- Baltezare, James F., Jay A. Leitch, and William C. Nelson. 1987. Economic Analysis of Draining Wetlands in Kidder County, North Dakota. Agricultural Economics Report No. 230, Department of Agricultural Economics, Agricultural Experiment Station, North Dakota State University, Fargo.
- Brown, Tommy L. 1981. Recreational Access and Owner Liability. Natural Resources Department, Cooperative Extension Service, Cornell University, Ithaca, NY.
- Brownback, Sam. 1987. Legal Considerations of Lease Hunting-Ways to Limit Liability Exposure. Report to the 1987 Lease Hunting Telenet Survey, Cooperative Extension Service, Kansas State University, Manhattan.
- Connelly, Nancy A., William F. Siemer, and Tommy L. Brown. 1991. Demand for Fee-access Leasing by Hunters and Trappers in New York. Series No. 91-2, Human Dimensions Research Unit, Department of Natural Resources, New York State College of Agriculture and Life Sciences, Cornell University, Ithaca.
- Coon, Randal C., Theresa K. Golz, and Jay A. Leitch. 1990. Expanding the North Dakota Input-Output Model to Include Recreation and Tourism. Agricultural Economics Report No. 255, Department of Agricultural Economics, Agricultural Experiment Station, North Dakota State University, Fargo.
- Cordell, H. Ken, James H. Gramann, Don E. Albrecht, Scott Withrow, and Robert W. McLellan. 1985. Trends in Recreational Access to Rural Private Lands. Proceedings from the National Outdoor Recreation Trends Symposium 1985, United States Department of Agriculture, Forest Service, Broomall, PA.
- Dakota Outdoors. 1990. South Dakota Hunting Directory. Pierre, South Dakota.
- Daniel, Wayne W. 1978. Applied Nonparametric Statistics. Houghton Mifflin Company, Boston, MA.
- Ernst, John P. 1987. Privatization of Wildlife Resources: A Question of Public Access. Report to the South Dakota Wildlife Federation. National Wildlife Federation, Washington, D.C.
- Farrar, Jon. 1987. *Pay-As-You-Go-Hunting*. NEBRASKALAND 11:11-15.

- Frerich, Stephanie J., James W. Mjelde, John R. Stoll, and Ronald C. Griffin. 1989. Institutions Concerning Wildlife on Privately Owned Land: Results from a Survey of State Wildlife Departments. Agricultural Economics Report, Agricultural Experiment Station, Texas A & M University, College Station.
- Geist, Valerius. 1988. *How Markets in Wildlife Meat and Parts, and the Sale of Hunting Privileges, Jeopardize Wildlife Conservation.* Conservation Biology 2(1):15-26.
- Geist, Valerius. 1989. *Legal Trafficking and Paid Hunting Threaten Conservation.* Transactions of the Fifty-fourth North American Wildlife and Natural Resources Conference, Wildlife Management Institute, Washington, D.C.
- Grafton, William N., Anthony Ferrise, Dale Colyer, Dennis K. Smith, and James E. Miller. 1990. Proceedings from the Conference on: Income Opportunities for the Private Landowner Through Management of Natural Resources and Recreational Access. R.D. No. 740, West Virginia University Extension Service, Morgantown.
- Gwynn, Dwight E. and John L. Schmidt. 1984. *Managing Deer Hunters on Private Lands in Colorado.* Wildlife Society Bulletin 12:12-19.
- Harmoning, Arlen. 1992. Personal communication. North Dakota Game and Fish Department, Bismarck.
- Heberlein, Thomas A. 1987. *Stalking the Predator.* Environment 29(7):6-11, 30-33.
- Johnson, Charles. 1991. *Wildlife Provides a New Market.* Farm Journal 115(5):AC-6.
- Jordan, Lucy A. and John P. Workman. 1989. *Overview of Fee Hunting for Deer and Elk on Private Land in Utah.* Transactions of the Fifty-fourth North American Wildlife and Natural Resources Conference, Wildlife Management Institute, Washington, D.C.
- Kwong, Jo. 1988. *Evolving Institutions in Wildlife Management: The Case for Fee Hunting.* Western Wildlands 14(1):26-31.
- Loomis, John B. and Lee Fitzhugh. 1989. *Financial Returns to California Landowners for Providing Hunting Access: Analysis and Determinants of Returns and Implications to Wildlife Management.* Transactions of the Fifty-fourth North American Wildlife and Natural Resources Conference, Wildlife Management Institute, Washington, D.C.
- Luken, James O. 1986. *Hunting for Better Uses of Farmland.* Wall Street Journal, Sec. 1, Col 3, January 20.
- Marion, Wayne R. 1989. *Recreational Access to Private Lands in Florida.* Transactions of the Fifty-fourth North American Wildlife and Natural Resources Conference, Wildlife Management Institute, Washington, D.C.
- Marion, Wayne R. and Cyndi A. Gates. 1987. Hunting Lease Arrangements in Florida and the Southeast. Extension Circular 793, Cooperative Extension Service, University of Florida, Gainesville.
- Matthews, Olen P. 1986. *Who Owns Wildlife?* Wildlife Society Bulletin 14 (4):459-465.
- Mendenhall, William, Lyman Ott, and Richard F. Larson. 1974. Statistics: A Tool for the Social Sciences. Duxbury Press, North Scituate, MA.
- Mooney, Rick. 1992. *Everybody Loves Wildlife, but* Farm Journal 116(5):34-35.

- Morrill, William I. 1987. Fee Access Views on a Private Wildlife Consultant. Transactions of the Fifty-second North American Wildlife and Natural Resources Conference, Wildlife Management Institute, Washington, D.C.
- Morrill, William I. 1988. Leasing the Best Deal for Wildlife. The Journal of the Texas Trophy Hunters Jan./Feb., pp. 22-24.
- North Dakota Agricultural Statistics Service. 1991. North Dakota Agricultural Statistics. Various issues, North Dakota State University, Fargo.
- Pope, C. Arden, Clark E. Adams, and John K. Thomas. 1983. The Economic Value of Wildlife Resources in Texas. Report to the 1983 Western Agricultural Economics Association, Texas Experiment Station, College Station.
- SAS Institute Inc. 1985. SAS User's Guide: Statistics, Version 5 Edition. Sas Institute Inc., Cary, NC.
- Schutt, Preston F. 1990. Fee Hunting in North Dakota. Unpublished M.S. thesis, North Dakota State University, Fargo.
- Seigel, Sidney. 1956. Nonparametric Statistics for the Behavioral Sciences. The Maple Press Company, York PA.
- Severson, Keith E. and F. Robert Gartner. 1971. Problems in Commercial Hunting Systems: South Dakota and Texas Compared. South Dakota Agricultural Experiment Station. South Dakota State University, Brookings.
- Shelton, Ross. 1987. Fee Hunting in Mississippi. Cooperative Extension Circular, Mississippi Agricultural Experiment Station, Mississippi State University, Mississippi State.
- Swenson, Jon E. 1983. Free Public Hunting and the Conservation of Public Wildlife Resources. Wildlife Society Bulletin 11(3):300-303.
- Tomlinson, Bill H. 1985. Economic Values of Wildlife: Opportunities and Pitfalls. Transactions of the Fiftieth North American Wildlife and Natural Resources Conference, Wildlife Management Institute, Washington, D.C.
- U.S. Fish and Wildlife Service. 1988. 1985 National Survey of Fishing, Hunting, and Wildlife Associated Recreation. U.S. Department of the Interior, Washington, D.C.
- Vinton, Chris V. 1987. Controlled Shooting Area: Alternative Source of Income. Report to the 1987 Lease Hunting Telenet Survey, Cooperative Extension Service, Kansas State University, Manhattan.
- Wiggers, Ernie P. and William A. Rootes. 1987. Lease Hunting: Views of the Nation's Wildlife Agencies. Transactions of the Fifty-second North American Wildlife and Natural Resources Conference. Wildlife Management Institute, Washington, D.C.
- Wilkins, Neal. 1988. Developing Hunting Enterprises on Private Lands. Tennessee Agricultural Extension Service Publication No. 1305, University of Tennessee, Knoxville.
- Williamson, Lonnie. 1987. What Price, Hunting? Outdoor Life 180(3):38,40-41.
- Wright, Brett A., Ronald A. Kaiser, and J. E. Fletcher. 1988. Hunter Access Decisions by Rural Landowners: An East Texas Example. Wildlife Society Bulletin 16:152-158.
- Wunderlich, Karl, James J. Jacobs, and David T. Taylor. 1990. Hunting Enterprises: Costs and Returns. Rangelands 12(2):119-121.

Appendix A

South Dakota Hunter Questionnaire

NDSU

Department of Agricultural Economics
North Dakota State University
State University Station, P.O. Box 5636
Fargo, North Dakota 58105-5636
(701) 237-7441

January 1991

Dear Hunter,

The North Dakota Agricultural Experiment Station, in cooperation with the United States Department of Agriculture (USDA), is studying fee hunting--paying a landowner for hunting privileges or hunting at a game farm/shooting preserve. Little is known about hunters' attitudes and experiences with paying to hunt in the Dakotas. Since many more hunters pay access fees to hunt in South Dakota than in North Dakota, we would like to know more about your experiences.

A major part of the study involves you, one of a small number of hunters in South Dakota who are being asked to complete the attached questionnaire. Please complete the questionnaire at your earliest convenience--right now, if you can--and place it in the return envelope provided. The information you provide will be kept strictly confidential and used only to develop overall statistics. Your participation is strictly voluntary, but we need your cooperation in order to ensure that the opinions of all hunters are represented. Thank you for your assistance.

Sincerely,

Jay A. Leitch
Associate Professor

DID YOU KNOW:

Twelve percent of North Dakota hunters hunt out-of-state compared with only three percent of South Dakota hunters.

There were approximately 6,600 nonresident hunters in North Dakota compared with over 34,000 in South Dakota in 1988.

Nonresident hunters spent nearly \$4 million in North Dakota compared with nearly \$20 million in South Dakota in 1988.

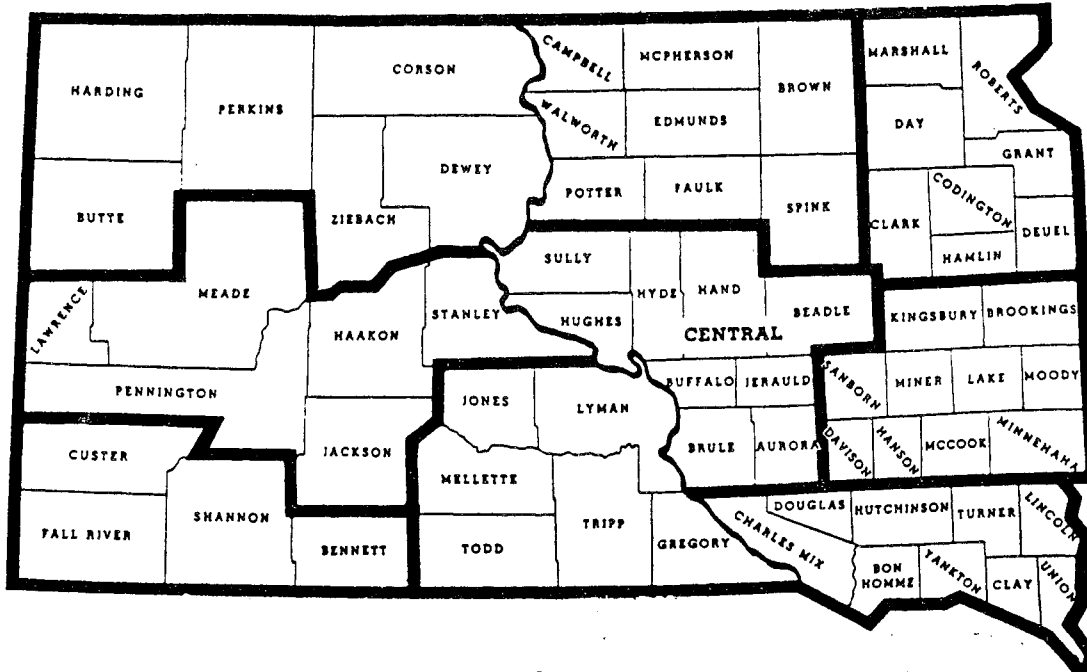
1. Did you hunt in South Dakota in 1990? *(Check answer)*
 yes no *(If no, please stop here and return the questionnaire.)*
2. What was your primary county of residence for the last six months of 1990? _____
3. How many years have you hunted as a resident in South Dakota? _____ YEARS
4. Check any of the following situations that applied to you relative to game type for your 1990 hunting in South Dakota. *(More than one may apply.)*

	BIG GAME	UPLAND	WATERFOWL	OTHER
a. Hunted public or private lands where no payment or fee was requested and/or given.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Paid a landowner for access rights to hunt or trap.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
c. Hunted at a shooting preserve or used a guide service in S.D.....	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
d. Gave gifts to landowner in appreciation for hunting access.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IF YOU DID NOT CHECK ANY SHADED BOXES, PLEASE GO TO QUESTION 6.

5. If you checked any of the shaded boxes in Question 4, please fill in the information that applies below.

	BIG GAME	UPLAND	WATERFOWL	OTHER
a. How much was the fee you paid to hunt?.....	\$ _____	\$ _____	\$ _____	\$ _____
b. What time period did this cover? (i.e. number of days/weeks, entire season, until game was bagged.).....	_____	_____	_____	_____
c. How many acres of land were involved?.....	_____	_____	_____	_____
d. Did you also hunt this game on public land? <i>(Circle one)</i>	yes no	yes no	yes no	yes no
e. Were you satisfied with the quality of the hunt for which you paid? <i>(Circle one)</i>	yes no	yes no	yes no	yes no
f. Will you participate in a similar arrangement in the future? <i>(Circle one)</i>	yes no	yes no	yes no	yes no
g. In what county(ies) was the land located? <i>(See enclosed map)</i>	_____	_____	_____	_____



- h. Did you pay a fee to hunt on land enrolled in the Conservation Reserve Program (CRP) during the 1990 hunting season?
 yes no don't know

If yes, what type of game did you hunt? (Check all that apply.)

- Big Game Waterfowl
 Upland Game Other (specify) _____

- i. Did fee hunting cause you to spend more money overall for hunting?
 yes no

If yes, how much more? _____ percent

6. Did you hunt on any land enrolled in the Conservation Reserve Program during the 1990 hunting season?
 yes no don't know

If yes, what type of game did you hunt? (Check all that apply.)

- Big Game Waterfowl
 Upland Game Other (specify) _____

7. Do you think landowners should be allowed to charge a fee to hunt on land enrolled in the Conservation Reserve Program (CRP)?
 yes no

Why? _____

8. Do you think South Dakota landowners have the "right" to charge for hunting access?
 yes no

If no, why not? _____

9. Do you think charging a fee for the privilege of hunting will become more common in South Dakota?
 yes no

10. Are you willing to pay a fee for hunting access in the future, if the landowner provides the type of hunting you want?

yes no

If yes, for what type of game? (Check all that apply.)

Big Game Waterfowl

Upland Game Other (specify) _____

11. How important do you think each of the following is in your decision whether to pay a fee to hunt? (Circle the number that best describes your feelings.)

	not important	somewhat important	moderately important	very important	extremely important
A greater chance of getting a trophy animal	1	2	3	4	5
A greater chance of getting any game	1	2	3	4	5
Privacy and safety of having fewer other hunters	1	2	3	4	5
Exclusive hunting rights that assure me of a place to hunt	1	2	3	4	5
Private land where I want to hunt is posted	1	2	3	4	5
Landowner's restrictions ensuring other hunters behave in a sportsmanlike manner	1	2	3	4	5
Having a controlled area where I could introduce my children/friends to hunting	1	2	3	4	5
A quality hunting experience	1	2	3	4	5
Available lodging, guides, and other services	1	2	3	4	5
Game will be released before I arrive	1	2	3	4	5
Saving time and money looking for hunting land	1	2	3	4	5
The landowner will use part of the fee to improve wildlife habitat	1	2	3	4	5

12. What has happened as more South Dakota landowners charge fees for hunting access? (Circle the number that best describes your feelings.)

	strongly agree	agree	undecided	disagree	strongly disagree
There are fewer hunters	1	2	3	4	5
There are fewer "slob" hunters	1	2	3	4	5
There are fewer hunter-landowner conflicts	1	2	3	4	5
Hunters spend less time hunting	1	2	3	4	5
Landowners improved their wildlife habitat	1	2	3	4	5
Hunters spend more money to hunt	1	2	3	4	5
There are more wildlife to hunt	1	2	3	4	5
The quality of hunting has decreased	1	2	3	4	5
Public land is over-hunted	1	2	3	4	5
Only the wealthy can afford to hunt	1	2	3	4	5
Hunting tradition has been altered	1	2	3	4	5
More resident/nonresident conflicts	1	2	3	4	5
Loss of access to land formerly hunted	1	2	3	4	5

13. If all landowners in South Dakota charged a fee for the privilege of hunting, what do you think you would do?

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
hunt fewer days in S.D.	1	2	3	4	5
hunt only on public land	1	2	3	4	5
travel to another state to hunt	1	2	3	4	5
stop hunting	1	2	3	4	5

14. How much did you spend in 1990 to hunt in South Dakota? \$ _____

15. Did you hunt in another state in 1990?

yes no

If yes, how much did each of your out-of-state hunting trip(s) cost?

Trip # 1 \$ _____

Trip # 2 \$ _____

Trip # 3 \$ _____

Did you pay an access fee to hunt in another state?

yes no

16. How much would your hunting expenditures in South Dakota have to increase before you would.....? (Circle one response for each question.)

Hunt fewer days.....	0%	5%	10%	25%	50%
Hunt in another state.....	0%	5%	10%	25%	50%
Stop hunting.....	0%	5%	10%	25%	50%

17. If for some reason you decided not to hunt in South Dakota, what you do with the additional time and money? _____

18. Should Game, Fish and Parks Department.....? (Check one response)

- promote fee hunting discourage fee hunting
- actively regulate fee hunting do nothing about fee hunting
- passively regulate fee hunting

Why? _____

19. Who do you think should be responsible for maintaining and improving South Dakota's wildlife resources? (Circle any or all that apply.)

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
landowners	1	2	3	4	5
hunters	1	2	3	4	5
state agencies	1	2	3	4	5
federal agencies	1	2	3	4	5

20. What size of community do you live in? (Check response)

- | | |
|--|---|
| <input type="checkbox"/> rural farm/ranch | <input type="checkbox"/> city of 1,000 - 1,499 |
| <input type="checkbox"/> rural nonfarm/ranch | <input type="checkbox"/> city of 1,500 - 2,499 |
| <input type="checkbox"/> town under 200 | <input type="checkbox"/> city of 2,500 - 10,000 |
| <input type="checkbox"/> town of 200 - 499 | <input type="checkbox"/> city of over 10,000 |
| <input type="checkbox"/> town of 500 - 999 | |

21. What is your age? _____ YEARS

22. What is your occupation? (Check one)

- farming** (includes forestry, fishing)
- professional/management** (includes teachers, registered nurses)
- technical, sales, or administrative support** (includes office workers, salespersons, nurses--LPNs, mail carriers, health care support jobs)
- service jobs** (includes health care aides, policemen, firemen, cooks, barbers, janitors)
- precision production, craft, and repair jobs** (includes mechanics, welders, construction trades)
- equipment operators and fabricators** (includes bus/truck drivers, laborers)
- other (explain)** _____

23. What is your annual household family income? (Check response)

- | | |
|--|--|
| <input type="checkbox"/> under \$5,000 | <input type="checkbox"/> \$25,001 - 30,000 |
| <input type="checkbox"/> \$5,000 - \$10,000 | <input type="checkbox"/> \$30,000 - 35,000 |
| <input type="checkbox"/> \$10,001 - \$15,000 | <input type="checkbox"/> \$35,001 - 40,000 |
| <input type="checkbox"/> \$15,001 - \$20,000 | <input type="checkbox"/> over \$40,000 |
| <input type="checkbox"/> \$20,001 - \$25,000 | |

Appendix B

Survey Reminder

Survey Reminder

We have not received your response to our fee hunting survey. Your response is essential to determine attitudes and experiences concerning fee hunting in the state. Even if you do not participate in any fee hunting activities, we would like you to take this final opportunity to complete and return the questionnaire enclosed as soon as possible. Your assistance is greatly appreciated.

Thank you!

Appendix C
Provider Questionnaire

NDSU

Department of Agricultural Economics
North Dakota State University
State University Station, P.O. Box 5636
Fargo, North Dakota 58106-5636
(701) 237-7441

January 1991

Dear Hunting Service Provider,

The North Dakota Agricultural Experiment Station, in cooperation the United States Department of Agriculture (USDA), is studying fee hunting--paying a landowner for hunting privileges or hunting at a game farm/shooting preserve. Your attitudes and experiences involving fee hunting are needed to determine the extent and economic impact of fee hunting in the Dakotas.

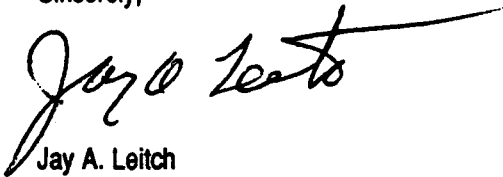
A major part of the study involves you, **owners/operators of various game farms and shooting preserves** who are being asked to complete the attached questionnaire. Please complete the questionnaire at your earliest convenience--right now, if you can--and place it in the return envelope provided. The information you provide will be kept strictly confidential and used only to develop overall statistics. Your participation is voluntary, but we need your cooperation in order to ensure your opinions are represented.

Please include copies of any promotional materials you have for your operation when you return this questionnaire. If you would like a copy of the results, fill in your name and address below.

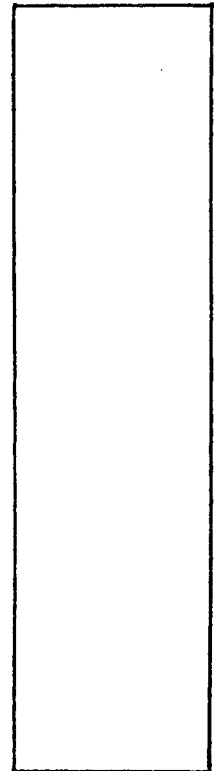
Name: _____
Address: _____

Thank you for your cooperation.

Sincerely,



Jay A. Leitch
Associate Professor



Instructions: Please try to complete all parts of the questionnaire. If you are not sure of a response, answer the best you can. **Note:** fee hunting is a term describing an arrangement where a hunter pays money or other gratuities to a landowner for hunting rights.

1. Did you own/manage a fee hunting operation or charge fees for hunting access during the 1990 hunting season? (*Check one*)
 - Yes
 - No..... If no, please stop here and return the questionnaire.

2. Which of the following best describes your fee hunting operation? (*Check one*)
 - offer only hunting access
 - offer hunting access and services (hunting pits, dogs, guides, meals, etc.)
 - offer hunting access and services and enhance or create wildlife habitat (planting food plots and trees or creating and enhancing wetlands, etc.)
 - licensed shooting preserve or hunting club
 - outfitter or recreation broker
 - other (*specify*) _____

3. How many years have you operated/managed a fee hunting operation? _____ years

4. What type of game hunting was available on your fee hunting operation during 1990? (*Check all that apply*)
 - BIG GAME: deer, antelope, moose, elk
 - UPLAND GAME: pheasants, grouse, partridge, dove, turkey, squirrel
 - WATERFOWL: ducks, geese, cranes
 - OTHER: furbearer hunting/trapping

5. How many acres of land are involved in your fee hunting operation? _____ acres

6. Is any of the land used for fee hunting enrolled in the Conservation Reserve Program(CRP)?
 - Yes.....If yes, how many acres? _____ acres
 - No

7. Which of the following lease agreements/hunting permits does your fee hunting operation use? *(Check all that apply)*
- Informal lease (verbal agreement between hunter and landowner)
 - Formal lease (signed agreement documenting rights and responsibilities of both hunter and landowner)
 - Other *(specify)* _____

8. Please indicate the typical per hunter price for each of the following leases that are available at your fee hunting operation. If you leave spaces blank we will assume they do not apply to you.

	BIG GAME	UPLAND GAME	WATERFOWL	OTHER
Day lease	\$ _____	\$ _____	\$ _____	\$ _____
Seasonal lease	\$ _____	\$ _____	\$ _____	\$ _____
Bag lease	\$ _____	\$ _____	\$ _____	\$ _____
Day/Bag lease	\$ _____	\$ _____	\$ _____	\$ _____

9. What services, if any, do you offer? *(Check all that apply)*

No services	_____	Individual hunts	_____
Lodging	_____	Group hunts	_____
Meals	_____	Game Processing	_____
Transportation	_____	Ammunition	_____
Guides	_____	Dogs	_____
Licenses	_____	Other <i>(specify)</i>	_____

10. Do your prices vary from the beginning of the season to the end?

- No
- Yes.....If yes, how? _____

11. In what county(ies) is your operation located? _____ County(ies)

12. Should the state game management agency (Check response)

- promote fee hunting discourage fee hunting
 actively regulate fee hunting do nothing about fee hunting
 passively regulate fee hunting other (specify) _____

Why? _____

13. Have you established or enhanced wildlife habitat?

- No
 Yes... If yes, what have you done? (Check all that apply)
 - restored wetlands
 - planted food plots
 - planted trees
 - seeded cropland into native grasses
 - changed farming practices (tillage operations, crop rotations, reduced grazing etc.)
 - other (specify) _____
 - other (specify) _____

14. How important do you think each of the following is in your decision to manage a fee hunting operation? (Please circle your response)

	not important	somewhat important	moderately important	very important	extremely important
Increased income	1	2	3	4	5
Increased land values	1	2	3	4	5
Minimize costs of allowing hunters on your land	1	2	3	4	5
Alternative use for marginal land	1	2	3	4	5
Better control of hunters	1	2	3	4	5
Improved landowner-hunter relations	1	2	3	4	5
Raising and enhancing wildlife	1	2	3	4	5
Meeting new people	1	2	3	4	5
Improve economic conditions of the local community	1	2	3	4	5

15. Has operating a fee hunting operation.....

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
Caused local hunter resentment	1	2	3	4	5
Jeopardized relations with neighbors	1	2	3	4	5
Reduced time spent with family/friends	1	2	3	4	5
Increased financial uncertainty	1	2	3	4	5

16. Who do you think should be responsible for maintaining and improving wildlife resources?

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
landowners	1	2	3	4	5
hunters	1	2	3	4	5
state agencies	1	2	3	4	5
federal agencies	1	2	3	4	5
all of the above	1	2	3	4	5

17. How much have you invested in each of the following areas establishing your fee hunting operation?

Initial Investment:

- Creating or restoring wetlands \$ _____
- Wetland acres restored _____ Acres
- Establishing food plots \$ _____
- Seeding cover \$ _____
- Planting trees \$ _____
- Lodging facilities \$ _____
- Access Roads \$ _____
- Fences \$ _____
- Equipment \$ _____
- Storage buildings \$ _____
- Other (specify) _____ \$ _____
- _____ \$ _____

18. How much have you invested in each of the following areas maintaining your fee hunting operation?

Annual Costs:

Advertising and marketing \$ _____

Liability insurance \$ _____

Game stocking \$ _____

Operation licenses \$ _____

Maintenance \$ _____

Administration \$ _____

Other (*specify*) _____ \$ _____

_____ \$ _____

19. What were your annual gross receipts in 1990 from fee hunting?

\$ _____

Appendix D

Fee Hunting Benefits of
South Dakota Hunters by Sample Group

APPENDIX TABLE D1. RESPONSES TO "HOW IMPORTANT IS A GREATER CHANCE OF GETTING A TROPHY ANIMAL IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b		
							1 vs 2	1 vs 3	2 vs 3
	----- percent -----								
All Hunters	44.4	12.4	15.9	14.1	13.2	139.3			
(1) Fee	35.3	27.5	19.6	5.9	11.8	131.6	N		
(2) Nonfee	45.7	10.3	15.3	15.3	13.4	140.4			
(1) Region 1	46.4	13.1	21.4	9.5	9.5	122.4	N	N	N
(2) Region 2	32.5	22.5	10.0	20.0	15.0	162.5			
(3) Region 3	45.5	10.8	15.0	14.7	14.0	140.9			
(1) Rural	44.3	12.0	16.4	16.4	10.9	137.6	N		
(2) Urban	44.2	13.4	16.3	11.0	15.1	139.4			
Age (years)									
(1) less than 34	31.3	9.4	23.4	19.5	16.4	180.3	Y	Y	N
(2) 35 - 44	48.8	15.7	13.2	9.1	13.2	122.2			
(3) 45 and over	53.7	13.0	12.0	12.0	9.3	110.2			

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D2. RESPONSES TO "HOW IMPORTANT IS A GREATER CHANCE OF GETTING ANY GAME IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	31.1	15.9	21.9	18.6	12.5	165.5				
(1) Fee	20.4	16.7	22.2	18.5	22.2	205.4	Y			
(2) Nonfee	32.7	15.8	21.9	18.6	11.1	159.8				
(1) Region 1	35.7	20.2	17.9	16.7	9.5	144.1	N	Y	N	
(2) Region 2	32.5	20.0	20.0	20.0	7.5	150.0				
(3) Region 3	29.6	14.1	23.4	18.9	14.1	174.0				
(1) Rural	28.3	16.3	27.2	17.4	10.9	166.5	N			
(2) Urban	33.3	14.4	17.8	20.7	13.8	167.3				
Age (years)										
(1) less than 34	31.3	16.4	21.9	18.0	12.5	164.2	N	N	N	
(2) 35 - 44	29.8	18.2	22.3	20.7	9.1	161.3				
(3) 45 and over	30.6	11.7	24.3	18.0	15.3	175.5				

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D3. RESPONSES TO "HOW IMPORTANT IS PRIVACY AND SAFETY OF HAVING FEWER OTHER HUNTERS IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	22.9	15.7	18.3	24.6	18.6	200.5				
(1) Fee	14.8	22.2	27.8	18.5	16.7	200.1	N			
(2) Nonfee	24.1	14.7	16.9	25.5	18.8	200.2				
(1) Region 1	25.0	9.5	22.6	22.6	20.2	203.3	N	N	N	
(2) Region 2	17.9	15.4	7.7	33.3	25.6	233.1				
(3) Region 3	22.9	17.5	18.5	24.0	17.1	194.9				
(1) Rural	21.2	14.7	15.2	28.8	20.1	211.9	N			
(2) Urban	23.0	18.4	19.5	19.5	19.5	193.9				
Age (years)										
(1) less than 34	22.7	12.5	14.8	26.6	23.4	215.5	N	N	N	
(2) 35 - 44	19.0	18.2	18.2	26.4	18.2	206.6				
(3) 45 and over	24.5	19.1	19.1	19.1	18.2	187.4				

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D4. RESPONSES TO "HOW IMPORTANT IS EXCLUSIVE HUNTING RIGHTS THAT ASSURE ME OF A PLACE TO HUNT IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	26.2	12.8	21.8	23.5	15.7	189.7				
(1) Fee	7.4	14.8	25.9	35.2	16.7	239.0	Y			
(2) Nonfee	29.0	12.5	21.2	21.7	15.6	182.4				
(1) Region 1	28.9	13.3	22.9	21.7	13.3	177.4	N	N	N	
(2) Region 2	22.5	15.0	17.5	27.5	17.5	202.5				
(3) Region 3	25.9	12.4	22.1	23.4	16.2	191.6				
(1) Rural	25.5	13.6	24.5	25.0	11.4	183.2	Y			
(2) Urban	27.2	10.4	17.9	22.5	22.0	201.7				
Age (years)										
(1) less than 34	21.1	14.1	21.9	27.3	15.6	202.2	N	N	N	
(2) 35 - 44	25.6	11.6	27.3	20.7	14.9	187.9				
(3) 45 and over	31.8	10.0	14.5	24.5	19.1	188.9				

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D5. RESPONSES TO "HOW IMPORTANT IS PRIVATE LAND WHERE I WANT TO HUNT IS POSTED IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	32.9	18.4	20.9	17.7	10.1	153.7				
(1) Fee	29.6	18.5	25.9	18.5	7.4	155.4	N			
(2) Nonfee	33.4	18.4	20.1	17.6	10.5	153.4				
(1) Region 1	31.3	18.8	22.5	20.0	7.5	153.8	N	N	N	
(2) Region 2	31.7	12.2	26.8	22.0	7.3	161.0				
(3) Region 3	33.6	19.2	19.6	16.4	11.2	152.4				
(1) Rural	30.9	20.4	19.9	19.9	8.8	155.1	N			
(2) Urban	32.6	17.4	21.5	15.1	13.4	159.3				
Age (years)										
(1) less than 34	29.4	20.6	24.6	17.5	7.9	153.9	N	N	N	
(2) 35 - 44	34.2	19.2	17.5	17.5	11.7	153.5				
(3) 45 and over	30.6	16.7	20.4	18.5	13.9	168.6				

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D6. RESPONSES TO "HOW IMPORTANT IS LANDOWNER'S RESTRICTIONS ENSURING OTHER HUNTERS BEHAVE IN A SPORTSMANLIKE MANNER IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b		
							1 vs 2	1 vs 3	2 vs 3
	----- percent -----								
All Hunters	15.9	9.8	16.9	28.6	28.9	245.0			
(1) Fee	5.6	9.3	20.4	31.5	33.3	277.8	N		
(2) Nonfee	17.5	9.9	16.3	28.2	28.2	239.9			
(1) Region 1	17.1	7.3	12.2	28.0	35.4	257.3	N	N	Y
(2) Region 2	12.5	5.0	5.0	35.0	42.5	290.0			
(3) Region 3	16.0	11.1	19.9	27.9	25.1	235.0			
(1) Rural	14.3	7.1	13.7	35.7	29.1	258.0	N		
(2) Urban	17.5	11.7	19.3	21.1	30.4	235.2			
Age (years)									
(1) less than 34	14.2	11.0	18.1	25.2	31.5	248.8	N	N	N
(2) 35 - 44	17.8	13.6	17.8	22.0	28.8	230.4			
(3) 45 and over	15.5	2.7	13.6	40.9	27.3	261.8			

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D7. RESPONSES TO "HOW IMPORTANT IS HAVING A CONTROLLED AREA WHERE I COULD INTRODUCE MY CHILDREN/FRIENDS TO HUNTING IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	23.4	8.3	23.4	23.6	21.4	211.5				
(1) Fee	10.9	7.3	23.6	29.1	29.1	258.2	Y			
(2) Nonfee	25.3	8.4	23.3	22.8	20.2	204.2				
(1) Region 1	26.5	9.6	25.3	22.9	15.7	191.7	Y	N	Y	
(2) Region 2	15.0	7.5	10.0	40.0	27.5	257.5				
(3) Region 3	23.6	8.0	24.7	21.5	22.2	210.7				
(1) Rural	21.9	8.2	25.1	29.0	15.8	208.6	N			
(2) Urban	25.0	6.4	22.1	19.8	26.7	216.8				
Age (years)										
(1) less than 34	22.0	4.7	26.8	23.6	22.8	220.3	N	N	N	
(2) 35 - 44	20.8	10.0	23.3	27.5	18.3	212.3				
(3) 45 and over	27.3	7.3	20.9	23.6	20.9	203.5				

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D8. RESPONSES TO "HOW IMPORTANT IS A QUALITY HUNTING EXPERIENCE IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b		
							1 vs 2	1 vs 3	2 vs 3
----- percent -----									
All Hunters	20.0	12.4	20.4	27.5	19.7	214.5			
(1) Fee	7.4	1.9	31.5	31.5	27.8	270.6	Y		
(2) Nonfee	21.8	14.0	18.8	26.9	18.5	206.3			
(1) Region 1	24.4	12.2	14.6	30.5	18.3	206.1	N	N	N
(2) Region 2	17.5	12.5	12.5	32.5	25.0	235.0			
(3) Region 3	19.0	12.5	23.2	26.0	19.4	214.5			
(1) Rural	20.3	12.1	21.4	34.1	12.1	205.6	N		
(2) Urban	20.9	11.6	18.0	22.7	26.7	222.5			
Age (years)									
(1) less than 34	21.3	14.2	18.9	28.3	17.3	206.1	N	N	N
(2) 35 - 44	20.8	12.5	22.5	25.8	18.3	208.1			
(3) 45 and over	19.3	8.3	18.3	32.1	22.0	229.2			

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D9. RESPONSES TO "HOW IMPORTANT ARE AVAILABLE LODGING, GUIDES, AND OTHER SERVICES IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	62.1	19.6	11.7	4.9	1.7	64.5				
(1) Fee	61.8	18.2	14.5	5.5	0.0	63.7	N			
(2) Nonfee	62.1	19.8	11.3	4.8	2.0	64.8				
(1) Region 1	69.9	21.7	7.2	1.2	0.0	39.7	Y	Y	N	
(2) Region 2	57.5	22.5	10.0	7.5	2.5	75.0				
(3) Region 3	60.5	18.5	13.3	5.6	2.1	70.3				
(1) Rural	60.8	21.5	11.0	3.9	2.8	66.4	N			
(2) Urban	62.2	16.9	14.0	6.4	0.6	66.5				
Age (years)										
(1) less than 34	56.7	20.5	18.1	2.4	2.4	73.5	N	N	N	
(2) 35 - 44	65.8	20.0	6.7	5.0	2.5	58.4				
(3) 45 and over	62.0	15.7	13.0	9.3	0.0	69.6				

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D10. RESPONSES TO "HOW IMPORTANT IS GAME WILL BE RELEASED BEFORE I ARRIVE IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	76.4	9.3	8.6	2.2	3.4	46.7				
(1) Fee	81.5	3.7	9.3	1.9	3.7	42.8	N			
(2) Nonfee	75.6	10.2	8.5	2.3	3.4	47.7				
(1) Region 1	82.7	2.5	7.4	3.7	3.7	43.2	N	N	N	
(2) Region 2	76.9	17.9	5.1	0.0	0.0	28.1				
(3) Region 3	74.6	10.1	9.4	2.1	3.8	50.4				
(1) Rural	76.7	10.0	10.0	1.1	2.2	42.1	N			
(2) Urban	76.6	7.6	8.8	2.9	4.1	50.3				
Age (years)										
(1) less than 34	70.1	11.0	11.0	2.4	5.5	62.2	Y	N	N	
(2) 35 - 44	81.5	9.2	5.9	1.7	1.7	32.9				
(3) 45 and over	77.6	6.5	12.1	1.9	1.9	44.0				

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D11. RESPONSES TO "HOW IMPORTANT IS SAVING TIME AND MONEY LOOKING FOR HUNTING LAND IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	45.0	16.7	20.9	12.3	5.2	116.2				
(1) Fee	29.6	33.3	20.4	11.1	5.6	129.8	N			
(2) Nonfee	47.3	14.2	21.0	12.5	5.1	114.1				
(1) Region 1	46.3	15.0	21.3	15.0	2.5	112.6	N	N	N	
(2) Region 2	32.5	17.5	32.5	12.5	5.0	140.0				
(3) Region 3	46.3	17.1	19.2	11.5	5.9	113.6				
(1) Rural	44.5	15.4	22.0	15.4	2.7	116.4	N			
(2) Urban	45.0	17.8	20.1	10.1	7.1	116.7				
Age (years)										
(1) less than 34	40.9	18.1	22.0	15.0	3.9	122.7	N	N	N	
(2) 35 - 44	50.8	16.1	16.9	11.0	5.1	103.3				
(3) 45 and over	42.6	14.8	25.0	12.0	5.6	123.2				

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D12. RESPONSES TO "HOW IMPORTANT IS THE LANDOWNER WILL USE PART OF THE FEE TO IMPROVE WILDLIFE HABITAT IN YOUR DECISION TO PAY A FEE TO HUNT?", SOUTH DAKOTA HUNTERS, 1990

Sample Group	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Important	Importance Index ^a	Significant Difference ^b		
							1 vs 2	1 vs 3	2 vs 3
	----- percent -----								
All Hunters	21.4	7.0	15.3	24.5	31.8	238.3			
(1) Fee	16.1	12.5	21.4	17.9	32.1	237.4	N		
(2) Nonfee	22.2	6.2	14.3	25.6	31.7	238.4			
(1) Region 1	18.1	6.0	12.0	26.5	37.3	258.7	N	N	N
(2) Region 2	31.7	2.4	12.2	26.8	26.8	214.4			
(3) Region 3	20.8	8.0	16.7	23.6	30.9	235.8			
(1) Rural	24.9	5.5	18.2	24.9	26.5	222.6	Y		
(2) Urban	16.1	8.6	13.2	25.3	36.8	258.1			
Age (years)									
(1) less than 34	20.5	7.1	11.0	23.6	37.8	251.1	N	N	N
(2) 35 - 44	18.9	6.6	18.0	27.9	28.7	241.1			
(3) 45 and over	22.2	8.3	19.4	22.2	27.8	224.9			

^aImportance index = (% responding somewhat important x 1) + (% responding moderately important x 2) + (% responding very important x 3) + (% responding extremely important x 4).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D13. RESPONSES TO "THERE ARE FEWER SLOB HUNTERS AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	10.9	21.6	16.4	29.5	21.6	-29.3				
(1) Fee	10.7	21.4	14.3	35.7	17.9	-28.7	N			
(2) Nonfee	10.9	21.6	16.7	28.6	22.1	-29.4				
(1) Region 1	11.2	28.1	9.0	32.6	19.1	-20.3	N	N	N	
(2) Region 2	13.6	18.2	27.3	29.5	11.4	-6.9				
(3) Region 3	10.4	20.2	16.9	28.7	23.8	-35.3				
(1) Rural	9.4	25.1	19.4	26.7	19.4	-21.6	Y			
(2) Urban	11.2	17.1	12.8	33.2	25.7	-45.1				
Age (years)										
(1) less than 34	9.1	26.5	15.9	28.0	20.5	-24.3	N	N	N	
(2) 35 - 44	8.6	18.8	18.8	30.5	23.4	-41.3				
(3) 45 and over	13.4	16.8	14.3	31.9	23.5	-35.3				

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D14. RESPONSES TO "THERE ARE FEWER HUNTER-LANDOWNER CONFLICTS AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b		
	----- percent -----						1 vs 2	1 vs 3	2 vs 3
All Hunters	8.4	28.2	24.8	25.9	12.7	-6.3			
(1) Fee	5.4	37.5	23.2	26.8	7.1	7.3	N		
(2) Nonfee	8.9	26.8	25.0	25.8	13.5	-8.2			
(1) Region 1	6.7	28.1	22.5	32.6	10.1	-11.3	N	N	N
(2) Region 2	9.3	46.5	14.0	14.0	16.3	18.5			
(3) Region 3	8.8	25.6	26.9	25.6	13.0	-8.4			
(1) Rural	10.4	28.1	25.0	24.5	12.0	0.4	N		
(2) Urban	4.3	29.0	24.2	27.4	15.1	-20.0			
Age (years)									
(1) less than 34	6.8	26.5	26.5	29.5	10.6	-10.6	N	N	Y
(2) 35 - 44	3.9	27.6	25.2	28.3	15.0	-22.9			
(3) 45 and over	12.5	30.8	22.5	20.0	14.2	7.4			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D15. RESPONSES TO "LANDOWNERS IMPROVED THEIR WILDLIFE HABITAT AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	7.5	28.1	26.0	26.7	11.6	-6.8				
(1) Fee	10.7	32.1	19.6	32.1	5.4	10.6	N			
(2) Nonfee	7.1	27.5	27.0	25.9	12.6	-9.4				
(1) Region 1	4.5	25.0	20.5	36.4	13.6	-29.6	Y	Y	N	
(2) Region 2	13.6	36.4	18.2	18.2	13.6	18.2				
(3) Region 3	7.5	27.8	28.8	25.2	10.8	-4.0				
(1) Rural	9.4	32.3	30.2	20.8	7.3	15.7	Y			
(2) Urban	5.4	25.4	22.2	31.4	15.7	-26.6				
Age (years)										
(1) less than 34	7.6	25.8	31.1	22.7	12.9	-7.5	N	N	N	
(2) 35 - 44	7.0	28.1	23.4	31.3	10.2	-9.6				
(3) 45 and over	7.6	33.1	22.9	24.6	11.9	-0.1				

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE D16. RESPONSES TO "THERE ARE MORE WILDLIFE TO HUNT AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly	Agree	Undecided	Disagree	Strongly	Agreement	<u>Significant Difference^b</u>		
	Agree				Disagree	Index ^a	1 vs 2	1 vs 3	2 vs 3
----- percent -----									
All Hunters	5.0	19.5	31.2	31.0	13.3	-28.1			
(1) Fee	5.4	30.4	19.6	39.3	5.4	-8.9	N		
(2) Nonfee	5.0	17.9	32.9	29.7	14.5	-30.8			
(1) Region 1	6.8	19.3	26.1	38.6	9.1	-23.9	N	N	N
(2) Region 2	2.3	23.3	30.2	23.3	20.9	-37.2			
(3) Region 3	4.9	19.0	32.8	29.8	13.4	-27.8			
(1) Rural	6.3	21.7	36.5	22.8	12.7	-13.9	Y		
(2) Urban	3.2	18.9	25.4	37.8	14.6	-41.7			
Age (years)									
(1) less than 34	3.0	22.7	32.6	29.5	12.1	-25.0	N	N	N
(2) 35 - 44	3.1	16.5	34.6	30.7	15.0	-38.0			
(3) 45 and over	8.6	20.7	25.0	30.2	15.5	-23.3			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

Appendix E

Fee Hunting Costs of
South Dakota Hunters by Sample Group

APPENDIX TABLE E1. RESPONSES TO "THERE ARE FEWER HUNTERS AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b		
	percent						1 vs 2	1 vs 3	2 vs 3
All Hunters	26.7	29.5	15.2	21.2	7.4	46.9			
(1) Fee	17.9	28.6	16.1	32.1	5.4	21.5	Y		
(2) Nonfee	28.0	29.6	15.1	19.6	7.7	50.6			
(1) Region 1	21.6	34.1	15.9	23.9	4.5	44.4	N	N	N
(2) Region 2	25.0	18.2	25.0	15.9	15.9	20.5			
(3) Region 3	28.5	29.8	13.6	21.2	7.0	51.6			
(1) Rural	24.1	28.3	19.3	20.9	7.5	40.6	N		
(2) Urban	30.8	29.7	11.9	21.6	5.9	57.6			
Age (years)									
(1) less than 34	22.9	30.5	17.6	22.9	6.1	41.2	N	Y	Y
(2) 35 - 44	22.2	31.0	15.1	21.4	10.3	33.4			
(3) 45 and over	37.9	25.9	13.8	19.0	3.4	75.9			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE E2. RESPONSES TO "HUNTERS SPEND LESS TIME HUNTING AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly	Agree	Undecided	Disagree	Strongly	Agreement	Significant Difference ^b		
	Agree				Disagree	Index ^a	1 vs 2	1 vs 3	2 vs 3
----- percent -----									
All Hunters	11.3	36.0	26.8	21.0	4.8	28.0			
(1) Fee	5.6	29.6	24.1	37.0	3.7	-3.6	Y		
(2) Nonfee	12.1	36.9	27.2	18.7	5.0	32.4			
(1) Region 1	10.2	22.7	31.8	33.0	2.3	5.5	N	Y	Y
(2) Region 2	4.7	37.2	20.9	23.3	14.0	-4.7			
(3) Region 3	12.6	39.7	26.2	17.2	4.3	39.1			
(1) Rural	10.1	34.9	28.0	21.2	5.8	22.3	N		
(2) Urban	13.0	31.9	29.2	22.7	3.2	28.8			
Age (years)									
(1) less than 34	8.3	31.8	32.6	23.5	3.8	17.3	N	Y	Y
(2) 35 - 44	10.2	29.9	30.7	25.2	3.9	17.3			
(3) 45 and over	15.5	39.7	22.4	16.4	6.0	42.3			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE E3. RESPONSES TO "HUNTERS SPEND MORE MONEY TO HUNT AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b		
	percent						1 vs 2	1 vs 3	2 vs 3
All Hunters	31.7	43.8	13.0	7.1	4.3	91.5			
(1) Fee	30.4	46.4	8.9	7.1	7.1	85.9	N		
(2) Nonfee	31.9	43.5	13.6	7.1	3.9	92.4			
(1) Region 1	34.1	44.3	10.2	10.2	1.1	100.1	N	N	N
(2) Region 2	22.7	47.7	22.7	4.5	2.3	84.0			
(3) Region 3	32.4	43.1	12.4	6.5	5.6	90.2			
(1) Rural	32.8	43.4	16.4	4.2	3.2	98.4	N		
(2) Urban	32.1	42.2	10.2	9.6	5.9	85.0			
Age (years)									
(1) less than 34	35.6	40.9	15.9	4.5	3.0	101.6	Y	N	N
(2) 35 - 44	27.3	43.8	12.5	9.4	7.0	75.0			
(3) 45 and over	33.3	43.6	12.0	7.7	3.4	95.7			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE E4. RESPONSES TO "THE QUALITY OF HUNTING HAS DECREASED AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b		
	percent						1 vs 2	1 vs 3	2 vs 3
All Hunters	19.3	28.7	25.2	20.9	6.0	34.4			
(1) Fee	10.7	30.4	28.6	23.2	7.1	14.4	N		
(2) Nonfee	20.5	28.4	24.7	20.5	5.8	37.3			
(1) Region 1	19.3	25.0	23.9	27.3	4.5	27.3	N	N	N
(2) Region 2	18.2	22.7	22.7	27.3	9.1	13.6			
(3) Region 3	19.4	30.6	26.0	18.1	5.9	39.5			
(1) Rural	19.1	27.7	26.6	20.7	5.9	33.4	N		
(2) Urban	18.8	29.0	23.7	22.0	6.5	31.6			
Age (years)									
(1) less than 34	15.2	28.0	29.5	22.7	4.5	26.7	N	N	N
(2) 35 - 44	20.5	26.0	26.0	19.7	7.9	31.5			
(3) 45 and over	23.3	31.0	18.1	21.6	6.0	44.0			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE E5. RESPONSES TO "PUBLIC LAND IS OVERHUNTED AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly	Agree	Undecided	Disagree	Strongly	Agreement	<u>Significant Difference^b</u>		
	Agree	Agree	Undecided	Disagree	Disagree	Index ^a	1 vs 2	1 vs 3	2 vs 3
----- percent -----									
All Hunters	33.6	36.4	15.8	11.9	2.3	87.1			
(1) Fee	37.5	33.9	14.3	14.3	0.0	94.6	N		
(2) Nonfee	33.1	36.7	16.0	11.5	2.6	86.2			
(1) Region 1	33.0	34.1	14.8	17.0	1.1	80.9	N	N	N
(2) Region 2	39.5	37.2	14.0	9.3	0.0	106.9			
(3) Region 3	33.0	36.9	16.3	10.8	2.9	86.3			
(1) Rural	32.3	35.4	16.4	13.2	2.6	81.6	N		
(2) Urban	34.2	37.4	17.6	8.6	2.1	93.0			
Age (years)									
(1) less than 34	34.1	33.3	21.2	9.8	1.5	88.7	N	N	N
(2) 35 - 44	29.7	42.2	15.6	10.2	2.3	86.8			
(3) 45 and over	36.8	34.2	12.8	12.8	3.4	88.2			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE E6. RESPONSES TO "ONLY THE WEALTHY CAN AFFORD TO HUNT AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b			
							1 vs 2	1 vs 3	2 vs 3	
	----- percent -----									
All Hunters	34.8	28.3	15.8	17.6	3.4	73.5				
(1) Fee	21.4	30.4	16.1	28.6	3.6	37.4	Y			
(2) Nonfee	36.8	28.0	15.8	16.1	3.4	78.7				
(1) Region 1	41.6	30.3	7.9	19.1	1.1	92.2	Y	N	N	
(2) Region 2	29.5	25.0	13.6	31.8	0.0	52.2				
(3) Region 3	33.7	28.2	18.4	15.2	4.5	71.4				
(1) Rural	32.3	29.2	15.6	19.3	3.6	67.3	N			
(2) Urban	37.2	25.0	17.0	18.1	2.7	75.9				
Age (years)										
(1) less than 34	31.8	24.2	22.0	15.9	6.1	59.7	N	N	N	
(2) 35 - 44	33.3	30.2	14.0	20.9	1.6	72.7				
(3) 45 and over	38.3	28.3	12.5	19.2	1.7	82.3				

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

APPENDIX TABLE E7. RESPONSES TO "HUNTING TRADITION HAS BEEN ALTERED AS MORE SOUTH DAKOTA LANDOWNERS CHARGE FEES FOR HUNTING ACCESS," SOUTH DAKOTA HUNTERS, 1990

Sample Group	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Agreement Index ^a	Significant Difference ^b		
	percent						1 vs 2	1 vs 3	2 vs 3
All Hunters	38.8	40.1	12.0	7.9	1.1	107.6			
(1) Fee	28.1	49.1	7.0	14.0	1.8	87.7	N		
(2) Nonfee	40.4	38.8	12.8	7.0	1.0	110.6			
(1) Region 1	46.7	34.4	10.0	8.9	0.0	118.9	N	N	N
(2) Region 2	31.8	47.7	6.8	13.6	0.0	97.7			
(3) Region 3	37.5	40.7	13.4	6.8	1.6	105.7			
(1) Rural	37.2	38.7	15.2	7.9	1.0	103.2	N		
(2) Urban	41.3	41.3	7.9	8.5	1.1	113.2			
Age (years)									
(1) less than 34	37.1	39.4	12.1	10.6	0.8	101.4	N	N	N
(2) 35 - 44	41.5	36.2	14.6	6.9	0.8	110.7			
(3) 45 and over	39.5	44.5	7.6	6.7	1.7	113.4			

^aAgreement index = (% responding strongly agree x 2) + (% responding agree x 1) - (% responding disagree x 1) - (% responding strongly disagree x 2).

^bA "Y" means yes there is a significant difference using the Kruskal-Wallis test with a 90 percent confidence level. An "N" means there is no significant difference.

