



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

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

The Quivira National Wildlife Refuge is a perfect place to introduce children and young adults to the wonderful outdoors, offering more than hunting and fishing. In my opinion, it's not just good, but an absolutely awesome experience for outdoors men and women of all and ages and skill levels. Thanks for offering such an experience.—Survey comment from visitor to Quivira National Wildlife Refuge.



Quivira 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.	Importance-satisfaction ratings of services and facilities provided at this refuge.	17
11.	Importance-satisfaction ratings of recreational opportunities provided at this refuge.....	18
12.	Importance-satisfaction ratings of transportation-related features at this refuge.....	19
13.	Visitors' likelihood of using alternative transportation options at national wildlife refuges in the future.	21
14.	Visitors' personal involvement with climate change related to fish, wildlife and their habitats.....	22
15.	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 for this refuge expressed in dollars per person per day.	14

Acknowledgments

This study was commissioned by the U.S. Fish and Wildlife Service Division of Visitor Services and Communications Headquarters Office, Arlington, Virginia. The study design and survey instrument were developed collaboratively with representatives from U.S. Fish and Wildlife Service and researchers from the PASA Branch, U.S. Geological Survey. For their support and input to the study, we would like to thank Kevin Kilcullen, Chief of Visitor Services; Steve Suder, National Transportation Coordinator; Regional Office Visitor Services Chiefs and Transportation Coordinators; and the staff and any volunteers at Quivira NWR who assisted with the implementation of this surveying effort. The success of this effort is largely a result of their dedication to the refuge and its resources as well as to the people who come to explore these unique lands. We also would like to thank the following PASA team members for their hard work throughout the surveying effort, which has included (among *many* things) the arduous tasks of stuffing more than 20,000 envelopes, managing multiple databases, and preparing numerous reports: Shannon Conk, Halle Musfeldt, Phadrea Ponds, Gale Rastall, Margaret Swann, Emily Walenza, and Katie Walters.

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 Quivira 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):** A copy of 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 Quivira 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 Quivira National Wildlife Refuge

Quivira National Wildlife Refuge is located about 100 miles north and west of Wichita, Kansas, and was created in 1955 when the Migratory Bird Commission approved the purchase. The refuge was named after the Native American tribe living in the area when the Spanish explorer, Coronado, visited the area in 1541. Quivira NWR was established to provide food, water and nesting areas for migratory waterfowl, and currently covers 22,135 acres.

Quivira NWR attracts around 125,000 visitors annually (based on 2008 RAPP database; U.S. Fish and Wildlife Service, 2011, written comm.) and offers many activities for all types of visitors. Primary activities on the refuge include environmental education and interpretation programs, fishing, hunting, wildlife observation and photography. Hunting opportunities on the refuge include waterfowl, migratory and upland birds, as well as small game. Permits are issued for waterfowl, quail, pheasant, dove, snipe, rails, squirrels, and rabbits. For those who prefer wildlife observation and photography, the refuge has been host to over 300 species of birds. Over 1,300 acres of the refuge are used by local farmers working on a share basis and providing reliable sources of food for the refuge's wildlife. Figure 1 displays a map of Quivira NWR. For more information, visit <http://www.fws.gov/quivira/>.

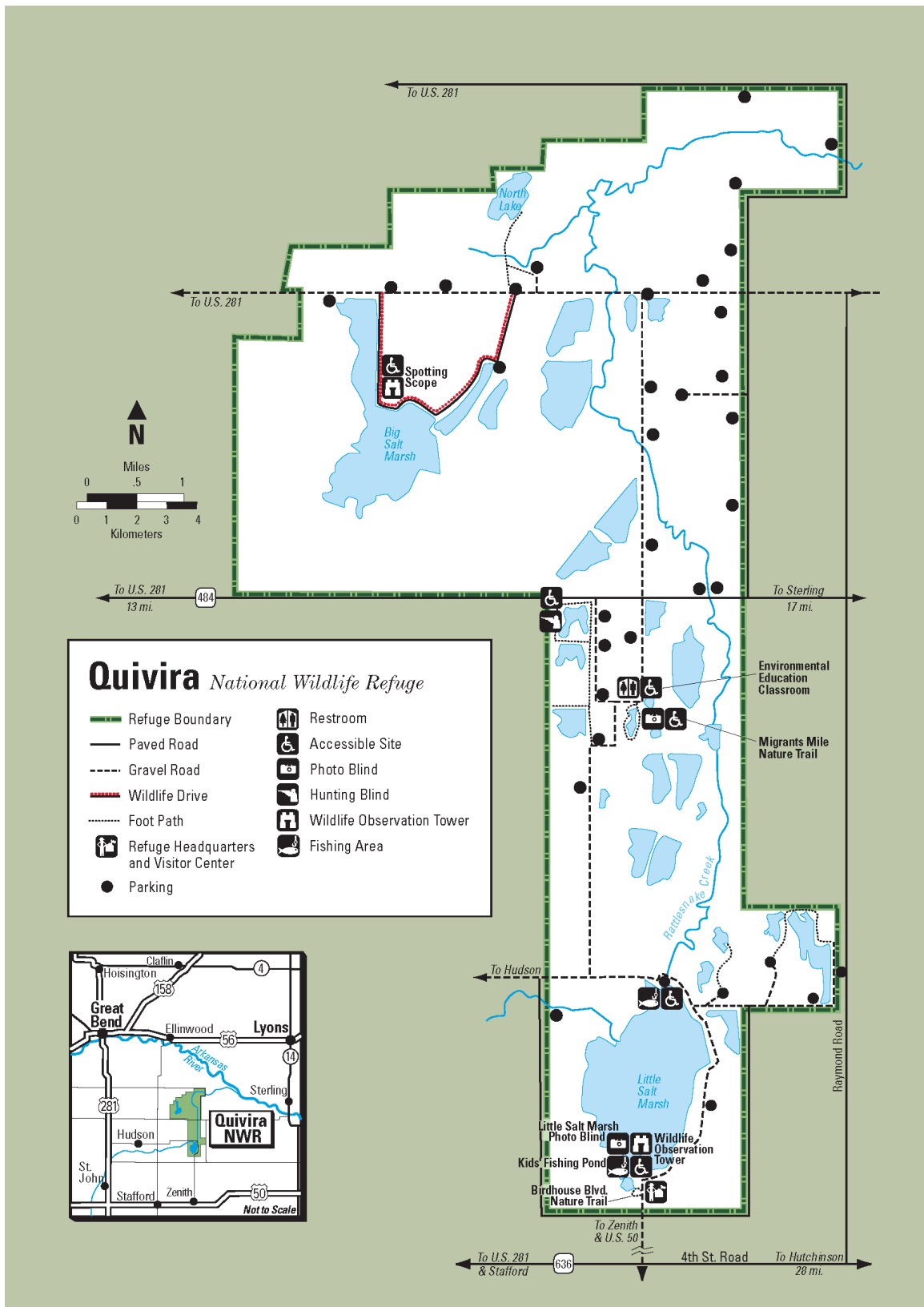


Figure 1. Map of Quivira NWR, courtesy of U.S. Fish and Wildlife Service.

Sampling at Quivira National Wildlife Refuge

A total of 184 visitors agreed to participate in the survey during the two sampling periods at the identified locations at Quivira NWR (table 2). In all, 152 visitors completed the survey for an 83% response rate and $\pm 6\%$ margin of error at the 95% confidence level.¹ The first sampling period, which was originally scheduled to end on November 20, was extended until December 5 due to a low number of visitors.

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

Sampling period	Dates	Locations	Total contacts	Undeliverable addresses	Completed surveys	Response rate
1	11/06/11 to 12/05/11	Hunting Area (north)	109	1	87	81%
		Hunting Area (central)				
		Hunting Area (south)				
		Headquarters/Visitor Center				
		Refuge-wide patrol of public use areas				
2	04/29/11 to 05/14/11	Headquarters/Visitor Center	75	0	65	87%
		Refuge-wide patrol of public use areas				
Total			184	1	152	83%

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 Quivira 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 (89%) and that the Refuge System has the mission of conserving, managing, and restoring fish, wildlife, plants and their habitat (91%). Positive responses to these questions concerning the management and mission of the Refuge

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).

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 (93%; see Appendix B for visitor comments on “What Makes National Wildlife 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 Quivira NWR had been to at least one other National Wildlife Refuge in the past year (69%), with an average of 6 visits to other refuges during the past 12 months.

Visiting This Refuge

About half of surveyed visitors (47%) had only been to Quivira NWR once in the past 12 months, while the other half had been multiple times (53%). These repeat visitors went to the refuge an average of 7 times during that same 12-month period. Visitors used the refuge during only one season (59%), during multiple seasons (28%), and year-round (13%).

Most visitors first learned about the refuge from friends/relatives (64%), refuge printed information (21%), and signs on the highway (18%; fig. 2). Key information sources used by visitors to find their way to this refuge include signs on highways (54%), previous knowledge (46%), or a road atlas/highway map (44%; fig. 3).

Some visitors (25%) lived in the local area (within 50 miles of the refuge), whereas 75% were nonlocal visitors. For most local visitors, Quivira NWR was the primary purpose or sole destination of their trip (79%; table 3). For most nonlocal visitors, the refuge was also the primary purpose or sole destination of their trip (59%). Local visitors reported that they traveled an average of 32 miles to get to the refuge, while nonlocal visitors traveled an average of 319 miles. Figure 4 shows the residence of visitors travelling to the refuge. About 60% of visitors travelling to Quivira NWR were from Kansas.

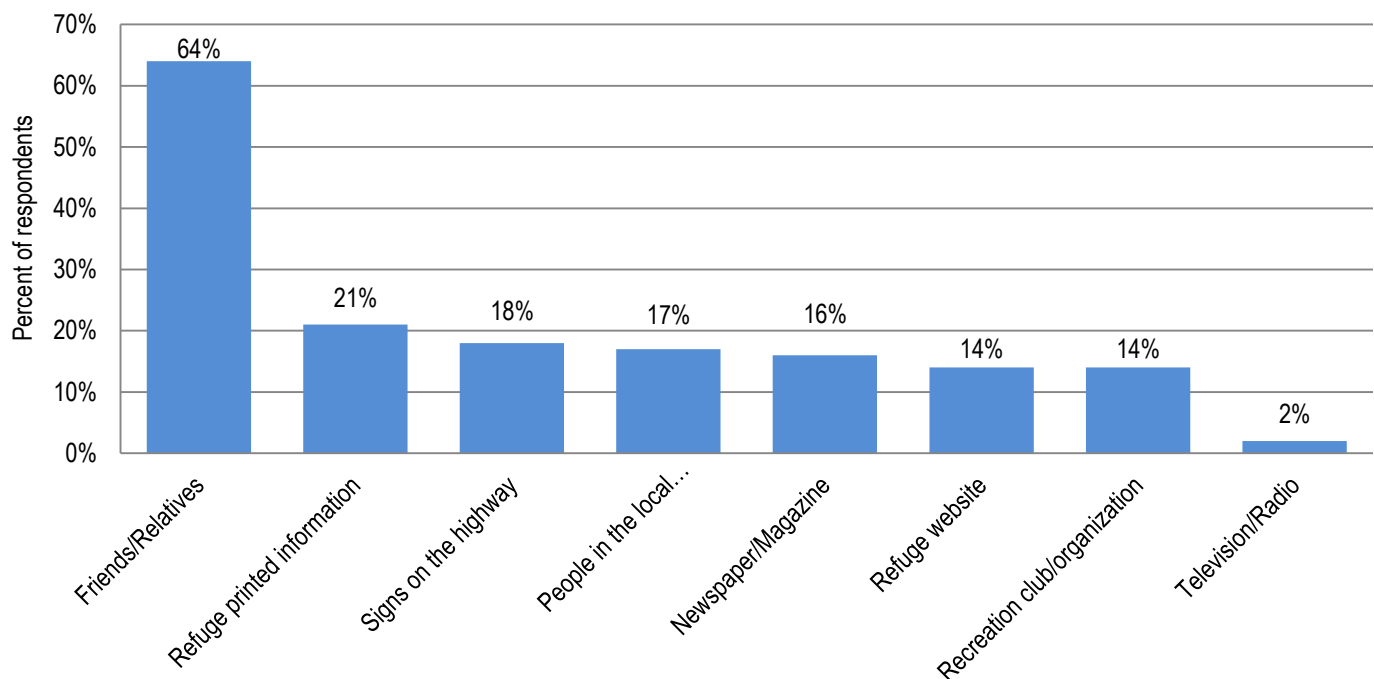


Figure 2. How visitors first learned or heard about Quivira NWR (n = 146).

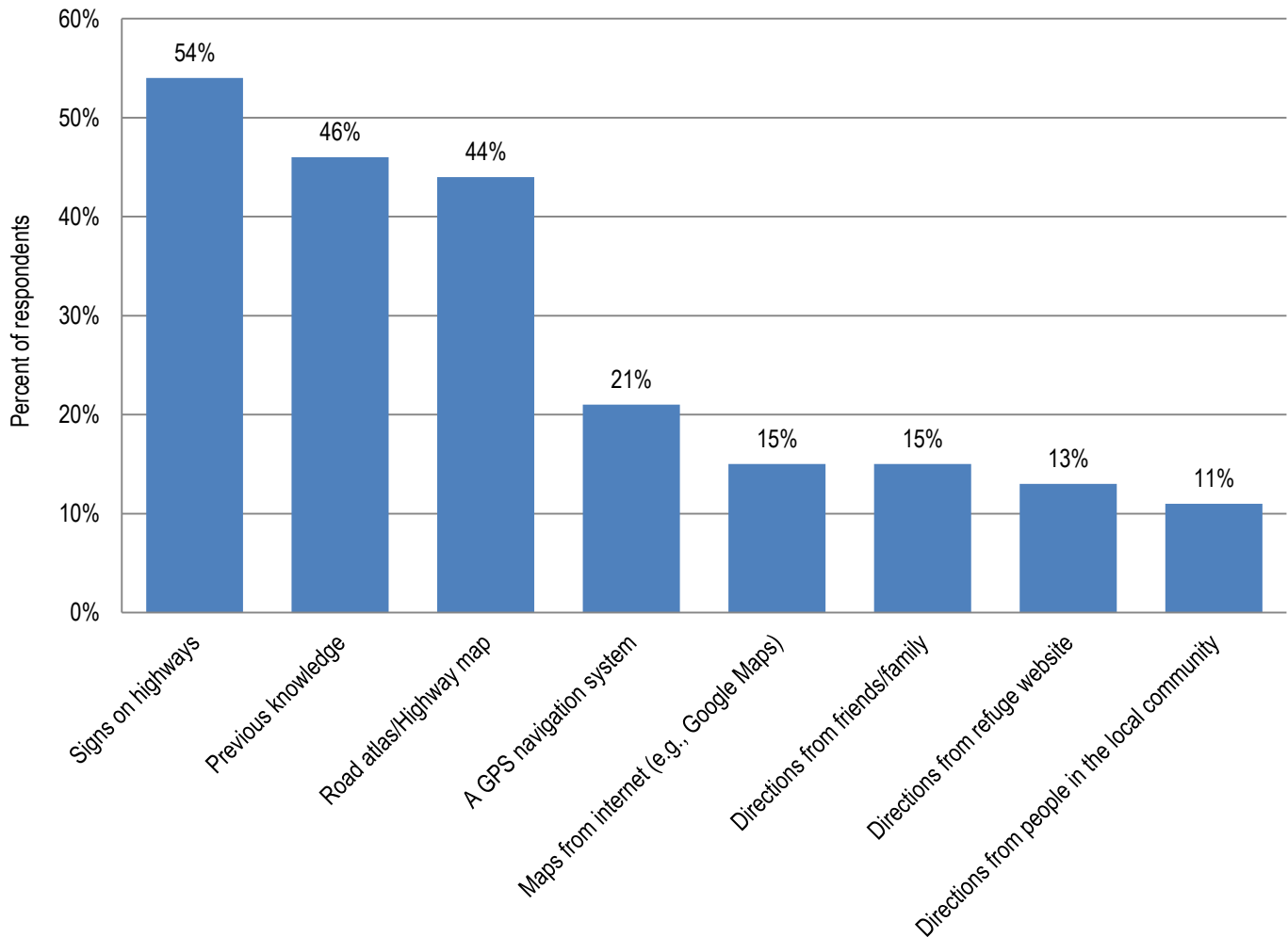


Figure 3. Resources used by visitors to find their way to Quivira NWR during *this* visit (n = 151).

Table 3. Influence of Quivira 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	59%	33%	8%
Local	79%	3%	18%
Total	64%	26%	10%

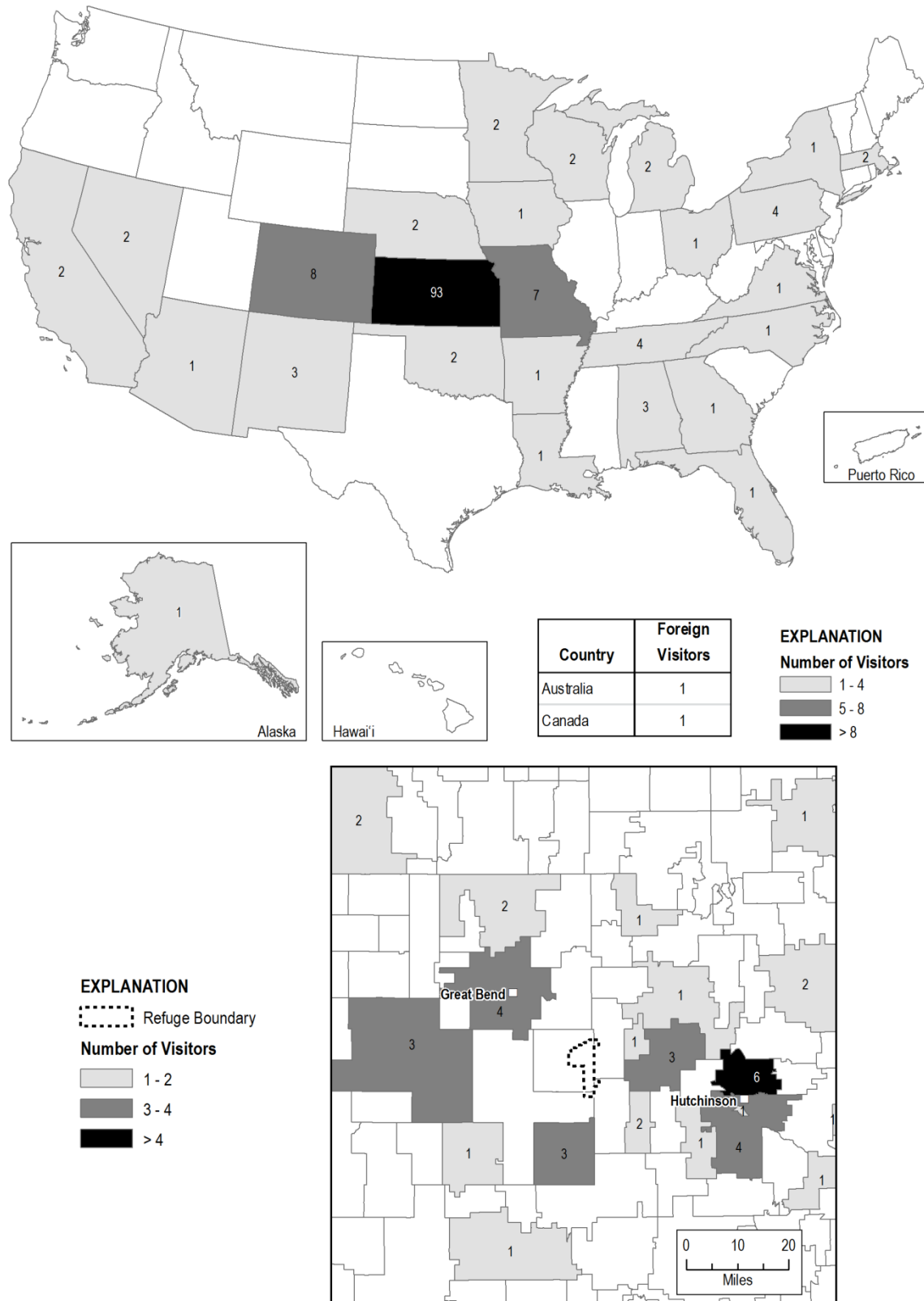


Figure 4. Number of visitors travelling to Quivira NWR by residence. Top map shows residence by state and bottom map shows residence by zip codes near the refuge (n = 151).

Surveyed visitors reported that they spent an average of 5 hours at Quivira 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 8 hours (31%). The key modes of transportation used by visitors to travel around the refuge were private vehicle (93%) and walking/hiking (11%; fig. 5). More than half of visitors indicated they were part of a group on their visit to this refuge (69%), travelling primarily with family and friends (table 4).

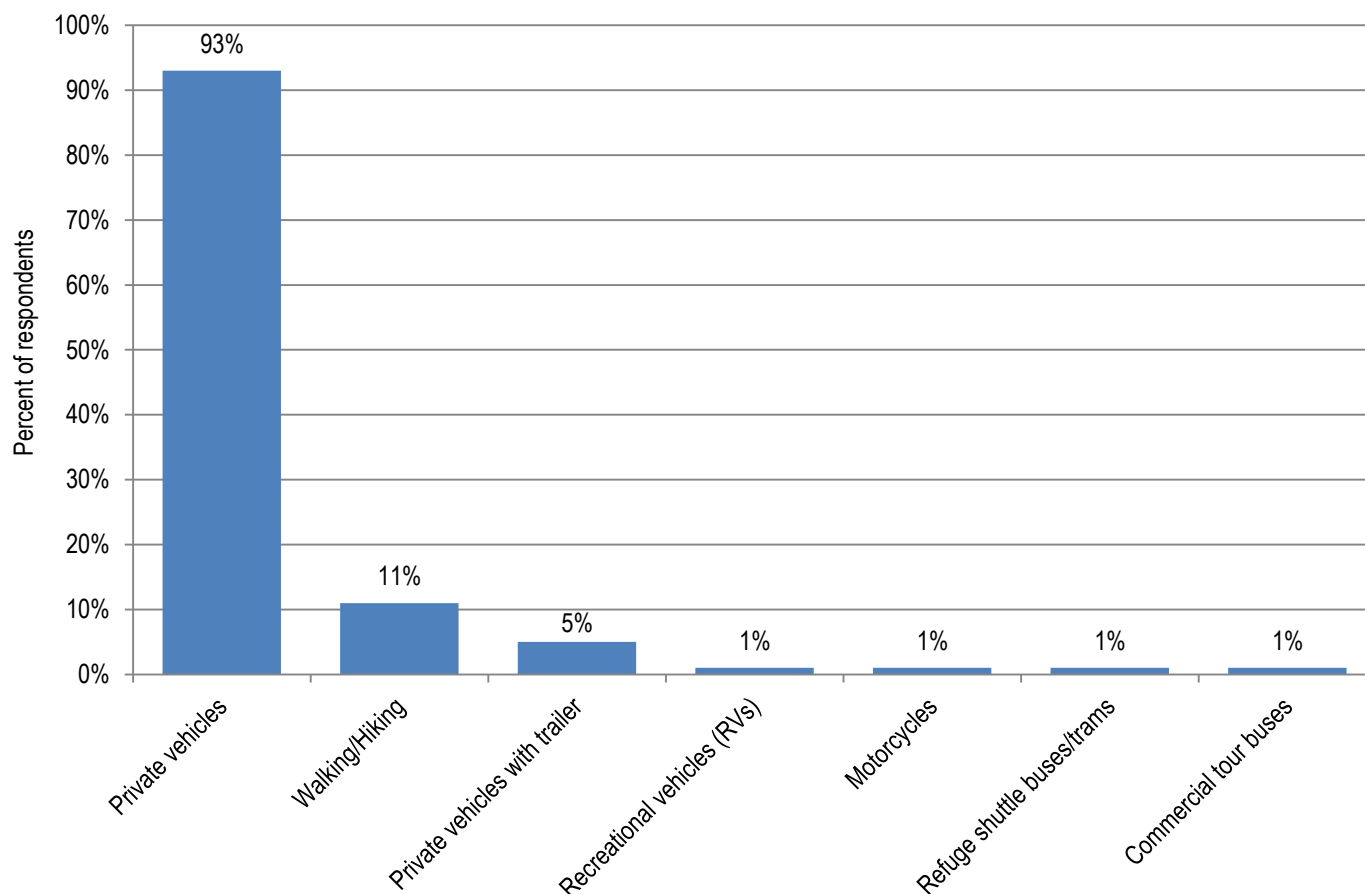


Figure 5. Modes of transportation used by visitors to Quivira NWR during *this* visit (n = 151).

Table 4. Type and size of groups visiting Quivira NWR (for those who indicated they were part of a group, n = 104).

Group type	Percent (of those traveling in a group)	Average group size		
		Number of adults	Number of children	Total group size
Family/Friends	90%	3	0	3
Commercial tour group	0%	0	0	0
Organized club/School group	3%	11	1	12
Other group type	7%	7	0	7

Surveyed visitors participated in a variety of refuge activities during the past 12 months (fig. 6); the top activities reported were bird watching (77%), wildlife observation (70%), auto tour route/driving (53%), and photography (51%). The primary reasons for their most recent visit included bird watching (52%), hunting (18%), photography (10%) and wildlife observation (9%; fig. 7). The visitor center was used by 70% of visitors, mostly to ask information of staff/volunteers (91%), view the exhibits (82%), and stop to use the facilities (75%; fig. 8).

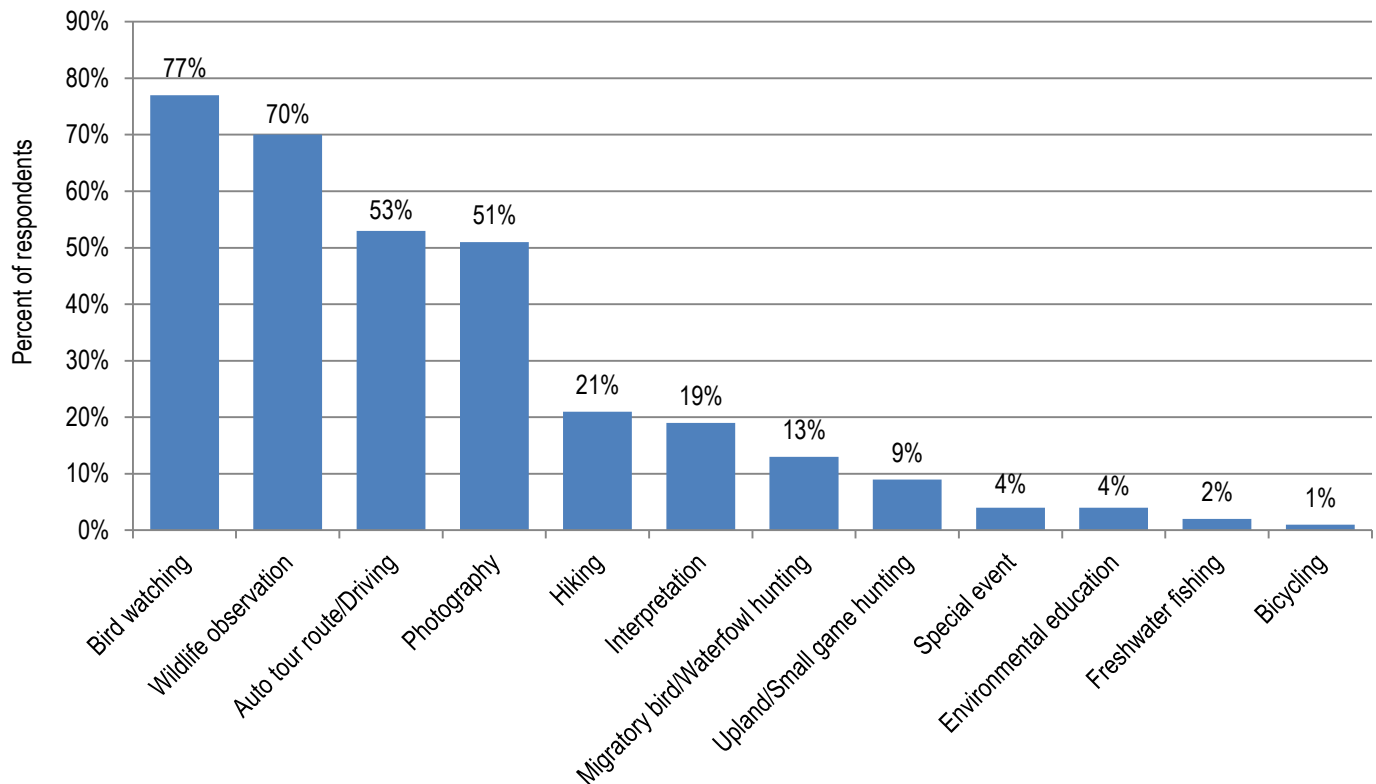


Figure 6. Activities in which visitors participated during the past 12 months at Quivira NWR (n = 150). See Appendix B for a listing of “other” activities.

Visitor Characteristics

Nearly all (99%) surveyed visitors to Quivira 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 62% male with an average age of 57 years and 38% female with an average age of 59 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).

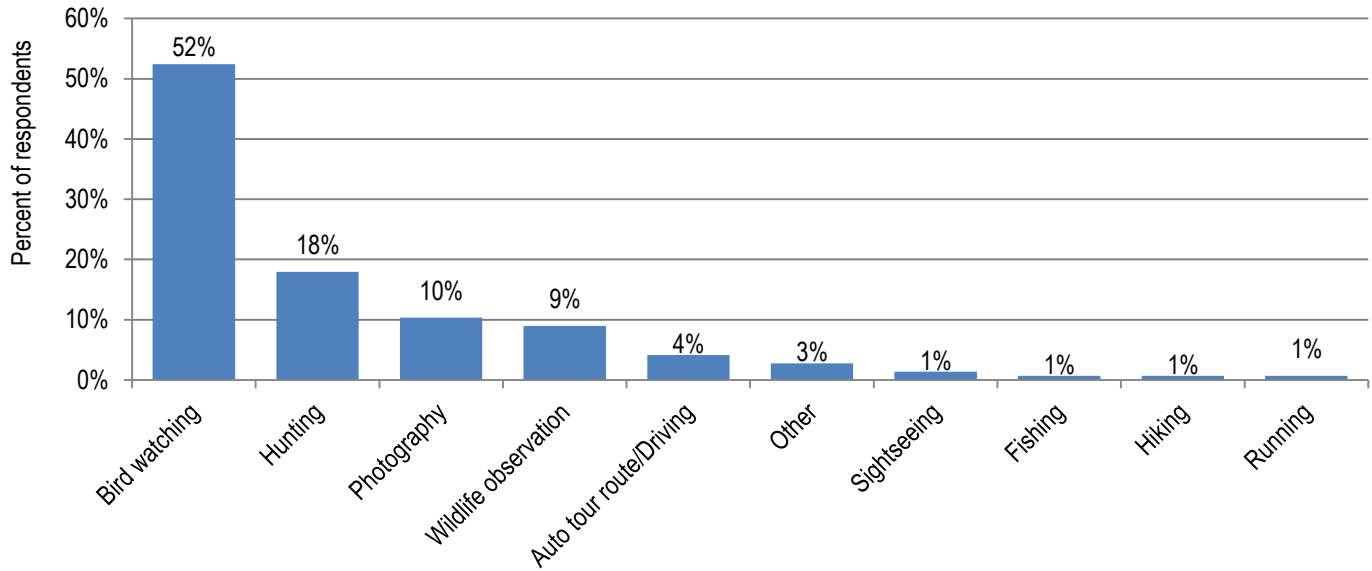


Figure 7. The primary activity in which visitors participated during *this* visit to Quivira NWR (n = 145). See Appendix B for a listing of “other” activities.

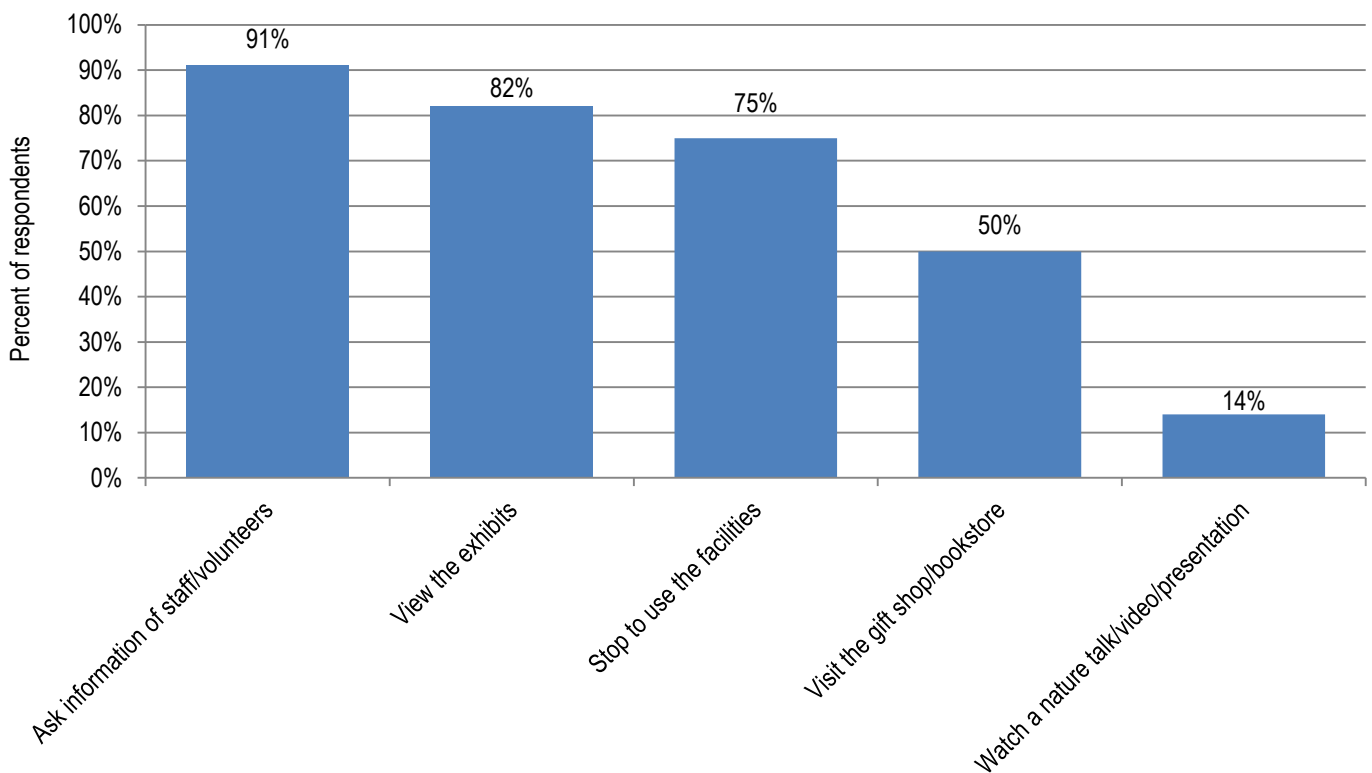


Figure 8. Use of the visitor center at Quivira NWR (for those visitors who indicated they used the visitor center, n = 105).

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, 25% of surveyed visitors to Quivira NWR indicated that they live within the local area. Nonlocal visitors (75%) stayed in the local area, on average, for 2 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 \$55 per person per day and local visitors spent an average of \$45 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 Quivira NWR expressed in dollars per person per day.

Visitors	n ¹	Median	Mean	Standard deviation	Minimum	Maximum
Nonlocal	100	\$42	\$55	\$57	\$0	\$313
Local	30	\$29	\$45	\$55	\$0	\$250

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 Quivira NWR were as follows (fig. 9):

- 92% were satisfied with the recreational activities and opportunities,
- 91% were satisfied with the information and education about the refuge and its resources,
- 93% were satisfied with the services provided by employees or volunteers, and
- 93% were satisfied with the refuge's job of conserving fish, wildlife and their habitats.

Although 11% of visitors (n = 17) indicated they paid a fee to enter Quivira NWR, the refuge does not charge an entrance fee. It is not known why some visitors thought they had paid an entrance fee.

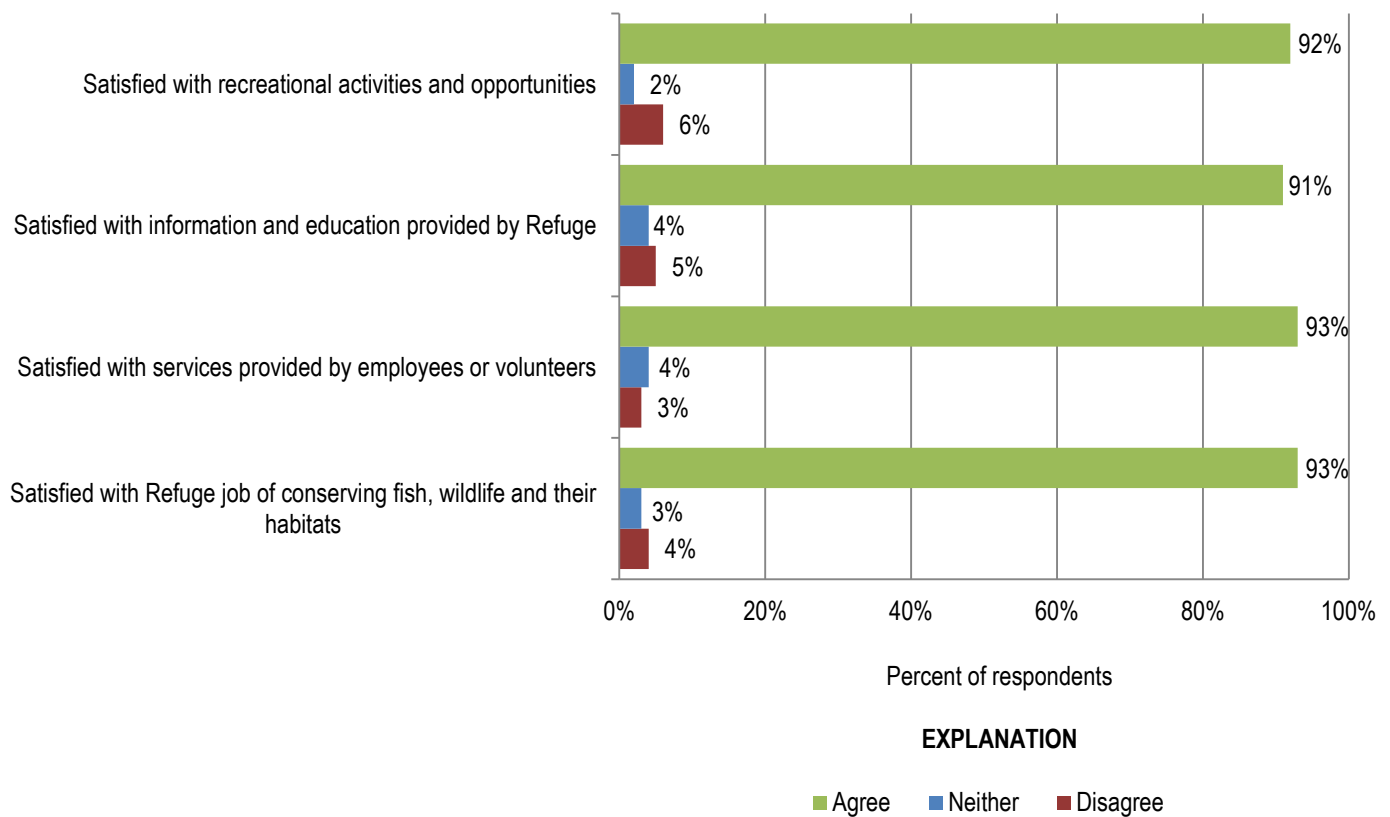


Figure 9. Overall satisfaction with Quivira NWR during this visit (n ≥ 140).

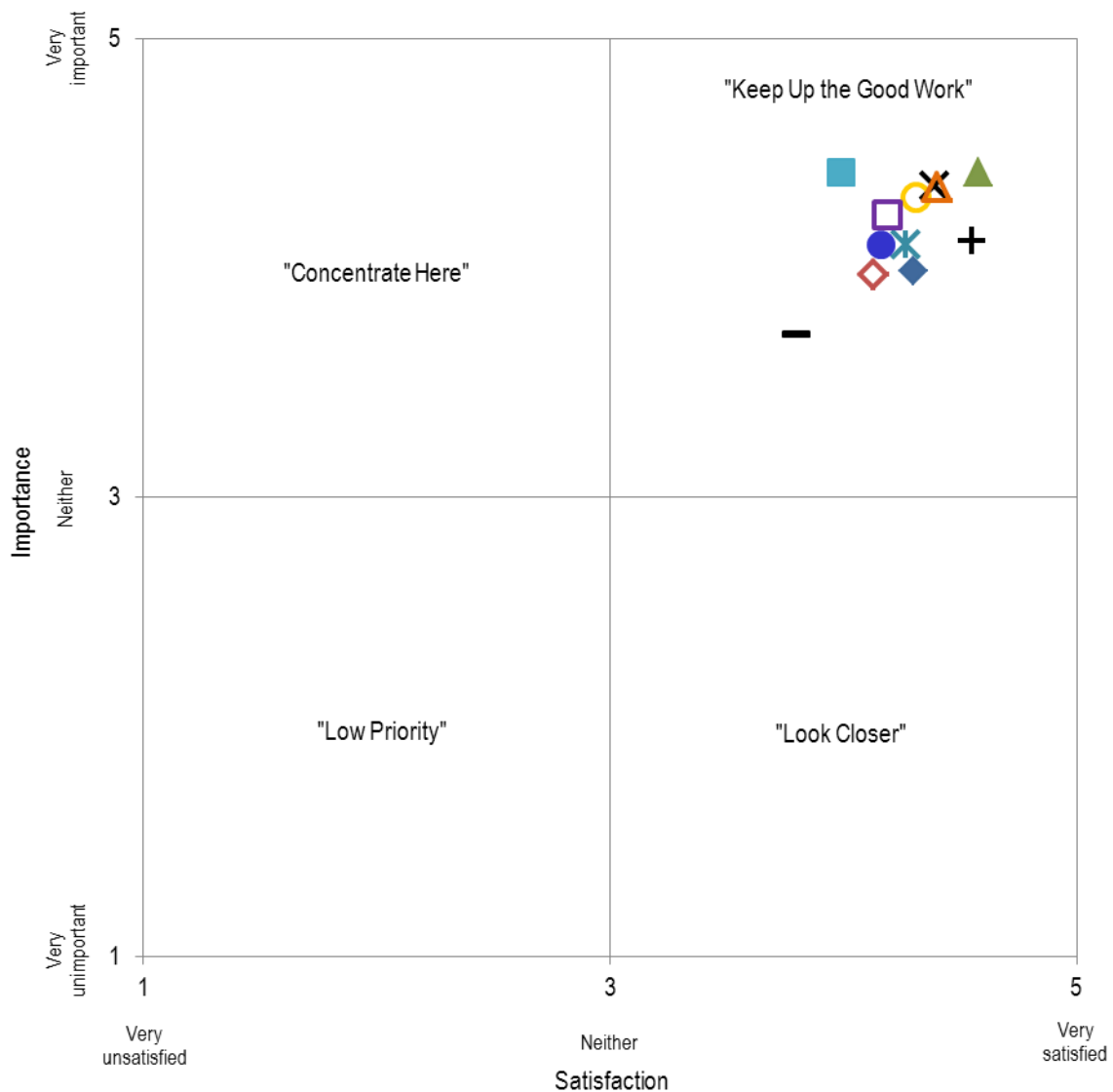
Importance/Satisfaction Ratings

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 Quivira 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.

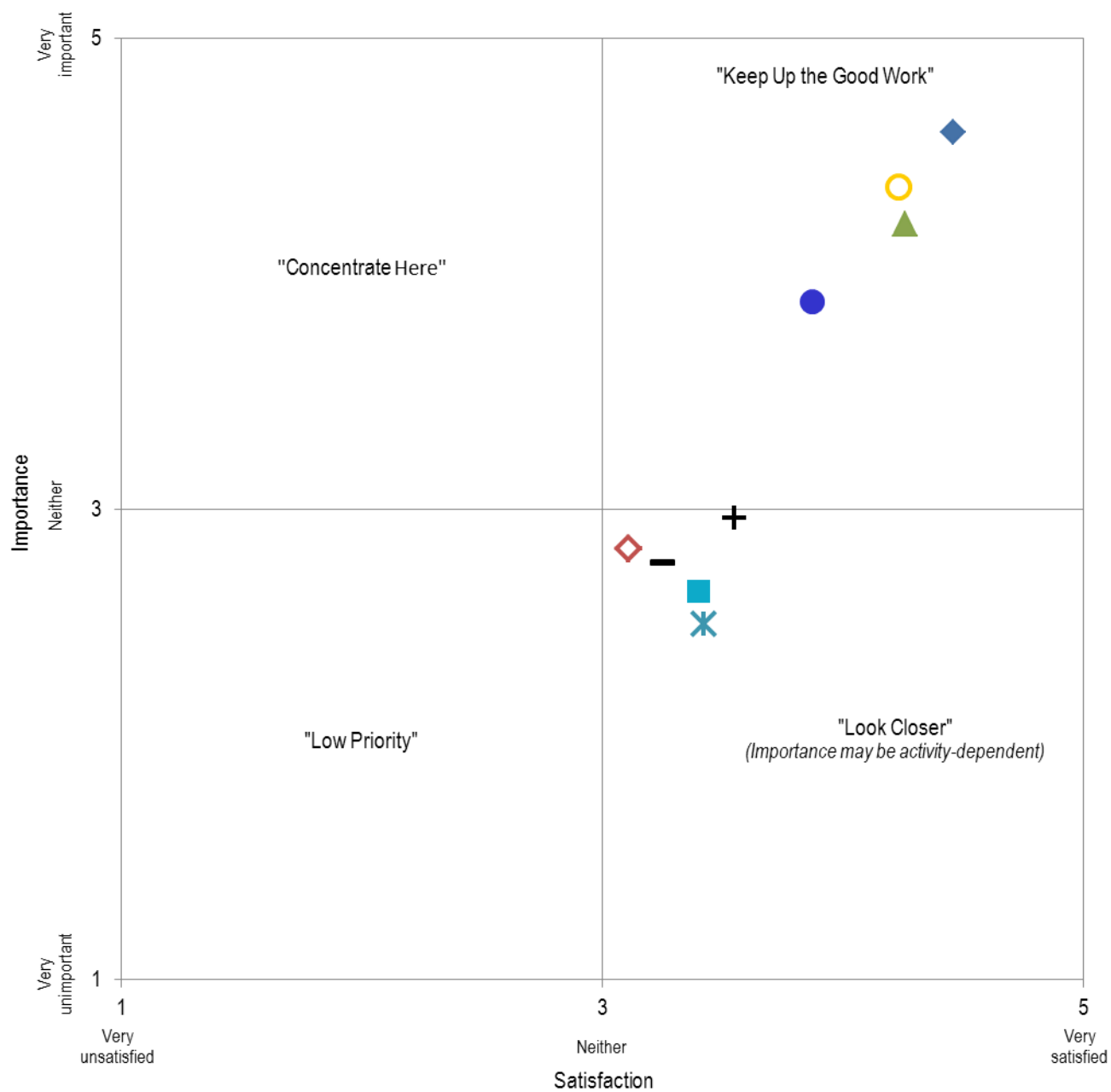
Figures 10-12 depict surveyed visitors' importance-satisfaction results for refuge services and facilities, recreational opportunities, and transportation-related features at Quivira NWR, respectively. All refuge services and facilities fell in the "Keep Up the Good Work" quadrant (fig. 10). Some of the refuge recreational opportunities fell in the "Keep Up the Good Work" quadrant except volunteer, kayak/canoe, bicycling, fishing, and hunting opportunities, which fell into the "Look Closer" quadrant (fig. 11). The average importance of fishing, hunting, bicycling, and volunteer opportunities in the "Look Closer" quadrant may be higher among visitors who have participated in these activities during the past 12 months; however, there were either not enough individuals in the sample to evaluate the responses of such participants or it is not known how many visitors in the sample participated in an activity. Boating is not allowed on the refuge, which may explain the low importance rating for kayaking and canoeing. All transportation-related features fell in the "Keep Up the Good Work" quadrant (fig. 12).



EXPLANATION

- ◆ Availability of employees/volunteers
- ▲ Knowledgeable employees/volunteers
- ✕ Informational kiosks/displays about this Refuge
- ◇ Exhibits about this Refuge
- Visitor Center
- △ Well-maintained restrooms
- + Courteous/welcoming employees/volunteers
- ✕ Printed information about this Refuge
- Signs with rules/regulations
- Environmental education programs/activities
- Convenient hours/days of operation
- Wildlife observation structures

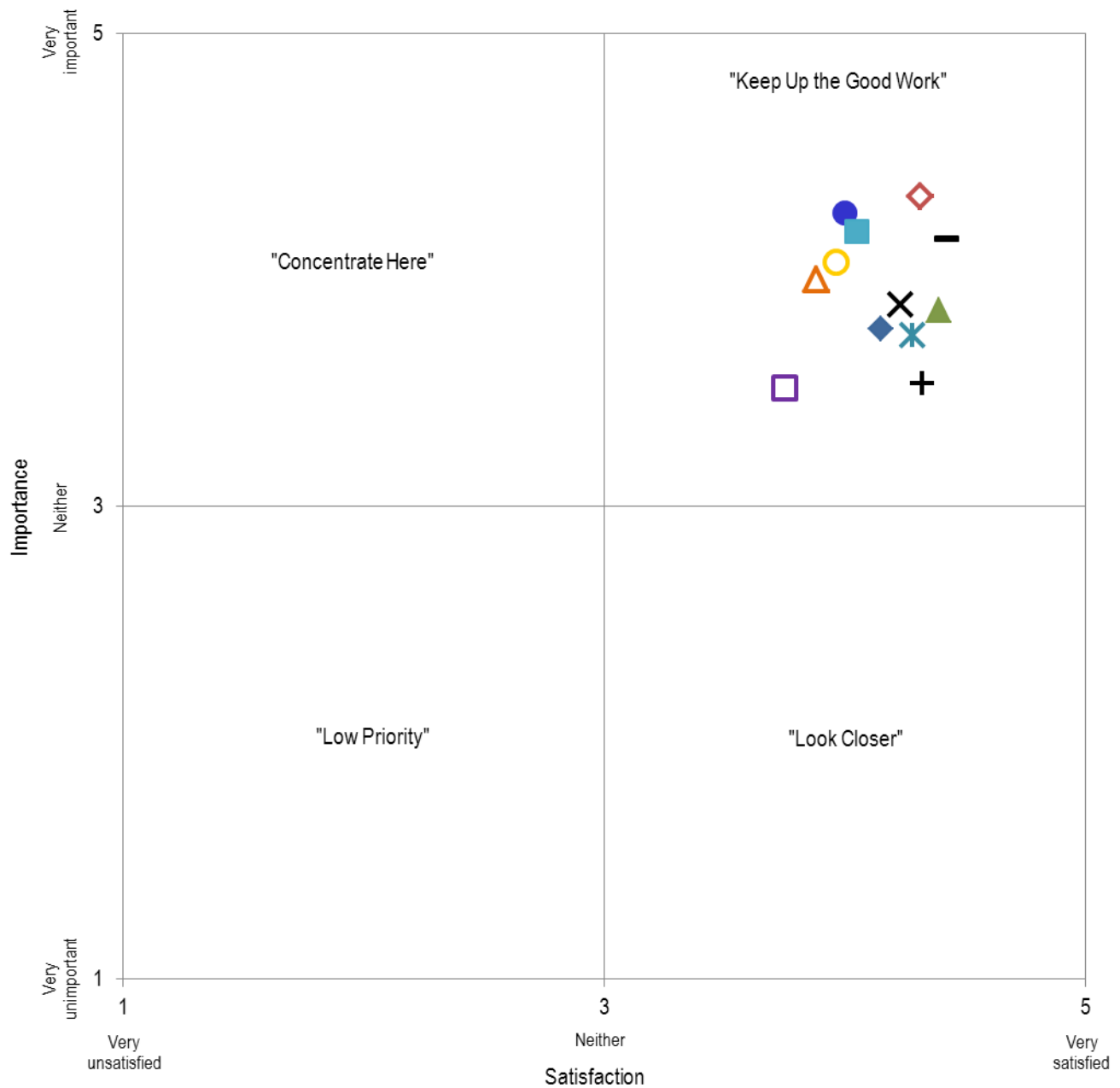
Figure 10. Importance-satisfaction ratings of services and facilities provided at Quivira NWR.



EXPLANATION

- | | | |
|-------------------------------|----------------------------------|-----------------------------|
| ◆ Bird watching opportunities | ○ Wildlife viewing opportunities | ▲ Photography opportunities |
| ■ Hunting opportunities | ✕ Fishing opportunities | ● Hiking opportunities |
| ◇ Kayak/Canoe opportunities | — Bicycling opportunities | + Volunteer opportunities |

Figure 11. Importance-satisfaction ratings of recreational opportunities provided at Quivira 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 Refuge | △ Directional signs on trails | □ Disabled access |

Figure 12. Importance-satisfaction ratings of transportation-related features at Quivira 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 Quivira 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 Quivira NWR visitors who were surveyed were likely to use the following options at national wildlife refuges in the future (fig. 13):

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

The majority of visitors were *not* likely to use a bike share program, a bus/tram that takes passengers to different points, or a bus/tram that provides a guided tour at national wildlife refuges in the future (fig. 13).

When asked about using alternative transportation at Quivira NWR specifically, 38% of visitors indicated they were unsure whether it would enhance their experience; however, some visitors thought alternative transportation would enhance their experience (20%) and others thought it would not (42%).

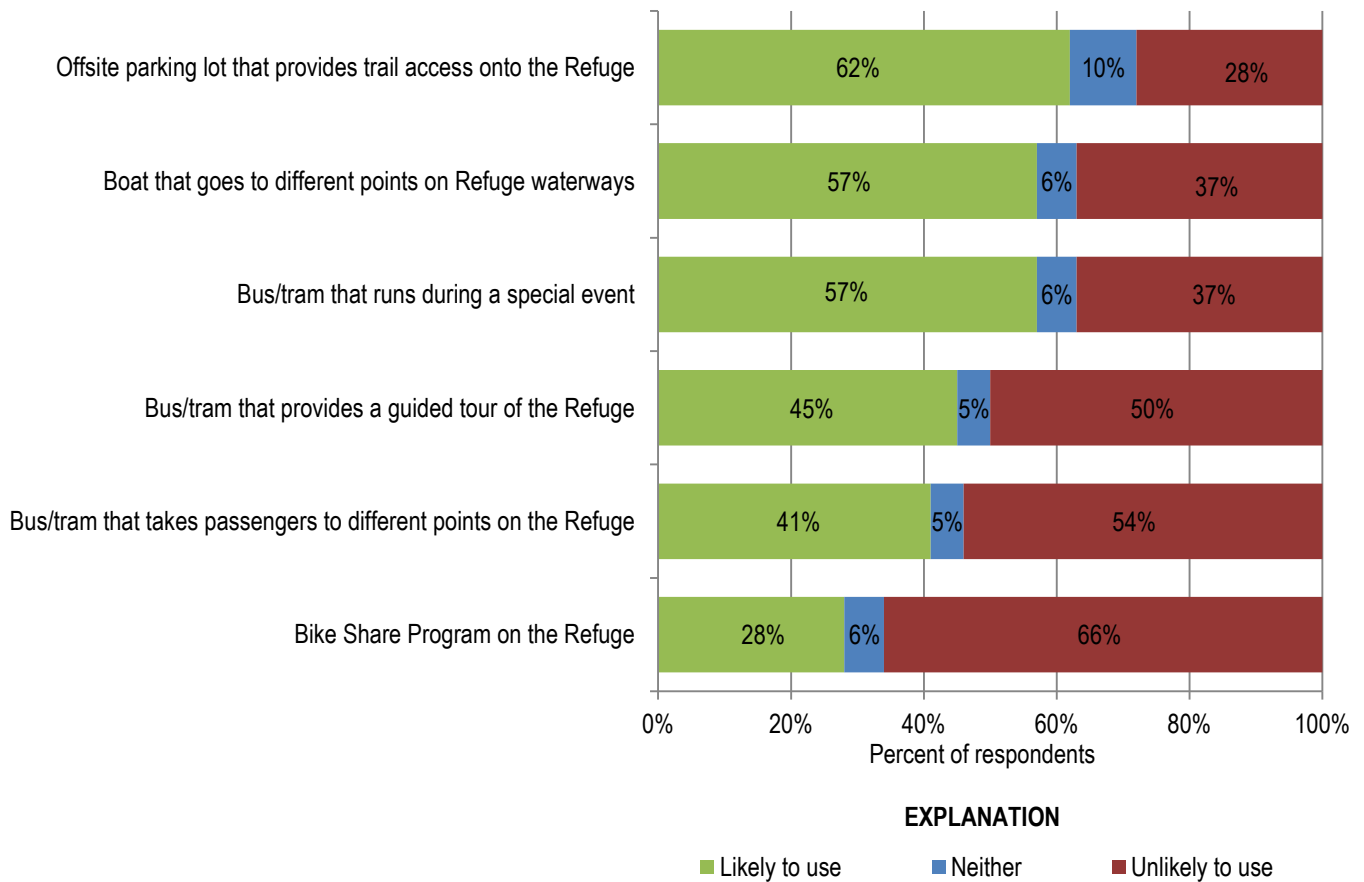


Figure 13. Visitors' likelihood of using alternative transportation options at national wildlife refuges in the future (n ≥ 146).

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 Quivira NWR agreed with the following statements (fig. 14):

- “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;” and
- “I stay well-informed about the effects of climate change.”

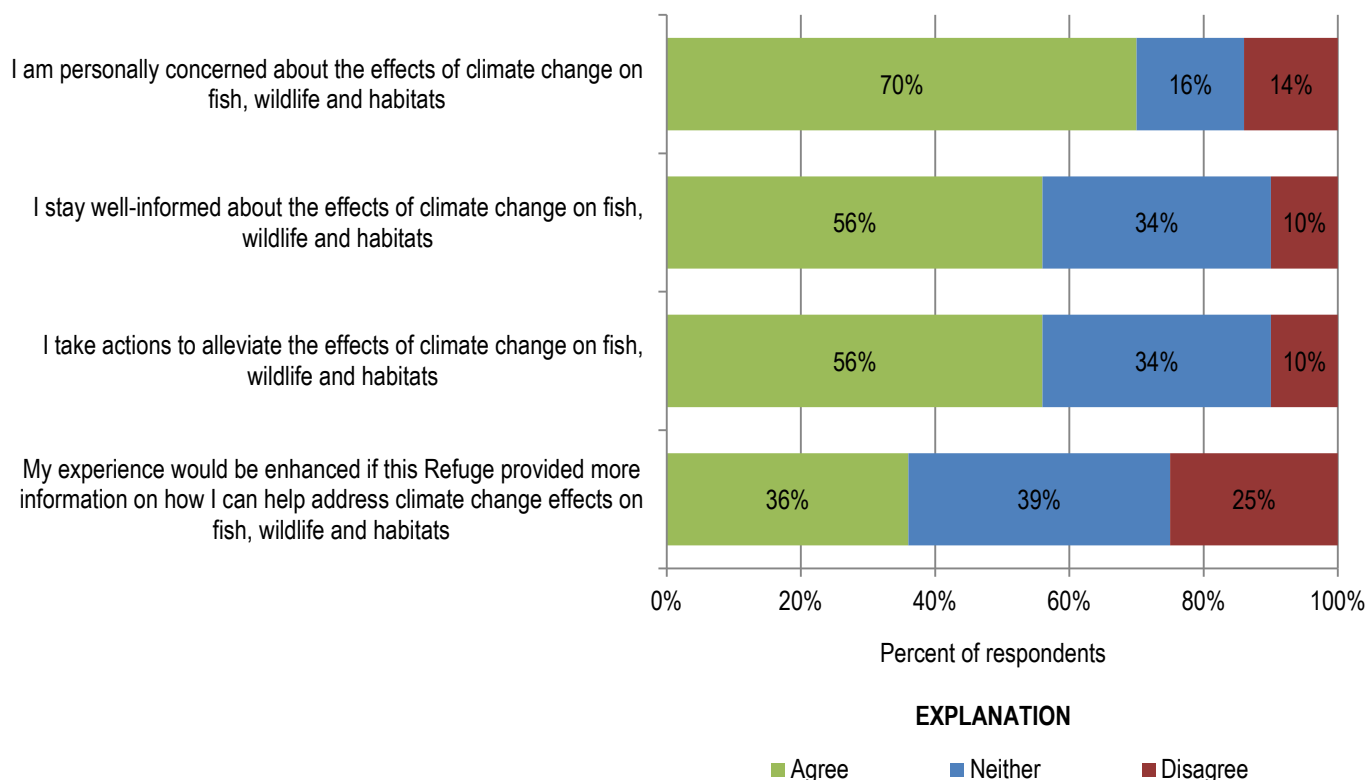


Figure 14. Visitors’ personal involvement with climate change related to fish, wildlife and their habitats (n ≥ 146).

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 Quivira NWR, the majority of visitors believed the following regarding climate change related to fish, wildlife and their habitats (fig. 15):

- “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 some visitors (36%) indicated that their experience would be enhanced if Quivira NWR provided information about how they could help address the effects of climate change on fish, wildlife, and their habitats (fig. 14), 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.

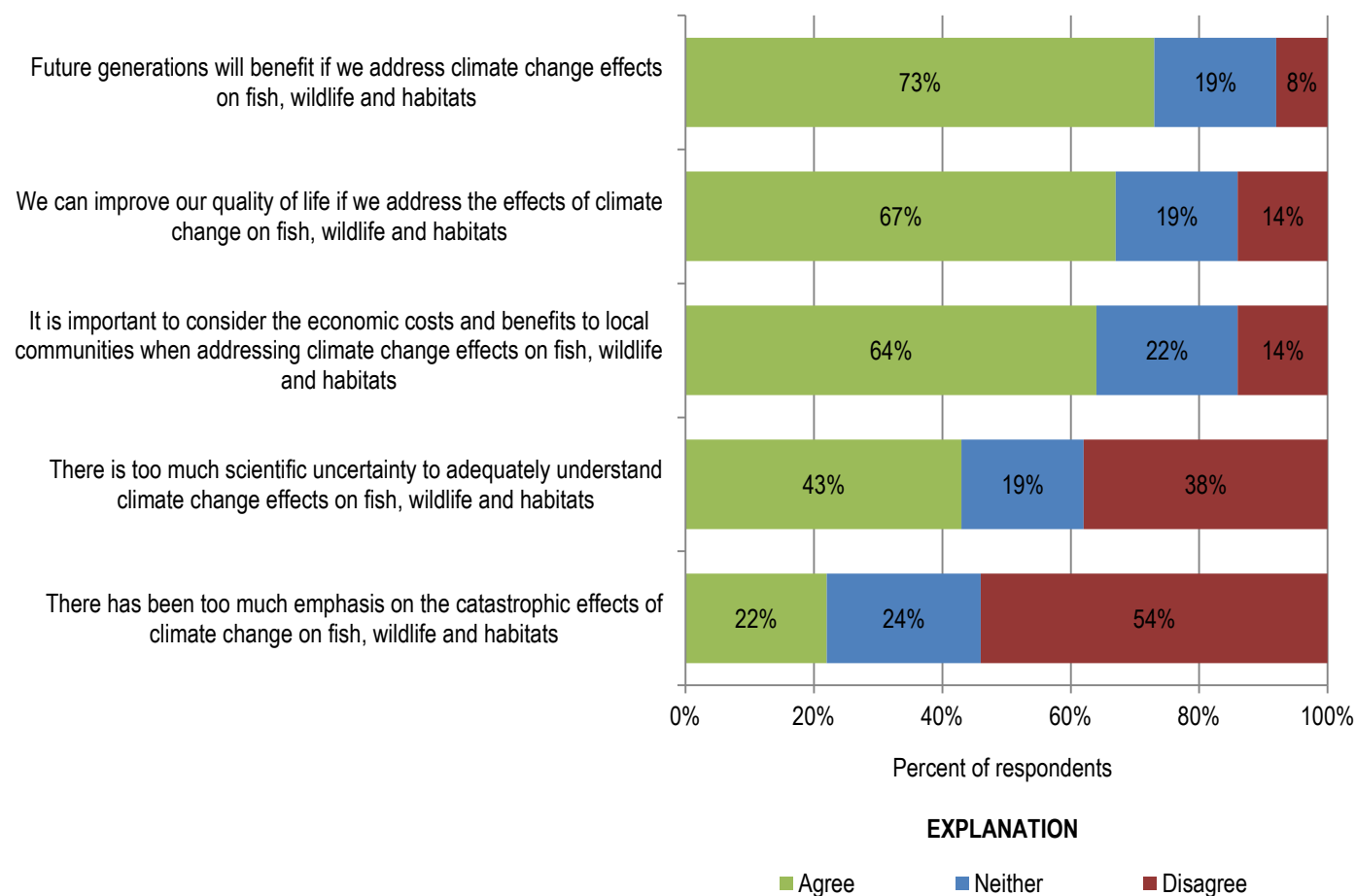


Figure 15. Visitors' beliefs about the effects of climate change on fish, wildlife and their habitats (n ≥ 144).

Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Quivira 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.

References

- Bruyere, B.L., Rodriguez, D.A., and Vaske, J.J., 2002, Enhancing importance-performance analysis through segmentation: *Journal of Travel and Tourism Marketing*, v. 12, no. 1, p. 81-95.
- Carver, E., and Caudill, J., 2007, Banking on nature 2006: The economic benefits to local communities of National Wildlife Refuge visitation: U.S. Fish and Wildlife Service, Division of Economics, Washington, D.C., 372 p., accessed September 30, 2011, at http://www.fws.gov/refuges/about/msWord/BankingonNature_2006_11-23.doc.
- Clark, J.R., 2001, Mission and Goals (National Fish and Wildlife Service Director's Order #132–601 FW1), accessed November 18, 2011 at http://www.fws.gov/refuges/policiesandbudget/HRI420_missionGoals.html.
- Dillman, D.A., 2007, Mail and Internet surveys: The tailored design method. (2nd ed.): Hoboken, N.J., John Wiley and Sons, Inc., 523 p.
- Krechmer, D., Grimm, L., Hodge, D., Mendes, D., and Goetzke, F., 2001, Federal lands alternative transportation systems study – Volume 3 – Summary of national ATS needs: prepared for Federal Highway Administration, and Federal Transit Administration in association with National Park Service, Bureau of Land Management, and U.S. Fish and Wildlife Service, 80 p. (Also available at http://www.fta.dot.gov/documents/3039_study.pdf.)
- Leiserowitz, A., Maibach, E., and Roser-Renouf, C., 2008, Global warming's six Americas: An audience segmentation: New Haven, Conn., Yale University.
- Martilla, J.A., and James, J.C., 1977, Importance-performance analysis: *Journal of Marketing*, v. 41, p. 77–79.
- Nisbet, M.C., 2009, Communicating climate change: Why frames matter for public engagement: *Environment*, v. 51, p. 12-23.
- Salant, P., and Dillman, D.A., 1994, How to conduct your own study: New York, N.Y., John Wiley and Sons, Inc.

- Sexton, N.R., Dietsch, A.M., Don Carlos, A.W., Koontz, L., Solomon, A. and Miller, H., 2011, National wildlife refuge visitor survey 2010/2011: Individual refuge results: U.S. Geological Survey Data Series 643.
- Stynes, D.J., 2008, National Park visitor spending and payroll impacts, 2007: East Lansing, Mich., Michigan State University, Department of Community, Agriculture, Recreation and Resource Studies.
- Tarrant, M.A., and Smith, E.K., 2002, The use of a modified importance-performance framework to examine visitor satisfaction with attributes of outdoor recreation settings: *Managing Leisure*, v. 7, no. 2, p. 69–82.
- Uniack, T., 1999, The citizen's wildlife refuge planning handbook: Charting the future of conservation on the National Wildlife Refuge near you: Defenders of Wildlife, Washington, D.C., accessed April 2010 at http://www.defenders.org/resources/publications/programs_and_policy/habitat_conservation/federal_lands/citizen's_wildlife_refuge_planning_handbook.pdf.
- U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, U.S. Census Bureau, 2007, 2006 National survey of fishing, hunting, and wildlife-associated recreation: U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., 168 p.
- U.S. Fish and Wildlife Service, 2007, America's national wildlife refuges, Fact Sheet, last updated July 31, 2007.
- U.S. Fish and Wildlife Service, 2010, Rising to the urgent challenge: Strategic plan for responding to accelerating climate change: U.S. Fish and Wildlife Service, Division of Refuges, Washington, D.C., 32 p., accessed April 2011 at <http://www.fws.gov/home/climatechange/pdf/CCStrategicPlan.pdf>.
- Vaske, J.J., Beaman, J., Stanley R., and Grenier, M., 1996, Importance-performance and segmentation: Where do we go from here?: *in* Fesenmaier, D.R., O'Leary, J.T., and Uysal, M., eds., *Recent advances in tourism marketing research*: New York, The Haworth Press, Inc., p. 225-240.
- Wade, D.J. and Eagles, P.F.J., 2003, The use of importance-performance analysis and market segmentation for tourism management in parks and protected areas: An application to Tanzania's National Parks: *Journal of Ecotourism*, v. 2, no. 3, p. 196-212.

This page left intentionally blank.

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"/> 0% Big game hunting	<input type="checkbox"/> 21% Hiking	<input type="checkbox"/> 4% Environmental education (for example, classrooms or labs, tours)
<input type="checkbox"/> 9% Upland/Small-game hunting	<input type="checkbox"/> 1% Bicycling	
<input type="checkbox"/> 13% Migratory bird/Waterfowl hunting	<input type="checkbox"/> 53% Auto tour route/Driving	<input type="checkbox"/> 4% Special event (<i>please specify</i>) <u>See Appendix B</u>
<input type="checkbox"/> 70% Wildlife observation	<input type="checkbox"/> 0% Motorized boating	
<input type="checkbox"/> 77% Bird watching	<input type="checkbox"/> 0% Nonmotorized boating (including canoes/kayaks)	<input type="checkbox"/> 5% Other (<i>please specify</i>) <u>See Appendix B</u>
<input type="checkbox"/> 2% Freshwater fishing		
<input type="checkbox"/> 0% Saltwater fishing	<input type="checkbox"/> 19% Interpretation (for example, exhibits, kiosks, videos)	<input type="checkbox"/> 1% Other (<i>please specify</i>) <u>See Appendix B</u>
<input type="checkbox"/> 51% 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?

<input type="checkbox"/> 30% No	
<input type="checkbox"/> 70% Yes → If yes, what did you do there? (Please mark <u>all that apply.</u>)	
<input type="checkbox"/> 50% Visit the gift shop or bookstore	<input type="checkbox"/> 14% Watch a nature talk/video/presentation
<input type="checkbox"/> 82% View the exhibits	<input type="checkbox"/> 75% Stopped to use the facilities (for example, get water, use restroom)
<input type="checkbox"/> 91% Ask information of staff/volunteers	<input type="checkbox"/> 3% 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**

59%	79%	63%	It was the primary purpose or sole destination of my trip.
33%	3%	27%	It was one of many equally important reasons or destinations for my trip.
8%	18%	10%	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 319 number of miles

Local 32 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?

31% No (*skip to question #9*)

69% Yes → What **type of group** were you with on your visit? (*Please mark **only one.***)

90% Family and/or friends

3% Organized club or school group

0% Commercial tour group

7% Other (*please specify*) See Appendix B

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

3 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.***)

64% Friends or relatives

14% Refuge website

18% Signs on highway

7% Other website (*please specify*) See Appendix B

14% Recreation club or organization

2% Television or radio

17% People in the local community

16% Newspaper or magazine

21% Refuge printed information (brochure, map)

12% 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.***)

59% Spring
(March-May)

22% Summer
(June-August)

64% Fall
(September-November)

29% Winter
(December-February)

11. How many times have you visited...

...this Refuge (including this visit) in the last 12 months? 4 number of visits

...other National Wildlife Refuges in the last 12 months? 4 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"/> 93% Private vehicle without a trailer	<input type="checkbox"/> 1% Refuge shuttle bus or tram	<input type="checkbox"/> 0% Bicycle
<input type="checkbox"/> 5% Private vehicle with a trailer (for boat, camper or other)	<input type="checkbox"/> 1% Motorcycle	<input type="checkbox"/> 11% Walk/Hike
<input type="checkbox"/> 1% Commercial tour bus	<input type="checkbox"/> 0% ATV or off-road vehicle	<input type="checkbox"/> 3% Other (<i>please specify below</i>)
<input type="checkbox"/> 1% Recreational vehicle (RV)	<input type="checkbox"/> 0% Boat	See Appendix B
	<input type="checkbox"/> 0% 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"/> 54% Signs on highways	<input type="checkbox"/> 13% Directions from Refuge website
<input type="checkbox"/> 21% A GPS navigation system	<input type="checkbox"/> 11% Directions from people in community near this Refuge
<input type="checkbox"/> 44% A road atlas or highway map	<input type="checkbox"/> 15% Directions from friends or family
<input type="checkbox"/> 15% Maps from the Internet (for example, MapQuest or Google Maps)	<input type="checkbox"/> 46% Previous knowledge/I have been to this Refuge before
	<input type="checkbox"/> 4% Other (<i>please specify</i>) See Appendix B

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"/> 37%	<input type="checkbox"/> 17%	<input type="checkbox"/> 5%	<input type="checkbox"/> 29%	<input type="checkbox"/> 11%
...a bike that was offered through a Bike Share Program for use while on the Refuge?	<input type="checkbox"/> 50%	<input type="checkbox"/> 16%	<input type="checkbox"/> 5%	<input type="checkbox"/> 23%	<input type="checkbox"/> 5%
...a bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources?	<input type="checkbox"/> 32%	<input type="checkbox"/> 18%	<input type="checkbox"/> 5%	<input type="checkbox"/> 25%	<input type="checkbox"/> 20%
...a boat that goes to different points on Refuge waterways?	<input type="checkbox"/> 25%	<input type="checkbox"/> 11%	<input type="checkbox"/> 7%	<input type="checkbox"/> 33%	<input type="checkbox"/> 24%
...a bus or tram that runs during a special event (such as an evening tour of wildlife or weekend festival)?	<input type="checkbox"/> 29%	<input type="checkbox"/> 14%	<input type="checkbox"/> 6%	<input type="checkbox"/> 28%	<input type="checkbox"/> 23%
...an offsite parking lot that provides trail access for walking/hiking onto the Refuge?	<input type="checkbox"/> 20%	<input type="checkbox"/> 8%	<input type="checkbox"/> 10%	<input type="checkbox"/> 36%	<input type="checkbox"/> 26%
...some other alternative transportation option? (<i>please specify</i>) See Appendix B	<input type="checkbox"/> 10%	<input type="checkbox"/> 0%	<input type="checkbox"/> 40%	<input type="checkbox"/> 20%	<input type="checkbox"/> 30%

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

☐ 20% Yes ☐ 42% No ☐ 38% 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 <i>Circle one for each item.</i>						Satisfaction <i>Circle one for each item.</i>					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
5%	15%	6%	46%	27%	Surface conditions of roads	5%	8%	7%	25%	54%	NA
6%	19%	12%	46%	18%	Surface conditions of parking areas	6%	2%	8%	20%	63%	NA
5%	9%	14%	41%	31%	Condition of bridges	6%	3%	6%	18%	68%	NA
4%	10%	12%	46%	28%	Condition of trails and boardwalks	6%	3%	15%	16%	61%	NA
4%	10%	17%	51%	19%	Number of places for parking	5%	2%	10%	24%	58%	NA
3%	3%	8%	41%	46%	Number of places to pull over along Refuge roads	4%	10%	9%	37%	40%	NA
3%	2%	3%	42%	49%	Safety of driving conditions on Refuge roads	6%	7%	2%	22%	63%	NA
4%	3%	10%	42%	41%	Safety of Refuge road entrances/exits	6%	1%	4%	24%	65%	NA
6%	5%	13%	33%	43%	Signs on highways directing you to the Refuge	7%	11%	5%	35%	43%	NA
5%	5%	10%	31%	50%	Signs directing you around the Refuge roads	4%	9%	8%	39%	41%	NA
4%	6%	16%	40%	35%	Signs directing you on trails	5%	8%	16%	36%	35%	NA
11%	6%	29%	31%	24%	Access for people with physical disabilities or who have difficulty walking	4%	5%	34%	26%	31%	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)?

☐ 25% Yes

☐ 75% No → How much time did you spend **in local communities** on this trip?

 2 number of hours OR 4 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	Amount Spent in Local Communities & at this Refuge <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
6%	6%	15%	9%	21%	9%	14%	4%	6%	3%	8%

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**.)*

6% Far too low 12% Too low 76% About right 6% Too high 0% Far too high 89% Did not pay a fee
(skip to Section 4)

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.

0% Strongly disagree 0% Disagree 13% Neither agree or disagree 44% Agree 44% Strongly agree

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.	1%	5%	2%	38%	54%	NA
Overall, I am satisfied with the information and education provided by this Refuge about its resources.	1%	4%	4%	43%	49%	NA
Overall, I am satisfied with the services provided by employees or volunteers at this Refuge.	1%	1%	4%	32%	61%	NA
This Refuge does a good job of conserving fish, wildlife and their habitats.	1%	3%	3%	24%	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 <i>Circle one for each item.</i>					Refuge Services, Facilities, and Activities	Satisfaction <i>Circle one for each item.</i>					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
1%	7%	14%	51%	28%	Availability of employees or volunteers	2%	6%	10%	22%	59%	NA
5%	4%	5%	45%	40%	Courteous and welcoming employees or volunteers	3%	3%	6%	12%	76%	NA
3%	2%	2%	34%	59%	Knowledgeable employees or volunteers	2%	3%	6%	13%	76%	NA
3%	2%	5%	34%	55%	Printed information about this Refuge and its resources (for example, maps and brochures)	2%	9%	3%	21%	66%	NA
3%	4%	8%	48%	37%	Informational kiosks/displays about this Refuge and its resources	2%	6%	8%	34%	51%	NA
3%	3%	15%	41%	38%	Signs with rules/regulations for this Refuge	2%	5%	13%	33%	46%	NA
2%	7%	11%	51%	29%	Exhibits about this Refuge and its resources	2%	6%	15%	34%	44%	NA
5%	7%	23%	43%	22%	Environmental education programs or activities	1%	3%	35%	36%	25%	NA
1%	4%	4%	43%	47%	Visitor Center	3%	5%	9%	24%	59%	NA
2%	0%	4%	42%	52%	Convenient hours and days of operation	8%	10%	9%	20%	52%	NA
2%	5%	5%	33%	55%	Well-maintained restrooms	2%	4%	7%	22%	63%	NA
1%	4%	7%	45%	42%	Wildlife observation structures (decks, blinds)	2%	3%	12%	39%	44%	NA
1%	3%	5%	17%	74%	Bird-watching opportunities	2%	3%	7%	21%	66%	NA
1%	1%	6%	42%	50%	Opportunities to observe wildlife other than birds	1%	7%	11%	28%	52%	NA
3%	4%	10%	34%	48%	Opportunities to photograph wildlife and scenery	2%	5%	12%	28%	53%	NA
44%	5%	17%	9%	25%	Hunting opportunities	9%	6%	45%	13%	26%	NA
39%	8%	24%	21%	8%	Fishing opportunities	1%	5%	59%	18%	16%	NA
8%	4%	12%	42%	33%	Trail hiking opportunities	0%	7%	24%	42%	26%	NA
24%	13%	27%	27%	9%	Water trail opportunities for canoeing or kayaking	3%	10%	69%	10%	8%	NA
24%	16%	27%	28%	6%	Bicycling opportunities	3%	4%	68%	18%	8%	NA
21%	6%	40%	22%	11%	Volunteer opportunities	0%	0%	65%	15%	20%	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?

89%

Yes

11%

No

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

91%

Yes

9%

No

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

93%

Yes

7%

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%	8%	16%	29%	41%
We can improve our quality of life if we address the effects of climate change on fish, wildlife and their habitats.	5%	10%	18%	31%	37%
There is too much scientific uncertainty to adequately understand how climate change will impact fish, wildlife and their habitats.	20%	18%	20%	31%	11%
I stay well-informed about the effects of climate change on fish, wildlife and their habitats.	2%	7%	35%	40%	16%
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.	3%	12%	22%	48%	16%
I take actions to alleviate the effects of climate change on fish, wildlife and their habitats.	3%	8%	34%	40%	16%
There has been too much emphasis on the catastrophic effects of climate change on fish, wildlife and their habitats.	30%	24%	24%	15%	7%
Future generations will benefit if we address the effects of climate change on fish, wildlife and their habitats.	3%	5%	20%	32%	41%
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.	11%	14%	39%	27%	9%

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?

99% Yes 1% No → If not, what is your home country? See Figure 4 in Report

2. Are you? 62% Male 38% Female

3. In what year were you born? 1953 (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)			
					1%			12%				52%				35%			

5. What ethnicity do you consider yourself? ☐ 3% Hispanic or Latino ☐ 97% Not Hispanic or Latino

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

<input type="checkbox"/> 3% American Indian or Alaska Native	<input type="checkbox"/> 0% Black or African American	<input type="checkbox"/> 95% White
<input type="checkbox"/> 1% Asian	<input type="checkbox"/> 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"/> 1% Less than \$10,000	<input type="checkbox"/> 17% \$35,000 - \$49,999	<input type="checkbox"/> 21% \$100,000 - \$149,999
<input type="checkbox"/> 4% \$10,000 - \$24,999	<input type="checkbox"/> 17% \$50,000 - \$74,999	<input type="checkbox"/> 5% \$150,000 - \$199,999
<input type="checkbox"/> 11% \$25,000 - \$34,999	<input type="checkbox"/> 20% \$75,000 - \$99,999	<input type="checkbox"/> 4% \$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.)?

20 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

This page left intentionally blank.

Appendix B: Visitor Comments to Open-Ended Survey Questions for Quivira 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
Benefit for the gulf oil spill, Monarch Mania	1
Christmas bird count	1
Church Women's Day Out	1
Church, Senior Outing	1
Fishing Clime, Refuge Day	1
Wings and Wetlands Birding Festival	1
Total	6

Other Activity	Frequency
Buy Golden Age passport	1
Museums	1
Obtain access pass	1
Running	1
View salt marsh	1
Whooping cranes	2
Total	7

2 nd Other Activity	Frequency
Renew Golden Age passport	1

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
Golden Age Passports	1
I was showing others who have never been there.	1
Obtaining Access Pass	1
Our Church Ladies Planned "A Day Out"	1
To pick up senior pass for camping	1
Visit	1
Total	6

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

Other Visitor Center Activity	Frequency
Birding around the Visitor Center	1
I inquired about new upgrades.	1
Pick up map	1
Total	3

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
Audubon group	1
Birding Festival in Great Bend, KS	1
Church ladies group	1
Hunting	1
Senior group from church	2
Wings 'n Wetlands Weekend	1
Total	7

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

Other Website	Frequency
Birding on the net	1
Birding on the net - Kansas	1
General Google search on wetlands	1
Googled things to do in Kansas.	1
Kansas birding listserv	2
KDWP	1
ReserveAmerican.com	1
Searched online for wildlife in Kansas	1
www.naturalkansas.org, KSBIRD-L listserv	1
Total	10

Other Ways Heard about This Refuge	Frequency
8 Wonders of Kansas	1
Atlas (highway map showing locations)	1
Birding literature	1
Birding magazine	1
Book - The Guide to Kansas Birds	1
Book: Birding Guide to Kansas & Western Missouri	1
Burroughs Audubon and Kansas Listserv friends	1
George Stumps Natural Trail Center	1
I saw it on the map.	1
Kansas State bird watching information	1
Kansas State Visitor's Information brochure	1
KWPA	1
Maps	1
Road Atlas	1
The Nature Conservancy staff	1
Tourist booklet	1
We visit NWR regularly all over the country	1
Total	17

Survey Section 2

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

Other Forms of Transportation	Frequency
Church bus	2
Convertible	1
Running	1
Total	4

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

Other Ways Found This Refuge	Frequency
Called the refuge	1
Information from Birding Festival	1
Kansas Hunt Registration	1
KWPA Brochure	1
Newspaper article	1
The pastor drove	1
Total	6

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
ATV	2
Bicycle	1
Canoe rental	1
Carpool	1

Electric, quiet bus, golf cart, etc.	1
Helicopter ride for photography	1
Offsite parking and personal bicycle	1
Personal car	2
Small plane	1
Total	11

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 = 38)

A few areas are difficult in wet weather. Most are fine.

A great refuge. Thanks! We have our own table and chairs, but had a hard time finding a place in the shade for a picnic lunch.

All of the above were fine.

Any transport around the facility would not interest us because we have a small pet and would not be able to take advantage of this service, but I'm sure other people would love it.

As a result of a Kansas State Visitor's Information brochure, I was very keen to see Quivira. However, signage was extremely poor from I-70. Also, the Magellan GPS we used did not list Quivira. The AAA Kansas State map & guide gave either cursory directions or none at all. Yet, Quivira was magnificent and needs more publicity!

As long as the gravel (sand) roads aren't washboard, I'm good. If the sand isn't too deep - low water bridges are cool.

I believe a different type of material could be used on refuge roads. The roads are very, very dusty during dry conditions, which make it very hard to breathe and stir up big dust clouds during busy conditions.

I don't agree with all trees being cut down at once. There wasn't as many birds like there used to be.

I don't like the bridges/cattle cross gates because they could break my dog's leg if he stepped into or ran over them.

I enjoyed tram rides and special events.

I find roads to be much improved from past years.

I had no problems getting around. However I was not there during any bad weather.

I know this place like the back of my hand, but many visitors have trouble finding their way to the Wildlife Drive, which is the best spot. I often encounter people needing directions.

I think you would get more out-of-state visitors if you had tour busses, perhaps tour air boats, or possibly hot air balloon trips over the refuge.

I was not the driver and have not asked about transportation issues.

I wasn't in the refuge long enough to evaluate the issues above.

I would have been stuck in the mud if not for 4-wheel drive.

I would like to have more walking trails.

It would be nice to use a nonmotorized boat.

Keep it simple.

Need better signage on roads between ponds to identify the ponds and the road turns.

Please put more signs on highway.

Quivira is great. Access and roads are in good condition, but it all depends on water levels, mud, etc. Fish and Wildlife has been doing a great job here for 20 years.

Some highway access points to this area had NO signs directing us to the refuge. It took us a bit longer, but we eventually found another entrance.

Sure could use a restroom facility near the Big Salt Marsh.

The dirt roads are generally in excellent condition.

The map directions to the headquarters were wrong, leading us off the refuge. Luckily, we happened onto it by accident.

The most important issue for me is keeping the refuges somewhat wild. And the biggest way for this to happen is to keep the roads as gravel and not make them into a paved highway.

The north dirt road leading into the refuge is deplorable. It was the only road we knew about at the time, and it was terrible for miles and miles.

The roads of sand have a high center. I was afraid of getting stuck. For this reason, I did not go all the way around. I would have liked to spend more time there, but I was afraid of getting stuck. "Sandy roads."

The sand road from the south entrance heading south to the blacktop road of about 1 mile was bumpy and very rough. We all have budget constraints, but that road needs to be improved significantly. The roads within the refuge were fine.

There is no need for a bus or tram on the refuge. Leave that for Disney World! This place is beautiful just the way it is, naturally. I do wish people could be more monitored and more responsible for picking up their trash! Thank you.

There needs to be more signs with directions to the refuge and signs showing how to get back to various towns nearby.

Though there are times when road conditions are iffy, it keeps traffic from blowing through. Only serious birders come here. If road conditions were "improved," past experience has proven that when there is increased traffic, there is little desire for the reasons for visiting. This is one of the few refuges I've visited where wildlife is nearly an arm's length away. Don't change anything - don't ever put limestone gravel on the roads - this was done once and it was a dust nightmare and the pristine experience I've always enjoyed here was

compromised..

Very well run refuge! I enjoy seeing all the work that has occurred lately. Great to see the trees being removed and the use of controlled burns!

We always seem to get a little lost on our way to the Refuge, missing the turnoff for the road to get us to the Upper Marsh. A little more signing might be helpful, but not too much!

We got slightly lost travelling around the refuge. We wound up near with pumice on roads. Probably misread the map.

We use the refuge for waterfowl hunting and carry in quite a bit of gear. Some areas of the refuge are very remote from the parking areas and roads. This results in several hunters in the same area, since it is too far to hike into the remote areas. If there was vehicle access to the northwest area of the refuge, hunters would be able to spread out more, resulting in a safer and more enjoyable hunting experience.

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 = 59)

A bathroom somewhere near the wildlife loop would be popular and well-used.

A restroom facility at the Big Salt Marsh would be ideal for birders and wildlife viewers, as it is where the majority of their time is spent and far from other facilities on the refuge.

Great driving route. Excellent wooded area. High quality trail. Well-maintained. We just wish there was a sheltered area on the auto route where cars can pull off and there would be shade for a picnic. We have our own table and chairs, but had to picnic under a tree in the poison ivy - not too fun.

Have enjoyed hunting and visiting since 1972.

I believe the opportunity to view wildlife has been greatly diminished by the expansive removal of trees and underbrush considered "non-native." I don't see the number of deer or turkey I used to see. Perhaps this will improve later. It was devastating to see all the cover removed at once. Some red cedar provides valuable food and cover for wildlife and is sold in wildlife bundles here for people to plant and can be managed without total removal. A wonderful secluded woodland area was totally taken out by the fishing pond. I loved walking the trail there in the silent and secretive area with pockets of places to sit and listen to the birds. No services are available on weekends and many people go to the refuge to view whooping cranes and other birds during high migration periods.

I come to observe the wildlife, including birds; however, it takes too long to get there and back, so I spend my time observing rather than using the services, facilities, and activities. If I were closer and could get there more often, they would rise in importance to me.

I have gone to this refuge for at least 45 years. The roads were not marked at all then. There was no visitor center. The greatest improvement in facilities is the outdoor toilet. Our stays used to be limited by that. I believe any "improvements" now must be for wildlife, not people.

I hope the center will be open another time we are there. We did not have enough time to enjoy all the activities available to judge them.

I just hope that the refuge stays "wild." Not that I don't want other people to be able to enjoy the refuge, but busing people through? I hate to think that way, but some things are better left untouched.

I know the Visitors Center is working on a bookstore, etc. - I would like to see an embroidered patch to add to my collection of birding patches of other places I've visited and birded. Just a thing.

I love to hunt Quivira, but I was disappointed when it closed due to whooping cranes in the area. I'm a quail hunter and don't believe I would mistake a quail for a whooping crane.

I once completed a volunteer form wishing to volunteer my time and never received even a response from the system.

I think that it is time to open this refuge to bow hunting for whitetail deer. You could make permits by draw only and raise much needed funds for the refuge. Also, a draw for spring turkey hunting would bring in much needed funds without hurting the population.

I thoroughly enjoy the refuge; however, I spend too much time in my car. After a 90 minute drive, I want to get out and walk and explore. I would enjoy more hiking trails. The one I found was closed.

I was kind of disappointed at how few displays there were, but what they had was good. Employees were friendly and helpful.

I would like to see the refuge stay open for quail hunting even though whooping cranes are there.

I would like to suggest the placement of a video camera on either the viewing platform or the camera blind. This would give those who are unable to travel to the refuge an opportunity to view what they are missing. It would also confirm the presence of cranes when we are planning to visit. Each time I was there this year, I was shut out. I only found cranes at Cheyenne Bottoms.

I'm an avid fisherman with four children. The fact that there is a nice, well-maintained and stocked fish pond was extremely nice. The fact that kids were able to catch big fish was mind-blowing. We will be returning with kids pretty often.

It is very nice and clean.

It was great being able to visit without a fee, especially during this hard economic time.

It would be nice if there was more access to the south end of the Great Salt Marsh. Currently, there is a relatively new pullout to the southwest, but this is extremely distant from water.

More restrooms would be useful, especially near the Wildlife Drive.

More structures for wildlife observation would be great.

Most of the time I visit is during the weekends, so the Visitor Center and staff are not on duty, nor are volunteers.

My dissatisfaction is due to a policy to completely close hunting opportunities when whooping cranes are present. Upland should not be closed - ever. Waterfowl I can see in the areas the cranes are using. Goose-only would be ideal. Ducks should be open.

My limited time at the refuge limits my knowledge of some previous questions.

Need more strips of Milo in the hunting areas. Increasing pheasant and quail populations is very important. Years ago, there was a nice strip of Milo in the area I like to hunt and hunting was very good. Now, no Milo and hunting is not so good.

On Day 1 of our visit, we were able to sit in the car and observe 2 Whooping cranes within 50 yards for approximately 2 hours, without stressing the birds or affecting their feeding behavior. On Day 2, we went to photograph the cranes. Asked at the Visitor Center if we could get out of the car and stand behind it to photograph, if the birds were relaxed and not on alert. We were told it would be OK. Found the birds, again within about 50 yards of road. Stopped across the road from them, waited to allow them to relax, but immediately a "ranger" pulled up, motioned us to drive up the road, and told us we could not even stop near the birds and threatened that if the birds flew, we would be given a huge fine. As we were driving onto another area, we noted a road grader working the road near the cranes, which frightened the

cranes and they flew off. Unfortunately, we did not get the name of the person who was very rude, nor do we know his exact position. The message provided to visitors by personnel should be consistent. Refuges are a resource for the U.S. public; visitors are encouraged to observe, admire, and understand wildlife. We strongly resent the strong arm, intolerant, rude behavior of the "ranger." We have been watching and photographing birds for over 40 years and know how to determine when birds are stressed and would not do anything to negatively impact the birds. If it was determined that we could not stay on the road near the birds to quietly photograph them, it would seem that the refuge would be sensitive enough to grade the road at a different time when the birds were in other locations, so that they were not flushed from their feeding site. The inconsistent message and rude behavior made our visit less than optimal, although the opportunity on Day 1 to closely observe the birds for an extended period of time was memorable.

Only once have we met any employees (when I agreed to do this survey). Also, more bathrooms would be great, and more open hours for the Visitor Center.

Only problem was the terrible road situation. It would have taken a tow-truck to get us out, if not for the 4-wheel drive.

Please keep small game hunting open with KWP season. Do not close for whooping cranes. We do not hunt where whooping cranes are located.

Possibly incorporate exhibitions by different artists or experts on wildlife, including craftsmen. Possibly have photo blinds close to wildlife that a person can rent in advance. We have this at the Rowe Sanctuary in NE.

Quivira is one of the premier bird watching spots in the country.

Restroom facilities are minimal!

Staff needs to remember that they are the "face" of the refuge and should seem happy talking to the public. The staff on my last visit was terrific!

The "young" girl seemed more concerned with talking about this survey than about giving me information about the refuge.

The attendant was very helpful and knowledgeable. He pointed us to the best locations to find birds and even looked up on the internet a Cassin's sparrow so we could hear its song. He was really helpful.

The first Visitor Center we ran across did not open until Sunday afternoon and we did not want to wait a couple of hours. The second one, which was by observation decks, was open, staffed by knowledgeable people, but very limited. Very small book center/very few displays/clean restroom.

The Fish & Wildlife Officer was very knowledgeable, helpful, and obviously very dedicated.

The management philosophy seems to have changed to preserving the refuge to its original state. This is interesting to watch.

The ranger was friendly and knowledgeable.

The refuge manager was present at Visitor Center on Sunday morning and was extremely welcoming and helpful.

The refuge staff has always been very courteous and helpful to me.

The staff at the Visitors Center was informative and welcoming. Refuges are a treasure in North America.

The staff was friendly.

There has been a big improvement since our past visit 4 years ago.

Very courteous staff, nice Visitors Center. I would like more specific information about where bird species are being seen on the refuge.

Very satisfied, both the wife and I.

Very well run!

We have visited this refuge for 5 years, each time during the week after Thanksgiving. Whooping cranes have migrated into the area 4 of the last 5 years during this week, and we upland game hunt. The refuge is closed to all hunting while they are in the area. I understand duck and goose hunting, but I don't understand closing upland game hunting. For 2 years, we did not even get to hunt the refuge due to this rule. I would like the rule changed to only closing duck and goose hunting while whooping cranes are in the area.

We loved it - we are recommending this experience to family and friends.

We saw 4 whooping cranes that day at the park and more bald eagles than I've ever seen before. Tax money well spent. Thank you for maintaining our parks!

We were fortunate to run into a wildlife employee on both of our last two visits. This really enhanced our visit, as we were able to pick their brains about what we were seeing and what other birds to be on the lookout for. We found out that this was just a lucky coincidence and not the norm. What a shame!

Weekends are full of visitors, but facilities and on duty staff for questions on weekends is limited to non-existent.

Went to Visitor Center, but it was closed on Sunday morning.

What is best for wildlife and preserve the area to provide best stewardship - people must observe rules to sustain the refuge.

Would like to be able to hunt waterfowl more often. The refuge closes when the whooping cranes are migrating through, which in recent years has lasted 4 or more weeks. The refuge opens when the cranes are gone and typically freezes over within the next few weeks.

Would like to see blinds for serious photographers - like at Rowe Sanctuary. Two people to a blind (spend the night) by reservation only.

Would like to see more hiking trails, maybe with maps for the hiking trails.

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 = 121)

A large concentration of some targeted wildlife species and a large and unique preserved habitat that I could otherwise not spend as much time in.

A place to see wildlife in its natural habit.

A refuge is wildlife's last stand. When wildlife can't survive, we are next.

A special nature land for wild animals and birds makes it unique. Please keep it forever.

A variety of areas to see wildlife.

Abundance of wildlife.

Access to the wildlife and the opportunity to be local without the "National Park" experience of crowds, etc.

Access to wildlife.

All the migrating birds make it unique.

Because it's a place for the animals to escape to and be safe.

Because of the importance to birds.

Being able to observe in an environment that is as natural as possible.

Being able to relax and see the countryside makes it unique.

Being on the central flyway, migrating shorebirds and water birds, and very unique habitat!

Best places to see birds. I always go to the national wildlife refuges to see birds.

Better information and services than National Forests or BLM lands. National Parks and Monuments are also excellent, but there are nowhere near enough of them. NWRs provide a critical resource for wildlife conservation and management.

Birds, birds, birds.

Conserve and manage.

Duck, geese, and whooping cranes.

Each is managed for game for their area and they usually have lots of game.

Education about the natural state of the land and wildlife not found in other parks is a big plus. It attracts other like-minded people and gets the word out about conservation.

Ensures our country's future. Without preservation, we have no history; thus, we have no future.

Excellent bird watching opportunities.

Gives individuals the opportunity to see organisms within their natural environment. This is extremely important as we become a more urbanized society.

Good habitat for bird watching.

Good opportunities for the public to see preserved natural habitat.

Good place to hunt and observe wildlife.

Habitat conservation and preservation.

I am primarily interested in bird watching. Refuges offer the best opportunities for watching birds. I like that these places are managed for wildlife. However, on my last visit to Quivira, I noticed long-horned cows in a few ponds. I don't think allowing cows in water set aside for migrating birds is a good idea.

I believe that the Refuges are able to provide better habitat for the wildlife because that is the primary mission. With this as a primary focus, the staff is able to maintain and modify the food resources that are vital to the migratory wildlife better than other public lands.

I believe this place is all about the animals and preserving the land for all its animals for future generations to observe and enjoy.

I did not realize that we, Kansas, had a salt marsh. I really appreciate the lack of trash and human intervention. No picnic tables or jungle gyms. It really is for the birds.

In our world of disappearing wild lands, these wildlife refuges are real treasures and havens for the wildlife that they support. They should be strictly managed for the wildlife habitat that they provide and nothing else; no development, no extraction, and no disturbance.

In such a crazy world full of traffic jams, noise, concrete and pavement, it's nice to be a part of the natural world. We felt as if we were a million miles from the "problems" of the real world. Seeing the whooping cranes was an experience we will never forget. What a treasure!!

It is a large scale area that attracts wildlife to quality habitat.

It is different than Yellowstone, for instance, but bad (sandy) roads, tall grass, not many people, and not being able to compare a map of the area with the area itself took away from my enjoyment.

It provides many different ways to participate in the outdoors.

It's a wonderful opportunity for viewing migratory birds.

Its excellent bird watching, and wildlife numbers and species diversity make it unique. Generally not crowded, too!

It's in Kansas, the land of "Ahhhs."

It's located on a major migratory flyway. I meet many bird watchers from other parts of the country at the refuge.

It's nice that securing a safe place for wildlife is the most important thing. It's great to see them, but it's more important to protect them and their habitat.

Keeping people under control and providing educational information.

Knowledgeable staff. Excellent wildlife observation opportunities.

Less structured and formal, but enough to where I don't feel unsafe.

Lots of bird hunting opportunities.

Many miles of land to hunt and explore. No houses. It is more back to nature than hunting on some farmer's ground. Abundance of wildlife always makes for an interesting visit.

More natural setting. Diversity of wildlife available for viewing.

More open space. We went through when two whooping cranes were there. Loads of snow geese, pelicans, etc. There were no crowds since we traveled through on a weekday.

More wildlife and chances for close observation.

Multiple recreational activities are allowed, and not just nonconsumptive uses. Refuge plans provide opportunities for a variety of guests with various interests. I appreciate hunting opportunities on refuges, which some construe as only sanctuary (no hunting) areas.

My favorite and closest NWR is Quivira in Kansas. It has been designated as a wetland of international importance. It is a flat sandy place with little riparian forest. It seems like they do a good job of maintaining the prairie grasses by burning and grazing cattle. Management currently is removing non-native trees, particularly Eastern Red Cedar. That changes the appearance of the refuge, but probably is a better representation of the years-ago refuge environs than the trees permitted.

No cages; natural environment; large area for wildlife to do their thing; no vending machines. The Visitor Center was not open during my visit. Vending would be ok there.

Nothing is fake - it is the natural surrounding for each wildlife "critter."

NWR and the wilderness system may not have the exoticness of the Dept. of Interior facilities, but they are both more pristine than the Dept. of Interior facilities.

NWRs are wonderful places. Refuges are unique, because the emphasis is on nature, and not on being entertained by others. You make your own experience in nature. Mostly, they are not crowded (a plus) and provide excellent access to special places with unique habitat.

On the central flyway.

Opportunities to see many birds, usually waterfowl, make it unique.

Plans for animal observations are more efficient.

Preserves habitat that is important for wildlife maintenance; other public lands do not. Refuges are especially important for those who love to view wildlife without hunting (although this is important as well).

Protects wildlife, yet gives people a chance to get acquainted with it. Most importantly, the refuges should protect the habitat.

Quivira NWR provides a unique experience for hunters when the refuge is open to hunting.

Rare inhabitants such as the whooping crane are common.

Refuges are more for the preservation of the wildlife and provide an opportunity for the public to observe that wildlife. Other public lands provide recreational opportunities and may be detrimental to the habitat and/or the wildlife.

Refuges are often unspoiled, rarely crowded (like many national parks are), and have knowledgeable staff who have the time to talk to visitors. And the habitat that refuges preserve is often critical for migrating birds.

Refuges are unique because of their primary focus on land and water management for plants, birds, and wildlife, yet this focus does not preclude compatible recreational and agricultural use. Refuges provide important habitat for endangered species as well as common species, opportunities for viewing birds and wildlife, and education programs. However, at the same time they allow, when appropriate, hunting, fishing, canoeing, and walking, and other compatible activities. Refuges can be managed to allow agriculture and forestry uses that are compatible and not in conflict with their wildlife and botanical preservation mission.

Refuges are unique in their efforts to create up-close and personal nature experiences for various levels of users while still protecting wildlife and habitat.

Refuges exist to preserve our natural resources and thus are not commercialized and do not need to provide many amenities (campgrounds) that can detract from the natural setting. Low volume of visitors and vehicles makes viewing birds and other wildlife easier and less stressful than at other more crowded federal parks.

Refuges help us glimpse a wild America that we don't see every day. The ability to view wildlife in their environment helps us to understand why we and the animals need wildlife refuges and why we should expand them and manage the wildlife on them better.

Refuges provide an opportunity to view and study a more concentrated population of various wildlife. In some cases, it might be the only opportunity to see and photograph certain birds.

Resources that offer educational and recreational activities outdoors are valued by my family.

Seems to have more of an emphasis on conservation of habitat and less on recreational use.

Shows the environment at its worst/best and what we need to do to maintain or improve conditions.

Since refuges are primarily managed for wildlife conservation, they provide unique opportunities to observe wildlife in their habitats.

Size and access to large populations of wildlife for viewing/photography. Special population of species such as whooping cranes, terns, etc.

The ability to do more than just hunt and fish. Waterway access and nicely groomed trails make it unique.

The ability to see wildlife and birds in their natural environment makes it unique.

The ability to view wildlife is usually very good at NWRs and that is my primary reason for visiting.

The abundance of waterfowl and upland bird hunting. As whooping cranes make their comeback, the refuge has been closed over one month this year to ALL HUNTING. It's very disappointing.

The abundance of wildlife; the natural beauty of the surroundings.

The beautiful birds, deer, and other wildlife for future generations to see!

The complete stewardship in conservation and preservation is the satisfaction I enjoy most. I was at the refuge on the morning of 9-11-2001 - very, very safe and tranquil there.

The concern for the wildlife more than us tourists - a good thing!

The emphasis on managing for waterfowl and other animals as well as the opportunities to view them.

The fact that, aside from maintenance and necessary signage, they are relatively unspoiled pieces of nature.

The focus of NWRs is typically on the wildlife rather than on recreational opportunities for people. I appreciate this.

The habitat is very well-kept to continue encouraging the wildlife to return and have a safe and realistic environment for future generations. I want to see my grandkids and their kids and their kids enjoy the same enjoyment I get from watching wildlife in its own habitat like sandhill cranes and especially the whooping cranes.

The number of birds at the refuge makes it unique.

The opportunity to get out of Dodge and enjoy the quiet (no honking cars, noisy trucks and buses, large crowds of people).

The opportunity to observe birds and other wildlife in the most natural setting possible makes it unique.

The opportunity to view wildlife at all times of the day.

The refuges I have visited seem to pay particular attention to having water control structures to maintain excellent quality shorebird habitat and/or waterfowl habitat. This is critical to bird migration through Missouri and other flyways.

The size and different hunting aspects of the refuge make it a great place to visit. Please keep hunting open with the KWP season.

The specific ecosystem here and its location on a major flyway.

The thing that makes this NWR unique is the quality of birding in a readily accessible area - with that birding at arm's length - and the solitude to soak in the wildlife and birding experience without being overrun by traffic.

The variety and diversity of animal species that are found on refuges. The history and stories that are associated with each refuge is very interesting and should be shown to make sure that each generation understands why each refuge was selected.

The variety of birds.

Their emphasis on wildlife.

There seems to be fewer visitors, and they seem to be focused on preserving various ecosystems holistically, not just individual species.

They are extremely important to conservation. This is very well illustrated by Quivira NWR, where the entire surrounding area is nothing but sterile agricultural lands. Thus, Quivira is critical to wildlife, and my family and friends certainly would never visit this region if it weren't for the refuge.

They are maintained and taken care of.

They are not designed to be "parks" and are for wildlife. I like the fact that they have multi-use areas.

They are one of the remaining wild areas. Nature generally rules. We must be able to experience nature in the raw.

They are protected areas for wildlife to live and escape the increasing population.

They are refuges, which makes the whole hunting thing seem crazy. What refuge for Sandhill Cranes, geese, and shore birds allows for blasting them?

They give a glimpse of nature at its best; undisturbed and untamed, and, when "she" can, Nature does her best to give the animals what they need. Good refuges take advantage of the natural habitat and enhance it to protect the animals, yet give man a chance to enjoy and observe them.

They offer a unique experience because the visitor has to defer to the primary mission of the refuge, which is the preservation and protection of wildlife. They are usually the most unspoiled places.

They often provide diversified habitat within a relatively small area, which makes it great for bird watching.

They preserve important, beautiful, and special parts of our world for future generations.

They preserve the environment and habitat for wildlife. Hunters and fishermen need to see the connection between the public refuges and their sports and vote for politicians that support the environment. Note: See James Watt for a terrible example of a Sec. of Interior.

They provide an excellent opportunity to observe birds and other wildlife.

They provide public access to birds and animals.

They work hard to preserve and maintain habitat.

This is the first trip just to see birds. My husband has 6-8 small bird feeders outside our kitchen windows.

This refuge is a great resource for viewing migrating birds and other wildlife that other areas in the state do not offer.

To see all the wildlife gathered, resting, feeding, and at a place where they are not threatened, is quite unique and a pleasure to behold.

Viewing platforms make it unique.

We always seem to see more animals in refuges. It's always a fun and exciting venture.

We prefer NWRs over National and State Parks. More natural, better birding, fewer people, and more of a focus on birding & conservation/protection.

We were able to get up and that makes the experience more exciting and personal especially for the children. In our case, it was grandchildren.

Wildlife will hold up in the area.

Additional Comments (n = 42)

A great place. Well-run and well-maintained.

A superb 3 days were spent watching and photographing a broad array of birds during spring migration.

Appreciated very much the up-to-date information provided on the Quivira NWR website for the whooping crane activity. I checked the website in the morning just before leaving to learn the latest sightings info. Kudos to the Quivira NWR for a great service!

Happy to help.

Have been visiting for 12 years and love it every time.

I am not in favor of a lot of additional "development." Habitat maintenance is primary! I have been aware of warming since viewing of the Franz Joseph Glacier in New Zealand in 1985. I am not, however, totally convinced that mere man can change it.

I cannot estimate how many outdoor recreation trips I took in the last 12 months because the number is so high and I have lost track. In addition, I am a professional archaeologist who does considerable consulting and I take many opportunities to visit wildlife refuges, parks, and other places where wildlife happen to be when I am off doing a consulting job. I also do a lot of recreational birding when I have time. Quivira is a favorite because of the relative proximity (compared to other refuges) and the specific wildlife it attracts - yes, I have twice seen whooping cranes there.

I love Quivira NWR and I think the managers and staff do an excellent job with limited resources. I hope that managing for Black Rails is a powerful concern when considering whether or not to burn the wet meadow at the NW corner of the refuge.

I love the refuge and consider it a jewel in our community. I don't think enough people visit and appreciate what they have. I don't know if it's headed in the right direction. Where is the refuge manager? I never see him/her.

I really enjoy driving through the salt marsh looking at the wildlife that I can see. I can still get from point A to point B without going too much out of my way and taking too much extra time. I did get to see a pair of whooping cranes this year, they tell me, although they were not as close up and personal as I would have liked to get a really good look at them.

I think it is well-managed; just keep the upland hunting open when whooping cranes are in the area.

I visited the Salt Marsh back in 1939-1940. Some of the people working or who have worked, I knew personally.

I was disappointed about information I had on two other refuges farther away regarding hours and available Visitor Centers. These refuges (possibly, not because) had incomplete information.

I wish we lived closer and could visit more often. I think Quivira NWR needs to be marketed with Cheyenne Bottoms, as the two together are a stronger pull than either one individually.

I would like to see more hunting activities offered at Quivira National Wildlife Refuge, and be able to hunt more than just waterfowl. Deer hunting and turkey would be a good start. I also would like to see the refuge open to Sandhill Crane hunting. I also would like to see a change in the Whooping Crane policy because when the Whooping Cranes show up, all hunting closes down; other Refuges just close certain areas and types of hunting. This way hunters can enjoy more time hunting the refuge.

I would like to see refuges participate in birding festivals. These festivals bring people from all over the U.S. and Canada.

I'd like to see education regarding the long term history of this flyway.

In regards to the section on climate change: Climate change may be happening, but we can't stop it, because we didn't cause it. The climate has been changing throughout history and it will continue to do so. Spending hard-earned taxpayer money to fight it is a waste of my and your money. That money is better spent improving wildlife habitat.

It is getting harder to find places to hunt and the refuge is very much appreciated as I can usually bag a few birds and get lots of exercise, too.

It was a great place. The guy at the information center was exceptionally helpful. I plan to go back some day to see Quivira National Wildlife Refuge and possibly combine a trip to Cheyenne Bottoms.

Love the new Visitors Center. Also visited Quivira NWR 40 miles south and Flint Hills NWR on the way home. (This person is likely referring to a visit to Cheyenne Bottoms).

Our brief visit, upon which this survey is based, was for a specific purpose. We have previously spent extended time at this refuge and a survey based on those visits would elicit different answers. We have spent considerable time at refuges in every state of the United States and regard the Refuge System as a very important contributor to preservation and land management for wildlife as well as compatible recreation.

PLEASE take care of the CRANES!!

Politicians who refuse to believe in climate change are idiots. I'm not hopeful of the next congress. You'd think that right wing Christians would remember that line in Genesis (paraphrase): God gave man the dominion over the fish in the sea, birds in the air and all creatures on earth (Gen: 1-26). I don't think God meant for us to make all other creatures extinct! And, no, I do not consider myself a "religious" person. You folks are doing a great job with the funds you are "given." Thank you for your service. (Name Signed).

Preservation #1 through stewardship which enhances us as landowners to observe, learn, and make us proud to be farmers and ranchers. Would be very beneficial to continue to promote volunteer/internships/donations.

Quivira is a magical place. I wish that I lived closer to it so I could make more visits.

Quivira is great and very much improves the quality of my life.

Quivira NWR is a gem of a refuge. The wildlife viewing and hunting opportunities are outstanding. I had a very pleasurable visit with the Assistant Refuge Manager on my last visit. I applaud the current and ongoing efforts to restore the refuge to its original primary purpose of being managed for migratory waterfowl. Removal of invasive species of trees and plants is essential for the well-being of this refuge. Keep up the effort!

Refuge representative was very helpful during this visit. Look forward to getting back!!!!

Staff was very knowledgeable and helpful.

Thank you for allowing me to participate in this survey. I enjoy every day I am at Quivira NWR and get out there every chance I get for photography trips and hunting.

Thank you!

The Assistant Refuge Manager was friendly and knowledgeable.

The Quivira National Wildlife Refuge is a perfect place to introduce children and young adults to the wonderful outdoors, offering more than hunting and fishing. In my opinion, it's not just good, but an absolutely awesome experience for outdoors-men and -women of all ages and skill levels. Thanks for offering such an experience. Thank you.

The refuge was very hard to find.

They need to allow more hunting at Quivira National Wildlife Refuge like sandhill crane, deer, and turkeys. Have it open when the whooping cranes are there. Just close the area the whooping cranes are using. What does it hurt to use boats with no motor?

This place isn't well publicized within the state.

We enjoyed our visit and hope to return again.

We had a great time there and enjoyed the birds and scenery.

We live fairly close to Quivira National Wildlife Refuge and really value being able to visit and enjoy the wildness of the area. We feel grateful that we have this place where we can go to be in nature and appreciate the wildlife that this place is home to. Please continue to preserve and protect this area.

We were visiting my son in Arkansas City, KS and decided to visit Quivira NWR on our way home, even though it is a 130 mile trip and not on our route. The experience warranted the inconvenience!

Wichita Audubon Society (of which I'm a member) enjoys our frequent visits for bird watching.
