



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

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

A wonderful place, very informative, and has a friendly staff! An all-around great 'natural' education experience for my kids.—Survey comment from visitor to Sand Lake National Wildlife Refuge.



Sand Lake National Wildlife Refuge. Photo credit: Tom Koerner/U.S. Fish and Wildlife Service.

Contents

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

Figures

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

Tables

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

Acknowledgments

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

Introduction

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

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

Organization of Results

These results are for Sand 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):** The survey instrument with the frequency results for this refuge.
- **Visitor Comments (Appendix B):** The verbatim responses to the open-ended survey questions for this refuge.

Methods

Selecting Participating Refuges

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

Developing the Survey Instrument

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

Contacting Visitors

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

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

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

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

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

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

Interpreting the Results

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

Herein, the sample of visitors who responded to the survey are referred to simply as "visitors." However, when interpreting the results for Sand 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 Sand Lake National Wildlife Refuge

Sand Lake NWR is located in northeastern South Dakota, about 10 miles south of the North Dakota border. Sand Lake NWR is one of the state's incredible treasures, between deep blue potholes of water and scattered pieces of wild prairie. The surrounding area was once vast, rolling grassland interrupted only by the slow moving James River. With the onset of more European American settlers in the late 1800s, farming and grazing practices began to deplete essential wildlife habitat as grasslands were converted to crops such as corn and wheat. This, combined with a major drought, caused migratory bird populations to dwindle to alarmingly low numbers in the 1930s. Sand Lake NWR, established in 1935 as a refuge and breeding ground for migratory birds and other wildlife, is now known for its spectacular concentrations of wildlife. Covering almost 21,500 acres, Sand Lake NWR is home to over 266 bird species, 40 mammal species, and a variety of fish, reptile, and amphibian species. Sand Lake NWR is a Globally Important Bird Area and has been named one of the top 15 birding sites in North America by *WildBird* magazine.

The Sand Lake Wetland Management District (WMD), was established in 1961 and is the largest WMD in the country, encompassing 45,000 acres of grasslands and wetlands on 162 Federally owned Waterfowl Production Areas. It protects over 550,000 acres of private land through wetland and grassland conservation easements in partnership with landowners; this land provides habitat for nesting and migrating birds and other wildlife, as well as year-round recreational opportunities. The habitat conserved collectively on Sand Lake NWR and Sand Lake WMD provides a landscape scale conservation effort for migratory birds and other wildlife.

Sand Lake NWR attracts over 42,000 visitors annually (based on 2008 RAPP database; U.S. Fish and Wildlife Service, 2011, written comm.). Visitors can enjoy environmental education and interpretive programs, fishing, hunting, wildlife observation and photography. Hunting at Sand Lake NWR includes white-tailed deer, pheasants, sharp-tailed grouse, partridge, and various waterfowl. Fishing is abundant with species such as walleye, northern pike and other rough fish. Sand Lake NWR also offers a 15-mile auto tour route through the heart of the refuge with 12 self-guided stops. Figure 1 displays a map of Sand Lake NWR. For more information, please visit <http://www.fws.gov/sandlake/>.

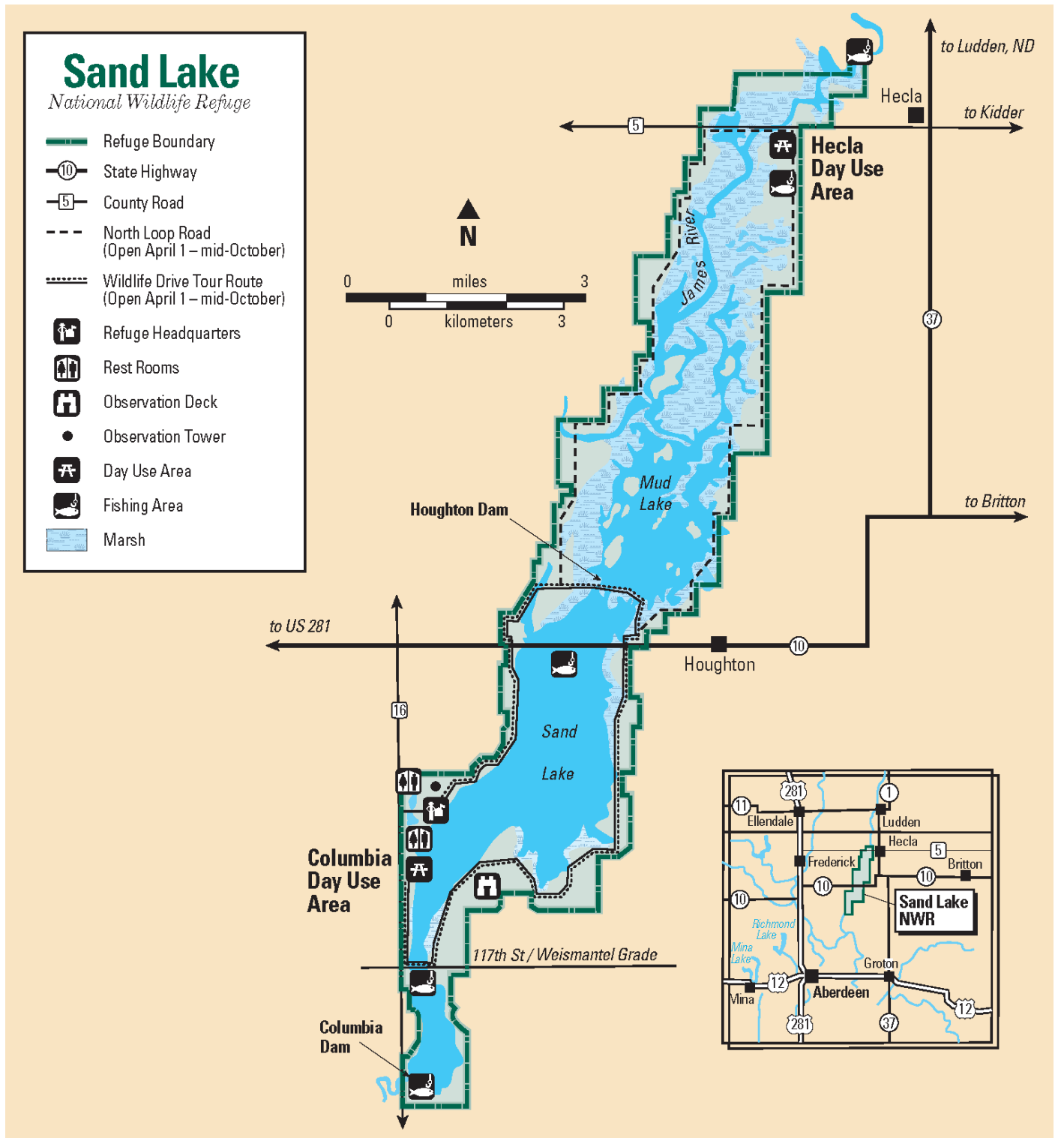


Figure 1. Map of Sand Lake NWR, courtesy of U.S. Fish and Wildlife Service.

Sampling at Sand Lake National Wildlife Refuge

A total of 115 visitors agreed to participate in the survey during the two sampling periods at the identified locations at Sand Lake NWR (table 2). In all, 85 visitors completed the survey for a 76% response rate and $\pm 8.5\%$ margin of error at the 95% confidence level.¹ The 2010 and 2011 sampling periods fell during some of the most severe flooding in recent history in the area. This resulted in severe damage to area roads and forced the refuge to close their tour route. Visitation to the Visitor Center fell dramatically as a result. The refuge made efforts to contact a cross-section of visitors, including deer hunters, anglers, and other recreationists who stopped by the Visitor Center. In addition, the refuge contacted visitors (hunters and wildlife observers) on the Waterfowl Production Areas of the Sand Lake Wetland Management District.

Table 2. Sampling and response rate summary for Sand Lake NWR.

| Sampling period | Dates | Locations | Total contacts | Undeliverable addresses | Completed surveys | Response rate |
|-----------------|-------------------------------|---|----------------|-------------------------|-------------------|---------------|
| 1 | 10/9/2010 to 10/23/2010 | Headquarters/Visitor Center LE patrol of Sand Lake NWR and nearby WPAs in the complex | 48 | 2 | 37 | 80% |
| 2 | 11/6/2011 to 11/20/2011 | Headquarters/Visitor Center LE patrol of Sand Lake NWR and nearby WPAs in the complex | 67 | 1 | 48 | 73% |
| Total | | | 115 | 3 | 85 | 76% |

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 Sand 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 (96%) and that the Refuge System has the mission of conserving, managing, and restoring fish, wildlife,

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

plants and their habitat (94%). Positive responses to these questions concerning the management and mission of the Refuge System do not indicate the degree to which these visitors understand the day-to-day management practices of individual refuges, only that visitors feel they have a basic knowledge of who manages refuges and why. Compared to other public lands, many visitors feel that refuges provide a unique recreation experience (87%; 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 Sand Lake NWR had been to at least one other National Wildlife Refuge in the past year (52%), with an average of 3 visits to other refuges during the past 12 months.

Visiting This Refuge

Most surveyed visitors (57%) had only been to Sand Lake NWR once in the past 12 months, while others had been multiple times (43%). These repeat visitors went to the refuge an average of 6 times during that same 12-month period. Visitors used the refuge during only one season (79%), during multiple seasons (16%), and year-round (5%).

Most visitors first learned about the refuge from friends/relatives (53%), signs on the highway (19%), or refuge printed information (17%; fig. 2). Key information sources used by visitors to find their way to this refuge include previous knowledge (51%), signs on highways (37%), or a road atlas/highway map (23%; fig. 3).

Some visitors (33%) lived in the local area (within 50 miles of the refuge), whereas 67% were nonlocal visitors. For most local visitors, Sand Lake NWR was the primary purpose or sole destination of their trip (85%; table 3). For most nonlocal visitors, the refuge was also the primary purpose or sole destination of their trip (52%). Local visitors (n = 27) reported that they traveled an average of 26 miles to get to the refuge, while nonlocal visitors (n = 56) traveled an average of 373 miles. ***It is important to note that summary statistics based on a small sample size (n < 30) may not provide a reliable representation of the population.*** Figure 4 shows the residence of visitors travelling to the refuge. About 56% of visitors travelling to Sand Lake NWR were from South Dakota.

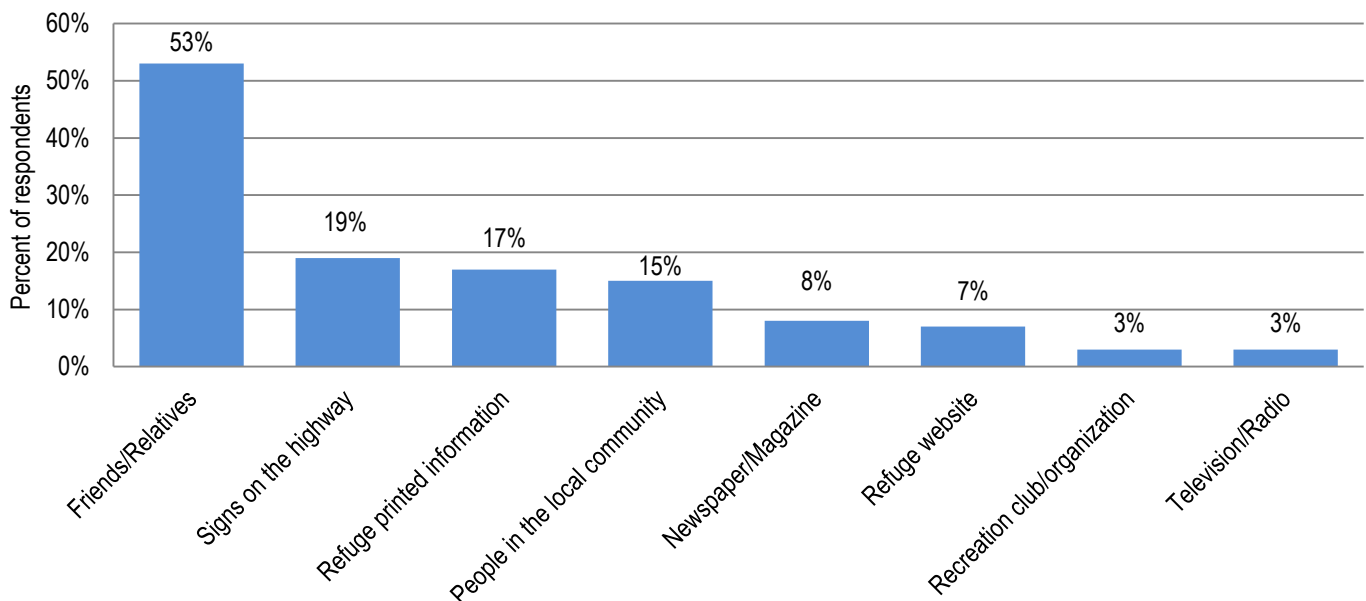


Figure 2. How visitors first learned or heard about Sand Lake NWR (n = 75).

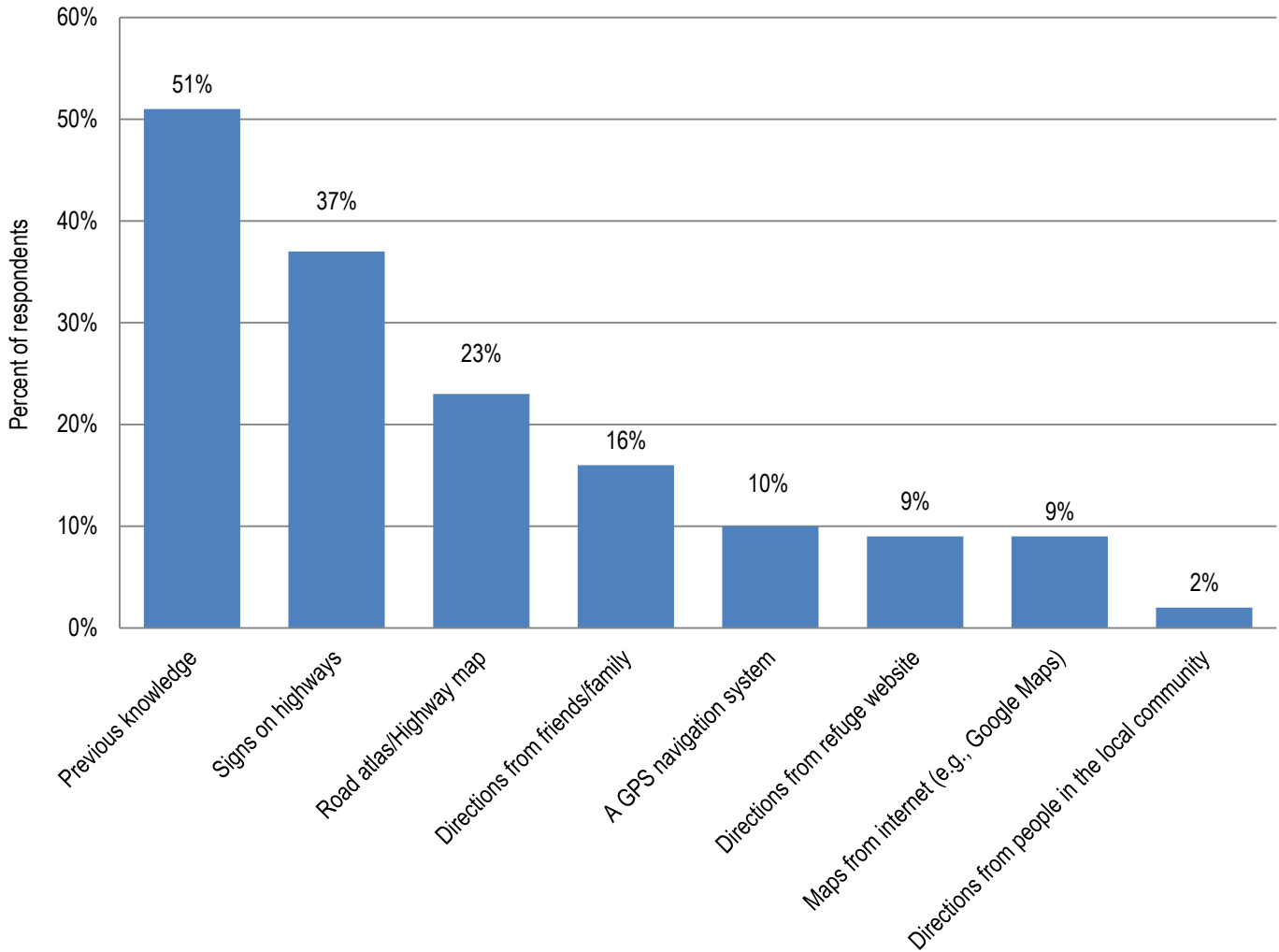


Figure 3. Resources used by visitors to find their way to Sand Lake NWR during *this* visit (n = 81).

Table 3. Influence of Sand 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 | 52% | 22% | 26% |
| Local | 85% | 11% | 4% |
| Total | 63% | 19% | 19% |

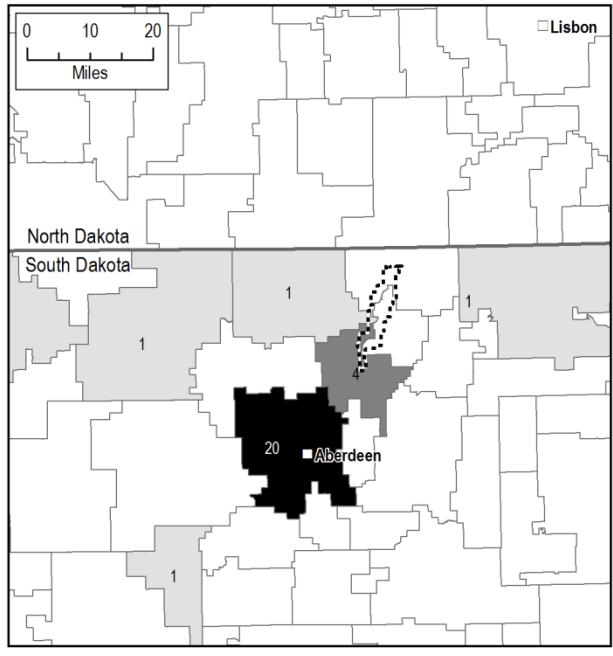
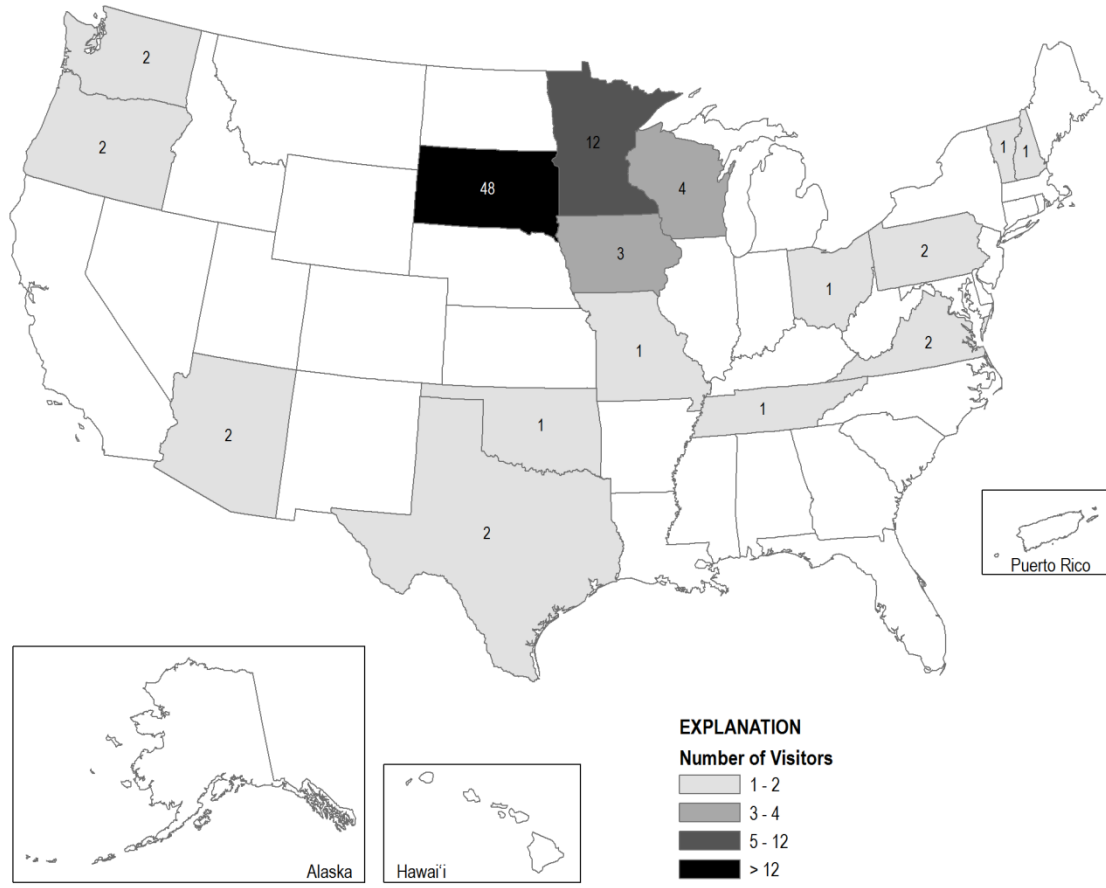


Figure 4. Number of visitors travelling to Sand Lake NWR by residence. Top map shows residence by state and bottom map shows residence by zip codes near the refuge (n = 85).

Surveyed visitors reported that they spent an average of 4 hours at Sand 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 (37%). The key modes of transportation used by visitors to travel around the refuge were private vehicle (96%) and walking/hiking (19%; 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).

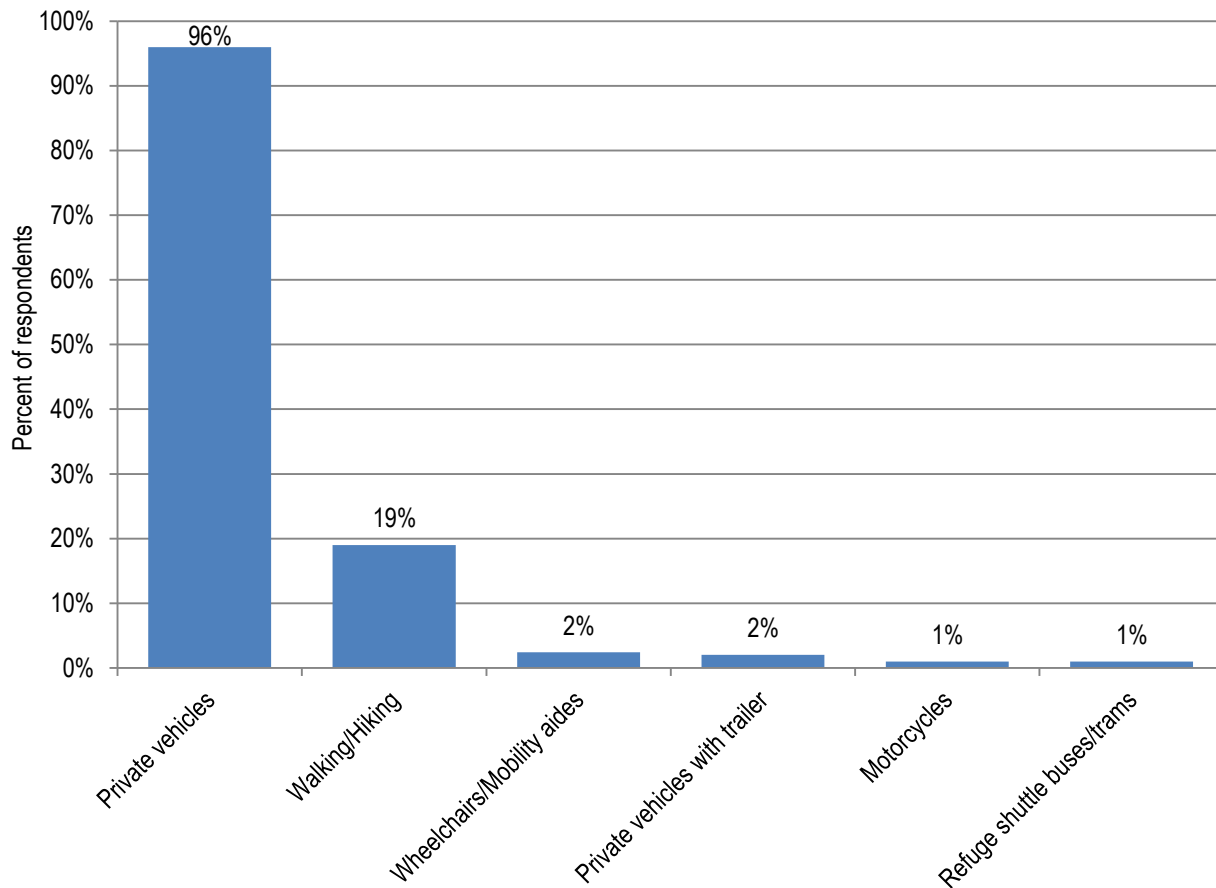


Figure 5. Modes of transportation used by visitors to Sand Lake NWR during *this* visit (n = 83).

Table 4. Type and size of groups visiting Sand Lake NWR (for those who indicated they were part of a group, n = 52).

| Group type | Percent (of those traveling in a group) | Average group size | | |
|-----------------------------|---|--------------------|--------------------|------------------|
| | | Number of adults | Number of children | Total group size |
| Family/Friends | 96% | 3 | 1 | 4 |
| Commercial tour group | 0% | 0 | 0 | 0 |
| Organized club/School group | 0% | 0 | 0 | 0 |
| Other group type | 4% | 4 | 2 | 6 |

Surveyed visitors participated in a variety of refuge activities during the past 12 months (fig. 6); the top three activities reported were wildlife observation (42%), bird watching (35%), and big game hunting (25%). The primary reasons for their most recent visit included hunting (44%), special event (19%), wildlife observation (15%), and bird watching (14%; fig. 7). The visitor center was used by 62% of visitors, mostly to view the exhibits (85%), ask information of staff/volunteers (79%), and stop to use the facilities (for example, get water, use restroom; 60%; fig. 8).

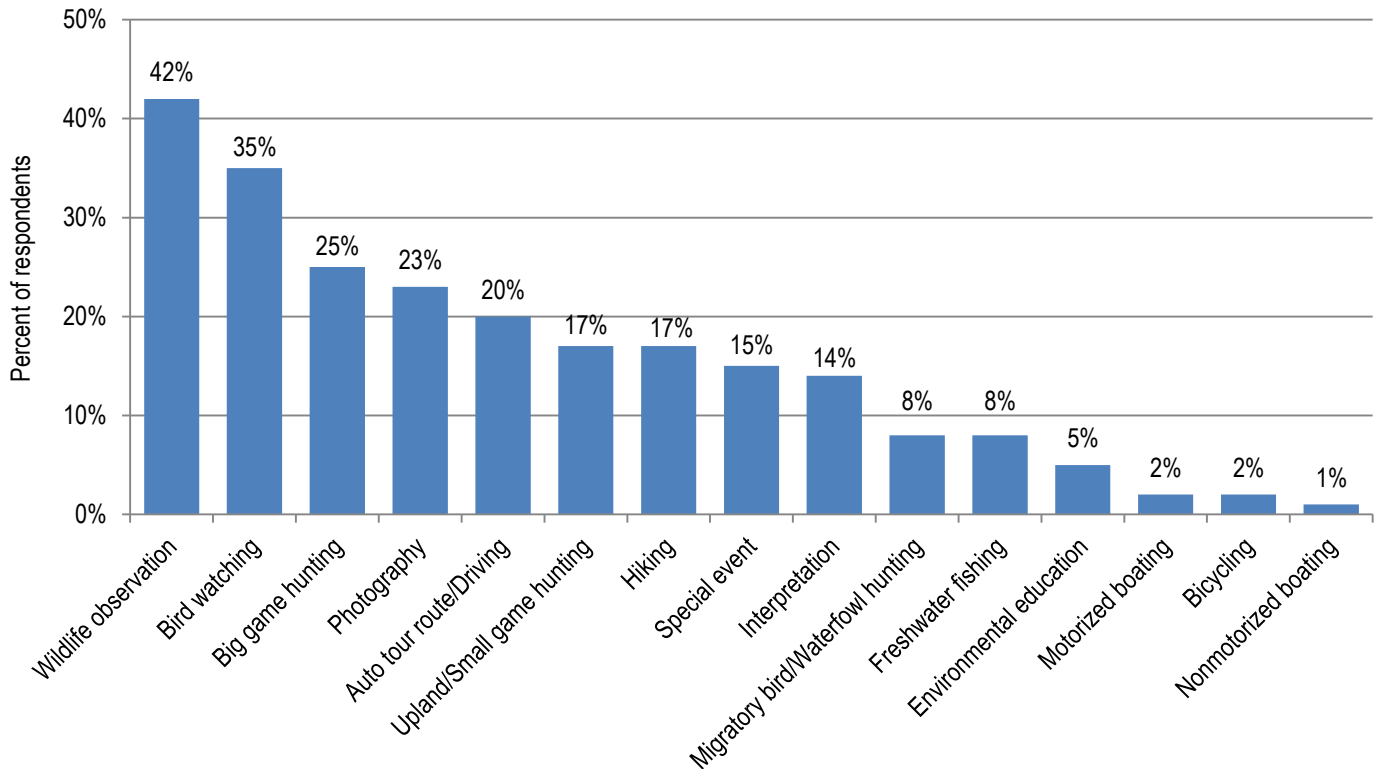


Figure 6. Activities in which visitors participated during the past 12 months at Sand Lake NWR (n = 84). See Appendix B for a listing of “other” activities.

Visitor Characteristics

All (100%) surveyed visitors to Sand 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 83% male with an average age of 53 years and 17% female with an average age of 61 years. Visitors, on average, reported they had 15 years of formal education (college or technical school). The median level of income was \$75,000–\$99,000. 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).

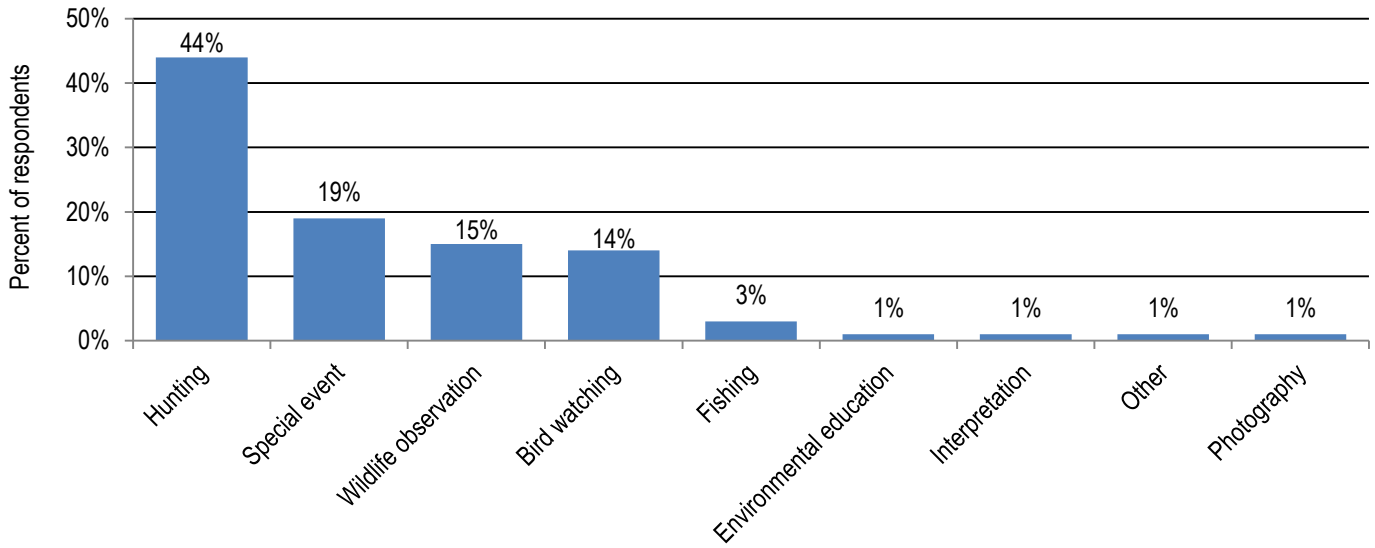


Figure 7. The primary activity in which visitors participated during *this* visit to Sand Lake NWR (n = 79). See Appendix B for a listing of “other” activities.

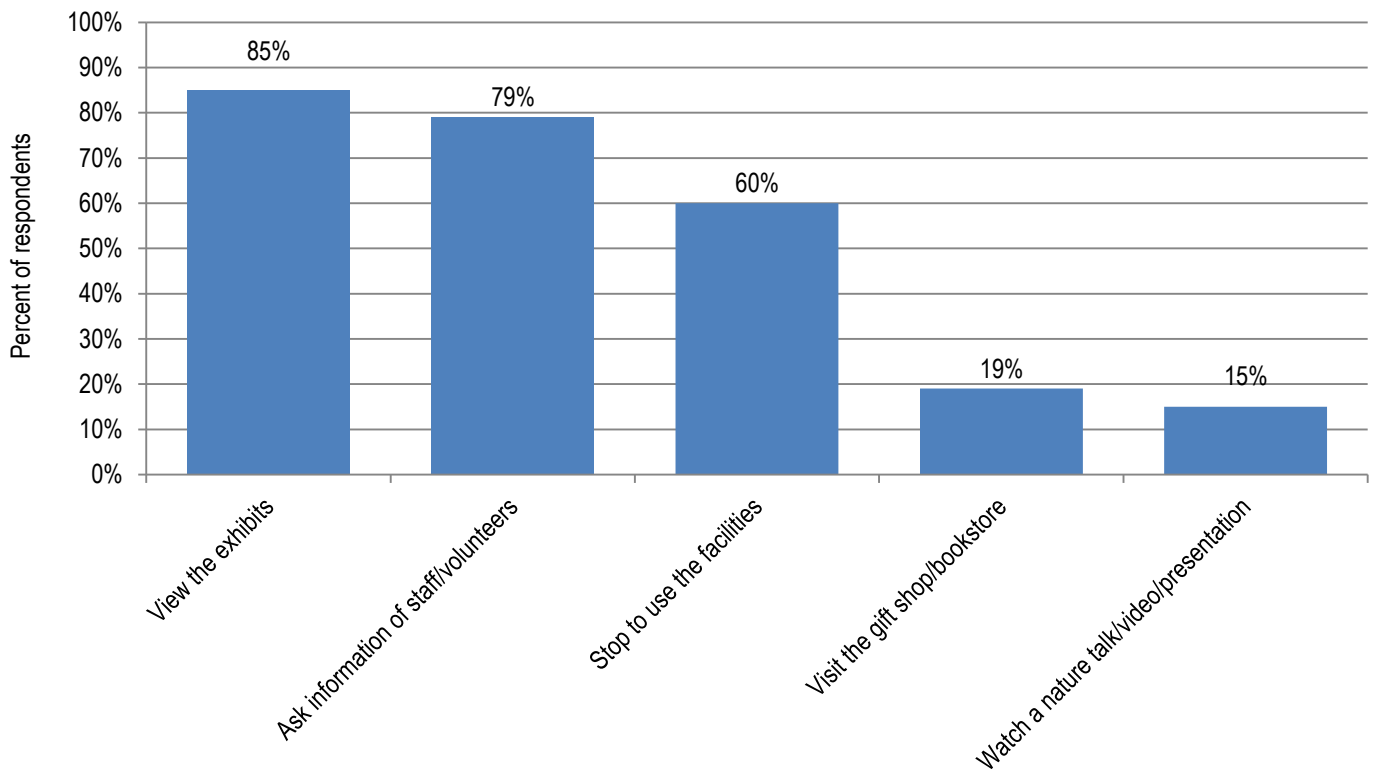


Figure 8. Use of the visitor center at Sand Lake NWR (for those visitors who indicated they used the visitor center, n = 52).

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, 33% of surveyed visitors to Sand Lake NWR indicated that they live within the local area. Nonlocal visitors (67%) stayed in the local area, on average, for 5 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. ***It is important to note that summary statistics based on a small sample size ($n < 30$) may not provide a reliable representation of that population.*** During the two sampling periods, nonlocal visitors spent an average of \$57 per person per day and local visitors spent an average of \$32 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 Sand Lake NWR expressed in dollars per person per day.

| Visitors | n ¹ | Median | Mean | Standard deviation | Minimum | Maximum |
|----------|----------------|--------|------|--------------------|---------|---------|
| Nonlocal | 48 | \$51 | \$57 | \$44 | \$0 | \$204 |
| Local | 20 | \$14 | \$32 | \$53 | \$0 | \$218 |

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

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

Visitor Opinions about This Refuge

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

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

- 85% were satisfied with the recreational activities and opportunities,
- 92% were satisfied with the information and education about the refuge and its resources,
- 94% were satisfied with the services provided by employees or volunteers, and
- 90% were satisfied with the refuge's job of conserving fish, wildlife and their habitats.

Although 14% of visitors (n = 12) indicated they paid a fee to enter Sand Lake NWR, the refuge does not charge a fee. It is not known why a small number of visitors thought they paid a fee.

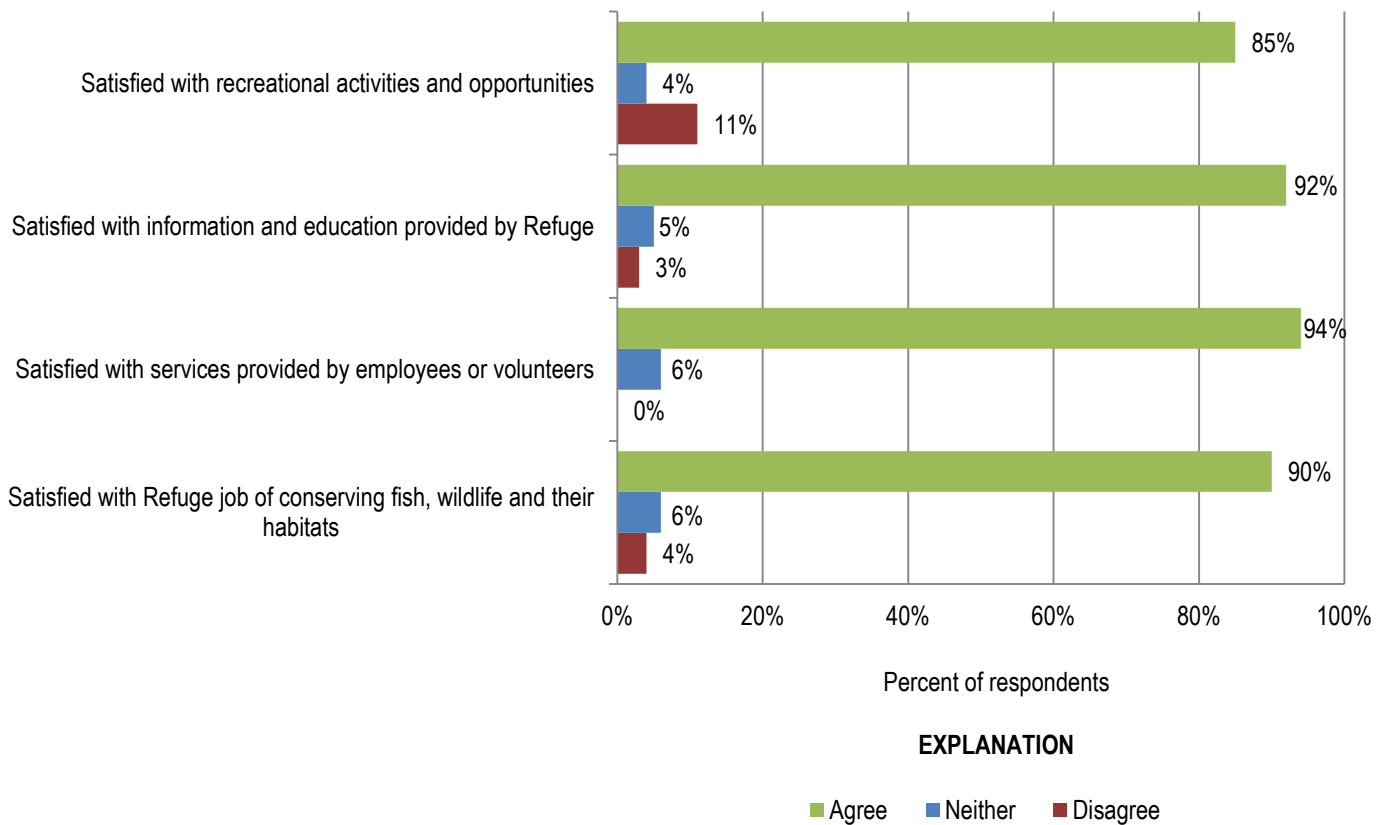


Figure 9. Overall satisfaction with Sand Lake NWR during this visit (n ≥ 78).

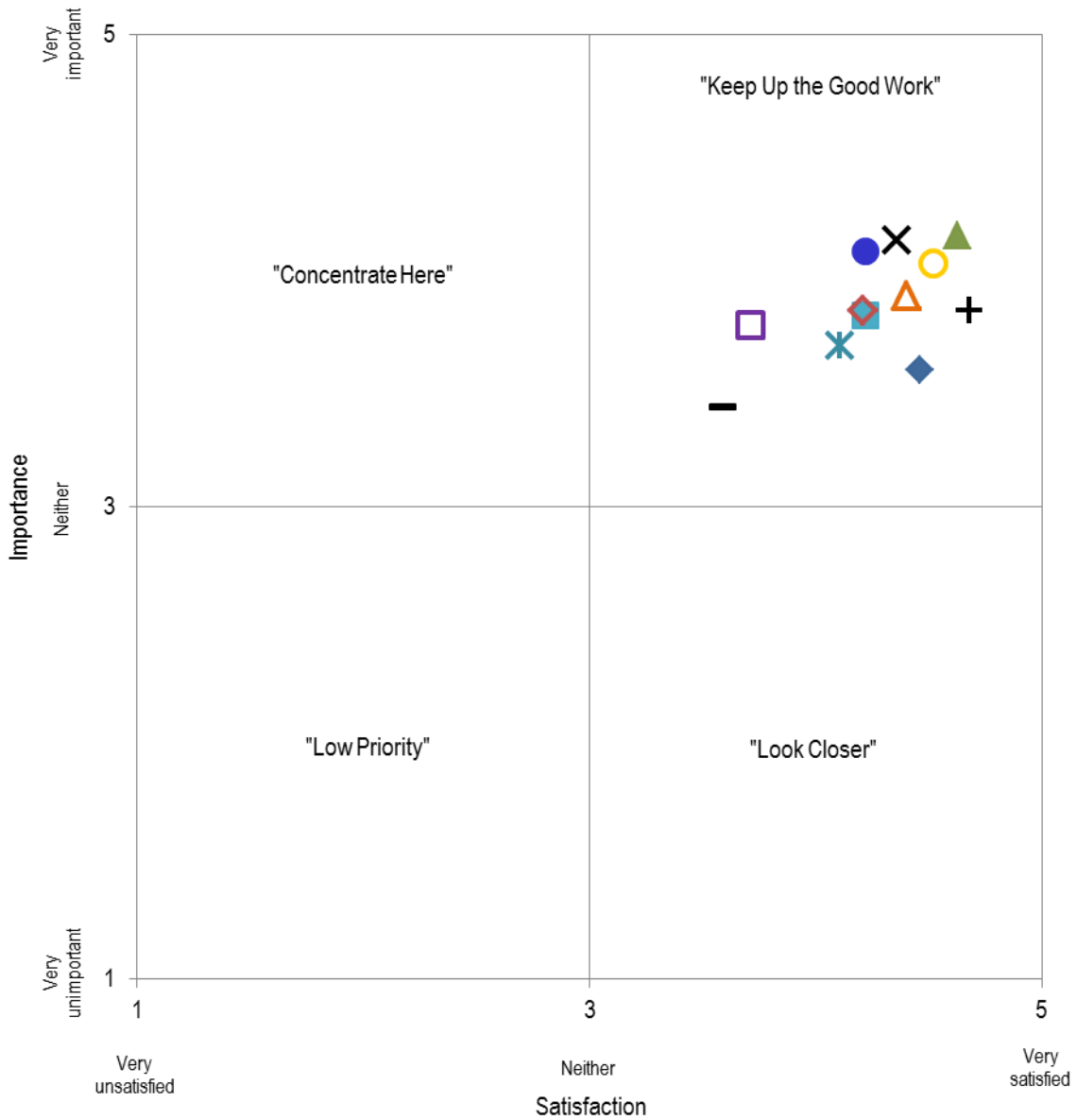
Importance/Satisfaction Ratings

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 Sand 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.

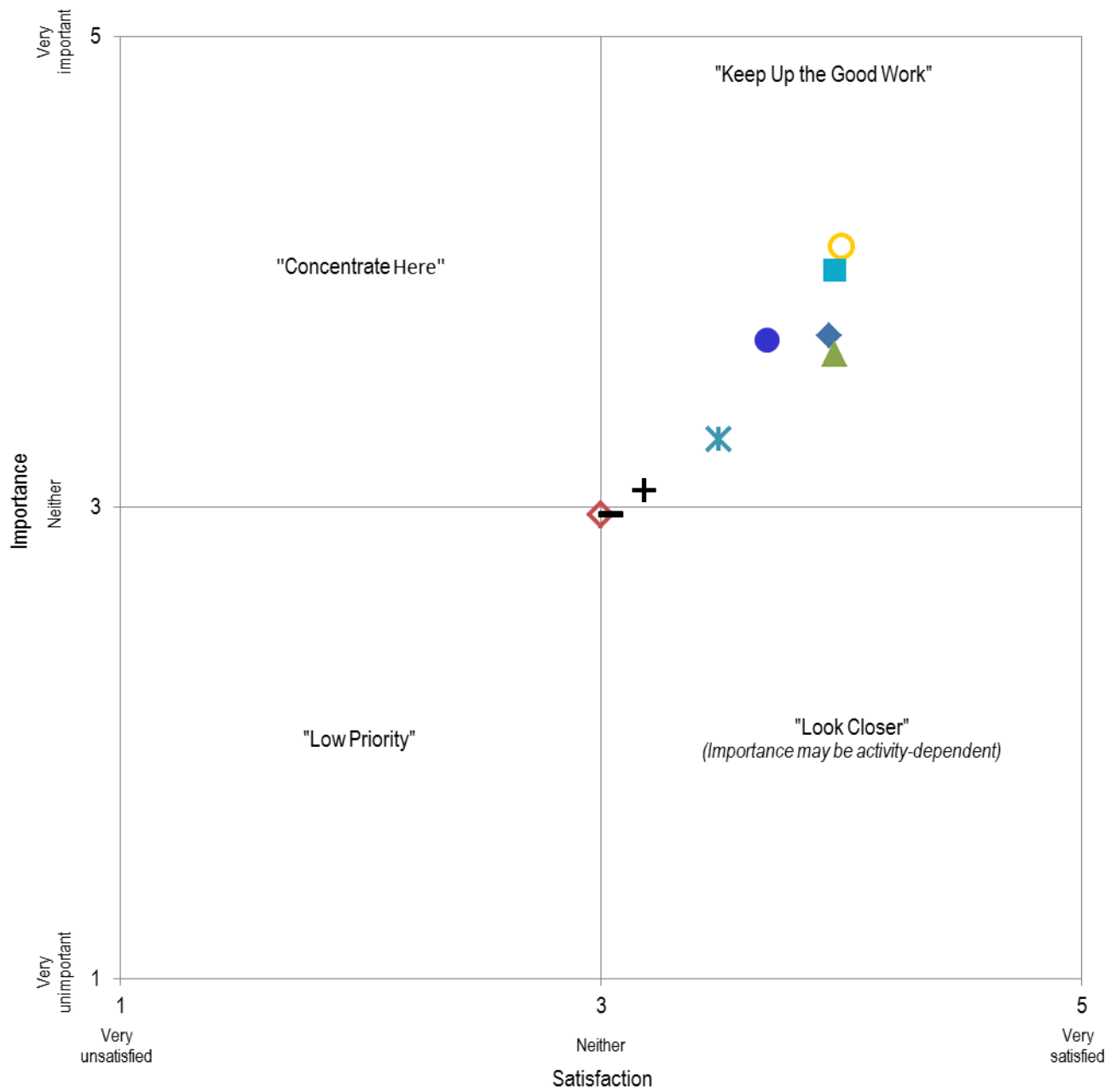
Figures 10-12 depict surveyed visitors' importance-satisfaction results for refuge services and facilities, recreational opportunities, and transportation-related features at Sand Lake NWR, respectively. All refuge services and facilities fell in the "Keep Up the Good Work" quadrant (fig. 10). Nearly all refuge recreational opportunities fell in the "Keep Up the Good Work" quadrant except bicycling opportunities, which fell into the "Look Closer" quadrant (fig. 11). Additionally, kayak/canoe and volunteer opportunities were very near to the "Look Closer" quadrant. The average importance of these activities in or near 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 or it is not known how many visitors in the sample participated in the activity. 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
- Convenient hours/days of operation
- Environmental education programs/activities
- ▲ Well-maintained restrooms
- + Courteous/welcoming employees/volunteers
- ✕ Printed information about this Refuge
- Signs with rules/regulations
- ◊ Exhibits about this Refuge
- Visitor Center
- Wildlife observation structures

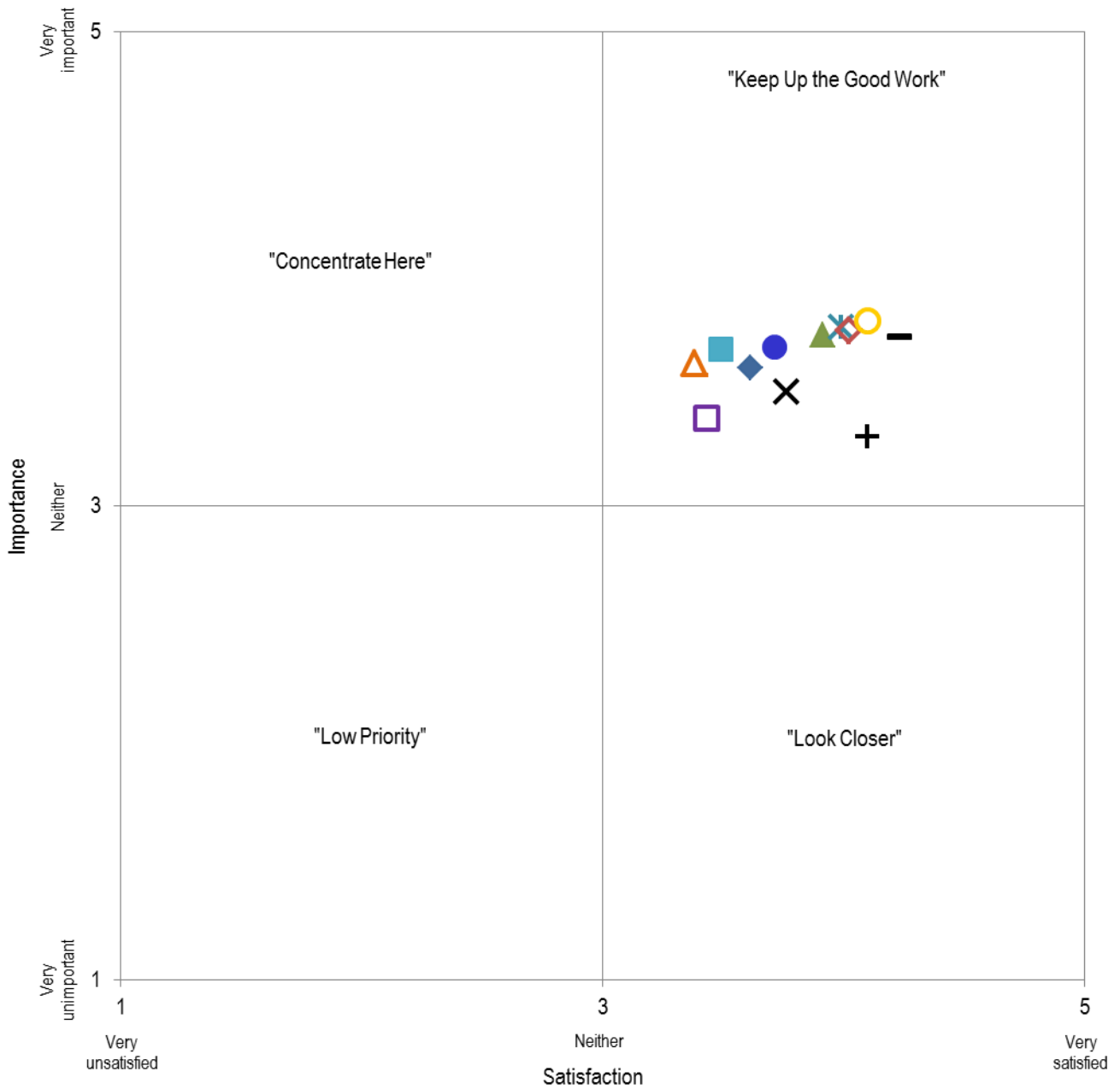
Figure 10. Importance-satisfaction ratings of services and facilities provided at Sand Lake NWR.



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 Sand 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 Sand 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 Sand 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 Sand Lake NWR visitors who were surveyed were likely to use the following option at national wildlife refuges in the future (fig. 13):

- an offsite parking lot that provides trail access.

The majority of visitors were *not* likely to use:

- a bus/tram that takes passengers to different points,
- a bike share program, a bus/tram that provides a guided tour, or
- a bus/tram that runs during a special event on national wildlife refuges in the future (fig. 13).

When asked about using alternative transportation at Sand Lake NWR specifically, 39% of visitors indicated they were unsure whether it would enhance their experience; however, some visitors thought alternative transportation would enhance their experience (27%) and others thought it would not (34%).

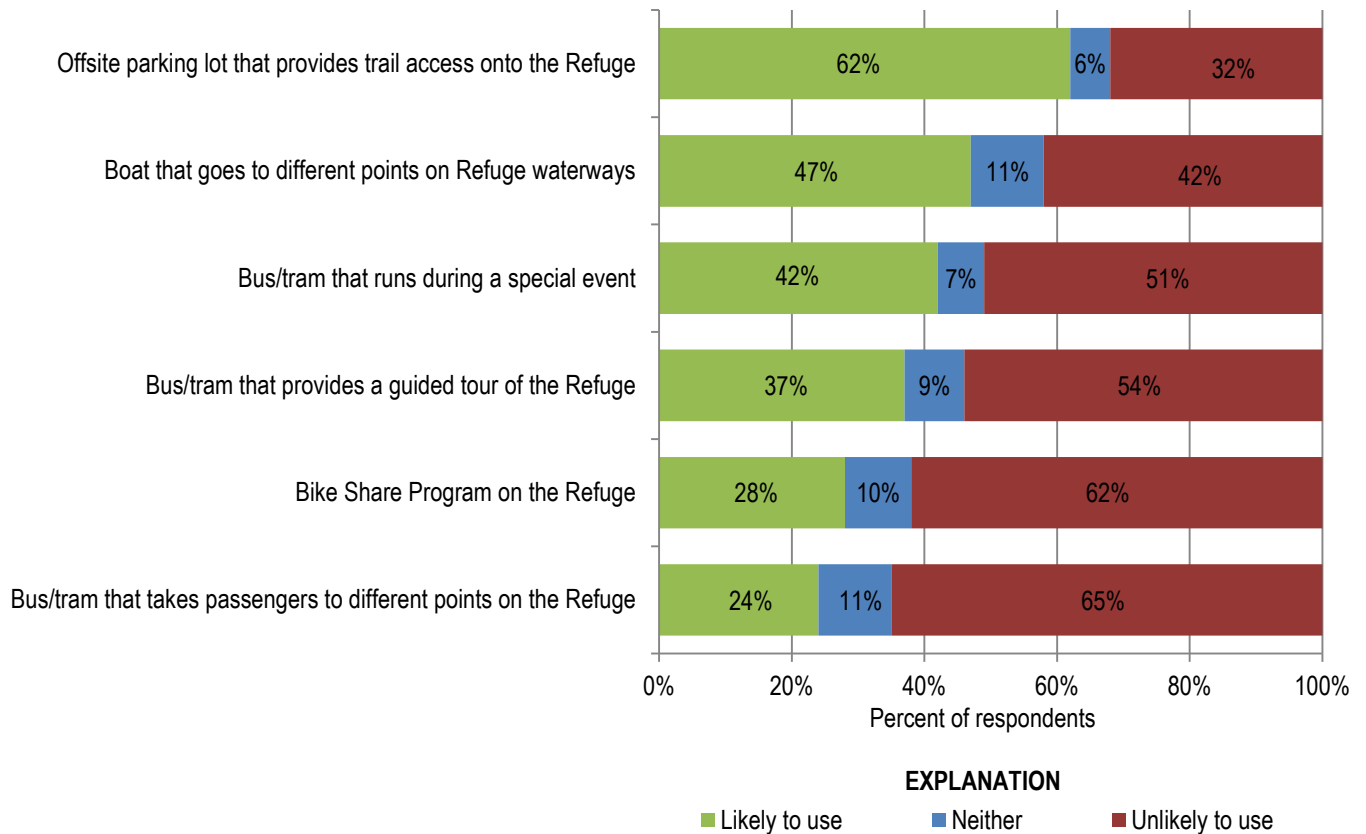


Figure 13. Visitors’ likelihood of using alternative transportation options at national wildlife refuges in the future (n ≥ 81).

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

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

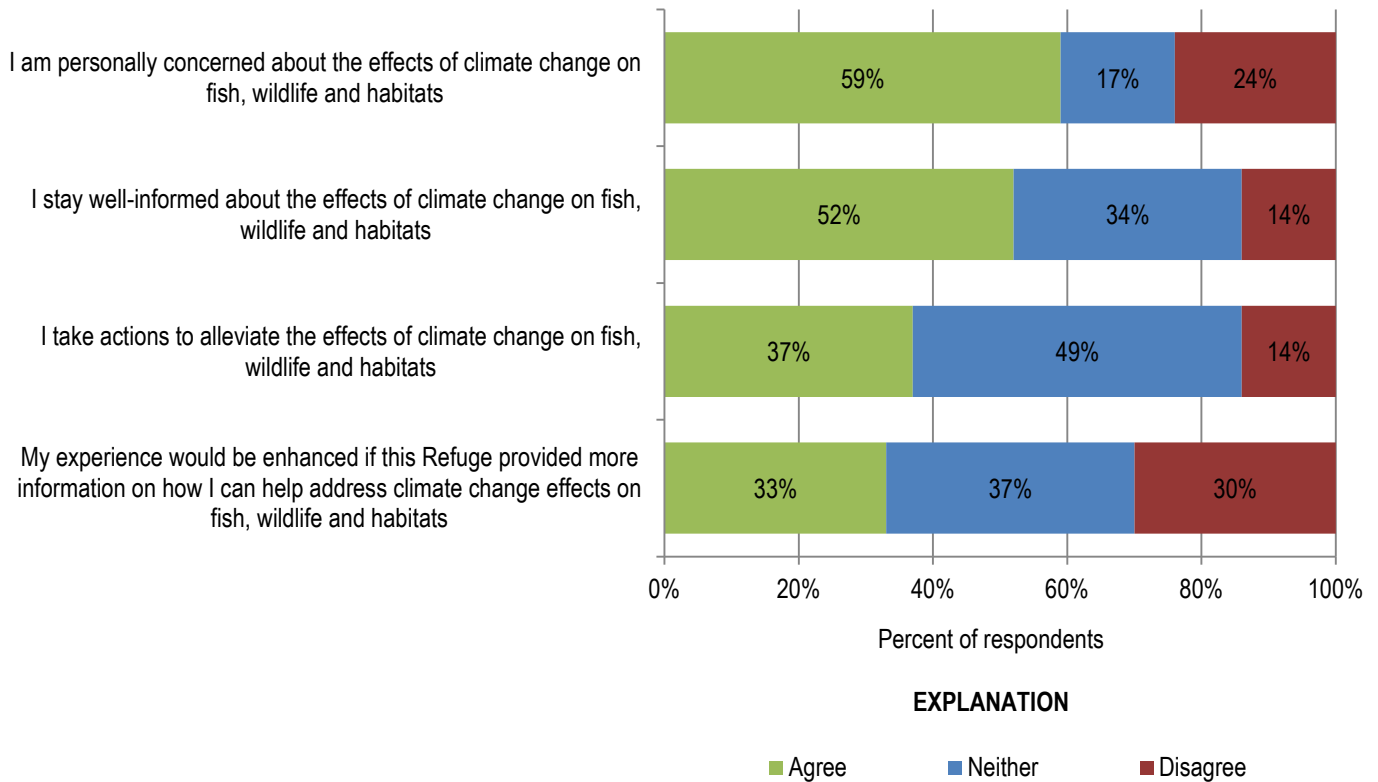


Figure 14. Visitors’ personal involvement with climate change related to fish, wildlife and their habitats (n ≥ 77).

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

- “It is important to consider the economic costs and benefits to local communities when addressing climate change effects;”
- “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
- “There is too much scientific uncertainty to adequately understand climate change effects.”

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 (32%) indicated that their experience would be enhanced if Sand 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.

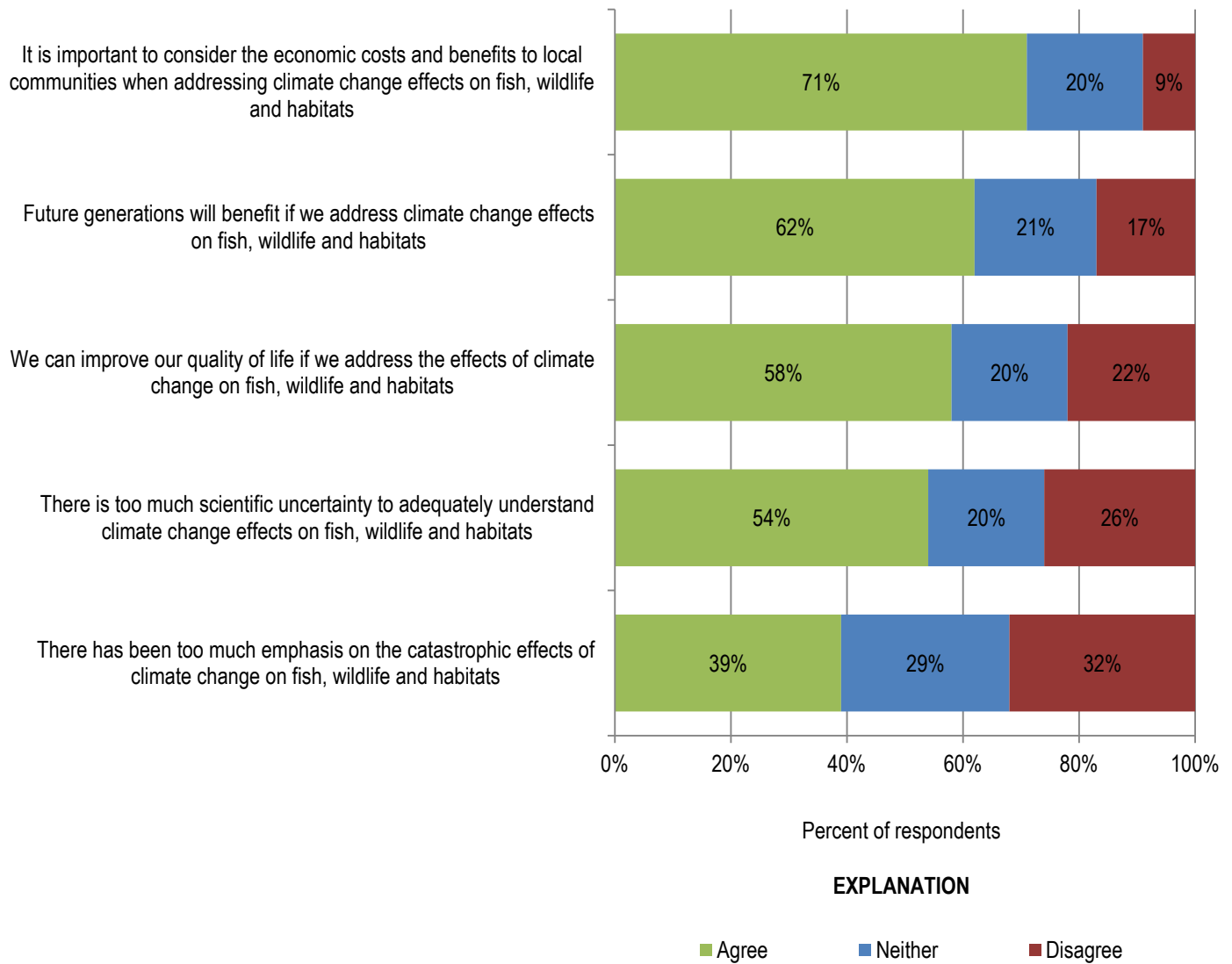


Figure 15. Visitors' beliefs about the effects of climate change on fish, wildlife and their habitats (n ≥ 79).

Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Sand 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 or 970.226.9205.

References

- Bruyere, B.L., Rodriguez, D.A., and Vaske, J.J., 2002, Enhancing importance-performance analysis through segmentation: *Journal of Travel and Tourism Marketing*, v. 12, no. 1, p. 81-95.
- Carver, E., and Caudill, J., 2007, Banking on nature 2006: The economic benefits to local communities of National Wildlife Refuge visitation: U.S. Fish and Wildlife Service, Division of Economics, Washington, D.C., 372 p., accessed September 30, 2011, at http://www.fws.gov/refuges/about/msWord/BankingonNature_2006_11-23.doc.
- Clark, J.R., 2001, Mission and Goals (National Fish and Wildlife Service Director's Order #132–601 FW1), accessed November 18, 2011 at http://www.fws.gov/refuges/policiesandbudget/HR1420_missionGoals.html.
- Dillman, D.A., 2007, Mail and Internet surveys: The tailored design method. (2nd ed.): Hoboken, N.J., John Wiley and Sons, Inc., 523 p.
- Krechmer, D., Grimm, L., Hodge, D., Mendes, D., and Goetzke, F., 2001, Federal lands alternative transportation systems study – Volume 3 – Summary of national ATS needs: prepared for Federal Highway Administration, and Federal Transit Administration in association with National Park Service, Bureau of Land Management, and U.S. Fish and Wildlife Service, 80 p. (Also available at http://www.fta.dot.gov/documents/3039_study.pdf.)
- Leiserowitz, A, Maibach, E., and Roser-Renouf, C., 2008, Global warming's six Americas: An audience segmentation: New Haven, Conn., Yale University.
- Martilla, J.A., and James, J.C., 1977, Importance-performance analysis: *Journal of Marketing*, v. 41, p. 77–79.
- Nisbet, M.C., 2009, Communicating climate change: Why frames matter for public engagement: *Environment*, v. 51, p. 12-23.
- Salant, P., and Dillman, D.A., 1994, How to conduct your own study: New York, N.Y., John Wiley and Sons, Inc.

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

This page left intentionally blank.

National Wildlife Refuge Visitor Survey



PLEASE READ THIS FIRST:

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

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

SECTION 1. Your visit to this Refuge

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

- | | | |
|--|---|---|
| <input type="checkbox"/> 25% Big game hunting | <input type="checkbox"/> 17% Hiking | <input type="checkbox"/> 5% Environmental education (for example, classrooms or labs, tours) |
| <input type="checkbox"/> 17% Upland/Small-game hunting | <input type="checkbox"/> 2% Bicycling | |
| <input type="checkbox"/> 8% Migratory bird/Waterfowl hunting | <input type="checkbox"/> 20% Auto tour route/Driving | <input type="checkbox"/> 15% Special event (<i>please specify</i>) <u>See Appendix B</u> |
| <input type="checkbox"/> 42% Wildlife observation | <input type="checkbox"/> 2% Motorized boating | <input type="checkbox"/> 0% Other (<i>please specify</i>) <u>See Appendix B</u> |
| <input type="checkbox"/> 35% Bird watching | <input type="checkbox"/> 1% Nonmotorized boating (including canoes/kayaks) | <input type="checkbox"/> 0% Other (<i>please specify</i>) <u>See Appendix B</u> |
| <input type="checkbox"/> 8% Freshwater fishing | | |
| <input type="checkbox"/> 0% Saltwater fishing | <input type="checkbox"/> 14% Interpretation (for example, exhibits, kiosks, videos) | |
| <input type="checkbox"/> 23% 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?

- 38% No
- 62% Yes → If yes, what did you do there? (Please mark **all that apply.**)
- | | |
|--|---|
| <input type="checkbox"/> 19% Visit the gift shop or bookstore | <input type="checkbox"/> 15% Watch a nature talk/video/presentation |
| <input type="checkbox"/> 85% View the exhibits | <input type="checkbox"/> 60% Stopped to use the facilities (for example, get water, use restroom) |
| <input type="checkbox"/> 79% Ask information of staff/volunteers | <input type="checkbox"/> 4% 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% | 85% | 63% | It was the primary purpose or sole destination of my trip. |
| 22% | 11% | 19% | It was one of many equally important reasons or destinations for my trip. |
| 26% | 4% | 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 373 number of miles

Local 26 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.***)

96% Family and/or friends

0% Organized club or school group

0% Commercial tour group

4% 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.***)

53% Friends or relatives

7% Refuge website

19% Signs on highway

1% Other website (*please specify*) See Appendix B

3% Recreation club or organization

3% Television or radio

15% People in the local community

8% Newspaper or magazine

17% Refuge printed information (brochure, map)

8% 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.***)

15% Spring
(March-May)

14% Summer
(June-August)

100% Fall
(September-November)

7% Winter
(December-February)

11. How many times have you visited...

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

...other National Wildlife Refuges in the last 12 months? 1 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"/> 1% | Refuge shuttle bus or tram | <input type="checkbox"/> 0% | Bicycle |
| <input type="checkbox"/> 2% | Private vehicle with a trailer (for boat, camper or other) | <input type="checkbox"/> 1% | Motorcycle | <input type="checkbox"/> 19% | Walk/Hike |
| <input type="checkbox"/> 0% | Commercial tour bus | <input type="checkbox"/> 0% | ATV or off-road vehicle | <input type="checkbox"/> 0% | Other (<i>please specify below</i>) |
| <input type="checkbox"/> 0% | Recreational vehicle (RV) | <input type="checkbox"/> 0% | Boat | <u>See Appendix B</u> | |
| | | <input type="checkbox"/> 2% | Wheelchair or other mobility aid | | |

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

- | | | | |
|------------------------------|--|------------------------------|---|
| <input type="checkbox"/> 37% | Signs on highways | <input type="checkbox"/> 9% | Directions from Refuge website |
| <input type="checkbox"/> 10% | A GPS navigation system | <input type="checkbox"/> 2% | Directions from people in community near this Refuge |
| <input type="checkbox"/> 23% | A road atlas or highway map | <input type="checkbox"/> 16% | Directions from friends or family |
| <input type="checkbox"/> 9% | Maps from the Internet (for example, MapQuest or Google Maps) | <input type="checkbox"/> 51% | Previous knowledge/I have been to this Refuge before |
| | | <input type="checkbox"/> 0% | 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"/> 54% | <input type="checkbox"/> 11% | <input type="checkbox"/> 11% | <input type="checkbox"/> 12% | <input type="checkbox"/> 11% |
| ...a bike that was offered through a Bike Share Program for use while on the Refuge? | <input type="checkbox"/> 48% | <input type="checkbox"/> 14% | <input type="checkbox"/> 10% | <input type="checkbox"/> 21% | <input type="checkbox"/> 7% |
| ...a bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources? | <input type="checkbox"/> 43% | <input type="checkbox"/> 11% | <input type="checkbox"/> 9% | <input type="checkbox"/> 19% | <input type="checkbox"/> 19% |
| ...a boat that goes to different points on Refuge waterways? | <input type="checkbox"/> 32% | <input type="checkbox"/> 10% | <input type="checkbox"/> 11% | <input type="checkbox"/> 31% | <input type="checkbox"/> 16% |
| ...a bus or tram that runs during a special event (such as an evening tour of wildlife or weekend festival)? | <input type="checkbox"/> 38% | <input type="checkbox"/> 12% | <input type="checkbox"/> 7% | <input type="checkbox"/> 26% | <input type="checkbox"/> 16% |
| ...an offsite parking lot that provides trail access for walking/hiking onto the Refuge? | <input type="checkbox"/> 27% | <input type="checkbox"/> 5% | <input type="checkbox"/> 6% | <input type="checkbox"/> 33% | <input type="checkbox"/> 29% |
| ...some other alternative transportation option? (<i>please specify</i>) <u>See Appendix B</u> | <input type="checkbox"/> 0% | <input type="checkbox"/> 0% | <input type="checkbox"/> 0% | <input type="checkbox"/> 38% | <input type="checkbox"/> 63% |

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

- 27% Yes 34% No 39% 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% | 14% | 14% | 44% | 21% | Surface conditions of roads | 11% | 15% | 7% | 34% | 32% | NA |
| 7% | 18% | 21% | 47% | 7% | Surface conditions of parking areas | 6% | 4% | 7% | 40% | 43% | NA |
| 9% | 8% | 16% | 36% | 32% | Condition of bridges | 8% | 3% | 18% | 32% | 38% | NA |
| 11% | 11% | 16% | 42% | 19% | Condition of trails and boardwalks | 7% | 5% | 25% | 31% | 32% | NA |
| 5% | 8% | 13% | 54% | 20% | Number of places for parking | 6% | 9% | 10% | 31% | 44% | NA |
| 11% | 9% | 12% | 39% | 29% | Number of places to pull over along Refuge roads | 3% | 14% | 16% | 41% | 25% | NA |
| 12% | 7% | 9% | 41% | 32% | Safety of driving conditions on Refuge roads | 5% | 6% | 14% | 34% | 42% | NA |
| 8% | 8% | 17% | 39% | 28% | Safety of Refuge road entrances/exits | 3% | 1% | 14% | 32% | 49% | NA |
| 8% | 5% | 14% | 47% | 26% | Signs on highways directing you to the Refuge | 3% | 8% | 10% | 34% | 45% | NA |
| 8% | 9% | 17% | 42% | 25% | Signs directing you around the Refuge roads | 4% | 19% | 22% | 32% | 22% | NA |
| 9% | 13% | 13% | 36% | 28% | Signs directing you on trails | 9% | 14% | 26% | 34% | 17% | NA |
| 12% | 11% | 27% | 29% | 21% | Access for people with physical disabilities or who have difficulty walking | 8% | 8% | 40% | 25% | 21% | NA |

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

See Appendix B

SECTION 3. Your expenses related to your Refuge visit

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

33% Yes

67% No → How much time did you spend **in local communities** on this trip?
2 number of hours OR 6 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 (please specify) _____ | |

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 |
| 13% | 13% | 17% | 7% | 11% | 5% | 17% | 1% | 3% | 4% | 8% |

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

| | | | | | | | | | | | |
|----|-------------|----|---------|-----|-------------|----|----------|----|--------------|-----|---|
| 0% | Far too low | 8% | Too low | 83% | About right | 0% | Too high | 8% | Far too high | 86% | 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.

| | | | | | | | | | |
|----|-------------------|----|----------|----|---------------------------|-----|-------|-----|----------------|
| 0% | Strongly disagree | 0% | Disagree | 0% | Neither agree or disagree | 67% | Agree | 33% | Strongly agree |
|----|-------------------|----|----------|----|---------------------------|-----|-------|-----|----------------|

SECTION 4. Your experience at this Refuge

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

| | Strongly Disagree | Disagree | Neither | Agree | Strongly Agree | Not Applicable |
|---|-------------------|----------|---------|-------|----------------|----------------|
| Overall, I am satisfied with the recreational activities and opportunities provided by this Refuge. | 0% | 11% | 4% | 46% | 39% | NA |
| Overall, I am satisfied with the information and education provided by this Refuge about its resources. | 0% | 3% | 5% | 58% | 34% | NA |
| Overall, I am satisfied with the services provided by employees or volunteers at this Refuge. | 0% | 0% | 6% | 42% | 51% | NA |
| This Refuge does a good job of conserving fish, wildlife and their habitats. | 0% | 4% | 6% | 33% | 57% | 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 |
| 9% | 12% | 13% | 43% | 22% | Availability of employees or volunteers | 1% | 1% | 10% | 23% | 64% | NA |
| 12% | 4% | 8% | 41% | 35% | Courteous and welcoming employees or volunteers | 3% | 0% | 3% | 15% | 79% | NA |
| 8% | 1% | 7% | 36% | 48% | Knowledgeable employees or volunteers | 3% | 0% | 1% | 24% | 72% | NA |
| 5% | 5% | 6% | 38% | 45% | Printed information about this Refuge and its resources (for example, maps and brochures) | 1% | 8% | 4% | 26% | 60% | NA |
| 8% | 8% | 18% | 41% | 26% | Informational kiosks/displays about this Refuge and its resources | 2% | 5% | 18% | 31% | 44% | NA |
| 5% | 5% | 8% | 39% | 43% | Signs with rules/regulations for this Refuge | 0% | 6% | 12% | 36% | 46% | NA |
| 7% | 7% | 17% | 35% | 35% | Exhibits about this Refuge and its resources | 2% | 2% | 19% | 30% | 48% | NA |
| 7% | 7% | 41% | 26% | 19% | Environmental education programs or activities | 2% | 6% | 45% | 24% | 22% | NA |
| 7% | 4% | 9% | 39% | 41% | Visitor Center | 2% | 2% | 8% | 20% | 69% | NA |
| 9% | 4% | 14% | 43% | 30% | Convenient hours and days of operation | 2% | 5% | 12% | 33% | 48% | NA |
| 10% | 6% | 14% | 28% | 43% | Well-maintained restrooms | 2% | 5% | 14% | 10% | 69% | NA |
| 6% | 7% | 24% | 31% | 32% | Wildlife observation structures (decks, blinds) | 5% | 5% | 31% | 34% | 26% | NA |
| 10% | 4% | 27% | 22% | 37% | Bird-watching opportunities | 2% | 5% | 28% | 29% | 37% | NA |
| 5% | 1% | 15% | 33% | 45% | Opportunities to observe wildlife other than birds | 2% | 9% | 17% | 33% | 39% | NA |
| 8% | 6% | 25% | 35% | 26% | Opportunities to photograph wildlife and scenery | 2% | 6% | 24% | 30% | 38% | NA |
| 11% | 3% | 16% | 14% | 56% | Hunting opportunities | 3% | 5% | 20% | 34% | 37% | NA |
| 17% | 1% | 36% | 25% | 20% | Fishing opportunities | 4% | 2% | 49% | 31% | 14% | NA |
| 10% | 1% | 24% | 36% | 29% | Trail hiking opportunities | 2% | 6% | 37% | 33% | 22% | NA |
| 13% | 9% | 51% | 21% | 6% | Water trail opportunities for canoeing or kayaking | 7% | 7% | 73% | 7% | 7% | NA |
| 15% | 9% | 49% | 21% | 7% | Bicycling opportunities | 7% | 9% | 70% | 4% | 11% | NA |
| 13% | 3% | 61% | 7% | 15% | Volunteer opportunities | 0% | 5% | 82% | 5% | 9% | NA |

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

See Appendix B

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

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

...are managed by the U. S. Fish and Wildlife Service? 96% Yes 4% No

...have the primary mission of conserving, managing, and restoring fish, wildlife, plants and their habitat? 94% Yes 6% No

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

87% Yes 13% No

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

See Appendix B

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

| Statements about climate change | Strongly Disagree | Disagree | Neither | Agree | Strongly Agree |
|--|-------------------|----------|---------|-------|----------------|
| I am personally concerned about the effects of climate change on fish, wildlife and their habitats. | 11% | 13% | 17% | 41% | 17% |
| We can improve our quality of life if we address the effects of climate change on fish, wildlife and their habitats. | 11% | 10% | 20% | 42% | 16% |
| There is too much scientific uncertainty to adequately understand how climate change will impact fish, wildlife and their habitats. | 6% | 20% | 20% | 36% | 18% |
| I stay well-informed about the effects of climate change on fish, wildlife and their habitats. | 0% | 14% | 34% | 42% | 10% |
| 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. | 5% | 4% | 20% | 46% | 25% |
| I take actions to alleviate the effects of climate change on fish, wildlife and their habitats. | 6% | 8% | 49% | 28% | 9% |
| There has been too much emphasis on the catastrophic effects of climate change on fish, wildlife and their habitats. | 9% | 23% | 29% | 28% | 11% |
| Future generations will benefit if we address the effects of climate change on fish, wildlife and their habitats. | 5% | 11% | 22% | 34% | 28% |
| 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. | 17% | 13% | 38% | 23% | 9% |

SECTION 6. A Little about You

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

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

100% Yes 0% No → If not, what is your home country? See Figure 4 in Report

2. Are you? 83% Male 17% Female

3. In what year were you born? 1956 (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) | | | |
| <input type="checkbox"/> 0% | | | | | <input type="checkbox"/> 19% | | | | <input type="checkbox"/> 54% | | | | <input type="checkbox"/> 28% | | | | | | |

5. What ethnicity do you consider yourself? 0% Hispanic or Latino 100% Not Hispanic or Latino

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

- 3% American Indian or Alaska Native 0% Black or African American 99% White
 0% Asian 0% Native Hawaiian or Pacific Islander

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

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

- | | | |
|---|--|--|
| <input type="checkbox"/> 0% Less than \$10,000 | <input type="checkbox"/> 23% \$35,000 - \$49,999 | <input type="checkbox"/> 26% \$100,000 - \$149,999 |
| <input type="checkbox"/> 4% \$10,000 - \$24,999 | <input type="checkbox"/> 17% \$50,000 - \$74,999 | <input type="checkbox"/> 6% \$150,000 - \$199,999 |
| <input type="checkbox"/> 4% \$25,000 - \$34,999 | <input type="checkbox"/> 14% \$75,000 - \$99,999 | <input type="checkbox"/> 6% \$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.)?

 12 number of trips

Thank you for completing the survey.

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

See Appendix B for Comments

This page left intentionally blank.

Appendix B: Visitor Comments to Open-Ended Survey Questions for Sand 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 |
|----------------------------|-----------|
| Eagle Day | 13 |
| Eagle Day and Duck Banding | 1 |
| Total | 14 |

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 |
|--|-----------|
| Brought our grandson | 1 |
| Eagle Day | 14 |
| Eagle Day and duck banding | 1 |
| Total | 16 |

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

| Other Visitor Center Activity | Frequency |
|-------------------------------|-----------|
| Climb observation tower | 1 |
| Migration report | 1 |
| Total | 2 |

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 |
|------------------|-----------|
| Homeschool group | 1 |
| Hunting group | 1 |
| Total | 2 |

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

| Other Website | Frequency |
|---------------|-----------|
| South Dakota | 1 |

| Other Ways Heard about This Refuge | Frequency |
|------------------------------------|-----------|
| Hunting atlas | 1 |
| Hunting deer | 1 |
| Other hunters | 1 |
| Refuge tag | 1 |
| South Dakota Fish and Game | 1 |
| State public land atlas | 1 |
| Total | 6 |

Survey Section 2

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 |
|--|-----------|
| 4WD vehicle | 2 |
| ATV | 3 |
| ATV or bicycles | 1 |
| Electric golf cart rentals that have established routes. | 1 |
| Hayrack ride | 1 |
| Scooter | 1 |
| Total | 9 |

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 = 17)

I am hunting - I don't want vehicles on the refuge.

I am in a wheelchair. I would like to see the option of using an electric side by side (ATV).

I took our kids to Eagle Day at Sand Lake National Wildlife Refuge. At first, they were a little bored and wanted to leave, but as the program got started, they really got into it and didn't want to leave. It was a great experience and they truly enjoyed the interaction with the wardens and the wildlife. Thank you so much for putting it on!

I was only there to hunt for deer.

I would like to see better signage or something marking boundaries of the refuge, especially for the hunting season, so a person knows exactly where they can and can't be. A good map of the refuge should be available, as well.

I've had an interesting time backing out of a couple of roads throughout the refuge.

Sand Lake has had a lot of repairs due to the flooding that need to be worked on. The roads outside the refuge are also in bad shape.

Some of the roads were closed due to floods in the spring. I wish that information had been on the website.

The area had a very wet winter and spring and has limited resources, so roads were in poor condition.

The refuge was fine, but getting there was a challenge. It's not your fault though that the road is bad in spots.

The refuge was still suffering from the spring and summer flooding, so it is unfair of me to rate it at this time, but it is very important that the roads, trails, and signage be repaired and replaced.

The road conditions were good considering our wet spring weather.

The road was closed due to damage from flooding and we were unable to complete the tour by car.

The roads leading up to and surrounding this refuge are terrible.

There is a missing sign somewhere from the highway. I always turn west when I should turn east, because there isn't anything to direct us at the T intersection of the road.

We visited during hunting season and did not use refuge roads or trails.

When we deer hunt in the refuge, we cannot take 4-wheelers to pick up deer from the roads. I have a 4-wheeler with plates on it to drive on the highway, so I don't know why I cannot take it on refuge roads or trails to pick up deer.

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 = 30)

Coyotes are taking over wildlife at the Sand Lake National Wildlife Refuge.

Due to extremely high levels of water the last 2-3 years, roads and tour routes have not been accessible, which has been very frustrating, but maybe out of the control of the refuge staff! The hours at the Visitor Center could be better - it is quite often closed on weekends when a lot of people might wish to visit.

Due to the heavy rainfall earlier this spring, normal wildlife scenic drives were not possible because of the washed-out roads. There were no signs posted, only 'Road Closed' - I thought it needed a better explanation as to why they were closed.

During deer season, tags are given by draw and are limited. Two doe tags are given for each successful applicant. Applicants outnumber the number of permits, and it doesn't make sense to give two tags to one person. The recreational experience could be enhanced by giving one tag only and allowing more people to experience this refuge and its opportunities.

For hunting opportunities, can we see corn strips in game areas? That would give us a better opportunity for game birds.

I have hunted this refuge for about 25 years and the tree strips that were planted 50 years ago have died off and no new trees have been planted to take the place of the old trees. I think this is bad for all wildlife. No cover in bad storms, no nesting for birds, and no place for deer to hide in and get away from hunters.

I really like this refuge, or any of them for that matter. I like seeing wildlife. That is why I like going to any refuge and to learn more about what ways to see animals in a camera lens not a scope.

I wanted my wife to come experience the hunting opportunity with me. Due to regulations at the refuge, she was not able to even walk with me. That is not cool.

I was at the refuge for hunting only.

I was disappointed that the observation tower was closed.

I was happy to see that the "rangers" included children in the activities, as it is important to learn about nature through hands on experience.

I was on a pheasant hunting trip with friends and we decided to stop by for some waterfowl watching. The facilities were nice; however, the waterfowl mounts were old and needed to be replaced.

I was unable to fully enjoy the refuge because of the road closing, but I do understand the reason for the closed road.

On Eagle Day, you had a representative from the U of M presenting the raptors. She droned on for so long that after an hour, and seeing only two birds, we left. With so many kids in attendance, she needed to shorten her program to 30 minutes, or 45 minutes at the most. Kids got bored and families left. And I understand her concern for pesticide poisoning in the 70's and 80's, but this was not the place for her to ramble on for 30 minutes about it. It was a very disappointing presentation.

Overall, it is a well managed waterfowl production area. It seems to be grazed a little too often though.

Staff was extremely courteous.

The day I visited was excessively windy, so I did not climb the observation tower and the birds were not landing on the rough water.

The high water and coyote populations have lowered the number of deer in the refuge. There used to be a state trapper that ran a trap line in the refuge to help keep the fox and coyote numbers down. Do they still do this?

The hunting is great!

The people there were very knowledgeable. The Visitor Center was nice and the restrooms were clean.

The ranger at the Visitor Center was very helpful and knowledgeable.

The ranger was excellent, informative and friendly.

The refuge needs a camping facility.

The refuge needs better fishing access.

They do a great job at Sand Lake. I go there to deer hunt. I don't utilize facilities much, but do contact personnel every trip.

They should have more opportunities to do things for kids and have more special days or activities other than Eagle Day.

This refuge should continue managing for a wide range of species, and not focus on just one such as waterfowl. It should continue to be managed for a wider variety of hunting opportunities such waterfowl, deer, and upland birds.

We just stopped by to inquire about hunting on the refuge and really didn't do much else.

We weren't able to get a tour like last year because the rangers were called out on fire duty, which is totally understandable. It was nice for the kids to see the exhibits, especially the hands-on ones. It would be nice to have a few more educational exhibits that would be interactive for

children. Last year they were able to do a fire hose exhibit and that was great. It would be great to be able to have a boat tour. I never thought to ask if that was even possible.

While we enjoyed the trip greatly and would consider returning, we were disappointed that the Visitor Center was closed and that the steps to the observation tower were locked (10/8-10/10). We would like to see a blind or two for better observation of shore and water birds. The one conservation officer we did meet was friendly and helpful. We apparently missed seeing where to pay the refugee fee.

Survey Section 5

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

Comments on What Makes Refuges Unique? (n = 61)

A place to take children to go and observe wildlife without being at a zoo. The animals for the most part know they are safe.

Availability of wildlife, privacy, and vehicle restrictions provide the opportunity to hunt without having vehicles drive in while you are hunting.

Being able to hunt and observe wildlife in their natural environment is a great thing.

Being on the flyway.

Eagle Day was very interesting for my grandkids.

Emphasis on wildlife preservation.

Habitats vary in all refuges and there is a wide range of opportunities.

Hunting anywhere you want.

I have visited other refuges in the past and their emphasis is, of course, offering visitors a greater opportunity to observe all kinds of wildlife attracted to them. Other public lands will offer this to a lesser degree with the emphasis in other areas such as natural features, history, etc.

I like the fact that some refuges are closed to hunting and serve as resting places for local and migrating waterfowl. I appreciate the opportunity to hunt pheasants, but the fact that the refuges are managed differently than other WPAs, GPAs, or public lands is very important.

It gives wildlife a "safe haven" in which their populations can be managed or regulated to make sure future generations can enjoy viewing wildlife. I am a "non hunter" now and know hunters appreciate the opportunities refuges give them by allowing ducks/birds/game to flourish (provides more game).

It is a very large area to be enjoyed. There are more wildlife viewing opportunities. I had the opportunity to see deer, pheasant, coyote, squirrel, muskrat, and all forms of waterfowl. It is all left in its natural state, which is nice to see. All plants are well thought out when planted.

It is unique because it is so regulated and somewhat harder to access; it is much easier to use state public lands for viewing or walking/hiking because they are not so restricted.

Keep allowing people to hunt on refuges.

Large number of animals to see, and a safe area.

Location on the migratory waterfowl flyway.

Location, unique environment.

Major goose stopover.

Makes available natural resources.

Observation tower and few places to hunt.

Opportunities to see a unique array of birds and animals that are not available elsewhere because of human interaction.

Provides a unique hunting opportunity.

Refuges, in most cases, make it possible to get close to wildlife and birds because the wildlife feel more safe within the boundaries, thus making it better for observing or photographing!

Special seasons for big game hunting and better hunting quality than other public lands.

That lands are set aside for the main purpose of protecting animals and habitat.

That the wildlife and the outdoor experience will be available for future generations.

The abundance of wildlife. Deer are my biggest interest. I am disappointed that they are talking about eliminating food plots, corn, soybeans. Also, I would be very upset if they were to eliminate shelter belts and other trees.

The availability to public: public buildings, displays, reception by management and employees.

The chance to see a living (although protected, unobtrusively) ecosystem.

The condition of the refuge reflects through the wildlife in and around the area, giving opportunities to see an undisturbed environment.

The greatest appeal is the proximity to my town (Aberdeen, SD). A wonderful place, very informative, and has a friendly staff! An all-around great 'natural' education experience to take my kids.

The habitat for migrating and nesting birds.

The hunting.

The location.

The number of waterfowl species.

The number of wildlife present, plus the care given to the upkeep of the facilities.

The observation tower.

The overall quality of the land; the extent of the area that provides wildlife habitat; the quietness of the space; and, an opportunity to see birds and animals in a quantity not always readily available.

The personnel on duty.

The refuge appears to be better maintained for wildlife habitat and food sources.

The refuge provides a continuous property to hunt without excess competition.

The scenery at each one is different. The lack of human contact while on a trail or just sitting on one of the benches.

The tremendous waterfowl population.

The unaltered landscape.

Their sensitivity to unique ecosystems and the management practices necessary to maintain their uniqueness. The dedication of office and field staff to the jobs they perform within a budget-strapped environment. The National Wildlife Refuge System is and will become the caretaker of the few remaining natural areas on the planet.

There are more species of animals on a refuge than any other place, and knowledge from people that view this every day.

There is good bird habitat/great grass.

They allow hunting and fishing.

They give people the opportunity to see wildlife in a natural setting.

They offer an unobstructed, "untouched" experience that for the most part gives us the opportunity to view wildlife without human interference. It truly is a different experience than you get at any other public land.

To show kids the wildlife!

Unique habitat for deer hunting.

Usually less tourists; thus, the opportunity to observe wildlife is greater along with good vegetation.

Very original habitat for wildlife; provides a true hunt if you take the time and effort.

Waterfowl staging area.

Waterfowl viewing.

We love to go fishing!

Well taken care of and clean.

What makes Sand Lake unique is the opportunity to pursue whitetail deer in a balanced herd with older age class animals present. The terrain is open enough to allow visual sightings and adequate space for a quality hunt. Limiting the number of hunters for the gun hunts

feels about right. Unlimited bow hunting should be continued.

When we deer hunt, we can go in three different times a day to pick up deer that we have shot. It is public land, so you cannot drive in it. Also, it has its own deer season.

Additional Comments (n = 19)

All in all, the refuge is rather small and basically you can see across the boundaries. The hunting is very limited with orange dots all over the place. I would not recommend this hunt to anyone from West River, as the hunting is much better with a better feel/deer numbers in and around Spearfish, South Dakota. All in all, the trip was a waste of time, but your staff is informative and nice. Quality guide for hunting.

Continue with your controlled burns for habitat improvement, which also improves hunter opportunities.

I also think the whole issue of climate change is a crock. First it was cooling, and then it was warming; now they call it "climate change." The fact is that we don't have records going back thousands of years to prove that what we are experiencing is anything out of the ordinary. The activity of the sun plays a huge role in the weather patterns and temperature of our earth, but that does not tie in with the politically correct position of blaming everything on mankind. I do recycle, and I am opposed to pollution and chemical damage to our lands and creatures, but climate change is poorly understood and should not be a main focus of your department or its resources.

I had a very good visit with the ranger on duty.

I had heard about it for years, just never visited it. I love wildlife and thought I would try hunting on the refuge. It was a great experience. I am thinking about visiting it in the summer months. I would love to show my wife what a beautiful area this is. I now know more about the refuge and would like to see it in the summertime also.

I just wanted to say thank you to the refuge and all its volunteers and employees for taking the time to make this place enjoyable. The more interaction my nine year old has with these workers, the more he appreciates the value of Mother Nature and all its wonders. Again, thank you! Thank you! Thank you! You are helping me create great memories for my son's childhood.

I was with you until you asked all the misleading questions about climate change/global warming. Leave the political junk out of your survey.

In reference to climate change questions, it seems like the waterfowl are getting to the refuge later every year. Maybe the season needs to be extended or opened later.

It is my understanding that the Sand Lake National Wildlife Refuge manages waterfowl production areas in the district. From my experience, these areas are leased to agricultural related things such as haying and grazing. It is my experience that the people who lease these rights have no respect for the property - they put up temporary fencing and never remove it properly and pickup bales when the ground is soft leaving heavy vehicle tracks.

More information needs to be out in the public about National Wildlife Refuges in our state and others. Maps (road) are the best way to find them.

My grandkids, ages nine, seven, and three, all really enjoyed the bird banding and getting to release the ducks as well as the firing of the rockets to send the net flying to catch ducks.

On the deer tags at the refuge, you have two tags: one deer and one doe tag, and two doe tags. Some people want to shoot a buck and won't shoot a doe. Some people will take the two doe tags. If you give out the one any deer tag first and give out more two doe tags, then you will have more people come to hunt and spend money in the area. I think you have 35 "one-any-deer and one-doe tags"

and 10 "two-doe tags." If you gave out 35 one any deer and 27 two does tags you would have had 17 more people hunting and gave out the same number of tags. My cost was about \$400.00. Seventeen more tags equals \$6800.00 to the area and that's just the first hunt in Sand Lake. Also, if there are new hunters, the shells and gear to go on the hunt is all money spent. Thank you!

Overall, a great time! The staff at Eagle Day was fantastic, knowledgeable and friendly! We will look forward to future trips. The kids had a great time! A few suggestions for improvement: 1) Signage! There is not enough 'passing-by' information. 2) Accessible vs. 'private' areas of the refuge are not clearly defined 3) Roads could use improving, especially entrance/exit (which is not wide enough).

Sand Lake is a very special gem for deer. I hope that you will keep planting food plots. All the other wildlife need them as well. Keep the tree lines and wind rows as the wildlife need them when the winters are tough. I realize the waterfowl probably don't need those. Sand Lake is already a high waterfowl production area. A few more ducks doesn't balance out with a huge hunting loss of its other inhabitants. Thanks.

Sand Lake was an exceptional experience and very attractive. Because of limited time, we were unable to experience all the activities offered at the refuge. However, we plan to return in the fall of 2011, if health allows. We really enjoyed the time we spent at Sand Lake.

The personnel at the Visitor Center were especially knowledgeable and courteous, and I was able to obtain some very helpful brochures to aid in identification and other wildlife information.

The refuge staff was very well informed and helpful.

We enjoy being able to visit the refuge and the area around it for observing and photographing the birds and other wildlife and just getting out in the great outdoors. We enjoy the beauty of our environment around us as well as other parts of the country!

Why has most of the cover been cut?
