



# National Wildlife Refuge Visitor Survey 2010/2011: Individual Refuge Results for Bitter Lake National Wildlife Refuge

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*Our visit to Bitter Lake National Wildlife Refuge was an incredible experience! The FWS employees and the volunteers shared a wonderful enthusiasm for their passions. My husband and I are looking forward to going back in November for the fall migrations, and we have decided to visit all the refuges in our state! The Dragonfly Festival was a truly unique experience and one which we will not soon forget! (Especially since we plan on going back often!)*—Survey comment from visitor to Bitter Lake National Wildlife Refuge.



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

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## Introduction

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

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

## Organization of Results

These results are for Bitter Lake 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.

<b>Pacific Region (R1)</b>	
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)	
<b>Southwest Region (R2)</b>	
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)	
<b>Great Lakes-Big Rivers Region (R3)</b>	
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)
<b>Southeast Region (R4)</b>	
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)
<b>Northeast Region (R5)</b>	
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)
<b>Mountain-Prairie Region (R6)</b>	
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)	
<b>Alaska Region (R7)</b>	
Alaska Maritime National Wildlife Refuge (AK)	Kenai National Wildlife Refuge (AK)
<b>California and Nevada Region (R8)</b>	
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  $n^{\text{th}}$  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 Bitter Lake 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 Bitter Lake National Wildlife Refuge

Located where the Chihuahuan Desert meets the southern plains, Bitter Lake NWR provides habitat for some of the rarest plants and animals that thrive in odd sinkholes, playa lakes, seeps, and gypsum springs fed by an underground river. Established on October 8, 1937, to provide habitat for thousands of migrating sandhill cranes and waterfowl, the 24,609-acre refuge straddles the Pecos River, and consists of an assortment of water habitats surrounded by a harsh, dry environment. Native grasslands, sand dunes, brushy bottomlands, and red-rimmed plateaus provide a sharp contrast to the wetland habitats of Bitter Lake NWR. Roadrunners, scaled quail, and horned lizards are commonly seen in these drier areas.

The water habitats support unique wildlife, such as the Pecos pupfish, Roswell spring snail, green throat darter, Mexican tetra, and Noel's amphipod. Bitter Lake NWR has gained fame for supporting one the most diverse populations of dragonflies and damselflies in North America; 90 species thrive there. Bitter Lake NWR protects all these fragile creatures from the threats of water and land development, and from invasive fish introductions that have devastated many other native fisheries.

Nearly 50,000 people visit Bitter Lake NWR each year (based on 2008 RAPP database; U.S. Fish and Wildlife Service, 2011, written comm.) to take advantage of a large array of activities including waterfowl hunting, migratory bird hunting, upland game hunting, big game hunting, auto tour routes, hiking, biking, wildlife observation, bird watching, use of the Visitor Center, photography, guided tours, environmental education, and interpretation. The opportunity to observe rare wildlife, as well as the migration of tens of thousands of sandhill cranes, is a favorite activity among the visitors and locals. Another favorite is the Dragonfly Festival every September. Figure 1 displays a map of Bitter Lake NWR. For more information, go to <http://www.fws.gov/southwest/refuges/newmex/bitterlake/index.html>.

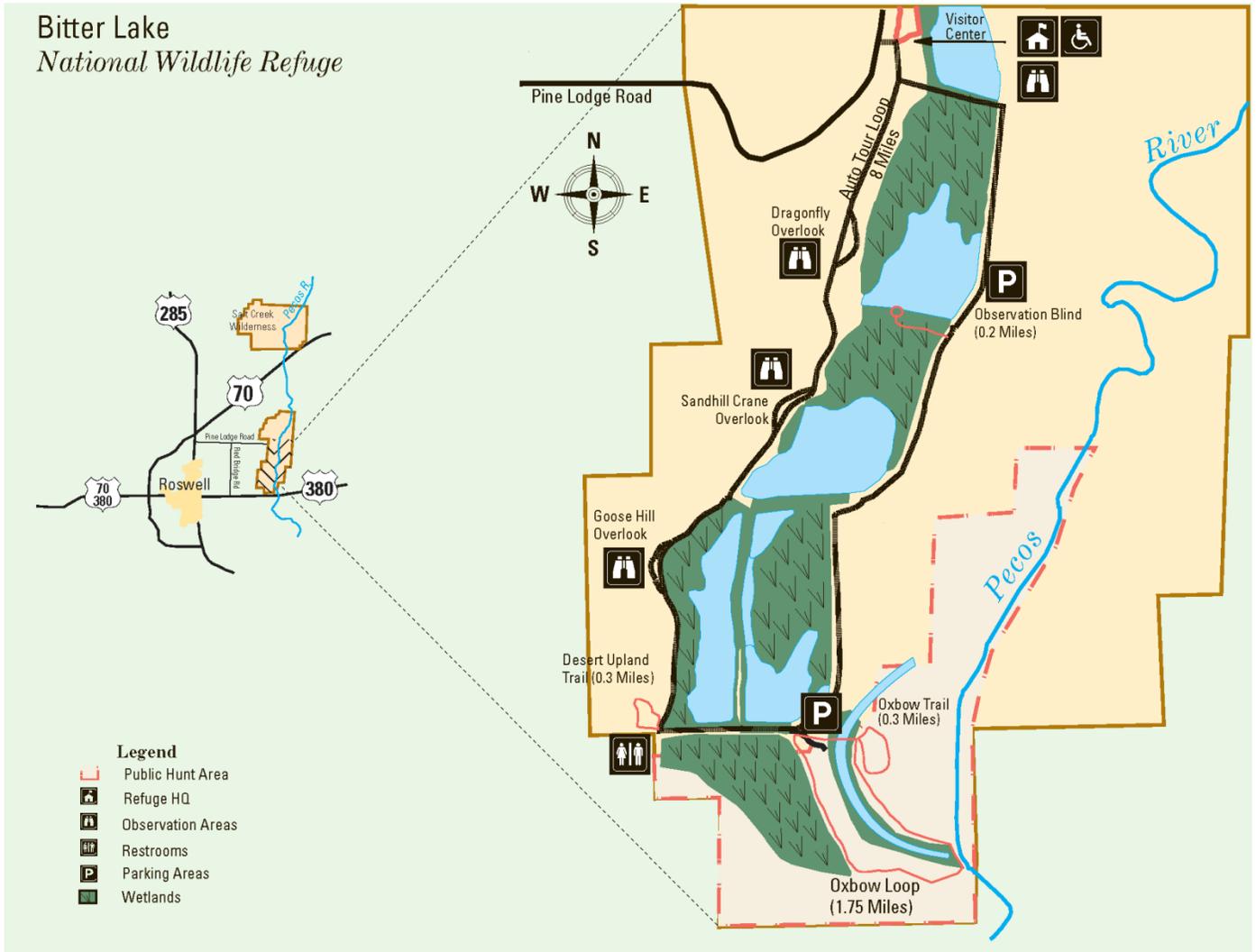


Figure 1. Map of Bitter Lake NWR, courtesy of U.S. Fish and Wildlife Service.

## Sampling at Bitter Lake National Wildlife Refuge

A total of 331 visitors agreed to participate in the survey during the two sampling periods at the identified locations at Bitter Lake NWR (table 2). In all, 202 visitors completed the survey for a 64% response rate and  $\pm 6\%$  margin of error at the 95% confidence level.<sup>1</sup>

**Table 2.** Sampling and response rate summary for Bitter Lake NWR.

Sampling period	Dates	Locations	Total contacts	Undeliverable addresses	Completed surveys	Response rate
1	9/04/10 to 9/18/10	Entrance to the Visitor Center and the Wildlife Tour Route	171	5	105	63%
2	11/20/10 to 12/04/10	Entrance to the Visitor Center and the Wildlife Tour Route	160	9	97	64%
<b>Total</b>			<b>331</b>	<b>14</b>	<b>202</b>	<b>64%</b>

## 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 Bitter Lake 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 (92%) and that the Refuge System has the mission of conserving, managing, and restoring fish, wildlife, plants and their habitat (96%). Positive responses to these questions concerning the management and mission of the Refuge System do not indicate the degree to which these visitors understand the day-to-day management practices of individual refuges, only that visitors feel they have a basic knowledge of who manages refuges and why. Compared to other public lands, many visitors feel that refuges provide a unique

<sup>1</sup> 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).

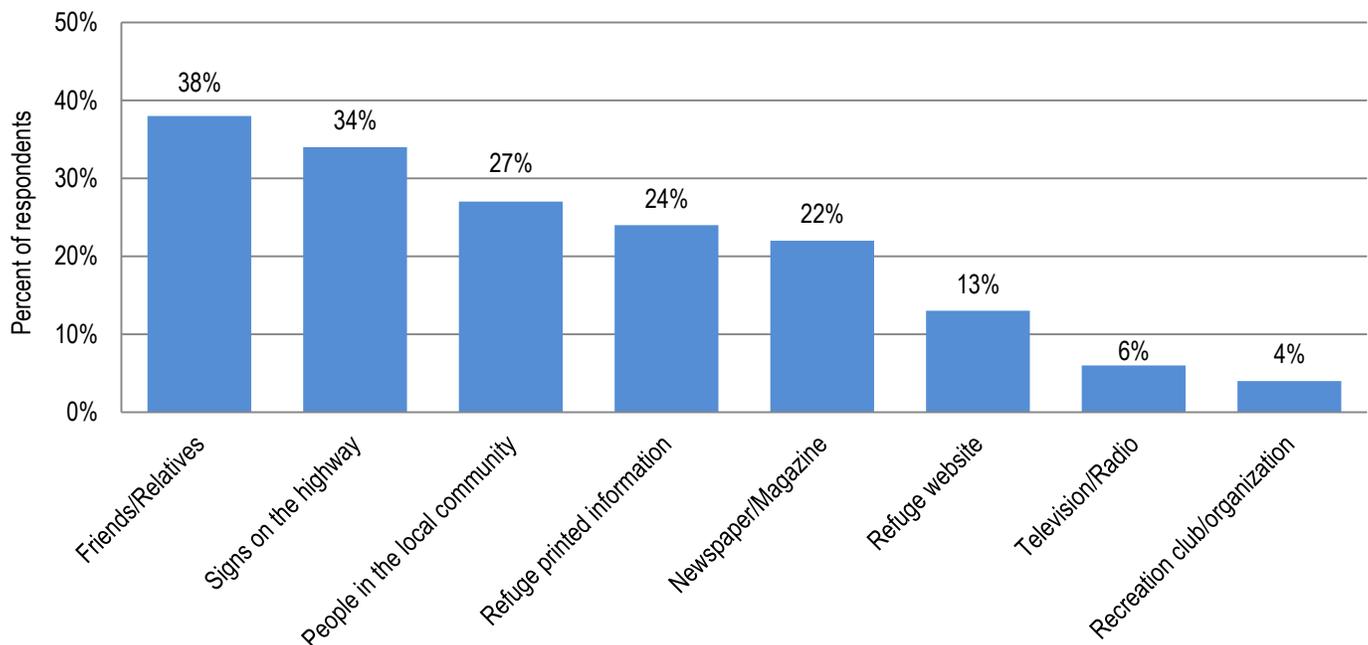
recreation experience (91%; see Appendix B for visitor comments on “What Makes National Wildlife Refuges Unique?”); however, reasons for why visitors find refuges unique are varied and may not directly correspond to their understanding of the mission of the Refuge System. More than half of visitors to Bitter Lake NWR had been to at least one other National Wildlife Refuge in the past year (52%), with an average of 4 visits to other refuges during the past 12 months.

### Visiting This Refuge

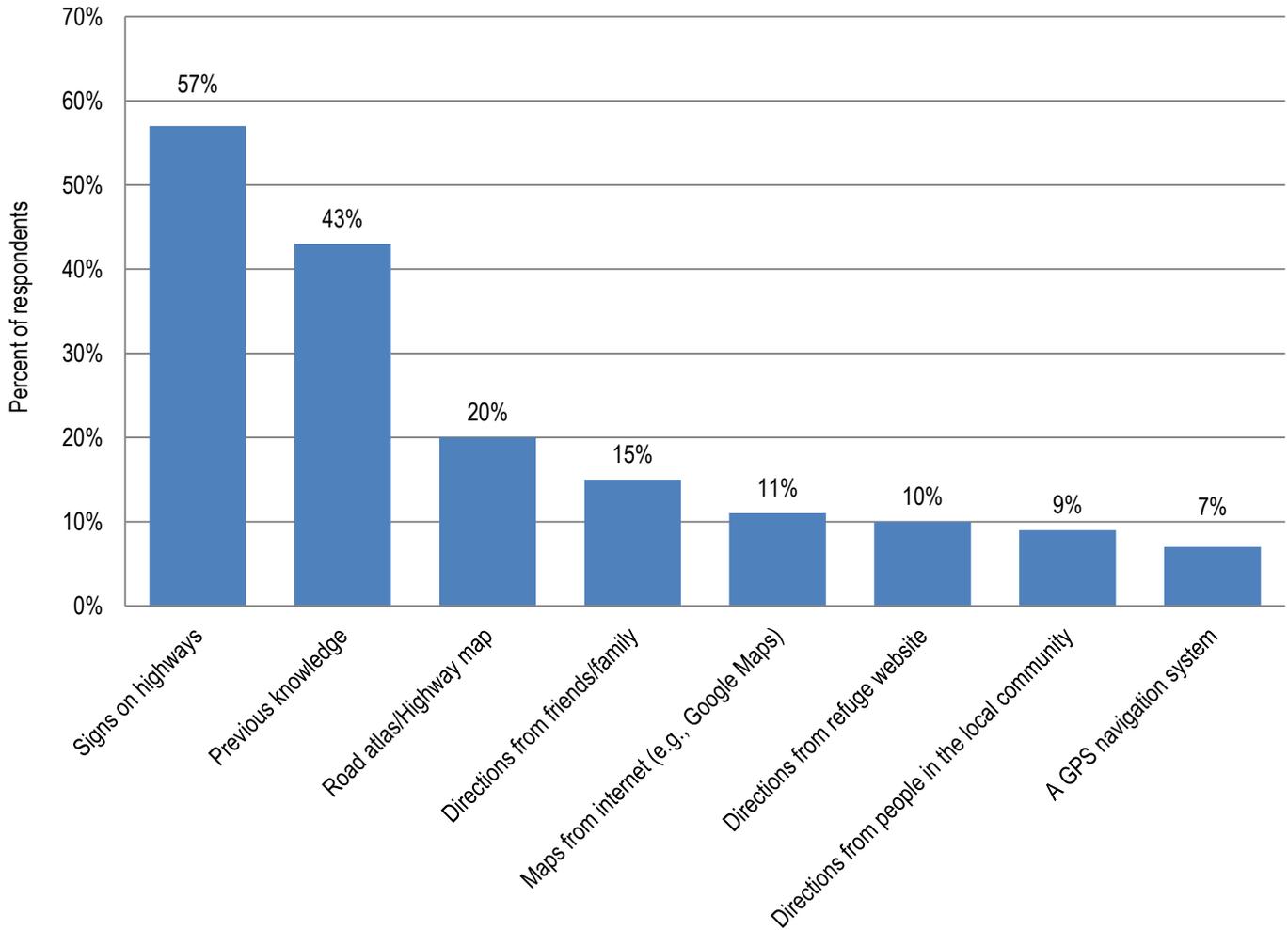
Some surveyed visitors (37%) had only been to Bitter Lake NWR once in the past 12 months, while most had been multiple times (63%). These repeat visitors went to the refuge an average of 12 times during that same 12-month period. Visitors used the refuge during only one season (55%), during multiple seasons (27%), and year-round (18%).

Most visitors first learned about the refuge from friends/relatives (38%), signs on the highway (34%), or people in the local community (27%; fig. 2). Key information sources used by visitors to find their way to this refuge include signs on highways (57%), previous knowledge (43%), or a road atlas/highway map (20%; fig. 3).

More than half of visitors (56%) lived in the local area (within 50 miles of the refuge), whereas 44% were nonlocal visitors. For most local visitors, Bitter Lake NWR was the primary purpose or sole destination of their trip (82%; table 3). For most nonlocal visitors, the refuge was also the primary purpose or sole destination of their trip (51%). Local visitors reported that they traveled an average of 14 miles to get to the refuge, while nonlocal visitors traveled an average of 250 miles. Figure 4 shows the residence of visitors travelling to the refuge. About 79% of visitors travelling to Bitter Lake NWR were from New Mexico.



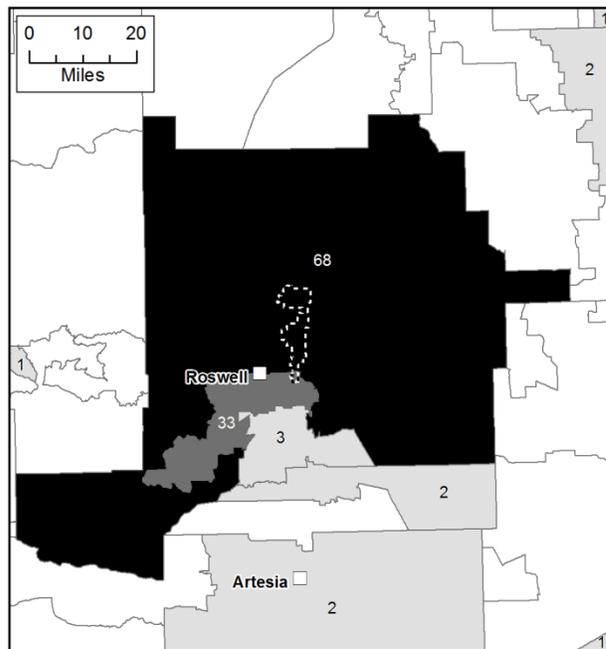
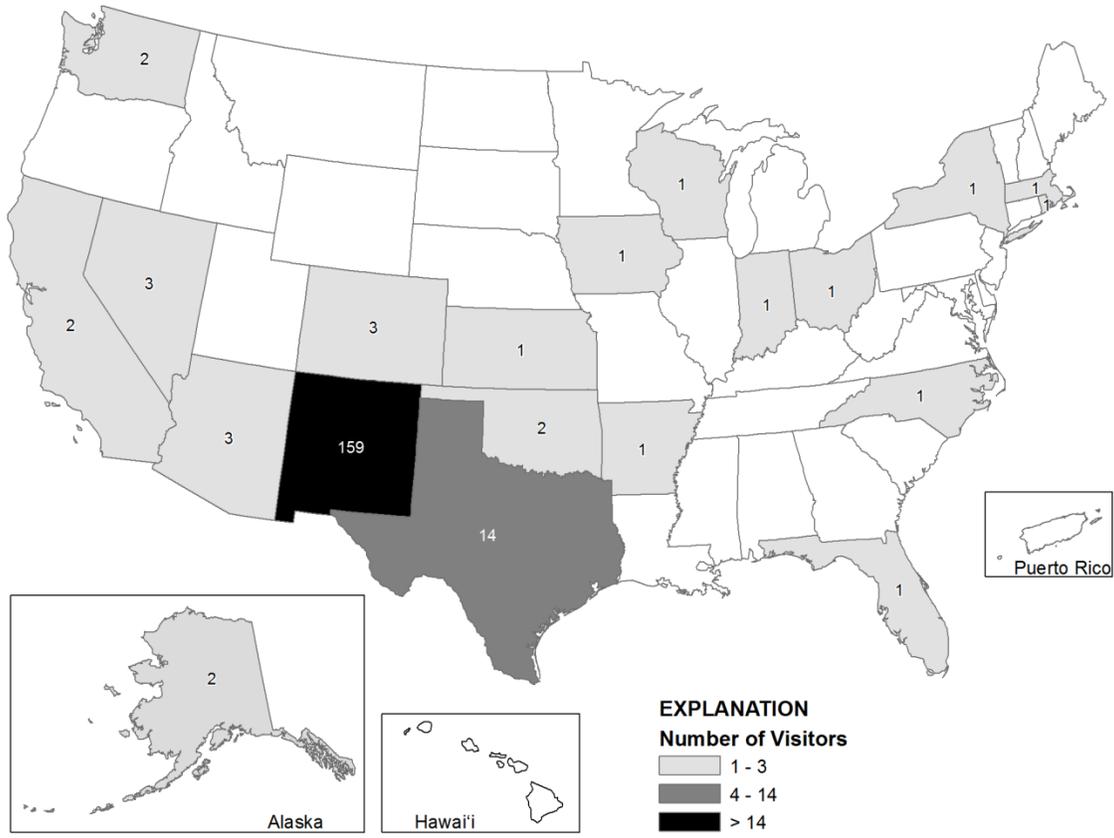
**Figure 2.** How visitors first learned or heard about Bitter Lake NWR (n = 195).



**Figure 3.** Resources used by visitors to find their way to Bitter Lake NWR during *this* visit (n = 199).

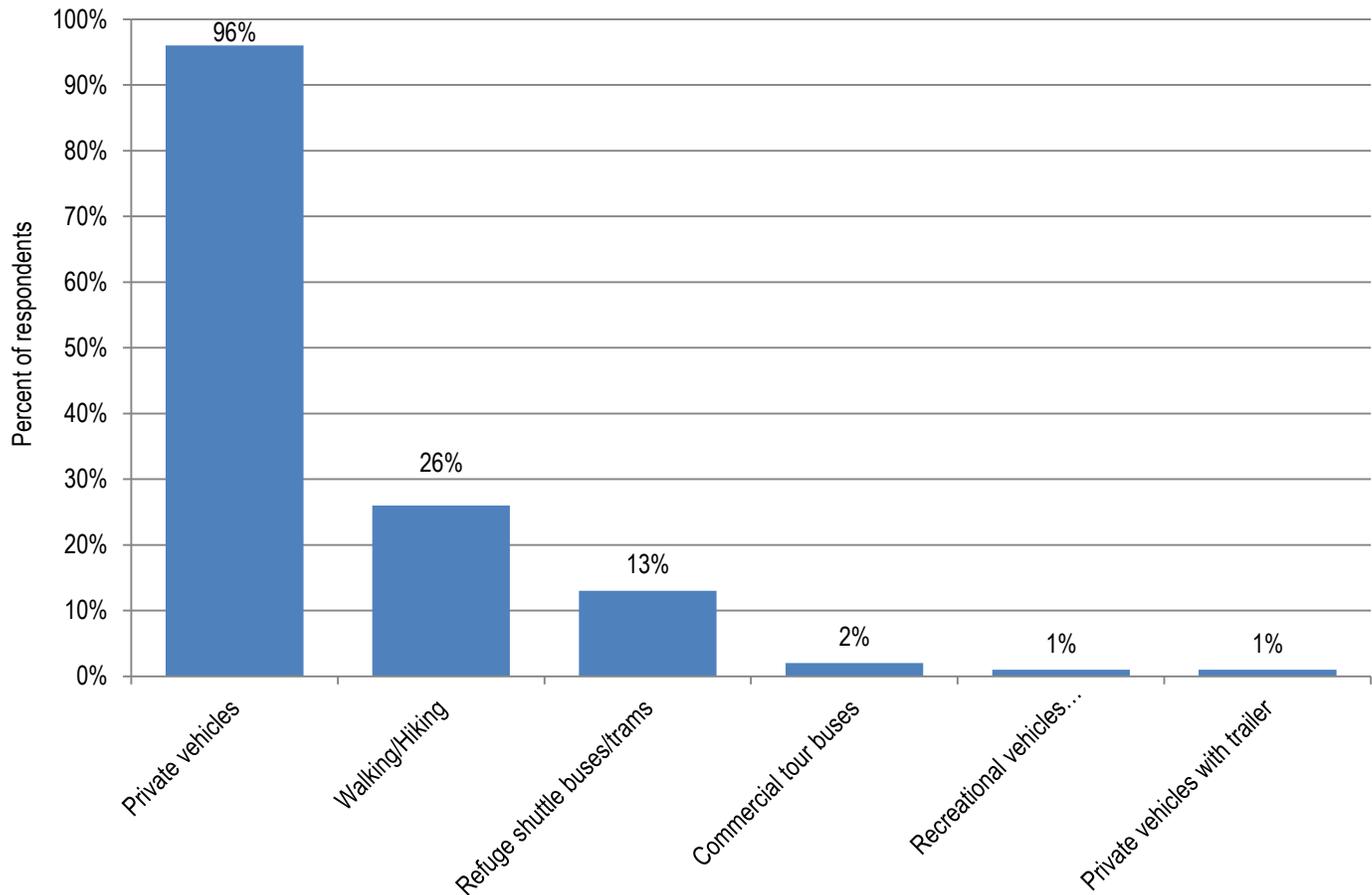
**Table 3.** Influence of Bitter Lake NWR on visitors' decision to take *this* trip.

Visitors	Visiting this refuge was...		
	the primary reason for trip	one of many equally important reasons for trip	an incidental stop
Nonlocal	51%	20%	29%
Local	82%	8%	10%
Total	69%	13%	18%



**Figure 4.** Number of visitors travelling to Bitter Lake NWR by residence. Top map shows residence by state and bottom map shows residence by zip codes near the refuge (n = 202).

Surveyed visitors reported that they spent an average of 4 hours at Bitter Lake 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 (28%). The key modes of transportation used by visitors to travel around the refuge were private vehicle (96%), walking/hiking (26%), and refuge shuttle bus or tram (13%; fig. 5). Most visitors indicated they were part of a group on their visit to this refuge (62%), travelling primarily with family and friends (table 4).

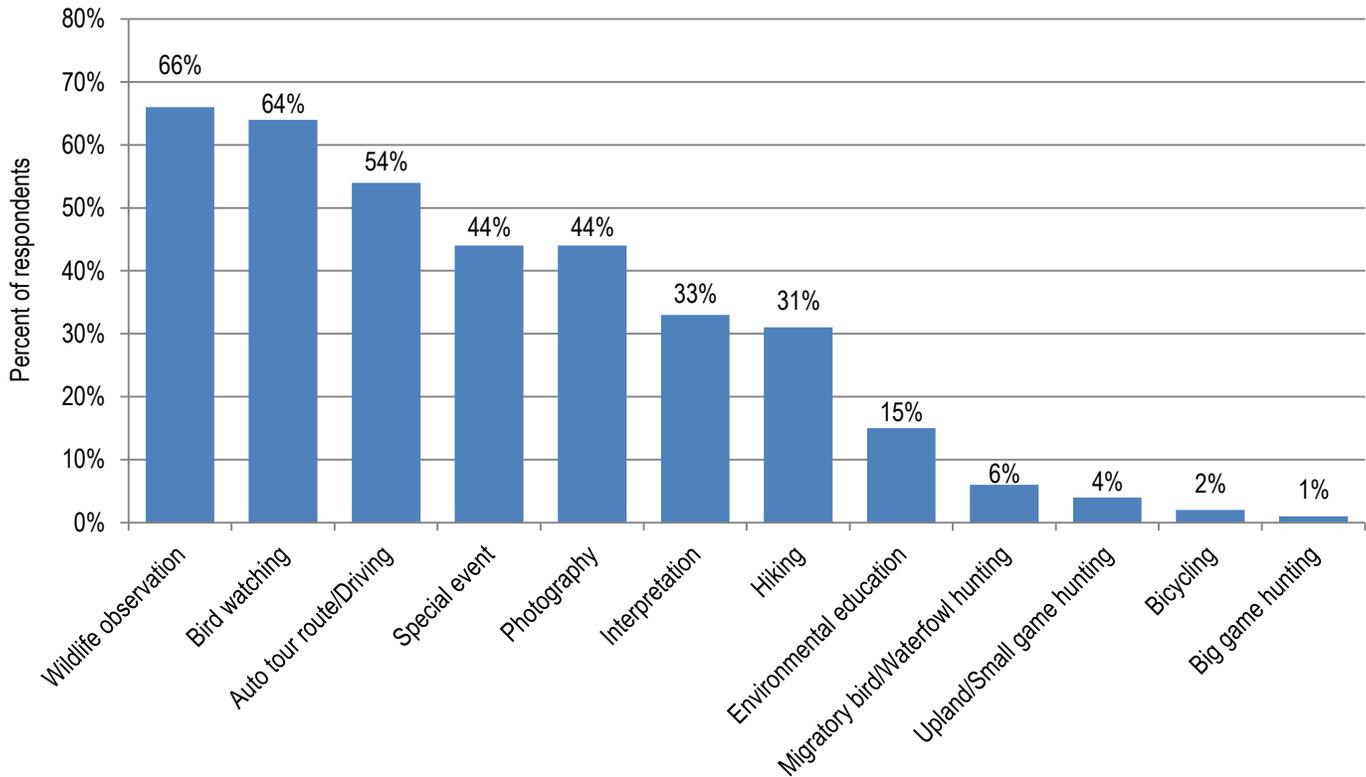


**Figure 5.** Modes of transportation used by visitors to Bitter Lake NWR during *this* visit (n = 200).

**Table 4.** Type and size of groups visiting Bitter Lake NWR (for those who indicated they were part of a group, n = 123).

Group type	Percent (of those traveling in a group)	Average group size		
		Number of adults	Number of children	Total group size
Family/Friends	88%	3	1	4
Commercial tour group	1%	10	0	10
Organized club/School group	2%	2	5	7
Other group type	9%	6	7	13

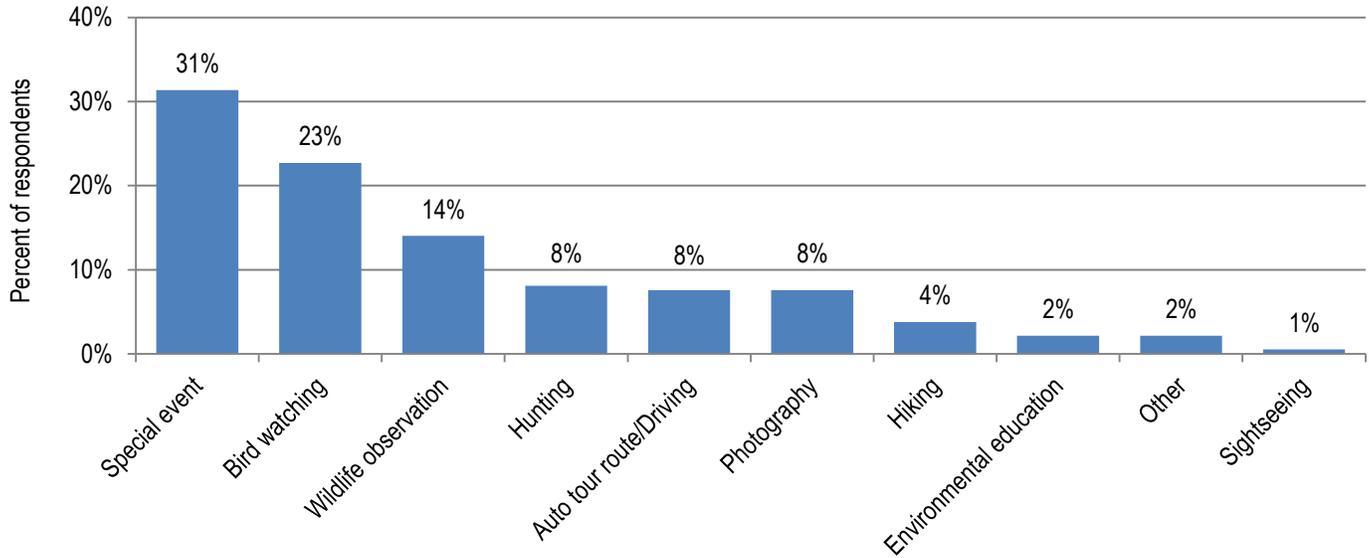
Surveyed visitors participated in a variety of refuge activities during the past 12 months (fig. 6); the top three activities reported were wildlife observation (66%), bird watching (64%), and auto tour route/driving (54%). The primary reasons for their most recent visit included special event (31%), bird watching (23%), and wildlife observation (14%; fig. 7). The visitor center was used by 85% of visitors, mostly to view the exhibits (92%), visit the gift shop/bookstore (76%), and ask information of staff/volunteers (69%; fig. 8).



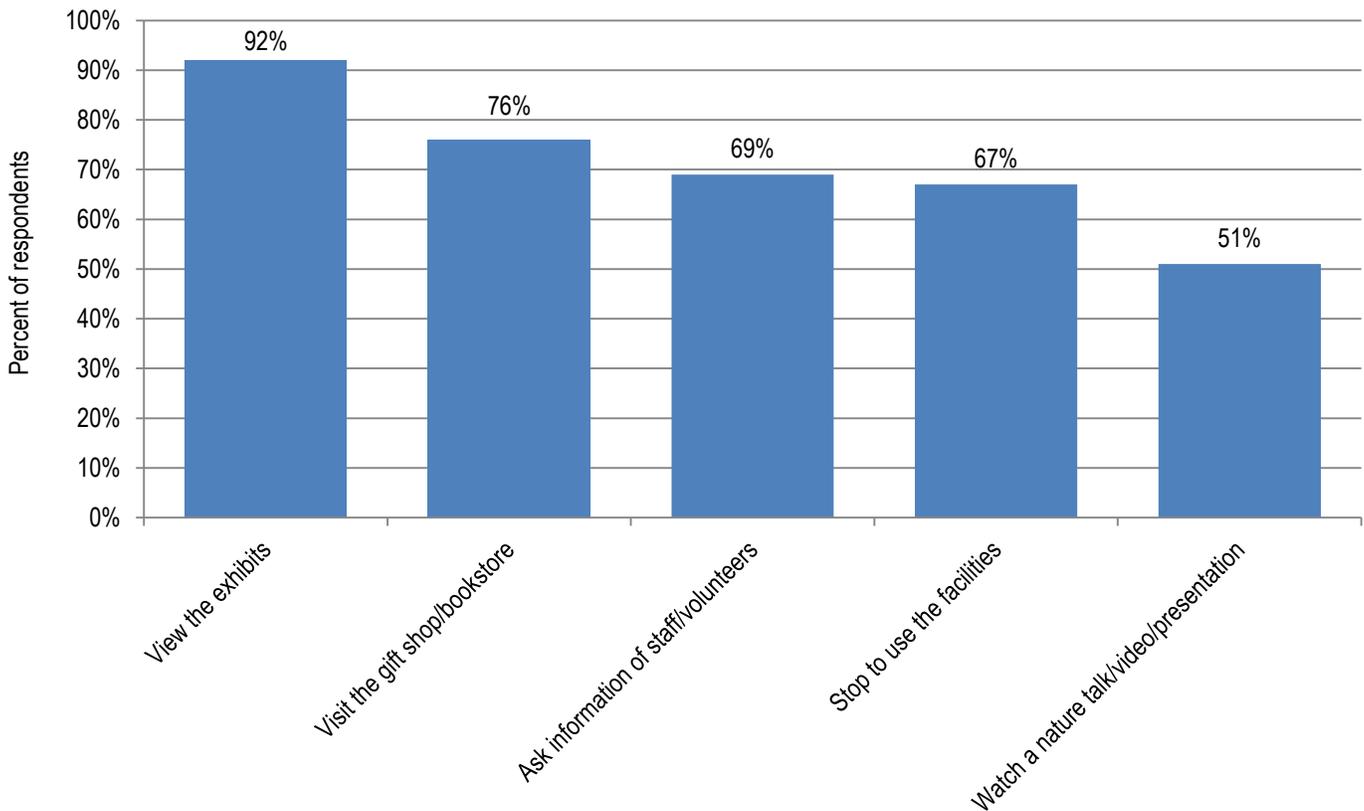
**Figure 6.** Activities in which visitors participated during the past 12 months at Bitter Lake NWR (n = 197). See Appendix B for a listing of “other” activities.

### Visitor Characteristics

Nearly all (99%) surveyed visitors to Bitter Lake 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 54% male with an average age of 57 years and 46% female with an average age of 56 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 Bitter Lake NWR (n = 186). See Appendix B for a listing of “other” activities.



**Figure 8.** Use of the visitor center at Bitter Lake NWR (for those visitors who indicated they used the visitor center, n = 170).

## 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, 56% of surveyed visitors to Bitter Lake NWR indicated that they live within the local area. Nonlocal visitors (44%) stayed in the local area, on average, for 3 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 \$66 per person per day and local visitors spent an average of \$23 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 Bitter Lake NWR expressed in dollars per person per day.

Visitors	n <sup>1</sup>	Median	Mean	Standard deviation	Minimum	Maximum
Nonlocal	79	\$50	\$66	\$55	\$0	\$335
Local	78	\$10	\$23	\$29	\$0	\$155

<sup>1</sup>n = 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.

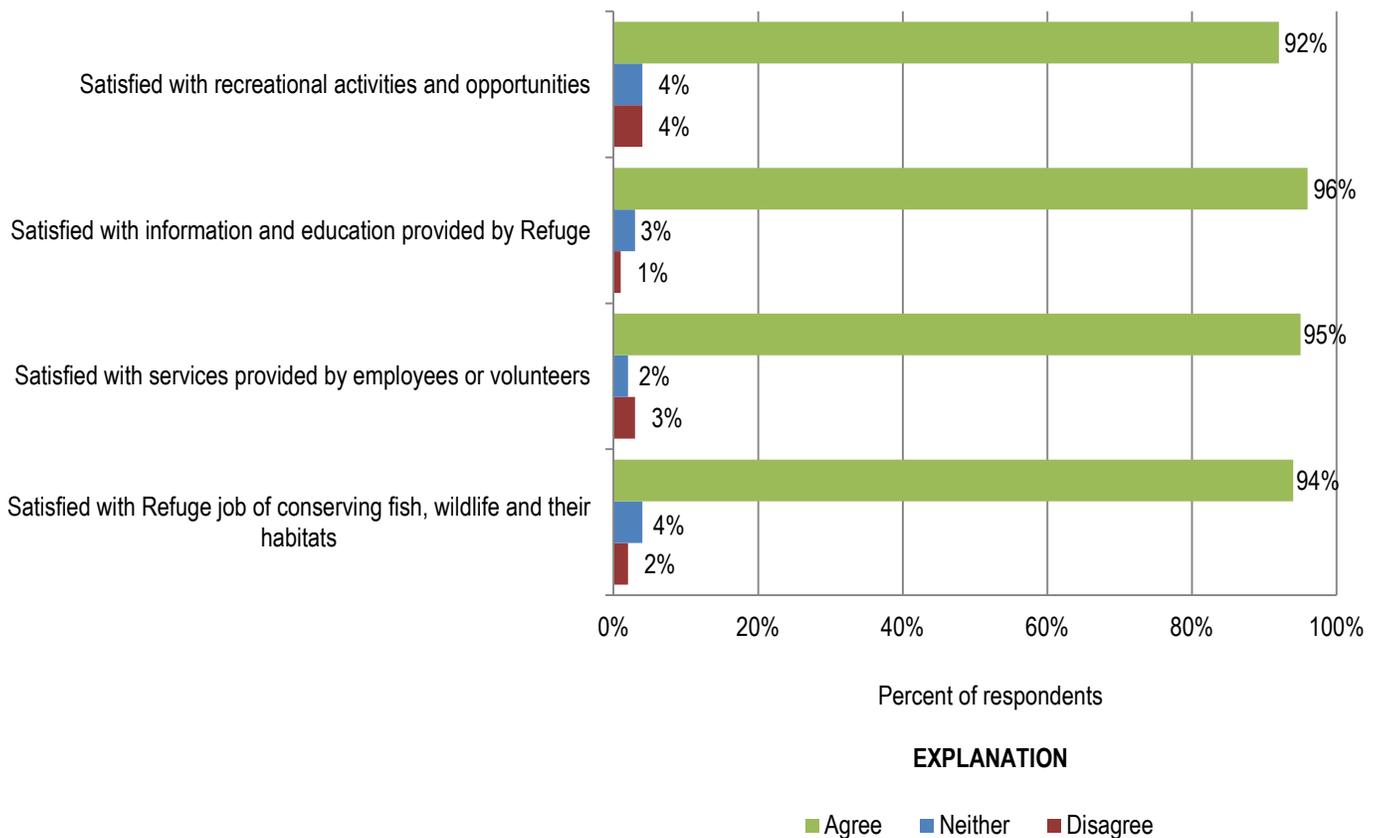
## Visitor Opinions about This Refuge

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 Bitter Lake NWR were as follows (fig. 9):

- 92% were satisfied with the recreational activities and opportunities,
- 96% were satisfied with the information and education about the refuge and its resources,
- 95% were satisfied with the services provided by employees or volunteers, and
- 94% were satisfied with the refuge's job of conserving fish, wildlife and their habitats.

Although 12% (n = 24) of visitors indicated they paid a fee to enter Bitter Lake NWR, the refuge does not have an entrance fee. It is not known why some visitors thought they paid a fee.



**Figure 9.** Overall satisfaction with Bitter Lake NWR during *this* visit (n ≥ 196).

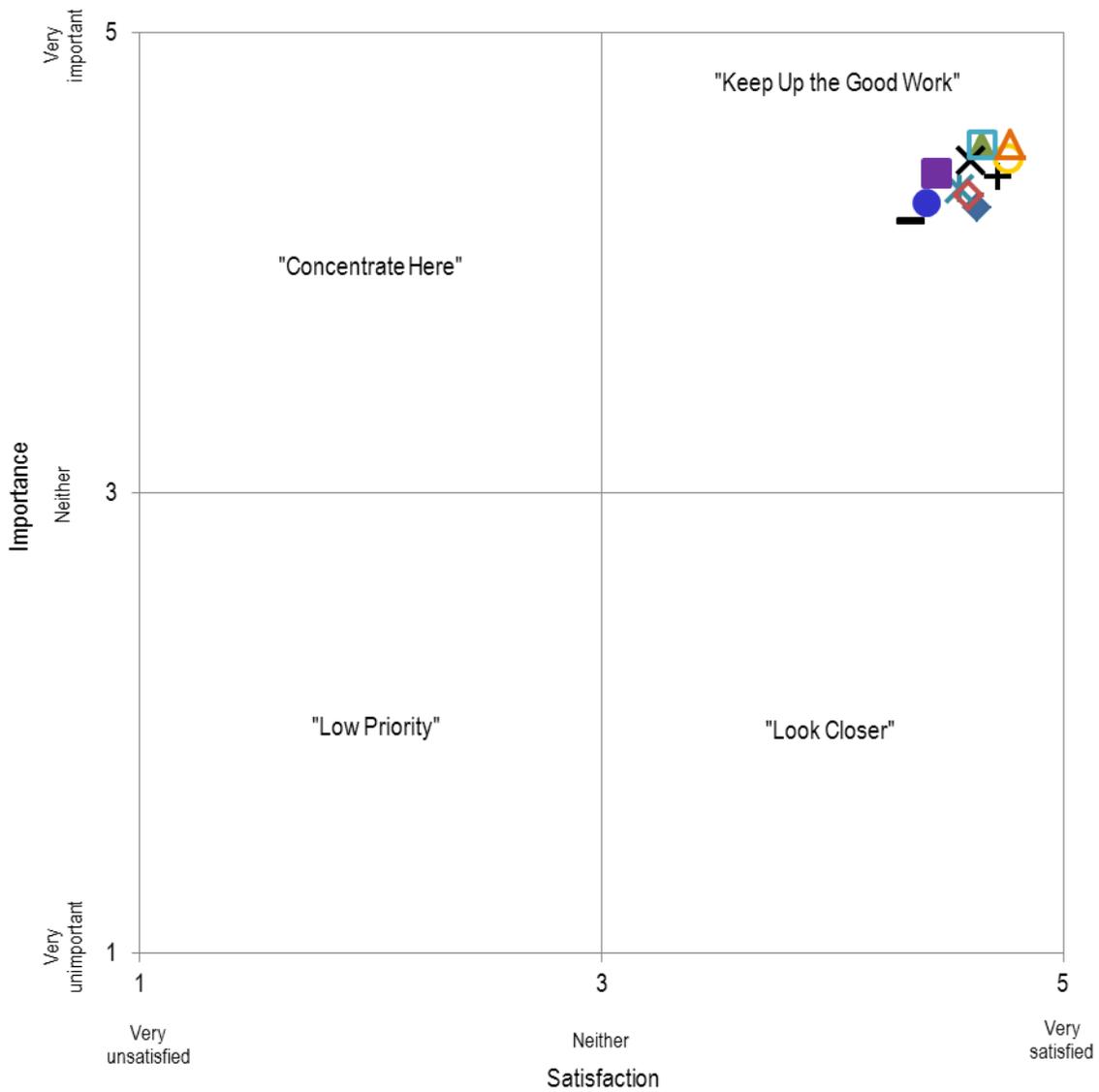
## Importance/Satisfaction Ratings

*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 Bitter Lake 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.*

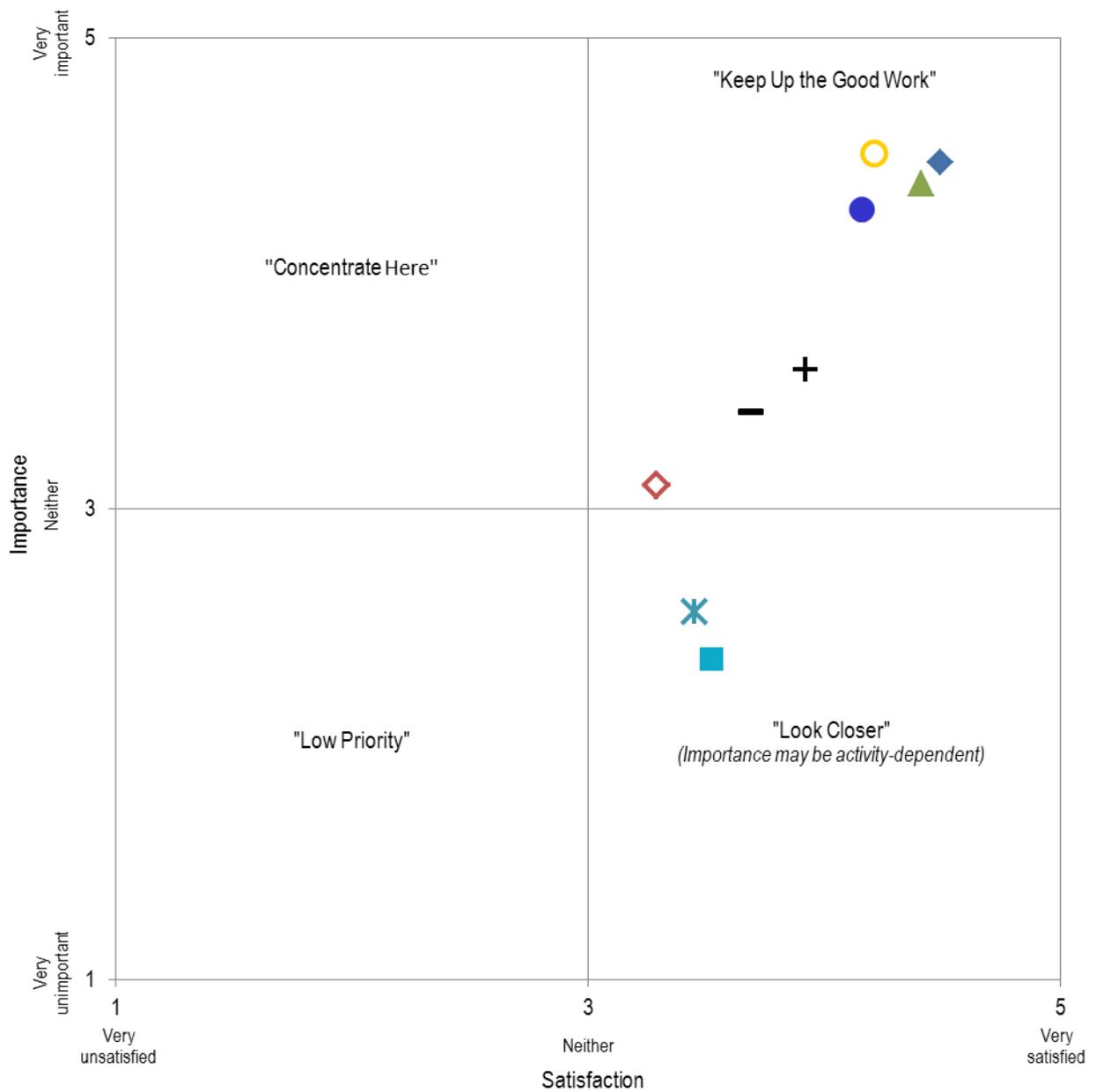
Figures 10-12 depict surveyed visitors' importance-satisfaction results for refuge services and facilities, recreational opportunities, and transportation-related features at Bitter Lake NWR, respectively. All refuge services and facilities fell in the "Keep Up the Good Work" quadrant (fig. 10). Nearly all refuge recreational opportunities fell in the "Keep Up the Good Work" quadrant except hunting and fishing opportunities, which fell into the "Look Closer" quadrant (fig. 11). The average importance of hunting and fishing 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 not enough individuals in the sample to evaluate the responses of such participants. All transportation-related features fell in the "Keep Up the Good Work" quadrant (fig. 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

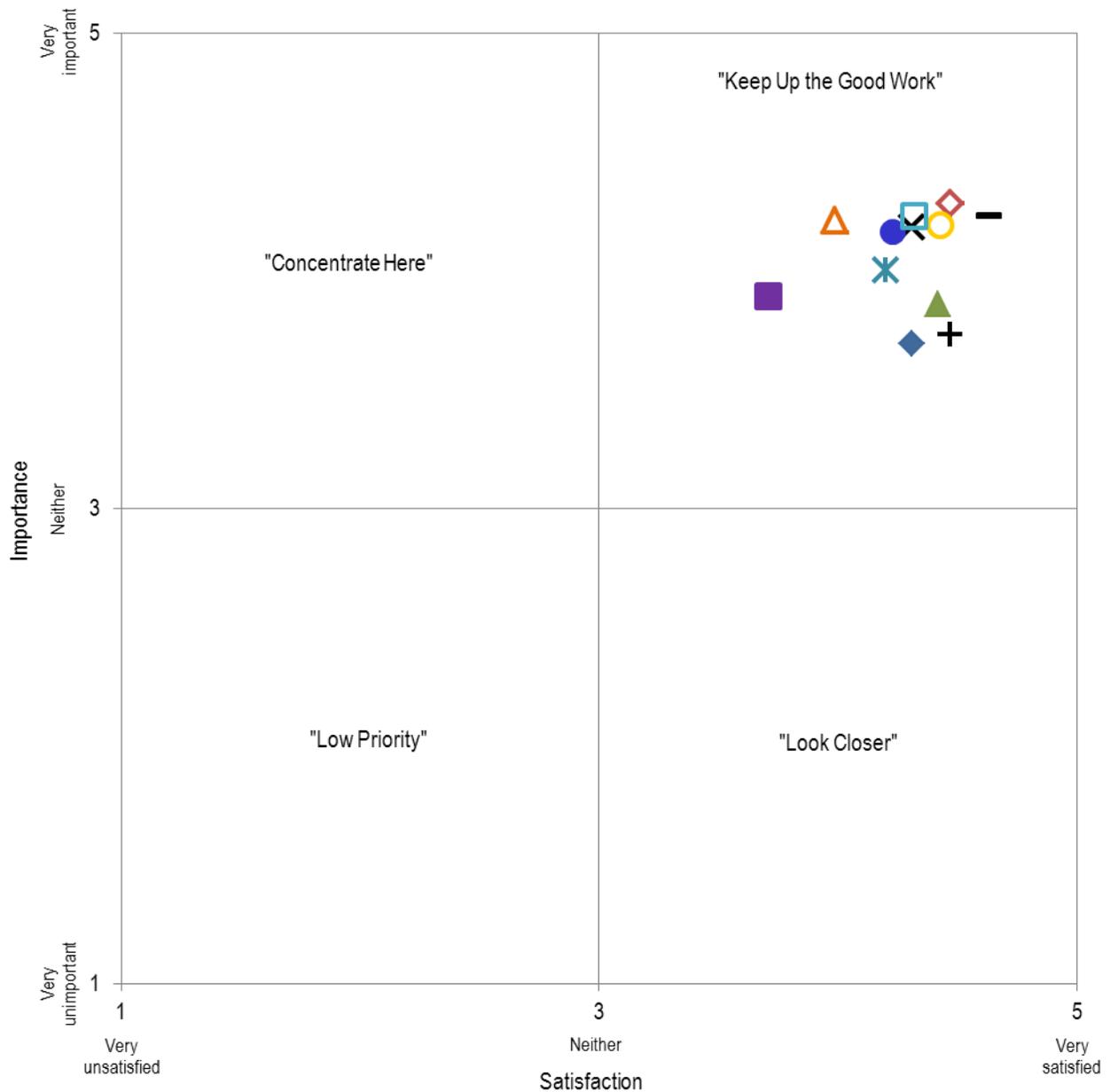
**Figure 10.** Importance-satisfaction ratings of services and facilities provided at Bitter Lake NWR.



**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 Bitter Lake 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 Bitter Lake 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 Bitter Lake NWR are reported here.*

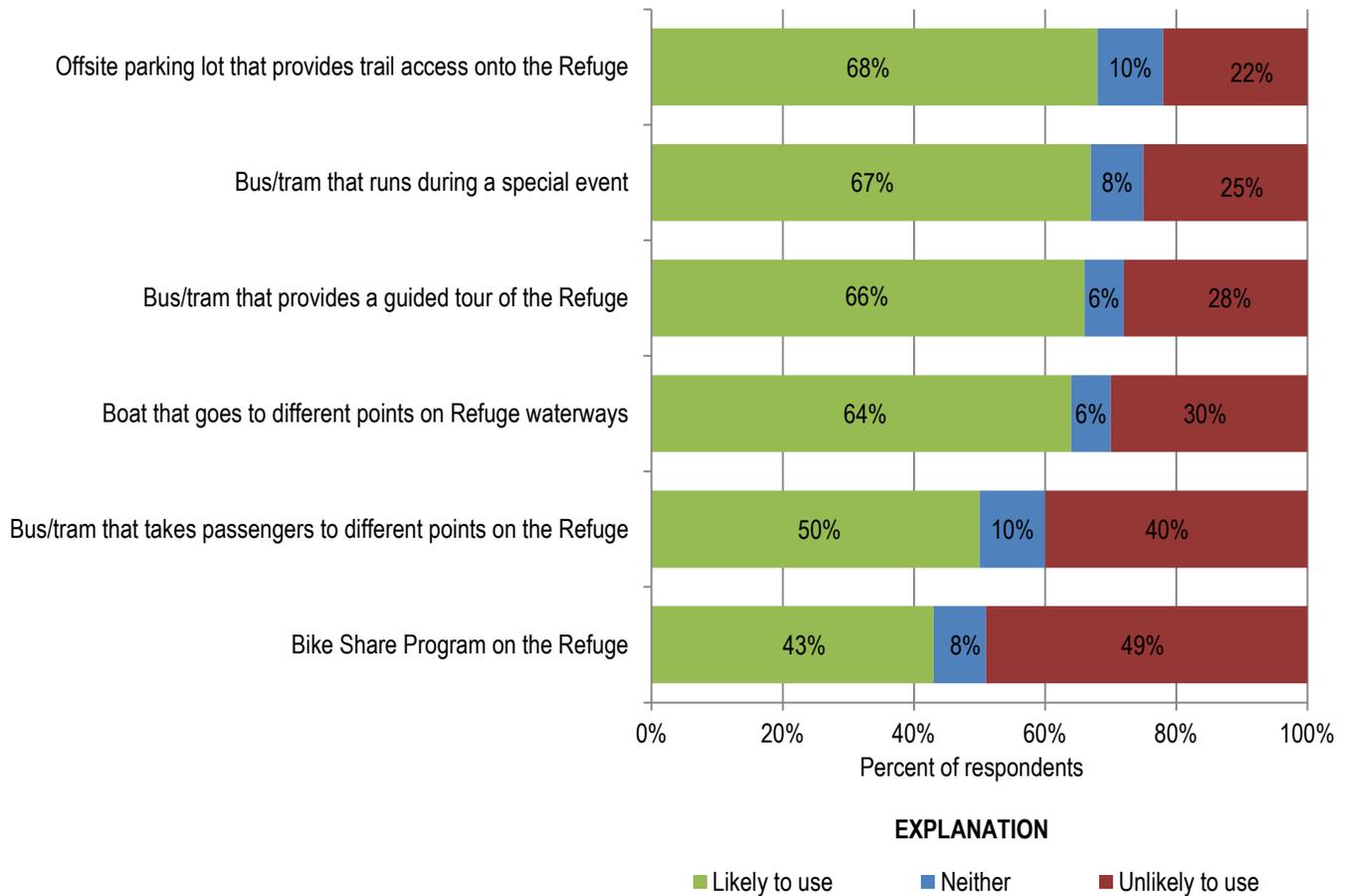
### Alternative Transportation and the National Wildlife Refuge System

*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 Bitter Lake 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 bus/tram that runs during a special event;
- a bus/tram that provides a guided tour;
- a boat that goes to different points on Refuge waterways; and
- a bus/tram that takes passengers to different points on the Refuge (fig. 13).

When asked about using alternative transportation at Bitter Lake NWR specifically, 43% of visitors indicated they were unsure whether it would enhance their experience; however, some visitors thought alternative transportation would enhance their experience (31%) and others thought it would not (27%).



**Figure 13.** Visitors’ likelihood of using alternative transportation options at national wildlife refuges in the future (n ≥ 185).

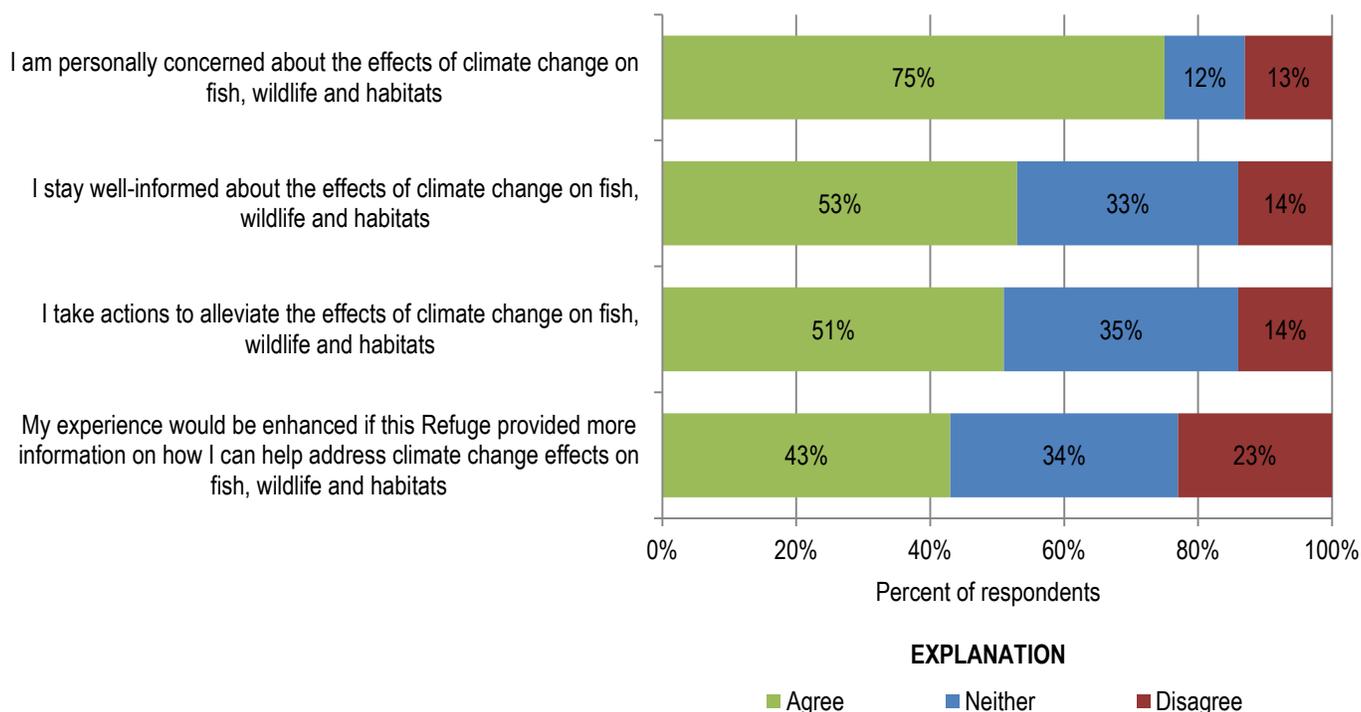
### Climate Change and the National Wildlife Refuge System

*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 Bitter Lake NWR agreed with the following statements (fig. 14):

- “I am personally concerned about the effects of climate change on fish, wildlife and habitats;”
- “I stay well-informed about the effects of climate change;” and
- “I take actions to alleviate the effects of climate change.”



**Figure 14.** Visitors’ personal involvement with climate change related to fish, wildlife and their habitats (n ≥ 180).

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).

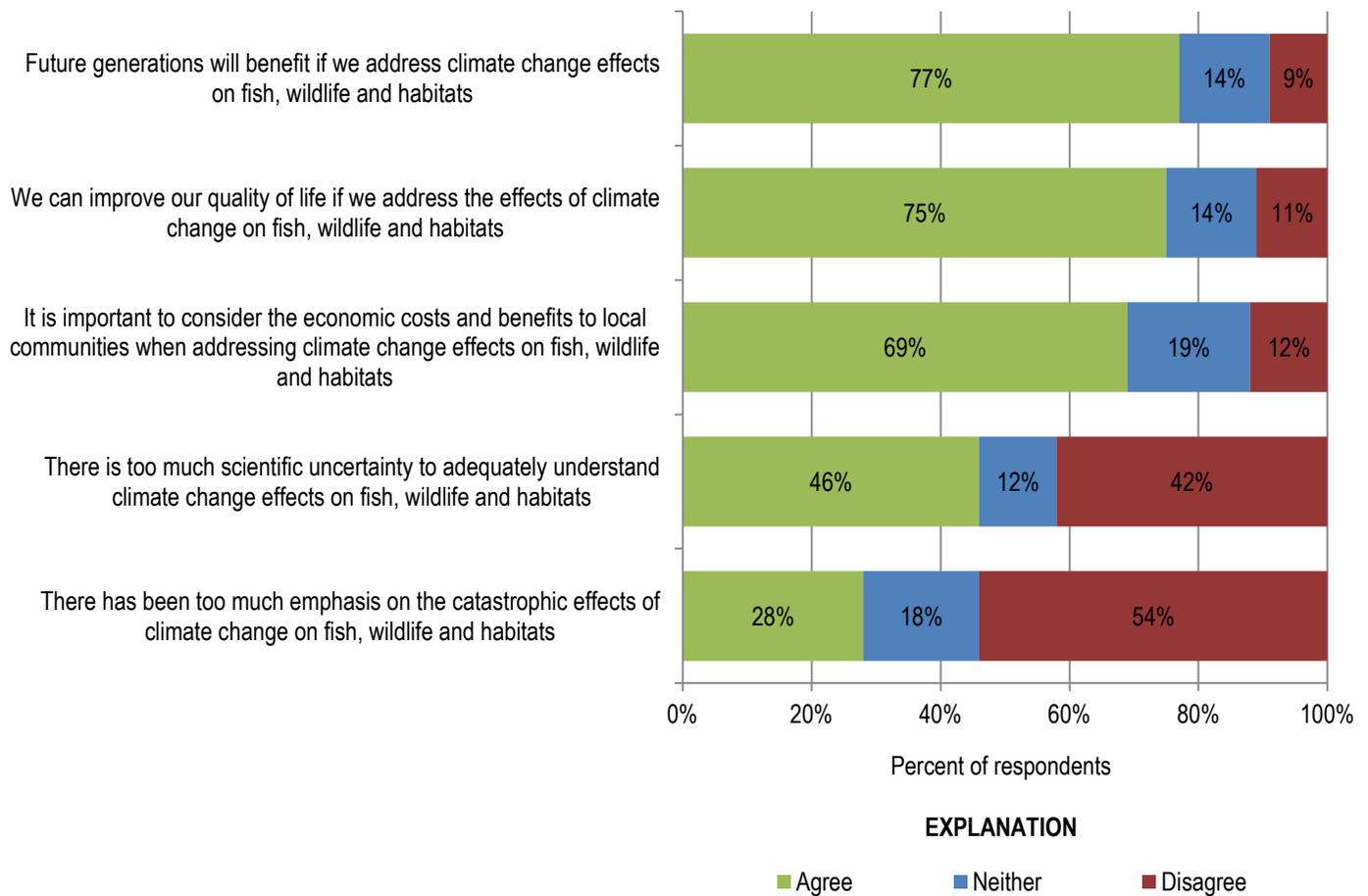
For Bitter Lake NWR, the majority of visitors believed the following regarding climate change related to fish, wildlife and their habitats (fig. 15):

- “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 (43%) indicated that their experience would be enhanced if Bitter Lake 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 ≥ 182).

## Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Bitter Lake 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](mailto:national_visitor_survey@usgs.gov) or 970.226.9205.

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# National Wildlife Refuge Visitor Survey



**PLEASE READ THIS FIRST:**

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

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

**SECTION 1. Your visit to this Refuge**

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

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> 1% Big game hunting                 | <input type="checkbox"/> 31% Hiking   | <input type="checkbox"/> 15% Environmental education (for example, classrooms or labs, tours) |
| <input type="checkbox"/> 4% Upland/Small-game hunting        | <input type="checkbox"/> 2% Bicycling   |   |
| <input type="checkbox"/> 6% Migratory bird/Waterfowl hunting | <input type="checkbox"/> 54% Auto tour route/Driving                                | <input type="checkbox"/> 44% Special event ( <i>please specify</i> )<br><u>See Appendix B</u> |
| <input type="checkbox"/> 66% Wildlife observation            | <input type="checkbox"/> 0% Motorized boating                                       |   |
| <input type="checkbox"/> 64% Bird watching                   | <input type="checkbox"/> 0% Nonmotorized boating (including canoes/kayaks)          | <input type="checkbox"/> 4% Other ( <i>please specify</i> )<br><u>See Appendix B</u>          |
| <input type="checkbox"/> 0% Freshwater fishing               |   |   |
| <input type="checkbox"/> 0% Saltwater fishing                | <input type="checkbox"/> 33% Interpretation (for example, exhibits, kiosks, videos) | <input type="checkbox"/> 1% Other ( <i>please specify</i> )<br><u>See Appendix B</u>          |
| <input type="checkbox"/> 44% 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?

- 15% No
- 85% Yes → If yes, what did you do there? (Please mark **all that apply.**)
- |  |   |
|--|---|
| <input type="checkbox"/> 76% Visit the gift shop or bookstore    | <input type="checkbox"/> 51% Watch a nature talk/video/presentation                               |
| <input type="checkbox"/> 92% View the exhibits                   | <input type="checkbox"/> 67% Stopped to use the facilities (for example, get water, use restroom) |
| <input type="checkbox"/> 69% Ask information of staff/volunteers | <input type="checkbox"/> 10% 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	
52%	82%	69%	It was the primary purpose or sole destination of my trip.
20%	7%	13%	It was one of many equally important reasons or destinations for my trip.
28%	10%	18%	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** 250 number of miles

**Local** 14 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?

38% No (*skip to question #9*)

62% Yes → What **type of group** were you with on your visit? (*Please mark **only one.***)

88% Family and/or friends

2% Organized club or school group

1% Commercial tour group

9% 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

1 number 17 years and under

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

38% Friends or relatives

13% Refuge website

34% Signs on highway

3% Other website (*please specify*) See Appendix B

4% Recreation club or organization

6% Television or radio

27% People in the local community

22% Newspaper or magazine

24% Refuge printed information (brochure, map)

13% 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.***)

35% Spring  
(March-May)

42% Summer  
(June-August)

81% Fall  
(September-November)

35% Winter  
(December-February)

11. How many times have you visited...

...this Refuge (including this visit) in the last 12 months? 8 number of visits

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

**SECTION 2. Transportation and access at this Refuge**

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

- |                              |   |                              |                                  |                              |                                       |
|------------------------------|---|------------------------------|----------------------------------|------------------------------|---------------------------------------|
| <input type="checkbox"/> 96% | Private vehicle without a trailer                             | <input type="checkbox"/> 13% | Refuge shuttle bus or tram       | <input type="checkbox"/> 1%  | Bicycle                               |
| <input type="checkbox"/> 1%  | Private vehicle with a trailer<br>(for boat, camper or other) | <input type="checkbox"/> 0%  | Motorcycle                       | <input type="checkbox"/> 26% | Walk/Hike                             |
| <input type="checkbox"/> 2%  | Commercial tour bus   | <input type="checkbox"/> 0%  | ATV or off-road vehicle          | <input type="checkbox"/> 2%  | Other ( <i>please specify below</i> ) |
| <input type="checkbox"/> 1%  | Recreational vehicle (RV)                                     | <input type="checkbox"/> 0%  | Boat                             | <u>See Appendix B</u>        |                                       |
|                              |   | <input type="checkbox"/> 1%  | 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"/> 57% | Signs on highways  | <input type="checkbox"/> 10% | Directions from Refuge website                        |
| <input type="checkbox"/> 7%  | A GPS navigation system  | <input type="checkbox"/> 9%  | Directions from people in community near this Refuge  |
| <input type="checkbox"/> 20% | A road atlas or highway map                                      | <input type="checkbox"/> 15% | Directions from friends or family                     |
| <input type="checkbox"/> 11% | Maps from the Internet (for example,<br>MapQuest or Google Maps) | <input type="checkbox"/> 43% | Previous knowledge/I have been to this Refuge before  |
|                              |  | <input type="checkbox"/> 4%  | Other ( <i>please specify</i> ) <u>See Appendix B</u> |

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

How likely would you be to use...	Very Unlikely	Somewhat Unlikely	Neither	Somewhat Likely	Very Likely
...a bus or tram that takes passengers to different points on the Refuge (such as the Visitor Center)?	<input type="checkbox"/> 28%	<input type="checkbox"/> 12%	<input type="checkbox"/> 9%	<input type="checkbox"/> 25%	<input type="checkbox"/> 26%
...a bike that was offered through a Bike Share Program for use while on the Refuge?	<input type="checkbox"/> 35%	<input type="checkbox"/> 14%	<input type="checkbox"/> 8%	<input type="checkbox"/> 28%	<input type="checkbox"/> 15%
...a bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources?	<input type="checkbox"/> 21%	<input type="checkbox"/> 7%	<input type="checkbox"/> 6%	<input type="checkbox"/> 32%	<input type="checkbox"/> 35%
...a boat that goes to different points on Refuge waterways?	<input type="checkbox"/> 25%	<input type="checkbox"/> 5%	<input type="checkbox"/> 6%	<input type="checkbox"/> 32%	<input type="checkbox"/> 31%
...a bus or tram that runs during a special event (such as an evening tour of wildlife or weekend festival)?	<input type="checkbox"/> 19%	<input type="checkbox"/> 6%	<input type="checkbox"/> 8%	<input type="checkbox"/> 30%	<input type="checkbox"/> 36%
...an offsite parking lot that provides trail access for walking/hiking onto the Refuge?	<input type="checkbox"/> 15%	<input type="checkbox"/> 7%	<input type="checkbox"/> 10%	<input type="checkbox"/> 33%	<input type="checkbox"/> 35%
...some other alternative transportation option? ( <i>please specify</i> ) <u>See Appendix B</u>	<input type="checkbox"/> 4%	<input type="checkbox"/> 4%	<input type="checkbox"/> 11%	<input type="checkbox"/> 32%	<input type="checkbox"/> 50%

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

- 31% Yes       27% No       43% Not Sure

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

Importance						Satisfaction					
Circle one for each item.						Circle one for each item.					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
6%	13%	10%	48%	23%	Surface conditions of roads	4%	7%	3%	25%	61%	NA
4%	13%	10%	50%	22%	Surface conditions of parking areas	3%	4%	3%	23%	67%	NA
10%	5%	17%	28%	41%	Condition of bridges	1%	2%	14%	21%	63%	NA
4%	6%	6%	35%	48%	Condition of trails and boardwalks	1%	6%	5%	35%	52%	NA
4%	6%	8%	50%	32%	Number of places for parking	1%	11%	5%	32%	51%	NA
3%	5%	6%	43%	43%	Number of places to pull over along Refuge roads	0%	8%	7%	38%	47%	NA
5%	5%	5%	27%	58%	Safety of driving conditions on Refuge roads	2%	3%	6%	26%	64%	NA
4%	5%	7%	34%	51%	Safety of Refuge road entrances/exits	1%	2%	3%	23%	71%	NA
6%	5%	4%	37%	49%	Signs on highways directing you to the Refuge	1%	5%	4%	29%	60%	NA
4%	4%	4%	40%	48%	Signs directing you around the Refuge roads	1%	5%	9%	33%	53%	NA
4%	3%	9%	33%	50%	Signs directing you on trails	1%	11%	14%	37%	37%	NA
6%	9%	21%	17%	47%	Access for people with physical disabilities or who have difficulty walking	6%	9%	24%	30%	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

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**SECTION 3. Your expenses related to your Refuge visit**

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

56% Yes

45% No → How much time did you spend **in local communities** on this trip?

  4   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
14%	18%	19%	10%	14%	5%	11%	1%	2%	4%	3%

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.***)

0%	Far too low	8%	Too low	92%	About right	0%	Too high	0%	Far too high	88%	Did not pay a fee
<i>(skip to Section 4)</i>											

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

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

9%	Strongly disagree	0%	Disagree	9%	Neither agree or disagree	57%	Agree	26%	Strongly agree
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#### SECTION 4. Your experience at this Refuge

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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%	4%	4%	40%	53%	NA
Overall, I am satisfied with the information and education provided by this Refuge about its resources.	1%	3%	37%	60%	100%	NA
Overall, I am satisfied with the services provided by employees or volunteers at this Refuge.	2%	2%	24%	72%	100%	NA
This Refuge does a good job of conserving fish, wildlife and their habitats.	2%	4%	27%	68%	100%	NA

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

Importance					Refuge Services, Facilities, and Activities	Satisfaction					
Circle one for each item.						Circle one for each item.					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
3%	3%	10%	36%	48%	Availability of employees or volunteers	2%	1%	6%	16%	76%	NA
3%	3%	5%	32%	57%	Courteous and welcoming employees or volunteers	1%	2%	3%	13%	81%	NA
2%	3%	3%	26%	66%	Knowledgeable employees or volunteers	1%	3%	5%	12%	79%	NA
2%	1%	4%	36%	57%	Printed information about this Refuge and its resources (for example, maps and brochures)	1%	2%	5%	21%	71%	NA
1%	3%	8%	39%	49%	Informational kiosks/displays about this Refuge and its resources	1%	1%	8%	22%	68%	NA
2%	1%	14%	37%	46%	Signs with rules/regulations for this Refuge	1%	2%	9%	31%	57%	NA
2%	2%	9%	41%	46%	Exhibits about this Refuge and its resources	1%	1%	8%	21%	69%	NA
5%	2%	11%	35%	48%	Environmental education programs or activities	1%	2%	18%	22%	57%	NA
2%	1%	4%	36%	57%	Visitor Center	1%	1%	3%	13%	83%	NA
2%	1%	6%	28%	64%	Convenient hours and days of operation	1%	2%	3%	20%	74%	NA
2%	3%	4%	25%	66%	Well-maintained restrooms	1%	1%	4%	12%	83%	NA
2%	2%	8%	33%	56%	Wildlife observation structures (decks, blinds)	1%	3%	6%	32%	58%	NA
2%	2%	8%	24%	64%	Bird-watching opportunities	1%	3%	7%	23%	66%	NA
2%	1%	6%	29%	63%	Opportunities to observe wildlife other than birds	1%	9%	10%	30%	51%	NA
3%	1%	7%	30%	58%	Opportunities to photograph wildlife and scenery	2%	3%	10%	23%	62%	NA
49%	5%	21%	12%	14%	Hunting opportunities	7%	4%	46%	16%	26%	NA
39%	9%	21%	17%	13%	Fishing opportunities	7%	2%	51%	16%	23%	NA
3%	2%	10%	36%	49%	Trail hiking opportunities	1%	6%	12%	41%	41%	NA
20%	6%	35%	22%	17%	Water trail opportunities for canoeing or kayaking	4%	10%	56%	12%	18%	NA
12%	10%	22%	37%	19%	Bicycling opportunities	2%	7%	38%	28%	26%	NA
9%	5%	30%	28%	27%	Volunteer opportunities	1%	2%	39%	22%	36%	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

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

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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?

92%

Yes

8%

No

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

96%

Yes

4%

No

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

91%

Yes

9%

No

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

See Appendix B

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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.	8%	5%	12%	36%	40%
We can improve our quality of life if we address the effects of climate change on fish, wildlife and their habitats.	8%	3%	14%	38%	38%
There is too much scientific uncertainty to adequately understand how climate change will impact fish, wildlife and their habitats.	19%	23%	12%	32%	14%
I stay well-informed about the effects of climate change on fish, wildlife and their habitats.	4%	10%	33%	42%	11%
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%	8%	19%	49%	20%
I take actions to alleviate the effects of climate change on fish, wildlife and their habitats.	7%	7%	36%	40%	11%
There has been too much emphasis on the catastrophic effects of climate change on fish, wildlife and their habitats.	27%	26%	19%	18%	10%
Future generations will benefit if we address the effects of climate change on fish, wildlife and their habitats.	5%	3%	14%	39%	38%
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.	10%	13%	34%	32%	11%

## 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?  54% Male  46% Female

3. In what year were you born? 1955 (YYYY)

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
(elementary)					(junior high or middle school)			(high school)				(college or technical school)				(graduate or professional school)			
					0%			14%				46%				40%			

5. What ethnicity do you consider yourself?  9% Hispanic or Latino  91% Not Hispanic or Latino

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

- 4% American Indian or Alaska Native  1% Black or African American  98% White  
 1% Asian  0% Native Hawaiian or Pacific Islander

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

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

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> 3% Less than \$10,000   | <input type="checkbox"/> 15% \$35,000 - \$49,999 | <input type="checkbox"/> 12% \$100,000 - \$149,999 |
| <input type="checkbox"/> 6% \$10,000 - \$24,999  | <input type="checkbox"/> 22% \$50,000 - \$74,999 | <input type="checkbox"/> 4% \$150,000 - \$199,999  |
| <input type="checkbox"/> 13% \$25,000 - \$34,999 | <input type="checkbox"/> 21% \$75,000 - \$99,999 | <input type="checkbox"/> 5% \$200,000 or more      |

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

15 number of trips

**Thank you for completing the survey.**

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

See Appendix B for Comments

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## Appendix B: Visitor Comments to Open-Ended Survey Questions for Bitter Lake 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
Butterfly Festival	1
Dragonfly Festival	75
Firefly Festival	1
Hunter education	1
Hunter's safety course	1
Pheasant Jr. Hunt	1
Tour to areas usually not open to the public.	2
Total	82

Other Activity	Frequency
Bird tour	1
Made purchases from the gift center	1
Once-a-month tour of the refuge	1
Quiet	1
Relaxing--recreation	1
Traveling	1
Visit	1
Watched a movie about the different animals & insects at the refuge	1
Total	8

2 <sup>nd</sup> Other Activity	Frequency
Off-limits tour	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
Observation of Scenery	1
Quiet	1
To be near nature	1
Traveling	1
Total	4

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

Other Visitor Center Activity	Frequency
Activities	1
Activity Booths/Food	1
Bloom Mound Lecture- Mark Swan	1
Bought our own videos	1
Enjoy the group activities at the Dragonfly Festival	1
Food and drinks at DFF	1
Hunted	1
Meeting place for tours	1
Met the tour guide for above mentioned tour	2
Observed dragonfly activities around the pond and identified desert plants and landscaping and took the nature walk to the habitat observation deck	1

Public booths	1
Talk with staff	1
This is where the hunter's education class was held	1
Took planned tours with guides	1
Used overview for scenery	1
Used viewing windows and deck	1
Total	17

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
Albuquerque BioPark	1
Dragonfly Festival Tour Group	1
Dragonfly Festival, Friday to Saturday	1
Draw hunt for youth	1
Hunting	1
I was an educator from Spring River Zoo in Roswell.	1
Park Ranger Escorted Tour	1
Pheasant Draw Outing	1
Youth Hunt	2
Youth pheasant hunt	1
Total	11

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

Other Website	Frequency
4th grade field trip	1
Dragonfly Festival	1
FWS	1
NM state parks	1
Notation on state road map	1
Roswellmysteries.com	1
Total	6

Other Ways Heard about This Refuge	Frequency
Ad for the Dragonfly Festival	1
Audubon Society	1
Audubon Society book	1
Billboards	1
Frommer's New Mexico	1
Game and fish	1
Internet & New Mexico Magazine	1
Map and guidebook	1
Map of the area	1
National Wildlife Refuge system map.	2
Near Roswell, NM where we shop.	1
NMFG	1
Postcard at Starbucks	1
Previous employment with USFS & BLM	1

Road map	1
School	1
State map	1
State map of New Mexico	1
Town we moved to	1
US Fish and Wildlife Special Agent in Albuquerque	1
Verbally from refuge employee	1
Worked as YCC Member	1
Zoo	1
Total	24

## Survey Section 2

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

Other Forms of Transportation	Frequency
Gov. Transportation	2
School Bus	1
Zoo2You Van	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
Audubon Society book	1
Called for Directions	1
I also asked for directions at the visitor center.	1
I had to call the refuge number because the directions on the internet were old and false.	1

I was with a Roswell Resident.	1
Phone Call to Refuge	1
Refuge workers	1
Roswell lifelong resident	1
Total	8

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
Air -- helicopter, balloon, fixed-wing	1
Air tour	1
ATV	1
ATV or 4X4 excursion	1
Bikes	1
Bikes to rent	1
Boat or off road tour	1
Bus from town to center	1
Clean energy vehicle	1
Describe the tram system proposed, please.	1
Drive my own auto	1
Electric cart rentals (cheap); Horse Rentals (cheap)	1
Flyover	1
Hay ride on horses	1
Inexpensive transportation from Roswell to the refuge.	1
Just the vehicle we drove.	1

Motorized wheelchair for my Mom	1
My canoe	1
My car	1
Open to suggestions	1
Open tour bus to pop in and out of like at Sabino Canyon in AZ	1
Own Vehicle	1
Personally owned vehicle	1
Private Car	1
Private Vehicle	2
Rental ATV	1
Unknown	1
Walking trails	1
Total	29

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 = 32)

Although I don't require improved surfaces/access for a physical disability, I appreciate when this is made available for others.

Can't answer last question

Do not develop to a "city level." Natural aspects should be protected and first priority.

Gravel roads, gravel parking, and trails were well maintained on this refuge. Paved roads and parking were fine.

I have been to this refuge for several tours in previous years and was very satisfied with those tours.

I like the tours by van, with a guide mostly around the refuge. Walking trails, about 1 to 2 miles, should start from the refuge and be well marked and explained (by signs, boards, explanations on vegetation, animals, insects, and birds).

I think this refuge could benefit from expanding the walking trails.

I use a cane and found everyone helpful but some of the vans are a bit too high off the ground. Need little stools for sure.

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If public transportation were offered around the refuge (bus or tram), I would like it to have a guide on board explaining what we are seeing.

If you let people shoot the birds, you should allow bird-watchers better opportunities to see the birds, plus capitalize on other nature viewings such as lizards, butterflies, etc. More trails or waterway miles are good (not many trail benches).

More trails for hikers/cyclists would be good.

Need more parking at visitor's center.

Parking for loading and unloading for vendors during the Dragonfly Festival was a problem.

Parking lot at the Oxbow is unusable in wet weather. Not all highways entering the area have National Wildlife Refuge signs. Trail signs are missing or are not clear.

Some of the best bird viewing areas were locked.

Some trails are soft sand so they are not adequate for wheelchair access, but the trails are very good for walking.

The accommodations at the "Bitter Lake Refuge" site were excellent and the personnel were very friendly and knowledgeable.

The difficulty of crawling in and out of vans at each stop took time and was hard, especially for senior citizens and the disabled. An open vehicle would make the touring so much more enjoyable. Tour guides need microphones!!!!

The guide was very good about including people with physical disabilities.

The main tour road should be one-way, and is, except for the 50 percent of visitors who are morons and turn left where the two arrows direct them to go straight. Place needs some sort of sign telling them that they have gone the wrong way. This is my major annoyance at BLNWR.

There is no sign telling us how long the trail is, and the trail itself is not well-defined.

The pathways throughout were all gravel. This would be difficult for people with disabilities.

This summer, trails were overgrown with huge weeds.

Trail access for handicapped people.

Trails had weeds as tall as me.

Waste of taxpayer dollars.

We came to the refuge with my 87 year-old mother who does not walk far and who did not get out of the car.

We need better road and walkway for anyone who has disabilities.

We visited in winter - answers may be different if it were Spring, Summer, or Fall.

Wonderful experience, very informative and helpful staff and volunteers.

## 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 = 54)

1. "Discovery Tour" Jeff Sanchez (Biologist) and Austen Taylor (Biologist Intern)- "excellent." Also, Sarah Blocker (USFS Fish Restoration) and our driver was very courteous, Daniel Franco. 2. "Hummingbird Slide Show" Bill Flint, "excellent." 3. "Bird Love" "Guides and Drivers" Bill Briney and Cecil Kimboren "excellent."

A tower would be nice to see greater distances.

Additional rule signs might insure visitors follow the rules. We are unaware of any environmental programs. Additional observation points would be nice. Additional hiking/observation trails would be nice.

After this portion of the survey I realize that if the refuge offers biking, fishing, hunting opportunities I don't know about them.

Always a good experience.

Before Bitter Lake was "managed" there were actual "lakes" and fishing and water. Now there are no deer and the trails lead to nowhere.

Being open on Sunday would be nice.

Biking at least on some trails would be an attraction. Trails would need to be wider and bike traffic confined to non-walking trails to avoid accidents with hikers. Kayaking or canoeing sounds interesting, but it may disturb wildlife.

Bird hunting on Refuges should not be allowed.

Dragonfly Festival was a wonderful way to experience and get to know the refuge- and to see it is kept protected and not overdeveloped so as to lose values of habitat.

Hunting is my main activity at the refuge. I would like to see better and more opportunities in upland, big game and waterfowl hunting. In the past years it appears that less and less water is put in all the holding ponds including the hunting areas that hold and attract waterfowl. This year the amount of birds at the refuge was down considerably from other years. I believe that this practice has a considerable impact on the numbers. Hunters can be an environmental problem at the refuge. I believe it would be helpful if the hunters were better educated (with the use of signs and handouts) on the need for them to police up their spent casings and trash (pack it in, pack it out policy) and add waste receptacles that are directly and easily accessible in the hunter access and parking areas and following up with compliance. I would hate for hunting opportunities to be taken away for just such issues.

I always disagree with having wildlife refuge areas shared with people hunting and fishing within the boundaries.

I can't come to grips with hunting at a wildlife refuge. I couldn't visit parts and gunshots scare the birds which makes them "spooked." It would be much better if it were really a refuge with wildlife viewing enhanced.

I hardly saw any dragonflies and this was the Dragonfly Festival.

I think this refuge offers a lot of different types of activities for our community.

I thought some of the volunteers were not prepared. Others were exceptionally knowledgeable and capable.

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If I remember correctly, the roads could have been better developed and maintained. Only one blind was provided to allow bird watching somewhat closer than other viewing areas.

Large sections of lakes/ponds are dry--a noticeable change from past years--water availability will increase amounts and kinds of birds/wildlife.

Like to take visitors to Roswell there.

Local school should come to offered tours, events, etc.

Loved the Dragonfly Festival!

My first time there, very impressed. Will come back.

Need to have more places to hunt, open up some places and more days.

Needs access to information about being a volunteer and host using your own RV.

No services, they were closed.

Really appreciated the volunteer-guided tour "Behind the Scenes." The guide was extremely informed (retired science teacher), articulate, considerate and knowledgeable on a global scale!

Roads need paving; they were very dusty.

Shortage of volunteers cancelled a dragonfly tour for which I had made a reservation.

The employee's knowledge at our time of visit was outstanding. My sister is a teacher in Roswell and has used this refuge for great teaching opportunities. Excellent job.

The employees were outstanding...polite, knowledgeable, inclusive.

The facilities were very clean and fresh, well taken care of. In all, I was very impressed with the facilities and staff. The programs and tours were very informative and professionally conducted. I hope to participate again.

The Festival was very well organized. The volunteers and the staff were terrific! Two employees were especially welcoming and interesting. Jeff Sanchez, the refuge biologist is very knowledgeable and shared information with the tour groups so that we really enjoyed learning about the refuge. Steve Alvarez was available to the public and was patient with those of us who asked questions.

The kiosk at Hunter's Oxbow needs to be redone.

The new Visitor Center and recently improved roads are great improvements.

The refuge has a lot of great wildlife, but I think it could expand the opportunities for recreation.

The salt cedar is a never-ending battle!

They should have fishing there. Just fill the empty square space up and charge a fee to fish. The New Mexico game and fish might have a program.

This is a well-planned NWR. The best part is that it is free, I can come and go when I please. If it becomes a fee entrance, participation

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will decrease.

This survey is too long.

Very nice

Very nice people and helpful facilities, very nice and clean.

Very nice visitor center and the on-duty staff was very friendly, knowledgeable, and helpful. He was great! Thanks.

Very pleased with staff and guides.

Want more photographic opportunities in off-site areas.

We had a wonderful time. Thank you!!!

We need better viewing areas.

We were disappointed that the visitor center was closed during our weekend visit.

We would not be volunteering at this refuge but the volunteers that were there were excellent and made our visit more enjoyable. We did not see signs on the refuge but we were on tour vans that went places you are not normally allowed to drive on.

When we came through the refuge a second time two days later on our way back home, the visitor center was still closed at 8:30 AM when it was supposed to be open at 8:00.

Wonderful refuge and Visitor Center. Staff is great! I do think hunting should be eliminated! Does not seem right for a sanctuary to have hunting!

Workers and volunteers were friendly and informative, this was a working trip and this outing provided a wonderful look into what New Mexico is about.

Would prefer no hunting in the refuge.

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## Survey Section 5

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

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Comments on What Makes Refuges Unique? (n = 142)

"Unique" means one of a kind; not a good word to use. But I like the chance to see the scenery and animals with the only sounds from the birds, bugs, and wind (and occasional coyote), with a minimum of intrusive development and agency self-back-patting. All NWRs I've been to are good operations.

A chance to see wildlife in natural habitat.

A means of viewing creatures in their habitats in a "natural" environment.

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A source for flora & fauna to be preserved in a natural setting.

Ability, if so desired, to hunt and fish in these environments.

Able to observe habitat in natural surroundings.

Able to see all wildlife.

Access to bird watching and wildlife viewing.

Access to viewable wildlife (birds included) is generally better on NWRs than in National Forests. NWRs are far less crowded than Nat'l Parks and usually have more viewable wildlife. The only annoyance is that at some of them you have to time your viewing to avoid hunters (but, I am NOT anti-hunting and believe it is a valid and valuable component of NWRs).

Accessibility -- most public lands are off-limits to private access. During festivals and special events like this the public is allowed to view wilderness areas and see habitat and wildlife restorations otherwise not available to the public.

Accessibility.

Allows our native wildlife a safe, secure area to nest or visit during migration.

Also provides campsite for Boy Scouts.

Amount and variety of wildlife to observe.

An important and wonderful asset to American citizens. We need to know all that we can about our natural habitats and preserve areas for our native wildlife.

Area.

As opposed to canyons and mountain parks, refuges provide the visitor with the opportunity to observe wildlife in their natural environment and benefit from the professionals who work with and provide comprehensive knowledge of the habitats.

Being able to observe wildlife in a natural setting that is safe for the wildlife.

Better waterfowl hunting opportunities.

Bird watching.

Bird watching.

Bitter Lake is a waste of taxpayers' money.

Carefully managed so not too many visitors are causing problems. Carefully managed for wildlife to thrive. Thank you!

Chance to view wildlife on their own terms. Preserving the unique ecosystems that support wildlife and contribute to the richness of our own lives.

Combining many different recreational uses within the boundaries of the park was great, (hunting, driving, hiking).

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Conservation while at the same time offering hunting activities.

Dragonfly Festival. Free is nice, but a dollar a person might help with expenses. Great event and it's getting better each year.

Even though hunting is allowed at the refuge, due to the management of days, it provides an environment where not only can I hunt but also enjoy other activities to enjoy wildlife. Somehow the animals know that they are safe and are somewhat more relaxed which presents an opportunity to closely observe them in their natural habitat.

Feel one is in the birds and animals world... not the world of humans.

Focus on providing information to public about wildlife, and on improving habitat for wildlife.

Have their own type of habitat and unique areas.

Higher quality experience for the youth of today.

I appreciate the well managed habitat and the restoring of native flora and fauna. The availability of guided tours and self-guiding tours contribute to the uniqueness of wildlife refuges. Refuges are quiet, calm, peaceful, and provide a wonderful opportunity to view wildlife.

I don't have any comments. I've never been anywhere but this location, so I have nothing to compare it too.

I like the drive. My kids like to go there.

I like them. I appreciate what they are for and about.

I love the special species of fish/shrimp in the sinkholes. Plenty of birds, dragonflies, and sunflowers. Children need to experience more of the nature around them to learn to appreciate this location.

I love to see nature in a more natural setting than a zoo.

Ideal for viewing the variety of birds as well as the quantity at different times of the year.

In my experience, Refuges (Bitter Lake, Sevilleta, and Bosque del Apache are the ones I often visit,) are uniquely designed for wildlife observation from convenient observation routes to platforms.

Inexpensive wildlife/bird observation and photography.

It concentrated on endangered species and what needs to happen to make a difference.

It highlights, spotlights, and presents nature on a good looking plate.

It is a place primarily for the wildlife and the people are merely observers. They are places to make sure the wildlife can be preserved and endangered species can hopefully be sustained.

It is a place that is specifically designed to photograph or observe different species of wildlife in their natural habitat!

It is an oasis- these are very rare and special in our lands. Time to get rid of old ways of hunting and focus on conservation and ecotourism.

It is incredibly beautiful and educational, especially because it is a water refuge in the desert.

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It provides an area for concentrated bird populations, preserved wetlands and attempts to protect native flora and fauna.

It was my first visit to a National Wildlife Refuge. In its own way it's like Yellowstone. It provides a natural habitat for wildlife not seen elsewhere. To the extent that can be preserved and shared with current and future generations, it is an invaluable resource.

It's a delightful place to visit and learn about a varied environment.

It's a good place for people to learn what wildlife lives at the Refuge.

It's beautiful and well kept.

It's close to home and the weather is awesome year round!

It's good that this particular refuge can host the Dragonfly Festival.

It's not commercialized. Way to see animals in natural, unspoiled habitat.

Knowing and maintaining the mix of humans and wildlife--and education on co-existing with our invasion into wildlife habitats.

Large numbers of wildlife.

Large population of dragonflies.

Living in a desert to have a bird fly away in which geese, ducks, cranes, etc., come to rest is a real boon! In addition to the aquatic creatures it gives us and children an opportunity to view wildlife other than seeing it in a movie!

Location

Location.

Lots of interesting birds to see.

Met my expectations.

Migratory bird-watching.

More integrated.

More of an opportunity to observe specific wildlife and bird life species.

My family enjoyed viewing the wildlife while learning about conservation and preserving the wildlife.

Nature and conservation are a good match.

Note: I have found that State Parks, Nature Centers (such as those in Arkansas), and other public lands offer very similar recreation experiences.

On refuges wildlife and habitat protection is more important than recreation.

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Opportunity to observe shore birds and other waterfowl not found in a desert environment.

Opportunity to observe wildlife and birds up-close and personal rather than viewing from a distance.

Pecos River with Reel Cliff.

Preservation of wildlife.

Preserves habitat, allows close proximity to wildlife, education.

Pretty wildlife (plants and animals) and an ecosystem first management method with humans as observers.

Protection of habitat for migrations, seasonal protection of wildlife, and the opportunities to view wildlife.

Refuges are important so that diversity of animals and plant species are protected and ensured. Loss of even a single species is unacceptable.

Refuges are unique because their focus is the wildlife unlike many natural places whose purpose is recreation with a side of wildlife/habitat.

Refuges are wildlife oriented to the extent that other governmental agencies are not. The animal/visitor interface has the potential to be maximized at refuges.

Refuges work to preserve wildlife.

Regionally specific to wildlife found there.

Seeing the birds and other wildlife travel, stay, and move on- and be safe.

Seeing waterfowl in natural habitat.

Small, unique interactions.

So much to see....

Staff, opportunity to view displays, and cleanliness of site activities.

That this is a wildlife refuge that allows seasonal hunting opportunities.

The availability of nature type setting that is managed/protected.

The awareness brought to wildlife and the number of different species on the refuge.

The beauty of the landscape, the many birds and other mammals, quietness and peacefulness. I love our Wildlife Refuges.

The birding experience was as good as, if not better than, Bosque del Apache!

The chance to observe wildlife and waterfowl without disturbing the birds in their habitat and education for children and visitors.

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The closeness to nature and the lack of commercialization.

The combination of conservation with education; primary emphasis on preserving unique environments/endangered species.

The concentration is on wildlife rather than on viewing the landscape features.

The different birds that visit the refuge throughout the year are great. The Dragonfly Festival is very special.

The diversity of protected wildlife is encouraging. Migration routes are being saved and it provides wonderful getaways for humans and creatures- very important.

The Dragonfly festival is the BEST. I love having knowledgeable people tell me about a dragonfly that I'm holding in my hand. That is amazing. The unique habitat is very special. We are lucky to have this as a refuge.

The fact that visitors are there to observe wildlife and not boat, fish, swim or other activities that scare off wildlife. We wish the hunting would stop.

The focus is on wildlife, plants, and their habitat. Other public lands typically have multi-use requirements which can compromise the conservation of the ecosystem.

The focus on conservation.

The focus on maintenance of ecosystems, and the conservation of the habitats. The peace and quiet also make them special. The lack of camping (generator noise etc.) and the lack of ATVs, snow mobiles, etc., lessen the disruption of the wildlife and increase the enjoyment of "refuge" type visitors (people like my wife and me).

The open areas, no tall structures.

The opportunity to observe unique environments.

The organization and logical layout the refuges. The information provided and apparent care, and clean facilities.

The people.

The refuge is left in a natural state- no gardens, no plantings for attracting birds or animals, no feeding stations to attract birds or animals. No "park" atmosphere.

The refuge offers a safe haven for migratory birds and saves the habitat for all wildlife. We need more refuges to counter habitat destruction.

The refuges are more low-key and less busy with people than the national parks and I love that.

The setting is just wonderful- especially for this part of NM.

The unspoiled beauty & wild charm.

The videos at the visitor center gave us a complete understanding of the refuge's importance to the birds, animals and vegetation.

The wildlife refuges I have visited offer unparalleled opportunities for bird watching.

The wildlife. It's understood that a refuge is mostly for the wildlife, so access to humans has to be limited.

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Their concentration on the protection of wildlife and the environment, opportunity to educate the public (our dear friends were volunteers/docents at a refuge near AZ during the winter. They conduct tours for school groups and visitors, and have provided invaluable opportunities for learning.)

There are only limited places to see wildlife in their natural habitat - especially near big cities. They are safe places for wildlife.

There's an opportunity to learn about management for wildlife and natural ecosystems, to keep areas in balance even with human use.

They act as "concentrators" of various species of birds and wildlife. This favorable habitat for the targets of the management programs creates unique opportunities for observation by the public.

They all have something special; there are no two alike.

They are areas where you know the natural setting is preserved and wildlife can be seen in its natural habitat. Refuges like this one give people the chance to see up close and walk around in efforts to provide a place where wildlife is welcome.

They are open for you to hike as you like and you know the habitat is preserved.

They are protected.

They are used to keep smaller micro environments safe.

They give the public a place to view the birds.

They have more opportunities to view wildlife.

They offer the opportunity to observe wildlife versus being a generally protected area.

To me it just seems more peaceful and relaxing.

To see the wildlife/birds in the area and get to see wetlands in all seasons of the year. It is quiet, pretty and very relaxing.

To watch the animals, birds and water is a relaxing experience.

Unique environment with sink holes, salinity and open water for dragonflies, birds, fish, etc.

Very natural undisturbed countryside.

Water and wetlands in a dry area.

Wildlife - This survey is too long.

Wildlife observation, appreciation, educational opportunities for youth who are inheriting the earth from us adults.

Wildlife viewing encounters are much more abundant than those in non-refuge areas.

Wildlife watching, interpretation, trails, and exhibits are focused on local wildlife.

With the migration of different types of waterfowl and that some visit our Refuge gives people an opportunity to see these birds in a wild setting where they probably would not be if the Refuge was not here.

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You all rock! Thank you!

You get a chance to hunt different birds.

You get to see all kinds of wildlife, and something you can do with your family! I thank God for Bitter Lake when we go duck hunting, so please don't close it! There is talk that it's going to be closed to hunting.

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Additional Comments (n = 49)

Again, let's get the local school districts involved in visiting, researching, maintaining, and assisting in the local NWR. Children need to learn about nature *in* nature (not just in books).

Although we don't usually have or make time for recreational trips, we live in the country and are very aware of wildlife and waterfowl. While we made only two trips during the year (that I recall) for wildlife viewing, one of them was to Alaska (for three weeks) as much for the wildlife as the cultural treasures and scenic beauty. Without the health of our planet and wildlife, we would be poor indeed. I feel that it is a tragedy that our country has done so little to respond to the effects of global warming on an official basis. By the way, the trip we made to Bitter Lake was especially for wildlife viewing.

An exhibit that ties the history of the Pecos River to the development of the Bitter Lake National Wildlife Refuge would be very educational.

Bitter Lake is a waste of taxpayers' money.

Bitter Lake NWR is wonderful for a new NWR. We look forward to seeing improvements of more hiking trails and blinds in the years to come. The evening return of geese and cranes was amazing in the New Mexico sunset and twilight. We visit NWR's on any/all of our road trips.

First visit, wish I had had more time; will allot more next time. Impressed with everything I saw, would like to walk the trails. Will visit again during my yearly visit to Ruidoso, New Mexico.

Had emailed the contact listed on this refuge's website about volunteer opportunities, but two weeks have gone by without an answer. I am very disappointed by that.

I am retired and travel extensively through Arizona, New Mexico, Baja California where I have a sailboat in La Paz, because I am very interested in the habits of the migratory bird populations and have made a personal study on seabirds and their habits. I'm happy to have participated in this survey and am sorry to have been tardy in doing so. (Name Signed)

I have always very much enjoyed my visits to this refuge and found the personnel very friendly.

I hope that you are NOT wasting tax dollars on a silly survey like this! Keep up the nice wildlife refuges but STOP with these foolish surveys, please!

I love it.

I plan to return to Bitter Lake for next year's Dragonfly Festival!

I think a few more places to view ducks more closely on the water would be nice at this refuge. The staff was very helpful with information about the more remote areas of the refuge and we enjoyed a walk at the Salt Creek area.

I was pleased to find that the staff of the rather small, older, "Mom and Pop" motel where I stayed had information and directions to the

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refuge.

I wish the water was higher this year.

I would appreciate more access by foot trails to different parts of refuge, where practical. Boardwalks might be suitable in wetland areas. More shade structures throughout public access areas would probably increase visitation by the public.

I would love to hear more about volunteer opportunities at this Refuge.

It appears from my quick visit that funds are being utilized very efficiently and hopefully effectively.

It is wonderful!

It offered a unique opportunity to observe birds that aren't residential in the part of the country where we live.

Keep up the good work! Fight Republican propoganda and lies! Educate the public, do not compromise with corporations!

Keeping this ecosystem healthy is so important. Thank you for providing a point of interest (Dragonfly Festival) so I visit the unknown and unappreciated lands. Critical to have educational opportunities so communities tie into and learn to appreciate the wildlife habitat. Volunteers were wonderful- friendly and knowledgeable. Keep on having birder education and experiences. No motorized vehicles allowed to interrupt the experiences of quiet. Thank you for all you are doing.

No hunting, please!

Number of trips include many day trips from home as well as trips that involve overnight stays. Bitter Lake is a very nice refuge; it offered good bird watching.

One of 5 reasons we chose to retire in Roswell was Bitter Lake NWR.

Open more places where we can hunt.

Our trip will be in my dad and my hearts forever! Thank you! (Named Signed)

Our visit to Bitter Lake National Wildlife Refuge was an incredible experience! The FWS employees and the volunteers shared a wonderful enthusiasm for their passions. My husband and I are looking forward to going back in November for the fall migrations, and we have decided to visit all the refuges in our state! The Dragonfly Festival was a truly unique experience and one which we will not soon forget! (Especially since we plan on going back often!)

Thank you for hosting the Dragonfly Festival!

Thank you. I am interested in getting information on how to become part of the Game & Fish or the USFSW team. I would like to know the amount of schooling and benefits of different levels of opportunity within the department. (Name Signed)

Thanks for selling my lizard book!

The focus on Hispanic concerns is offensive to me. I don't understand why that is a focused question. I also wonder about the agency's focus on climate control... when there is no evidence humans can control climate... and ample evidence shows climate changes constantly through the eons.

The people who run this refuge do an outstanding job of getting the community involved. I have never seen so many people there as when the Dragonfly Festival was going on!

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The refuge is the best kept secret in Roswell. I enjoy it for Sunday drives. For me it is a "private church."

They keep all the grounds very clean.

This refuge has a horrible mosquito population in the summer months that makes hiking challenging.

This refuge is very boring. It is a wasted drive out there. Nothing to see. Very little water for birds to come out there. The road around the lake is bumpy. Seems like a tractor with turning meddle blades drove around it. Nothing is offered with this place, close it down.

This summer, the trails were overgrown with huge weeds.

This survey tends to get a bit political, I see no reason to answer my income or race.

Try to increase the amount of wildlife resting/nesting area available, and include food sources...the local food source was available in years past, and there types/amounts of wildlife were larger.

We felt the tour guides for the Dragonfly Festival were personable and professional.

We have been going to this refuge for many years and have always enjoyed seeing the birds and other wildlife.

We have visited Bitter Lakes many times since we moved to Roswell, and have always enjoyed the refuge. The new Sheen Visitor Center is a great addition.

We love what you are doing! Keep up the good work! (Name Signed)

We need to stop all alcohol consumption and polluting with beer cans and shot gun hulls. There should be more posting of rules through the refuge like hunting area and viewing area. Rules like (no alcohol consumption) (pick up all shot gun hulls). My friend and I reload all hulls.

We traveled from Arkansas to visit relatives and were pleased to be introduced to the wildlife refuge. The geography, wildlife, and habitat are much different from our region. We found it to be an interesting trip. We'll visit again.

We were a little disappointed that we couldn't get closer to the birds in more of the official observation places. A CD to be used on the self tour would be a nice extra.

We were disappointed that the visitor center was closed during our weekend visit.

Well worth the travel time and the expense of attending this annual event.

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