

Economic Impacts of Two Birding Festivals in Mississippi*

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Abstract: Birdwatching is a recreational activity that has continually been gaining popularity in the United States. The Great River Birding Trail (GRBT) research project being conducted at Mississippi State University will measure current and potential social and economic impacts of birdwatching on private and public sites along the GRBT in Mississippi. This paper focused on expenditure data and economic impacts from birding festivals. On-site interviews were conducted in 2006 at two festivals: one hosted by TARA Wildlife and the other by Audubon Mississippi. Economic impacts were modeled using the Impact Analysis for Planning (IMPLAN) System software. The three-day Stork and Cork festival at TARA Wildlife had 145 individuals in attendance with a total economic impact of \$10,031. The four-day Hummingbird Migration Celebration was attended by 7,970 individuals resulting in a total economic impact of \$97,654. Information from this study will assist natural resource and tourism agencies and non-governmental organizations as they attempt to complete the Trail along the Lower Mississippi River. It will also allow rural land planners and policy makers to estimate benefits accrued from various land management alternatives on areas related to the Trail and will be useful for establishing marketing and policy strategies related to eco-tourism and resource management oriented toward birdwatching.

Keywords: Birdwatching, economic impacts, expenditures, Great River Birding Trail, nature tourism, on-site surveys

Introduction

Mississippi is a state endowed with a wealth of natural resources. Among these are its avian resources, which have increasingly been utilized not only for hunting, but also for insect control, ecological diversity, and recreation-related activities such as birdwatching and wildlife photography. An assumption can be made that birdwatching is an important component of eco-tourism. Therefore, proper avian resource management should be of utmost importance to private and public landowners and natural resource and tourism agencies. One component of this overall effort in Mississippi is the Great River Birding Trail (GRBT). Currently, there is a self-guided birding tour on the northern reaches of what is one of America's longest birding trails. The GRBT is named after the federally designated scenic drive called the Great River Road, which runs from Canada to the Gulf of Mexico. In general, the sites along the Trail include established

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wildlife refuges, parks, overlooks, and other attractions no more than 25 to 30 miles from the Great River Road. Currently, GRBT parallels both sides of the upper Mississippi River from the headwaters at Lake Itasca, Minnesota, downstream for 1,366 miles to the confluence with the Ohio River at Cairo, Illinois. It covers both sides of the upper Mississippi River through Minnesota, Wisconsin, Iowa, Illinois, and Missouri.

The next step in the process of completing GRBT is to extend it along both sides of the Lower Mississippi River to the Gulf of Mexico. The driving forces behind this effort are Audubon Mississippi and the U.S. Fish and Wildlife Service. Together, they have identified and delineated birdwatching sites (approximately 300) and pinpointed bird species of interest (T. Pullen, Audubon Mississippi Contract Employee, pers. comm., 2005). Currently, 2/3s of these sites are open to the public with 95% of them public and only 5% private. Audubon Mississippi would like to increase private landowner participation on this portion of the GRBT (T. Pullen, Audubon Mississippi Contract Employee, pers. comm., 2005). However, to accomplish this and promote the GRBT in general, they currently do not have any information on potential economic impacts to compliment what they are trying to achieve (M. Lindsey, Executive Director, Audubon Mississippi, pers. comm., 2005). Without this information as a framework, it will be difficult to evaluate the importance of private landowners in providing birdwatching opportunities to the public. This aspect of the project has both significant social and economic implications that could determine the GRBT's success. This information will also provide a monetary measure of return to county economies from the retention, improvement, or expansion of avian habitats. Thus, economic and socio-demographic assessments of birdwatching activities are extremely important to the promotion and development of the GRBT in the future.

Birding, or birdwatching, is a recreational activity gaining popularity around the United States. Kerlinger (1992) reported that in 1970 only about 4% of Americans were considered birdwatchers; however, by the mid-1980s 25% were considered birders. As of 1995, the number of birdwatchers nationwide increased by 27% and by 225% since 1982 (Scott and Thigpen 2003). Kerlinger (1992) also stated that fewer than 10 site-specific studies of birders had been completed worldwide at that time. To highlight the importance of birdwatching to local economies, he provided the example of Cape May, New Jersey where \$6 to 10 million dollars were spent on an annual basis. Crandall et al. (1992) reported approximately 38,000 people visited two conservation areas in southeast Arizona between July 1991 and June 1992 and spent \$1.6 million. In a later study, Kerlinger et al. (1997) reported that birders spent between \$100 to \$130 per day while touring for birds. This amount did not include their travel expenses to and from an area. When trip-related expenses and other expenses such as durable goods were considered, the ensuing expenditures, and hence economic impacts, could be sizable. For example, it was determined that an estimated economic impact of \$90 million per year was attributed to birders in the Rio Grande Valley of South Texas (Kerlinger et al. 1997).

Nationwide, 66.1 million U.S. residents participated in wildlife-watching activities (USDI and USDC 2002a). Of the 21.8 million participants who observed wildlife away from home: 10.6 million went to public areas only, 2.5 million visited private areas only, and 6 million visited both public and private areas (USDI and USDC 2002a). There is a strong indication that individuals were searching for both public and private locations for wildlife-watching activities. Nearly 46 million of these wildlife watchers observed birds around their homes and on trips in

2001 (USDI and USDC 2002a). Beyond natural settings and habitats, other avian-related activities are also important. For example, Waldrup (1994) reported that 40,000 people participated nationwide in the annual Christmas Bird Count. Nationwide, wildlife watchers, 16 years and older, spent \$38.4 billion which included equipment expenditures of \$23.5 billion, trip-related expenses of \$8.2 billion, and other expenditures of \$6.7 billion (USDI and USDC 2002a). In 2001, wildlife watchers, 16 years and older, many of whom were birdwatchers (427,000), spent \$304 million dollars in Mississippi (USDI and USDC 2002b).

Expenditures represent dollars spent in an economy of interest; however, economic impacts measure dollars that remain in that economy. Economic impacts, examined through input-output analysis, are especially useful in describing current and potential economic contributions of natural resource-based recreational activities (e.g., birdwatching) to the overall economy (Johnson and Moore 1993, Strauss et al. 1995, Grado et al. 2001). Economic impacts are often modeled using the Impact Analysis for Planning (IMPLAN) System software (Olson and Lindall 2000). These studies provide regions and states with useful information about the social and economic effects of proposed new projects, programs, and current activities (i.e., birdwatching) (Loomis and Walsh 1997). In 1991, five southern states (Alabama, Arkansas, Louisiana, Mississippi, and Tennessee) generated \$270.2 million in retail sales for non-consumptive bird use (Bird Conservation 1997). Mississippi's portion accounted for \$34.9 million; however, this still led to approximately 1,200 full- and part-time jobs in Mississippi supported by non-consumptive bird use (Bird Conservation 1997). This could be due to the lack of birding festivals and established birdwatching locations within Mississippi. One purpose of this overall research project is to increase this number, especially by taking advantage of the large private landownership in the State.

As important as birdwatching expenditures are, it is paramount to understand the residence and demographics of birdwatchers. This is of great value when determining advertising and marketing strategies. Hvenegaard (2002) studied birders in Thailand and determined there were three specialization levels among them that included novice, advanced-active, and advanced-experienced birders. Hvenegaard (2002) stated that understanding the demographics of birders will allow for improving economic impacts, developing effective communication and educational programs, and implementing effective marketing campaigns for birders. For example, more advanced birders were more interested only in birding activities (Hvenegaard 2002). Most birdwatchers (97%) in South Carolina prefer to enjoy birdwatching within the state (South Carolina Department of Parks, Recreation, and Tourism 2001). The average South Carolinian went birdwatching 63 times per year, ranking second only to walking as the most favored recreational activity (South Carolina Department of Parks, Recreation, and Tourism 2001). In 1992, birders who were readers of the *American Birds* magazine were almost evenly split between males and females, 70% attended college, and had a median household income 35% greater than the general public (Waldrup 1994). Average birders at wildlife refuges were middle-aged, highly educated, and had higher than average incomes (Kerlinger et al. 1997). The first objective of this paper was to determine birdwatching expenditures of participants at two birding festivals in Mississippi. The second objective was to quantify the current and potential economic impacts of birding festivals along the GRBT on the Mississippi economy.

Methods

Dillman (2000) found face-to-face and telephone surveys more popular than mail surveys because they provided more accurate data. Consequently, on-site, face-to-face interviews were used to gather information from birders at two birdwatching festivals to achieve higher response rates and more reliable data. This survey method allowed the interviewer to explain and interpret any questions the interviewee might have about the survey process. These were important considerations when using a detailed survey associated with expenditure data collection.

Two birding festivals were held in Mississippi in the fall of 2006. The Stork and Cork Mississippi River Birding Festival was hosted on August 25-27, 2006, at TARA Wildlife (a private entity) located 30 minutes northwest of Vicksburg. The Hummingbird Migration Celebration was hosted on September 7-10, 2006, by Audubon Mississippi at Strawberry Plains Audubon Center (a non-governmental organization) located north of Holly Springs. Face-to-face surveys were conducted on Saturday, August 26 at the Stork and Cork Mississippi River Birding Festival and on Saturday, September 9, 2006, at the Hummingbird Migration Celebration.

Survey questions pertained to birding or other activity-related expenditures and birding habits during the year. Participants were asked to provide their on-site, trip-related, and equipment expenditures and the purchase location. In-state expenses were cataloged by amount and county of purchase, and out-of-state expenses by amount and state of purchase. Participants were asked to provide on-site and trip-related expenditures for the current 24 hours to minimize recall error. In situations where participants were on day trips, they were asked to estimate their trip expenses for the remainder of the day. Equipment expenditures included durable items related to participation at the site and acquired during the past year. An estimate on annual use for durable items for all purposes was also collected. Expenses were recorded by specific expenditure category to align them with the corresponding industrial sector in the modeled economy. Long-term expenses were divided by number of days of use for the item during the year.

Economic impacts of birding-related activities were modeled using IMPLAN. This software package has been used extensively to study economic impacts of activities related to forestry, agriculture, recreation, tourism, commercial development, and the commercial endeavors of specific industries (Olson and Lindall 2000). IMPLAN software uses economic data from an area of interest to construct a model of its economy. Associated databases provide information required to construct regional or state IMPLAN models (Olson and Lindall 2000). County and state level models define relationships between industries and account for monetary leakages (i.e., business transactions) outside of an economy of interest. These data sets were used to analyze the state input-output structure. Expenditures made on behalf of birding-related activities were then organized as final demands on state industries and businesses.

The IMPLAN model was built to identify direct and secondary impacts resulting from birdwatcher expenditures. Direct impacts represented that portion of expenditures retained by an economic entity in the operation of its business such as sales, salaries, wages, and jobs created by initial purchases of participants. Secondary impacts included indirect effects of inter-industry trade within the region and the induced effects of household consumption originating from employment tied to the direct and indirect activities. Economic impacts were measured in terms

of shipment value, value added to the total economy, and employment attributed to direct and secondary activities.

Results and Discussion

A total of 69 surveys were completed at the two birding festivals. Overall the response rate was 83.1%. Twenty surveys were collected at the Stork and Cork Festival with a response rate of 100% while 49 surveys were completed at the Hummingbird Migration Celebration with a 77.8% response rate. The Stork and Cork Festival had an attendance of 145 individuals while the Hummingbird Migration Celebration was attended by 7,970 individuals.

Participants at the three-day long Stork and Cork Festival incurred overall and in-state expenditures of \$47.25 and \$44.69/birdwatcher/activity day, respectively (Table 1). The participants reported they would go birdwatching 101 days/year with 98 of those being in Mississippi. All survey participants were Mississippi residents. Overall and in-state expenditures for the participants at the four-day long Hummingbird Migration Celebration were \$11.72 and \$7.95/birdwatcher/activity day, respectively (Table 1). On average, they would go birdwatching 93 days/year with 53 of those in Mississippi. Twenty (40.8%) participants were not Mississippi residents. This explained why the Hummingbird Migration Celebration participants reported a much lower number of days for birdwatching in Mississippi. The Stork and Cork Festival

Table 1. Expenditures (\$/birder/activity day) incurred by participants at the Stork and Cork Mississippi River Birding Festival and the Hummingbird Migration Celebration in 2006.

Expenditure	Stork and Cork Festival (n=20)		Hummingbird Migration (n=49)	
	Overall \$	MS \$	Overall \$	MS \$
Access fees	1.57	1.57	1.98	1.98
Entertainment	4.94	4.94	0.05	0.05
Equipment	5.73	3.17	3.26	0.14
Lodging	1.09	1.09	0.24	0.24
Package deal*	19.59	19.59	0.00	0.00
Restaurants/groceries	2.80	2.80	2.00	1.80
Retail	3.22	3.22	2.58	2.57
Transportation	8.31	8.31	1.61	1.17
Total	47.25	44.69	11.72	7.95

*Package deal included on-site access fees, lodging, and meals.

expenditures were much higher than those for the Hummingbird Migration Celebration. This can be explained by the fact that the Stork and Cork Festival has on-site lodging and many participants were birdwatching the entire weekend while the Hummingbird Migration Celebration does not provide on-site lodging and most participants were only birdwatching one day. According to the classification scheme of Hvenegaard (2002), the majority of Stork and Cork Festival participants would be classified as advanced-experienced while the majority of Hummingbird Migration Celebration participants would be novice birders. This can also explain

the difference in expenditures as the advanced-experienced birders were willing to spend more of their money on their birdwatching activities.

Economic impacts resulting from the two birdwatching festivals were reported for direct sales, indirect sales, induced sales, and total sales for aggregated sectors within the economy (Tables 2 and 3). Total direct sales from the two festivals in 2006 were \$71,513. This stimulated secondary sales (indirect and induced) of \$36,172, allowing the total sales impacts to reach \$107,685 and supporting 1.6 full- and part-time jobs. The major beneficiaries of birdwatching expenditures were the aggregated sectors of manufacturing and services.

Table 2. Total economic impacts of birdwatchers at the Stork and Cork Mississippi River Birding Festival, August 25-27, 2006.

Industry	Direct (\$)	Indirect (\$)	Induced (\$)	Total (\$)
Ag., For., Fisheries	0	26	31	58
Mining	0	208	69	278
Construction	0	0	1	1
Manufacturing	2,072	775	879	3,725
TCPU ^a	0	122	48	170
Trade	0	157	32	189
FIRE ^b	0	34	23	57
Services	4,545	183	826	5,553
Total	6,616	1,506	1,909	10,031

^aTransportation, communication, and public utilities.

^bFinance, insurance, and real estate.

Table 3. Total economic impacts of birdwatchers at the Hummingbird Migration Celebration, September 7-10, 2006.

Industry	Direct (\$)	Indirect (\$)	Induced (\$)	Total (\$)
Ag., For., Fisheries	0	309	319	628
Mining	0	1,659	702	2,361
Construction	0	2	5	7
Manufacturing	33,473	7,265	8,916	49,654
TCPU ^a	0	932	486	1,418
Trade	0	1,460	325	1,785
FIRE ^b	0	276	235	511
Services	31,424	1,489	8,377	41,289
Total	64,897	13,392	19,365	97,654

^aTransportation, communication, and public utilities.

^bFinance, insurance, and real estate.

As this research project continues, additional surveys will be conducted at other birdwatching festivals and events. This information will be combined with birdwatching expenditures gathered from a set of public and private sites, already established or under construction along the GRBT, as well as with operator site expenditures. This additional information will allow for a more detailed and accurate determination of the overall economic impact of all birdwatching activities along the GRBT. The results of this study can be used by Audubon Mississippi and other public

agencies to promote the further development of birdwatching sites on both public and privately held lands along the GRBT. Additionally, state and federal agencies, conservation groups, private businesses, and landowners can improve local economies by marketing and planning improvements and developments that enhance birding resources (e.g., bird habitat, birdwatching facilities, bird species sustainability) based on economic impact analysis. An improved marketing strategy will increase awareness among birders nationwide about unique birding opportunities available in Mississippi and help increase the number of birding activities and events in the State, resulting in enhanced economic impacts.

Conclusions

Information from this study will assist natural resource (e.g., U.S. Fish and Wildlife Service) and tourism agencies (e.g., Mississippi Division of Tourism) and non-governmental organizations (e.g., Audubon Mississippi, The Nature Conservancy) in their efforts to complete the GRBT in the Lower Mississippi River area. Also, connecting to the work already accomplished in the Upper Mississippi River area and the Mississippi Coastal Birding Trail will be an invaluable asset for Mississippi and other states in the Lower Mississippi River area.

Quantifying total employment, income, value added, taxes, and total sales will allow natural resource and tourism agencies, land use planners, and policy makers to estimate benefits accrued from various land management options related to birdwatching both on areas related to the GRBT and beyond. On this basis, funding for birdwatching area restoration, species sustainability, and tourism promotion can be justified from both a biological and economic standpoint. The information will also be useful for establishing marketing and policy strategies related to eco-tourism and resource management oriented toward birdwatching and to garner legislative support for funding initiatives to address specific study areas for the GRBT.

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