



Center for Economic
Forecasting and Analysis
April 10, 2002

*The Economic Impact of the Florida
Panhandle Birding and Wildlife
Conference Hosted in Gulf and
Franklin Counties October 2001*

Completed by:

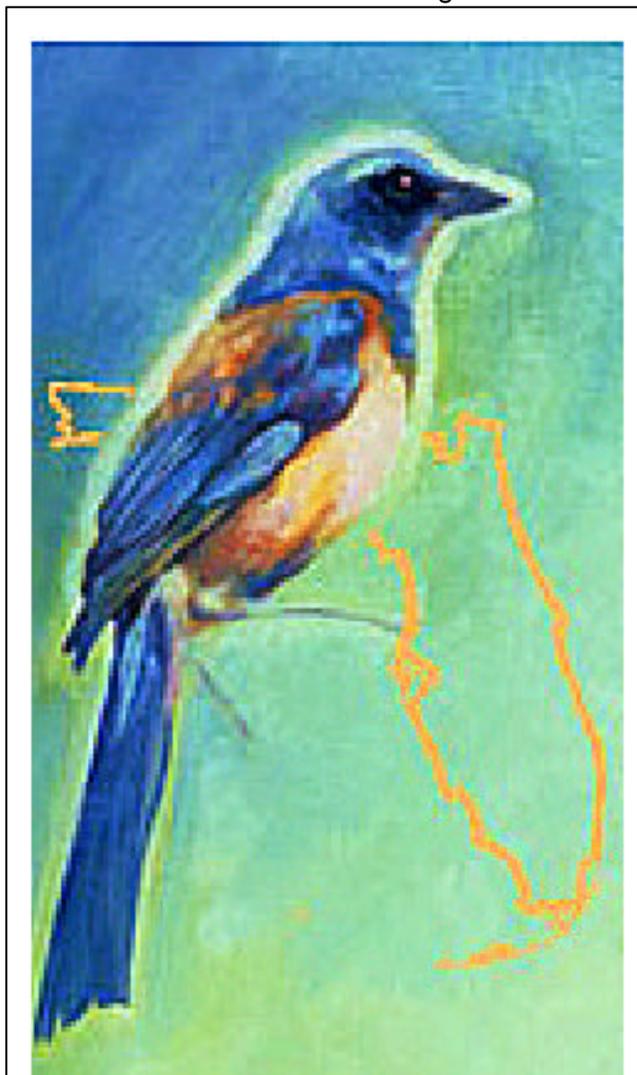
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Introduction

Overview of festival the first annual FLORIDA PANHANDLE BIRDING & WILDFLOWER FESTIVAL

The first annual FLORIDA PANHANDLE BIRDING & WILDFLOWER FESTIVAL (FPBWF) was held as an educational/fundraising project by The St. Joe Wildlife Sanctuary & Educational Center, Inc., Oct 11-14, 2001. The festival center was held at the historic Centennial Building in Port St. Joe with a vendors/educational display exhibit



<http://floridabirdingtrail.com/economics.htm> Florida

Scrub Jay

in adjoining Constitution Park. Over 70-plus tours in Gulf, S.E. Bay and Franklin Counties were conducted as well as a variety of workshops and lectures. This large scale event was the first of its' kind to be staged in the Florida Panhandle. The State of Florida named this event to represent Octobers' 2001 Greenways & Trails designation for Bay, Gulf and Franklin Counties.

Expectations for attendance were exceeded, considering that this first time event was held one month after 9/11, which brought the rest of the world's tourism to a complete halt.

Plans for the 2nd festival to be held October 10-13, 2002 have been finalized. Organizational efforts are underway for expanding the festival and further increasing the attendance in 2003. For 2003, it is anticipated that we will include a 24 hour Birder Competition and also be offering accredited and/or Lifelong Learning Courses through the Gulf/Franklin Community College for festival attendees. We are actively working on these projects in order to incorporate them into the October 2003 Festival.

Birding in Florida

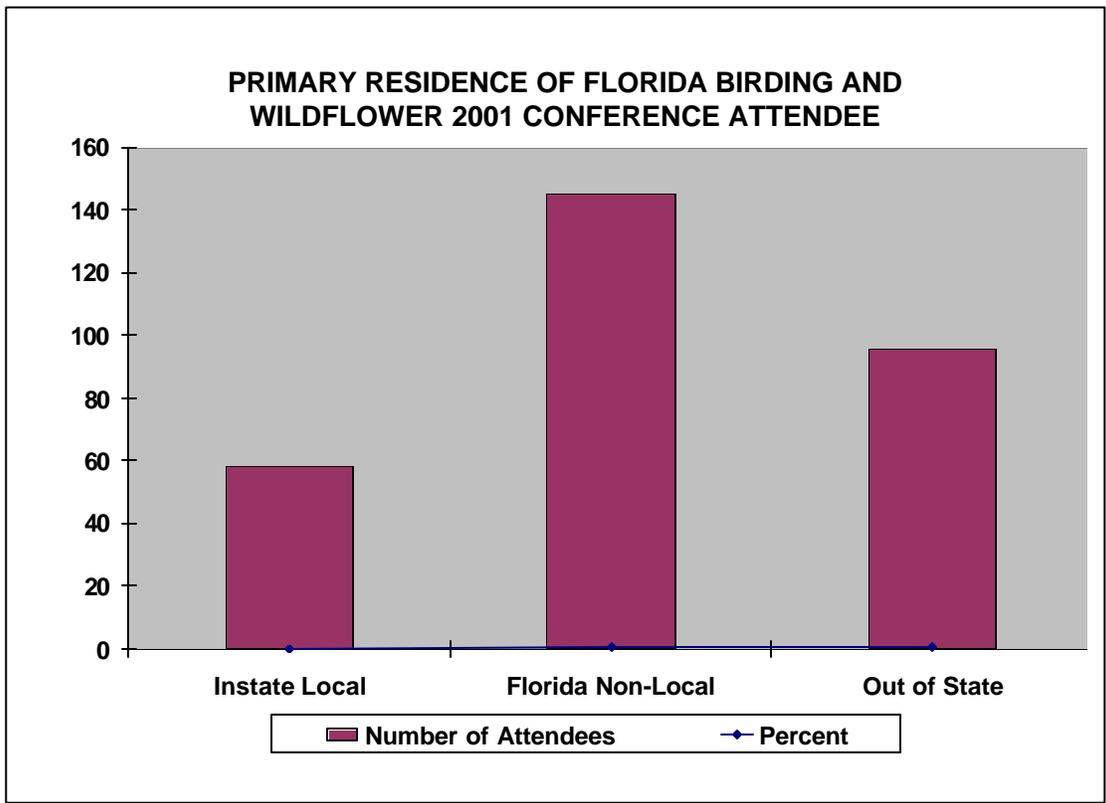
Florida is a birder's paradise, thanks to its diversity of habitats, its location on migration routes, the extent of its remaining wildlands, and its geographic span of both temperate and subtropical climates. More than 470 verified species occur here, including such sought-after birds as the rare Florida burrowing owl, the Florida scrub-jay, the snail kite and Florida's wealth of wading birds. The Birding Trail makes it easy for all birders— both casual and expert, local and tourist— to find new and productive birding sites throughout

our state. Trail literature detail what species to expect at each site and what kind of an experience each offers: a quick stop versus an all day hike, or a driving loop versus a foot-access only property.¹

Where do the eco-tourist bird watching visitors to Gulf, Bay and Franklin Counties attending the NFBWF conference come from?

The simplest answer is that this new group of visitors travels from all over the eastern United States to attend the Florida Panhandle Birding Festival (Figure 1). Approximately 20% of the registered attendees were living in the local area. An additional 48 percent were from elsewhere across Florida, meaning that 68% of all attendees were instate. The additional 32 percent traveled from outside the state to attend this conference. Not surprisingly, after the local area, the next largest Florida areas providing registries were 10% from Tallahassee and 6.5% from Panama City area respectively.

Figure 1. Primary Residence of Florida Birding and Wildflower 2001 Conference Attendees.

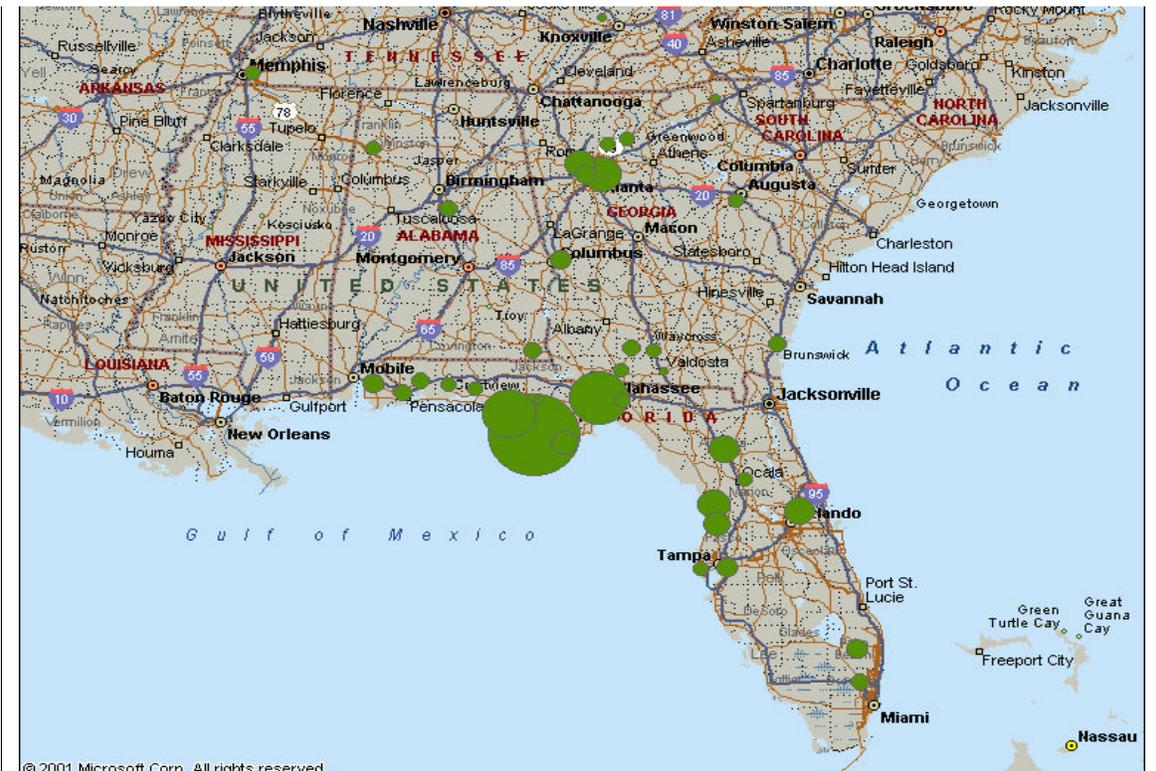


The adjoining graphic (Figure 2) provides an overview of the distribution of attendees to the conference by place of origin. Figure 2 provides a map with circles representing the relative number of individuals attending the festival from each area of the eastern United States. Notice that while a number of visitors attended from Ohio, Indiana, Illinois,

¹ Extracted from the Great Florida Birding Trail, floridabirdingtrail.com/economics.htm, Florida Fish and Wildlife Conservation Commission, My Florida.com, 2001

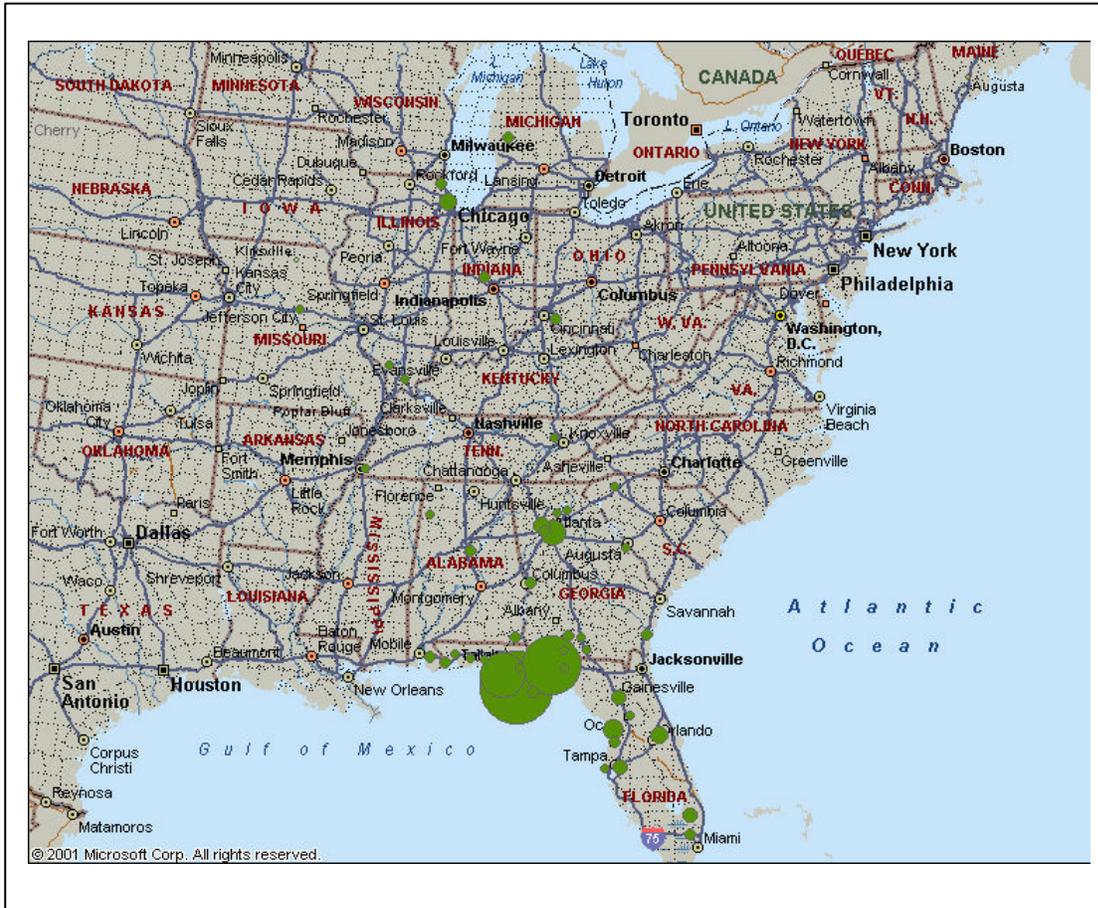
Kentucky, Missouri, Tennessee and elsewhere, the vast majority were respectively drawn from north and central and south Florida and central and south Georgia.

Figure 2. The distribution of attendees to the birding conference by place of origin.



A further refined profile of visitor residence can be seen in the following Figure 3, which focuses on the southeast US region. The size of each circle indicates the number of festival attendees drawn from that region. Gulf County registered approximately 60 attendees, with the Tallahassee area registering 30 visitors. The important thing to note from these graphics is that 80% of attendees drawn to the Gulf Coast **region would not have visited this area at this time had this festival not been hosted in the area.** Additionally, it is also likely that the remaining 20% of local residents spending their resources to attend could also likely have traveled outside the region to other areas of the state or nation to similar events and expended their resources in other economies and not staying in the local region were it not for this festival.

Figure 3. Birding Conference Attendee Residence in the Southeast Region.



What are the kinds of visitors to Gulf, Bay and Franklin Counties that are attracted by the Birding Festival?

Bird watchers and other wildlife viewing activities are a growing part of the global non-consumptive eco-tourism activities sweeping across the American recreation and leisure industries. Just what exactly are the kinds of people that are attracted to birding and how many dollars do they spend in pursuit of this growing recreation form? A recent survey, published in March 1997, and conducted by David Scott, William Juror and James Cole, "Examination of the Activity Preferences and Orientation among Serious Birders, the Park and Recreation Parks in Tourism Services" (a Texas A&M University and Texas Agricultural Extension Service publication). This survey evaluated the profiles of members of the American Birding Association (ABA) across the United States of America. The results are quite revealing.

The next three figures provide a relative comparison of the average income (Figure 4), educational attainment level (Figure 5) and age distribution (Figure 6) of the average bird

watching enthusiast likely to be a visitor that attended the Florida Panhandle Birding and Wildflower festival. On average, recreational bird watchers have considerably higher income and levels of education than the average population and tend to be middle-aged or older with significant resources to expend on their chosen leisure and recreation activities.

Birding Enthusiasts Income Level Distribution

The previous figure shows that the distribution of income among bird watching members of the ABA is considerably higher than that of the average Floridian. Specifically, among birders, only 22% earn less than \$40,000 compared to 52% in the general Florida population. Almost 40% of birders earn over \$60,000 compared to only 15% of the Florida population including a significantly 27% who earn more than \$100,000 per year compared to only 8% of the Florida population.

Birding Enthusiasts Average Educational Level Distribution

Figure 5 provides a profile of the educational attainment levels of the average bird watching enthusiast compared to that of the average Floridian. The average birding enthusiast has a considerably higher level of education than the average Floridian. Only 56% of all Floridians attended K-12 or completed a high school education compared to only 9% of the birding population. By comparison, almost 80% of birding enthusiasts completed college with a strikingly large 43% completing advanced graduate or professional degrees. Meanwhile, only 17% of Floridians completed college or higher, with 6% receiving graduate or professional degrees.

Birding Enthusiasts Average Age Distribution

Finally, the average ABA bird watching enthusiast's age is considerably older than the average Florida population as well. Only 2.5% of birders are under 31 years of age and while 56% range from 31 to 55 years of age with another 20% in the 56 to 65 year age bracket and almost 22% over the age of 65. This older age distribution is consistent with the advanced levels of income described earlier and represent the most valuable kind of tourist visitor that Gulf, Bay and Franklin Counties should want to attract especially in the fall off-season time frames.

Figure 4. Comparison of Family Income Distribution of Floridians to American Birding Association Member Families.

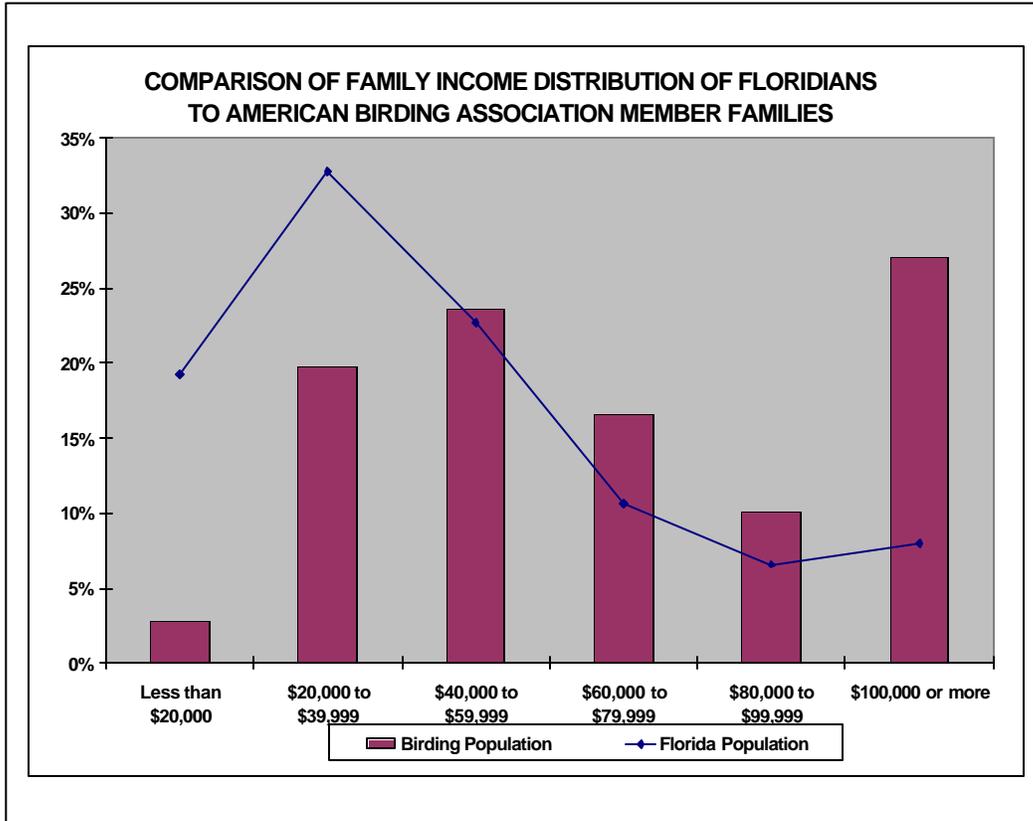


Figure 5. Comparison of Educational Levels of the Average Floridian to American Birding Association Members.

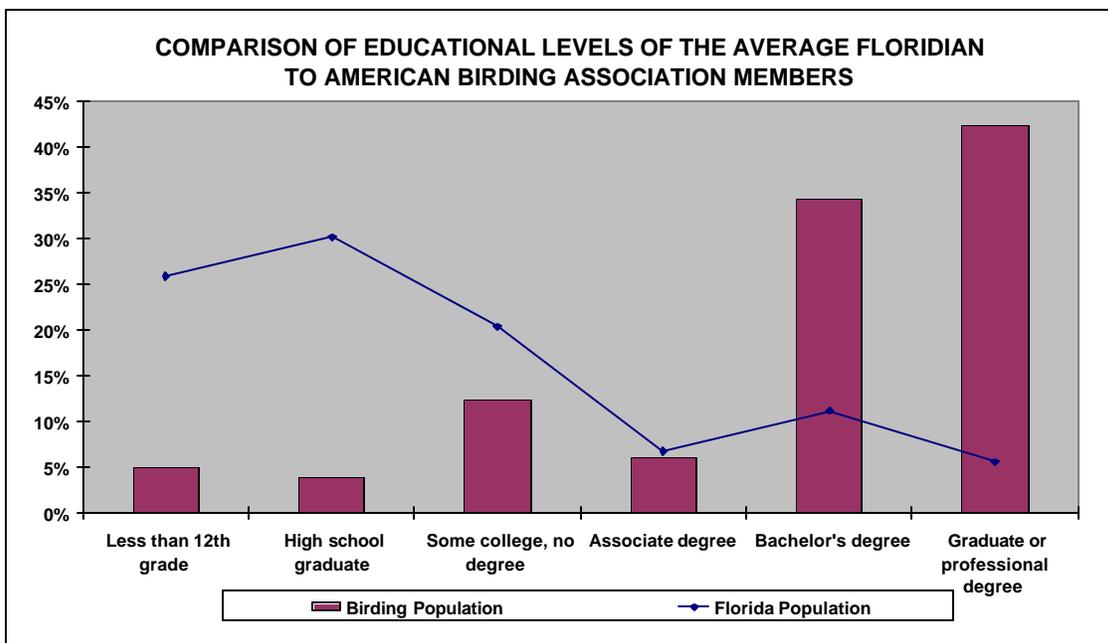
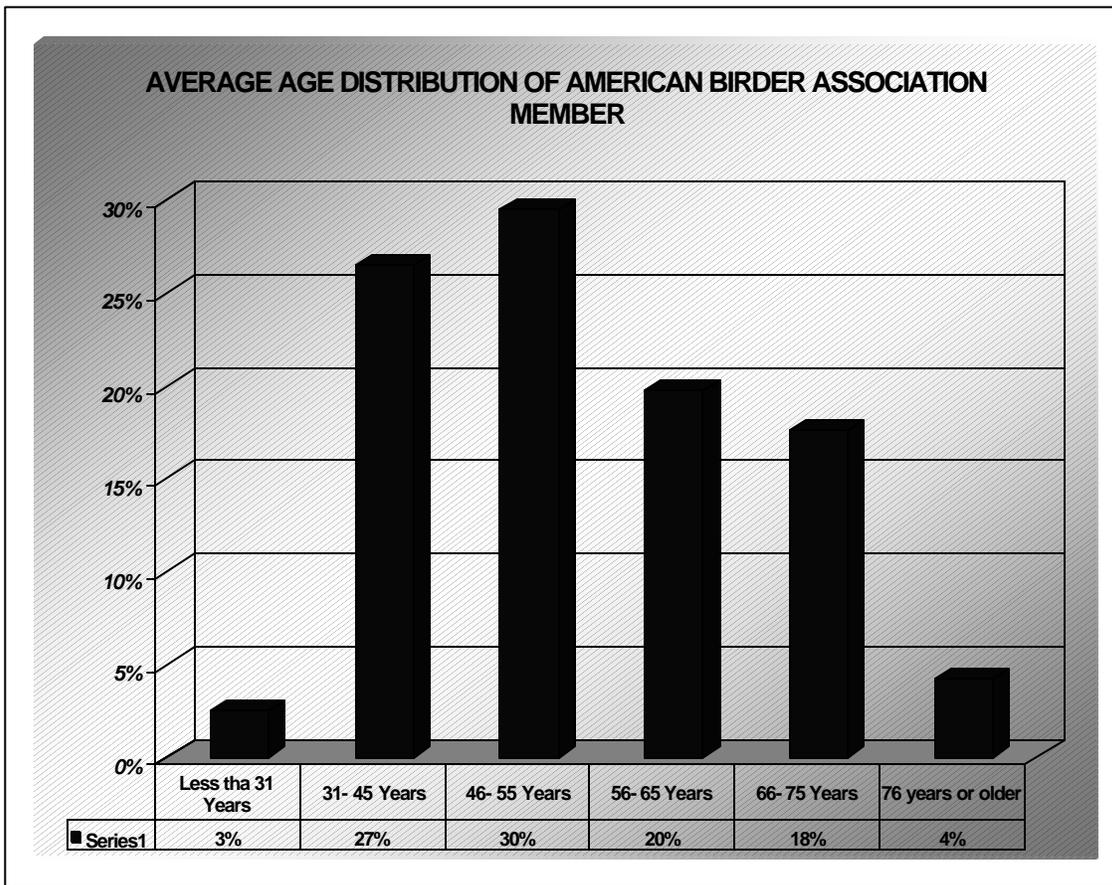


Figure 6. Average Age Distribution of American Birding Association Members.



What kind of spending pattern do eco-tourists that attended the Florida Panhandle Birding Festival have?

The ABA survey also provides a profile of the amount of money expended by the average birding enthusiast in a single year on trips associated with bird watching. The largest single annual category spending is for transportation (\$1,163) with lodging expenditures next (\$737), followed by meals (\$417). Lesser amounts were spent on equipment (\$72), books and subscriptions (\$45), entrance fees (\$61) and miscellaneous (\$206). Total annual per capita spending (on average) exceeded \$3,054 for bird watching related trips.

Again, this constitutes a significant potential spending stream among the affluent and mature in and out of state tourism base that Gulf, Bay and Franklin Counties should be doing everything within their power to attract to help stimulate the local economy.

What are the potential economic benefits that flow from eco-tourist wildlife viewing, hunting and fishing?

Florida Fish and Wildlife Conservation Commissions (FWC) staff recently completed a study of the economic benefit of Florida's fish and wildlife-related recreation in 2000. The study is based on the U.S. Fish and Wildlife Service's National Survey of Fishing, Hunting and Wildlife Associated Recreation, conducted by the U.S. Bureau of Census.

Summary results are outlined in Table 1.

Hunting, freshwater fishing, wildlife viewing, and saltwater fishing generate approximately \$5.5 billion in retail sales resulting in an economic impact to the State of Florida of \$7.8 billion. Sales tax benefits to the State are estimated at \$336 million and 138,210 jobs are directly associated with Florida's fish and wildlife-related recreation.

By way of comparison:

Year 2000 retail sales for hunting, fishing and wildlife viewing were more than twice that of all Florida lottery ticket sales for 1999. The Florida sales tax revenues from hunting, fishing and wildlife viewing is more than the annual tuition paid by 34,000 in-state university students. **More than one out of every five state residents are wildlife viewers and spend an average of \$696 annually on trip related and equipment expenditures.**

Table 1. Summary of the 2000 Economic Benefit of Florida's Wildlife Viewing Activities.

SUMMARY THE 2000 ECONOMIC BENEFIT OF FLORIDA'S WILDLIFE VIEWING ACTIVITIES					
	Number of Participants	Retail Sales	Sales Tax Generated	Economic Impact	Jobs Created
Wildlife Viewing	3,938,918	\$1,887,887,300	\$113,273,243	\$1,993,645,537	52,140
Each Florida Wildlife viewer annually generates:		\$479	\$29	\$506	

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More than one out of every five state residents are wildlife viewers and spend an average of \$696 annually on trip related and equipment Expenditures, for more information contact Dave McElveen, FWC

What was the economic impact of the Florida Panhandle Birding and Wildflower Festival?

Given that wildlife viewing annually generates \$2 billion in economic impact and 52,140 jobs every year, what share of this state wide economic impact benefit does Gulf, Bay and Franklin Counties capture? More specifically, what are the economic impacts flowing from the Florida Panhandle Birding and Wildflower Festival on the Gulf, Bay and Franklin economies? These impacts were determined by the way of estimating the direct and indirect stimulus to the local economy from direct spending of attending birding eco-tourist. FSU economists used the IMPLAN economic model that takes the direct measures of local expenditures over the period of the festival by visiting eco-tourists for:

- lodging accommodations
- food and restaurant spending
- gasoline and automobile related spending, and;
- other general retail purchases to the community attending the burden and wildlife conference.

These data were developed by combining a limited survey of known average visitor costs across the Gulf and Franklin County area gathered from local motels, camp grounds, realty literature and restaurants provided by staff and volunteers of the FPBWF event

merged with standard data from surveys and research completed in the birding economics literature.

This effort yields a fairly comprehensive (and we believe relatively conservative) set of estimates of direct economic spending stimulus produced in the local economy EXCLUSIVELY from hosting the FPBWF October, 2001 event. This direct spending economic stimulus is then entered into the IMPLAN economic impact assessment model and translates this direct spending into indirect and induced economic stimulus to provide a final total of all economic impact to the local economy.

FPBWF Direct Local Spending

A limited survey of local eco-tourist spending suggests that the largest single expenditure for most visiting birders when they arrive in Gulf, Bay and Franklin Counties is their lodging accommodations. Our



Monarch Butterfly St George Island, Lynch, T., October 2001

general assessment indicates that approximately 75% of the out of town FPBWF attendees stayed in motels while 20% stayed in residential residence (like St George, St Joe and Mexico Beach rental properties), and 5% typically stayed in local camp sites. To determine the per capita cost lodging we contacted motels in Mexico Beach, Apalachicola, and St. George Island. Rates in October for the four available Gulf County motels contacted are \$50, \$65, \$75 and \$85 respectively. Therefore an average cost for motels day is approximately \$75 per night.

The renting of private beach related residences was estimated by a review of various advertising books published by local realtors with the approximate average rate calculated \$170 per night (or \$85 per night per person). Two local camp grounds identified October,

2002 average site costs ranging from \$17 to \$25 per night. Our survey final results indicate average per person nightly expenditures for motels is \$37.50, beach residential rental costs are \$85.00 and camping site costs are \$10.00 in the region. These combine to an average non-local per person nightly lodging cost of \$45.63. Approximately 80% of the registrants were not local residents and a number of these visitors stayed in local motel lodging accommodations for 4 or more nights our analysis however assumes 3.5 nights per out of town visitor to keep the analysis on the conservative side. Given these qualifications and that the total number of visitors associated the conference were 300 the total direct lodging expenditures associated with the birding conference was \$36,409.

Spending for food in local restaurants, bars and grocery stores is the second large category of expenditures for visiting eco-tourists. A limited local survey of Gulf and Franklin County restaurants indicates that average per person costs for breakfast is \$7, while lunch average cost is \$10.00, and dinner is \$13.00, for a total average daily per person cost of \$30.50. Thus, the average spending for food (including beverages etc) for the entire 3.5 days average stay of festival attendees was \$106.75 per visitor. Local resident spending for food was assumed to be half that of visitors. Final estimates of Gulf, Bay and Franklin Counties regional spending for food over the period of the festival was \$32.49 per visitor over the period of the festival.

Another large purchase was spent on goods, such as gasoline associated with automobile expenses. In a study conducted at the Corkscrew Swamp Sanctuary area of Florida in the 1993-1994 time period, 77.6% of attendees indicated they had purchased a tank of gasoline and other auto service expenses that averaged \$5 per tank. Our limited local survey of Franklin, Bay and Gulf Counties indicates that purchase of a tank of gasoline and other comparable auto services over the festival's October, 2001 time frame would have cost \$12.00. Therefore, total festival related automotive spending in the region is estimated at \$2,669. An additional \$6,597 in automobile travel expenses was also estimated to be expended in Florida by attendees traveling to the festival from elsewhere, and therefore were a category of expenses directly related to the festival, which stimulates the Florida economy as well. Travel costs for other out of state attendees expended beyond the Florida border were not included since they did not necessarily affect the state economy directly.

A large majority of respondents also made a variety of retail purchases while they visited the area for the birding and wildlife conference. The Corkscrew study indicated that a majority (54.2%) of respondents made purchases in one of the five primary areas 1) books 2) souvenirs 3) small equipment purchases 4) groceries, and 5) other miscellaneous items. The average retail spending per person for those responding was \$110 for general retail purchases over the period of the conference. The most common purchases were souvenirs (around 30.2%), books (around 21.3%) and "small items on ": (around 18.9%). This research will remain conservative in our assumptions and not even adjust these estimates for inflation, but assume a similar distribution of spending for FPBWF attendees across the Gulf, Bay and Franklin Counties retail outlets. Therefore, total direct attendee spending for retail purchases over the period of the festival, is estimated to be \$17,091.

Thus, total eco-tourist related Florida Panhandle Birding and Wildflower Conference Gulf, Bay and Franklin County expenditures are estimated at \$88,218. State of Florida spending (including the automobile travel expenses within Florida to attend the conference) adds an additional \$6,597, with the revised total of \$94,815.

Finally, actual fee attendee registration fee, banquet expenses and other related birding festival spending is also included. These funds were expended locally for similar organizational purposes and are broken down in the following manner:

Table 2. Birding Conference Expenses including Registration, Banquet, Field Trips, among others.

Banquet	\$ 2,106
Field Trips	\$ 7,604
Registrations	\$ 4,075

Seminars	\$ 786
T Shirt Sales	\$ 286
Vendors	\$ 113
Videos	\$ 225
TOTAL	\$15,195

This last category of spending is then added to the total direct expenditures for a combined direct spending level of \$110,010.

This direct spending is next entered into the IMPLAN² economic impact input-output model of the region to assess final direct, indirect and induced impact to the local area.

Final Direct Indirect and Induced Economic Impact

Table 3 provides the final direct, indirect and induced (secondary) impacts from the FPBWF. The total economic stimulus is \$171,245 with income generation effects of \$56,875. Value-added impacts of the Festival were \$106,710 while the equivalent of three year-long jobs were created in the local area as a result of the spending. Finally, \$13,115 in State and Local taxes was generated and total Federal, State and Local taxes were \$31,423.

Clearly, the Festival serves as a major stimulus to the local economy and as it grows so will the economic pulse from greater numbers of visitors both during the Festival and across the year as they continue to return for other events to learn the wonders of Gulf, Bay and Franklin Counties.



St George Island Sunset Lynch T October 2001

Table 3. Final Direct, Indirect, and Induced Economic Impacts from the Florida Panhandle Birding and Wildlife Festival, 2001.

IMPACT NAME: FINAL FLORIDA PANHANDLE BIRDING IMPACTS 2001				
April 23, 2002				
Impact Measure	Direct*	Indirect*	Induced*	Total*
Income Impacts	\$ 42,744	\$ 9,430	\$ 13,701	\$ 65,875
Value Added Income	\$ 68,654	\$ 14,799	\$ 23,257	\$ 106,710
Output Impacts	\$ 110,638	\$ 24,637	\$ 35,970	\$ 171,245
Employment- Number of Annual Jobs Created	2.2	0.3	0.5	3.0
Tax Impact s				
State/Local Govt NonEducation Taxes Generated		\$13,115		
Total State/Local and Federal Taxes Generated		\$31,423		
IMPACT NAME: FINAL FLORIDA PANHANDLE BIRDING IMPACTS 2001 MULTIPLIER: Type SAM				
*1999 Dollars (except Jobs)				
Copyright MG FLORIDA ALL REGIONS.iap				



Historic Owner's Cottage, St Vincent Island, Lynch T., October 2001

SUMMARY AND CONCLUSIONS AND PROSPECTS FOR THE FUTURE

Birders and other eco-tourists provide important sizable economic sources of revenue to the area year round. Local businesses and policy-makers should recognize economic impact of the 300-plus eco-tourists attending the Florida Panhandle Birding and Wildflower Conference as an important contribution to the community. Over \$100,000 flowed into the local community from this single event and will continue to grow each year as the knowledge of the conference expands.

These expenditures do not include the actual budget for the sanctuary, so all the reported spending is going directly to local stores, tourist rental properties, motels, camping operations, restaurants and retail outlets. The full impact is approaching \$200,000, including over \$31,000 in taxes, with the bulk of tax revenues directed to local coffers. The sanctuary will continue to draw tourists year round, but especially during off-season periods which is especially important in these communities because of its off-season October period.

There are several points of interest that stem from this analysis that should be of interest to local business interests and elected and appointed policy makers.

- The first is to continue to support and encourage the FPBWF as an engine of local economic development and growth. As more people visit the sanctuary (especially during the slower off seasons), more revenue is generated.
- The second is to encourage out-of-state, in-state and locals (especially Tallahassee, Panama City-Ft Walton, Pensacola, Gainesville, and Jacksonville) to visit the sanctuary area for longer periods of time. By extending average visitors length of stay the current conference could add significantly to the revenues generated. More importantly, by encouraging locals it would benefit the surrounding communities; as residents would spend longer times in their own community and spend more money locally rather than traveling to attend similar events and expend resources elsewhere.

A carefully designed marketing strategy would greatly enhance the prospects of expanding eco-tourism growth and the Franklin, Bay and Gulf Counties sanctuary areas. Emphasis in tourism advertising should continue to focus on the great birding opportunities in this area and also reflect the fact that while the scenery is beautiful (and contains wonderful photographic potential), other wildlife is abundant (alligators and so forth).

Other recreational opportunities abound in the region such as boating, fishing, hunting, hiking, bike riding and so forth. All these activities are compatible with the abundant open space in the area but should be emphasized as “the way Florida used to be” tourist and recreation attractions. The chance for multiple recreational activities – while attending the FPBWF event can make for an extended stay and much larger economic capture of potential markets. This focus also underscores the important point that the foundation of this richness of recreational opportunities stems from the wealth of and quality of the natural resources of the area. These natural systems need continued attention and protection as they are the jewel in the crown of future high quality – low impact - economic growth for the area and provide a growing foundation for tourism related growth in the future.

Also, local businesses should be advised when the festival is hosted in the area to help them determine what kinds of special services they may want to offer (special tours, fishing tournaments, wild life photography classes, kayak tours and so forth) to help extend the stay of birders and help capture even more of their dollars. For birders, the type of retail items and goods and services they will find of interest is quite wide – and this could be a real opportunity for local merchants and specialty interest groups to gain “double sell” opportunities in addition to the festival events.



Painted Bunting <http://www.audubon.org/bird/species/painted-bunting.html>

Although the primary message of this report is economic in nature, the reader should also realize that there's a message about the tie between environmental ethics and good business. The key to eco-tourism's sustainable economic development is access to the abundant high quality pristine environment, open space, and abundant wildlife of Gulf and Franklin Counties. Without these things, the tourists will not come, nor will it dollars that they bring that is a benefit the community.

It is evident that businesses, elected and appointed officials and other citizens of the region do recognize that a healthy environment translates into a healthy economy. This is the reason they have acted so often to ensure high quality low density development as the foundation of growth across the region. The future remains in the hands of local policy makers and the future of their economy is also in their hands.

Continued support for the FPBWF and festival and sanctuary staff can ensure the continuance of this and similar events. Conversely, minimal effort and support can usher in the demise of this category of economic value and allow these future eco-tourist dollars to flow to other communities that are more cooperative, better organized and aggressively marketing and protecting their local wilderness virtues. Proper support for these efforts will result in long-term dividends for the local economy, quality of the environment and help ensure a higher quality of life for local citizenry as well as our regions visitors.

References

Bolton, Roger. Regional Econometric Models. Journal of Regional Science 25 (1985): 495-520.

Florida Consensus Estimating Conference. Fall 1998. Social Services/Temporary Assistance for Needy Families. Tallahassee, FL: Economic and Demographic Research.

Florida Department of Labor and Employment Security, Division of Jobs and Benefits, Bureau of Labor Market Information. 1997 (Sept). Florida Industry and Occupational Employment Projections 1995-2005. Tallahassee, FL: Florida Department of Labor and Employment Security.

Florida Department of Revenue. 1998. Tax revenue data. <http://sun6.dms.state.fl.us/dor>

Florida Department of Labor, Bureau of Labor Market Information, Florida Industry and Occupational Employment Projections 1995-2005 (September 1997).

Florida Fish and Wildlife Conservation Commission. The Economic Benefit Of Florida's Fish And Wildlife Recreation, 2000.

Florida Fish and Wildlife Conservation Commission. The Great Birding Trail. <http://www.floridabirdingtrail.com/economics.htm>

Florida Social Services Estimating Conference Population and Demographic Forecast, January 26, 2000.

IMPLAN Professional Social Accounting & Impact Analysis Software, Minnesota IMPLAN Group, Inc., Second Printing, February 1997.

Scott, David, W. Juror, and J. Cole. Examination of the Activity Preferences and Orientation among Serious Birders, the Park, and Recreation Parks in Tourism Services. Texas A&M University, Texas Agricultural Extension Service.

U.S. Department of Commerce, Bureau of Economic Analysis, November 1998.

U.S. Department of the Interior. U.S. Fish and Wildlife Service. 1996 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, Florida.

This study was conducted by Tim Lynch, Ph.D., Director,
Center for Economic Forecasting and Analysis, Florida State University,
April 15,2002

Appendix A



The St Marks Lighthouse, Karen Stewart, Tallahassee, Florida, 2002

IMPLAN Model

In contrast to REMI, IMPLAN is exclusively an input-output model. It is non-survey based, and its structure typifies that of input-output models found in the regional science literature. Similar to REMI, IMPLAN assumes a uniform national production technology and uses the regional purchase coefficient approach to regionalize the technical coefficients.

The model generates two types of multipliers: Type I multipliers and what IMPLAN refers to as Type III multipliers. The difference between IMPLAN's Type I and Type III multipliers is an induced consumption effect. Their Type III multiplier differs from the standard Type 11 multiplier because the consumption function is nonlinear, that is, the marginal propensity to consume is not constant, decreasing as income in the region rises. Population completely responds to employment changes and drives consumer spending. Multipliers are generated for employment, output, value added, personal income, and total income.

IMPLAN builds its data from top to bottom. National data serve as control totals for state data. In turn, state data serve as control totals for county data. The primary sources of employment and earnings data are County Business Patterns data and BEA data. Furthermore, IMPLAN's procedure for finding in suppressions in the 1997 model parallels REMI's, except the ES-202 data set is not a primary source of data for counties.

IMPLAN estimates output at the state level by using value added reported by BEA as proxies to allocate U.S. total gross output. Also, IMPLAN allocates state total gross output to counties based on county employment earnings. The use of the BEA Gross State Product series for states, and implicit assumption of uniform value added-to-earnings ratios across counties within a state, parallels REMI's procedure. However, because of REMI's neoclassical production function, differential labor costs cause REMI's labor intensities to differ across states and counties. In addition, REMI adjusts real value added in U.S. dollars reported by BEA for differences in regional unit factor costs.³

³ Adapted from *Dan S. Rickman and R. Keith Schwer, "REMI AND IMPLAN Models: The Case of Southern Nevada."*