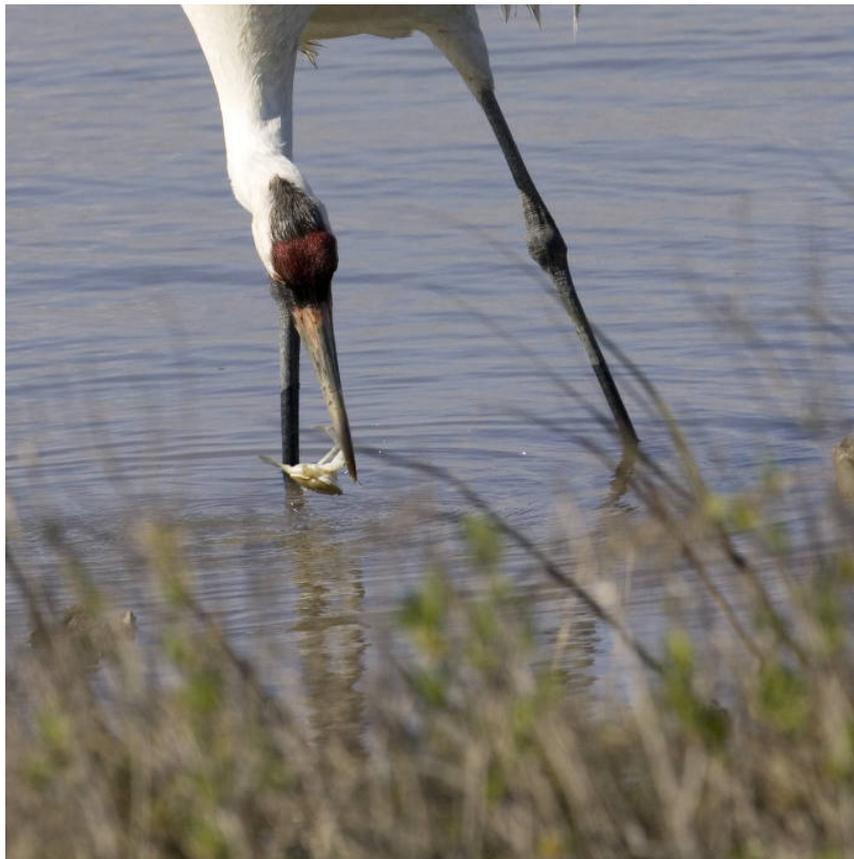




National Wildlife Refuge Visitor Survey 2010/2011: Individual Refuge Results for Aransas National Wildlife Refuge

By Natalie R. Sexton, Alia M. Dietsch, Andrew W. Don Carlos, Lynne Koontz, Adam N. Solomon and Holly M. Miller

We were very impressed to be able to observe a wild boar roaming among the egrets and cranes from atop the tower at Aransas Pass. It was truly an unforgettable experience. Thank you very much.—Survey comment from visitor to Aransas National Wildlife Refuge.



Aransas National Wildlife Refuge. Photo credit: U.S. Fish and Wildlife Service .

Contents

Acknowledgments	iv
Introduction	1
Organization of Results	1
Methods	2
Selecting Participating Refuges.....	2
Developing the Survey Instrument	2
Contacting Visitors	2
Interpreting the Results	4
Refuge Description.....	5
Sampling at This Refuge	7
Selected Survey Results	7
Visitor and Trip Characteristics.....	7
Visitor Spending in Local Communities	14
Visitor Opinions about This Refuge	15
Visitor Opinions about National Wildlife Refuge System Topics.....	20
Conclusion	24
References.....	24
Appendix A: Survey Frequencies for This Refuge.....	A-1
Appendix B: Visitor Comments for This Refuge	B-1

Figures

1.	Map of this refuge.....	6
2.	How visitors first learned or heard about this refuge.....	8
3.	Resources used by visitors to find their way to this refuge during this visit.....	9
4.	Number of visitors travelling to this refuge by residence.....	10
5.	Modes of transportation used by visitors to this refuge during this visit.	11
6.	Activities in which visitors participated during the past 12 months at this refuge.	12
7.	The primary activity in which visitors participated during this visit.....	13
8.	Use of the visitor center at this refuge..	13
9.	Overall satisfaction with this refuge during this visit.....	15
10.	Opinions about fees at this refuge.	16
11.	Importance-satisfaction ratings of services and facilities provided at this refuge.....	17
12.	Importance-satisfaction ratings of recreational opportunities provided at this refuge.....	18
13.	Importance-satisfaction ratings of transportation-related features at this refuge.....	19
14.	Visitors' likelihood of using alternative transportation options at national wildlife refuges in the future.....	21
15.	Visitors' personal involvement with climate change related to fish, wildlife and their habitats.....	22
16.	Visitors' beliefs about the effects of climate change on fish, wildlife and their habitats.....	23

Tables

1.	Participating refuges in the 2010/2011 national wildlife refuge visitor survey.	3
2.	Sampling and response rate summary for this refuge.	7
3.	Influence of this refuge on visitors' decision to take this trip.	9
4.	Type and size of groups visiting this refuge.....	11
5.	Total visitor expenditures in local communities and at this refuge expressed in dollars per person per day.....	14

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Introduction

The National Wildlife Refuge System (Refuge System), established in 1903 and managed by the U.S. Fish and Wildlife Service (Service), is the leading network of protected lands and waters in the world dedicated to the conservation of fish, wildlife and their habitats. There are 556 national wildlife refuges (NWRs) and 38 wetland management districts nationwide, including possessions and territories in the Pacific and Caribbean, encompassing more than 150 million acres. The mission of the Refuge System is to “administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans.” Part of achieving this mission is the goal “to foster understanding and instill appreciation of fish, wildlife, and plants, and their conservation, by providing the public with safe, high-quality, and compatible wildlife-dependent public use” (Clark, 2001). The Refuge System attracts more than 45 million visitors annually, including 25 million people per year to observe and photograph wildlife, over 9 million to hunt and fish, and more than 10 million to participate in educational and interpretation programs (Uniack, 1999; U.S. Fish and Wildlife Service, 2007). Understanding visitors and characterizing their experiences on national wildlife refuges are critical elements of managing these lands and meeting the goals of the Refuge System.

The Service contracted with the U.S. Geological Survey (USGS) to conduct a national survey of visitors regarding their experiences on national wildlife refuges. The survey was conducted to better understand visitor needs and experiences and to design programs and facilities that respond to those needs. The survey results will inform Service performance planning, budget, and communications goals. Results will also inform Comprehensive Conservation Plan (CCPs), Visitor Services, and Transportation Planning processes.

Organization of Results

These results are for Aransas NWR (this refuge) and are part of USGS Data Series 643 (Sexton and others, 2011). All refuges participating in the 2010/2011 surveying effort will receive individual refuge results specific to the visitors to that refuge. Each set of results is organized by the following categories:

- **Introduction:** An overview of the Refuge System and the goals of the national surveying effort.
- **Methods:** The procedures for the national surveying effort, including selecting refuges, developing the survey instrument, contacting visitors, and guidance for interpreting the results.
- **Refuge Description:** A brief description of the refuge location, acreage, purpose, recreational activities, and visitation statistics, including a map (where available) and refuge website link.
- **Sampling at This Refuge:** The sampling periods, locations, and response rate for this refuge.
- **Selected Survey Results:** Key findings for this refuge, including:
 - Visitor and Trip Characteristics
 - Visitor Spending in the Local Communities
 - Visitors Opinions about This Refuge
 - Visitor Opinions about National Wildlife Refuge System Topics
- **Conclusion**
- **References**
- **Survey Frequencies (Appendix A):** The survey instrument with the frequency results for this refuge.
- **Visitor Comments (Appendix B):** The verbatim responses to the open-ended survey questions for this refuge.

Methods

Selecting Participating Refuges

The national visitor survey was conducted from July 2010 – November 2011 on 53 refuges across the Refuge System (table 1). Based on the Refuge System’s 2008 Refuge Annual Performance Plan (RAPP; U.S. Fish and Wildlife Service, 2011, written comm.), 192 refuges with a minimum visitation of 25,000 were considered. This criterion was the median visitation across the Refuge System and the minimum visitation necessary to ensure that the surveying would be logistically feasible onsite. Visitors were sampled on 35 randomly selected refuges and 18 other refuges that were selected by Service Regional Offices to respond to priority refuge planning processes.

Developing the Survey Instrument

USGS researchers developed the survey in consultation with the Service Headquarters Office, managers, planners, and visitor services professionals. The survey was peer-reviewed by academic and government researchers and was further pre-tested with eight Refuge System Friends Group representatives from each region to ensure readability and overall clarity. The survey and associated methodology were approved by the Office of Management and Budget (OMB control #: 1018-0145; expiration date: 6/30/2013).

Contacting Visitors

Refuge staff identified two separate 15-day sampling periods and one or more locations that best reflected the diversity of use and specific visitation patterns of each participating refuge. Sampling periods and locations were identified by refuge staff and submitted to USGS via an internal website that included a customized mapping tool. A standardized sampling schedule was created for all refuges that included eight randomly selected sampling shifts during each of the two sampling periods. Sampling shifts were three- to five-hour randomly selected time bands that were stratified across AM and PM, as well as weekend and weekdays. Any necessary customizations were made, in coordination with refuge staff, to the standardized schedule to accommodate the identified sampling locations and to address specific spatial and temporal patterns of visitation.

Twenty visitors (18 years or older) per sampling shift were systematically selected, for a total of 320 willing participants per refuge—160 per sampling period—to ensure an adequate sample of completed surveys. When necessary, shifts were moved, added, or extended to alleviate logistical limitations (for example, weather or low visitation at a particular site) in an effort to reach target numbers.

Table 1. Participating refuges in the 2010/2011 national wildlife refuge visitor survey.

Pacific Region (R1)	
Kilauea Point National Wildlife Refuge (HI)	William L. Finley National Wildlife Refuge (OR)
Deer Flat National Wildlife Refuge (ID)	McNary National Wildlife Refuge (WA)
Cape Meares National Wildlife Refuge (OR)	Turnbull National Wildlife Refuge (WA)
Malheur National Wildlife Refuge (OR)	
Southwest Region (R2)	
Bitter Lake National Wildlife Refuge (NM)	Aransas National Wildlife Refuge (TX)
Bosque del Apache National Wildlife Refuge (NM)	San Bernard/ Brazoria National Wildlife Refuge (TX)
Wichita Mountains Wildlife Refuge (OK)	
Great Lakes-Big Rivers Region (R3)	
DeSoto National Wildlife Refuge (IA)	McGregor District, Upper Mississippi River National Wildlife and Fish Refuge – (IA/WI)
Neal Smith National Wildlife Refuge (IA)	
Muscatatuck National Wildlife Refuge (IN)	Big Muddy National Fish and Wildlife Refuge (MO)
Rice Lake National Wildlife Refuge (MN)	Horicon National Wildlife Refuge (WI)
Tamarac National Wildlife Refuge (MN)	Necedah National Wildlife Refuge (WI)
Southeast Region (R4)	
Wheeler National Wildlife Refuge (AL)	Banks Lake National Wildlife Refuge (GA)
Big Lake National Wildlife Refuge (AR)	Noxubee National Wildlife Refuge (MS)
Pond Creek National Wildlife Refuge (AR)	Cabo Rojo National Wildlife Refuge (Puerto Rico)
Merritt Island National Wildlife Refuge (FL)	Pea Island National Wildlife Refuge (NC)
St. Marks National Wildlife Refuge (FL)	Cape Romain National Wildlife Refuge (SC)
Ten Thousand Islands National Wildlife Refuge (FL)	Reelfoot National Wildlife Refuge (TN)
Northeast Region (R5)	
Stewart B. McKinney National Wildlife Refuge (CT)	Moosehorn National Wildlife Refuge (ME)
Bombay Hook National Wildlife Refuge (DE)	Great Swamp National Wildlife Refuge (NJ)
Monomoy National Wildlife Refuge (MA)	Montezuma National Wildlife Refuge (NY)
Parker River National Wildlife Refuge (MA)	Wertheim National Wildlife Refuge (NY)
Patuxent Research Refuge (MD)	Occoquan Bay/ Elizabeth Hartwell Mason Neck National Wildlife Refuge (VA)
Mountain-Prairie Region (R6)	
Monte Vista National Wildlife Refuge (CO)	Sand Lake National Wildlife Refuge (SD)
Quivira National Wildlife Refuge (KS)	National Elk Refuge (WY)
Charles M. Russell National Wildlife Refuge (MT)	
Alaska Region (R7)	
Alaska Maritime National Wildlife Refuge (AK)	Kenai National Wildlife Refuge (AK)
California and Nevada Region (R8)	
Lower Klamath/Tule Lake National Wildlife Refuge (CA)	Ruby Lake National Wildlife Refuge (NV)
Sonny Bono Salton Sea National Wildlife Refuge (CA)	

Refuge staff and/or volunteers (survey recruiters) contacted visitors on-site following a protocol provided by USGS to ensure a diverse sample. Instructions included contacting visitors across the entire sampling shift (for example, every n^{th} visitor for dense visitation, as often as possible for sparse visitation), and only one person per group. Visitors were informed of the survey effort, given a token incentive (for example, a small magnet, temporary tattoo), and asked to participate. Willing participants provided their name, mailing address, and preference for language (English or Spanish) and survey mode (mail or online). Survey recruiters also were instructed to record any refusals and then proceed with the sampling protocol.

Visitors were mailed a postcard within 10 days of the initial on-site contact thanking them for agreeing to participate in the survey and inviting them to complete the survey online. Those visitors choosing not to complete the survey online were sent a paper copy a week later. Two additional contacts were made by mail during the next seven weeks following a modified Tailored Design Method (Dillman, 2007): 1) a reminder postcard one week after the first survey, and 2) a second paper survey two weeks after the reminder postcard. Each mailing included instructions for completing the survey online and a postage paid envelope for returning the paper version of the survey. Those visitors indicating a preference for Spanish were sent Spanish versions of all correspondence (including the survey). Finally, a short survey of six questions was sent to nonrespondents four weeks after the second survey mailing to determine any differences between respondents and nonrespondents at the national level. Online survey data were exported and paper survey data were entered using a standardized survey codebook and data entry procedure. All survey data were analyzed by using SPSS v.18 statistical analysis software.

Interpreting the Results

The extent to which these results accurately represent the total population of visitors to this refuge is dependent on 1) an adequate sample size of those visitors and 2) the representativeness of that sample. The adequacy of the sample size for this refuge is quantified as the margin of error. The composition of the sample is dependent on the ability of the standardized sampling protocol for this study to account for the spatial and temporal patterns of visitor use specific to each refuge. Spatially, the geographical layout and public use infrastructure varies widely across refuges. Some refuges only can be accessed through a single entrance, while others have multiple unmonitored access points across large expanses of land and water. As a result, the degree to which sampling locations effectively captured spatial patterns of visitor use will likely vary from refuge to refuge. Temporally, the two 15-day sampling periods may not have effectively captured all of the predominant visitor uses/activities on some refuges during the course of a year. Therefore, certain survey measures such as visitors' self-reported "primary activity during their visit" may reflect a seasonality bias.

Herein, the sample of visitors who responded to the survey are referred to simply as "visitors." However, when interpreting the results for Aransas NWR, any potential spatial and temporal sampling limitations specific to this refuge need to be considered when generalizing the results to the total population of visitors. For example, a refuge that sampled during a special event (for example, birding festival) held during the spring may have contacted a higher percentage of visitors who traveled greater than 50 miles to get to the refuge than the actual number of these people who would have visited throughout the calendar year (that is, oversampling of nonlocals). In contrast, another refuge may not have enough nonlocal visitors in the sample to adequately represent the beliefs and opinions of that group type. If the sample for a specific group type (for example, nonlocals, hunters, those visitors who paid a fee) is too low ($n < 30$), a warning is included. Additionally, the term "*this* visit" is used to reference the visit on which people were contacted to participate in the survey, which may or may not have been their most recent refuge visit.

Refuge Description for Aransas National Wildlife Refuge

Encompassed by tidal marshes and broken by long, narrow bogs, Aransas NWR sprawls across the Blackjack Peninsula, where the grasslands, live oaks, and redbay thickets cover the deep, sandy soil. Storms and water from the Gulf of Mexico shape this vital Texan refuge which is home to nearly 390 species. Established on December 31st, 1937, this 115,000-acre refuge was created originally as a breeding ground for migratory birds and other wildlife.

Only here at Aransas NWR do North America's tallest birds find an enduring winter stronghold. Pelicans, herons, egrets, roseate spoonbills, ducks, and geese dine in brackish waters and salt marshes teem with fish, blue crabs, and clams. On shore, javelinas, bobcats, and deer wander through the oak woodlands. Alligators peer from the still waters of ponds and bogs.

With over 56,000 visitors annually (based on 2008 RAPP database; U.S. Fish and Wildlife Service, 2011, written comm.), Aransas NWR offers activities including big game hunting, fishing, auto tour routes, use of the Visitor Center, hiking, biking, motorized and nonmotorized boating, wildlife observation, photography, environmental education, and interpretation. A favorite activity amongst visitors is the Whooping Crane festival in February. With over 200 birds, Aransas NWR has the largest flock of wintering whooping cranes and is well-known amongst the birding community. Figure 1 below displays a map of the refuge. For more information please visit <http://www.fws.gov/southwest/refuges/texas/aransas/index.html>.

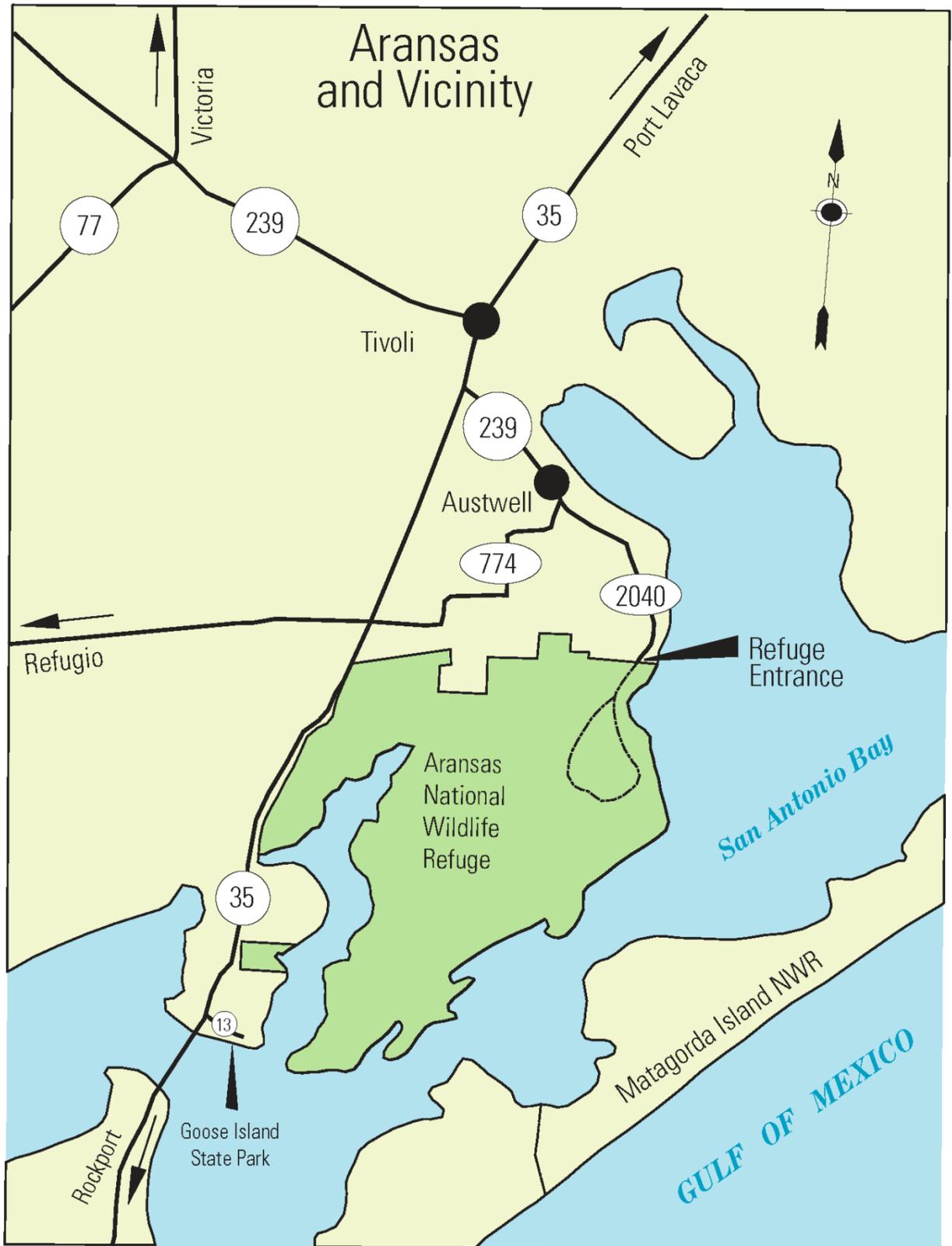


Figure 1. Map of Aransas NWR, courtesy of U.S. Fish and Wildlife Service.

Sampling at Aransas National Wildlife Refuge

A total of 320 visitors agreed to participate in the survey during the two sampling periods at the identified locations at Aransas NWR (table 2). In all, 242 visitors completed the survey for a 77% response rate and $\pm 6\%$ margin of error at the 95% confidence level.¹

Table 2. Sampling and response rate summary for Aransas NWR.

Sampling period	Dates	Locations	Total contacts	Undeliverable addresses	Completed surveys	Response rate
1	10/30/2010 to 11/13/2010	Visitor Center Hunter Check Station	160	3	123	78%
2	3/5/2011 to 3/19/2011	Visitor Center	160	3	119	76%
Total			320	6	242	77%

Selected Survey Results

Visitor and Trip Characteristics

A solid understanding of refuge visitors and details about their trips to refuges can inform communication outreach efforts, inform visitor services and transportation planning, forecast use, and gauge demand for services and facilities.

Familiarity with the Refuge System

While we did not ask visitors to identify the mission of the National Wildlife Refuge System or the U.S. Fish and Wildlife Service, visitors to Aransas NWR reported that before participating in the survey, they were aware of the role of the U.S. Fish and Wildlife Service in managing national wildlife refuges (86%) and that the Refuge System has the mission of conserving, managing, and restoring fish, wildlife, plants and their habitat (93%). Positive responses to these questions concerning the management and mission of the Refuge System do not indicate the degree to which these visitors understand the day-to-day management practices of individual refuges, only that visitors feel they have a basic knowledge of who manages refuges and why. Compared to other public lands, many visitors feel that refuges provide a unique recreation experience (91%; see Appendix B for visitor comments on “What Makes National Wildlife

¹ The margin of error (or confidence interval) is the error associated with the results related to the sample and population size. A margin of error of $\pm 5\%$, for example, means if 55% of the sample answered a survey question in a certain way, then 50–60% of the entire population would have answered that way. The margin of error is calculated with an 80/20 response distribution, assuming that for any given dichotomous choice question, approximately 80% of respondents selected one choice and 20% selected the other (Salant and Dillman, 1994).

Refuges Unique?"); however, reasons for why visitors find refuges unique are varied and may not directly correspond to their understanding of the mission of the Refuge System. More than half of visitors to Aransas NWR had been to at least one other National Wildlife Refuge in the past year (62%), with an average of 4 visits to other refuges during the past 12 months.

Visiting This Refuge

Most surveyed visitors (63%) had only been to Aransas NWR once in the past 12 months, while others had been multiple times (37%). These repeat visitors went to the refuge an average of 6 times during that same 12-month period. Visitors used the refuge during only one season (74%), during multiple seasons (19%), and year-round (7%).

Most visitors first learned about the refuge from friends/relatives (44%), signs on the highway (23%), or newspapers/magazines (20%; fig. 2). Key information sources used by visitors to find their way to this refuge include signs on highways (65%), previous knowledge (41%), or a road atlas/highway map (38%; fig. 3).

Some visitors (22%) lived in the local area (within 50 miles of the refuge), whereas 78% were nonlocal visitors. For most local visitors, Aransas NWR was the primary purpose or sole destination of their trip (76%; table 3). For most nonlocal visitors, the refuge was one of many equally important reasons or destinations for their trip (45%). Local visitors reported that they traveled an average of 36 miles to get to the refuge, while nonlocal visitors traveled an average of 353 miles. Figure 4 shows the residence of visitors travelling to the refuge. About 60% of visitors to Aransas NWR were from Texas.

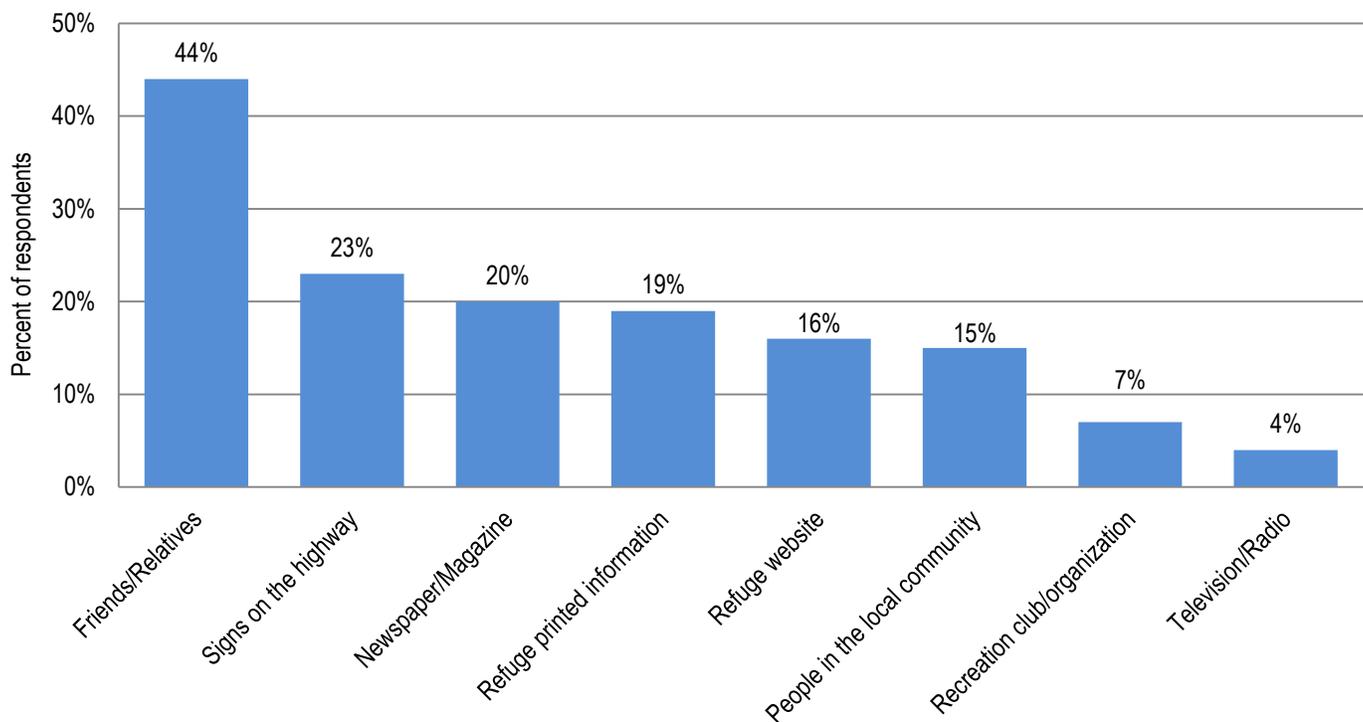


Figure 2. How visitors first learned or heard about Aransas NWR (n = 234).

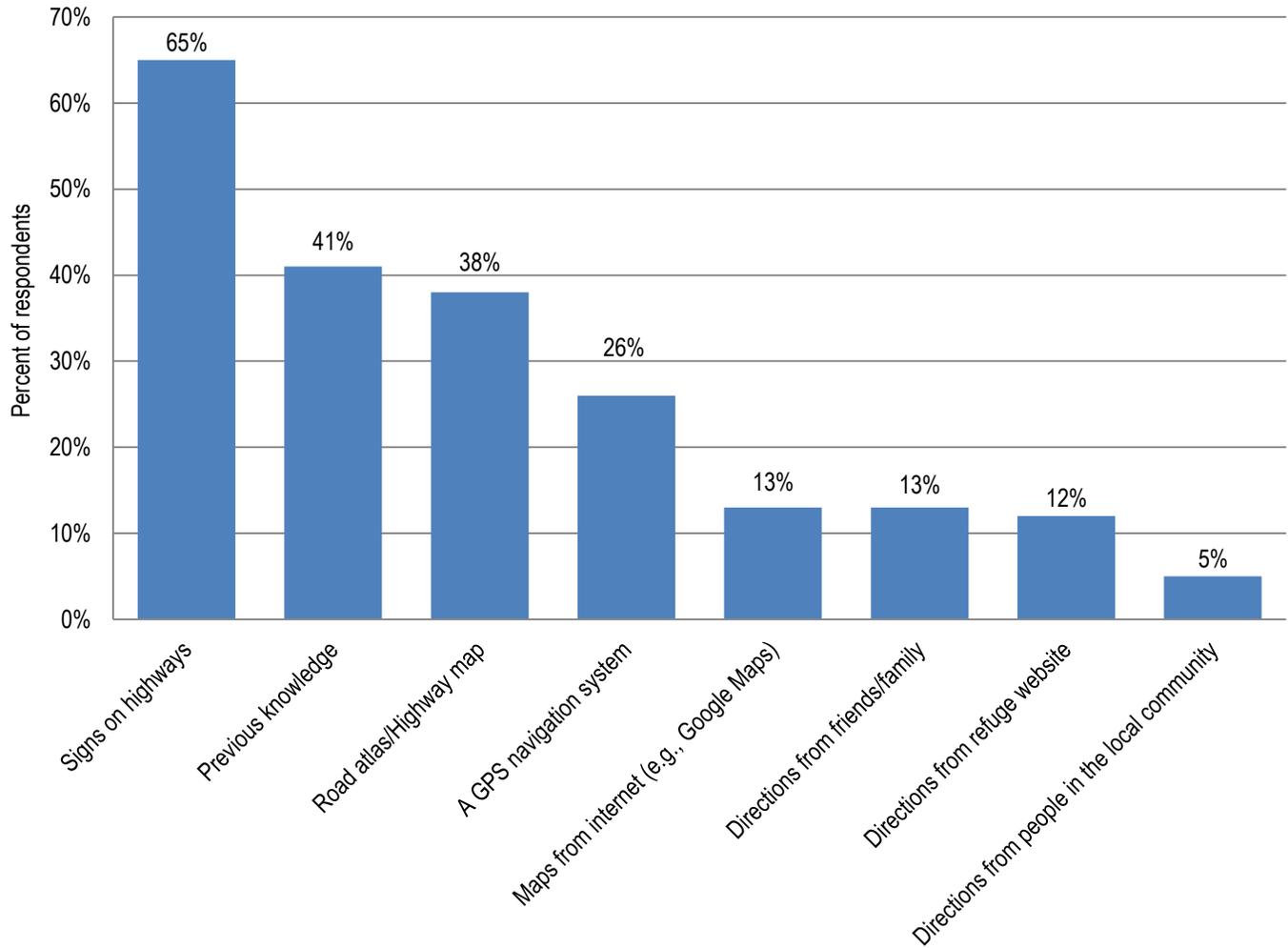


Figure 3. Resources used by visitors to find their way to Aransas NWR during *this* visit (n = 237).

Table 3. Influence of Aransas NWR on visitors' decision to take *this* trip.

Visitors	Visiting this refuge was...		
	the primary reason for trip	one of many equally important reasons for trip	an incidental stop
Nonlocal	41%	45%	14%
Local	76%	16%	8%
Total	48%	39%	13%

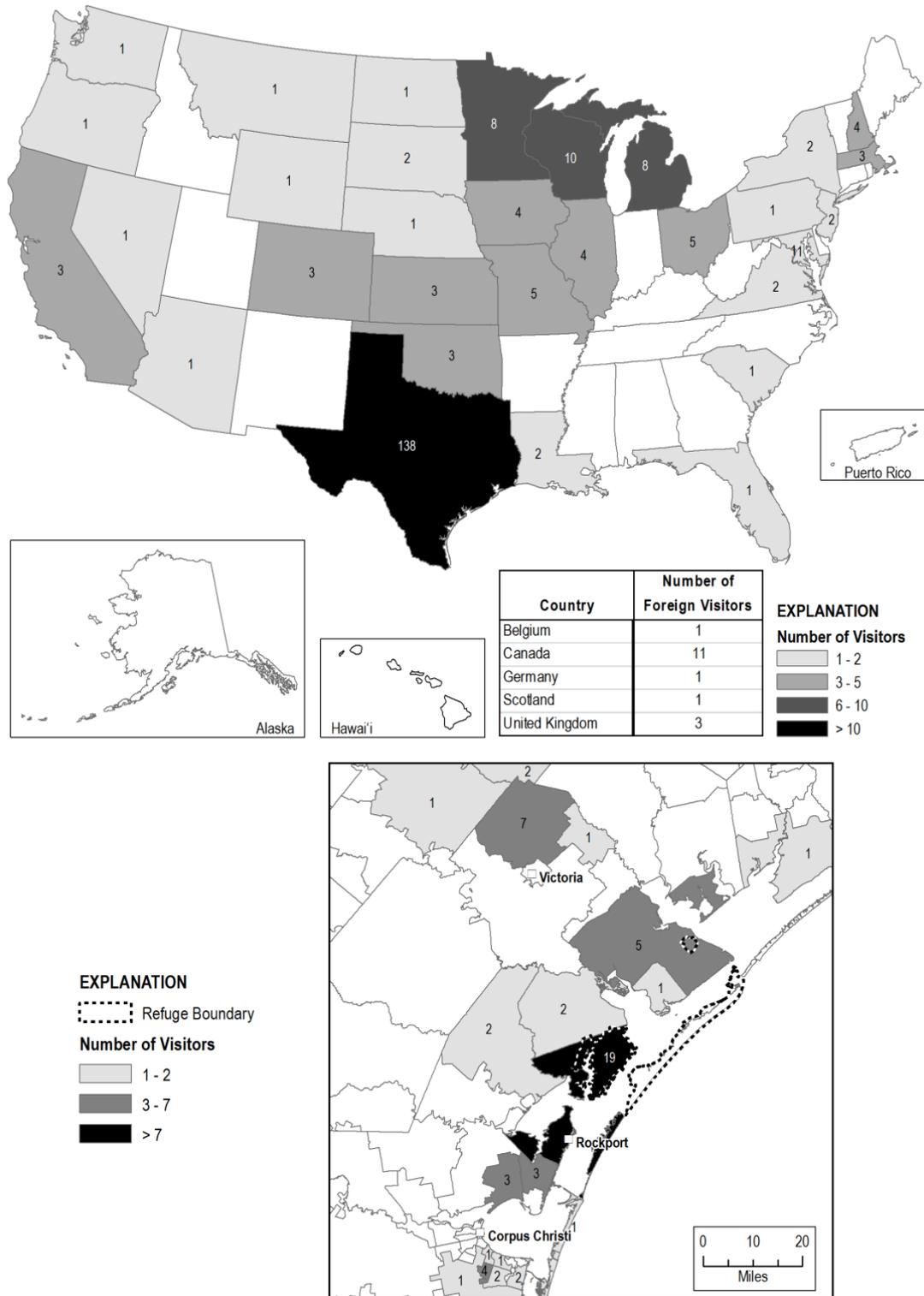


Figure 4. Number of visitors travelling to Aransas NWR by residence. Top map shows residence by state and bottom map shows residence by zip codes near the refuge (n = 241).

Surveyed visitors reported that they spent an average of 5 hours at Aransas NWR during one day there (a day visit is assumed to be 8 hours). However, the most frequently reported length of visit during one day was actually 3 hours (24%). The key modes of transportation used by visitors to travel around the refuge were private vehicle (95%), and walking/hiking (31%; fig. 5). Most visitors indicated they were part of a group on their visit to this refuge (64%), travelling primarily with family and friends (table 4).

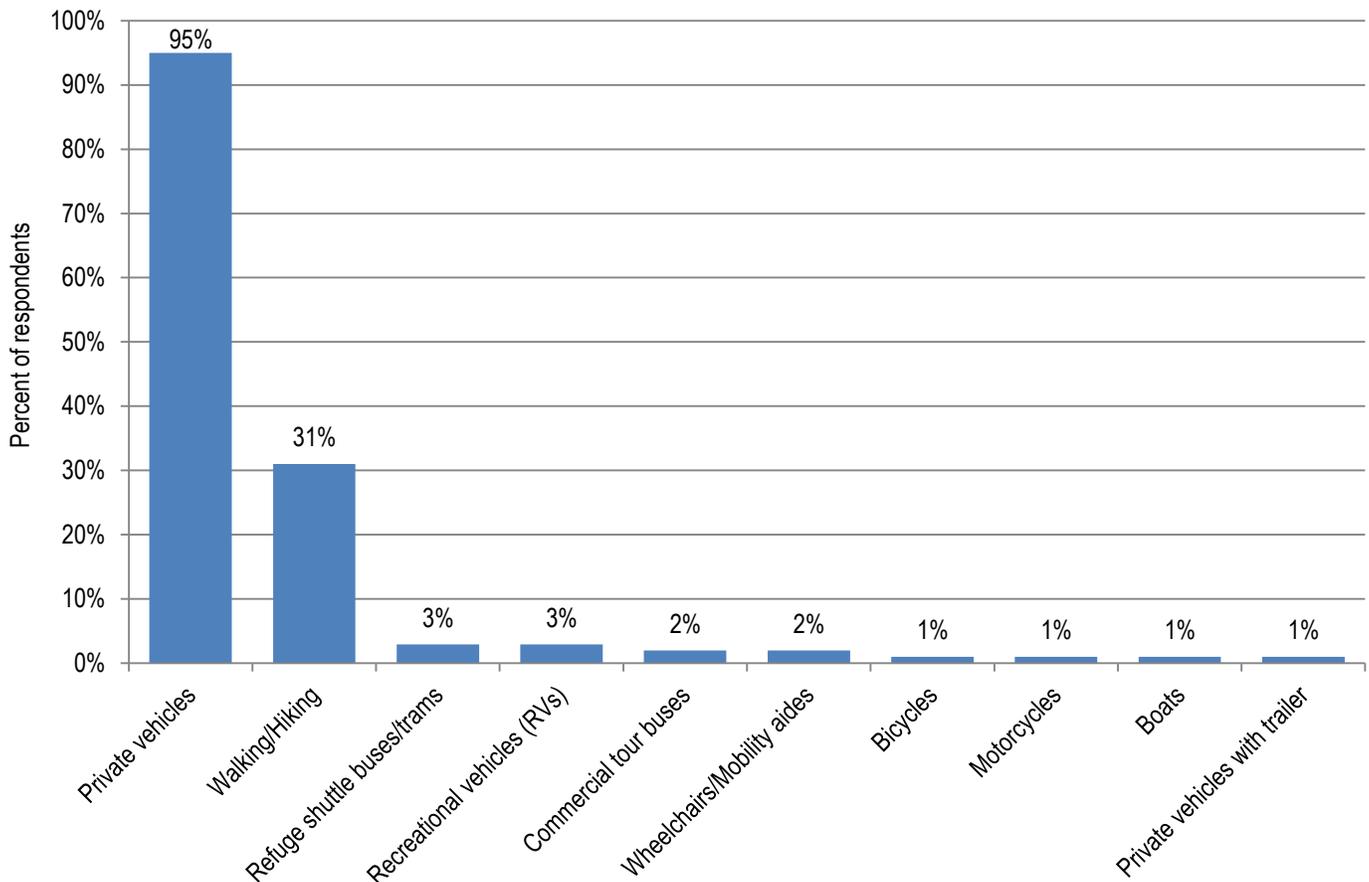


Figure 5. Modes of transportation used by visitors to Aransas NWR during *this* visit (n = 238).

Table 4. Type and size of groups visiting Aransas NWR (for those who indicated they were part of a group, n = 152).

Group type	Percent (of those traveling in a group)	Average group size		
		Number of adults	Number of children	Total group size
Family/Friends	93%	3	0	3
Commercial tour group	2%	11	0	11
Organized club/School group	3%	14	0	14
Other group type	2%	20	0	20

Surveyed visitors participated in a variety of refuge activities during the past 12 months (fig.); the top three activities reported were wildlife observation (87%), bird watching (81%), and auto tour route/driving (68%). The primary reasons for their most recent visit included wildlife observation (46%) and bird watching (27%; fig. 7). The visitor center was used by 99% of visitors, mostly to stop to use the facilities (for example, get water, use restroom; 84%), view the exhibits (83%), and ask information of staff/volunteers (81%; fig. 8).

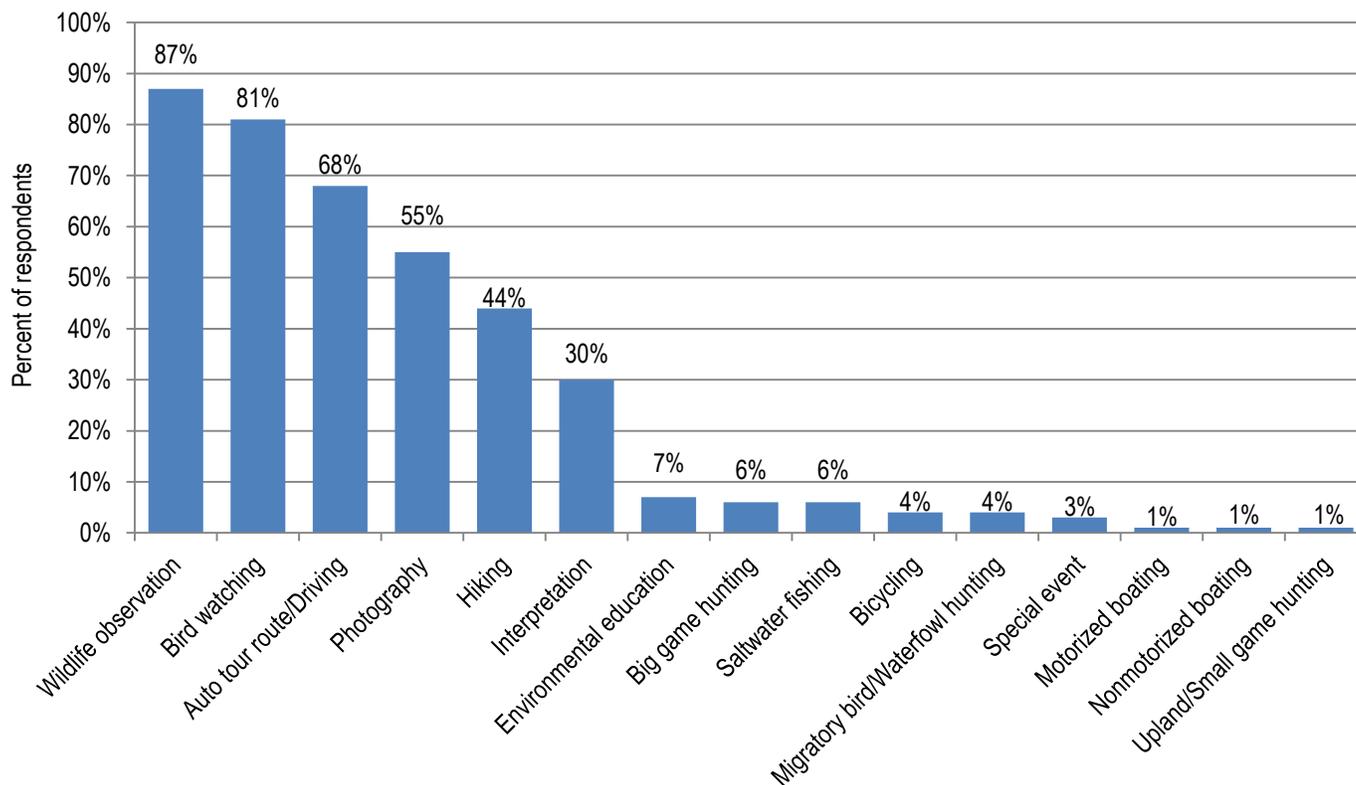


Figure 6. Activities in which visitors participated during the past 12 months at Aransas NWR (n = 237). See Appendix B for a listing of “other” activities.

Visitor Characteristics

Nearly all (93%) surveyed visitors to Aransas NWR indicated that they were citizens or permanent residents of the United States. Only those visitors 18 years or older were sampled. Visitors were a mix of 49% male with an average age of 62 years and 51% female with an average age of 60 years. Visitors, on average, reported they had 16 years of formal education (college or technical school). The median level of income was \$50,000–\$74,999. See Appendix A for more demographic information. In comparison, the 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation found that participants in wildlife watching and hunting on public land were 55% male and 45% female with an average age of 46 years, an average level of education of 14 years (associate degree or two years of college), and a median income of \$50,000–\$74,999 (Harris, 2011, personal communication). Compared to the U.S. population, these 2006 survey participants are more likely to be male, older, and have higher education and income levels (U.S. Department of the Interior and U.S. Department of Commerce, 2007).

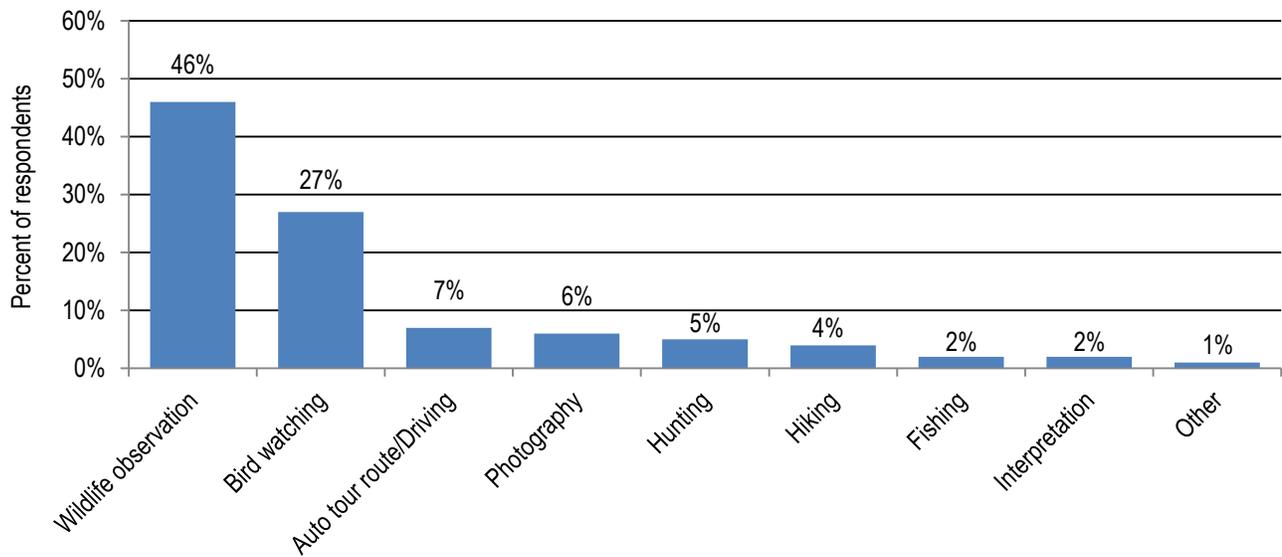


Figure 7. The primary activity in which visitors participated during *this* visit to Aransas NWR (n = 229). See Appendix B for a listing of “other” activities.

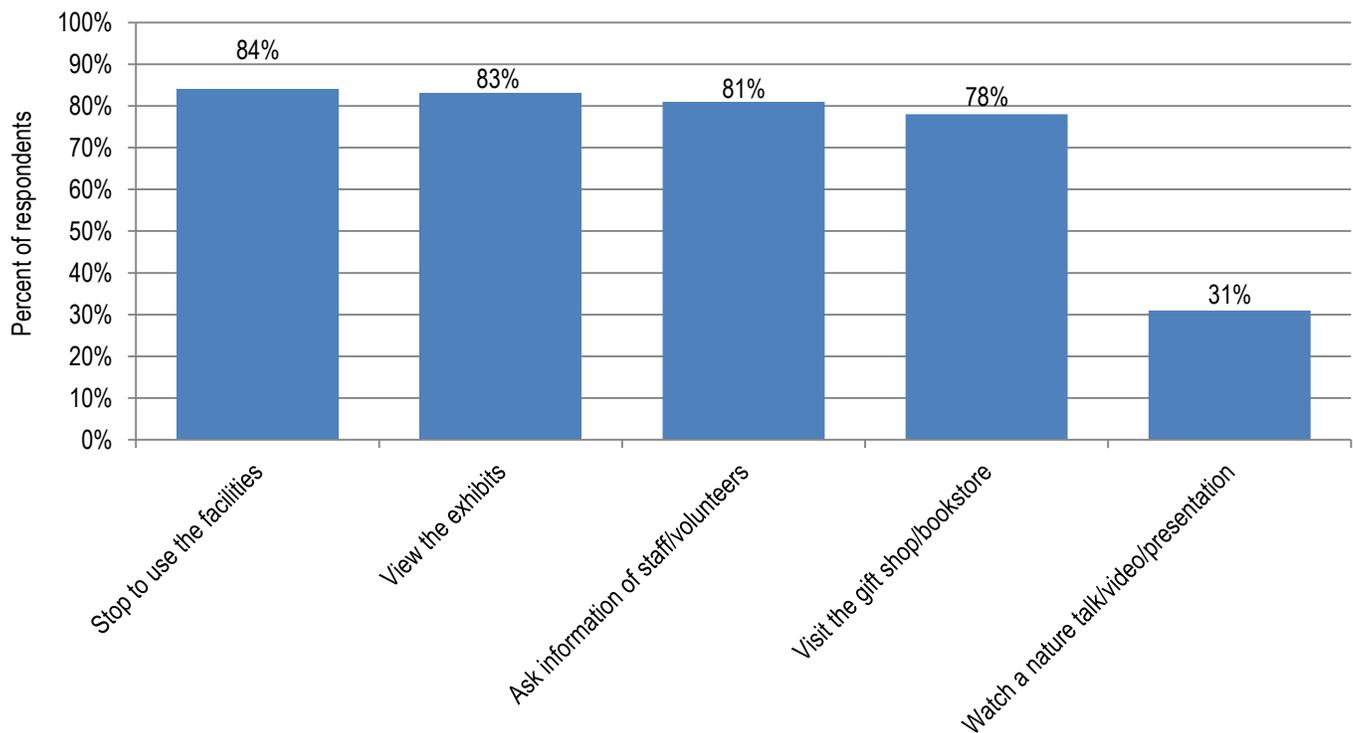


Figure 8. Use of the visitor center at Aransas NWR (for those visitors who indicated they used the visitor center, n = 235).

Visitor Spending in Local Communities

Tourists usually buy a wide range of goods and services while visiting an area. Major expenditure categories include lodging, food, supplies, and gasoline. Spending associated with refuge visitation can generate considerable economic benefits for the local communities near a refuge. For example, more than 34.8 million visits were made to national wildlife refuges in fiscal year 2006; these visits generated \$1.7 billion in sales, almost 27,000 jobs, and \$542.8 million in employment income in regional economies (Carver and Caudill, 2007). Information on the amount and types of visitor expenditures can illustrate the economic importance of refuge visitor activities to local communities. Visitor expenditure information also can be used to analyze the economic impact of proposed refuge management alternatives.

A region (and its economy) is typically defined as all counties within 50 miles of a travel destination (Stynes, 2008). Visitors that live within the local 50-mile area of a refuge typically have different spending patterns than those that travel from longer distances. During the two sampling periods, 22% of surveyed visitors to Aransas NWR indicated that they live within the local area. Nonlocal visitors (78%) stayed in the local area, on average, for 6 days. Table 5 shows summary statistics for local and nonlocal visitor expenditures in the local communities and at the refuge, with expenditures reported on a per person per day basis. During the two sampling periods, nonlocal visitors spent an average of \$68 per person per day and local visitors spent an average of \$34 per person per day in the local area. Several factors should be considered when estimating the economic importance of refuge visitor spending in the local communities. These include the amount of time spent at the refuge, influence of refuge on decision to take this trip, and the representativeness of primary activities of the sample of surveyed visitors compared to the general population. Controlling for these factors is beyond the scope of the summary statistics presented in this report. Detailed refuge-level visitor spending profiles which do consider these factors will be developed during the next phase of analysis.

Table 5. Total visitor expenditures in local communities and at Aransas NWR expressed in dollars per person per day.

Visitors	n ¹	Median	Mean	Standard deviation	Minimum	Maximum
Nonlocal	167	\$51	\$68	\$62	\$0	\$386
Local	42	\$23	\$34	\$29	\$0	\$118

¹n = number of visitors who answered both locality *and* expenditure questions.

Note: For each respondent, reported expenditures were divided by the number of persons in their group that shared expenses in order to determine the spending per person per trip. This was then divided by the number of days spent in the local area to determine the spending per person per day for each respondent. For respondents who reported spending less than one full day, trip length was set equal to one day. These visitor spending estimates are appropriate for the sampling periods selected by refuge staff (see table 2 for sampling period dates and figure 7 for the primary visitor activities). They may not be representative of the total population of visitors to this refuge.

Visitor Opinions about This Refuge

National wildlife refuges provide visitors with a variety of services, facilities, and wildlife-dependent recreational opportunities. Understanding visitors' perceptions of their refuge experience is a key component of the Refuge System mission as it pertains to providing high-quality wildlife-dependent recreational opportunities. Having a baseline understanding of visitor experience can inform management decisions to better balance visitors' expectations with the Refuge System mission. Recent studies in outdoor recreation have included an emphasis on declining participation in traditional activities such as hunting and an increasing need to connect the next generation to nature and wildlife. These factors highlight the importance of current refuge visitors as a key constituency in wildlife conservation. A better understanding is increasingly needed to better manage the visitor experience and to address the challenges of the future.

Surveyed visitors' overall satisfaction with the services, facilities, and recreational opportunities provided at Aransas NWR were as follows (fig. 9):

- 96% were satisfied with the recreational activities and opportunities,
- 98% were satisfied with the information and education about the refuge and its resources,
- 98% were satisfied with the services provided by employees or volunteers, and
- 97% were satisfied with the refuge's job of conserving fish, wildlife and their habitats.

Of the 61% of visitors who indicated that they paid a fee to enter the refuge, 95% agreed that the opportunities and services were at least equal to the fee they paid; 85% felt the fee was about right, whereas 15% felt that the fee was too low (fig. 10).

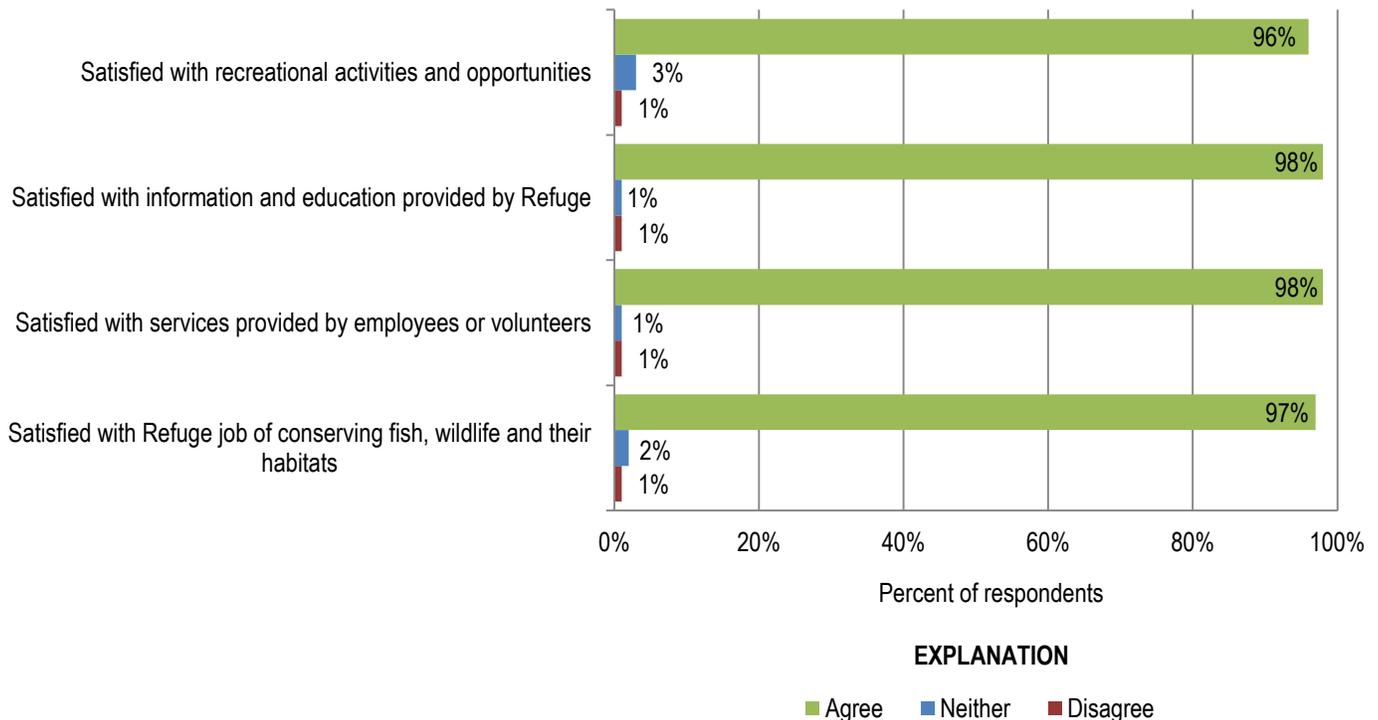


Figure 9. Overall satisfaction with Aransas NWR during *this* visit (n ≥ 235).



Figure 10. Opinions about fees at Aransas NWR (for those visitors who indicated they paid a fee, n = 144).

Importance/Satisfaction Ratings

Comparing the importance and satisfaction ratings for visitor services provided by refuges can help to identify how well the services are meeting visitor expectations. The importance-performance framework presented in this section is a tool that includes the importance of an attribute to visitors in relation to their satisfaction with that attribute. Drawn from marketing research, this tool has been applied to outdoor recreation and visitation settings (Martilla and James, 1977; Tarrant and Smith, 2002). Results for the attributes of interest are segmented into one of four quadrants (modified for this national study):

- Keep Up the Good Work = high importance/high satisfaction;
- Concentrate Here = high importance/low satisfaction;
- Low Priority = low importance/low satisfaction; and
- Look Closer = low importance/high satisfaction.

Graphically plotting visitors' importance and satisfaction ratings for different services, facilities, and recreational opportunities provides a simple and intuitive visualization of these survey measures. However, this tool is not without its drawbacks. One is the potential for variation among visitors regarding their expectations and levels of importance (Vaske et al., 1996; Bruyere et al., 2002; Wade and Eagles, 2003), and certain services or recreational opportunities may be more or less important for different segments of the visitor population. For example, hunters may place more importance on hunting opportunities and amenities such as blinds, while school group leaders may place more importance on educational/informational displays than would other visitors. This potential for highly varied importance ratings needs to be considered when viewing the average results of this analysis of visitors to Aransas NWR. This consideration is especially important when reviewing the attributes that fall into the "Look Closer" quadrant. In some cases, these attributes may represent specialized recreational activities in which a small subset of visitors participate (for example, hunting, kayaking) or facilities and services that only some visitors experience (for example, exhibits about the refuge). For these visitors, the average importance of (and potentially the satisfaction with) the attribute may be much higher than it would be for the overall population of visitors.

Figures 11-13 depict surveyed visitors' importance-satisfaction results for refuge services and facilities, recreational opportunities, and transportation-related features at Aransas NWR, respectively. All refuge services and facilities fell in the "Keep Up the Good Work" quadrant (fig. 11). Nearly all refuge recreational opportunities fell in the "Keep Up the Good Work" quadrant except hunting and fishing

opportunities which fell into the “Look Closer” quadrant (fig. 12) The average importance of hunting and fishing activities in the “Look Closer” quadrant may be higher among visitors who have participated in these activities during the past 12 months; however, there were not enough individuals in the sample to evaluate the responses of such participants. All transportation-related features fell in the “Keep Up the Good Work” quadrant (fig. 13).

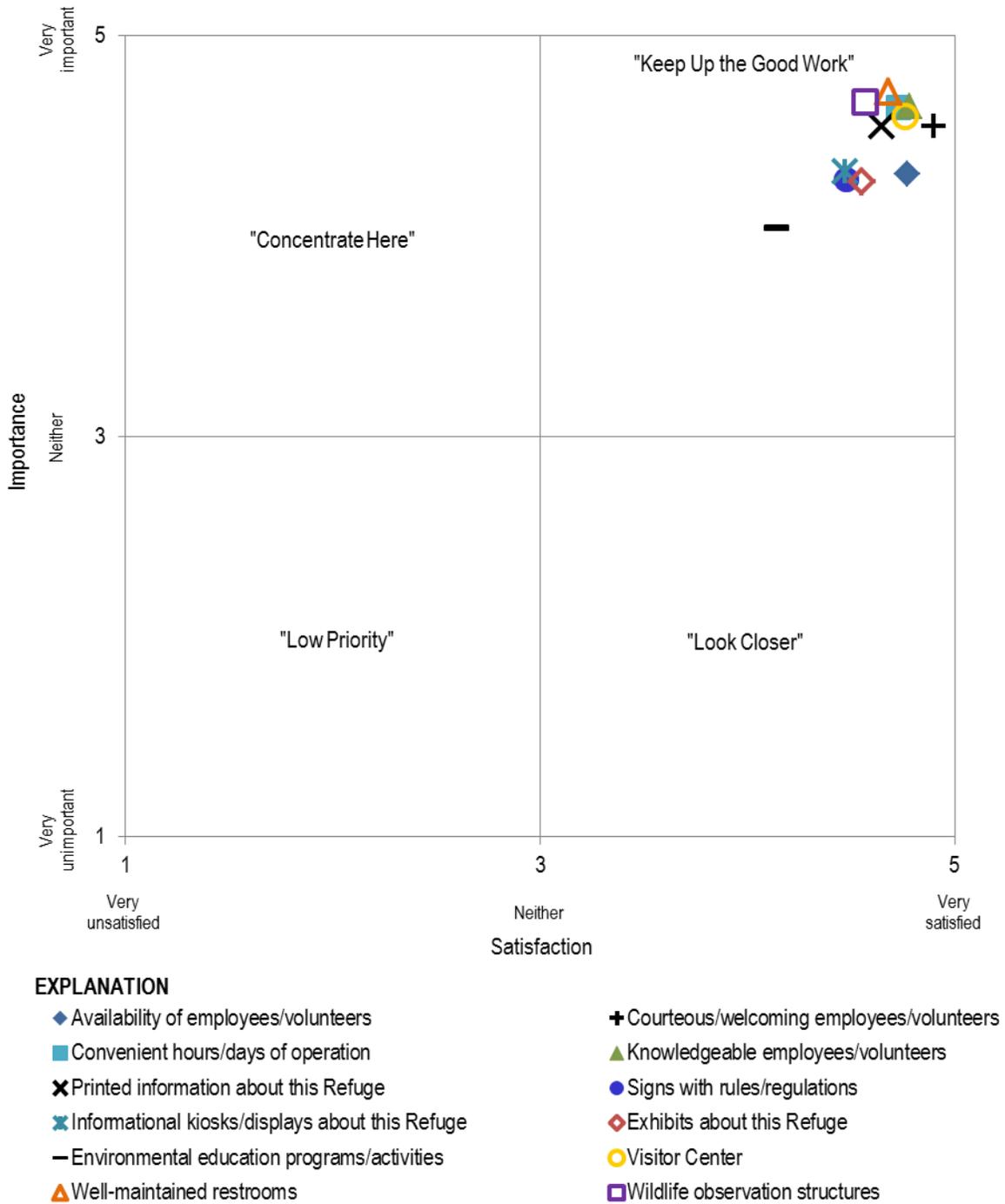
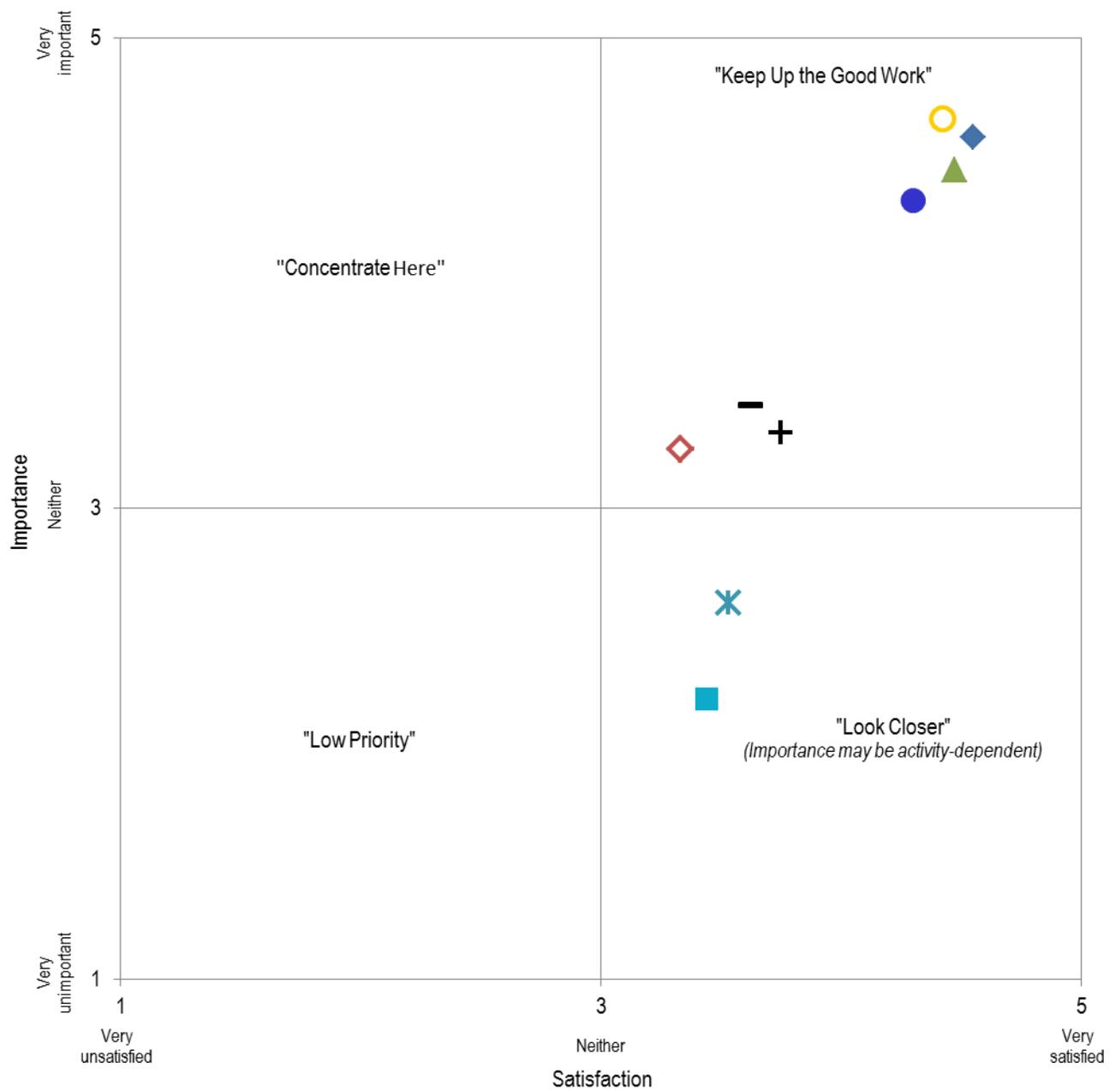


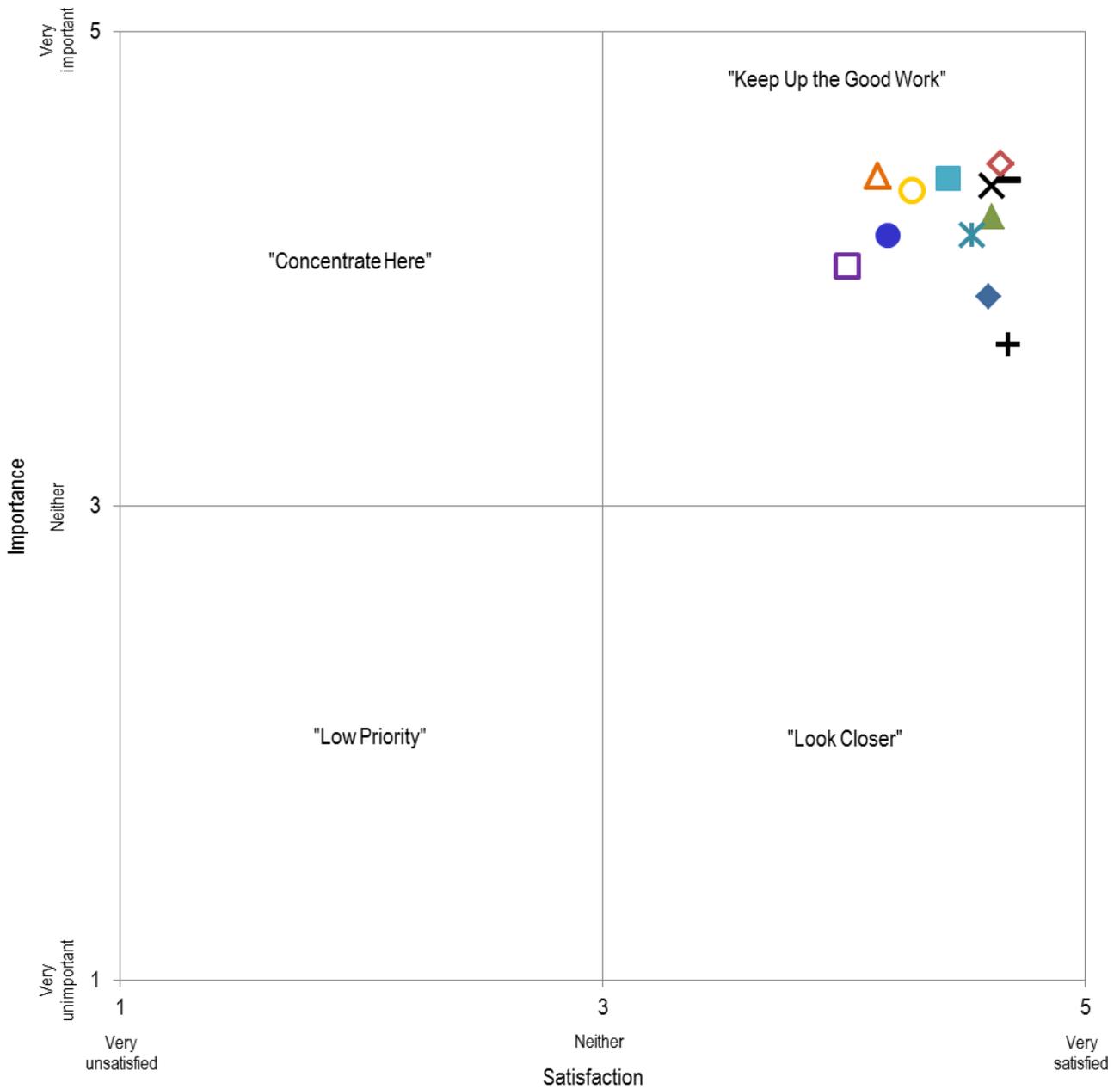
Figure 11. Importance-satisfaction ratings of services and facilities provided at Aransas NWR.



EXPLANATION

- ◆ Bird watching opportunities
- Wildlife viewing opportunities
- ▲ Photography opportunities
- Hunting opportunities
- ✖ Fishing opportunities
- Hiking opportunities
- ◇ Kayak/Canoe opportunities
- Bicycling opportunities
- ✚ Volunteer opportunities

Figure 12. Importance-satisfaction ratings of recreational opportunities provided at Aransas NWR.



EXPLANATION

- ◆ Condition of roads
- ◆ Condition of parking areas
- ▲ Condition of bridges
- ✕ Condition of trails/boardwalks
- ✕ Number of parking places
- Number of pullovers
- ◇ Safety of driving conditions
- Safety of Refuge entrances
- Directional signs on highways
- Directional signs on Refuges
- △ Directional signs on trails
- Disabled access

Figure 13. Importance-satisfaction ratings of transportation-related features at Aransas NWR.

Visitor Opinions about National Wildlife Refuge System Topics

One goal of this national visitor survey was to identify visitor trends across the Refuge System to more effectively manage refuges and provide visitor services. Two important issues to the Refuge System are transportation on refuges and communicating with visitors about climate change. The results to these questions will be most meaningful when they are evaluated in aggregate (data from all participating refuges together). However, basic results for Aransas NWR are reported here.

Alternative Transportation and the National Wildlife Refuge System

Visitors use a variety of transportation means to access and enjoy national wildlife refuges. While many visitors arrive at the refuge in a private vehicle, alternatives such as buses, trams, watercraft, and bicycles are increasingly becoming a part of the visitor experience. Previous research has identified a growing need for transportation alternatives within the Refuge System (Krechmer et al., 2001); however, less is known about how visitors perceive and use these new transportation options. An understanding of visitors' likelihood of using certain alternative transportation options can help in future planning efforts. Visitors were asked their likelihood of using alternative transportation options at national wildlife refuges in the future.

Of the six Refuge System-wide alternative transportation options listed on the survey, the majority of Aransas NWR visitors who were surveyed were likely to use the following options at national wildlife refuges in the future (fig. 14):

- a boat that goes to different points on Refuge waterways;
- a bus/tram that provides a guided tour;
- a bus/tram that runs during a special event; and
- an offsite parking lot that provides trail access.

The majority of visitors were *not* likely to use a bike share program at national wildlife refuges in the future (fig. 14).

When asked about using alternative transportation at Aransas NWR specifically, 44% of visitors indicated they were unsure whether it would enhance their experience; however, some visitors thought alternative transportation would enhance their experience (36%) and others thought it would not (20%).

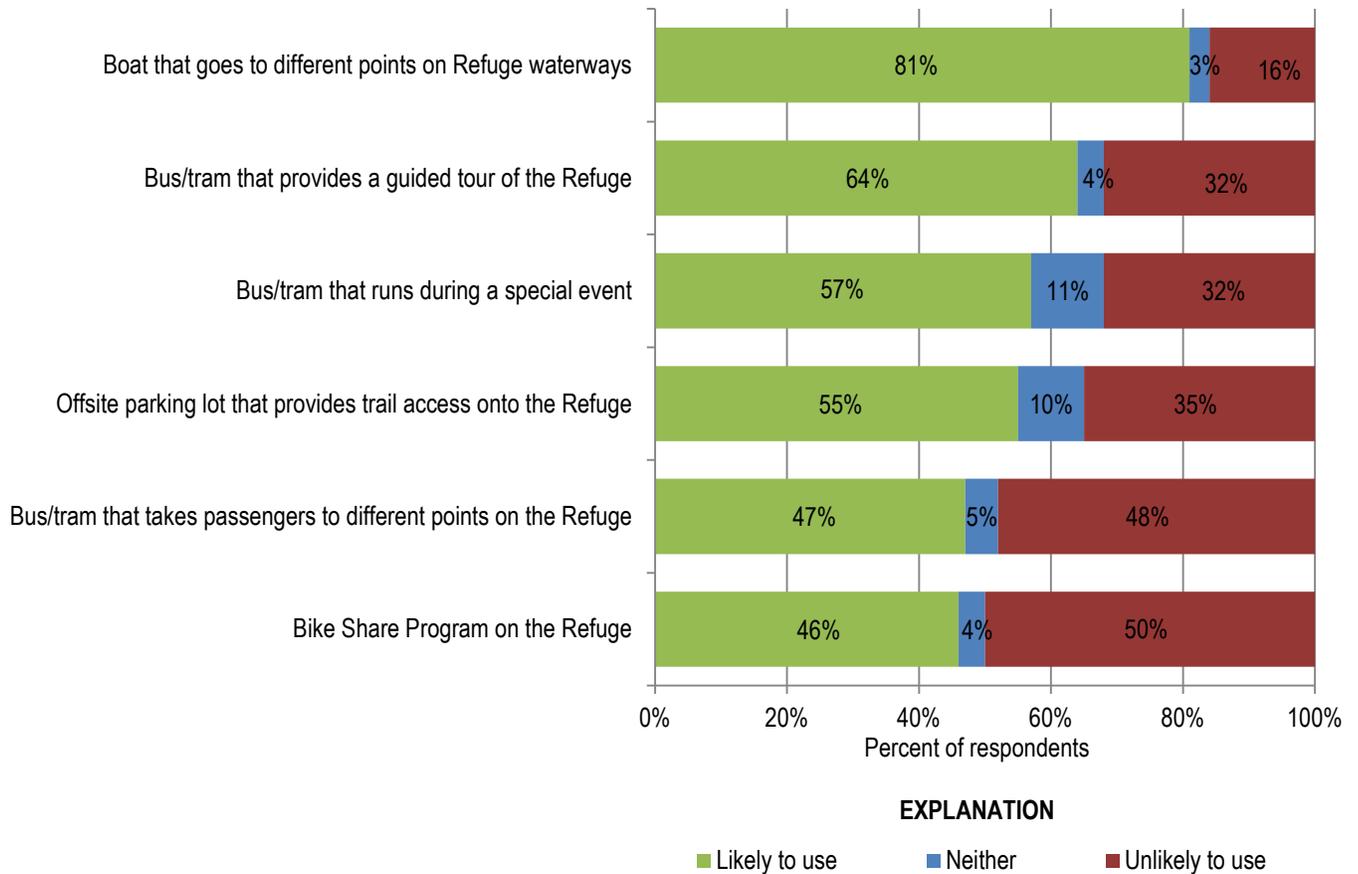


Figure 14. Visitors’ likelihood of using alternative transportation options at national wildlife refuges in the future (n ≥ 226).

Climate Change and the National Wildlife Refuge System

Climate change represents a growing concern for the management of national wildlife refuges. The Service’s climate change strategy, titled “Rising to the Urgent Challenge,” establishes a basic framework for the agency to work within a larger conservation community to help ensure wildlife, plant, and habitat sustainability (U.S. Fish and Wildlife Service, 2010). To support the guiding principles of the strategy, refuges will be exploring options for more effective engagement with visitors on this topic. The national visitor survey collected information about visitors’ level of personal involvement in climate change related to fish, wildlife and their habitats and visitors’ beliefs regarding this topic. Items draw from the “Six Americas” framework for understanding public sentiment toward climate change (Leiserowitz, Maibach, and Roser-Renouf, 2008) and from literature on climate change message frames (for example, Nisbet, 2009). Such information provides a baseline for understanding visitor perceptions of climate change in the context of fish and wildlife conservation that can further inform related communication and outreach strategies.

Factors that influence how individuals think about climate change include their basic beliefs, levels of involvement, policy preferences, and behaviors related to this topic. Results presented below provide baseline information on visitors’ levels of involvement with the topic of climate change related to fish,

wildlife and their habitats. The majority of surveyed visitors to Aransas NWR agreed with the following statements (fig. 15):

- “I am personally concerned about the effects of climate change on fish, wildlife and habitats;”
- “I take actions to alleviate the effects of climate change;”
- “I stay well-informed about the effects of climate change;” and
- “My experience would be enhanced if the Refuge provides information about how I can help address climate change effects.”

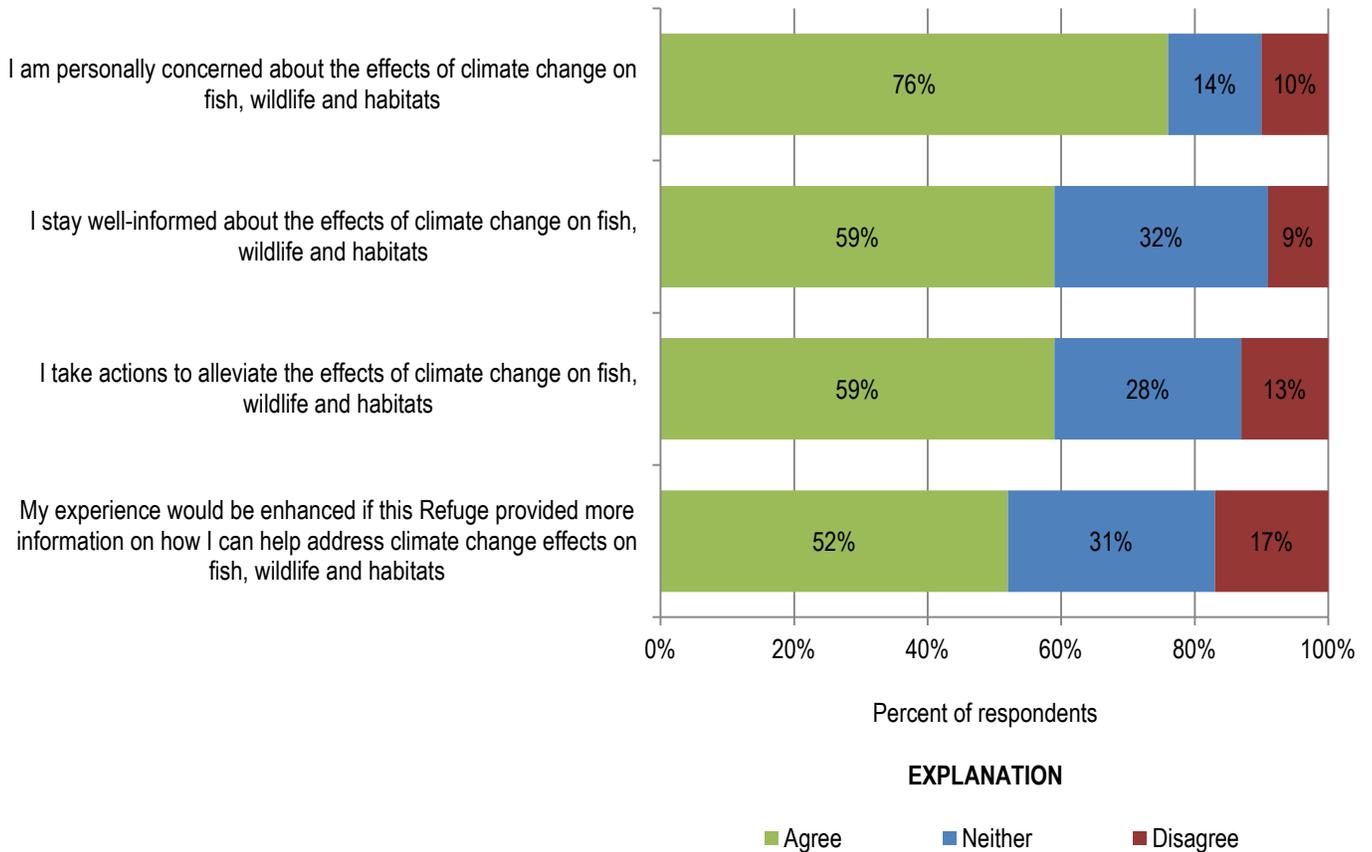


Figure 15. Visitors’ personal involvement with climate change related to fish, wildlife and their habitats (n ≥ 224).

These results are most useful when coupled with responses to belief statements about the effects of climate change on fish, wildlife and their habitats, because such beliefs may be used to develop message frames (or ways to communicate) about climate change with a broad coalition of visitors. Framing science-based findings will not alter the overall message, but rather place the issue in a context in which different audience groupings can relate. The need to mitigate impacts of climate change on Refuges could be framed as a quality-of-life issue (for example, preserving the ability to enjoy fish, wildlife, plants, and their habitat) or an economic issue (for example, maintaining tourist revenues, supporting economic growth through new jobs/technology).

For Aransas NWR, the majority of visitors believed the following regarding climate change related to fish, wildlife and their habitats (fig. 16):

- “Future generations will benefit if we address climate change effects;”
- “We can improve our quality of life if we address the effects of climate change;” and
- “It is important to consider the economic costs and benefits to local communities when addressing climate change effects.”

The majority of visitors did *not* believe:

- “There has been too much emphasis on the catastrophic effects of climate change.”

Such information suggests that certain beliefs resonate with a greater number of visitors than other beliefs do. This information is important to note because over half of visitors (52%) indicated that their experience would be enhanced if Aransas NWR provided information about how they could help address the effects of climate change on fish, wildlife, and their habitats (fig. 15), and framing the information in a way that resonates most with visitors may result in a more engaged public who support strategies aimed at alleviating climate change pressures. Data will be analyzed further at the aggregate, or national level, to inform the development of a comprehensive communication strategy about climate change.

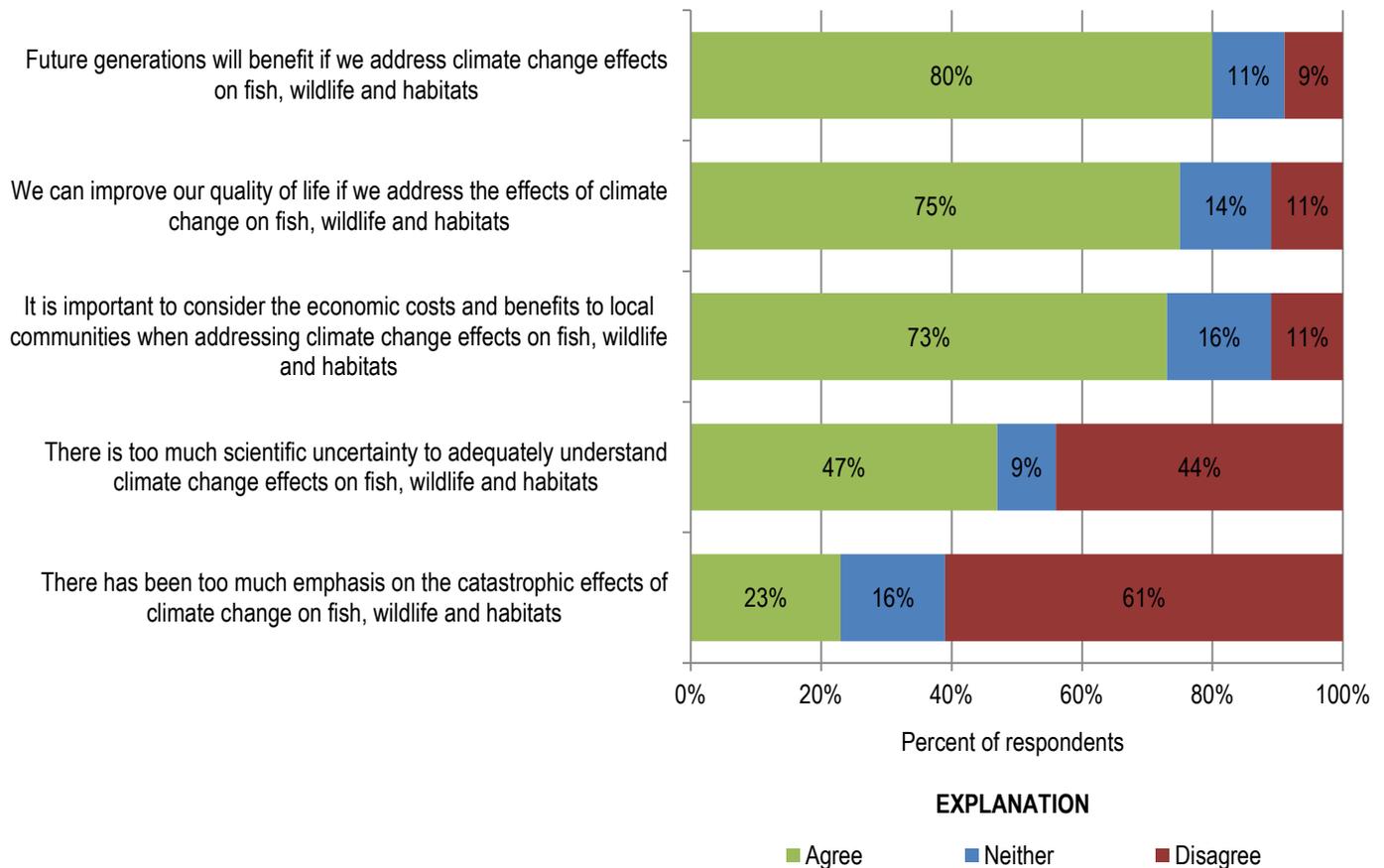


Figure 16. Visitors’ beliefs about the effects of climate change on fish, wildlife and their habitats (n ≥ 227).

Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Aransas NWR during 2010–2011. These data can be used to inform decision-making efforts related to the refuge, such as Comprehensive Conservation Plan implementation, visitor services management, and transportation planning and management. For example, when modifying (either minimizing or enhancing) visitor facilities, services, or recreational opportunities, a solid understanding of visitors' trip and activity characteristics, their satisfaction with existing offerings, and opinions regarding refuge fees is helpful. This information can help to gauge demand for refuge opportunities and inform both implementation and communication strategies. Similarly, an awareness of visitors' satisfaction ratings with refuge offerings can help determine if any potential areas of concern need to be investigated further. As another example of the utility of these results, community relations may be improved or bolstered through an understanding of the value of the refuge to visitors, whether that value is attributed to an appreciation of the refuge's uniqueness, enjoyment of its recreational opportunities, or spending contributions of nonlocal visitors to the local economy. Such data about visitors and their experiences, in conjunction with an understanding of biophysical data on the refuge, can ensure that management decisions are consistent with the Refuge System mission while fostering a continued public interest in these special places.

Individual refuge results are available for downloading at <http://pubs.usgs.gov/ds/643/> as part of USGS Data Series 643 (Sexton and others, 2011). For additional information about this project, contact the USGS researchers at national_visitor_survey@usgs.gov or 970.226.9205.

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National Wildlife Refuge Visitor Survey



PLEASE READ THIS FIRST:

Thank you for visiting a National Wildlife Refuge and for agreeing to participate in this study! We hope that you had an enjoyable experience. The U.S. Fish and Wildlife Service and the U.S. Geological Survey would like to learn more about National Wildlife Refuge visitors in order to improve the management of the area and enhance visitor opportunities.

If you have recently visited more than one National Wildlife Refuge or made more than one visit to the same Refuge, please respond regarding only the Refuge and the visit when you were asked to participate in this survey. Any question that uses the phrase “this Refuge” refers to the Refuge and visit when you were contacted.

SECTION 1. Your visit to this Refuge

1. Including your most recent visit, which activities have you participated in during the past 12 months at this Refuge?
(Please mark **all that apply.**)

- | | | |
|--|---|--|
| <input type="checkbox"/> 6% Big game hunting | <input type="checkbox"/> 44% Hiking | <input type="checkbox"/> 7% Environmental education (for example, classrooms or labs, tours) |
| <input type="checkbox"/> 1% Upland/Small-game hunting | <input type="checkbox"/> 4% Bicycling | |
| <input type="checkbox"/> 4% Migratory bird/Waterfowl hunting | <input type="checkbox"/> 68% Auto tour route/Driving | <input type="checkbox"/> 3% Special event (<i>please specify</i>)
<u>See Appendix B</u> |
| <input type="checkbox"/> 87% Wildlife observation | <input type="checkbox"/> 1% Motorized boating | |
| <input type="checkbox"/> 81% Bird watching | <input type="checkbox"/> 1% Nonmotorized boating (including canoes/kayaks) | <input type="checkbox"/> 6% Other (<i>please specify</i>)
<u>See Appendix B</u> |
| <input type="checkbox"/> 0% Freshwater fishing | | |
| <input type="checkbox"/> 6% Saltwater fishing | <input type="checkbox"/> 30% Interpretation (for example, exhibits, kiosks, videos) | <input type="checkbox"/> 1% Other (<i>please specify</i>)
<u>See Appendix B</u> |
| <input type="checkbox"/> 55% Photography | | |

2. Which of the activities above was the **primary** purpose of your visit to this Refuge?
(Please write **only one activity** on the line.) See report for categorized results; see Appendix B for miscellaneous responses

3. Did you go to a Visitor Center at this Refuge?

- 1% No
- 99% Yes → If yes, what did you do there? (Please mark **all that apply.**)
- | | |
|--|---|
| <input type="checkbox"/> 78% Visit the gift shop or bookstore | <input type="checkbox"/> 31% Watch a nature talk/video/presentation |
| <input type="checkbox"/> 83% View the exhibits | <input type="checkbox"/> 84% Stopped to use the facilities (for example, get water, use restroom) |
| <input type="checkbox"/> 81% Ask information of staff/volunteers | <input type="checkbox"/> 11% Other (<i>please specify</i>) <u>See Appendix B</u> |

4. Which of the following best describes your visit to this Refuge? (Please mark **only one**.)

Nonlocal	Local	Total	
<input type="checkbox"/> 41%	<input type="checkbox"/> 76%	<input type="checkbox"/> 48%	It was the primary purpose or sole destination of my trip.
<input type="checkbox"/> 45%	<input type="checkbox"/> 16%	<input type="checkbox"/> 39%	It was one of many equally important reasons or destinations for my trip.
<input type="checkbox"/> 14%	<input type="checkbox"/> 8%	<input type="checkbox"/> 13%	It was just an incidental or spur-of-the-moment stop on a trip taken for other purposes or to other destinations.

5. Approximately how many **miles** did you travel to get to this Refuge?

Nonlocal 353 number of miles

Local 36 number of miles

6. How much time did you spend at this Refuge on your visit?

See Report for Results

7. Were you part of a group on your visit to this Refuge?

36% No (skip to question #9)

64% Yes → What **type of group** were you with on your visit? (Please mark **only one**.)

93% Family and/or friends

3% Organized club or school group

2% Commercial tour group

2% Other (please specify) See Appendix B

8. How many people were in your group, including yourself? (Please answer each category.)

4 number 18 years and over

0 number 17 years and under

9. How did you **first learn or hear about** this Refuge? (Please mark **all that apply**.)

44% Friends or relatives

16% Refuge website

23% Signs on highway

5% Other website (please specify) See Appendix B

7% Recreation club or organization

4% Television or radio

15% People in the local community

20% Newspaper or magazine

19% Refuge printed information (brochure, map)

18% Other (please specify) See Appendix B

10. During which seasons have you visited this Refuge in the last 12 months? (Please mark **all that apply**.)

56% Spring
(March-May)

10% Summer
(June-August)

53% Fall
(September-November)

25% Winter
(December-February)

11. How many times have you visited...

...this Refuge (including this visit) in the last 12 months? 3 number of visits

...other National Wildlife Refuges in the last 12 months? 2 number of visits

SECTION 2. Transportation and access at this Refuge

1. What **forms of transportation** did you use on your visit to this Refuge? (*Please mark **all that apply.***)

- | | | | | | |
|------------------------------|---|-----------------------------|----------------------------------|------------------------------|---------------------------------------|
| <input type="checkbox"/> 95% | Private vehicle without a trailer | <input type="checkbox"/> 3% | Refuge shuttle bus or tram | <input type="checkbox"/> 1% | Bicycle |
| <input type="checkbox"/> 1% | Private vehicle with a trailer
(for boat, camper or other) | <input type="checkbox"/> 1% | Motorcycle | <input type="checkbox"/> 31% | Walk/Hike |
| <input type="checkbox"/> 2% | Commercial tour bus | <input type="checkbox"/> 0% | ATV or off-road vehicle | <input type="checkbox"/> 1% | Other (<i>please specify below</i>) |
| <input type="checkbox"/> 3% | Recreational vehicle (RV) | <input type="checkbox"/> 1% | Boat | <u>See Appendix B</u> | |
| | | <input type="checkbox"/> 2% | Wheelchair or other mobility aid | | |

2. Which of the following did you use to find your way to this Refuge? (*Please mark **all that apply.***)

- | | | | |
|------------------------------|--|------------------------------|---|
| <input type="checkbox"/> 65% | Signs on highways | <input type="checkbox"/> 12% | Directions from Refuge website |
| <input type="checkbox"/> 26% | A GPS navigation system | <input type="checkbox"/> 5% | Directions from people in community near this Refuge |
| <input type="checkbox"/> 38% | A road atlas or highway map | <input type="checkbox"/> 13% | Directions from friends or family |
| <input type="checkbox"/> 13% | Maps from the Internet (for example,
MapQuest or Google Maps) | <input type="checkbox"/> 41% | Previous knowledge/I have been to this Refuge before |
| | | <input type="checkbox"/> 4% | Other (<i>please specify</i>) <u>See Appendix B</u> |

3. Below are different alternative transportation options that could be offered at some National Wildlife Refuges in the future. Considering the different Refuges you may have visited, please tell us **how likely you would be to use each transportation option.** (*Please circle one number for each statement.*)

How likely would you be to use...	Very Unlikely	Somewhat Unlikely	Neither	Somewhat Likely	Very Likely
...a bus or tram that takes passengers to different points on the Refuge (such as the Visitor Center)?	<input type="checkbox"/> 29%	<input type="checkbox"/> 18%	<input type="checkbox"/> 5%	<input type="checkbox"/> 28%	<input type="checkbox"/> 19%
...a bike that was offered through a Bike Share Program for use while on the Refuge?	<input type="checkbox"/> 35%	<input type="checkbox"/> 15%	<input type="checkbox"/> 5%	<input type="checkbox"/> 27%	<input type="checkbox"/> 18%
...a bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources?	<input type="checkbox"/> 20%	<input type="checkbox"/> 12%	<input type="checkbox"/> 5%	<input type="checkbox"/> 36%	<input type="checkbox"/> 28%
...a boat that goes to different points on Refuge waterways?	<input type="checkbox"/> 9%	<input type="checkbox"/> 7%	<input type="checkbox"/> 3%	<input type="checkbox"/> 36%	<input type="checkbox"/> 45%
...a bus or tram that runs during a special event (such as an evening tour of wildlife or weekend festival)?	<input type="checkbox"/> 20%	<input type="checkbox"/> 12%	<input type="checkbox"/> 11%	<input type="checkbox"/> 34%	<input type="checkbox"/> 23%
...an offsite parking lot that provides trail access for walking/hiking onto the Refuge?	<input type="checkbox"/> 22%	<input type="checkbox"/> 13%	<input type="checkbox"/> 10%	<input type="checkbox"/> 31%	<input type="checkbox"/> 24%
...some other alternative transportation option? (<i>please specify</i>) <u>See Appendix B</u>	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 31%	<input type="checkbox"/> 69%

4. If alternative transportation were offered at *this* Refuge, would it enhance your experience?

- 36% Yes 20% No 44% Not Sure

5. For each of the following transportation-related features, first, **rate how important** each feature is to you when visiting this Refuge; then **rate how satisfied** you are with the way this Refuge is managing each feature. *If this Refuge does not offer a specific transportation-related feature, please rate how important it is to you and then circle NA "Not Applicable" under the Satisfaction column.*

Importance					Satisfaction					
Circle one for each item.					Circle one for each item.					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important	Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
5%	11%	6%	47%	31%	3%	2%	2%	17%	76%	NA
6%	17%	7%	46%	25%	4%	0%	2%	13%	81%	NA
4%	4%	10%	28%	53%	4%	0%	5%	13%	77%	NA
4%	2%	3%	35%	55%	2%	4%	2%	18%	75%	NA
3%	4%	7%	47%	39%	2%	2%	6%	22%	69%	NA
6%	4%	4%	41%	45%	3%	7%	6%	40%	45%	NA
4%	3%	3%	25%	65%	3%	1%	3%	15%	78%	NA
3%	3%	6%	30%	59%	3%	0%	3%	14%	80%	NA
4%	3%	5%	33%	55%	3%	8%	4%	30%	56%	NA
2%	3%	3%	37%	54%	3%	3%	5%	29%	61%	NA
2%	2%	6%	35%	55%	3%	4%	11%	38%	44%	NA
3%	7%	18%	28%	43%	2%	5%	21%	33%	39%	NA

6. If you have any comments about transportation-related items at this Refuge, please write them on the lines below.

See Appendix B

SECTION 3. Your expenses related to your Refuge visit

1. Do you live in the local area (within approximately 50 miles of this Refuge)?

22% Yes

78% No → How much time did you spend **in local communities** on this trip?

 3 number of hours OR 7 number of days

2. Please record the amount that **you and other members of your group** with whom you shared expenses (for example, other family members, traveling companions) spent in the local 50-mile area during **your most recent visit** to this Refuge. *(Please enter the amount spent to the nearest dollar in each category below. Enter 0 (zero) if you did not spend any money in a particular category.)*

Categories	<u>Amount Spent in Local Communities & at this Refuge</u> <i>(within 50 miles of this Refuge)</i>
Motel, bed & breakfast, cabin, etc.	
Camping	
Restaurants & bars	
Groceries	
Gasoline and oil	
Local transportation (bus, shuttle, rental car, etc.)	
Refuge entrance fee	
Recreation guide fees (hunting, fishing, wildlife viewing, etc.)	
Equipment rental (canoe, bicycle, kayak, etc.)	
Sporting good purchases	
Souvenirs/clothing and other retail	
Other <i>(please specify)</i> _____	

See Report for Results

3. Including yourself, how many people in your group shared these trip expenses?

 2 number of people sharing expenses

4. As you know, some of the costs of travel such as gasoline, hotels, and airline tickets often increase. If your total trip costs were to increase, what is the maximum extra amount you would pay and still visit this Refuge? *(Please circle the highest dollar amount.)*

\$0	\$10	\$20	\$35	\$50	\$75	\$100	\$125	\$150	\$200	\$250
3%	12%	17%	7%	21%	5%	16%	2%	2%	5%	10%

5. If you or a member of your group paid a fee or used a pass to enter this Refuge, how appropriate was the fee? *(Please mark **only one**.)*

1%	Far too low	14%	Too low	85%	About right	0%	Too high	0%	Far too high	39%	Did not pay a fee <i>(skip to Section 4)</i>
----	-------------	-----	---------	-----	-------------	----	----------	----	--------------	-----	---

6. Please indicate whether you disagree or agree with the following statement. *(Please mark **only one**.)*

The value of the recreation opportunities and services I experienced at this Refuge was at least equal to the fee I paid.

2%	Strongly disagree	0%	Disagree	3%	Neither agree or disagree	40%	Agree	55%	Strongly agree
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SECTION 4. Your experience at this Refuge

1. Considering your visit to this Refuge, please indicate the extent to which you disagree or agree with each statement. *(Please circle one number for each statement.)*

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree	Not Applicable
Overall, I am satisfied with the recreational activities and opportunities provided by this Refuge.	0%	1%	3%	40%	56%	NA
Overall, I am satisfied with the information and education provided by this Refuge about its resources.	0%	1%	1%	40%	58%	NA
Overall, I am satisfied with the services provided by employees or volunteers at this Refuge.	0%	0%	0%	27%	72%	NA
This Refuge does a good job of conserving fish, wildlife and their habitats.	0%	0%	2%	29%	69%	NA

2. For each of the following services, facilities, and activities, first, **rate how important** each item is to you when visiting this Refuge; then, **rate how satisfied** you are with the way this Refuge is managing each item.
If this Refuge does not offer a specific service, facility, or activity, please rate how important it is to you and then circle NA “Not Applicable” under the Satisfaction column.

Importance					Refuge Services, Facilities, and Activities	Satisfaction					
Circle one for each item.						Circle one for each item.					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
1%	4%	2%	47%	45%	Availability of employees or volunteers	2%	0%	1%	13%	84%	NA
1%	1%	2%	31%	64%	Courteous and welcoming employees or volunteers	1%	0%	0%	5%	94%	NA
2%	1%	0%	25%	72%	Knowledgeable employees or volunteers	1%	1%	1%	13%	84%	NA
1%	1%	2%	34%	62%	Printed information about this Refuge and its resources (for example, maps and brochures)	1%	1%	2%	23%	73%	NA
0%	3%	7%	43%	46%	Informational kiosks/displays about this Refuge and its resources	1%	3%	7%	27%	62%	NA
1%	5%	10%	34%	50%	Signs with rules/regulations for this Refuge	1%	2%	9%	25%	63%	NA
1%	2%	7%	47%	42%	Exhibits about this Refuge and its resources	2%	1%	5%	25%	67%	NA
2%	4%	17%	41%	36%	Environmental education programs or activities	2%	1%	25%	26%	46%	NA
2%	0%	2%	28%	68%	Visitor Center	1%	0%	1%	14%	82%	NA
0%	1%	2%	27%	69%	Convenient hours and days of operation	1%	1%	2%	15%	81%	NA
0%	1%	1%	21%	77%	Well-maintained restrooms	2%	4%	0%	11%	83%	NA
1%	1%	3%	19%	76%	Wildlife observation structures (decks, blinds)	1%	2%	3%	25%	68%	NA
1%	2%	4%	24%	69%	Bird-watching opportunities	1%	0%	4%	31%	64%	NA
1%	0%	1%	25%	72%	Opportunities to observe wildlife other than birds	1%	5%	4%	33%	58%	NA
2%	2%	6%	30%	60%	Opportunities to photograph wildlife and scenery	1%	1%	7%	31%	60%	NA
53%	4%	25%	7%	11%	Hunting opportunities	2%	2%	64%	13%	19%	NA
38%	8%	24%	18%	12%	Fishing opportunities	3%	2%	56%	17%	22%	NA
1%	3%	6%	41%	48%	Trail hiking opportunities	1%	3%	9%	41%	47%	NA
17%	9%	28%	26%	21%	Water trail opportunities for canoeing or kayaking	3%	4%	63%	17%	13%	NA
15%	4%	24%	37%	20%	Bicycling opportunities	4%	2%	48%	23%	24%	NA
17%	2%	37%	19%	25%	Volunteer opportunities	1%	2%	51%	14%	32%	NA

3. If you have any comments about the services, facilities, and activities at this Refuge, please write them on the lines below.

See Appendix B

SECTION 5. Your opinions regarding National Wildlife Refuges and the resources they conserve

1. Before you were contacted to participate in this survey, were you aware that National Wildlife Refuges...

...are managed by the U. S. Fish and Wildlife Service?

86% Yes

14% No

...have the primary mission of conserving, managing, and restoring fish, wildlife, plants and their habitat?

93% Yes

7% No

2. Compared to other public lands you have visited, do you think Refuges provide a unique recreation experience?

91% Yes

9% No

3. If you answered "Yes" to Question 2, please briefly describe what makes Refuges unique. _____

See Appendix B

4. There has been a lot of talk about climate change recently. We would like to know what you think about climate change as it relates to fish, wildlife and their habitats. To what extent do you disagree or agree with each statement below? (Please circle one number for each statement.)

Statements about climate change	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I am personally concerned about the effects of climate change on fish, wildlife and their habitats.	6%	4%	14%	33%	44%
We can improve our quality of life if we address the effects of climate change on fish, wildlife and their habitats.	6%	4%	14%	33%	42%
There is too much scientific uncertainty to adequately understand how climate change will impact fish, wildlife and their habitats.	19%	24%	9%	33%	14%
I stay well-informed about the effects of climate change on fish, wildlife and their habitats.	1%	8%	32%	39%	20%
It is important to consider the economic costs and benefits to local communities when addressing the effects of climate change on fish, wildlife and their habitats.	4%	7%	16%	55%	19%
I take actions to alleviate the effects of climate change on fish, wildlife and their habitats.	6%	7%	28%	43%	16%
There has been too much emphasis on the catastrophic effects of climate change on fish, wildlife and their habitats.	34%	27%	17%	12%	10%
Future generations will benefit if we address the effects of climate change on fish, wildlife and their habitats.	6%	3%	11%	33%	47%
My experience at this Refuge would be enhanced if this Refuge provided more information about how I can help address the effects of climate change on fish, wildlife and their habitats.	9%	8%	31%	38%	13%

SECTION 6. A Little about You

**** Please tell us a little bit about yourself. Your answers to these questions will help further characterize visitors to National Wildlife Refuges. Answers are not linked to any individual taking this survey. ****

1. Are you a citizen or permanent resident of the United States?

93% Yes 7% No → If not, what is your home country? See Figure 4 in Report

2. Are you? 49% Male 51% Female

3. In what year were you born? 1950 (YYYY)

4. What is your highest year of formal schooling? *(Please circle one number.)*

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
(elementary)					(junior high or middle school)			(high school)				(college or technical school)				(graduate or professional school)			
					0%			15%				47%				38%			

5. What ethnicity do you consider yourself? 8% Hispanic or Latino 92% Not Hispanic or Latino

6. From what racial origin(s) do you consider yourself? *(Please mark **all that apply.**)*

- 3% American Indian or Alaska Native 0% Black or African American 98% White
 1% Asian 0% Native Hawaiian or Pacific Islander

7. How many members of your household contribute to paying the household expenses? 2 persons

8. Including these members, what was your approximate household income from all sources (before taxes) last year?

- | | | |
|---|--|--|
| <input type="checkbox"/> 0% Less than \$10,000 | <input type="checkbox"/> 13% \$35,000 - \$49,999 | <input type="checkbox"/> 15% \$100,000 - \$149,999 |
| <input type="checkbox"/> 7% \$10,000 - \$24,999 | <input type="checkbox"/> 24% \$50,000 - \$74,999 | <input type="checkbox"/> 6% \$150,000 - \$199,999 |
| <input type="checkbox"/> 7% \$25,000 - \$34,999 | <input type="checkbox"/> 23% \$75,000 - \$99,999 | <input type="checkbox"/> 5% \$200,000 or more |

9. How many outdoor recreation trips did you take in the last 12 months (for activities such as hunting, fishing, wildlife viewing, etc.)?

14 number of trips

Thank you for completing the survey.

There is space on the next page for any additional comments you may have regarding your visit to this Refuge.

See Appendix B for Comments

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Appendix B: Visitor Comments to Open-Ended Survey Questions for Aransas National Wildlife Refuge

Survey Section 1

Question 1: "Including your most recent visit, which activities have you participated in during the past 12 months at this Refuge?"

Special Event	Frequency
Adopt a trail/maintenance	1
Lead tours	1
Leader-led bird walk	1
National Wildlife Refuge Day Volunteer	1
Rifle hunt	1
Texas Master Naturalist training sessions	1
Volunteer appreciation luncheon	1
Total	7

Other Activity	Frequency
Butterfly watching	3
Christmas Bird Count	1
Guided tour	1
Interpretive van tours	1
Leader of van tours	1
Matagorda island turtle patrol	1
Picnic	3
Plein air painting, Port Aransas	1
Van Tour Training	1

Wildflower, plant, and tree observation	1
Total	14

2 nd Other Activity	Frequency
F.A.M.I. board meeting	1
Refuge days	1
Van ride and walking tour volunteers	1
Total	3

Question 2: "Which of the activities above was the primary purpose of your visit to this Refuge?"
Primary activities are categorized in the main report; the table below lists the "other" miscellaneous primary activities listed by survey respondents.

Other Miscellaneous Primary Activities	Frequency
Adopt a trail	1
Relax	1
Volunteer Appreciation Luncheon	1
Total	3

Question 3: "Did you go to a Visitor Center at this Refuge?"; If Yes, "What did you do there?"

Other Visitor Center Activity	Frequency
Ate some homemade goodies the staff had prepared for an opening hunt season	1
Borrowed binoculars	3
Bought a hat	1
Bought biodegradable tape	1

Bought flagging tape	1
Checked the bulletin board	1
Completed bird survey data	1
F.A.M.I. board meeting	1
Found staff to be terrific and knowledgeable	1
Had cake prepared by the wonderful lady there	1
Had lunch	1
Lead van tour	1
Looked at bird counts and talked with knowledgeable staff	1
Pay fee	1
Picnic lunch	1
Registration	1
Show Rangers video of whooping cranes	1
Sign up for car tour with guide	1
To register	1
Volunteer in van tour guide and talking tour guide	1
Volunteer information	1
Watched whoopers from the observation tower	1
Total	24

Question 7: "Were you part of a group on your visit to this Refuge?; If Yes, "What type of group were you with on your visit?"

Other Group Type	Frequency
100 Hunters per Hunt Weekend	1

Butterfly Festival	1
NABA	1
Total	3

Question 9: "How did you first learn or hear about this Refuge?"

Other Website	Frequency
Following the Whooping Cranes migration	1
Fws.gov	1
Google - Whooping Cranes	1
Googlemaps.com	1
Internet	1
NABA	1
Rockport Texas Chamber of Commerce website	1
Texas Bird Trail	1
Texas Ornithological Society	1
Traveltexas.com	1
TropicalAudubon.org	1
Total	11

Other Ways Heard about This Refuge	Frequency
A Birder's Guide to the Texas Coast, by Harold R. Holt	1
Birding (where to find birds in Texas)/Whooping Crane	1
Birding guides to Texas coast	1
Book of National Wildlife Refuges	1

Butterfly Festival	1
Central Texas Coastal Birding map which we bought online	1
Coworkers, Staff at Marine Science Institute-Port Aransas	1
ED programs	1
Frommer's Texas Guidebook	1
FWS national map; book on wildlife refuges	1
Guide book	1
Hunting community	1
I observe the Sandhill Cranes in NE, and knew they winter in Aransas, so hoped to see some	1
In the early 1980's my husband did research information based on the map information.	1
Looking at a Texas map, then looked at Web	1
Looking at map	1
NABA	1
National Wildlife Refuge System	1
Padre Island National Seashore	1
Person in Nebraska from Aransas Whooper Group	1
Port Aransas Whooping Crane Festival	1
RV park	1
Saw it on the map	1
Saw it on the Map	1
School field trip	2
Search of national/state parks/refuges/etc.	1
State highway map	1
Sun City magazine, Georgetown, TX	1

Texas state map	3
Texas state parks	1
Texas tourism information	1
Texas Visitor Center	1
Travel book about Texas	1
Travel guide	1
Travel guide for the USA	1
Travel information, AAA	1
Where to watch birds (book)	1
Whooping crane migration	1
Worked for ConocoPhillips for many years	1
Total	42

Survey Section 2

Question 1: "What forms of transportation did you use on your visit to this Refuge?"

Other Forms of Transportation	Frequency
USFWS van	1
Whooping Crane Tour Boat	1
Total	2

Question 2: "Which of the following did you use to find your way to this Refuge?"

Other Ways Found This Refuge	Frequency
A Birder's Guide to the Texas Coast	1
Bird finding guides for Texas	1

Brochure	1
Central Texas Coastal birding map	1
Fished nearby recently	1
Followed convoy to refuge - 5 vehicles	1
Great Texas Coastal Birding Trails	1
Group leader had directions	1
Map provided by refuge staff	1
State park rangers at Goose Island	1
Total	10

Question 5: "Below are different alternative transportation options that could be offered at some National Wildlife Refuges in the future...please tell us how likely you would be to use each transportation option."

Other Transportation Option Likely to Use	Frequency
Alternative energy/eco-friendly bus or boat	1
ATV	2
ATV Rental	1
ATV trails	1
Bicycle	1
Canoe or kayak	1
Electric monorail	1
Golf cart	1
Helicopter	1
Horseback or off-road vehicle	1
Kayaks available for rent	1

Maybe a boat to view Whooping Cranes	1
Motorcycle	1
Personal car	1
Personal vehicle	1
Solar vehicle - no noise - great to see wildlife and respect them	1
Would have brought a bike	1
Total	18

Question 6: "If you have any comments about transportation-related items at this Refuge, please write them on the lines below."

Comments on Transportation-related Items at This Refuge (n = 36)

A new observation tower was built, then dismantled due to faulty design, now back to using old tower. New tower supposed to be rebuilt. Lack of planning and a waste of money.

All roads except the driving tour loop had good pull-offs. The driving tour loop was narrow and could have had more frequent pull-offs so others could pass if you did not want to go as quickly as the ones behind.

ATV access to hunting area would be a great addition to attract more hunters.

Boats tours to view whooping cranes.

Does bridge condition refer to the walking bridge or driving bridge? As long as there are maps available, even when the Visitor Center is closed, signage is less important. No maps? The importance of signage becomes very important. I'm not certain what constitutes "safety" of driving conditions, entrances, and exits. Although the tower is handicapped accessible, it would be tough to get up. I think an elevator would be great. I can't remember if the boardwalk had railings, if not that would be an important addition for folks who can't walk well to keep folks in chairs from falling off the boardwalk.

Gravel roads have washboard effect to extent one cannot drive speed limit without possibly losing control.

I think a boat tour from the refuge to see the cranes would be extremely popular!

I'm glad we were there when it wasn't really busy so we could stop frequently as we drove through the refuge.

In my personal opinion, unpaved yet somewhat smooth roads would give the refuge a more authentic and natural feel.

It would be nice to have rest stops more frequently along auto loop for cyclists, maybe a covered picnic bench for shade and wildlife observation. Also, more signs on trails to let you know how far in you are and how far there is to go would be nice. Keep them inconspicuous so they don't distract from scenery.

Look-out points could be more handicap accessible.

Maintaining the "lifestyles" of the wildlife in the refuge is the MOST IMPORTANT OBJECTIVE. Use of intrusive vehicles, their speeds, and hiking trails should be carefully studied to measure impacts on the resident or migrating creatures.

More trails would be great.

My wife is recently disabled, but I understand that the refuge does not have to be totally disabled accessible. The Rain Trail might benefit from a limited access area behind ponds.

Nice people, very little traffic, nicely developed trails.

Seemed adequate in view of the traffic I saw.

Signage leading back to Rockport would be helpful.

Signs directing drivers to pull over for faster moving vehicles on one-way single lane road are important.

Signs to in-refuge driving tour gave no indication of the time the tour would take or the distance.

Some trails were blocked, but the sign did not tell you well enough in advance.

The auto tour route is supposed to be one-way, but sometimes cars are encountered going the wrong way on the first part (from Hog Lake).

The most interesting part of the one-way auto tour is a lake near the beginning. The rest of it is less interesting, but you must drive it anyway.

The options listed of boat tours and after hours tours sounds very attractive. I'd return to Aransas for that.

The roads were narrow.

The routes on hiking trails (Big Live Oak), need to be marked if they're short or long trails.

The speed bumps on the road at some refuges make biking difficult. There could be bike lanes for bikes to ride past the speed bumps.

The trails were in poor condition and one I used was completely blocked by a large fallen tree limb and I was required to go off trail. Also, I was surprised to see all the damage being done by the feral hog population and would suggest an effort to control their numbers.

There is a need for gravel or rock to repair roads within the refuge itself, especially Walker Mill Road.

This was a great experience. I like this refuge. In fact I like all refuges. How about a paid boat tour of the refuge? I know this would compete with local businesses (Captain Tommy was good).

To have more off-road stopping places (every half mile) along the auto tour.

Very important to repair and reopen Dagger Point!!! It's difficult for anyone with serious handicaps to use the facilities in the picnic area or porta potty at the tower.

Very pleased with access to refuge and road conditions, signage, parking access.

Very satisfied.

We absolutely love Aransas National Wildlife Refuge.

We did have the use of golf carts at a birding area outside of Rockport, Texas. It was much smaller than your refuge, but it worked very well-- just a thought.

Would love to have more access to additional areas of the refuge.

Survey Section 4

Question 6: "If you have any comments about services, facilities, and activities at this Refuge, please write them on the lines below."

Comments on Services, Facilities, and Activities at This Refuge (n = 72)

"Neither" comments were based on time constraints and/or no interest in activity. From casual viewing, opportunities seemed satisfactory to interested people.

Although we like to fish, our purpose for this visit was not fishing.

Aransas is a wonderful place. To be able to view birds in their natural world is a wonderful experience. I believe animals are protected here.

As an out-of-state visitor who rarely comes to Texas, I can only suggest more habitat for butterflies. Our time at the refuge was pleasurable.

Bike and/or canoe rental would be an asset.

Biking trails would be great. Boat rentals would be great.

CD, tape, or radio transmission of park and wildlife would be helpful. Example: "On the big tree trail you can see..." or "Don't forget to stop by..."

Do not live close enough to make volunteering applicable at this time.

Employees and volunteers were very helpful.

Employees were not clear about refuge's fishing status-closed or open? Feral hogs are an extreme problem at this refuge. They are even included in displays in the welcome center. Why? Get rid of them! They destroy habitat and bird nests.

Everyone at the Visitor Center was very nice and a lot of help. We will return to Aransas National Wildlife Refuge again.

Everything is clean, staff is friendly.

Extremely pleased with information provided by Visitor Center employees and volunteers. Proved very helpful in guiding us to best wildlife viewing sites and trails. Especially appreciated that they pointed out senior pass option. Can't say enough about hospitality displayed by personnel.

Frankly the costs (labor, materials, staffing, etc.) are a limiting factor for changes I would like to see made and improvements I would like to see done. More of us need to volunteer.

Friendly staff and informative as to where to locate certain species. The large viewing tower was excellent for viewing the whooping cranes, etc.

I appreciated the variety of trails and observation points offered at Aransas from mountains to wetlands to lakes to towers. It provides a wide range of interactions with wildlife.

I didn't know volunteer, fishing, hunting etc. opportunities were offered at Aransas.

I imagine hunting could become dangerous to other visitors or staff. The visitor center and the staff should be making a strong point to warn about the massive amount of mosquitoes. We did have natural bug spray, but the mosquitoes were very persistent even in the noon sun. Due to that, we weren't able to hike a good chunk of the park. Not blaming anyone for the mosquitoes, it was just overwhelming and we were not prepared enough, which took a lot of fun out of the visit.

I love the refuge.

I was concerned that the road was so close to marsh along the trail and with no guard rail along it.

I wish we could have seen more wildlife.

I would like to see more volunteer opportunities, classes, programs, etc.

I'm happy with the way things are being done.

Information of the locations of deer killed the year before would be helpful.

It was disappointing that the Whooping Cranes were so far away. I enjoyed a boat tour the next day from Fulton Harbor.

It would have been nice to be able to rent a bike.

Loaner (for fee) bikes would have encouraged us to bike.

Maintenance is needed. The refuge is overgrown. It needs to be mowed at least here and there. The roads need to be graded. ATV access is the only way you can get around and it's not allowed. You need to burn off about 10,000 acres of overgrown oak trees.

More trails needed, more blinds and decks would be great.

Not clear to me whether the first part refers to things I did do, could do, or would like to do. That necessarily affected my responses to the 2nd part (e.g., I would like the opportunity for bicycling and boating at Aransas but didn't do them and, honestly, don't know if they are allowed).

One new boardwalk hadn't been opened; otherwise Aransas is a terrific spot.

Over the years, the tall grass along the coast has choked out opportunity to see birds in the gulf both along the Rail Trail and along the road. I'd love to see some of that removed.

Real friendly and helpful people.

Refuges should not have hunting or fishing. The purpose of the area is for preservation of wild places. There should be minimal disruption of habitat and no killing of wildlife.

Signs on tour route need to be updated and the replacement deck at Dagger Point needs repairs or replacement.

Somewhat dissatisfied with the van ride. It drove too quickly and the only animal we saw on the whole trip was one alligator.

Staff at visitor centre were very welcoming and helpful.

The fact that the restrooms at the main observation tower were closed was a major inconvenience. Also it is disturbing to think that scarce revenue was wasted on a new observation deck for an unsafe design that appears will not permit operation of the new facility.

The mounted bird and animal displays need to be upgraded or at least significantly cleaned. It is a poor representation of the beauty of the species and does not represent the quality of the visitor's center.

The new observation platform was built but not open.

The only restroom facilities after leaving the Visitor Center are located at the Whooping Crane observation platform. They are out of order and need to be repaired and upgraded.

The people at the refuge were very helpful and anxious to provide help. Our entire group is still talking about this experience!

The refuge is located on San Antonio Bay - a great spot for fishing. At the fishing pier the water is too shallow. If better facilities were built for fishing it would be very helpful.

The refuge is off the beaten path and there are no suitable local camping facilities; so for me, it was a very long trip for a very short stay. Not so with many of the other refuges I have visited, most spectacularly the Bosque del Apache.

The restrooms were closed and only a single port-a-john was available. They should have more for the public provided.

The staff was extremely friendly and knowledgeable. Having more educational kiosks on the land would be great, especially those viewable from cars.

The staff was very friendly and informative. They invited us to eat their homemade snacks they prepared for the hunters (opening day).

The viewing platforms that are provided at Aransas could be improved by some creative habitat management that could bring the birds and other wildlife closer to people. (It is an area of work in which I'm active in the UK - I manage nature reserves for birds and viewing opportunities.)

The volunteers at the desk are always friendly and very knowledgeable about the refuge.

The volunteers behind the desk were very informative. We have visited Aransas about 6 times now and we have always enjoyed our visit. We hope to retire soon and plan to possibly volunteer at Wildlife Refuges. We spend time at Jamaica Bay Wildlife Refuge here in New York and plan to start volunteering there in the spring of 2011.

The volunteers were wonderful!

They were extremely clean and well maintained.

This was the experience of a lifetime for my daughter and me. It began with my mother 50 years ago when she became involved in supporting the effort to save the Whooping Cranes. This trip was made in her honor.

Very friendly, helpful and knowledgeable staff. Center and roads well maintained. Loved the trails. Observation tower could use some work; I heard it was due to be replaced.

Very interesting. Great lecture. Overall good experience.

Very nice. Disappointed to not see any non-bird or alligator wildlife, but very nice refuge and environment.

Volunteers were very nice ladies and answered all of our questions.

We are seniors and appreciated being able to drive our vehicle on the driving trail. We also liked the nice picnic area.

We did not understand why restroom facilities outside of the visitor center were not in operation. A sign would have been expected. Also, more blinds for bird watching would be helpful.

We drove from Colorado in hopes of seeing the Sandhill and Whooping Cranes, but this year I guess we were too early. I may try to come back after the first of the year in the hope of seeing them in their wintering grounds.

We enjoy this refuge immensely and bring our motorhome each winter to the area. My parents came down in the 70's, specifically for the whooping cranes, and we carry on this "tradition"!

We enjoy this refuge very much. We've been there many times and for many years. We would like to see a new observation tower built and completed.

We enjoyed our visit very much. It was well worth the drive from Rockport. We plan to visit again in the Spring.

We enjoyed visiting and saw groups with lots of little kids that were enjoying themselves.

We saw two Whooping Cranes, what a treat. We appreciate the efforts to help Whooping Cranes survive and, we hope, flourish.

We were disappointed to find no restrooms available when we were leaving the refuge. The Visitor Center was locked and nothing was available. After hiking the trails and with no town close by, it would be nice for visitors to have a bathroom after the center is closed.

We were disappointed we could not find the "new" observatory platform.

Wildlife management is more important to me than recreational opportunities or restrooms. Refuges are for the animals; people are secondary.

With budget cuts and other financial problems, refuges need to expand their use of volunteers. They need to get creative and use the knowledge, man power, and skills available in volunteers.

Wonderful staff on duty November 7!

You need to get rid of the feral pig and give the javelins a better chance.

You should have a place on your website to give daily information about the arrival of whooping cranes at Aransas NWR during fall.

Survey Section 5

Question 3: "If you answered "Yes" to Question 2, please briefly describe what makes Refuges unique."

Comments on What Makes Refuges Unique? (n = 176)

A chance to view animals in their natural environment and to photograph them.

A more natural habitat.

A variety of bird life and well kept. (signatures)

Ability to observe Whoopers and alligators in an open and wild environment.

Ability to witness animals and birds.

Able to observe animals and birds in their natural environment. This trip we saw multiple alligators, birds, deer, etc.

Able to observe wildlife in their natural habitat.

Again, refuges should be kept as preserves. They should not be maintained as parks for human amusements. Human interactions with wildlife should be kept at a minimum. This is a place to educate humans about the non-human "natural" environment and to help humans understand that they are not at the top of a food chain, but part of the circle of life on earth.

All the birds and animals in this area and those that leave during the year.

All the different things that are conserved.

Alligators, whooping cranes, large untouched land.

Alligators!!!

Allows the migratory birds refuge.

An excellent Visitor Center and the freedom to explore.

Aransas and other wildlife refuges are some of my favorite vacation sites. I love that in the US we have such opportunities.

As employees said it is for animals...not people. Very important distinction.

Availability to do all - cycling, hiking, fishing, bird watching, etc.

Availability to observe wildlife, hunt, and fish on public lands supported by hunters and anglers.

Beautiful, isolated landscape on the coast. Wide variety of wildlife, birds, and vegetation.

Because it is a natural area, it is a real refuge for man and beast.

Because of hunting pressure and urban development a refuge offers a sanctuary for wildlife by protecting their habitat.

Because their purpose is to protect plants and wildlife, there is more opportunity to observe these here.

Being able to see Whooping Cranes, alligators, wild hogs, and all kinds of birds in one place makes the Aransas Wildlife Refuge very special to us.

Conservation of a dying environment. If not you, who?

Conservation of the land and wildlife should be the ultimate goal. People must be allowed to see and appreciate all this at the same time. Aransas NWR is a beautiful place.

Enjoyed the natural habitat.

Even though I do not hunt or fish, refuges do offer those opportunities to others.

Experience nature first hand. Beautiful scenery and unique wildlife like cranes and crocodiles.

Fishing, bird watching, wildlife, kayaking.

Focus is on conservation.

Focus on the ability to see birds and wildlife.

For Aransas... the Whooping Cranes!

Generally not commercial. Unless you are going to a large National Park (Yellowstone, Glacier, Yosemite) the wildlife and environmental experience is unavailable elsewhere.

Gives families the ability to observe wildlife in their native habitat without extra activities such as jet skiing or other noisy interferences.

Good hiking, biking, and wildlife observation opportunities.

Great place to photograph unique wildlife & birds.

Having the primary mission of conserving, managing, and restoring fish, wildlife, plants and their habitat and providing the opportunities for others to enjoy it.

Having well marked areas for information amenities and viewing wildlife distinguished the Aransas Wildlife Refuge.

I enjoy working at the refuge to improve trails and making habitat for wildlife better.

I especially appreciated being able to observe the Whooping Cranes.

I greatly appreciate and admire the stewardship the wildlife refuges represent. If I lived closer, I'd gladly volunteer.

I have little experience of wider recreation in USA, as I'm a UK citizen and I was only in the US for 5 days. However, my time in Aransas was an excellent experience and I look forward to visiting Refuges in future visits to the US.

I lump them with National Parks in importance.

If you care about wildlife, it is one of the places that it is controlled and protected.

In a NWR, the habitat and the resources are the primary focus, not the conveniences available to the visitors.

In general, the refuges we have visited have been less commercialized than many of the other facilities and have provided more opportunities to observe wildlife in its natural habitat.

In this particular refuge, it has an assortment of wildlife not generally seen. The protection of the habitat contributes to this.

It has helped bring the Whooping Crane back from the brink of extinction. This is a special feat.

It is a good opportunity to view water environments of the area.

It is not a "canned" experience. You have to get out of the car and go explore!

It is the place where I am most likely to see significant numbers of migratory birds and birds in their natural habitats.

It was nice. We saw a lot of different things. That is why we came back.

It's a great place to go and see, but the hunt area (where I visited) needs serious maintenance. It's terrible to walk in; you can't see 50 feet except along roads.

It's a way for man and nature to observe each other without reasonable threat to each other.

It's an opportunity to see wildlife in their natural habitat.

It's important to conserve and preserve natural areas and to open some areas so people can visit them and see what makes them so important to keep.

It's in a natural setting, less commercial, and not forced.

It's less commercial than National Parks. Maintained trails and facilities are better than parks.

Its location.

Knowing that it is a public facility rather than a privately owned one.

Lack of commercialism; viewing access to birds and other wildlife in a way that does not endanger wildlife; educational opportunities for young children and adult public.

Lots of wildlife to view and seemed to be run quite well. Staff was very knowledgeable.

Maintaining habitat and wildlife.

Many different species of wildlife in one location!

Migratory bird varies.

More possibilities to see birds and wildlife.

Non-commercialization of the refuge.

Not as developed as National Parks. This results in less of a visitor crush. More opportunity to enjoy outdoors with like minded people.

Not everyone would or could travel with ease on open recreational lands.

Observation points.

Observing natural "habitat" is different from a park and is really a concept I hadn't been aware of. I'd like to see more of them. It's so educational so that makes the experience even more welcoming than observing just the beauty of nature.

Open alligator viewing.

Opportunities to view wildlife from a safe distance undisturbed and provides one with a feeling of being safe in the confines of the grounds.

Opportunity to observe wildlife in a completely natural environment.

Opportunity to view wildlife in a well maintained natural environment.

Other parks focus on recreation while refuges allow for focus on wildlife interaction in natural habitats.

Our first time to a refuge-we loved it! It was so cool! The alligators were unreal-the best! We will come again and will look for other refuges to visit. Thank you!

People need to be aware of the importance of places for nature/wildlife. We need to recognize the ways our recreation affects other life. Our recreation can be a way of re-creation for ourselves and our amazing world! Refuges, through their responsibilities and management, can be places where we are educated and made aware of our personal, as well as economical, privilege and responsibility to fish, wildlife, plants, and the conservation of habitats. The way we treat their "homes" directly impacts the quality of life all of us can enjoy. We need the refuges. ALL of them that I know anything at all about!!!

Preserve habitat.

Pristine environment and habitat for Texas wildlife - hope future generations can enjoy mother nature.

Provides a good balance between ease of access while keeping the natural habitat. Unique opportunities to safely view animals close.

Provides opportunities to view wildlife and birds in a natural, non-intrusive environment.

Provides unique opportunities to see original habitats and natural dwelling areas of wildlife and fish and observe them first hand as they live in their environments during all seasons.

Refuges are unique because they offer safety for the animals and unique opportunities for humans to observe a variety of animals in one location. In some cases, the opportunities to observe animals very closely is possible.

Refuges are wonderfully protected areas. They are extremely family friendly. Able to spend whole day enjoying nature and wildlife, picnicking, hiking, and fishing.

Refuges exist for the preservation of wildlife.

Refuges have longer access for recreational use.

Refuges offer an excellent opportunity to study nature. The emphasis is on conservation & the native population rather than visitors.

Refuges preserve the natural habitat or make efforts to return it to a healthy state. Example: Prescribed burns. Refuges are managed, monitored and provide something for everyone.

Refuges provide a great place to birdwatch under optimum conditions and to meet others with similar interests and exchange information. Refuges also provide good environmental education.

Saving the environment and the animals in it.

Seeing the scenery and Whooping Cranes.

Seeing the Whooping Cranes and the opportunity to see all types of wildlife. It's very peaceful.

Shows animals in natural habitats.

The ability to observe nature in areas that are quiet and non-commercialized.

The ability to observe regional wildlife in a safe environment for both the animal and observer.

The accessibility of various wildlife species for viewing and photography.

The amount of water birds seen in refuge.

The animals are provided a safe environment to live and develop a habituated lifestyle free of fear of humans. Once this happens, they may move around the park and don't pay attention to human presence.

The atmosphere.

The birds.

The combination of protecting wildlife and its necessary habitats and allowing careful access by the visiting public-it's great!

The decks at Jones Lake and Hog Lake are wonderful. Among other things, seeing Sora was a highlight. The alligators, birds, and animals were great.

The different birds. Enjoy seeing the whooping cranes and other wildlife.

The fact that they exist at all. The last safe wild places.

The location and opportunity to see migrating birds.

The main focus is on the animals and environment and not on recreation.

The natural setting that you can explore independently.

The opportunity to explore at your own speed.

The opportunity to observe endangered species (especially Whooping Cranes) in their own natural habitat.

The opportunity to see nature in a very natural state.

The opportunity to see wildlife in their natural habitat.

The opportunity to view wildlife in their natural environment and to share the experience with friends and family.

The possibility to learn about conservation projects and enjoy wildlife on scenic surroundings!

The preservation of birds and wildlife is the prime concern.

The refuge allowed us to see plants and animals native to the area in a native habitat. We were able to see a baby alligator (12 inches long) and an adult (14 feet long). We saw birds we never knew existed. They are wonderful resources we need to protect and use in the most appropriate ways.

The refuges are established for the preservation, conservation, and research opportunities to preserve and protect our natural wildlife and plant life.

The variety of wildlife and plants, the protection of the land and wildlife, education information.

The variety of wildlife, the availability to see a lot without strenuous work but also having the option to be more aggressive and hike about. The ability to go out without the need of a guide. First year winter Texans enjoyed the local wildlife.

The Whooping Cranes.

The wildlife populations and the opportunity to see them in their natural habitat.

The word refuge describes why the recreation experience is unique. The wildlife, like the Whooping Cranes and other birds and animals, have a safe place to live and breed.

Their role in conservation, the visitor's ability to 'use' the refuge i.e. fish and canoe, and their isolation, quietness, and lack of tourist features.

Their specific focus on conservation and education.

There are becoming fewer areas that are left untouched that future generations can appreciate and learn of the reality of nature in its own habitat, i.e., zoos are fine, but they can't compare with actual exploring and discovering. Finding critters on your own without a sign hanging above them.

There are Whooping Cranes and it is very well maintained.

They are a low-key way to enjoy essentially large lands that have been set aside and not developed.

They are for wildlife. I like visiting a place where people are second. In many national and state parks, people often think they should be first (e.g., snowmobiling or off road biking). I like the whole idea of a refuge for wildlife.

They are informative and offer the opportunity to see nature as it should be - preserved and protected.

They are places to "commune" with nature. They can improve a person's disposition. Volunteers and employees can teach children and give children an opportunity to be outdoors in a natural environment. They can provide all of us with an awareness of the need to intervene in nature in order to save it.

They are places where wildlife is encouraged to thrive and where they are safe. With the population increasingly taking over territories where wildlife once thrived, these places are where one can ponder the wonders of life.

They are reliably good. It is worth traveling a long way to see them as I know I will enjoy the visit. I live in the UK and when visiting the US, I make a point of stopping by many of the Refuges that are close to my touring route.

They are the only place I know of with such a wealth of wildlife.

They are there to preserve wildlife of all species. You have the chance to see some of the wildlife.

They are unique for the wildlife that inhabits them and the emphasis placed on educating the public on that wildlife and its habitat.

They increase the survivability of many species, and, if managed properly, can offer hunting and fishing opportunities that can be used as a revenue source for the Reserves.

They offer opportunities to visit unique habitats that would be unavailable otherwise.

They offer places to observe wildlife, while still protecting them.

They preserve habitat needed to preserve wildlife. Visitor use educates the public and provides recreation, without continuing to damage the environment.

They provide a lot of beneficial information on local wildlife.

They provide a safe place for the wildlife as well as for the wildlife lovers to observe them. So many private land owners will not allow you to observe wildlife on their land, and sometimes that is the only place to see them. These refuges are very important.

They provide primitive and less-intrusive opportunities for learning about and appreciating the creatures in nature.

They seem so completely natural.

They tend to not be commercialized or consumer oriented.

They try to make everyone have a good and safe time.

This refuge provides availability to land and areas that the public might not have access to. The ecosystems that are preserved there.

To provide a healthy environment for the preservation of and education on the wildlife around us.

To us it is most important to protect wildlife. It is just a bonus for us to have a chance to see them.

Unique wildlife.

Unique, once a year experience for deer hunting.

Usually more "birder friendly."

Very clean and well managed.

Viewing wildlife and its beautiful scenery.

We enjoy seeing the difference in each refuge we have visited over the years.

We enjoy the refuge for its peaceful setting. It is very quiet and relaxing.

We enjoyed the refuge. We wish we could have given ourselves more time there for hiking, picnicking, and seeing wildlife.

We get to see wildlife in their protected natural environments and commend the national refuges for their efforts.

We get to view wildlife in completely natural settings where the only emphasis is the wildlife itself.

We have seen more alligators there than in the whole Everglades during our two day trip there. It was worth driving the extra 200 miles out of our way. Sadly, no armadillo. :o(

We watched birds that we don't have in our area and were able to see wildlife on the trails.

We were very impressed to be able to observe a wild boar roaming among the egrets and cranes from atop the tower at Aransas Pass. It was truly an unforgettable experience. Thank you very much.

Well maintained and beautiful scenery.

Well maintained hiking trails, good for cycling, nice bridges for bird viewing, including the tower.

Whooping Cranes are here.

Whooping cranes!! And other birds - awesome!

Whooping Cranes.

Wildlife conservation, not tourism or recreation, is the primary purpose.

Wildlife in a natural habitat. Focus is on Whooping Cranes (species specific).

Wildlife is primary, not recreation.

Wildlife refuges tend to have a stronger education component built into their mission.

Wildlife viewing.

Wildlife.

You are able to experience nature in its actual environment, without the interference of modern life. You have the opportunity to experience and view a multiple number of ecosystems.

You experience wildlife in a natural habitat.

You keep it as natural as possible.

Additional Comments (n = 54)

A most satisfying day walking in nature, seeing animals of all kinds up close and undisturbed, observing tracks and other animal marks. As close to being alone in nature as possible & safely.

An excellent visit. The volunteers in the visitor center were very informative and friendly. The viewing facilities could be improved, but my main purpose was bird watching and I'm an experienced birder, so I was able to compensate for the poor viewing facilities.

As many times as I have visited this refuge, there has never been a seminar available for attending within a reasonable time.

Camping, longer trails, and backpacking sites would be nice. A restored cow camp would be a nice historical exhibit, especially with trail rides.

Climate change section implies that it is primarily man caused. I think there is very little evidence of that. I value the environment and strive to maintain it, but think many "green" efforts are misdirected and not useful.

Dear Aransas NWR: I wish you, your cranes, and your valuable habitats (especially marshes) all the best in your constant battles against hurricanes, oil spills, invasive exotic plants and animals, economic downturns, and the destructive human race. (signature)

Doing a great job!

Enjoyed our visit to the refuge. Very clean, relaxing environment!

Everyone in our group of six was impressed with the refuge. The people at the Visitor Center were more than helpful. One from our group called to tell us that Aransas Pass was one and the best places in the US to observe wildlife. We were glad we came.

Great experience, I'd like to return sometime. The options of after hours tours, boating tours, bicycling, and the like would be very attractive to me.

Great place to view wildlife.

Helpful staff, well laid out Refuge, very peaceful.

Hopefully this place will be here when the next generation is ready to use it.

I absolutely love this refuge and have been there many times over the years. I would love to have more access than the small region covered by the road, as long as that would not harm the ecosystem, especially for the Whooping Cranes.

I am grateful that America has set aside some wild places, and feel that they must be protected and expanded if possible. My partner and I support numerous charitable wildlife organizations and open space programs. Protect them! Expand them! We frequently visit your type of refuges in Europe where there is usually much LESS info, etc. Also, it would be great to stop airplane flyovers and other disruptions.

I enjoy visiting Aransas Wildlife Refuge.

I have a quandary regarding dogs at wildlife refuges. I travel with two dogs and I love being able to take them on trails. I am responsible. They are on leash and I pick up after them. Not all pet owners are responsible. So, I have two questions: If pet owners do not clean up after dogs, would the scat cause negative impact? Does just having a dog in the refuge effect the wildlife population in negative ways? Many parks and sanctuaries allow no dogs on trails; some allow no dogs at all, not even in parked cars. Their reasoning is that the presence of household pets affects the wildlife population in adverse ways. Is the dog issue something that needs to be discussed regarding refuges such as Aransas?

I hope people will help to allow the parks to stay open.

I spend a lot of time outside birding in New York in Prospect Park & Jamaica Bay Wildlife Refuge. We have family in Houston and Mission, Texas and we stop at Aransas whenever we are driving between the two locations.

I was thrilled to find a rare bird, the Yellow-faced Grassquit, at ANWR with the help of staff and other visitors.

I was very impressed.

I would like to see more education regarding environmental pollution.

It was a great experience. And we are glad we found our way to it. Hope to come back again.

It was disappointing that the only wildlife viewing opportunities in this fine refuge were birds and alligators. The only other wildlife observed was a large feral pig. Some high viewing stands in the grass areas may provide opportunities to see other wildlife.

Keep up the good work conserving our wilderness.

Keep up the good work.

Keep up the good work. (signature)

More trails, more bird watching blinds and decks, kayak or canoe trails! Wonderful Refuge.

My wife and I travel across North America every year to visit national parks and refuges (for bird watching). Aransas was a great place, we will visit again. The more land given to conservation of habitat will help us all. Wild pigs at Aransas should be destroyed.

My wife and I really enjoyed our visit to the refuge - we will continue to visit it more often since we bought some property near Tivoli, TX.

Our National Wildlife Refuge systems and parks are such a treasure and your hard work keeps them so nice. Thank you. I have some limitations with balance and mobility and the refuge was easy to enjoy. I was thinking perhaps our returning military could receive needed rest at our wildlife refuges. Thanks again. (signature)

People don't seem to understand that they need to pull over for faster moving traffic in the one way loop. The visitor center told us, as they probably tell everyone, but maybe a sign here or there would help.

Post signs about how it is illegal to feed alligators and how dangerous they are to wading fishermen.

Really enjoyed my experience at Aransas NWR. Got a glimpse of the whoopers and many other birds. Alligators too! I want to support conservation efforts and am very concerned about our environment.

Staff was very helpful, and the volunteers were very helpful, too.

Thank you for providing hunting and other outdoor opportunities at Aransas National Wildlife Refuge. It is my favorite place in all 50 states. Aransas is special and unique. I have also visited Atascosa NWR several times, as well as Trinity River NWR. They are also special, but Aransas NWR is tops. It would be nice if hunting opportunities were available on this refuge. Some of the roads could use improvement on the back of the refuge. The trail named "No Name Road" could really use improvement.

Thank you for the opportunity to reflect upon these matters. We have new reason to think about handicap accessibility since, as winter Texans this year, my husband broke his leg requiring surgery and has very limited movement. We are just now back home and couldn't reply to this mailed survey as we had elected to do back in early March.

The best time to visit the Aransas Wildlife Refuge is early and late in the day. Therefore, the gate and Visitor Center should be open early and near sundown. As a minimum, an outside restroom should be located at the Visitor Center.

The National Wildlife Refuges are greatly appreciated by us, even if we don't travel much. Viewing cranes at Aransas NWR does require boat-trip viewing, as well as the use of the tower overlooking one area of wetlands.

The unique opportunity to see Whooping Cranes and other migratory birds led us to add five days on to the Texas coast for a two day conference in Houston. We centered the trip on stays in Fulton in order to be near this wildlife refuge.

This is a wonderful place to take the family and observe nature. The trails are very enjoyable for adults and children alike.

Visited the refuge during a Texas road trip. Frommer's Guide book and recommendation of B&B owners prompted visit.

Visiting Aransas while the cranes are in is a unique experience for which I feel privileged.

We always enjoy this refuge.

We didn't get to see the Whooping Cranes, but the tower facility was an excellent vantage point to get a view of the waterway.

We enjoyed our visit and enjoyed sharing it with a friend whom had not visited before.

We have heard that funding for this refuge is not enough and feel that some sort of extra funding should be sought. One idea might be to charge the whooping crane tour industry a small portion of each ticket they sell, in order to take the boat into the refuge area (if possible; perhaps this is not possible because it lies next to the intercoastal waterway).

We love this refuge and it is affordable to spend time here to see the wildlife. Our kids love it too.

We love this refuge. We would like to see it grow. Keep up the good work.

We traveled from Pennsylvania to view the birds of south Texas. Aransas was one of our stops for birding.

We visit a lot of NWRs and NPs. The one thing I notice is the inconsistency of one ranger from another even in the same park. I do mostly photography and most rangers are helpful. Some obviously wish we weren't here. "Pull off the pavement so others may pass." "Stay off the grass shoulder and keep moving!!!" Friendly, right. Photographers do more to promote NPs than you can imagine. I consult large numbers of people as to how to maximize their visits. They appear to avoid a park simply due to lack of knowledge. "I just don't get it. Is it really worth going to see??" What a crazy question. We are your friends and want the best for the refuge.

We were fortunate to observe a family group of three whooping cranes in flight. How exciting!

Whooping cranes were the main reason we wanted to go to Aransas. The State Park was not mentioned as a place to stay nearby, but that is where we got the information about the Refuge. They should be mentioned in the brochure.

Would like to come back sometime and see the whooping cranes. They hadn't arrived when we visited.
