

Hunting Enterprises: Costs and Returns

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The development of recreational enterprises on private lands is a potential source of additional income in many areas. Charging fees for hunting on private land is not a new practice. In Texas hunters paid landowners \$200 million in 1983 (Thomas 1987). In many western states like Wyoming, much of the land is publicly owned and fee hunting is not as common.

What are the economic incentives for providing wildlife habitat on private land? Currently, many landowners tend to think of game animals in terms of competition with livestock for forage and damage to crops and property. The landowners allow free hunter access to control game animals and at the same time desire some compensation for the forage consumed. Development of a compensation policy for private landowners in states like Wyoming is complicated by the migratory nature of game animals, the intermingling of public and private lands and the general belief that game animals are a public resource managed through sportsmen's license fees. As a result, the management of wildlife habitat on private land, the charging of access fees and the administration of game licenses have become controversial issues.

Another uncertainty is that information on ranch recreation operations, the motivations of operators, relevant regulations, fees and factors affecting fees, and the profit potential of the hunting enterprise is extremely limited.

Previous research has shown a large variation in fees charged for recreation on private land, especially for big game hunting (Guynn 1979, and Lacey et al. 1987). It may be possible to explain these variations in terms of the difference in the type of recreation activity, the services provided, the quality of the resource utilized, and the pricing unit (i.e., daily, multi-day, or seasonal).

To assess the current status of fee-based recreational enterprises on farms and ranches, a mail survey of agricultural producers in Wyoming was conducted. Selection criteria for the survey required the producer to have more than one hundred acres of land, have a Wyoming mailing address, and be an active agricultural operation. Based on these criteria, 5,982 producers were identified. A random sample of 2,500 agricultural producers was selected for the mail survey, of which 1,510 surveys were returned with 1,265 being usable. A random sample of 97 respondents was selected from the 304 respondents who indicated that they charged a fee for a recreational activity. Fifty of the selected respondents agreed to a personal interview. The interview was designed to obtain detailed information on services offered, fees charged, operating costs and other characteristics of existing ranch recreation enterprises.

The impact of differences in the characteristics of the recreation activity on the fee charged was assessed and used to estimate a pricing model for recreation activities on private land. The survey data on fixed and variable inputs were compiled into budgets for the most common types of recreation enterprises reported. A break-even analysis for each budget was performed to determine the fee required to cover operating costs, given the current number of customers. By comparing the estimated fee in the break-even analysis with the fee being charged, the potential economic desirability of the recreation operations was determined.

Current Situation

Although 73 percent of the mail survey respondents stated they allowed recreational use of their land, only 24 percent indicated they charged a fee for the recreational activity. However, the proportion of landowners charging for recreational activities varied substantially across the state, ranging from a high of 51 percent in the Northeastern Crop Reporting District to a low of 7 percent in the Western District.

Current Operations

The recreation activity charged for most frequently was big game hunting. In the mail survey, 85 percent of the respondents who charge for recreational activities stated they charged for big game hunting. Eighty-four percent of the operators in the personal interview were charging for deer hunting and 72 percent were charging for antelope hunting.

The primary reason cited by operators for beginning a fee-based recreation operation was additional income. These recreation operations do not appear to require particularly unique resources to be successful. For example, just over a third of the operators provided low intensity services such as vehicle transportation, guiding, and undeveloped camping. More intensive services, such as lodging and backcountry camping, were provided by less than 15 percent of the operators. Ranch recreation operators indicated that 84 percent of their customers were non-residents and 72 percent were return customers. Over 90 percent of the operators reported that word of mouth was their means of advertising.

Fee Structure for Big Game Hunting

Fee-structures for big game hunting were essentially limited to three forms: per day charges, multi-day charges, and per season charges. Per season charges were the most common type, representing 53 percent of the replies. Because of the large variation in recreation activi-

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ties, services offered and fee structures, fees charged by recreation operators ranged from \$10 to \$2,500 per individual.

Many ranch recreation operations offered more than one type of big game hunting or provided more than one package of services. This resulted in a total of 77 observations of deer, antelope, or elk hunting from the 50 personal interviews. Using these observations the fee structure for these hunting activities were examined in more detail.

The per season and multi-day fees were converted into a per day charge based on the customers' average length of stay. The per day charge was used as the dependent variable in the data analysis.

The results indicated that the variations in hunting fees were explained primarily by the services provided and species hunted. Other variables such as acres of public and private land, length of stay, and pricing systems were not significant in explaining fee variations for big game hunting. The quantity and quality of animals harvested, while expected to significantly influence hunting fees, were not included in the analysis because the operators interviewed were not able to provide this information.

Table 1. Average per day fees for deer-antelope and elk hunting on private land in Wyoming.

	Average Fee	
	Deer/ antelope	Elk
Land access	\$ 17.44	\$ 78.19
With guiding	\$ 36.32	\$ 97.07
With guiding and cabin	\$ 92.74	\$153.49
With guiding, lodging and meals	\$111.93	\$172.68
With guiding, horse & back country camp	\$203.26	\$264.01

The average per day charges for deer and antelope hunting were not substantially different, so a separate fee for hunting each species could not be measured. The average fees by service and species hunted are presented in Table 1.

Budgeting and Break-Even Analysis for Three Fee-Hunting Enterprises

Three hypothetical fee-hunting operations were examined with budgets and break-even analyses. The first example involved deer and antelope hunting operations offering land access only, which was the most frequent type of fee-hunting operation. The second example represents a deer and antelope hunting operation offering land access and guiding services. Guiding was the most frequent service offered and was significant in the price function. The third example describes the most labor and capital intensive operation examined and offers meals, lodging, and guiding. Elk hunting and backcountry camping with horses were not included in the budget analysis. These recreation activities were not observed in

sufficient number to create an accurate budget. Data for the budgets and break-even analyses were obtained from the personal interviews. These data were supplemented with information from secondary sources (Agee 1986). Cost data were itemized into fixed and variable costs and then summarized into total annual costs. The operator's management and miscellaneous expenses were also included in the cost data. In the budgets, only a proportion of the fixed vehicle costs are allocated to the recreation operation. This proportion is based on a percentage of the annual mileage associated with the enterprise as reported by the operators interviewed.

Example 1 represents an agricultural operation that provides 8,900 acres for deer and antelope hunting. The hunting enterprise operates for twenty days with forty customers averaging three days per hunter or 120 hunter days. The budget for Example 1 is shown in Table 2.

Table 2. Budgets for fee-hunting operations.

	Example 1	Example 2	Example 3
Fixed cost			
Depreciation	102.59	247.20	770.80
Interest	34.57	83.30	1,244.95
Insurance	80.45	135.19	657.40
Taxes	7.41	17.85	166.78
Guide & outfitter license	N.A.	60.00	60.00
Total fixed cost	225.02	543.54	2,899.93
Variable cost			
Vehicle	136.00	342.72	509.49
Labor	770.00	970.20	4,517.70
Utilities (cabin)	N.A.	N.A.	105.00
Repairs & maintenance (cabin)	N.A.	N.A.	340.00
Food	N.A.	N.A.	1,335.70
Total variable cost	906.00	1,312.92	6,807.89
Other Costs			
Miscellaneous Expense @ 5%	56.55	90.82	485.39
Operator's Management @ 7%	83.13	136.45	713.52
Total other costs	139.68	227.27	1,198.91
Total annual cost	1,270.70	2,083.73	10,906.73
Break-even (\$/hunter day)	10.59	24.81	77.90

Vehicle and labor costs are primarily associated with patrolling the property during the hunting season. In Example 1 a break-even charge of \$10.59 per hunter day was derived. Comparing these figures to the access fee of \$17.44 implies that this type of operation would be profitable. Thus, providing hunter access with essentially no other services was estimated to be profitable.

Example 2 describes an agricultural operation that provides 8,810 acres for deer and antelope hunting. The hunting enterprise operates for 24 days with 21 customers hunting an average of four days per hunter or 84 hunter days.

There are several significant differences between Examples 1 and 2. Example 2 requires two vehicles for the recreation enterprise. One vehicle is to be used for guiding and providing other assistance to the hunters while the second vehicle is used for patrolling and other management activities. Vehicle mileage for the recreation

operation was substantially higher because of the additional driving associated with guiding hunters and may also involve picking up hunters in town. Providing guiding services requires additional labor and includes a cost for the operator to become licensed as an outfitter and guide. This is a requirement in Wyoming if the hunting enterprise used lands not owned by the operator, including public lands, or if guides are hired by the operator.

The budget for Example 2 is shown in Table 2. In this example the breakeven charge is \$24.81 per hunter day. Comparing the break-even charge with the estimated fee of \$36.32 per day (Table 1) suggests that this type of operation is also profitable.

Example 3 describes an agricultural operation that provides 14,400 acres for deer and antelope hunting. The hunting enterprise operates for 28 days with thirty-five customers hunting an average of four days per hunter or 140 hunter days. With the inclusion of lodging and meals, Example 3 is the most capital and labor intensive operation considered in the analysis. Costs of the recreation enterprise increase substantially because of the increase in labor inputs, investment in cabins, and food expenses. One hundred percent of the fixed costs of the cabins were allocated to the recreation operation because most operators indicated that these units were used only for the hunting enterprise. Vehicle requirements were similar to Example 2.

The budget for Example 3 is shown in Table 2. When

allocating 15% of the fixed vehicle costs to the enterprise, the break-even charge is \$77.90 per hunter day. In comparing the break-even charges with the estimated fee of \$111.93, it appears this option is also profitable.

Discussion and Conclusions

Additional income was the primary reason cited by operators for beginning a recreation enterprise. While ranch recreation has the potential to earn a profit, realizing that potential depends on each operator's situation. Each operator must evaluate his particular situation and consider any subjective factors, such as dealing with the public, when assessing the potential of a ranch recreation enterprise. When landowners recognize and are able to realize a profitable situation through hunting and other recreation activities on their land, wildlife habitat will be viewed as an asset and not a liability.

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Exotic Big Game: A Controversial Resource

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Establishment of exotic big game in the United States has become a topic of great controversy due to possible dietary competition and disease interactions with native wildlife and domestic livestock. The potential for greater financial returns from exotic big game production than from traditional livestock ranching stimulates the introduction of exotics in spite of these dangers. To insure success, managers should consider all biological and economic aspects of exotic big game before venturing into this industry.

Exotic big game refers to all non-native hoofed mammals which have game status in at least part of their current U.S. distribution. Managed appropriately, exotic big game can improve the economic stability of ranching and increase the diversity of game species available to hunters. If not responsibly managed, exotics may inad-

vertently become unwanted, even harmful inhabitants of our rangelands.

Problems can occur when stocking exotic big game with incomplete knowledge of the biology of the species, its habitat requirements, disease relationships, or its impact on native biota (Ables 1977). Additional research on the ecological implications of free-ranging exotics is needed to establish proper management guidelines for these species.

Pros and Cons

The positive aspects of exotic big game are summarized in five general categories: (1) year-round income to the landowner, (2) increased opportunities for hunters, (3) preservation of endangered species, (4) filling of open niches, and (5) aesthetic value.

Incorporation of exotic big game hunting and/or exotic venison production into a ranching enterprise can generate year-round income. Many states allow exotic big game to be harvested at the landowner's discretion. The

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