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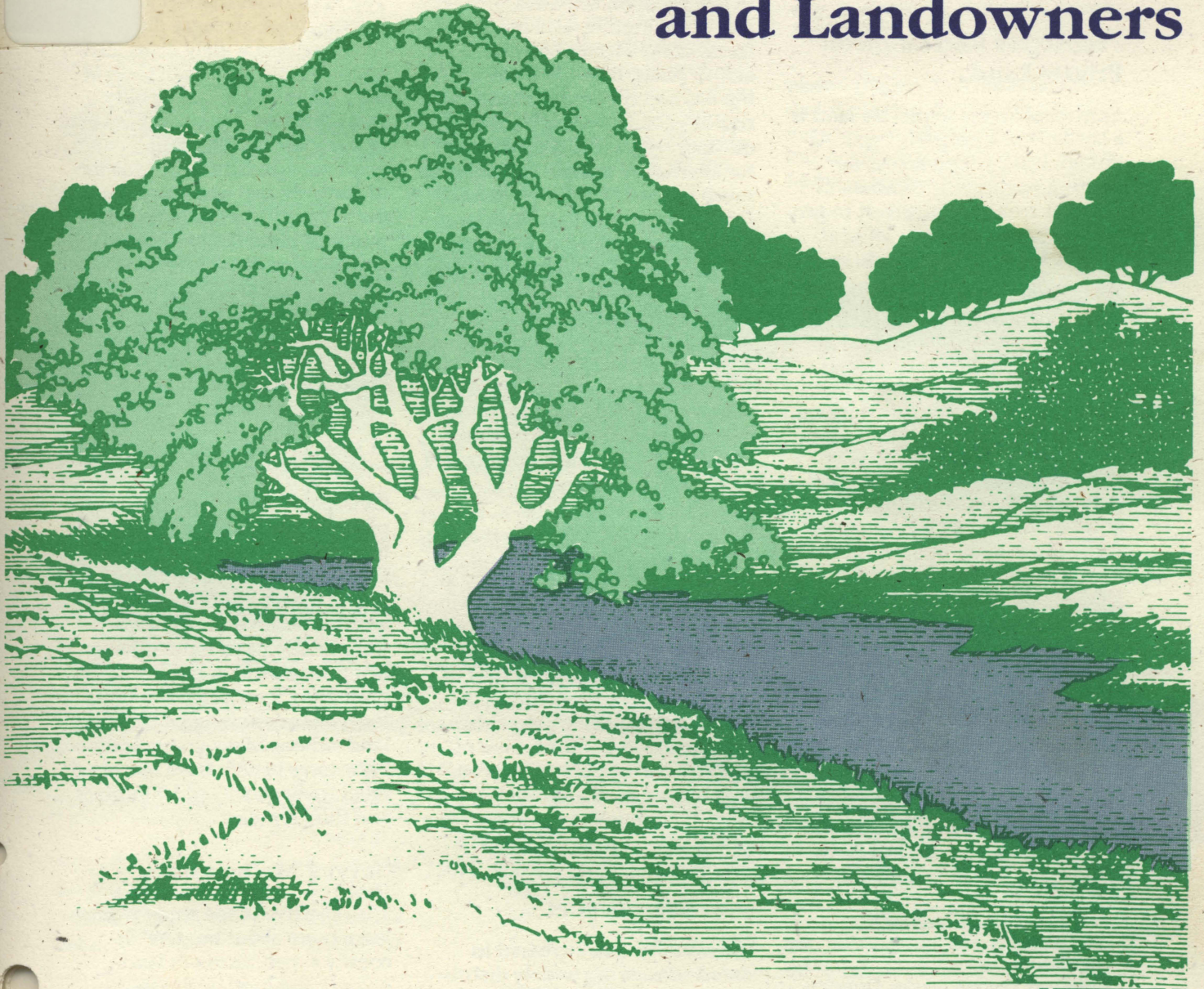
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Texas Agricultural Extension Service

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*Gillespie County Case Study*

# Hunter Expenditures to Rural Communities and Landowners



Hunting leases play an important role in the Texas economy. However, the financial benefit to rural community businesses and landowners at the county level has not been adequately researched. This publication addresses the spending patterns of hunters by expenditure type and time of year in one Hill Country county. The hunter market is segmented to demonstrate that hunter expenditures vary greatly by their residence and income level. Promotional efforts may benefit by segmenting the hunter market.

### Fee-Access Recreation on Private Land

Control of access to private land is a landowner's property right. Although leasing land access for hunting purposes is common in Texas, it would be incorrect to generalize that the majority of landowners lease or desire to do so.

All landowners who charge a fee for the right of ingress to their land for hunting are required by state law to purchase a hunting lease license from the Texas Parks and Wildlife Department (TPWD).

The 1988-89 TPWD list of registered hunting lease operators totaled 12,600, representing 36.3 million acres. The 1987 Census of Agriculture describes the Texas farm economy as consisting of 188,788 operations covering more than 130.5 million acres. This indicates that less than 7 percent of farm operators lease for hunting, and the total leased acreage comprises a little under 28 percent of all farmland (including range and pasture land) in the state.

Survey research (Stoll and Dharmaratne, 1990) shows that only 37 percent of hunters depend exclusively upon leases to hunt and

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more than 46 percent of hunters did not hunt on leased land. Thomas and Adams (1982) found that 37 percent of Texas hunters did not hunt on leased land. Despite the stereotype of widespread leasing, much hunting in Texas occurs on private land as a non-paying guest, on one's own land or on the limited amount of public hunting land found in the state.

*Fee-access recreation* on private lands refers to charging a fee for access to private land in exchange for the opportunity to participate in agreed-upon activities. The extent of fee hunting and other forms of fee-recreation varies across Texas. In some areas, leasing has become widespread in response to increasing demand for outdoor recreation, the necessity for alternative sources of farm and ranch income and as a method of controlling access to private land. In other areas, this practice is a traditional part of ranching, and the amount of land leased is stable or declining because of new landowners opting not to lease. Presently the primary form of fee-access recreation on private lands in Texas is leasing land for hunting purposes, although nonhunting forms of wildlife recreation are increasing in demand.

### Statewide Leasing Activity

Acreage by counties registered as hunting leases with the TPWD increased by 18 percent from 30.6 to 36.6 million acres between 1980 and 1989. There is a great deal of variability between counties. Almost 60 percent (150 Texas counties) increased in the number of acres leased for hunting, 10 counties showed no change and 35 percent (94 counties) declined in leased acres during the 1980s (Thigpen and Vinas-Nicolas, 1991).

### Increasing Counties

The counties that increased in leased acreage are widely distributed around the state with concen-

trations in East Texas, the Hill Country, far West Texas and the Panhandle. These increases may be related to the need for additional incomes for agricultural operators and the need to control trespass on private property (Thigpen, Clark and Thomas, 1991). In addition, acreage enrollments in the Conservation Reserve Program (CRP) may have influenced the increases in the Panhandle region.

### Declining Counties

The 94 counties that declined in hunting lease acreages during the 1980s are also widely distributed across the state. Most of them are adjacent to larger metropolitan areas of Texas. These declines may be associated with a shift in land use from agricultural production to aesthetic and recreational use of the property. As urban residents purchase rural land as homesites, and to enjoy the wildlife and other recreational attributes, this land is removed from the pool of leased acreage in the county. The loss of wildlife habitat from urbanization may be another factor affecting declining lease acreage.

### Gillespie County Example

Gillespie County was chosen as a pilot test site for a hunter expenditure survey. Located in the Hill Country of Texas, it has a reputation as a deer hunting and general tourism destination. Gillespie County also has a reputation for being successful in marketing and promoting its wildlife resources for economic and social benefits of landowners. Many community businesses benefit from increased retail trade generated by hunters and their families.

### Survey Methodology

The objective of the study was to learn more about hunters' in-county expenditures to landowners and local businesses in Gillespie County. County tax rolls

provide a population of all persons owning 10 or more acres in Gillespie County. Survey instruments were sent in early November of 1989 to a randomly selected sample of 221 county landowners. Landowners were asked to complete a survey instrument and to administer a separate questionnaire to all friends, relatives and pay-hunters using their land. The survey instruments were returned by postage-paid envelopes at the end of the 1990 deer season. Valid responses were obtained from 33 landowners with information concerning 80 hunters by February 1990. Statistical comparisons between the sample of landowners and hunters and other selected study samples showed that the sample was slightly older and had higher family income than the multi-state Gramann and Floyd (1990) Texas hunting market study.

### Survey Results: Overall Economic Impacts

Table 1 shows the mean annual in-county expenditures going to landowners and community businesses. Three time periods show expenditures for a hunting lease (*leasing*) and those who hunted on their own land or as a non-paying guest (*nonleasing*). These expenditures included payments to landowners for access to their land; use of facilities on their property; and for goods and services rendered. It also included expenditures by hunters to businesses located within the county. Not included are expenditures by landowners to accommodate nonpaying guest

hunters or landowner expenditures in the county to retain ownership of land for personal hunting purposes.

Almost \$7 million were estimated to have been spent by hunters in the county during the year. This figure came from the TPWD estimate of hunters in Gillespie County and the percentage of leasing and nonleasing hunters generated by this study. While leasing hunters comprised 65 percent of the hunter population, they contributed 88 percent of the total county expenditures. About 12 percent of the dollars spent at community businesses came from *non-leasing* hunters, a segment of the hunting population often overlooked as a potential source of income. Using an income multiplier ranging from 1.4 to 1.8 (Stebbins, 1990), *overall annual expenditures by hunters are in the \$9 to \$12 million range for Gillespie County.*

The average expenditure per hunter totaled more than \$560 annually (Figure 1). This means that more than half of the county-level income from hunting went to the various businesses in the county. Of this total, 61 percent or about \$342 was spent at businesses in the county and 39 percent, about \$221, went to landowners for lease payments. This amounted to an annual economic impact of more than \$3 million for these establishments (Table 1). Approximately one-half (55 percent) of the purchases occurred during deer hunting season, 28 percent during the spring period and 17 percent during the summer/fall

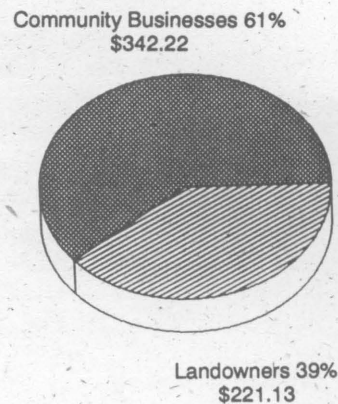


Figure 1. Average hunter expenditures for landowners and community businesses, Gillespie County, 1989-1990.

period (Figure 2). This indicates a distribution of income during the year for county landowners and businesses that is more than just a hunting-season impact.

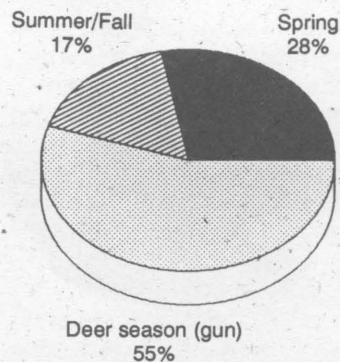


Figure 2. Distribution of Gillespie County hunter expenditures during 1989-1990.

Table 1. Comparison between leasing and nonleasing hunters.

Total expenditures <sup>1</sup>	Gillespie County hunting-related economic impacts				
	To landowners		To community		Total
	Leasing	Nonleasing	Leasing	Nonleasing	
1/15/89-7/15/89	\$ 906,284	\$0	\$ 707,402	\$ 78,285	\$1,681,971
7/16/89-11/1/89	\$ 435,975	\$0	\$ 510,339	\$213,902	\$1,160,216
11/2/89-1/15/90	\$1,245,508	\$0	\$2,164,291	\$496,239	\$3,906,038
<b>Total</b>	<b>\$2,587,767</b>	<b>\$0</b>	<b>\$3,382,032</b>	<b>\$788,426</b>	<b>\$6,758,225</b>

<sup>1</sup>Mean hunter expenditure times estimated hunters (TPWD, 1989).

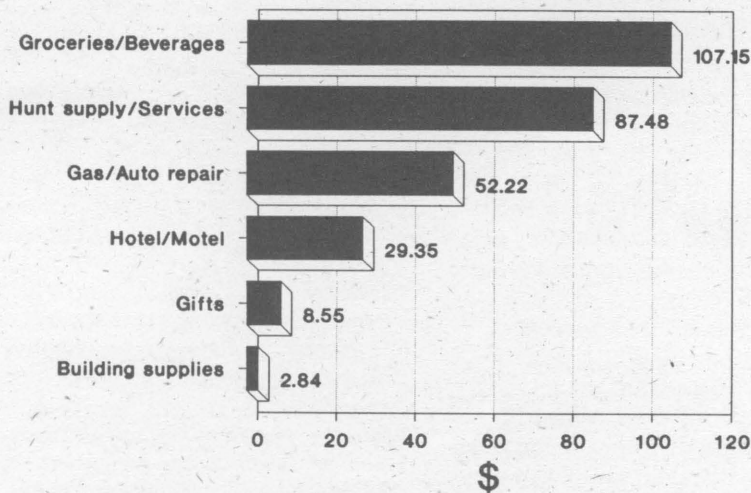


Figure 3. Average yearly hunter expenditures for selected Gillespie County businesses, 1989-1990.

### Impact on Community Businesses

The rural community businesses most economically affected by hunter expenditures in Gillespie County are shown in Figure 3. Grocery and beverage sales were at the top of the list with about \$107 in annual expenditures. Hunting supplies and services (game feed, hunting supplies, blinds and towers, game processing and cold storage) had the second-greatest impact with average sales of \$87.48. Restaurants (\$50.12), hotel and motel establishments (\$29.35), gifts (\$8.55) and building supplies (\$2.84) were businesses also affected by hunter spending patterns.

### Hunter Characteristics

Individual characteristics of hunters are useful for understanding the overall market for Gillespie County wildlife recreation. Hunters vary in personal characteristics and ability and propensity to pay for the goods and services that the county's landowners and businesses offer. By examining hunter expenditures in conjunction with their individual characteristics, we can obtain an idea of the different expenditure patterns of the vari-

ous hunter types, or market segments. This creates the potential for targeting the type of hunter that the landowner or county most desires.

### Types of Game Hunted

Figure 4 illustrates the types of game hunted by the Gillespie County hunters. Not surprisingly, the vast majority listed white-tailed deer and turkey. When these primary game species were combined for analysis it was discovered that 54 percent hunted for deer only, 46 percent hunted for both turkey and deer and none hunted exclusively for turkey.

Finding a way to capitalize on the spring turkey season may be possible. There appears to be a demand for turkey hunting, but the trips and expenditures for the spring-time period do not indicate much demand for a spring turkey season.

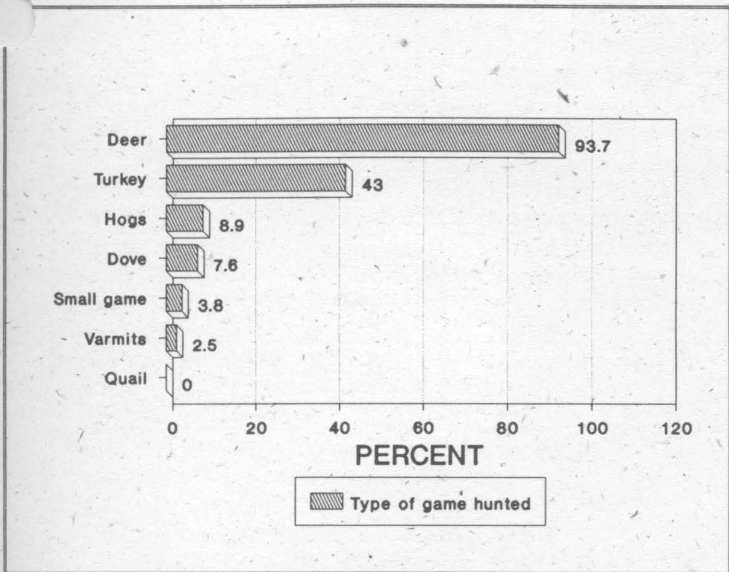
Figure 5 shows a general profile of Gillespie County hunters during 1989-90 by age, education, gender and household income. More than one-half (50.6 percent) of the respondents were between the ages of 25 and 54. There were a substantial number of hunters in the 65 and over group, which may indicate a significant market of retired

persons with a larger than average amount of disposable income (Figure 5). Most (95 percent) of the hunters were male. If the trend of females participating in traditionally male-dominated activities continues, we might expect the percentage of female hunters to increase in the future. The household income for hunters was concentrated in the \$30,000 to \$49,999 categories, with more than 40 percent of respondents in these two groups. Another important income category may be the 18.2 percent in the \$90,000 category. These hunters may have more disposable income and different needs and preferences, which landowners and community businesses might find profitable to provide.

### Market Segmentation: Targeting the Market

From an economic standpoint, we assume the county wants hunters who spend the most money at the least cost to landowners and businesses. To identify this segment of the hunter market, we must first group hunters by some individual characteristics that may be related to their spending patterns.

Statistical analysis is used to discover associations between hunter characteristics and expenditures for lease payment and businesses during the three time periods. These correlations are useful for forming hypotheses about hunter expenditure behavior. Table 2 shows that there is a significant association between total expenditures and hunter income (.458\*\*\*) and travel time (.421\*\*\*). This suggests that hunters who travel further and have higher incomes are more likely to have greater total expenditures. Travel time is significantly associated with hunter income (.400\*), which indicates that Gillespie County may be attracting different income groups according to hunter origin (the higher income groups from origins further away). Travel time is negatively associated with the number of trips to the county (.436\*\*\*).



**PRIMARY GAME COMBINATIONS**

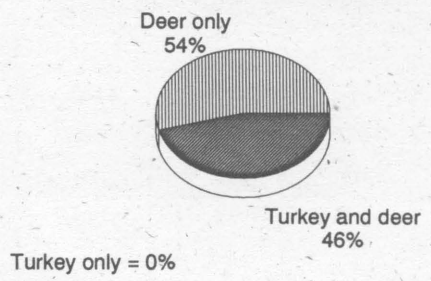


Figure 4. Types of game hunted by Gillespie County hunters, 1989-1990.

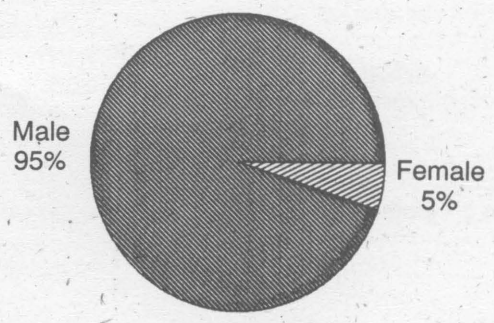
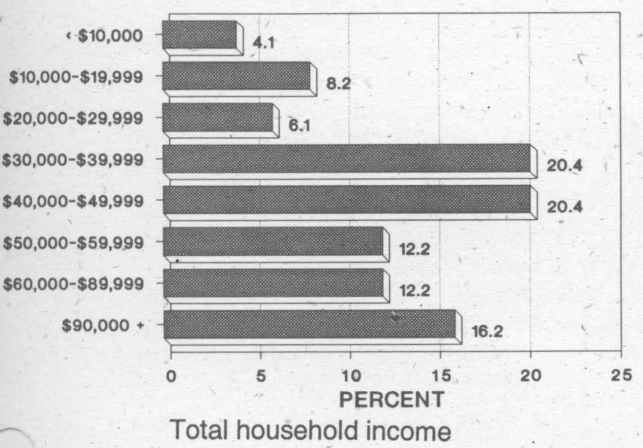
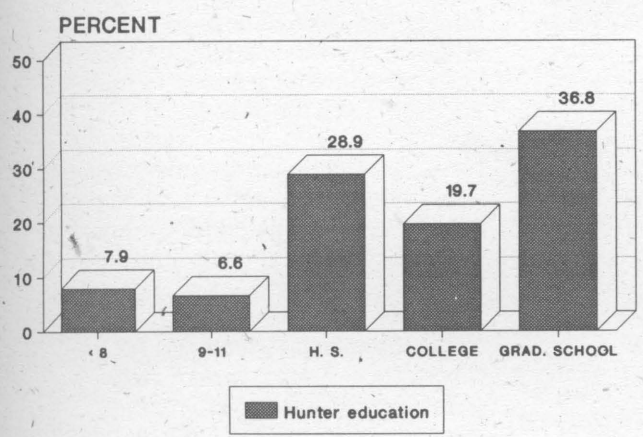


Figure 5. Profile of individual characteristics of Gillespie County hunters, 1989-1990.

**Table 2. Pearson zero-order correlations for selected hunter characteristics.**

	ED	INCOME	AGE	TTIME	TRIPS	DAYS	EXP1	EXP2	EXP3
ED									
INCOME	0.157								
AGE	0.085	0.002							
TTIME	-0.009	0.400*	-0.062						
TRIPS	-0.009	-0.356*	0.059	-0.436***					
DAYS	-0.076	-0.164	0.183	-0.270*	0.798***				
EXP1	-0.031	0.001	0.066	-0.399***	0.074	0.050			
EXP2	-0.206	0.066	0.071	0.154	0.178	0.343**	-0.134		
EXP3	0.039	0.460***	-0.005	0.184	-0.058	0.038	-0.091	0.110	
EXPT	-0.069	0.458***	0.055	0.421***	0.028	0.120	0.419	0.376***	0.754***

\* = 0.05 significant at the 0.05 level  
 \*\* = 0.01 significant at the 0.01 level  
 \*\*\* = 0.001 significant at the 0.001 level

ED = Years of education  
 INCOME = Total household income  
 TTIME - One-way travel time to Gillespie County  
 TRIPS = Number of hunting-related trips  
 DAYS = Total days hunting  
 EXP1 = mean hunter expenditures 1/15/89-7/15/89  
 EXP2 = mean hunter expenditures 7/16/89-11/0189  
 EXP3 = mean hunter expenditures 11/02/89-1/15/90  
 EXPT = mean hunter expenditures Total

Hunters with greater travel time are more likely to have higher incomes, make fewer trips to Gillespie County but have greater total expenditures in the county.

Using these relationships as a guide, the hunters were segmented by travel time into two dominant groups. One group consisted of hunters who traveled an average of 2 to 3 hours each way to Gillespie County. The other group of hunters traveled 5 to 6 hours each way.

Income may be the first characteristic to be considered when segmenting the market. All other factors held constant, the more money a person makes, the more disposable income he or she has

and the more he or she may be expected to spend on trips to Gillespie County. When the income of respondents is contrasted with their origin, a large difference is apparent. Forty-five percent of respondents from the Dallas and Houston markets had household incomes of more than \$60,000 per year, as compared to 7.1 percent of those respondents from the Austin and San Antonio markets.

Table 3 shows the number of trips, total days hunting and average expenditures for these two groups of hunters. Hunter respondents from the Austin/San Antonio market areas made an average of six to seven trips to Gillespie County during the year. They hunted for a

total of just over 20 days on the average for a mean trip length of 3 days per trip. The segment of hunters from 2 to 3 hours away averaged \$77.39 for leasing expenditures, \$309.09 for community business expenditures and a total of \$386.48 spent in the entire county. (Note: the lease and community business expenditures may not sum the total expenditures because some respondents did not report the complete breakdown of their expenditure patterns).

In contrast, the Houston/Dallas hunters (those traveling 5 to 6 hours one-way to Gillespie County), averaged five trips per year, hunted an average of 10 to 11 days for a 2-day average trip length. Their expenditures were

**Table 3. Hunter segmentation by origin and number of trips and average hunter expenditures.**

	Average trips	Total days	Average days per trip	Average expenditure, lease	Average expenditure, community	Average expenditure, Total
Austin/San Antonio	6.39	20.26	3.17	\$ 77.39	\$309.09	\$386.48
Houston/Dallas	5.17	10.50	2.03	\$270.08	\$557.08	\$827.36

greater for leases, community businesses and totals (\$270.08, \$557.08 and \$827.36, respectively) than for the Austin/San Antonio hunters.

Houston/Dallas hunters consistently spent more money with landowners and community businesses than hunters originating in the Austin/San Antonio areas (Table 4). The total in-county expenditures for the Houston/Dallas hunters were more than double the expenditures for the group from Austin/San Antonio. The study indicated that this was because of the relatively larger segment of the Houston/Dallas hunters in the upper income groups rather than the geographical differences. One exception was deer season expenditures for lease payments. The Austin/San Antonio groups were more likely to pay for lease expenses during hunting season and the Dallas/Houston group paid for this at the beginning of the year.

## Summary and Conclusions

In summary, it appears that hunters spent about \$7 million during 1988-89 in Gillespie County. Using a conservative income multiplier, these expenditures can be calculated to bring an economic impact of \$9 to \$12 million annually to the county. Of the average hunter expenditures, 61 percent went to community businesses and the remaining 39 percent to landowners for leasing payments. The temporal distribution of total hunter expenditures was 55 percent during deer season, 28 percent in the spring and 17 percent during the summer and fall.

There appears to be a large difference in the expenditure patterns of different market segments. Hunters are a heterogeneous group of individuals, and marketing strategies will have a better chance of success if they are targeted to a particular segment of the hunter population.

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**Table 4. Mean hunter expenditures by type, season and hunter origin.**

Mean hunter expenditures	Austin/San Antonio	Houston/Dallas
<b>To Landowners</b>		
Spring	\$ 16.52	\$131.94
Summer/fall	7.82	63.89
Deer season	87.17	78.61
<b>Sub-total*</b>	<b>\$ 77.39</b>	<b>\$270.28</b>
<b>To Community Businesses</b>		
Spring	\$ 60.39	\$ 35.58
Summer/fall	23.65	50.44
Deer season	82.96	293.55
<b>Sub-total*</b>	<b>\$309.09</b>	<b>\$557.08</b>
<b>Total in County</b>		
Spring	\$ 76.91	\$167.53
Summer/fall	31.48	114.33
Deer season	170.13	372.17
<b>Total</b>	<b>\$386.48</b>	<b>\$827.36</b>

\*Seasonal expenditures may not sum to totals due to incomplete data.

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