

THE 2011

Economic Benefits

OF WILDLIFE VIEWING IN FLORIDA



MARBLED GODWIT

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GREAT BLUE HERON

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Conservation Commission**
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EXECUTIVE SUMMARY

This project was conducted by Southwick Associates for the Florida Fish and Wildlife Conservation Commission. The purpose was to quantify the 2011 economic benefits of wildlife viewing in Florida. The data used in this project were obtained from the *2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* (Survey). The Survey is conducted by the U.S. Fish and Wildlife Service and the U.S. Census Bureau. The Survey provides hunting, fishing and wildlife viewing participation, expenditures and demographic information. The data were analyzed using economic models to generate economic impact estimates.

Wildlife viewing is the second most popular outdoor recreation activity in Florida, surpassing such activities as bicycling, fishing, golf and tennis.¹ In 2011, there were 1.9 million wildlife viewers (residents and nonresidents) participating in wildlife viewing activities at least one mile away from home (away-from-home activities) in Florida. This is a 22-percent increase since 2006. In addition, there were nearly 3.3 million residents participating in wildlife viewing activities within one mile of their homes (“at-home” activities), representing a 1.2-percent increase since 2006. The away-from-home activity cited most often by recreationists was observing wildlife, whereas the primary at-home activity was feeding wildlife. Overall, 4.3 million people participated in some form of at-home or away-from-home wildlife viewing in Florida in 2011.

The total retail sales from 2011 wildlife viewing in Florida was estimated at \$2.8 billion (\$1.7 billion by residents and \$1.1 billion by nonresidents). Spending for all types of wildlife viewing increased substantially from 2001 to 2005 (96%) and then declined somewhat from 2006 to 2011 (-11%), likely related to consumers spending less during the poor economic years from 2008-2011. Trip-related spending has grown fairly steadily, but equipment spending saw a large increase in 2006 and then a substantial decline in 2011. The 2011 Florida survey data is summarized below.

TABLE E-1. 2011 Participation and Economic Impacts of Wildlife Viewing in Florida

	Resident	Nonresident	Total
Retail sales	\$1.693 billion	\$1.057 billion	\$2.750 billion
Salaries & wages	\$0.917 billion	\$676.3 million	\$1.593 billion
Full- & part-time jobs	26,226	18,396	44,623
Tax revenues:			
State & local revenue	\$170.7 million	\$114.3 million	\$285.0 million
Federal revenue	\$233.8 million	\$162.6 million	\$369.5 million
Total economic effect²	\$2.935 billion	\$1.994 billion	\$4.928 billion

Total participants:

Away-from-home wildlife viewers: 1.9 million residents and nonresidents

At-home wildlife viewers: 3.3 million residents

Total participants, all types: 4.3 million residents and nonresidents
(accounts for people who participate in both types of activities)

¹ 2011 Florida Outdoor Recreation Participation Survey, Florida Department of Environmental Protection Division of Recreation and Parks.

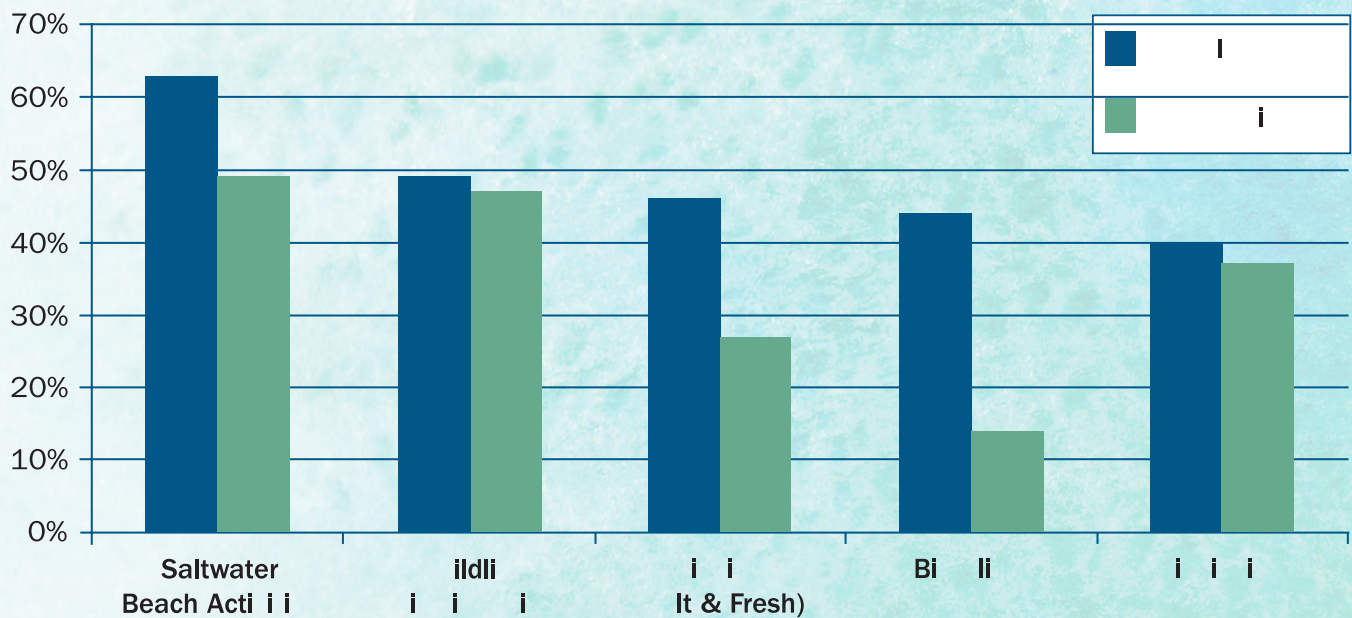
² See Table 8

INTRODUCTION

Wildlife viewing is the second most popular outdoor recreation activity in Florida, surpassing such activities as bicycling, fishing, golf and tennis. Based on a 2011 survey of residents and nonresidents conducted for the Florida Department of Environmental Protection, wildlife viewing is second only to saltwater beach activities among both residents and nonresidents.

The survey was conducted in support of Florida's State Comprehensive Outdoor Recreation Plan (SCORP) and included 26 different outdoor recreation activities. Three of the five most popular activities for residents were also in the top five for visitors (beach activities, wildlife viewing and picnicking (Figure 1).

FIGURE 1. Top five most popular outdoor recreation activities for residents and nonresidents



Wildlife viewing, which is popular among residents and nonresidents alike, produces significant economic benefits for many individuals and businesses in Florida. Unlike manufacturing industries, which are easily identified by large factories, the wildlife viewing industry is composed of widely scattered retailers, manufacturers and wholesalers and support services that, when considered together, form an important industry. Given that greater wildlife opportunities exist in rural areas, the economic contributions of wildlife viewing can be especially important to the rural economic base.

This report assesses the 2011 economic contributions of wildlife viewing in Florida. The project was designed to provide resource managers with the economic information necessary to better conserve and manage wildlife and other natural resources. Only the economic effects of wildlife viewing activities occurring within Florida are considered. This report measures the impact of wildlife viewing expenditures on Florida industries and individuals (in dollar terms) to produce estimates of the total economic benefits created in 2011.

This report is divided into several parts to provide the reader with a better understanding of the activities undertaken by wildlife viewers, and the economic effects of their activities. The first part briefly describes data sources and methodology. The second part examines the demographics and rates of participation in wildlife viewing by both residents of Florida and visitors to the state. Participation in wildlife viewing includes both at-home and away-from-home activities. Away-from-home activities are those that occur more than one mile from home. Away-from-home recreation is enjoyed by both Florida residents and nonresidents visiting the state. At-home wildlife viewing activities are those that occur within one mile of home. By definition, at-home activities include only residents. The third part of the report presents the economic impacts of wildlife viewing in Florida. The final part of the report presents selected trends in participation and spending since 2001. Definitions of terms used in this report are provided in Appendix A. Appendix B provides methodological descriptions. Appendix C presents tables detailing the economic impacts of wildlife viewing. Appendix D compares participation and economic contributions of wildlife viewing to other industries and activities in Florida.

I. DATA SOURCES & METHODS

Data on recreationists' demographics, participation and expenditures were obtained from the 2011 *National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* (Survey), which is conducted approximately every five years by the U.S. Fish and Wildlife Service and the U.S. Bureau of the Census. The Survey provides data required by natural resource management agencies, industry and private organizations at the state and national levels to assist in optimally managing natural resources. The Survey is funded through excise taxes on hunting and fishing equipment through the Federal Aid in Sport Fish and Wildlife Restoration Acts. The expenditure data was analyzed using economic models to quantify the economic impacts. A more detailed description of the methods used to generate the economic estimates is presented in Appendix B.

Florida is number one in the country for total days of wildlife viewing by nonresident visitors.

Top 10 states for wildlife viewing by out-of-state visitors
(ranked by total days, 2011)

1	Florida	8,478,000
2	Arizona	4,210,000
3	Alaska	3,420,000
4	Massachusetts	2,750,000
5	California	2,668,000
6	Maine	2,659,000
7	Utah	2,527,000
8	North Carolina	2,507,000
9	Pennsylvania	2,337,000
10	Illinois	2,336,000

Source: U.S. Fish and Wildlife Service



II. DEMOGRAPHICS & PARTICIPATION CHARACTERISTICS OF RECREATIONISTS

Demographics

Participants in wildlife viewing in Florida are around 50 years of age, likely to be married, and are split fairly evenly between male and female. Most wildlife viewers are Caucasian.

TABLE 1. Demographic background of wildlife viewers in Florida in 2011
(Participants 16 years old and older)

	Away-From-Home Activity		At-Home Activity
	Residents	Nonresidents	
Participants	1,076,482	825,281	1,901,763
Race (non-white)	4%	7%	9%
Average age	51 years	46 years	56 years
Gender (male)	43%	51%	44%
Marital status (married)	65%	73%	61%
Average household income	\$53,712	\$66,527	\$55,072
Education			
8 years or less	2.5%	3.0%	2.9%
9-11 years	2.5%	0.0%	6.0%
12 years	25.0%	24.2%	28.5%
1-3 years college	31.3%	12.2%	27.9%
4 years college or more	38.8%	60.7%	34.6%

The average household incomes for residents participating in away-from-home and at-home activities are similar. Nonresidents have, on average, a household income higher than resident participants. Both have incomes higher than the 2011 overall state average (\$45,105 per U.S. Census Bureau). As with income levels, the education levels of residents who participate in at-home and away-from-home activities are similar, however nonresidents have, on average, a higher level of education.

Participation

Wildlife viewing includes a broad category of activities. To help describe the types of activities undertaken by residents and nonresidents, and to better understand the types of wildlife they enjoy and the surroundings preferred, we present the following participation information. Participation information is divided into two subsections. The first subsection explores away-from-home activities by residents and nonresidents. The second subsection examines at-home activities.

Away-From-Home Participation

In 2011, there were 1.9 million wildlife viewers (residents and nonresidents) participating in away-from-home activities in Florida (Table 2). These are wildlife viewers who took trips at least one mile from home for the express purpose of viewing, photographing or feeding wildlife. Of the total away-from-home participants in Florida, 1,076,482 were state residents and 825,281 were nonresidents (Table 3). The total number of wildlife viewing days in Florida was 16.8 million.

TABLE 2. Participation in away-from-home wildlife viewing in Florida in 2011

(Participants 16 years old and older)

	Resident	Nonresident	Total
Number of participants	1,076,482	825,281	1,901,763
Observing wildlife	676,562	556,892	1,233,454
Photographing wildlife	443,472	504,228	947,699
Feeding wildlife	236,864	167,324	404,188
Number of days	8,307,372	8,478,162	16,785,534
Observing wildlife	6,591,331	7,076,440	13,667,772
Photographing wildlife	4,872,732	3,785,151	8,657,884
Feeding wildlife	1,732,908	936,370	2,669,278
Number of trips	8,299,760	2,978,270	11,278,029

The primary wildlife viewing activity, measured in terms of number of participants and number of activity days, was observing wildlife; photographing wildlife was the second most popular activity. Please note one participant may engage in two or more activities per trip, as these activities are not exclusive of one another.

Participation by resident and nonresident recreationists in terms of sites visited and wildlife observed, fed or photographed is presented in Table 3. Note that the results presented in Table 3 do not necessarily imply that recreationists prefer a certain site type or prefer to observe a certain wildlife type. This is because the results in Table 3 reflect participants' preferences *and* the availability of sites and wildlife.

Florida ranks second in the nation for the number of residents who take trips to view wildlife (1.4 million people).

Source: U.S. Fish and Wildlife Service



TABLE 3. Participation in away-from-home wildlife viewing by site visited and wildlife observed, fed or photographed in Florida in 2011

(Participants 16 years old and older, ranked)

	Resident	Nonresident	Total
Number of participants	1,076,482	825,281	1,901,763
Number of recreationists visiting (ranked by number of users):			
Public land	957,865	739,344	1,697,209
Private land	293,435	193,899	487,334
Number of recreationists observing, feeding, photographing (ranked by major species):			
Birds	845,908	743,268	1,589,175
Shorebirds	743,840	633,885	1,377,724
Waterfowl	719,031	527,885	1,246,915
Birds of prey	624,370	304,820	929,190
Songbirds	441,686	241,745	683,431
Other birds	233,081	80,352	313,433
Ocean mammals	420,744	480,237	900,981
Other wildlife	606,257	455,316	1,061,574
Fish	454,785	391,323	846,108
Land mammals	450,828	216,682	667,510
Small land mammals	390,514	182,756	573,270
Large land mammals	264,770	81,460	346,229

Note: a participant may be counted towards more than one category above.

At-Home Participation

In 2011, there were 3.3 million at-home wildlife viewing participants in Florida (Table 4). This number represents Florida residents participating in wildlife viewing within one mile of their home. Compared to away-from-home activity, there are more than three times as many residents who participate in wildlife viewing near their homes than those who travel away from home.

The primary at-home wildlife viewing activity, measured in terms of number of participants, was feeding wildlife. Observing wildlife was the second most popular at-home wildlife viewing activity. This is in contrast to the ranking of the away-from-home activities, where observing wildlife was the most popular activity. Of those who participate in feeding birds and wildlife, most feed wild birds.

Given the manner in which the survey questions were asked, we cannot determine the number of days spent feeding wildlife. However, we can determine the number of days spent observing and photographing wildlife around the home. In terms of days spent in wildlife viewing activities, observing wildlife, again, was the most popular activity. Residents spent approximately 287.2 million days observing wildlife around their home compared with 6.6 million days spent observing wildlife on trips away from home.

TABLE 4. Participation in at-home wildlife viewing in Florida in 2011

(Participants 16 years old and older)

Number of participants	3,312,472
Feeding birds & wildlife	2,374,195 (71.7%)
Birds	2,102,403 (63.5%)
Other wildlife	790,111 (23.9%)
Observing wildlife	2,035,947 (61.5%)
Photographing wildlife	1,192,817 (36.0%)
Visiting parks near home	657,614 (19.9%)
Maintaining plantings around home	418,223 (12.6%)
Maintaining natural areas around home	327,778 (9.9%)
Number of days	
Observing wildlife	287,199,954
Photographing wildlife	24,272,644

Note: a participant may enjoy more than one type of wildlife listed above.

At-home participation

The number-one type of wildlife observed by at-home recreationists in Florida was birds (Table 5). The second most prominent category to be observed by residents was mammals, with most of these being small mammals. As with the results presented in Table 3, the Table 5 results do not necessarily imply that recreationists prefer to observe a certain wildlife type, because the results reflect participants' preferences and the availability of wildlife types.

TABLE 5. Participation in at-home (around the home) wildlife viewing by wildlife observed in Florida in 2011

(Participants 16 years old and older)

Number of recreationists		
Birds	1,912,095	(57.7%)
Mammals	1,386,155	(41.8%)
Small mammals	1,315,148	(39.7%)
Large mammals	557,935	(16.8%)
Amphibians or reptiles	1,092,595	(33.0%)
Insects or spiders	765,644	(23.1%)
Fish & other wildlife	671,297	(20.3%)

Note: a participant may enjoy more than one type of wildlife listed above.

The 3.6 million wildlife watchers who live in Florida exceeds the population of every metropolitan area in Florida except the Miami – Fort Lauderdale – Pompano Beach area with 5.7 million people. The other largest metro areas in Florida are:

**Tampa–St. Petersburg–Clearwater
2011 population: 2.8 million**

**Orlando–Kissimmee–Sanford
2011 population: 2.2 million**

**Jacksonville 2011 population:
1.4 million**



III. ECONOMIC IMPACTS

Three Forms of Retail Sales and Economic Impact:

Retail sales, and economic impacts overall, can be reported in several ways, depending on the types of expenditures that are included. None is superior to the others; the choice of method used depends on the situation at hand. The three ways reported in this text are:

Option 1: Overall expenditures – this option provides the total retail sales as reported by the U.S. Fish and Wildlife Service's 2011 *National Survey of Fishing, Hunting and Wildlife-Associated Recreation (FWS Survey)*. Included are travel and equipment expenses, including big-ticket items such as vehicles and real estate. This number should be considered the upper-end estimate of the actual expenditures made in-state for wildlife viewing.

Option 2: Overall expenditures minus some equipment items – the Survey reports expenditures reported by participants made primarily for the purpose of wildlife viewing. However, even if the item's primary purpose was for wildlife viewing, it may be safe to say some of these items are used partly or mostly for non-wildlife viewing purposes. Examples include a camper which may also be used for general vacations in addition to wildlife viewing activities, or binoculars which may be used for sporting events in addition to bird watching. Including the full cost of these items may overestimate the true impact of wildlife viewing. Therefore, adjustments are made to discount these items. This estimate may be considered the lower range of the actual expenditures made in-state for wildlife viewing. This option excludes expenditures for binoculars, cameras, other miscellaneous special equipment, tents and tarps, vehicles, camping equipment and one-half of backpacks, daypacks and clothing - all items that may be used for other activities besides wildlife viewing.

Option 3: Often travel expenses are the major item of interest. This is especially true when considering tourism and local economic impacts. This option is offered to help explain the economic impacts of wildlife-related travel and tourism. This option excludes all equipment expenditures. Only travel-related items are included, such as transportation costs, food and beverages, lodging, etc.

Which option to use depends on the situation. If wildlife viewing is to be compared to other recreation-based industries, especially those that report the full range of related consumer purchases, then Option #1 is correct. If the ramifications to the state economy from diminished wildlife resources or their related recreation are being considered, then Option #2 may be the best option. When comparing the tourism contributions of wildlife, Option #3 may be best. Users are advised to carefully examine all issues when selecting the best data option to apply.

The number of Florida residents who participate in wildlife viewing around their homes (3.3 million) would rank them as the 22nd largest state in the nation.



Retail Sales

The expenditure figures (Table 6) describe the total retail sales generated from 2011 wildlife viewing by specific categories of goods and services. Adjustments for options #2 and #3 are first made in Table 7. Regarding trip expenditures, residents spent the largest amount on private transportation (\$143.8 million) followed by food, drink and refreshments (\$135.2 million). Nonresidents, on the other hand, spent the most on lodging (\$397.3 million), followed by food, drink and refreshments (\$300.6 million). The largest equipment expenditures by Florida residents were for land purchases (\$272.0 million), followed by cameras (\$220.2 million) and pickups, campers and motor homes (\$162.7 million). Note that equipment expenditures are composed of expenditures that may have been made for at-home and/or away-from-home activities.

Before any adjustments are made for options #2 and #3, total resident expenditures for wildlife viewing were \$1.69 billion. Nonresident expenditures were \$1.06 billion and represent new dollars brought into the state economy by out-of-state visitors.

Table 7 shows figures for the average amount spent per day by recreationists for at-home activities and away-from-home activities, as well as the average spent annually. Adjustments are made in Table 7 to present options #2 and #3 as described in the beginning of this section.

Since the Survey does not collect total days of at-home participation, the at-home per-day figures in Table 7 are estimated based on the number of days spent observing wildlife. The away-from-home per-day figures are estimated by totaling the travel expenses plus several equipment items that would be used away from home: binoculars, clothing, camping gear, backpacks and daypacks, vehicles and one-half of cameras, film and developing (unless a specific item is deleted for a specific option). The at-home per-day figure is estimated by totaling the remaining equipment items. Also, since purchased land may be used for other types of recreation or to build a home, 50 percent of its value was assigned to both the at-home and away-from-home estimates.

Once boats and vehicles are removed from the equation, residents on average spend less than one-half the amount per day of activity than nonresidents when they travel away from home to view, feed or photograph wildlife. Residents spend more than nonresidents annually, but that most likely reflects a higher proportion of their overall annual activities occurring in Florida compared to nonresidents.

Wildlife viewing supports an impressive number of jobs in our state: 44,623 full- and part-time jobs. To put this in context of other economic sectors, this is larger than the entire air transportation industry statewide (35,268). *(U.S. Bureau of Economic Analysis)*

The wildlife viewing sector has proved to be resilient in the face of economic downturns. Florida and the nation experienced significant job loss during the period of this report. Wildlife viewing job loss at 13 percent, while significant, was less than other sectors of Florida's economy, which experienced losses of 20 to 30 percent.



TABLE 6. Expenditures made by residents and nonresidents participating in all types of wildlife viewing in Florida in 2011

(Participants 16 years old and older)

	Residents	Nonresidents	Total
Trip Expenditures			
Food	\$135,239,495	\$300,601,664	\$435,841,159
Lodging	\$57,320,227	\$397,296,735	\$454,616,962
Airfare	\$17,827,677	\$44,810,949	\$62,638,626
Public transportation	\$21,886,928	\$37,959,213	\$56,846,141
Private transportation	\$143,827,686	\$160,477,941	\$304,305,627
Guide fees	\$3,467,833	\$4,561,586	\$8,029,420
Public land access fees	\$11,060,563	\$9,364,298	\$20,424,861
Private land access fees	\$5,192,502	\$1,310,138	\$6,502,641
Equipment rental	\$2,131,993	\$33,744,443	\$35,876,435
Boat fuel	\$15,624,168	\$8,433,054	\$24,057,222
Other boat costs	\$20,857,074	\$7,063,595	\$27,920,669
Heating & cooking fuel	\$225,592	\$1,255,886	\$1,481,478
Equipment Expenditures			
Binoculars, scopes	\$11,380,307	\$4,146,063	\$15,526,370
Cameras	\$220,212,080	\$17,459,262	\$237,671,342
Film & developing	\$39,525,684	\$104,601	\$39,630,285
Commercially prepared bird food	\$84,752,029	\$999,297	\$85,751,326
Other bird food	\$15,754,403	\$629,620	\$16,384,023
Food for other wildlife	\$29,230,669		\$29,230,669
Nest boxes, feeders	\$30,306,023	\$313,736	\$30,619,759
Other special equipment	\$2,782,682	\$307,504	\$3,090,185
Tents, tarps	\$2,472,774		\$2,472,772

Table 6 continued

	Residents	Nonresidents	Total
Equipment Expenditures			
Backpacking equipment	\$3,514,862		\$3,514,862
Other camping equipment	\$4,452,064		\$4,452,064
Day packs, special clothing	\$17,644,091	\$222,664	\$17,866,755
Magazines & books	\$15,697,569	\$9,067,061	\$24,764,630
Membership dues & contributions	\$28,082,364	\$7,057,024	\$35,589,387
Other equipment	\$12,209,677	\$8,438,347	\$20,648,024
Off-road & 4WD vehicles	\$67,836,662		\$67,836,662
Pickups, campers & motor homes	\$162,651,462		\$162,651,462
Boats	\$43,720,366		\$43,720,366
Trailer, boat accessories	\$4,492,352		\$4,492,352
Other equipment	\$2,615,006	\$255,874	\$2,870,880
Land purchases	\$272,039,508	\$545,609	\$272,585,117
Land leases	\$7,400,008		\$7,400,008
Plantings	\$179,910,961		\$179,910,961
Total trip & equipment expenditures	\$1,693,345,339	\$1,056,876,163	\$2,750,221,502



The \$2.7 billion that people spent to view wildlife in Florida is more than double the value of the state's annual orange harvest.

(\$1.2 billion, Florida Department of Agriculture and Consumer Services)

TABLE 7. Average expenditures for wildlife viewing in Florida in 2011*(Participants 16 years old and older)*

		Residents	Nonresidents	Average
Average per participant, annually				
Option 1:	Residential activities	\$204		
	Nonresidential activities	\$944	\$1,247	\$1,075
Option 2:	Nonresidential activities, minus equipment used possibly for non-recreational activities ¹	\$495	\$1,220	\$810
Option 3:	Nonresidential activities, travel expenses only ²	\$404	\$1,220	\$758
Average per day, per participant				
Option 1:	Nonresidential activities	\$122	\$121	\$122
Option 2:	Nonresidential activities, minus equipment used possibly for non-recreational activities ¹	\$64	\$119	\$92
Option 3:	Nonresidential activities, travel expenses only ²	\$52	\$119	\$86
Total spent by recreators				Total
Option 1:	Residential activities	\$677,080,893	\$28,064,071	\$705,144,964
	Nonresidential activities (includes ALL equipment)	\$1,016,264,445	\$1,028,812,092	\$2,045,076,538
	Total:	\$1,693,345,339	\$1,056,876,163	\$2,750,221,502
Option 2:	Residential activities	\$671,683,205	\$27,500,694	\$699,183,899
	Nonresidential activities minus equipment used possibly for non-recreational activities ¹	\$532,979,616	\$1,007,095,435	\$1,540,075,051
	Total:	\$1,204,662,821	\$1,034,596,129	\$2,239,258,950
Option 3:	Residential activities	n/a	n/a	n/a
	Nonresidential activities travel expenses only ²	\$434,661,738	\$1,006,879,502	\$1,441,541,240
	Total:	\$434,661,738	\$1,006,879,502	\$1,441,541,240

¹ This figure excludes expenditures for binoculars, cameras, other miscellaneous special equipment, tents and tarps, vehicles, camping equipment and 1/2 of backpacks, daypacks and clothing - all items that may be used for other activities besides wildlife viewing.

² Travel expenses include fuel, transportation, food, beverages, restaurants, lodging and related expenses.

* Includes birdseed, other wildlife feed, nest boxes, membership dues and other items typically purchased in one's state of residence, but reported purchased in Florida by out-of-state residents.

Total Economic Effect (Output)

Expenditures made by wildlife viewers generate rounds of additional spending through the economy. For example, once a sale is made, the retailer buys additional inventory from the wholesaler, who in turn buys more from a manufacturer. These are indirect impacts. Each of these businesses also pays their employees, who generate economic activity when they spend those earnings (this is known as “induced” impacts). The sum of these multiple rounds of spending is the *total economic effect* resulting from the original retail sale. Additional descriptions of direct, indirect and induced impacts are provided in Appendix A. The economic figures in Table 8 show the total economic effect from 2011 wildlife viewing activities in Florida ranges from \$2.7 billion upwards to \$4.9 billion (\$2.9 billion by residents and nearly \$2.0 billion by nonresidents). Travel expenses alone generate \$2.7 billion in total economic effects. Tables detailing the economic impacts of wildlife viewing for each specific category of goods and services are provided in Appendix C.

Earnings

Total household income (salaries and wages) generated during 2011 from wildlife viewing recreation in Florida was estimated upwards of \$1.6 billion (\$917.2 million by residents and \$676.3 million by non-residents).

Employment

During 2011, wildlife viewing supported a minimum of 37,998 full- and part-time jobs and a maximum of 44,623 full- and part-time jobs in Florida (26,226 generated by resident spending and 18,396 generated by nonresident spending) in 2011. These are jobs that are directly associated with wildlife viewing use, in addition to jobs in industries that indirectly support these activities. Travel-related expenses alone supported 24,814 jobs – a 39-percent increase over 2006 levels.

Tax Revenues

Expenditures by residents and nonresidents generate sales tax revenues for the state. Likewise, the jobs generated by wildlife viewing activities create additional federal income tax revenues. Total state tax revenues generated by wildlife viewing are estimated at a minimum of \$230.0 million, up to \$285.0 million. Total federal income tax revenue generated by wildlife viewing ranges up to \$396.5 million.



TABLE 8. Economic impacts of wildlife viewing in Florida in 2011*(Participants 16 years old and older)***Option 1: Impacts generated from ALL travel and equipment expenditures**

	Resident	Nonresident	All Participants
Retail sales	\$1,693,345,339	\$1,056,876,163	\$2,750,221,502
Total economic effect ¹	\$2,934,699,420	\$1,993,578,586	\$4,925,278,006
Salaries & wages	\$917,150,458	\$676,347,958	\$1,593,498,416
Full- & part-time jobs	26,226	18,396	44,623
Tax revenues:			
State & local	\$170,705,327	\$114,275,457	\$284,980,784
Federal revenue	\$233,839,264	\$162,637,650	\$396,476,914

Option 2: Impacts generated all expenditures EXCLUDING equipment possibly used part of the year for non-wildlife viewing activities

	Resident	Nonresident	All Participants
Retail sales	\$1,204,662,821	\$1,034,596,129	\$2,239,258,950
Total economic effect ¹	\$2,139,352,710	\$1,952,974,754	\$4,092,327,464
Salaries & wages	\$667,055,729	\$662,461,282	\$1,329,517,011
Full- & part-time jobs	19,965	18,034	37,998
Tax revenues:			
State & local	\$118,473,147	\$111,593,319	\$230,066,466
Federal revenue	\$171,174,643	\$159,207,310	\$330,381,953

Option 3: Impacts generated from travel-related expenditures only

	Resident	Nonresident	All Participants
Retail sales	\$434,661,738	\$1,006,879,502	\$1,441,541,240
Total economic effect ¹	\$790,461,044	\$1,895,830,502	\$2,686,291,546
Salaries & wages	\$264,030,462	\$642,899,821	\$906,930,283
Full- & part-time jobs	7,299	17,515	24,814
Tax revenues:			
State & local	\$48,081,268	\$109,032,219	\$157,113,487
Federal revenue	\$64,017,620	\$154,641,564	\$218,659,184

¹ *Total economic effect*—the rounds of additional spending throughout the state economy stimulated by the original retail sale. For example, once a sale is made, the retailer buys additional inventory from the wholesaler, who in turn buys more from a manufacturer. These are indirect impacts. Each of these businesses also pays their employees (known as “induced” impacts), and pays other bills. The sum of these transactions is the total economic effect, also known as the output or multiplier effect.

IV. TRENDS IN PARTICIPATION AND SPENDING

Southwick Associates has produced detailed analyses of wildlife viewing in Florida since the 2001 *National Survey of Fishing, Hunting and Wildlife-Related Recreation*. Tables 9, 10 and 11 summarize some of the changes in participation, spending and economic impacts based on data from the 2001, 2006 and 2011 USFWS surveys.

Participation has generally trended upward, with some notable differences in at-home and away-from-home activities. The number of Florida residents who participate in wildlife viewing around their homes grew substantially from 2001 to 2006 (24% increase) but changed very little from 2006 to 2011 (1% increase). Conversely, the number of participants who make day and overnight trips away from home specifically to view wildlife (away-from-home activity) increased little from 2001 to 2006 (4% increase) but grew substantially in the five-year period from 2006 to 2011 (22% increase). The total days of viewing did not change appreciably during the latter five-year period after declining substantially from 2001 to 2006. The average days per participant have decreased steadily from 14.2 days in 2001 to 10.6 days in 2006 to 8.8 days in 2011, while the average number of trips per participant has held fairly steady at around six trips per person. In general, more trips are being taken, but for a shorter duration (Table 9).

TABLE 9. Trends in wildlife viewing participation in Florida, 2001, 2006 and 2011

	2001	2006	2011
At-home activities			
Number of participants	2,634,756	3,273,861	3,312,472
Away-from-home activities			
Number of participants	1,502,904	1,559,784	1,901,763
Observing wildlife	1,244,668	1,171,880	1,233,454
Photographing wildlife	797,916	815,307	947,699
Feeding wildlife	477,708	437,638	404,188
Number of days	21,387,959	16,551,227	16,785,534
Observing wildlife	19,169,138	14,562,110	13,667,772
Photographing wildlife	6,167,193	7,013,696	8,657,884
Feeding wildlife	9,539,538	5,858,235	2,669,278
Number of trips	8,545,581	9,671,809	11,278,029
Days per participant	14.2	10.6	8.8
Trips per participant	5.7	6.2	5.9

Several trends are apparent among Florida resident wildlife watchers from 2001 to 2011 (Table 10). Over that time, they have become more likely to be white, older and female. The percentage of nonwhite participants has always been fairly low and has further declined from 8% in 2001 to 4% in 2011. The average age has increased steadily from 44 years in 2001 to 51 in 2011. Males were 60% of all wildlife watchers in 2001, but their proportion declined steadily to 43% in 2011. There has been no particular trend in the income of residents.

The numbers of nonresident wildlife watchers have grown each year since 2001, by 52% from 2001 to 2006 and by 11% from 2006 to 2011. Unlike the resident wildlife watchers, the percentage of nonwhite participants has increased steadily from essentially none in 2001 to 7% in 2011, but the results are not statistically significant, meaning there is a high level of uncertainty in these trends. The average household income of nonresidents has declined but still remains above that of residents.

TABLE 10. Demographics of wildlife viewing participants in Florida from 2001 to 2011

	2001	2006	2011
Resident participants	1,012,962	813,381	1,076,482
Race (nonwhite)	8%	7%	4%
Average age	44	49	51
Gender (male)	60%	47%	43%
Average HH Income	\$45,149	\$62,816	\$53,712
Nonresident participants	489,942	746,404	825,281
Race (nonwhite)	0%	5%	7%
Average age	47	51	46
Gender (male)	48%	34%	51%
Average HH Income	\$72,596	\$73,862	\$66,527



Table 11 shows that spending for all types of wildlife viewing increased substantially from 2001 to 2006 (96%) and then declined somewhat from 2006 to 2011 (-11%). Trip-related spending grew fairly steadily over the entire period, however, equipment spending saw a large decline from 2006 to 2011 after more than doubling from 2001 to 2006. It may be that a boom in durable equipment purchases between 2001 and 2006 created a stock of equipment that was still largely in use after 2006 that, combined with the economic recession, resulted in reduced equipment-buying between 2006 and 2011.

TABLE 11. Expenditures and economic impacts of wildlife viewing in Florida, 2001, 2006 and 2011

	2001 ¹	2006	2011
Spending			
Trip-related expenditures	\$675,383,864	\$887,942,243	\$1,441,541,240
Equipment expenditures	\$900,097,539	\$2,193,553,516	\$1,308,680,262
Total expenditures	\$1,575,481,403	\$3,081,495,760	\$2,750,221,502
Economic Impacts, including multiplier effects			
Total economic activity		\$5.248 billion	\$4.928 billion
Salaries & wages		\$1.595 billion	\$1.593 billion
Full & part-time jobs		51,367	44,623
Travel-related jobs		17,833	24,814
Tax revenues:			
State sales tax		\$312.8 million	\$285.0 million
Federal income tax		\$385.3 million	\$396.5 million

¹ Comparisons of economic impacts from 2001 are not included in Table 11 because the economic models and methods used to estimate economic impacts changed after the 2001 study.



FIGURE 2: Travel-related spending associated with wildlife viewing in Florida

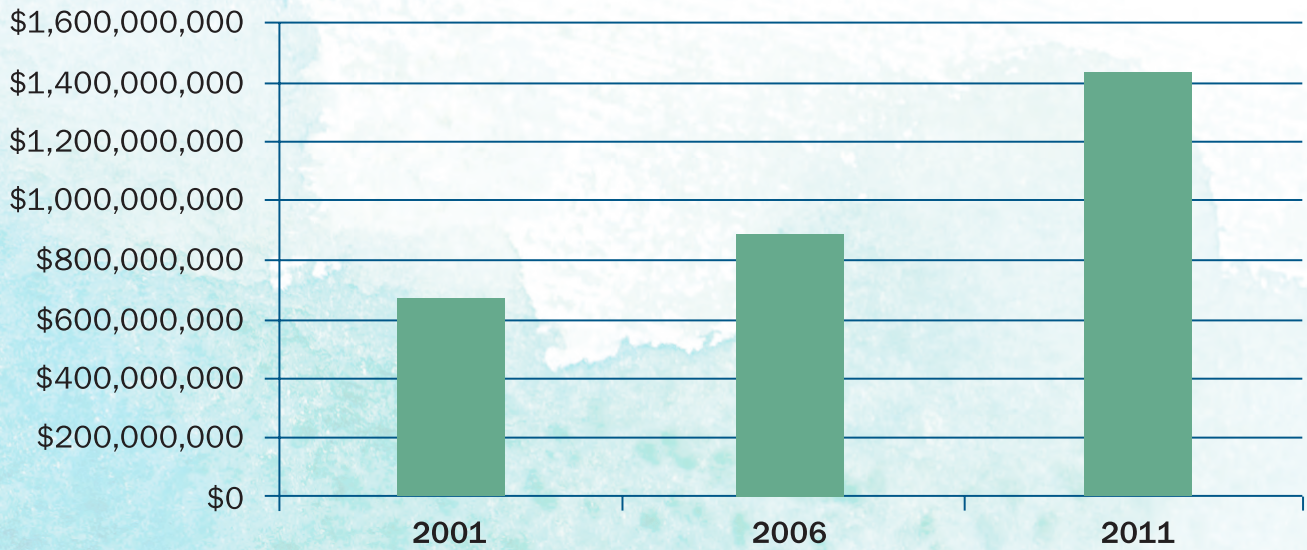
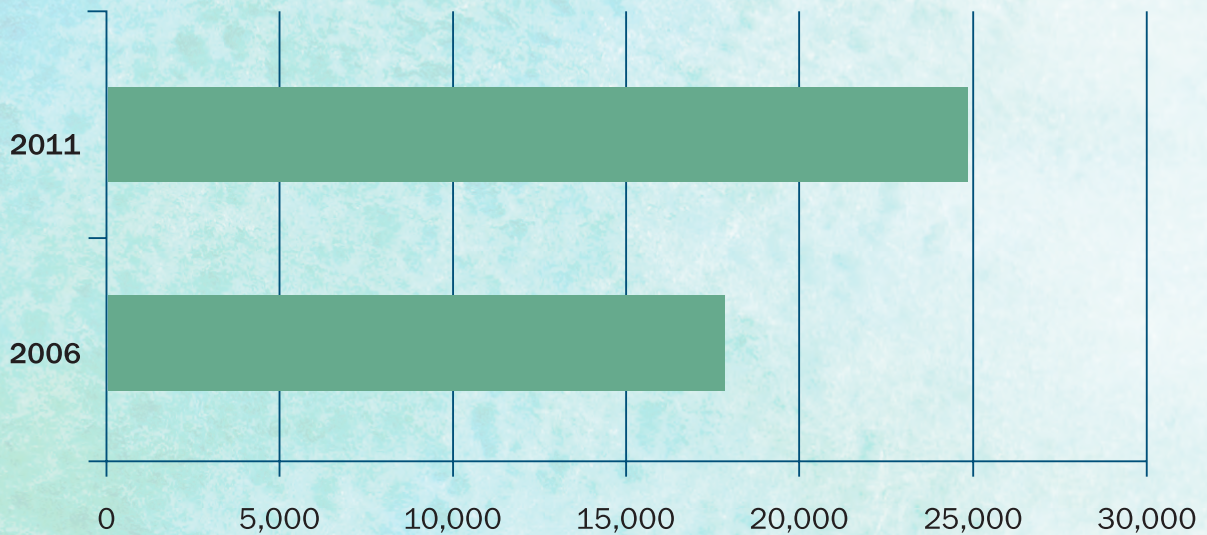


FIGURE 3: Jobs associated with wildlife viewing travel-related spending in Florida



APPENDIX A

Definitions

Economic benefits can be estimated by two types of economic measures: economic impacts and economic values. An **economic impact** addresses the business and financial activity resulting from the use of a resource. **Economic value**, on the other hand, is a non-business measure that estimates the value people receive from an activity after subtracting for their costs and expenditures. This concept is also known as *consumer surplus*.

There are three types of economic impact: direct, indirect and induced. A **direct impact** is defined as the economic impact of the initial purchase made by the consumer (the original retail sale). **Indirect impacts** are the secondary effects generated from a direct impact, such as the retailer buying additional inventory, and the wholesaler and manufacturers buying additional materials. Indirect impacts affect not only the industry being studied, but also the industries that supply the first industry. An **induced impact** results from the salaries and wages paid by the directly and indirectly impacted industries. The employees of these industries spend their income on various goods and services. These expenditures are induced impacts, which, in turn, create a continual cycle of indirect and induced effects.

The direct, indirect and induced impact effects sum together to provide the overall economic impact of the activity under study. As the original retail purchase (direct impact) goes through round after round of indirect and induced effects, the economic impact of the original purchase is multiplied, benefiting many industries and individuals. Likewise, the reverse is true. If a particular item or industry is removed from the economy, the economic loss is greater than the original lost retail sale. Once the original retail purchase is made, each successive round of spending is smaller than the previous round. When the economic benefits are no longer measurable, the economic examination ends.

This study presents several important measures:

Retail Sales—These include the expenditures made by wildlife viewers for equipment, travel expenses and services related to their wildlife viewing activities over the course of the year. The initial retail sale is the *direct impact*.

Total Economic Effect—Also known as the “total multiplier effect” or “output,” this measure reports the sum of the direct, indirect and induced impacts resulting from the original retail sale. This figure explains the total activity in the economy generated by a retail sale. Another way to look at this figure is, if the activity in question were to disappear and participants did not spend their money elsewhere, the economy would contract by this amount.

Salaries and Wages—This figure reports the total salaries and wages paid in all sectors of the economy as a result of the activity under study. These are not just the paychecks of those employees directly serving recreationists or manufacturing their goods, it also includes portions of the paychecks of, for example, the truck driver who delivers food to the restaurants serving recreationists and the accountants who manage the books for companies down the supply chain, etc. This figure is based on the direct, indirect and induced effects, and is essentially a portion of the total economic effect figure reported in this study.

Jobs—Much like Salaries and Wages, this figure reports the total jobs in all sectors of the economy as a result of the activity under study. These are not just the employees directly serving recreationists or manufacturing their goods, they also include, for example, the truck driver who delivers food to the restaurants serving recreationists and the accountants who manage the books for companies down the supply chain, etc. This figure is based on direct, indirect and induced effects.

Wildlife viewing is defined here as the primary purpose of observing, photographing or feeding of fish or other wildlife. **Wildlife** is defined as animals that are living in natural or wild environments. Animals in museums, zoos and aquariums are not included. Domestic and farm animals also are not included as wildlife. Wildlife viewing is divided into two types of activity: at-home and away-from-home. According to the Survey, **at-home activities** are those activities that occur within one mile of one's home for the primary purpose of observing, photographing or feeding wildlife. In contrast, according to the Survey, **away-from-home activities** are trips or outings that occur at least one mile from home for the primary purpose of observing, photographing or feeding wildlife. Given the definitions, at-home activities are made by Florida residents, whereas, away-from-home activities are made by both Florida residents and nonresidents.

Residents and visitors alike spent a significant amount of money to view wildlife in Florida. Together they spent over \$2.7 billion on trip-related items (food, fuel, lodging, etc.), equipment and accessories. That's the fourth largest amount of wildlife viewing expenditures in the United States. It's also more than the total spending for tourism¹ in most Florida metro areas in 2012 including:

- Cape Coral-Fort Myers (\$2.3 billion)
- Bradenton-Sarasota-Venice (\$2.2 billion)
- Naples-Marco Island (\$1.7 billion)
- Deltona-Daytona Beach-Ormond Beach (\$1.4 billion)
- Palm Bay-Melbourne-Titusville (\$1.2 billion)



¹ The category of "tourism and recreation" taxable sales includes hotels and motels, bar and restaurant sales, liquor stores, photo and art stores, gift shops, admissions, sporting goods, rentals and jewelry stores. Florida Office of Economic and Demographic Research.

APPENDIX B

Methods

The methods used to generate the economic impact estimates for Florida are separated into four stages:

1. Tabulate the expenditures made by recreationists (16 years old and older) from the 2011 National Survey of Fishing, Hunting and Wildlife-Associated Recreation;
2. Allocate the detailed expenditures to the appropriate sectors of the economy that are directly impacting the spending;
3. Estimate the indirect and induced effects of the consumer spending through the use of an input-output model of the Florida economy and the IMPLAN economic modeling software;
4. Estimate federal and state/local tax revenues with the IMPLAN economic modeling software.

1. Tabulating Expenditures

Wildlife watchers' expenditures were obtained from the 2011 National Survey of Fishing, Hunting and Wildlife-Associated Recreation (Survey). This Survey is conducted every five years by the U.S. Fish and Wildlife Service and U.S. Bureau of the Census. The Survey provides data required by natural resource management agencies, industry and private organizations at the local, state and national levels to assist in optimally managing natural resources. The Survey is funded through excise taxes on hunting and fishing equipment through the Federal Aid in Sport Fish and Wildlife Restoration Acts.

Expenditures by wildlife watchers were categorized into resident and nonresident files. Both included information on travel-related categories such as food and lodging, and equipment expenditures such as guidebooks and binoculars. Together, the resident and nonresident files represent all expenditures made in Florida in 2011.

2. Applying the Economic Model

The extent of the economic contributions associated with spending for wildlife viewing can be estimated in two ways:

- **Direct effects:** These include the jobs, income and tax revenues that are tied directly to the spending by wildlife watchers without including multiplier effects.
- **Total effects:** These include the jobs, income and tax revenues that are tied directly to the spending by wildlife watchers plus the jobs, income and tax revenues that result from the multiplier effects of conservation spending. The multiplier effect occurs when a direct purchase from a business leads to increased demand for goods and services from other businesses along their supply chain. Also included is economic activity associated with household spending of incomes earned in the affected businesses.

The economic contributions from wildlife viewing, both the direct effects and the total effects, were estimated with an IMPLAN input-output model for the state economy of Florida. The IMPLAN model was developed by MIG, Inc. originally for use by the U.S. Forest Service. Inherent in each IMPLAN model is the relationship between the economic output of each industry (i.e. sales) and the jobs, income and taxes associated with a given level of output. Through those models, it is possible to determine the jobs, income and taxes supported directly by wildlife watchers with and without the multiplier effects.

Input-output models describe how sales in one industry impact other industries. For example, once a consumer makes a purchase, the retailer buys more merchandise from wholesalers, who buy more from manufacturers, who, in turn, purchase new inputs and supplies. In addition, the salaries and wages paid by these businesses stimulate more benefits. Simply, the first purchase creates numerous rounds of purchasing. Input-output analysis tracks the flow of dollars from the initial purchase by the consumer to all of the businesses that are either directly or indirectly affected.

To apply the IMPLAN model, each specific expenditure for wildlife viewing was matched to the appropriate industry sector impacted by the initial purchase. The spending was estimated with a model of the Florida economy, therefore all of the resulting impacts represent salaries and wages, total economic effects, jobs and tax revenues that occur within the state of Florida. The results do not include any economic activity or indirect impacts that leak out of the state.

3. Estimating Tax Revenues

The IMPLAN model estimates detailed tax revenues at the state and local level and at the federal level. The summary estimates provided in this report represent the total taxes estimated by the IMPLAN model including all income, sales, property and other taxes and fees that accrue to the various local, state and federal taxing authorities.



APPENDIX C

Economic impact tables for wildlife viewing expenditures

Economic sectors stimulated by nonresident wildlife viewing spending


	Total Output (Sales)	Employment	Income
Agriculture, forestry, fishing & hunting	\$16,515,114	200	\$3,617,883
Mining	\$28,711,540	242	\$3,556,014
Utilities	\$24,105,229	45	\$5,350,325
Construction	\$19,463,264	163	\$7,731,685
Manufacturing	\$174,149,386	319	\$18,547,271
Wholesale trade	\$119,416,658	759	\$55,069,040
Retail trade	\$137,406,873	2,249	\$64,908,006
Transportation & warehousing	\$126,311,767	893	\$44,832,141
Information	\$71,132,693	256	\$16,266,255
Finance & insurance	\$122,275,827	679	\$35,448,408
Real estate & rental	\$190,793,882	935	\$26,843,114
Professional-scientific & technical services	\$84,613,055	762	\$49,935,624
Management of companies	\$26,429,150	145	\$14,474,342
Administrative & waste services	\$55,877,370	944	\$27,622,743
Educational services	\$9,466,591	149	\$5,503,568
Health & social services	\$79,463,557	855	\$45,109,240
Arts-entertainment & recreation	\$24,147,317	271	\$7,707,139
Accommodation & food services	\$590,801,707	7,342	\$207,065,145
Other services	\$49,042,210	828	\$26,062,869
Government & non-NAICs	\$43,455,398	362	\$27,440,519
Total	\$1,993,578,588	18,396	\$690,091,331

Economic sectors stimulated by resident wildlife viewing spending

	Total Output (Sales)	Employment	Income
Agriculture, forestry, fishing & hunting	\$211,811,346	3,641	\$68,155,037
Mining	\$28,078,029	234	\$3,600,276
Utilities	\$25,436,099	47	\$5,614,499
Construction	\$20,823,679	177	\$8,363,893
Manufacturing	\$525,438,098	1,132	\$82,189,005
Wholesale trade	\$215,719,466	1,370	\$99,479,119
Retail trade	\$401,175,315	6,530	\$191,931,245
Transportation & warehousing	\$115,650,870	977	\$45,194,248
Information	\$87,153,273	314	\$19,793,496
Finance & insurance	\$170,067,225	947	\$48,996,792
Real estate & rental	\$481,960,483	2,657	\$49,663,549
Professional-scientific & technical services	\$92,947,616	826	\$50,801,220
Management of companies	\$31,967,089	175	\$17,507,282
Administrative & waste services	\$58,164,991	1,004	\$30,015,371
Educational services	\$13,578,751	213	\$7,869,896
Health & social services	\$107,608,025	1,159	\$61,087,947
Arts-entertainment & recreation	\$39,834,975	409	\$11,751,578
Accommodation & food services	\$173,992,023	2,510	\$62,563,130
Other services	\$80,065,493	1,524	\$42,286,556
Government & non-NAICs	\$53,226,577	382	\$28,922,794
Total	\$2,934,699,423	26,226	\$935,786,933

Economic sectors stimulated by resident & nonresident wildlife viewing spending

	Total Output (Sales)	Employment	Income
Agriculture, forestry, fishing & hunting	\$228,326,460	3,840	\$71,772,920
Mining	\$56,789,569	475	\$7,156,290
Utilities	\$49,541,328	93	\$10,964,824
Construction	\$40,286,943	340	\$16,095,578
Manufacturing	\$699,587,484	1,451	\$100,736,276
Wholesale trade	\$335,136,124	2,129	\$154,548,159
Retail trade	\$538,582,188	8,779	\$256,839,251
Transportation & warehousing	\$241,962,637	1,870	\$90,026,389
Information	\$158,285,966	570	\$36,059,751
Finance & insurance	\$292,343,052	1,626	\$84,445,200
Real estate & rental	\$672,754,365	3,592	\$76,506,663
Professional-scientific & technical services	\$177,560,671	1,588	\$97,736,844
Management of companies	\$58,396,239	319	\$31,981,624
Administrative & waste services	\$114,042,361	1,948	\$57,638,114
Educational services	\$23,045,342	361	\$13,373,464
Health & social services	\$187,071,582	2,014	\$106,197,187
Arts-entertainment & recreation	\$63,982,292	680	\$19,458,717
Accommodation & food services	\$764,793,730	9,852	\$269,628,275
Other services	\$129,107,703	2,352	\$68,349,425
Government & non-NAICs	\$96,681,975	744	\$56,363,313
Total	\$4,928,278,011	44,623	\$1,625,878,264

A close-up photograph of a squirrel tree frog perched on the rim of a large, funnel-shaped flower. The flower has a vibrant pattern of red and yellow veins on a green background. The frog is green with yellow stripes and large, dark eyes. The background is a soft, out-of-focus mix of green and yellow.

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Office of Public Access and Wildlife Viewing Services
Wildlife Viewing Section

**For more information on wildlife viewing economics and
the Public Access and Wildlife Viewing Services programs,
please call 850-922-0664.**

SQUIRREL TREE FROG
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