

PRELIMINARY RESULTS OF THE ECONOMIC ANALYSIS OF
DALL SHEEP HUNTING IN ALASKA

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The Alaska Department of Fish and Game is attempting to determine the economic values of Dall sheep hunting in Alaska. Such values will express the economic importance of sheep hunting and, by inference, sheep habitat to Alaska's economy and its sheep hunters. Land use planners at state and local levels will be able to use these economic values to compare with economic values of proposed alternative uses for Dall sheep habitat on an objective and consistent basis. Examples of alternatives proposed for sheep habitat include grazing of domestic livestock, mining, and human settlement, all of which can be incompatible with wild sheep. As economic considerations often influence resource use decisions, economic values for wildlife such as Dall sheep and their habitat must be determined so they can be compared with other land uses.

The economic worth of Dall sheep hunting was measured using a special questionnaire prepared by Department sheep biologists and economic and social research experts from the University of Alaska. The questionnaire was mailed in early 1984 to all resident and nonresident hunters who

legally hunted Dall sheep in Alaska during 1983. These hunters were asked questions about their hunt, their expenditures, and the value of the hunt (and future hunts) to them in economic terms. The nonresident hunters who came to Alaska for reasons besides sheep hunting were asked what fraction of their expenditures could be attributed to the sheep hunt. Their total expenditures were then multiplied by this fraction to reflect only the cost of their sheep hunt. All hunters were assured their responses would be kept anonymous.

Eight-five percent of the hunters responded to the questionnaire. This high response rate increased the accuracy of survey results and is probably indicative of sheep hunters' strong interest in sheep hunting.

Analysis of the survey responses is in the preliminary stage, but some summary statements can be made. Preliminary results indicate sheep hunters spent at least \$4.7 million associated with their hunt in 1983. Hunters purchased hunting licenses, camping equipment, guns and ammunition, transportation, food, lodging, and other items. Some hunters also took time off from work (without pay) to go sheep hunting. This cost hunters an additional \$1.38 million in lost income, bringing the total cost to over \$6 million. Nonresident hunters accounted for about half of the total expenditures even though resident hunters outnumbered them 6:1. Nonresidents had higher transportation costs and, by law, had to hire a guide unless they hunted with a resident relative within the second degree of kindred.

Over \$3 million (67% of the \$4.7 million in expenditures) was spent in Alaska. Transportation to the hunting area was the largest expenditure

made in Alaska for resident hunters, while guide fees, which typically include some transportation, food, and lodging, accounted for over 50% of nonresidents' expenditures within the state.

Economic and demographic profiles of the average resident and nonresident sheep hunter are important to the economic analysis. However, caution should be used when evaluating these averages. The average, or mean, is the sum of all responses (including \$0) divided by the total number of responses. One must not confuse the average expenditure with the average price of a particular item. For example, nonresident hunters who hunted with a resident relative paid nothing or only nominal fees for their "guide." The average nonresident's expenditure for guide fees includes these costs (including \$0) and therefore does not represent the average price one would expect to pay for a state-licensed guide. Further analysis is needed to obtain average prices paid for particular items.

AVERAGE
Hunter

Resident sheep hunters spent a mean of \$1,037 on each sheep hunt (Table 1) on a variety of goods and services (Fig. 1). In addition to these expenses, residents also lost a mean of \$553 in foregone income bringing the average spent by residents to \$1,590.

Nonresident hunters spent a mean of \$6,327 on their sheep hunt (Table 1). Their expenses went toward items similar to the residents', with the addition of transportation to Alaska (Fig. 2). Nonresidents spent more for every item except for transportation within Alaska. Guide fees

typically include some transportation costs. Nonresidents lost an additional \$1,664 per person in foregone income bringing the mean spent by nonresidents to \$7,991.

The average resident hunter's age was most likely to be in the 30's (41%) though ages ranged from the under-20 age group (7%) to the 70-79 age group (0.5%). The annual household income level which described more hunters than any other was \$30-\$40,000 (15%), but \$20-\$30,000 (14%) and \$40-\$50,000 (13%) described similar numbers of hunters. Incomes ranged from under \$10,000 (8%) to over \$140,000 (3%).

The resident sheep hunter had lived in Alaska an average of 11 years with the range being from 1 to 72 years. He (most are male regardless of residency) had gone sheep hunting a mean of 3.8 times including the 1983 hunt and killed 1.38 sheep. Hunter success in 1983 was 33%. Interestingly, 43% of the hunters were sheep hunting for the first time in 1983. This affected the data for the average number of times a sheep hunter had gone hunting and it is possible the inexperience of first-time hunters affected the average hunter success. They will be studied as a group in further analysis.

For nonresidents, the demographic profile of the average hunter was somewhat different. He was older, most likely between 40 and 50 years old (36%). Ages ranged from under 20 (1%) to in the 70's (1%). He may have come from any of the states or from one of 6 other countries, but was most likely from Texas or, if from outside the United States, from West Germany. Twenty percent of the nonresident hunters fell into the

survey's highest annual household income category (>\$140,000) while another 12% and 10% earned \$30-\$40,000 and \$40-\$50,000, respectively.

Hunting success for nonresidents was notably higher than for resident hunters. Seventy percent were successful in killing a sheep even though more than 75% were hunting Dall sheep in Alaska for the first time.

Even with the economic and demographic differences between resident and nonresident sheep hunters, both groups displayed a high interest in hunting sheep in the future. Nearly all (95%) of the resident hunters planned to go sheep hunting again despite their comparatively low success rate and the large number of first-time hunters. Half of these said they planned to go every year while another 21% said they planned to go every other year. Less than 1% said they were not planning to go sheep hunting again.

More than half of the nonresidents (67%) plan to repeat the experience despite the costs. Forty-four percent of these said they planned to come one or two more times, and the remaining planned to return more often. Ten percent of the total nonresidents did not plan to hunt sheep in Alaska again.

The benefits resident and nonresident hunters receive from sheep hunting can be expressed in economic terms. Travel cost, an indirect method of measuring benefits, and contingent valuation, a direct method, are two techniques that will be used. Additional analysis will include an examination of the expenditure data by mountain range to provide area specific information.

Table 1. Mean expenditures by commodity for Alaska resident and nonresident Dall sheep hunters in 1983. (Preliminary.)

(n)	Residents	Commodity	Nonresidents ^a	(n)
	--	Transportation to Alaska	\$ 981	(335)
(1,377)	\$ 37	Guide fee	4,264	(330)
(1,367)	3	Guide Tip	197	(327)
(1,671)	259	Transportation in Alaska	225	(329)
(1,682)	18	License fees	572	(335)
(1,355)	14	Lodging	109	(327)
(1,625)	28	Entertainment and restaurants	137	(332)
(1,548)	6	Tourism and gifts	247	(329)
(1,580)	190	Guns and ammunition	534	(323)
(1,578)	97	Camera and film	247	(317)
(1,589)	188	Camp gear	243	(315)
(1,491)	112	Taxidermy	473	(316)
(1,344)	146	Miscellaneous	165	(242)
(1,684)	\$1,037	Average total	\$8,137	(336)

^a Not corrected for multiple species hunts. If nonresidents came to Alaska for reasons other than to hunt sheep, they were asked what fraction of their total expenses could be attributed to their sheep hunt. Their total costs were then adjusted. The mean adjusted total for nonresidents was \$6,327 (78% of their total expenditures).

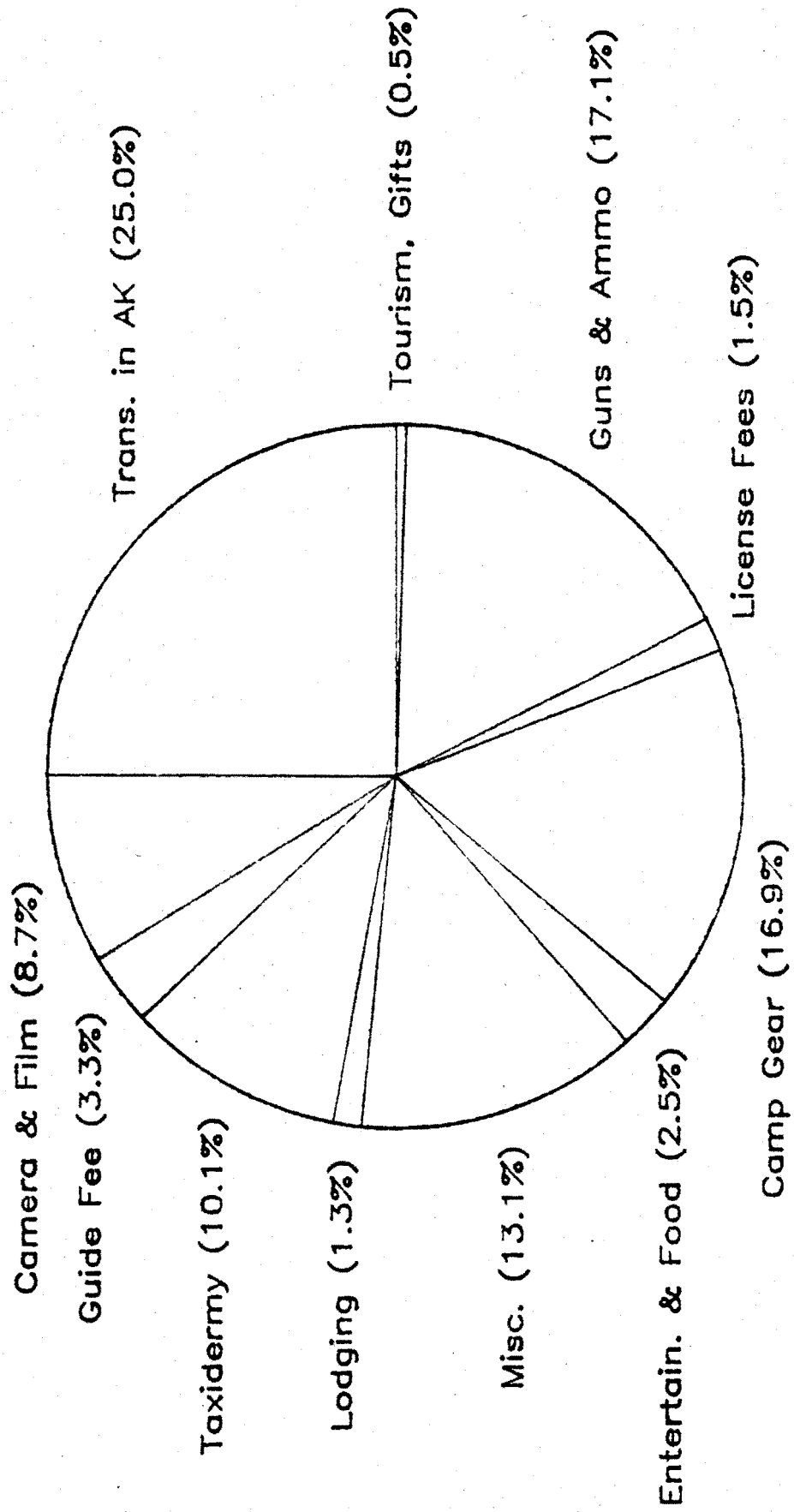


Figure 1. Mean expenditures for 1983's Alaska resident Dall sheep hunters expressed as a percent of the sum of the mean expenditures. (Preliminary.)

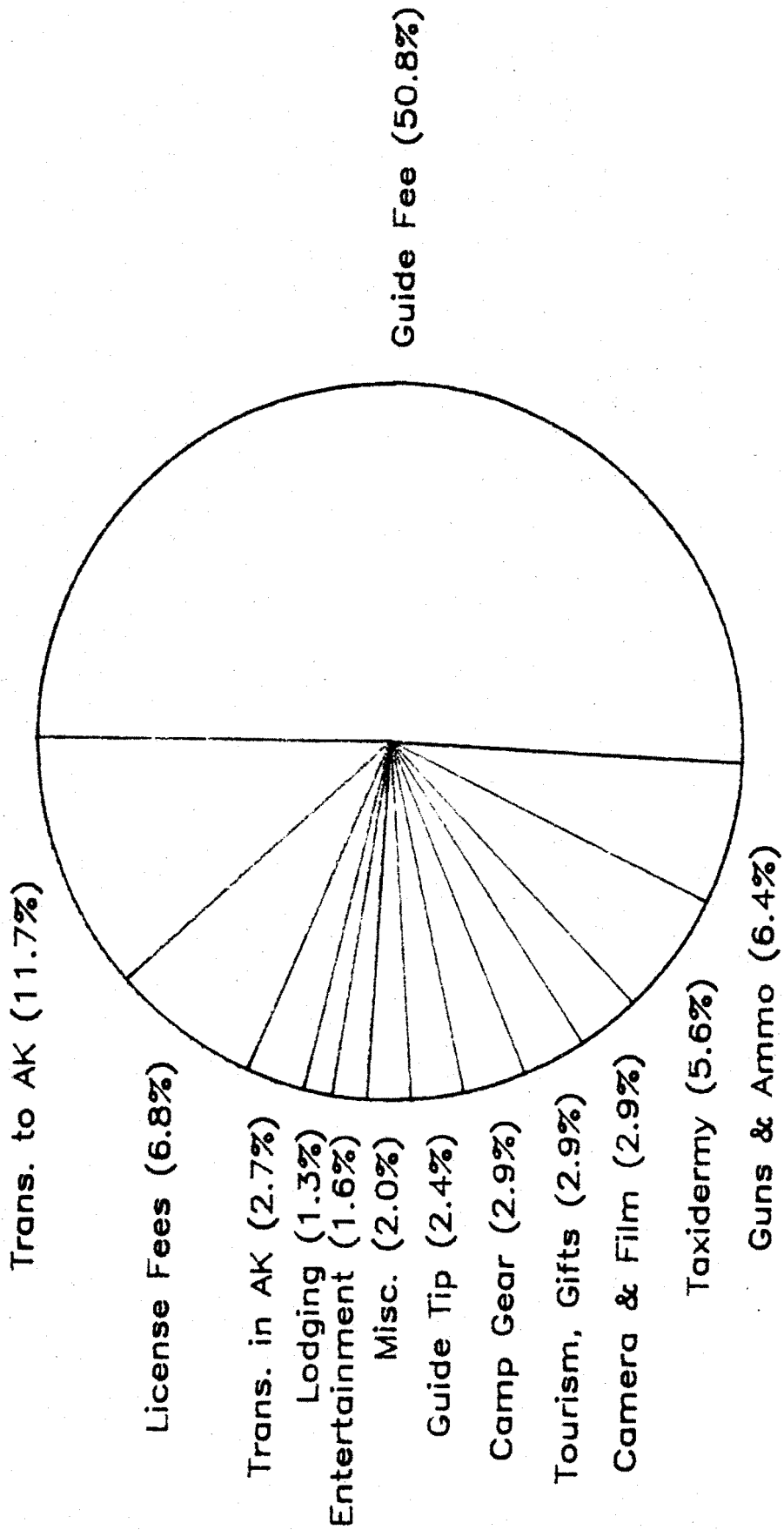


Figure 2. Mean expenditures for 1983's Alaska nonresident Dall sheep hunters expressed as a percent of the sum of the mean expenditures. (Preliminary.)