

# **Patterns of Liability Insurance Coverage and Incidents Related to Hunting and Fishing in Mississippi**

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## **Abstract**

Private landowners refrain to open their land for recreational users in the fear of being sued. This problem can be overcome by liability insurance. This study examined the decision of hunters, and anglers to purchase liability insurance and the actual bodily injuries and property damages in Mississippi during the hunting seasons from 2002/03 to 2004/05. Telephone survey was carried out, taking a random sample of adults who purchased Mississippi hunting and/or fishing license for the 2004/05 seasons. The survey revealed that 17.6% of hunting or fishing activities have been covered by liability insurance during 2004/05 seasons. Only 17 respondents reported incidents related to the recreational activity. It was concluded that the risk of landowners being sued is very low in Mississippi. Age, years of hunting and income was positively related to the purchase of liability insurance. This low risk can still be reduced by increasing the purchase rate of liability insurance.

**Key Words:** Incident, insurance, liability, recreation.

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## Outdoor Recreation and Liability Insurance

Privately owned rural land plays a strategic role in meeting the increasing demand for public outdoor recreation. Unfortunately, non-industrial private forest landowners have been slower in response to the growing demand of outdoor recreation. Private lands are found on 66% of the United States and contribute 80% of wildlife habitats, thus they are important to animal production, recreational use, and society. Expenditures for wildlife-based recreation totaled \$101.2 billion dollars in the U.S. with most money spent on equipment and trip-related costs; 90% for consumptive uses and 89% for non-consumptive uses. Only \$3.2 billion was spent for land leasing or ownership, yet hunting was practiced most on private lands; 51% or on public and private lands combined; 30% (Benson 2001).

Jones et al. (2001) reported results from two surveys on Mississippi nonindustrial private landowners and the supply of fee hunting opportunities. The percentage of respondents that charged for hunting privileges was small, ranging from 8 to 14%, depending on year and region surveyed. Other studies also found that nonindustrial private landowners had similar low participation rate in providing fee access recreation (Zhang et al. 2006). The low supply of recreational services from private lands has been a concern among wildlife agencies and recreational users because the majority of federal and state funding for wildlife management comes from hunting and fishing license sales and from federal excise taxes on hunting and fishing equipment. Even though all states have taken significant steps to insulate landowners from liability when they grant free recreational access, liability remains a concern among landowners and a barrier to public access. Most states have adopted recreational use statutes, which limit the tort liability of landholders who make their land available for recreation. Studies indicate however, that the concern of landholders about legal liability for bodily injuries to recreational users is still a major barrier to recreational access on private rural lands (Wright et al. 2002).

Liability insurance provides a landholder with the means of shifting to an insurer the financial risk of liability arising from the use of the land by recreational users. Although insurance will not prevent a landholder from being sued, it does provide a landholder with two major benefits: 1) payment of damages to a third party for injuries that are covered by the insurance policy; and 2) an entity, the insurer, with a duty to defend the landholder against all actions brought against the landholder on any allegation of facts and circumstances potentially covered by the insurance policy, including groundless, false, or fraudulent claims (Noble 1991).

Though insurance can save the landowners from the financial burden of litigations, trend of insurance purchase have not been documented in the previous literatures. Natural resource agencies will be challenged to respond to such trends amidst a rapidly changing demographic context. The population of the United States continues to grow in number in racial, and ethnic diversity, and level of urbanization. It also continues to experience a shift in its age-structure, as the population grows older, and an increase in the variation in household composition (Murdock et al. 1992). In order to respond effectively, agencies will need current information on how such trends are likely to affect participation in wildlife-based recreation. This information can assist in the development of targeted strategies for responding to current trends in wildlife recreation use and demographic change.

This paper provides analyses of the status of fishing and hunting license purchases among Mississippi recreation users using data from a statewide survey of the recreational users' population. The purpose of this study was to examine the extent of current fishing and hunting license purchases and identify socioeconomic and demographic factors that influence license purchases among Mississippi residents. We focused on two basic and related reasons: 1) actual damages and injury patterns in Mississippi during three hunting seasons 2002/03 to 2004/05. 2) Patterns in purchasing liability insurance in 2004/05 hunting season.

### **Pattern of Recreation Activities and Demographic Characteristics**

The promotion of fee-based wildlife recreation on private lands encourages voluntary conservation and restoration of ecologically sensitive lands, with limited state and federal governmental involvement. Incentive-based federal programs, such as the U.S. Department of Agriculture's Conservation Reserve and Wetland Reserve Programs, have protected numerous acres of marginal lands within the state of Mississippi. Wildlife recreation on private lands can benefit many Mississippi stakeholders. Private landowners can derive additional income from hunting, fishing, and non-consumptive activities such as bird watching and nature tours. Landowners who improve wildlife habitat quality, and thereby increase game concentrations, increase the recreational value of their land (Jones et al. 2001). The net effects of landowner involvement in fee-based wildlife recreation are; more conserved and restored acreage without the use of traditional regulatory measures, additional income sources for landowners, and enhanced opportunities for outdoor enthusiasts.

Jones et al. (2001) carried out a research in Mississippi concerning the number of non-industrial private landowners engaged in fee hunting, the amount and type of land dedicated to fee hunting by landowners, the various wildlife management practices these landowners implement, the costs and revenues associated with fee hunting, and various other issues related to fee hunting. Liability expense is the second largest category for landowners involved in fee hunting, managerial expense being the largest. Landowners engaged in fee hunting generally do not experience serious problems. Poaching and trespassing was the highest rated problem followed by accident liability. Respondents not engaged in fee hunting said that they chose not to involve because of loss of land control, loss of privacy, accident liability, damage to property, and poaching and trespassing followed successively. Over harvest of wildlife, financial gain not worthwhile, and not wanting wildlife hunted were other problems. The ratings of problems by two different groups indicate substantial difference between the actual and perceived problems.

Fee hunting provides monetary incentives to landowners for afforesting marginal agricultural land and protecting ecologically diverse forests and wetlands without the intervention of environmental regulations. Land-use planning by landowner cooperatives, economic development groups, and local communities can promote fee hunting on private lands as a viable alternative to development projects and agricultural production on marginal lands, thus protecting forests and emergent wetlands.

Accident liability is the second concern of landowners who are involved in fee hunting preceded by poaching and trespassing. Recreational use statutes do not protect the landowners involved in fee hunting from common tort. Insurance purchase can be a useful way to reduce the

liability. But very little information is available concerning the insurance purchased by recreationists and landowners involved in fee hunting. This article addresses insurance purchase issue and the different factors associated with it.

Since the early 1960s, research has consistently documented relationships between fishing and hunting participation and demographic variables. But relationship between insurance purchase and demographic variable has not been studied. Since hunters and anglers are the insurance purchasers, relationship between insurance purchase and demographic variables can be related to the trend in hunting and fishing participation. In general, gender, age, race, and place of residence have been shown to influence hunting participation (Floyd and Lee 2002). Generally, the influence of education and income on hunting participation is not as prominent or consistent as gender, age, race, and place of residence. Growing up in a rural setting is associated with an increased propensity to hunt, as are certain target characteristics (being male) and having a primary socializing agent i.e., a father who hunts (Stedman and Heberlein 2001).

Floyd and Lee (2002) reported that from their analyses of 1980, 1985, and 1991 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation data that largest effect on hunting was “whether or not the individual grew up in a rural area”. In their analysis, rural residence was identified as the most important variable explaining the declining rates of hunting participation over the 1980 to 1990 time period.

Regarding the place of residence, 44% of hunters in 1997 lived outside a Metropolitan Statistical Area. In general, Caucasians are more likely to hunt than African Americans, or members of other major race and ethnic categories. Two percent of the African-American population and 3% of other racial groups (as defined by the U.S. Census) went hunting in 1996 (USDI and USDC 1997). These figures have remained nearly constant since 1985. Eight percent of the Caucasian population hunted in 1996 and 1991. The figures didn't change much in the 2001 survey (USDI and USDC 2002).

## **Methodology and Survey Design**

The data for the study came from a telephone survey conducted by the Social Science Research Center at Mississippi State University. Data collection for this survey was done via telephone interviews with a simple random sample of adults who purchased a Mississippi hunting and/ or fishing license for the 2004/05 season and lived in a household with a telephone. All individuals under 18 years of age were excluded from this study, as were those with duplicate entries i.e. one who purchased more than one license. Of the 4,033 numbers dialed for this survey, 1,653 completed the interview, six interviews could not be completed during the time frame and 81 refused to participate, 1,116 were determined to be bad numbers, 55 could not participate because of communication problems, health problems, or were out of town for the duration of this study, and 638 numbers were not reached to start the interview, 310 were call backs that could not be completed during the time frame for this study. In addition, 174 said they had not purchased hunting and/or fishing license in the past three years.

Questions involved measuring fishing and hunting participation, insurance purchases, type of license purchased (resident and non-resident), rate of injury, type of land where the injury

occurred, property damages, recreational activity related to the injury, cost of license, total cost involved with injury, medical costs, claim limit per incident, type of land and selected socioeconomic and demographic characteristics. Data on insurance were obtained from items asking whether they purchased liability insurance in past three years. The six demographic variables are included in the analyses. The variables included are marital status, education, residence, income, gender, and years of hunting, race and ethnicity, age. There are 80 questions involved in the survey. The respondents hesitated to answer questions related to injuries. That is why information from all the questions could not be used for the analysis. Due to small number of respondents, variable associated with cost of injury, claim limit per incident and medical cost could not be involved in the regression model.

To examine the factors influencing a respondent's insurance purchase, logistic regression was used to examine the effects of years of hunting, race, marital status, education, place of residence, income, gender, age, type of license (resident or non-resident), residence sportsman license, residence all game license, non-residence all game license and other license purchases by the recreation user. Logistic regression was used since the dependent variable of insurance purchase to be analyzed was dichotomous. The logistic regression model to be estimated can be expressed as: Let  $Y_i$  represent the insurance purchase status of a recreation user. Let  $Y_i = 1$  if the user says "Yea" and  $Y_i = 0$  if the user says "Nay". A binary logit model can be estimated with the following general form

$$\Pr(Y_i = 1) = P_i = \frac{e^{\beta'x}}{1 + e^{\beta'x}} \quad (1)$$

$$\Pr(Y_i = 0) = 1 - P_i \quad (2)$$

Where  $P_i$  is the probability of an insurance purchase,  $\beta$  is the set of parameters to be estimated associated with the independent variables (i.e. demographic and socioeconomic characteristics) (Greene 2003).

The dependent variable in the model represented a respondent's insurance purchase status. The independent variables included years of hunting, race, marital status, education, place of residence, income, gender, age, type of license (resident or non-resident), residence sportsman license, residence all game license, non-residence all game license and other license purchases by the recreation user. Selection of these variables was based on previous studies and their ability of improving the model's explanatory power that explains the effect of these variables on license purchase. Coding of the independent variables and their percentage in sample is shown in Table 1. In addition, years of fishing, total medical cost of the injury were used as explanatory variables, but they did not add any explanatory power to the model. Years of fishing were collinear with years of hunting. Other variables such as cost of insurance, claim limit per incident were also tried, but later decided to eliminate them because there were

**Table 1** Demographic and socioeconomic characteristics of recreational users in Mississippi found through telephone survey during 2004/05 hunting season with codes used for logistic regression (N=1653)

Demographic Characteristics	Frequency	Percent in Sample
<i>Gender (n= 1653)</i>		
0 = Female	82	4.96
1 = Male	1571	95.04
<i>Race and Ethnicity</i>		
1 = Caucasian, 0 = others	1524	92.20
African-American	113	6.84
Other	16	0.97
Asian or Pacific Islander	0	0
American Indian or Alaska Native	0	0
<i>Age (n= 1653)</i>		
19-23	89	5.30
24-34	225	13.61
35-44	398	24.07
45-54	485	29.34
55-64	364	22.02
65 and older	92	5.56
<i>Education (n= 1637)</i>		
1 = Never attended	3	0.18
2 = Grade school	39	2.38
3 = High school	109	6.65
4 = Grade 12 or GED	614	37.50
5 = College degree	423	25.80
6 = College 4 yrs or more	449	27.20
<i>Income (n= 1289)</i>		
1 = Less than \$20,000	103	7.90
2 = \$20,000- 60,000	588	45.61
3 = \$60,000-100,000	373	28.93
4 = \$Over 100,000	225	17.45
<i>Population size (n= 1564)</i>		
1 =A farm or ranch	199	12.72
2 = Rural but not a farm	575	36.76
3 = A town under 2500 population	127	8.12
4 = A town with 2500 to 10000	167	10.67
5 = A city of 10,000 to 50,000	313	20.01
6 = A city of 50,000 to 100,000	79	5.05
7 =A city larger than 100,000	104	6.64

only few respondents to answer the related questions. Resident and non-resident license purchasers were included in the model to see if that affects the rate of insurance purchase.

## **Results and Discussions**

### *Descriptive Analysis of Purchase of Liability Insurance*

Out of 17 respondents, only 1.1% reported any incidents related to the recreational activity. They said that they have not been involved in any lawsuits. The recreationists who are the landowners as well said that rate of property damage is very low. Among the respondents 97.4 % are hunters, 12.3% have hunted for 30 years, and 10.4% have hunted for 40 years. Caucasians are 92.2 % of the total sample, 6.8% are African-American. In the sample, 37.1% have passed grade and 45% of the respondents lie in the income group \$20,000 to \$60,000.

It was found that 17.6% of hunting or fishing activities have been covered by liability insurance during past three years (2002-2005). Very low rate of injury and property damage has an implication to the low insurance purchase rate in Mississippi. The low rate of insurance purchase is also due to the undeveloped business of fee access by private landowners. Review of cases by Wright et al. (2002) also showed that there is only one lawsuit related to recreational activity in the state of Mississippi. This is because fee access recreation is not developed in Mississippi. Private landowners are safer from being sued than what they really think of. Only 11% of landowners allow fee access recreational activities as mentioned in the previous literatures. Insurance purchase can be a way to reduce the risk of liability arising from injuries and property damages related to fee access recreational activities.

Sports club provided the highest insurance coverage, 45% in past three years. Members in the sports clubs are paying some money to the owners directly or indirectly, a percentage of their membership fee is allocated for insurance. This is because the landowners would not allow them on their land unless they buy the insurance. The cost of insurance was \$484/yr (n=33) in average, the least cost being \$25 and the highest being \$3700/yr. Average Claim limit per incident was \$ 550929.6/yr, least cost being \$25 /yr and the highest being \$500, 0000/yr (n=56). Average medical cost for injuries is \$6363.63/yr, least being \$1/yr and highest being \$70,000/yr (n= 11). The respondents said that, most of the recreational activities were covered by the insurance purchased. The month of December accounted for most of the accidents (n=4). The number of incidents on the public land (n= 8) and private land are about the same (n=9). For most of the injuries/damages insurance company paid the cost involved (n=12). Fee charge is not involved in the recreation activities; only four out of 17 respondents said that they are involved in fee charge. The equipment that directly involved in the accident is boat for most of accidents. This implies that most of the accidents are water related. This is in accordance with the finding by (Wright et al. 2002). The counties where accidents occurred were Washington, Warren, Claiborne, Clay, Grenada, Hinds, Holmes, Jefferson, Jefferson Davis, Kipper, Lowndes, Wayne, Wilkerson and Yazoo.

Comments by the respondents included that there is no need for liability insurance because accidents can be avoided by recreating safely. The respondents also said that they did not know that the liability insurance was available. This urges educational information to the

recreationists about the insurance. Organizations like forest landowner’s association also provide insurance in the state of Mississippi. Coverage can be extended on the farmer’s liability insurance. Comprehensive liability insurance helps the farmers to keep themselves safe.

*Logistic Regression Analysis of Purchase of Liability Insurance*

The probability of insurance purchase is regressed against various independent variables to see their effect during the 2004/2005 hunting season. Likelihood ratio is 44.22 with 14 degrees of freedom which is significant at less than 1% level. Null hypothesis can be rejected in this case and conclude that at least one and perhaps all p coefficients are different from zero. The results of the regression are shown on Table 2. The likelihood of having purchased any type of insurance in the past three years is significantly associated with race, income, age, type of license and non-residence all game licenses.

Variable gender is not significant. Gender and race are the most consistent predictors for license purchases but gender is not a predictor of insurance purchase. The probability of insurance purchase increases with the Caucasian people. Lower rates of insurance purchases strongly suggests the need for strategies to encourage insurance purchase among ethnic minorities in the state of Mississippi.

People with higher income are more likely to purchase the insurance. Variable age is also positively related to insurance purchase revealing the higher insurance purchase rate with increasing age. Type of license i.e. resident and non-resident type is positively related to

**Table 2** Logistic regression analysis of insurance purchase on demographic and socioeconomic characteristics and user characteristics

Variables	Logit-coefficients	t-value
Intercept	-22.20	-51.42
Yrs. Of hunting	0.00	1.12
Race	1.34 <sup>a</sup>	3.36
Marital status	-0.14	-0.73
Education	0.03	0.59
Residence	0.00	-0.10
Income	0.10 <sup>b</sup>	1.56
Gender	-0.06	-0.20
Age	0.01 <sup>a</sup>	3.21
Type	17.89 <sup>a</sup>	72.75
Residence sportsman	0.22	1.03
Residence all game	0.09	0.37
Non-Residence all game	18.36 <sup>a</sup>	65.50
Other	0.31	0.98

<sup>a</sup> Significant at 1% or better level

<sup>b</sup> Significant at 10% or better level

insurance purchase, implying that recreation user out of state is more likely to buy insurance than users’ inside the state. Place of residence (bigger tract) was hypothesized to be negatively



related to insurance because these people do not stay on the property. The respondents of our survey included landowners who are recreational users that is why there is no statistical significance of this hypothesis. It has practical significance for individuals who are recreation users as well as landowners.

## **Conclusions**

Pattern of insurance purchase during the hunting seasons from 2002/03 to 2004/05 is not significantly different. The results indicated that about 17.6% of the sample interviewed purchased some type of insurance for hunting and fishing. Sports club provided the highest insurance purchase for its members. Promotion of fee hunting and liability insurance through sports club can be very effective. Age and Income of the users had significant impact on the rate of insurance purchase by the recreational users. It implies that, richer users are likely to buy insurance than poorer ones. Fee access recreation should be made available to lower income group people. Incentives from the government or landowner's association could be a way out for such people by making cheaper rates of insurance available.

Results indicated that only 1.1% users reported any injuries related to recreational activities. None of them reported any lawsuits. Respondents' ignorance about the insurance implies the lack of fee hunting opportunities. This low rate of insurance purchase exposes the recreational users and landowners to high risk of liability. It will in turn reduce the rate of participation in hunting and fishing. There are several practical and policy implications for this study. In the long run, the impact on funding to states generated through license purchase could be substantial. That is why it is recommended to increase public participation in fee access recreation and to increase purchase of liability insurance. This will improve the quality of hunting and fishing and reduce the burden on landowners. This in turn will benefit the state by increasing the license sales.

Extensive study regarding the liability coverage by different insurance companies can open to the public, an information regarding benefits of insurance companies. Research on costs related to the insurance can open some other roads for fee access recreation. As the type of license provided by the state wildlife agencies are standard, type of insurance can be standardized in some way rather than having many insurance companies. Insurance companies having differing coverage can create confusion on the users. This study surveyed a sample of recreation users; liability is the concern of landowners and not recreation users that is why study regarding the pattern of insurance purchase by landowners is recommended for future studies.

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