

## National Outreach Programming for Landowners—Natural Resource Enterprises

### Abstract

We conducted a survey of Mississippi landowners to determine revenues collected and expenditures incurred during 1996-1998 for fee hunting on their properties (inflated to 2011 estimates). Study findings revealed that respondents diversified incomes derived through fee hunting enterprises on their lands. This information has been used to design a series of multi-state landowner workshops about natural resource enterprises development and conservation practices on private lands. With state and local collaborator assistance, we have conducted over 50 landowner workshops in nine U.S. states and Sweden and have received requests to expand outreach programming to other U.S. states.

**W. Daryl Jones**  
Associate Wildlife  
Extension Professor  
Department of  
Wildlife, Fisheries &  
Aquaculture  
[djones@cfr.msstate.edu](mailto:djones@cfr.msstate.edu)

**Jeanne C. Jones**  
Professor of Wildlife  
Department of  
Wildlife, Fisheries &  
Aquaculture  
[jjones@cfr.msstate.edu](mailto:jjones@cfr.msstate.edu)

**Stephen C. Grado**  
Professor of Forestry  
Department of  
Forestry  
[sgrado@cfr.msstate.edu](mailto:sgrado@cfr.msstate.edu)

**Ian Munn**  
Professor of Forestry  
Department of  
Forestry  
[imunn@cfr.msstate.edu](mailto:imunn@cfr.msstate.edu)

**T. Adam Rohnke**  
Extension Associate  
III  
Department of  
Wildlife, Fisheries &  
Aquaculture  
[arohnke@ext.msstate.edu](mailto:arohnke@ext.msstate.edu)

**Adam T. Tullos**  
Extension Associate  
III  
Department of  
Wildlife, Fisheries &  
Aquaculture  
[adamt@ext.msstate.edu](mailto:adamt@ext.msstate.edu)

**Dawn Manning**  
Extension Associate I  
Department of  
Wildlife, Fisheries &  
Aquaculture  
[dmanning@ext.msstate.edu](mailto:dmanning@ext.msstate.edu)

Mississippi State  
University  
Mississippi State,  
Mississippi

## Introduction

In the southeastern United States, approximately 216 million acres of forestland is classified as timberland, with 4.7 million nonindustrial private (NIP) forest landowners controlling 79% of forested acres (United States Department of Agriculture Forest Service, 2002). In Mississippi, forests cover 19.8 million acres, 63% of the state's total land area (Oswalt, Johnson, Coulston, & Oswalt, 2008), with 78% of forests owned by NIP landowners. Additionally, Mississippi is comprised of over 11.5 million acres of agricultural land, with 4.2 million acres in harvestable row crops along alluvial floodplains (United States Department of Agriculture, 2009).

Generation of income through timber management, agriculture, and other income sources, such as nature-based tourism, hunting, angling, and agritourism diversifies revenue sources for private

landowners who wish to maintain their lands in natural conditions (Jones et al., 2006). For example, Yarrow & Yarrow (1999) and Jones, Jones, Munn, & Grado (2005) reported that prices for hunting leases in Alabama and Mississippi ranged from \$3/acre to \$13/acre annually, with higher lease values exceeding \$30/acre.

Pursuit of outdoor recreational opportunities, such as hunting, angling, and viewing wildlife, continue to be in high demand by the U.S. public, with 87.5 million residents participating in wildlife-related recreation in 2006, spending \$122.3 billion (United States Department of the Interior & United States Department of Commerce, 2007). In Mississippi, an estimated 1.1 million residents and nonresident recreationists spent \$876 million for hunting, angling, and wildlife watching excursions during 2006. Additionally, a recent study found buyers of rural lands purchased properties for outdoor recreational purposes and those recreational opportunities increased land sales values by 52% in Mississippi (Jones et al., 2006).

Several economic impact studies of outdoor recreation have focused on revenues generated in local and statewide economies by recreationists who pursue a specific game or nongame species, species group, or type of recreational activity and by hunting outfitters (Burger, Miller, & Southwick, 1999; Grado, Kaminski, Munn, & Tullos, 2001; Henderson, Grado, & Munn, 2003). However, there appears to be a limited number of studies (Jones et al., 2005) that investigated income earned by landowners who were involved in fee hunting arrangements. Thus, our study objectives were to: a) estimate the percentage of Mississippi NIP landowners who receive hunting-related revenues from their land by geographic region of the state; b) estimate gross revenues, expenses, and profits from fee hunting by region; c) identify wildlife management practices employed by landowners within different regions; e) identify predictors of gross revenues collected from fee hunting enterprises; and f) design outreach programming for landowners in outdoor recreational enterprise development on their lands in MS and in other states.

## Methods

NIP landowners owning > 40 acres in Mississippi were identified and randomly selected from 1995 property tax records (Social Science Research Center, Mississippi State University, unpublished data.). A mail questionnaire was developed by a multi-disciplinary team of forestry, wildlife, and social science professionals.

In March 1997, 1,363 questionnaires were mailed to a random sample of Mississippi landowners statewide, and 1,293 questionnaires were mailed to a random sample of Mississippi Delta landowners for the 1996-1997 hunting season. Landowners who did not return the questionnaire were sent a second questionnaire within 6 months. In March 1998, 2,030 questionnaires were mailed to a random sample of Mississippi landowners statewide, and 2,280 questionnaires were mailed to a random sample of Mississippi Gulf Coast landowners.

To better determine geographical differences in fee hunting activities, the original four surveys were pooled into three datasets, each containing 1996-1997 and 1997-1998 respondent responses from the following state regions: 1) Mississippi River Alluvial Delta (19 counties); 2) North region (33 counties); and 3) South region (30 counties). Survey instruments included questions on land ownership; types of and expenditures on wildlife management activities; and revenues and

expenditures associated with fee hunting activities. Revenue and expenditure data was inflated to 2011 estimates using Consumer Price Index expressed as an annual percent of 1.0498% (United States Department of Labor, 2012).

## Results

### Response Rates and Types of Hunting

A total of 2,251 Mississippi respondents returned useable questionnaires over the 2-year study period, with 743 surveys returned by Delta region respondents, 584 returned by North region respondents, and 924 surveys returned by South region respondents, for an overall response rate of 32%. A total of 292 respondents reported charging for hunting, with 235 respondents (10%) completing all questions on fee access activities; these data were used in analyses of revenue generation and expenditures.

### Ownership Size and Composition

Forests accounted for 32%, 64%, and 77% of the average ownership in the Delta, North, and South regions, respectively. Agricultural land accounted for smaller percentages of landholdings in North and South regions (22% and 5%, respectively), while Delta landowners owned more agricultural lands (61% of landholdings). Ownerships in wetlands were more common among Delta respondents (17% of landholdings) compared to 7% by South respondents and 4% among North respondents. Average ownership sizes for respondents engaged in fee hunting ranged from 1,144 acres (SE = 175) in North region to 1,443 acres (SE = 197) in Delta. Forest represented 80% and 87% of average ownership of respondents engaged in fee hunting in the North and South regions, respectively, compared to 55% and 71% for those respondents who were not participating in fee hunting. Forests accounted for 52% of average ownership among Delta respondents engaged in fee hunting and only 27% for Delta landowners who did not participate.

### Expenditures

Mean annual operational and amenities expenditures were \$2,073 (SE = 836) among Delta respondents, \$755 (SE = 184) among South respondents, and \$292 (SE = 77) among North respondents, with predominate expense categories being payments to land managers (\$303; SE = 123), road and trail construction and maintenance (\$215; SE = 64), and liability insurance (\$116; SE = 34).

In terms of wildlife management, expenditures for vegetation management and wildlife food and cover plantings were the most common management practices conducted (Table 1). On average, Delta respondents spent more on wildlife management than North and South respondents. On a per acre basis, Delta respondents spent \$4.05 (SE = 0.33); South respondents spent \$2.93 (SE = 0.38); and North landowners spent \$2.30 (SE = 0.28).

**Table 1.**

Mean Wildlife Management Expenditures of Mississippi Respondents Engaged in

Fee Hunting During the 1996-1997 and 1997-1998 Hunting Seasons (2011 Dollars)

| <b>Management Practice</b>   | <b>Delta<sup>a</sup> n = 90 (SE)</b> | <b>North<sup>a</sup> n = 72 (SE)</b> | <b>South<sup>a</sup> n = 77 (SE)</b> |
|--|--------------------------------------|--------------------------------------|--------------------------------------|
| <b>Vegetation Management</b>   | \$491 (111)                          | \$396 (160)                          | \$610 (297)                          |
| <b>Food and Cover</b>  | 587 (160)                            | 201 (59)                             | 376 (122)                            |
| <b>Stands and Blinds</b>   | 363 (90)                             | 91 (36)                              | 213 (78)                             |
| <b>Waterfowl Management</b>  | 259 (75)                             | 25 (15)                              | 4 (3)                                |
| <b>Total Expenditures</b>  | \$1,702 (350)                        | \$713 (218)                          | \$1,205 (370)                        |
| <sup>a</sup> Includes wildlife management expenditures for fee hunting lands and lands for personal use of landowners. |                                      |                                      |                                      |

## Revenues

More landowners (range - 86% to 97%), regardless of the region, were engaged in leasing properties for hunting as a payment arrangement as compared to day permit hunting or allowing outfitters access to lands. Average gross revenues per landowner collected over all payment methods were \$7,335 (SE = 1,196; range \$5 - \$73,486) in the Delta, \$6,098 (SE = 1,031; range \$157 - \$58,736) in the South, and \$2,965 (SE = 342; range \$19 - \$11,757) in the North. On a per acre basis, average gross revenues were \$5.41 (SE = 0.90; range \$0.13 - \$26.00) in the Delta, \$4.77 (SE = 0.76; range \$0.71 - \$50.00) in the South, and \$2.93 (SE = 0.75; range \$0.72 - \$10.77) in the North.

Respondents from the South averaged greater profits from fee hunting than other regions, earning \$4,033 (SE = 1,007) and \$3.15 per acre (SE = 1.04; Table 2). Delta landowners averaged slightly lower profits at \$3,560 (SE = 798) and \$2.62 per acre (SE = 0.78), while North respondents earned \$1,961 (SE = 361) and \$1.94 per acre (SE = 0.48). Although Delta landowners collected greater gross revenues, these respondents also incurred higher costs for amenities provided and wildlife management expenditures than other regions, resulting in lower net revenues.

**Table 2.**

Mean Net Revenues per Mississippi Landowner Engaged in Fee Hunting During the 1996-1997 and 1997-1998 Hunting Seasons (2011 Dollars)

| <b>Cash Flows from Hunting</b> | <b>Delta n = 90 (SE)</b> | <b>North n = 72 (SE)</b> | <b>South n = 73 (SE)</b> |
|--------------------------------|--------------------------|--------------------------|--------------------------|
|                                |                          |                          |                          |

|   |                    |                  |                    |
|---|--------------------|------------------|--------------------|
| <b>Gross Revenues</b>   | \$7,335<br>(1,196) | \$2,965<br>(342) | \$6,098<br>(1,031) |
| <b>Overhead Expenditures</b>  | 2,073 (836)        | 292 (78)         | 793 (201)          |
| <b>Wildlife Management Expenditures</b>   | 1,702 (350)        | 713 (218)        | 1,271 (390)        |
| <b>Net Revenues<sup>a</sup></b>   | \$3,560 (798)      | \$1,961<br>(361) | \$4,033<br>(1,007) |
| <b>Net Revenues per Acre<sup>a</sup></b>  | \$2.62 (0.78)      | \$1.94<br>(0.48) | \$3.15 (1.04)      |
| <p><sup>a</sup> Net revenues are understated because corresponding wildlife management expenditures for 1996-1997 respondents include expenditures on lands for personal use of landowners.</p> |                    |                  |                    |

## Predictors of Gross Revenues

For the Delta, predictors of gross revenues were forest acres committed to fee hunting, agricultural acres committed to fee hunting, and wetlands owned as a percentage of total land ownership [GR = -867 + 4.90 (FORAC) + 6.25 (AGAC) + 793 (% of wetlands owned; P = 0.000, adjusted R2 = 0.761, df = 88)]. For the South, predictors of gross revenues were forest acres and agricultural acres committed to fee hunting and amenities expenditures [GR = 894 + 1.72 (FORAC) + 37.27 (AGAC) + 1.03 (OH; P < 0.05, adjusted R2 = 0.856, df = 72)]. For the North, forest acres and agricultural acres committed to fee hunting increased gross revenues collected [GR = 253 + 2.75 (FORAC) + 2.36 (AGAC; P = 0.000, adjusted R2 = 0.702, df = 71)].

## Discussion

Landowners in Mississippi diversified family incomes by engaging in fee hunting activities on their properties, and these activities and revenue collections differed regionally. Revenue generation and expenditures for amenities provided and wildlife management were more prevalent among Delta landowners compared to other regions.

Forestlands, particularly hardwood forests, increased hunting revenues by providing habitats for a diversity of wildlife, such as white-tailed deer and wild turkey that are commonly featured in hunting operations. Agricultural lands increased revenues, particularly in the South, where these lands provide essential wildlife habitats that are important within a predominately forested landscape of south Mississippi. Within the Delta region, wetland acreage increased revenues collected by landowners due to the prevalence of wetland forests and river systems that support game species for hunting (Jones et al., 2005). Additionally, privately owned flooded agricultural lands managed for waterfowl in the Lower Mississippi River Alluvial Valley increased from 20,000 acres in 1990 to 200,580 acres in 2005 (M. Goldsmith – Ducks Unlimited, personal communication, 2009), indicating the importance of waterfowl on lands leased for hunting.

## Implications—Mississippi and National Landowner Outreach Programming in Natural Resource Enterprises Development

Using these findings in Mississippi and through collaborations with specialists in other states, educators of the Natural Resource Enterprises (NRE) Program at MSU have designed educational materials and curricula on land management and enterprise operations to educate landowners and farmers through workshops and demonstrations (Jones, Jacobs, Yarrow, & McPeake, 2008). We have designed state- and region-specific seminars to introduce workshop participants to NRE revenue potential, legal considerations, business planning, and land management strategies that support developing outdoor recreational enterprises on private lands. To facilitate a better learning environment, workshops are conducted on lands committed to existing outdoor recreational businesses or on lands managed with conservation practices that could support fee access outdoor recreation.

Since 2005, NRE staff and collaborators have conducted over 50 educational workshops for landowners in Alabama, Arkansas, Indiana, Louisiana, Minnesota, Mississippi, Oregon, South Carolina, Tennessee, and Sweden. Program collaborators, including resource agency, tribal, university, and private-sector organizations assisted in modifying educational materials and events to better appeal to local landowner audiences in partnering states and locales.

To measure program impacts, we asked workshop participants to complete a short questionnaire about ratings of events, landownership, perceived value of knowledge and education received, and expectations of initiating a fee access recreational business on their lands. Findings revealed that approximately 2,500 landowners and farmers have attended events, with the majority (75%) of participants reporting that they intended to integrate conservation on their lands. On average, respondents reported that they expected to earn an additional \$25,208 annually per individual or over \$26/acre from natural resource enterprises developed on properties.

Revenue expectations from workshop participants were over five times the estimates as reported in our fee hunting study in Mississippi. This observation possibly resulted from participants considering multiple enterprises on their lands for greater profitability. This speculation was confirmed through subsequent survey communication with landowners who attended past NRE events. Also, increased revenue expectations by respondents were likely due to a more current outlook for recreational business potential on their lands. Revenue expectations reported from workshop evaluations were found to be consistent with recent survey studies that determined leasing rates for hunting in Mississippi (Hussain et al., 2007; Jones, unpublished data). Subsequently, current leasing rates have been incorporated into NRE educational materials that are distributed at landowner workshops.

Although hunting-related expenditures and activities have declined nationally, leasing properties for hunting has increased. For example, hunting-related expenditures in Mississippi fell by \$56 million (10% reduction), and hunter numbers declined by 129,000 (30% reduction) from 1995 to 2006 (United States Department of the Interior & United States Department of Commerce, 1997; United States Department of the Interior & United States Department of Commerce, 2007), while leasing activities and rental prices paid for private tracts have increased over this same time period from an average of \$5 to \$25 per acre annually (Jones et al., 2005; Jones, unpublished data). This

observation might suggest a shift in recreational hunting for a fee on private lands that offers higher quality hunting experiences and less dependent on public-access lands.

Albeit the 1996-1998 survey data is dated, it was the first data collected in the state on fee-hunting activities and was used by scientists to develop NRE educational materials. Land ownership and uses have changed marginally over the last decade in Mississippi. Since 2001, Mississippi forestlands have increased by approximately 5% (1 million acres) at the expense of agricultural lands with majority of these lands being planted in pine trees (Mississippi Forestry Association, 2008). Although agricultural acres have declined in Mississippi over this period, shifts in row crops have occurred with acreage increases occurring predominately in soybean and corn (United States Department of Agriculture, 2009). Additionally, Mississippi producers have assertively enrolled marginal agricultural lands into Farm Bill Programs, including the Wetlands Reserve Program (89,000 acres) and Conservation Reserve Program (909,164 acres) that provide habitats for wildlife (Burger, 2005). Thus, natural resource enterprises that feature hunting and wildlife-associated activities and Extension programming that educates landowners about NRE opportunities are more relevant than ever in diversifying incomes and enhancing conservation on working lands.

## Lessons Learned in Multi-State Outreach Programming

Due to increasing demand from program collaborators and landowners nationally, NRE programming is expanding nationally. Farm Bureau Federation offices in California, Illinois, Iowa, Kentucky, Michigan, Missouri, and New Hampshire have requested assistance in offering NRE education to landowners and farmers. Additionally, the program will continue to offer educational events in Alabama, Arkansas, Indiana, Louisiana, Minnesota, Mississippi, Oregon, South Carolina, and Tennessee. To expand programming, we have partnered with state Extension service specialists to select appropriate farms to host workshops, to develop agendas and advertise events, and to conduct training.

Through partner collaboration, we have developed a protocol of activities to ensure proper planning and successful programming. Although these planning activities are specific to NRE-related workshops, the suggestions can facilitate other types of multi-state outreach programming and are offered to readers for that purpose. We believe this approach generates an atmosphere of goodwill and cooperation among multi-state partners—leading to opportunities for future collaboration.

1. Develop relationships with Extension and resource agency partners from other states who work in similar focus areas and are interested in planning a joint-sponsored outreach event.
2. Discuss with these partners specific topics of local interest to your intended workshop audience. Identification of these topics will be used to design workshop curricula and event agendas. With NRE-related programming, agency partners include state departments of natural resources, departments of tourism and economic development, and federal agencies. Private-sector trade organization, such as Farm Bureau Federation state offices have been instrumental with workshop support through funding, promotions, and presentations. Involve local elected officials—mayors, aldermen, county supervisors, and state elected officials to help create momentum and provide publicity for events.

3. Choose venues for workshops based upon recommendations and guidance from area experts and partners. For NRE events, we choose host landowners who integrate a natural resource enterprise with traditional agriculture and forestry. Through this venue, workshop participants can readily learn how to integrate enterprise and conservation practices with agriculture and forestry on the same land base. The chosen site for the workshop is important—particularly if you plan to demonstrate recommended management practices in the field to workshop participants.
4. Host a workshop planning meeting with state and local partners to introduce the goal and scope of your event and to garner local support. In case you have chosen a landowner to host the workshop prior to the meeting, invite him or her so that all collaborators can be properly introduced.
5. Identify and select quality event speakers who have expertise in topics of interests, and seek assistance from collaborators in identifying these presenters. Distribute technical information and publications from university and resource management experts from the host state at the workshop.
6. Empower state and local collaborators to take ownership of the event. This is important in generating local and statewide buy-in, enthusiasm, and needed advertisement for your workshop.
7. Promote and advertise the event through established channels of communication and advertising networks that have proven to work in the state and local community hosting the event. A diversity of advertising mediums should be considered and used to promote your event, including brochures or announcements mailed directly to your targeted audience; features and public service announcements in local newspapers, radio, and television; articles in trade magazines and newsletters; and website and electronic mail announcements.
8. Ask your local partner, the local county Extension agent or specialist, to serve as the master of ceremonies for the workshop. This allows event participants to identify with local Extension expertise and facilitates contact following the event for participants to receive “localized” attention and guidance on topics of interest and recommended management considerations.
9. Leverage funds with state and local partners to sponsor the event. If post-workshop questionnaires are administered to participants, be sure to share survey findings with all collaborators. Also, thank all collaborators involved, and give special recognition to the host landowner at the event.

Educators should incorporate local and regional considerations in resource management and land-use decision making to better plan for and deliver effective outreach programming to audiences in multiple states. As funding levels for Extension programs decline, it is imperative that Extension staffs collaborate across state boundaries to design and implement educational programs to clientele. Through this approach, duplication of effort among state Extension programs is minimized, thereby reducing overall costs. Simultaneously, this approach provides quality training and service delivered

to Extension clientele to enhance their land-use decision making.

In summary, outdoor recreation provides economic incentives to landowners to integrate natural resource enterprises and conservation on their properties, thereby enhancing family incomes, natural resources on the land, sustainable rural development, and greater user access for recreation. By considering local and regional issues in land management and land uses, programming in multiple states can be tailored to local landowner audiences to promote early adoption of management prescriptions and enterprise opportunities.

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