

## **TYPE II WILDLIFE MANAGEMENT AREAS IN TEXAS**

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### **ABSTRACT**

Land availability and access for hunting and other wildlife-related recreational uses are important issues in many states with few public areas. The Type II land program was developed by the Texas Parks and Wildlife Department (TPWD) as one method for private landowners to make available their lands to hunters while the TPWD manages the sale of hunting leases and game resources. This article discusses the operation of the Type II land program and public support of it.

Because the need for land and water resources for wildlife-related recreation depends in part on public demand, availability of and access to wildlife resources areas have become important socio-political issues in many states, particularly those with few public lands for recreational use [1]. Twenty-eight states in the United States have less than two acres per capita of combined federal and state public recreational land and water resources; thirty-nine states have less than ten acres per capita [2, p. 44].

In this article, we examine how Texas is providing additional public areas for wildlife-related recreation in a new statewide program, and profile public awareness and perceptions of the need for such a program.

## BACKGROUND

Three interrelated factors affect the ability of Texas government to provide public recreational access to natural areas. First, Texas has limited amounts of public land. The State has twenty unique ecosystems covering 167.7 million acres. Its public natural areas total 5.5 million acres [3]. These areas consist of inland water reservoirs (3.1 million acres); national wildlife refuges (117.5 thousand acres); wildlife management areas (383.6 thousand acres); national forests and grasslands (782.7 thousand acres); and national parks, historic sites, and recreational areas (1.1 million acres). These areas represent only 3.3 percent of the land acreage in Texas, or 0.4 acres of public land per capita compared to the national average of nine acres per capita [2, 4].

Second, Texas' population increased 18 percent from 1980 to 1987. This growth gave Texas the third largest resident population (16.8 million) in the United States [5]. As a result, urban and other forms of economic development raised demand for land resources resulting in losses of wildlife habitat. Since 1982, 807,514 acres of farmland have been diverted to other uses [6, p. 2] and 580,000 acres of developed land have been added to urban areas [7].

Finally, increases in the Texas population also increased the number and types of outdoor recreationists. A comparison of the findings of the 1980 and the 1985 National Survey of Fishing and Hunting, which were conducted by the U.S. Fish and Wildlife Service [8; 9, pp. 116, 124], indicates that the absolute numbers of hunters and fisherman increased by 116,000 and 319,000, respectively. Nonconsumptive recreationists increased from 50 percent to 70 percent in this period. Moreover, recent projections of the State's population change from 1986 to 2025 indicate recreational participation in natural areas could increase from 34 percent to 68 percent, depending on type of activity and an assumption of continued population growth approximating that in the early 1980s [10]. All of these factors (i.e., a limited amount of public land, growth in population, and actual and projected increases in the number of recreationists in natural areas) are increasing the public demand for land, water, and other resources which are vital to Texas wildlife, and are posing increasing challenges for professional wildlife management and stewardship.

### **Type II Wildlife Management Areas**

In 1987, the Texas Parks and Wildlife Department (TPWD) established the Type II Wildlife Management Area program (Type II) to provide primarily low cost hunting, but also fishing, camping, hiking, and nature photography opportunities to the public. In its inaugural year, Type II areas included approximately 466,227 acres in forty-four locations. This acreage was leased by the TPWD from private land owners, forest products industries, and the General Land Office of Texas.

Table 1. Type II Wildlife Management Areas in Texas:  
Planning Estimates and Outcomes

Year	Number of Permits (1,000)	Revenues (\$1,000)	Expenses (\$1,000)	Number of Acres	Net Return Per Acre
Estimated					
1987	5	\$175	\$217	—	-\$0.19
1988	10	\$350	\$185	—	\$0.75
1989	15	\$525	\$199	—	\$1.45
Actual					
1987	25	\$864	\$290	466,000	\$1.27
1988	35 <sup>a</sup>	\$1,244	\$437	678,000	\$1.19
1989 <sup>b</sup>	31	\$1,077	—	728,000	—

Source: Texas Parks and Wildlife Commission, Type II Wildlife Management Areas, Agenda Item, Exhibit A, page 6, Public Hearing, May 1987, Texas Parks and Wildlife Department, Austin, Texas.

<sup>a</sup> Does not include 2,196 \$10-permits sold in the 1988-89 season.

<sup>b</sup> Data are incomplete; current for February 1990.

The TPWD designed the Type II program to pay for itself and to serve as a partnership between it and private landowners. Table 1 reports the program's estimated operating plan for the first three years and its actual outcomes in the 1987 and 1988 seasons. The TPWD would collect an annual average of \$200,000 for administrative, law enforcement, and wildlife management expenses. After deduction of its operating expenses, the agency would pay each landowner on a prorated basis according to the number of hunter days spent on his/her land.

Revenues would be obtained from a \$35 fee for an annual permit (September 1 to August 31). This fee is much less than the average lease fee of #393 hunters pay to hunt white-tailed deer in Texas [11]. A \$10 limited-use permit was initiated in 1988 for camping and hiking. Children under the age of thirteen need no permit when accompanied by a permit holder. Overall, a limit of one permit per 15 Type II acres was set by the TPWD to control user density. Permit holders have discretionary access to any Type II area, thus creating the potential for shifting densities of hunters depending on demand during a given period.

The projected sale of 5,000 permits was greatly exceeded in 1987. The TPWD sold almost 25,000 permits that year indicating it had greatly under-estimated public demand and support. The Department added 212,000 acres to the program in 1988 increasing the acreage to 678,227 and the number of sites to eighty-four. In 1989, total acreage of Type II land increased to 727,825 at the eighty-four sites. Most sites are located in eastern areas of the State; a few are located in the

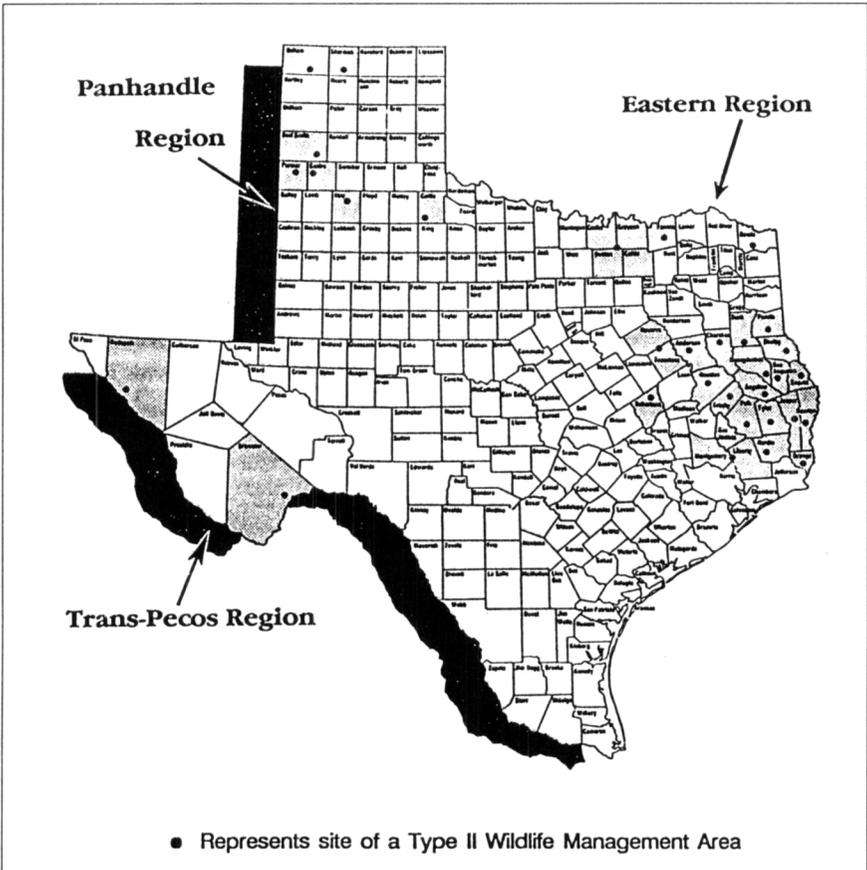


Figure 1. Type II wildlife management areas in Texas.

Panhandle and west Texas (see Figure 1). The TPWD's program goal is to provide 1.2 million Type II acres in six years of program operation.

Landowners' dollar return for participation in the Type II program was better than the agency expected. Landowners realized profits of \$1.27 and \$1.19 per acre for 1987 and 1988, respectively (Table 1).

### Hunters' Assessments of Type II Areas

Although no data on the public's awareness and opinion of Type II areas existed before the current study, mail surveys sent to 5,000 randomly sampled hunters who purchased Type II permits have been conducted in 1987 (respondents = 2,453) and 1988 (respondents = 2,211) by the TPWD. Hunters were asked to rate their overall level of satisfaction regarding their hunting experience on Type II

land, to indicate whether or not they thought the program a good idea, and to identify problems they encountered while hunting on Type II areas [12, 13]. Findings were similar in the surveys. Fifty-one percent of the respondents who had hunted on Type II land reported being satisfied or highly satisfied; 17 percent said they were dissatisfied or highly dissatisfied; almost a third had mixed feelings. Eighty-six percent considered the Type II program a good or great idea; 3 percent thought it was a bad idea. Among the eleven possible problems listed in the surveys, the major problem was not enough game as perceived by 47 percent of the respondents. Thirty-five percent said there were too many hunters in 1987. The addition of Type II acreage in 1988 helped to reduce that percentage to 29 percent. The percentage of hunters who expressed the need for more Type II acreage likewise fell from 28 percent to 20 percent in the respective surveys. Less than 8 percent in either study said the areas were difficult to find. Fewer than a third mentioned other types of problems, which included the unavailability of particular services such as campsites and roads, and habitat quality.

## METHOD

A telephone survey of a randomly selected sample of Texas households ( $n = 3,953$ ) was conducted from March 28 to May 6, 1988, to assess public demand for wildlife-related resources, access to natural areas, and opinions about the Type II program. The sample list was obtained from a commercial firm which specializes in providing such lists for survey and marketing purposes. One initial and two follow-up efforts were made to contact sample members. Respondents were randomly selected by ascertaining which person eighteen years of age or older had the most recent birthday in the household. The final response rate was 51 percent.

Since this response rate was lower than expected, the degree of sample representativeness was assessed using 1985 Texas population estimates for gender and ethnicity [14]. We chose this approach because data on nonrespondents were unavailable for determining the extent of nonresponse bias and because determining representativeness of the sample of respondents was considered important for generalizing findings to the Texas population. A small, but statistically significant difference was observed among ethnic groups. This resulted in our weighting the data by ethnicity and the number of respondents being adjusted from 2,050 to 2,078. The adjusted increase (1%) in respondents occurred among minority groups, which are generally under-represented in telephone surveys [15, pp. 61, 62].

Respondents' awareness of the Type II program and their perceived need for such a program were determined, respectively, by the questions "Are you aware of the Type 2 land program where the State establishes agreements with land-owners for the purpose of increasing public recreation and hunting opportunities?" and "In your opinion, are such areas needed by the Texas public?" Responses were compared subsequently using the chi square test of significance

with seven socio-economic characteristics—gender, race, education, total family income, years of residence in Texas, rural/urban residence, and hunter/nonhunter status. These characteristics were selected because of the diversity of recreational patterns and attitudes existing among various segments of the public [9, 16].

## FINDINGS

The survey's findings are reported for the seven socio-economic groups in Table 2. Awareness differences were statistically significant for most of the socio-economic groups, except education and rural/urban resident groups. Men, whites, individuals with incomes greater than \$30,000, residents who have lived in Texas longer than twenty-five years, and hunters were more likely than others to be aware of the Type II program. However, approximately one in every five of the surveyed public was aware of this program. Respondents most unaware of the Type II program were female, nonwhite, and nonhunters and had resided less than ten years in Texas.

Differences in perceived need for the program were statistically significant for gender, race, years of residence, and hunter/nonhunter status groups. These differences notwithstanding, large majorities (> 75%) of all socio-economic groups affirmed the need for such areas and this type of program.

## CONCLUSION

Natural resource agencies in many states are faced with at least two major tasks: managing wildlife and other natural resources and providing land and water resources to satisfy increasing public recreational demand. The concept of the Type II program may be helpful to other states faced with problems similar to those in Texas. However, the ability of agencies and natural resource professionals to provide more public access to natural areas will depend on their developing relationships with local landowners and educating them about legal, risk, and service aspects of such a program. For example, legal aspects include game regulations of the TPWD, risk aspects concern liability for user injury, and service aspects involve the provision and maintenance of roads and camp sites. In addition, they need to consider for the location of wildlife management areas, time, cost, and travel (i.e., distance) factors which can inversely affect public recreational participation [4].

The Type II is a successful program for several reasons. Hunters who access Type II lands consider the program a good idea and are generally satisfied with their hunting experiences on Type II lands. The number of available permits were oversolicited for the first year of the program each year and have sold well since. Finally, it is successful in terms of the Texas public perceiving the need for such a program.

Table 2. Percent of the Texas Public ( $n = 2,078$ ) Who Is Aware of and Perceives a Need for Type II Wildlife Management Areas

<i>Background Characteristics</i>		<i>Aware of Type II Program</i>	<i>Need for Type II Program</i>
<b>Gender</b>			
Male	( $n = 946$ )	26%	81%
Female	( $n = 1,132$ )	16%	74%
Chi square value		11.74***	13.29***
<b>Race:</b>			
White	( $n = 1,340$ )	20%	77%
Nonwhite	( $n = 731$ )	15%	78%
Chi square value		7.54**	18.98*** <sup>c</sup>
<b>Education:</b>			
< High School	( $n = 922$ )	18%	76%
> High School	( $n = 702$ )	20%	80%
Chi square value		2.24	3.81
<b>Income:</b>			
<\$20,000	( $n = 542$ )	14%	77%
\$20,000 to \$30,000	( $n = 462$ )	16%	78%
\$30,000 to \$50,000	( $n = 438$ )	23%	81%
> \$50,000	( $n = 419$ )	23%	80%
Chi square value		21.44***	4.99
<b>Years of Texas Residents:</b>			
< 10 years	( $n = 281$ )	10%	76%
10 to 24 years	( $n = 522$ )	16%	75%
25 to 44 years	( $n = 754$ )	21%	81%
> 45 years	( $n = 502$ )	22%	76%
Chi square value		24.32***	12.89
<b>Rural/Urban Residents:</b>			
Rural	( $n = 922$ )	20%	78%
Urban	( $n = 1,144$ )	17%	77%
Chi square value		2.38	0.27
<b>Hunter Status:</b>			
Hunter	( $n = 478$ )	33%	81%
Nonhunter	( $n = 1,579$ )	14%	76%
Chi square value		84.42	15.61*** <sup>c</sup>

<sup>a</sup> Responses to awareness question were no (1) and year (2). Percentage reported for YES responses.

<sup>b</sup> Responses to need question were no (1), yes (2), and not sure (3). Percentage reported YES responses.

<sup>c</sup> Statistical significance affected by the distribution of NO and NOT SURE responses.

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < 0.001$ .

However, need for improvements in the Type II program is evident. Users have indicated they have a minimum acceptance level of land-use quality, or what may be termed "public opportunity quality." Although they are satisfied with the public opportunity quality of Type II lands, they perceive the opportunity quality of these lands to be less than more expensively leased, private lands. Thus, the quality of private lands should be carefully evaluated before they are included in the Type II program.

Relative to the total number of the recreating public in Texas, too few of the public are aware of the Type II program indicating a need for more publicity by the Texas Parks and Wildlife Department. How much increase in public demand for permits will occur is unknown and difficult to project. Nevertheless, more of the recreating public should be aware such a program exists as an option in their recreational decision-making.

Next, user densities should be monitored and managed more closely by the TPWD. Presently, a permit holder can access any Type II area. This has resulted in particular areas, especially those located near large cities, being over accessed, at least according to some hunters, during opening of the deer-hunting season. This potential for overuse can negatively impact hunter safety and areal ecological systems. If such impacts occur, the TPWD could establish daily hunter-density limits and other use restrictions for each Type II area.

Finally, the public should be encouraged to use such areas for nonhunting purposes. A \$10 fee for a limited-user permit now exists; only 2,196 of these permits were sold during their first season (1988-89) of availability, compared to 2,034 in the 1989-90 season. With the increase in nonconsumptive recreation during the 1980s by the Texas public, Type II areas could provide more opportunities for the public to enjoy Texas's wildlife and other natural resources.

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