



National Wildlife Refuge Visitor Survey 2012: Individual Refuge Results for Santa Ana National Wildlife Refuge

By Alia M. Dietsch, Natalie R. Sexton, Lynne Koontz, and Shannon J. Conk

Excellent habitat, friendly and helpful personnel, generally not crowded, good walking trails, and easy access to viewable birds and wildlife makes this refuge unique.

— *Survey comment from a visitor to Santa Ana National Wildlife Refuge*



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

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Introduction

The National Wildlife Refuge System (Refuge System), established in 1903 and managed by the U.S. Fish and Wildlife Service (Service), is the leading network of protected lands and waters in the world specifically dedicated to the conservation of fish, wildlife, and their habitats. There are 560 national wildlife refuges (refuges) and 38 wetland management districts nationwide, including possessions and territories in the Pacific and Caribbean, encompassing more than 150 million acres (U.S. Fish and Wildlife Service, 2013). As stated in the National Wildlife Refuge Improvement Act of 1997, 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 the diversity and interconnectedness of fish, wildlife, and plants, and their habitats” and the goal “to provide and enhance opportunities to participate in compatible wildlife-dependent recreation” (U.S. Fish and Wildlife Service, 2006, p. 2). The Refuge System attracts nearly 45 million visitors annually, including 34.8 million people who observe and photograph wildlife, 9.6 million who hunt and fish, and nearly 675,000 teachers and students who use refuges as “outdoor classrooms” (U.S. Fish and Wildlife Service, 2012). Understanding visitor perceptions of refuges and characterizing their experiences on 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 refuges. The purpose of the survey was to better understand visitor experiences and trip characteristics, to gauge visitors’ levels of satisfaction with existing recreational opportunities, and to garner feedback to inform the design of programs and facilities. The survey results will inform performance, planning, budget, and communications goals. Results will also inform Comprehensive Conservation Plans (CCPs), visitor services, and transportation planning processes.

Organization of Results

These results are specific to visitors who were contacted at Santa Ana National Wildlife Refuge (NWR) (this refuge) during the specified sampling periods and are part of USGS Data Series 754. All refuges participating in the 2012 survey 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 survey effort.
- **Methods:** The procedures for the national survey 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 Refuge System topics
- **Conclusion**
- **References Cited**
- **Survey Frequencies (Appendix A):** The survey instrument with frequency results for this refuge.
- **Visitor Comments (Appendix B):** The verbatim responses to open-ended survey questions for this refuge.

Methods

Selecting Participating Refuges

The national visitor survey was conducted from January–December 2012 on 25 refuges across the Refuge System (table 1). Each refuge was selected for participation by the Refuge Transportation Program National Coordinator in conjunction with regional office Visitor Services Chiefs. Selection was based on the need to inform transportation planning processes at the national level and to address refuge planning and transportation needs at the individual refuge level.

Developing the Survey Instrument

Researchers at the USGS 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 (one 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 at which to sample, 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 the 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 3–5 hour (hr) time bands, stratified across AM and PM as well as weekend and weekdays. In coordination with refuge staff, any necessary customizations were made to the standardized schedule to accommodate the identified sampling locations and to address specific spatial and temporal patterns of visitation.

Twenty visitors (18 years of age or older) per sampling shift were systematically selected, for a total of 320 willing participants per refuge (or 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. Refuges participating in the 2012 national wildlife refuge visitor survey.

Pacific Region (R1)
Ridgefield National Wildlife Refuge (WA)
Southwest Region (R2)
Balcones Canyonlands National Wildlife Refuge (TX)
Hagerman National Wildlife Refuge (TX)
Kofa National Wildlife Refuge (AZ)
Santa Ana National Wildlife Refuge (TX)
Tishomingo National Wildlife Refuge (OK)
Great Lakes-Big Rivers Region (R3)
La Crosse District, Upper Mississippi River National Wildlife and Fish Refuge (WI)
Minnesota Valley National Wildlife Refuge (MN)
Southeast Region (R4)
Crystal River National Wildlife Refuge (FL)
Eufaula National Wildlife Refuge (AL)
Felsenthal National Wildlife Refuge (AR)
Lacassine National Wildlife Refuge (LA)
National Key Deer Refuge (FL)
Savannah National Wildlife Refuge (GA/SC)
Northeast Region (R5)
Assabet River National Wildlife Refuge (MA)
Back Bay National Wildlife Refuge (VA)
Chincoteague National Wildlife Refuge (VA)
Edwin B. Forsythe National Wildlife Refuge (NJ)
Rachel Carson National Wildlife Refuge (ME)
Mountain-Prairie Region (R6)
Bear River Migratory Bird Refuge (UT)
Lee Metcalf National Wildlife Refuge (MT)
Rocky Mountain Arsenal National Wildlife Refuge (CO)
National Bison Range (MT)
California and Nevada Region (R8)
Don Edwards San Francisco Bay National Wildlife Refuge (CA)
San Luis National Wildlife Refuge (CA)

Refuge staff and/or volunteers (survey recruiters) contacted visitors onsite following a protocol provided by the USGS that was designed to obtain a representative 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 contacting only one person per group. Visitors were informed of the survey effort, given a token incentive (for example, a small magnet or 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 were also instructed to record any refusals and then proceed with the sampling protocol.

All visitors that agreed onsite to fill out a survey received the same sequence of correspondence regardless of their preference for survey mode. This approach allowed for an assessment of visitors' likelihood of completing the survey by their preferred survey mode (see Sexton and others, 2011). Researchers at the USGS sent the following materials to all visitors agreeing to participate who had not yet completed a survey at the time of each mailing (Dillman, 2007):

- A postcard mailed within 10 days of the initial onsite contact thanking visitors for agreeing to participate in the survey and inviting them to complete the survey online.
- A packet mailed 9 days later consisting of a cover letter, survey, and postage paid envelope for returning a completed paper survey.
- A reminder postcard mailed 7 days later.
- A second packet mailed 14 days later consisting of another cover letter, survey, and postage paid envelope for returning a completed paper survey.

Each mailing included instructions for completing the survey online, so visitors had an opportunity to complete an online survey with each mailing. 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 packet to determine any differences between respondents and nonrespondents at the aggregate level. Online survey data were exported and paper survey data were entered into Microsoft Excel using a standardized survey codebook and data entry procedure. All survey data were analyzed using *Statistical Package for the Social Sciences* (SPSS, v.20) software¹.

Interpreting the Results

The extent to which these results accurately represent the total population of visitors to this refuge is dependent on the number of visitors who completed the survey (sample size) and the ability of the variation

¹ Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

resulting from that sample to reflect the beliefs and interests of different visitor user groups (Scheaffer and others, 1996). 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 unique to each refuge. Spatially, the geographical layout and public-use infrastructure varies widely across refuges. Some refuges can be accessed only 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 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, which may result in certain survey measures such as visitors' self-reported "primary activity during their visit" reflecting a seasonality bias. Results contained within this report may not apply to visitors during all times of the year or to visitors who did not visit the survey locations.

In this report, visitors who responded to the survey are referred to simply as "visitors." However, when interpreting the results for Santa Ana NWR, any potential spatial and temporal sampling limitation specific to this refuge needs 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 (mi) 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). 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, visitors who paid a fee) is too low ($n < 30$), a warning is included in the text. Finally, the term "this visit" is used to reference the visit during which people were contacted to participate in the survey.

Refuge Description for Santa Ana National Wildlife Refuge

Situated along the most southern stretch of the Rio Grande in the deep south of Texas, Santa Ana NWR covers 2,088 acres of crucial wildlife habitat. The refuge, considered one of the top birding destinations in the world, is home to more than 400 species of birds and half of all butterfly species found in North America. Approximately 131,900 visitors (2011 Refuge Annual Performance Plan measures; Rob Miller, U.S. Fish and Wildlife Service, 2012, written commun.) explore Santa Ana NWR each year, primarily for wildlife observation, photography, and environmental education.

Santa Ana NWR was established in 1943 for the protection of migratory birds. The habitat is largely varied due to its subtropical climate and unique geography – a meeting point for the Great Plains, Gulf Coast, and Chihuahuan Desert. The refuge is also situated at the junction of two major bird migratory routes, including the northern-most extent of a migratory route for many birds from Central and South America. Visitors are likely to see more than just birds and butterflies, though. For example, they might observe coyotes, bobcats, armadillos, lizards, snakes, tortoises, and perhaps even the elusive ocelot or jaguarondi, both endangered cat species. Wildlife observation and exploration of the refuge is facilitated by 12 mi of

trails, an observation tower, a hanging bridge, and a guided nature tram. Figure 1 displays a map of Santa Ana NWR. For more information, visit http://www.fws.gov/refuge/santa_ana/.

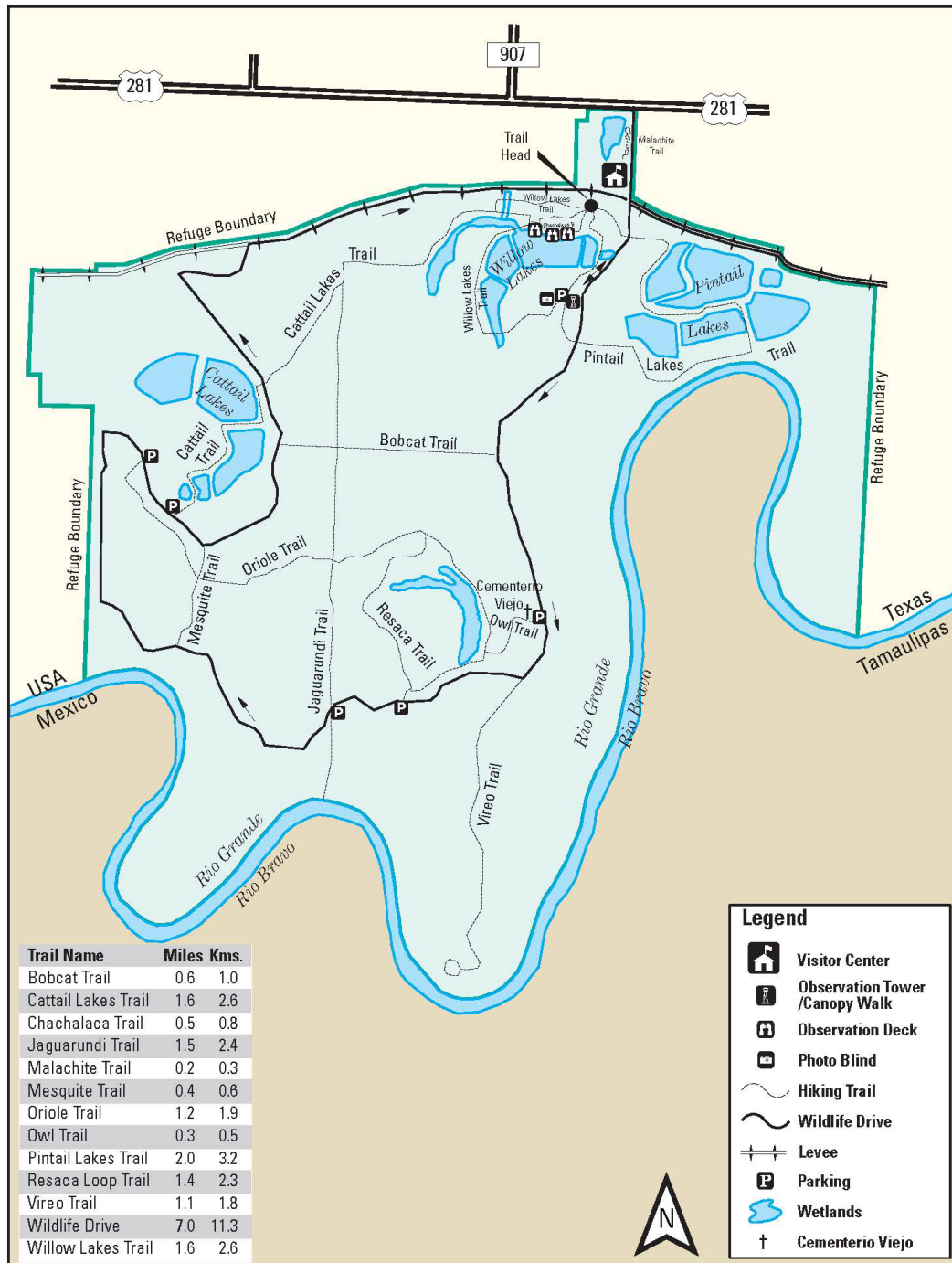


Figure 1. Map of Santa Ana NWR, courtesy of U.S. Fish and Wildlife Service.

Sampling at Santa Ana National Wildlife Refuge

A total of 267 visitors agreed to participate in the survey during the two sampling periods at the identified locations at Santa Ana NWR (table 2). In all, 185 visitors completed the survey for a 71% response rate, and $\pm 5.8\%$ margin of error at the 95% confidence level.²

Table 2. Sampling and response rate summary for Santa Ana NWR.

Sampling period	Dates	Locations	Total contacts	Undeliverable addresses	Completed surveys	Response rate
1	2/11/12	Observation Tower				
	to 2/25/12	South Texas Refuge Complex Visitor Center				
SP1 Totals			159	2	136	87%
2	5/26/12	Observation Tower				
	to 6/9/12	South Texas Refuge Complex Visitor Center				
SP2 Totals			108	3	49	47%
Combined Totals			267	5	185	71%

² A margin of error of $\pm 5\%$ at a 95% confidence level, for example, means that, if a reported percentage is 55%, then 95 out of 100 times, that sample estimate would fall between 50% and 60% if the same question was asked in the same way. The margin of error is calculated with an 80/20 response distribution, assuming that for a given dichotomous choice question, approximately 80% of respondents would select one choice and 20% would select the other choice (Salant and Dillman, 1994).

Selected Survey Results

Visitor and Trip Characteristics

A solid understanding of visitor characteristics and details about their trips to refuges can inform communication and outreach efforts, inform managers about desired types of visitor services and modes of transportation used on refuges, and help forecast use and gauge demand for services and facilities.

Familiarity with the Refuge System

Many visitors to Santa Ana NWR reported that before participating in the survey, they were aware of the role of the Service in managing refuges (88%) and that the Refuge System has the mission of conserving, managing, and restoring fish, wildlife, plants, and their habitats (92%). It is important to note that we did not ask visitors to identify the mission of the Refuge System or the Service, and positive responses to these questions concerning the management and mission of the Refuge System do not necessarily indicate that these visitors fully 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.

Most visitors (89%) feel that refuges, compared to other public lands, provide a unique recreation experience (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.

Most visitors to Santa Ana NWR had been to at least one *other* national wildlife refuge in the past year (75%), with an average of 5 visits to *other* refuges during the past 12 months.

Visiting This Refuge

A majority of surveyed visitors (62%) had only been to Santa Ana NWR once in the past 12 months, while some had been multiple times (38%). These repeat visitors went to the refuge an average of 9 times during that same 12-month period. Visitors used the refuge during only one season (78%), during multiple seasons (15%), and year-round (7%).

Most visitors first learned about the refuge from friends/relatives (45%), a travel guidebook or other book (33%), or refuge printed information (25%; fig. 2). Key information sources used by visitors to find their way to this refuge include their previous knowledge (57%), signs on the highways (41%), GPS navigation systems (22%), and road atlases/highways maps (21%; fig. 3).

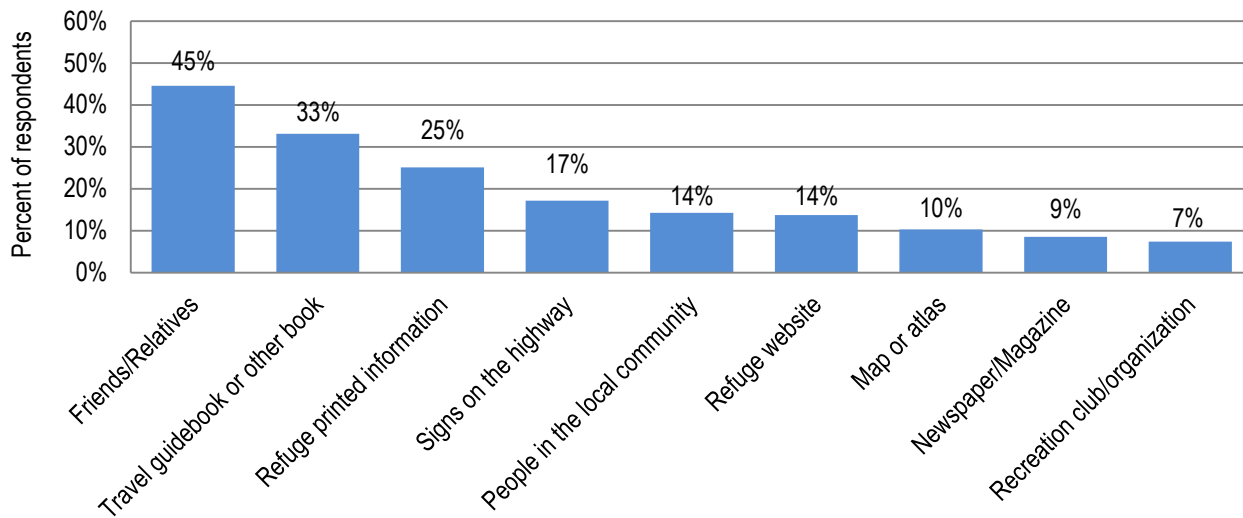


Figure 2. How visitors first learned or heard about Santa Ana NWR (n = 175).

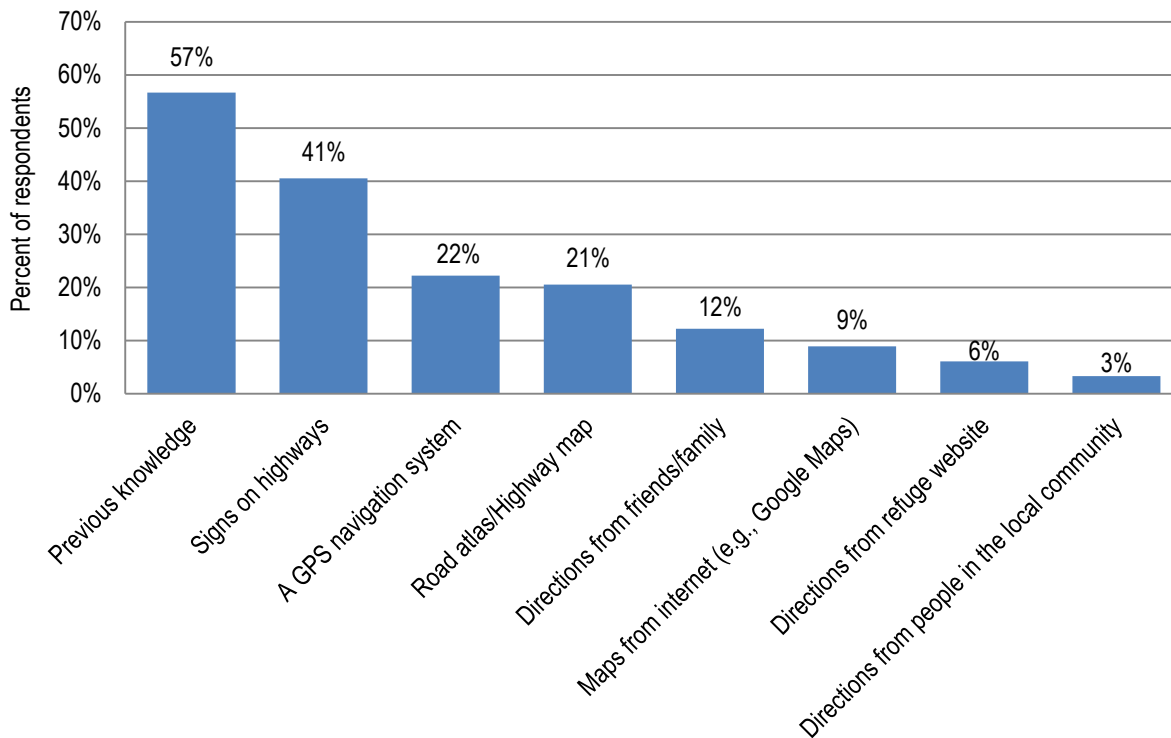


Figure 3. Resources used by visitors to find their way to Santa Ana NWR during this visit (n = 180).

Some visitors (36%) lived in the local area (within 50 mi of the refuge), whereas 64% were nonlocal visitors. For most local visitors, Santa Ana NWR was the primary purpose or sole destination of their trips (75%; table 3). For most nonlocal visitors, the refuge was one of many equally important reasons or destinations for their trips (59%).

Local visitors reported that they traveled an average of 22 mi to get to the refuge, while nonlocal visitors traveled an average of 1,016 mi. The average distance traveled for all visitors to this refuge was 540 mi, while the median was 120 mi. Figure 4 shows the residences of visitors traveling to this refuge. About 57% of visitors traveling to Santa Ana NWR were from Texas.

Table 3. Influence of Santa Ana NWR on visitors' decisions to take their trips.

Visitors	Visiting this refuge was...		
	the primary reason for trip	one of many equally important reasons for trip	an incidental stop
Nonlocal	21%	59%	21%
Local	75%	13%	13%
All visitors	40%	42%	18%

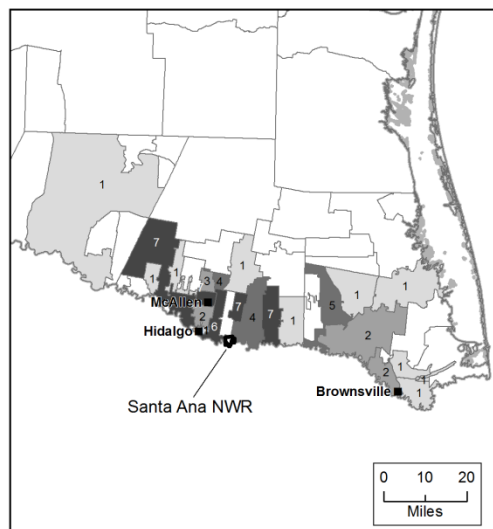
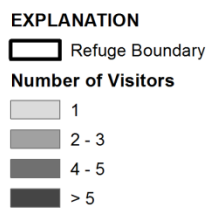
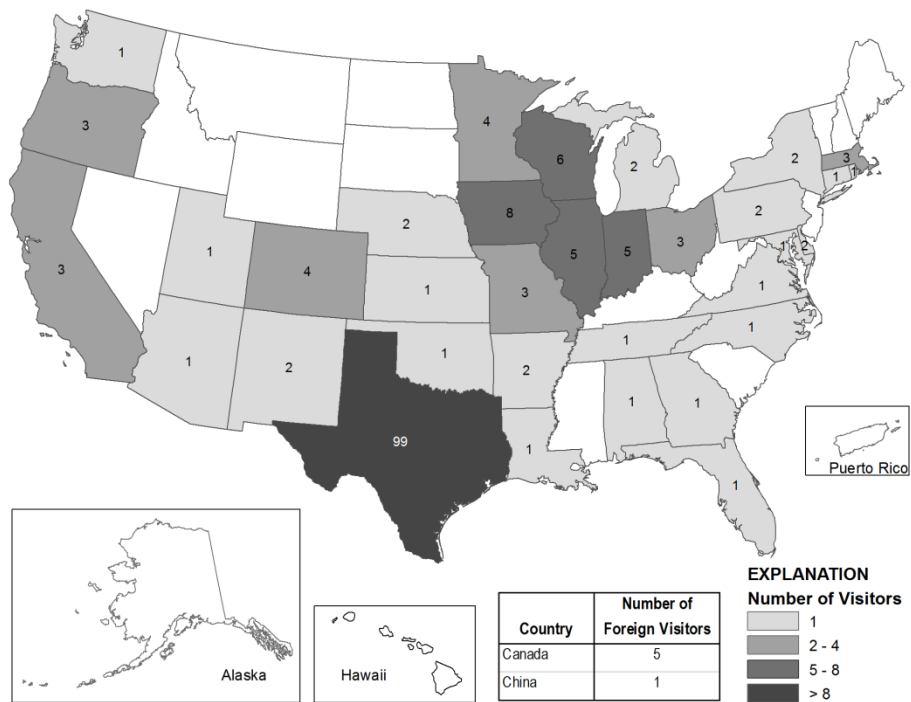


Figure 4. Number of visitors travelling to Santa Ana NWR by place of residence. The top map shows visitors residence by state and the bottom map shows residence by zip codes near the refuge (n = 181).

Surveyed visitors reported that they spent an average of 4 hr at Santa Ana NWR during one day there, while the most frequently reported length of a day visit, the modal response, was 8 hr (23%). Most visitors indicated they were part of a group on their visit to this refuge (89%). Of those people who indicated they traveled with a group, visitors primarily traveled with family/friends (table 4).

Table 4. Type and size of groups visiting Santa Ana NWR (for those who indicated they were part of a group, n = 159).

Group type	Percent (of those traveling in a group)	Average group size		
		Number of adults	Number of children	Total group size
Family/Friends	86%	3	0	3
Commercial tour group	4%	9	0	9
Organized club/School group	9%	17	2	19
Other group type	1%	18	0	18

The key modes of transportation used by visitors to travel around the refuge were private vehicle (82%) and walking/hiking (36%; fig. 5).

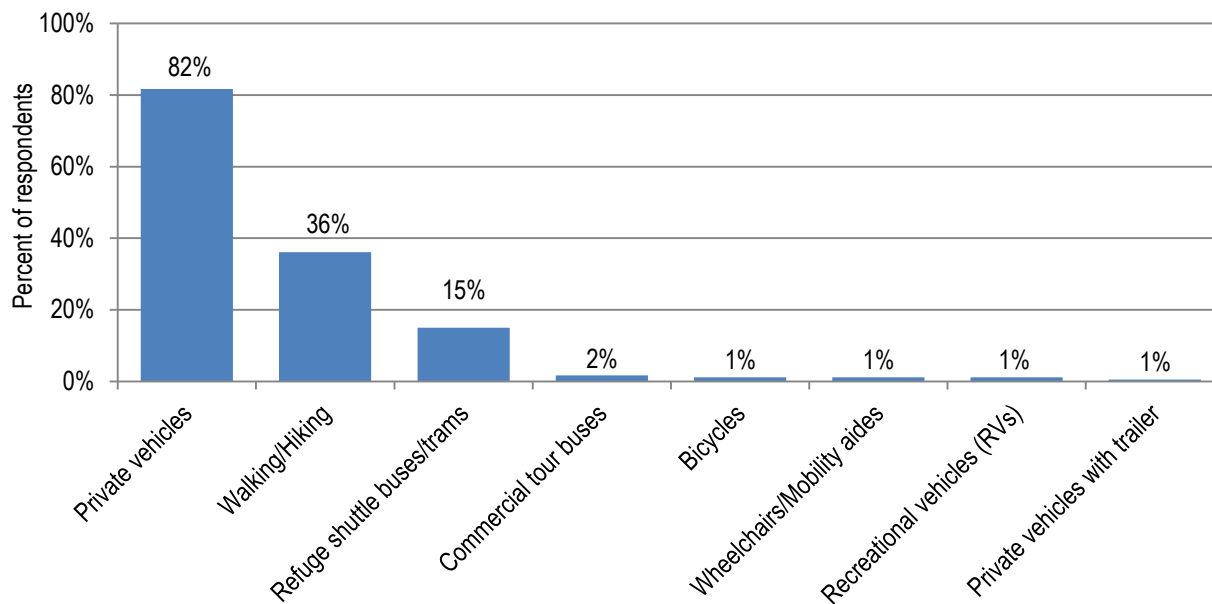


Figure 5. Modes of transportation used by visitors to Santa Ana NWR during this visit (n = 180).

Surveyed visitors participated in a variety of refuge activities during the 12 months prior to completing the survey (fig. 6); the top three activities in which people reported participating were bird

watching (91%), wildlife observation (69%), hiking (55%), and photography (47%). The primary reasons for visitors' most recent visits included bird watching (58%), hiking (14%), and wildlife observation (12%; fig. 7). Almost all visitors also used the Visitor Center during their trips (97%), mostly to stop to use the facilities (85%), visit the gift shop/bookstore (84%), or view the exhibits (83%; fig. 8).

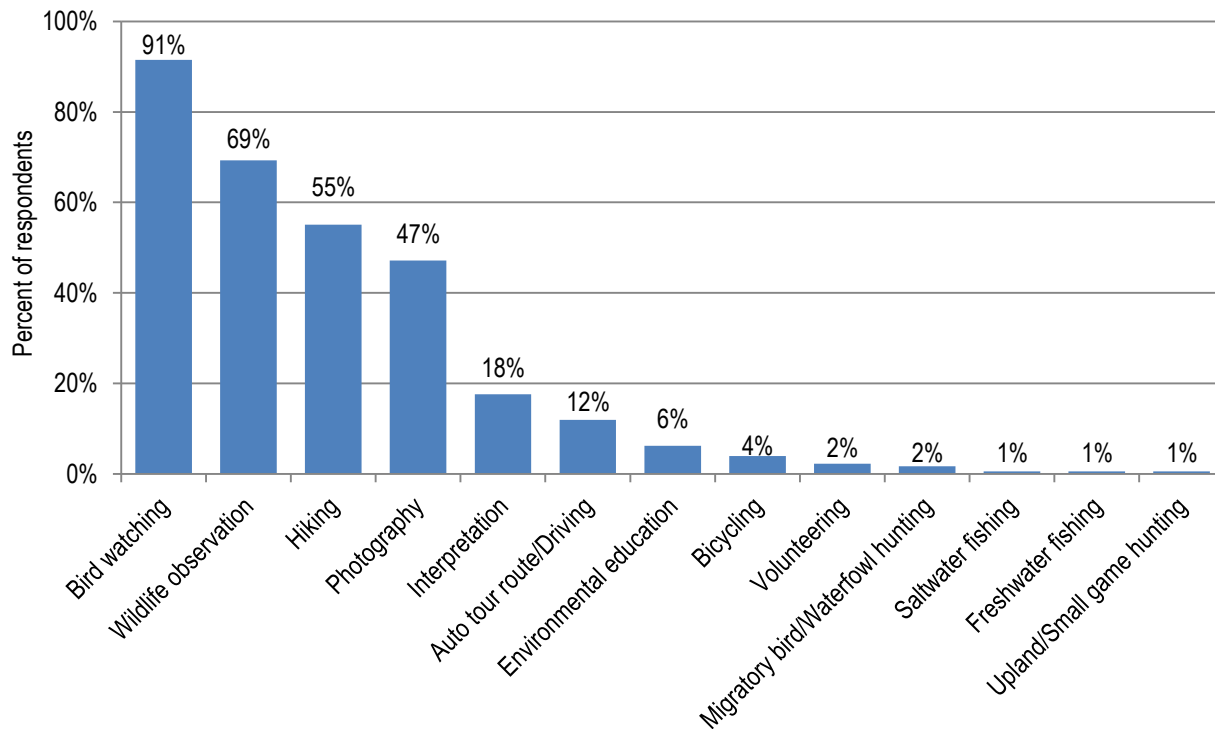


Figure 6. Activities in which visitors participated during the past 12 months at Santa Ana NWR (n = 176). See Appendix B for a listing of “other” activities. Note: Hunting is not allowed on this refuge, but the few people who indicated they participated in hunting of any kind were contacted at the Visitor Center, which also serves the Lower Rio Grande Valley NWR where hunting is allowed.

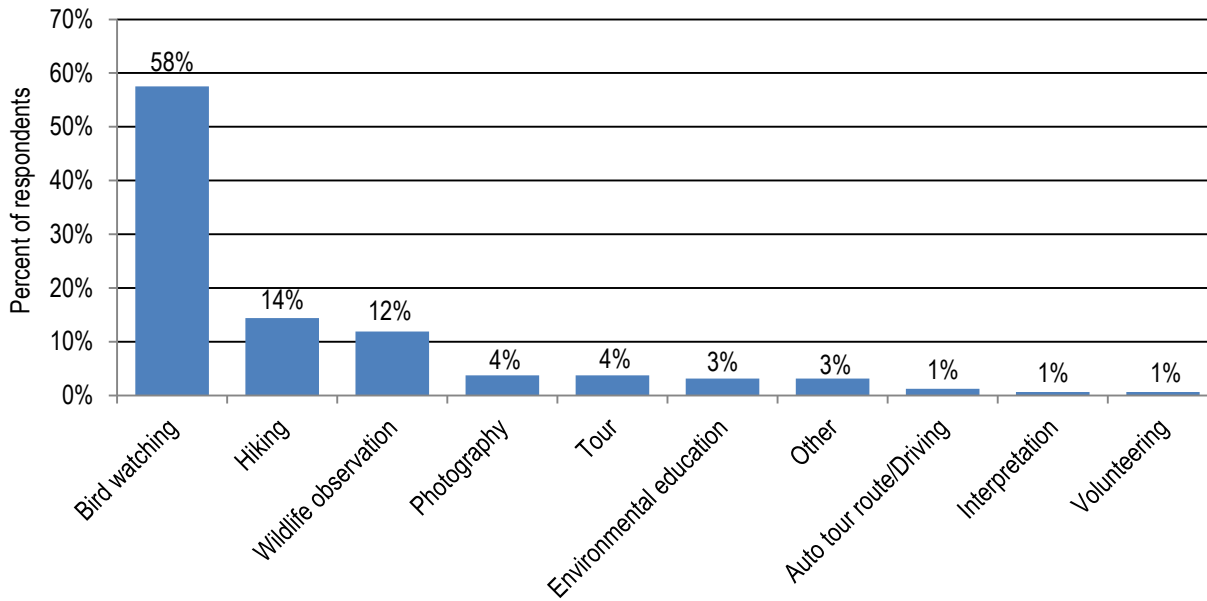


Figure 7. The **primary** activity in which visitors participated during this visit to Santa Ana NWR (n = 160). See Appendix B for a listing of “other” activities.

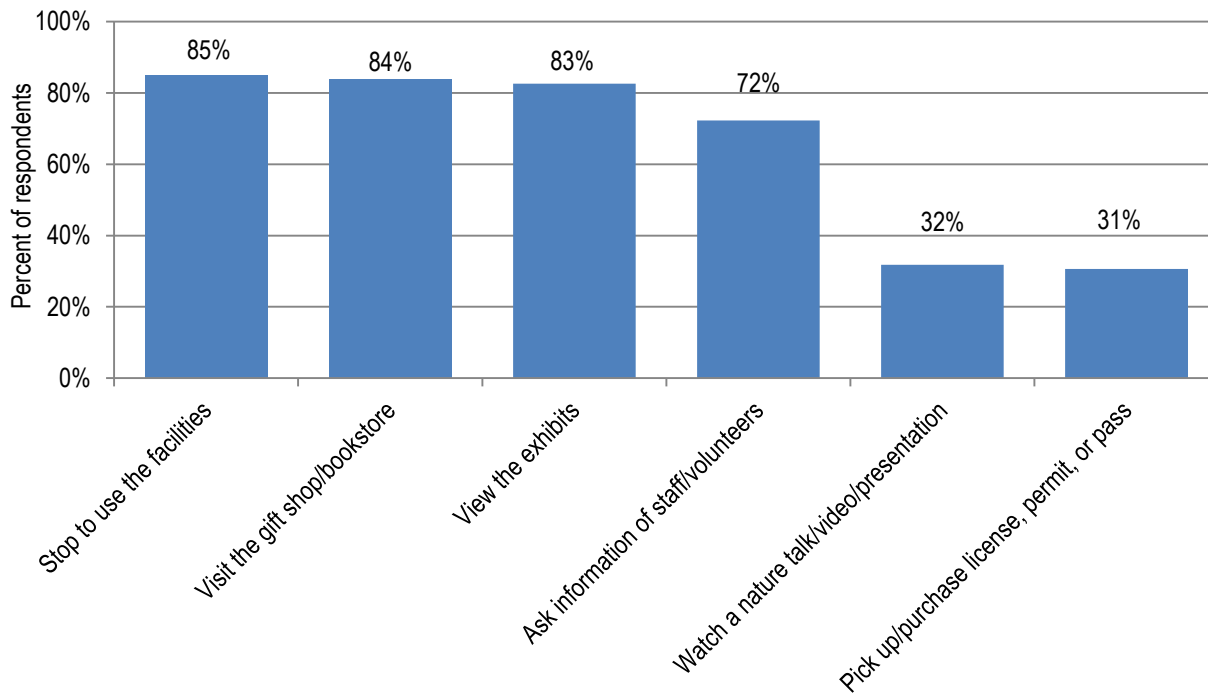


Figure 8. Visitor Center activities in which visitors participated at Santa Ana NWR (n = 173).

Visitor Characteristics

Nearly all (95%) visitors who participated in the survey at Santa Ana NWR indicated that they were citizens or permanent residents of the United States. These visitors were a mix of 46% male (with an average age of 61 years) and 54% female (with an average age of 59 years). Visitors, on average, reported they had 16 years of formal education (equivalent to four years of college or technical school). The median level of income was \$50,000-\$74,999. See Appendix A for more demographic information.

In comparison to these results, the 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation (U.S. Fish and Wildlife Service, 2007) found that participants in wildlife watching and hunting on public lands were 55% male and 45% female with an average age of 46 years, an average level of education of 14 years (equivalent to an associate degree or two years of college), and a median income of \$50,000–74,999 (Anna Harris, U.S. Fish and Wildlife Service, 2011, written commun.). Compared to the U.S. population, participants in wildlife-related recreation are more likely to be male, and tend to be older with higher education and income levels (U.S. Fish and Wildlife Service and U.S. Census Bureau, 2007).

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 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 to local communities of visitor activities on refuges. Visitor expenditure information also can be used to analyze the economic impact of proposed refuge management alternatives.

Visitors that live within the local 50-mi area of a refuge typically have different spending patterns than those that travel from longer distances. During the two sampling periods, 36% of surveyed visitors to Santa Ana NWR indicated that they live within the local 50-mi area while nonlocal visitors (64%) stayed in the local area, on average, for 11 days. Table 5 shows summary statistics for local and nonlocal visitor expenditures in the local communities and at the refuge, with expenditures reported on a per person per day basis. During the two sampling periods, nonlocal visitors spent an average of \$68 per person per day and local visitors spent an average of \$21 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 factors include the amount of time spent at the refuge, influence of the refuge on the visitors' 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.

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

Visitors	n ¹	Median	Mean	Standard deviation	Minimum	Maximum
Nonlocal	99	\$50	\$68	\$65	\$0	\$351
Local	45	\$15	\$21	\$25	\$0	\$106

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 number 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 in the local community, 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 in which people participated), and may not be representative of the total population of visitors to this refuge.

Visitor Opinions about this Refuge

Refuges provide visitors with a variety of services, facilities, and wildlife-dependent recreational opportunities. Understanding visitors' perceptions of refuge offerings is a key component of the Refuge System's mission. In particular, a baseline understanding of visitor experiences provides a framework from which the Refuge System can monitor trends in visitor experiences overtime, which is increasingly useful in the face of changing demographics and wildlife-related interests. Some studies on wildlife-related recreation trends have indicated declines in participation over the latter part of the 20th century in traditional activities such as hunting (for example, U.S. Department of the Interior and others, 2007), while others highlight a need to connect the next generation of people to nature and wildlife (for example, Charles and Louv, 2009). These types of factors highlight a need to better understand visitors' opinions of their refuge experiences and to monitor trends in these opinions over time.

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

- 93% of visitors were satisfied with the recreational activities and opportunities,
- 97% of visitors were satisfied with the information and education about the refuge and its resources,
- 98% of visitors were satisfied with the services provided by employees or volunteers, and
- 95% of visitors were satisfied with the refuge's job of conserving fish, wildlife and their habitats.

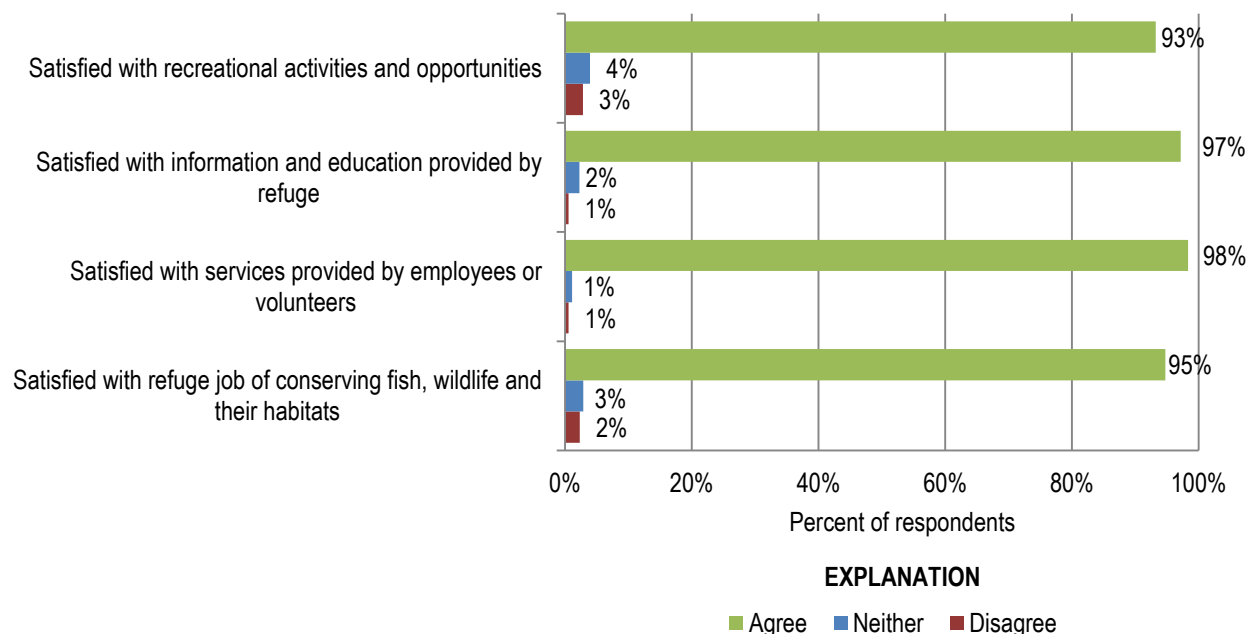


Figure 9. Overall satisfaction with Santa Ana NWR during this visit (n ≥ 172).

Of the 70% of visitors who indicated that they paid a fee to enter the refuge, 93% agreed that the opportunities and services were at least equal to the fee they paid. Additionally, 84% of visitors felt the appropriateness of the fee was about right, whereas 15% felt the fee was too low and 1% felt it was too high (fig. 10).

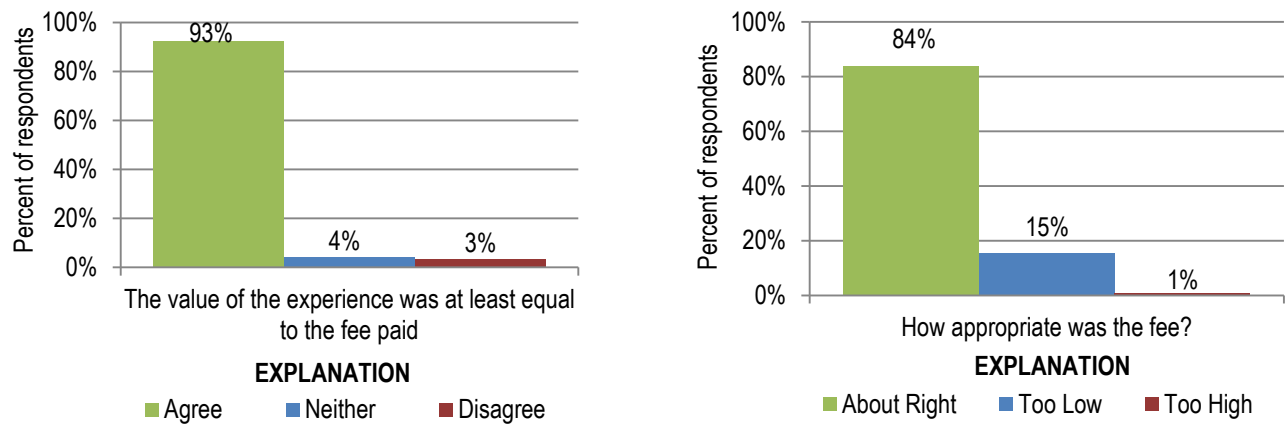


Figure 10. Opinions about fees at Santa Ana NWR (for those visitors who indicated they paid a fee, n = 123).

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 examines the importance of an attribute to visitors in relation to their satisfaction with that attribute (Martilla and James, 1977). Drawn from marketing research, this tool has been applied to outdoor recreation and visitation settings (for example, Tarrant and Smith, 2002). Results for the attributes of interest are segmented into one of four quadrants (modified slightly for this 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 different visitor groups regarding their expectations and levels of importance (Vaske and others, 1996; Bruyere and others, 2002; Wade and Eagles, 2003); 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. This consideration is especially important when reviewing any attribute that falls 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 or 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 their satisfaction with) the attribute may be much higher than the overall importance (and satisfaction) would be for the sample of visitors summarized in this report.

Figures 11–13 depict surveyed visitors' importance-satisfaction ratings for refuge services and facilities, recreational opportunities, and transportation-related features at Santa Ana NWR. Results are summarized as follows:

- All refuge *services and facilities* fell in the "Keep Up the Good Work" quadrant (fig. 11).
- All refuge *recreational opportunities* fell in the "Keep Up the Good Work" quadrant except hunting and fishing opportunities, which fell into the "Look Closer" quadrant (fig. 12). The average importance of these activities is likely higher among visitors to Santa Ana NWR who actually participated in the activities during the 12 months prior to taking the survey than the scores reported

here. For example, hunters, as part of the 2010-2011 national visitor survey, had an average importance score of 4.6 for this recreational opportunity, while the average importance score of hunting activities across all visitors was lower.

- All *transportation-related features* fell in the “Keep Up the Good Work” quadrant (fig. 13).

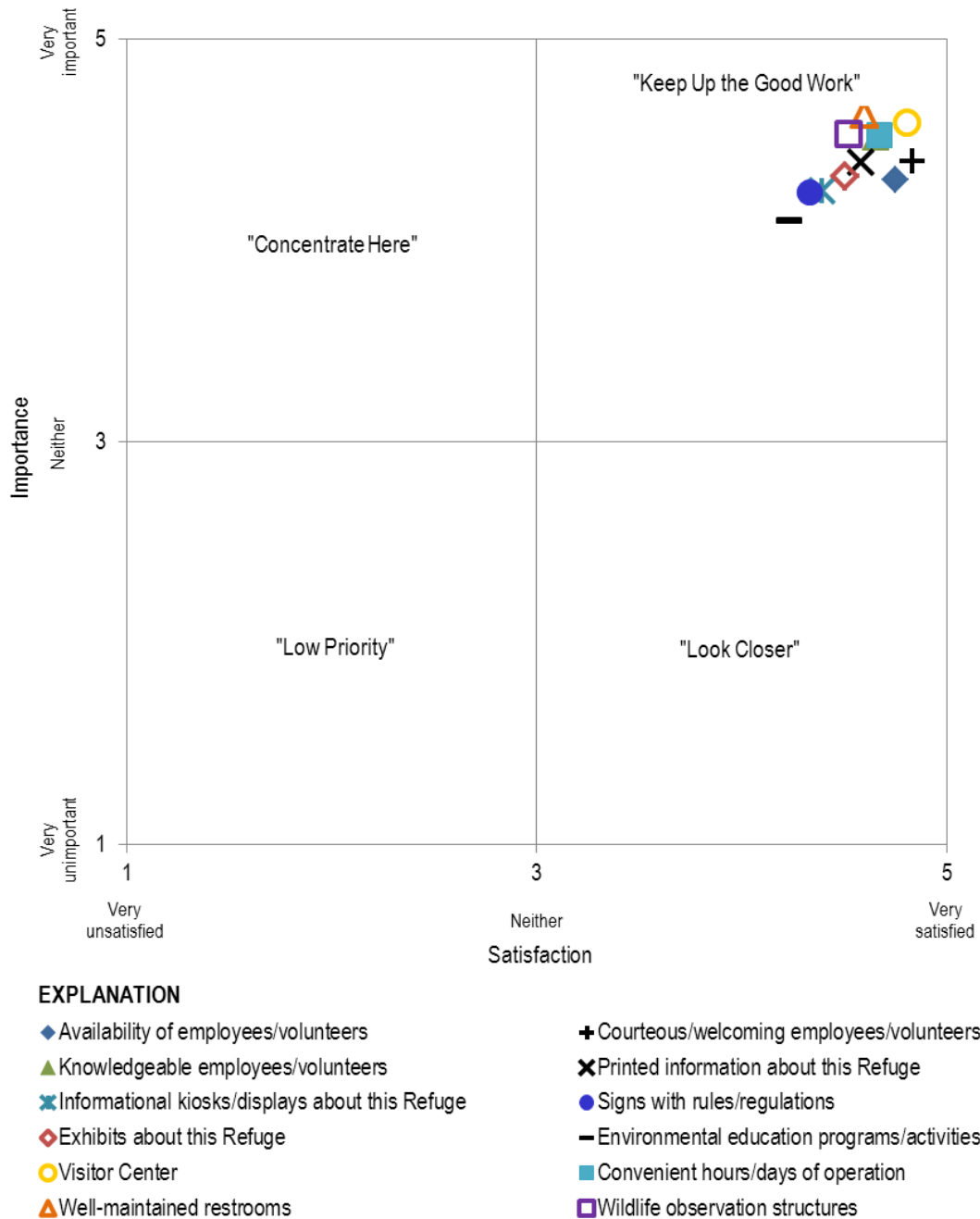
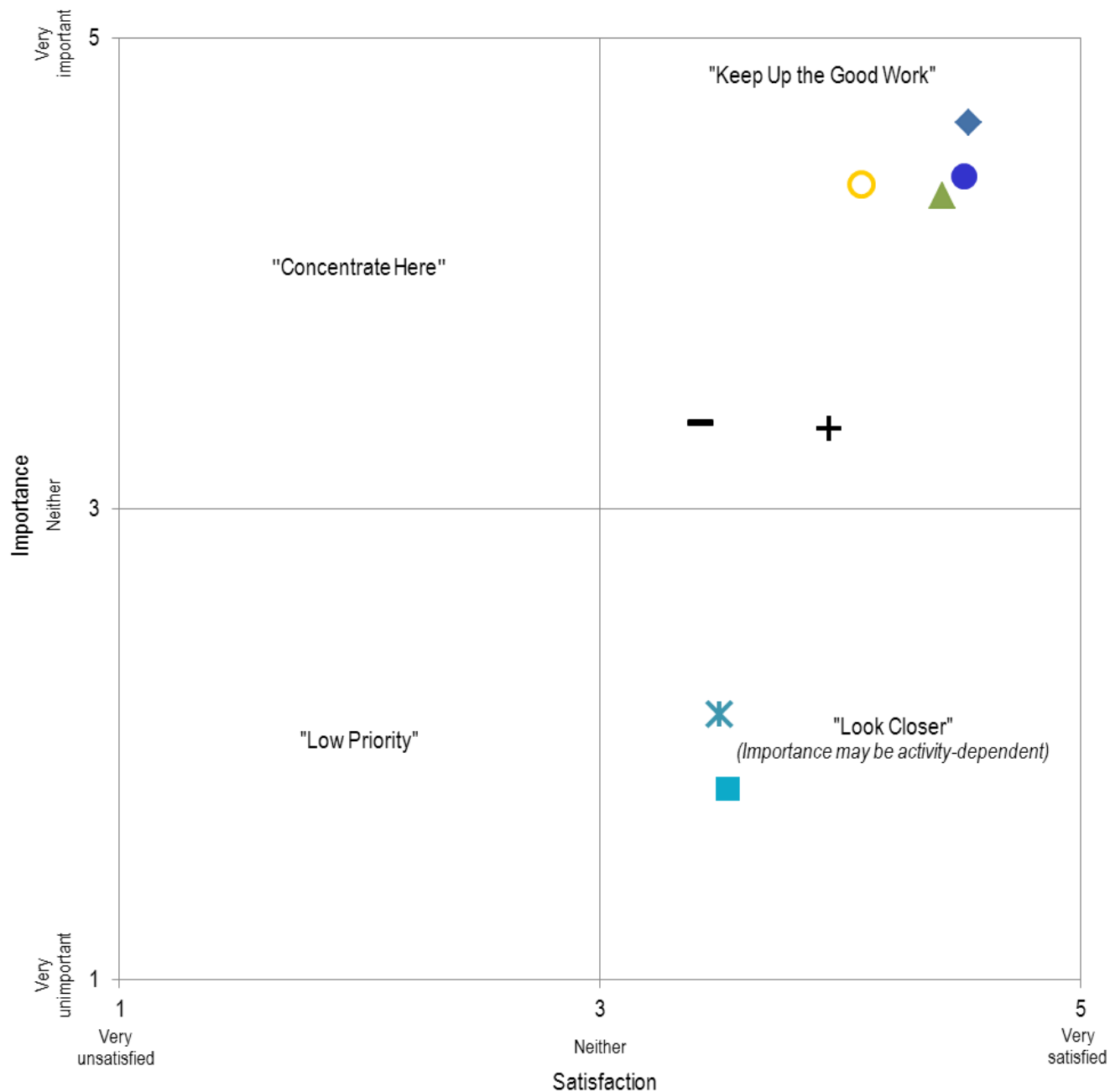


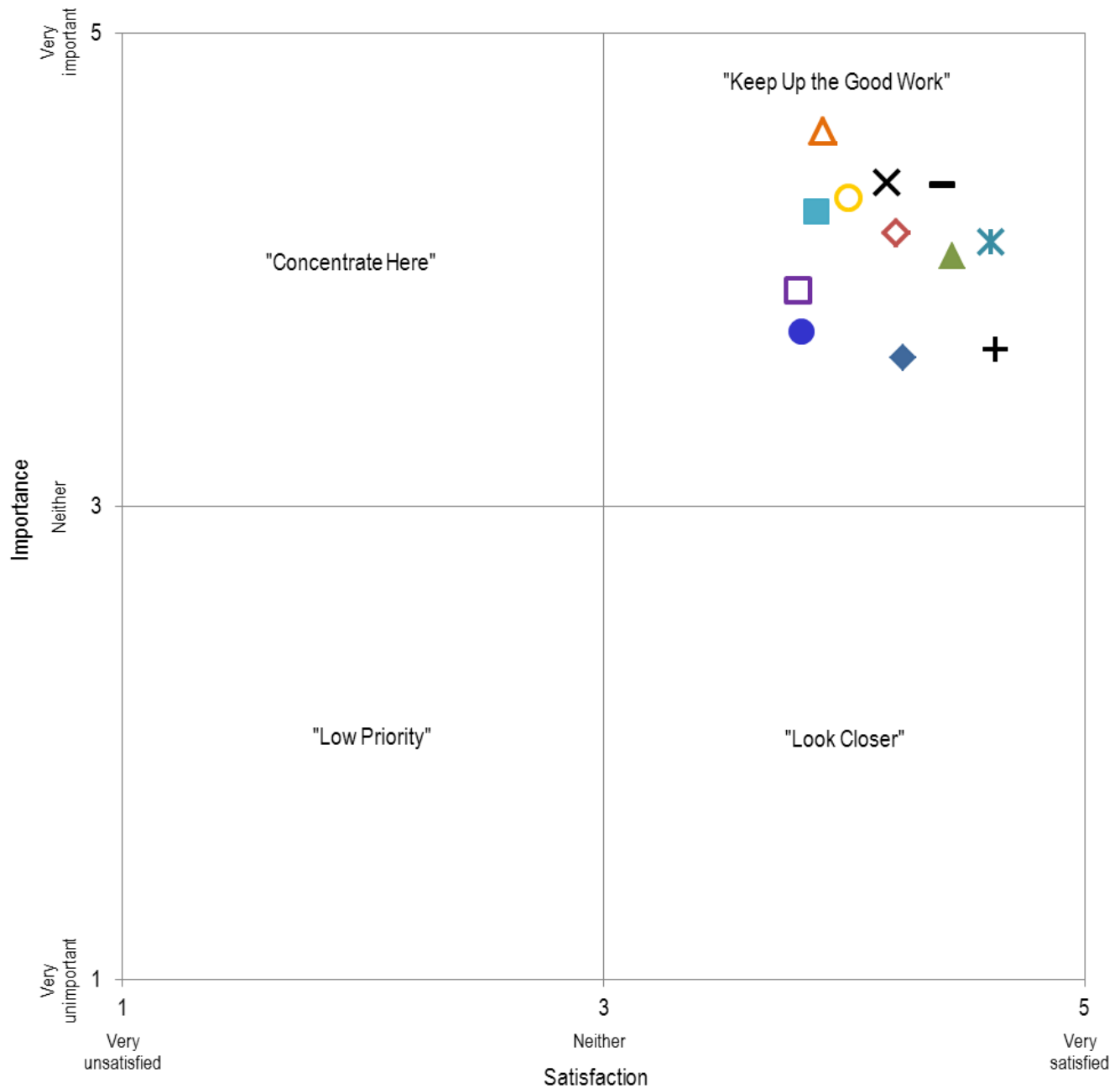
Figure 11. Importance-satisfaction ratings of services and facilities provided at Santa Ana NWR.



EXPLANATION

- Bird watching opportunities
 Wildlife viewing opportunities
 Photography opportunities
 Hunting opportunities
- ✕ Fishing opportunities
 ● Hiking opportunities
 — Bicycling opportunities
 + Volunteer opportunities

Figure 12. Importance-satisfaction ratings of recreational opportunities provided at Santa Ana 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 13. Importance-satisfaction ratings of transportation-related features at Santa Ana 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 of these questions will be evaluated in aggregate form (data from all participating refuges together) to better address national-level goals. Basic results for Santa Ana NWR are reported here.

Alternative Transportation and the Refuge System

Visitors use various types of transportation to access and enjoy refuges. While many visitors arrive at the refuge in private vehicles, 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 and others, 2001), and recent efforts are beginning to characterize the use of transit and non-motorized transportation modes for visitor access to refuges (Volpe Center, 2010). However, less is known about how visitors perceive 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 refuges in the future.

Of six alternative transportation options listed on the survey, a majority of Santa Ana NWR visitors were likely to use the following at refuges in the future (fig. 14):

- a bus/tram that provides a guided tour;
- a bus/tram that takes passengers to different points on the refuge;
- a boat that goes to different points on refuge waterways;
- an offsite parking lot that provides trail access;
- a bus/tram that runs during a special event; and
- a bike share program.

When asked specifically about using alternative transportation at Santa Ana NWR, some visitors thought alternative transportation would enhance their experience (35%) while others thought it would not (18%). An additional 46% of surveyed visitors indicated they were unsure whether alternative transportation would enhance their experiences.

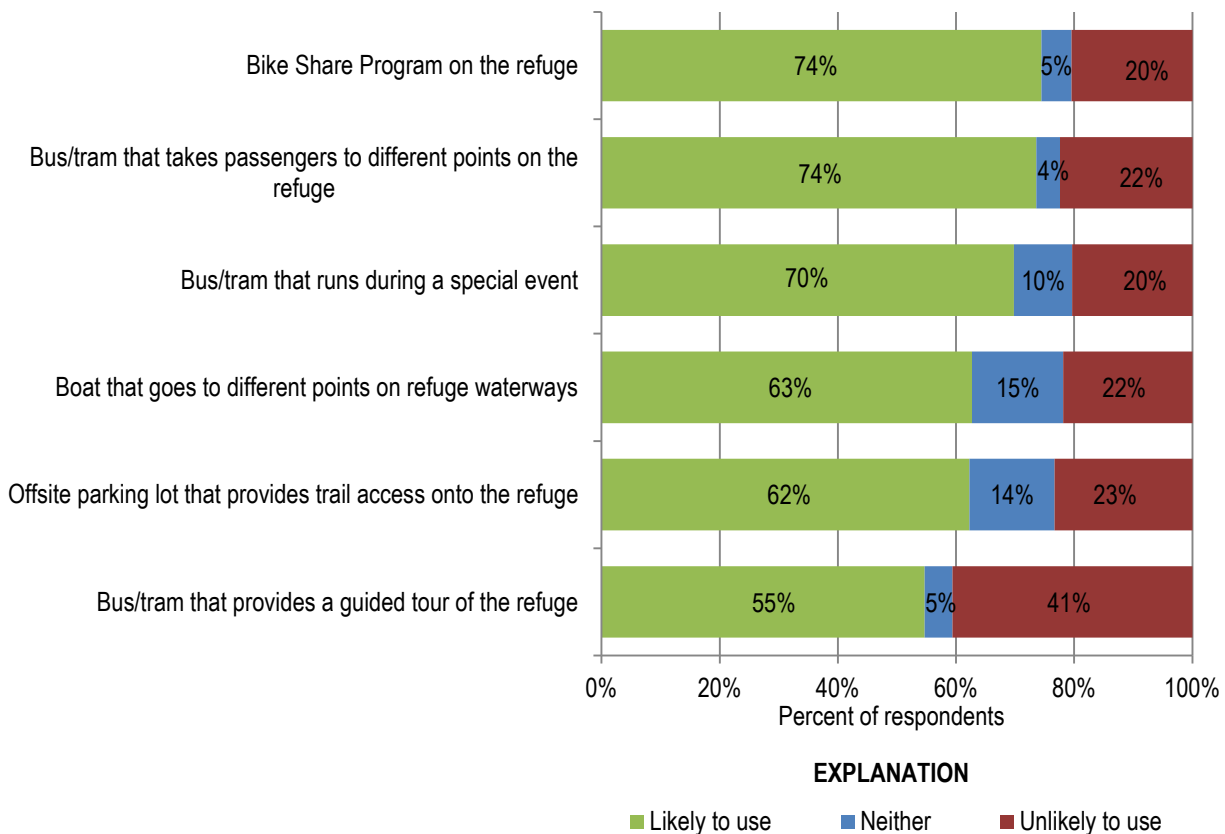


Figure 14. Visitors' likelihood of using alternative transportation options at refuges in the future (n ≥ 167).

Climate Change and the National Wildlife Refuge System

Climate change represents a growing concern for refuge management. The Service's climate-change strategy, titled "Rising to the Urgent Challenge," establishes a basic context for the agency to work within a larger conservation community to 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 the topic of climate change. Previous research suggests that human thought about climate change is influenced by individuals' levels of concern, levels of involvement, preferences for policies, and associated behaviors (Maibach and others, 2009). The results presented below provide baseline information on these factors in relation to the effects of climate change on fish, wildlife, and their habitats.

These results are most useful when coupled with responses to belief statements, 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 does not alter the overall message, but rather places the issue in a context in which different audience groupings can relate (Nisbet, 2009). 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 or supporting economic growth through new jobs/technology). Framing information in ways that resonate with visitors' beliefs may result in more engaged audiences who support strategies aimed at alleviating climate-change pressures. Data will be analyzed further at the national level to inform the development of a comprehensive climate change communication and engagement strategy.

The majority of visitors to Santa Ana NWR agreed with the following statements related to their own *personal involvement* with the topic of climate change as it relates to fish, wildlife, and habitats (fig. 15):

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

The majority of visitors also agreed with the following *belief statements* regarding climate change effects on fish, wildlife and their habitats (fig. 16):

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

Results regarding such beliefs are important to consider when communicating with visitors about this topic, since almost half of visitors (48%) indicated their experiences would be enhanced if Santa Ana NWR provided information about how visitors can help to address climate change impacts on fish, wildlife, and their habitats (fig. 15).

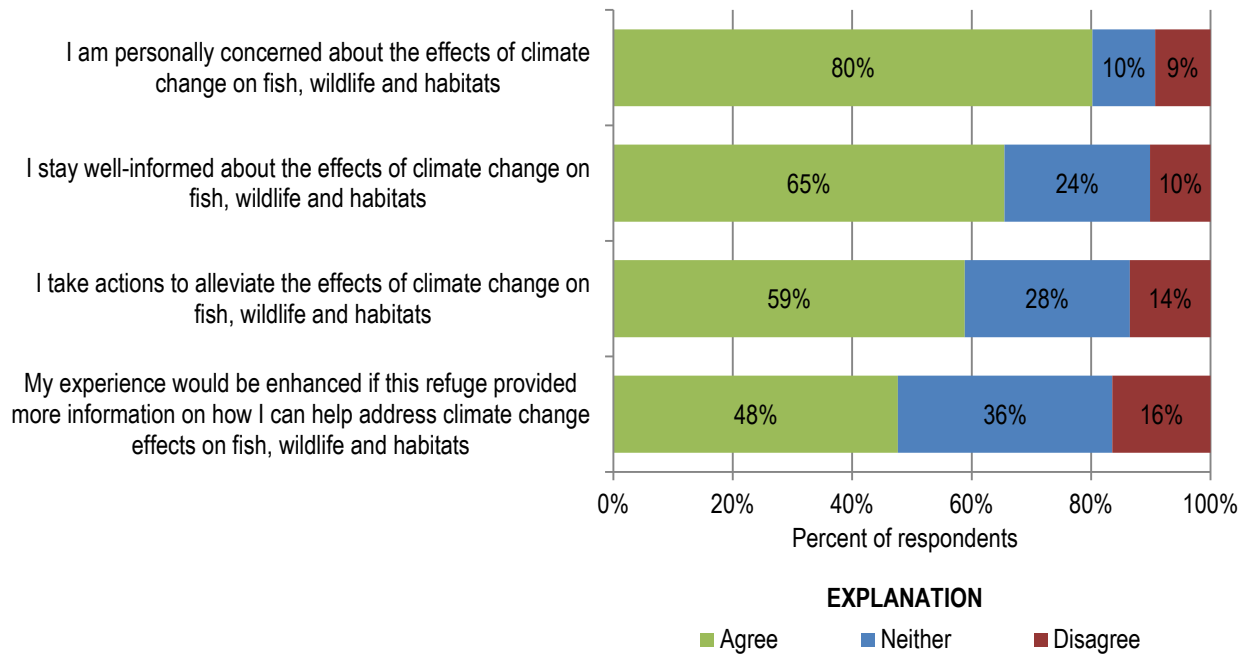


Figure 15. Visitors' personal involvement with climate change related to fish, wildlife and their habitats (n ≥ 168).

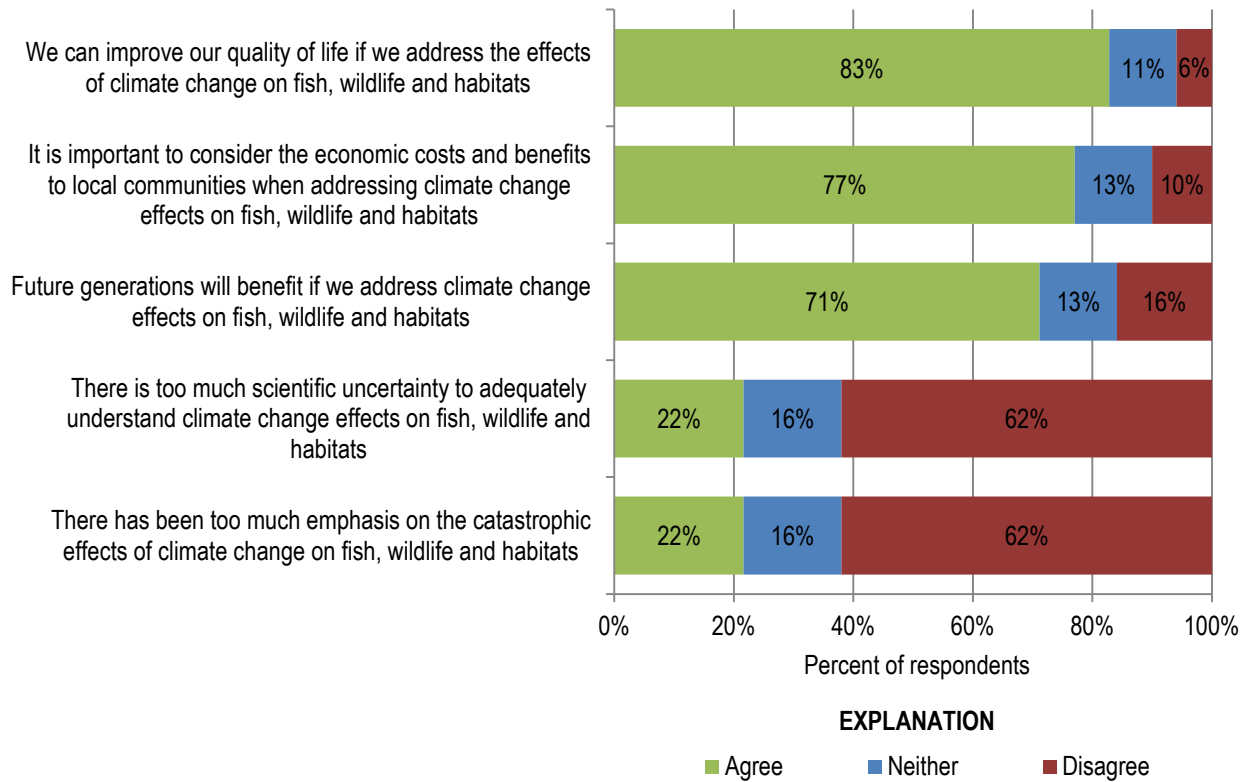


Figure 16. Visitors' beliefs about the effects of climate change on fish, wildlife and their habitats (n ≥ 169).

Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Santa Ana NWR during 2012 and are intended to inform decision-making efforts related to visitor services and transportation at the refuge. Additionally, the results from this survey can be used to inform planning efforts, such as a refuge's Comprehensive Conservation Plan. With an understanding of visitors' trip and activity characteristics, visitor-satisfaction ratings with existing offerings, and opinions regarding fees, refuge managers are able to make informed decisions about possible modifications (whether reducing or enhancing) to visitor facilities, services, or recreational opportunities. This information can help managers 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 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 and its resources, 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/754/>. For additional information about this project, contact the USGS researchers at national_visitor_survey@usgs.gov or 970.226.9205.

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National Wildlife Refuge Visitor Survey



PLEASE READ THIS FIRST:

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

Even 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 for any question that uses the phrase “this Refuge.” Please reference the cover letter included with this survey if you are unsure of which refuge you visited.

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.)

0%	Big game hunting	55%	Hiking	6%	Environmental education (for example, classrooms or labs)
1%	Upland/Small game hunting	4%	Bicycling		
2%	Migratory bird/Waterfowl hunting	12%	Auto tour route/Driving	18%	Interpretation (for example, exhibits, kiosks, videos)
69%	Wildlife observation	0%	Motorized boating	0%	Refuge special event (<i>please specify</i>) See Appendix B
91%	Bird watching	0%	Nonmotorized boating (including canoes/kayaks)		
12%	Freshwater fishing	2%	Volunteering	10%	Other (<i>please specify</i>) See Appendix B
1%	Saltwater fishing				
47%	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?

3%	No		
97%	Yes → If yes, what did you do there? (Please mark <u>all that apply</u> .)		
84%	Visit the gift shop or bookstore	31%	Pick up/purchase a license, permit, or pass
83%	View the exhibits	85%	Stop to use the facilities (for example, get water, use restroom)
72%	Ask information of staff/volunteers		
32%	Watch a nature talk/video/presentation	5%	Other (<i>please specify</i>) See Appendix B

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

Nonlocal	Local	All visitors	
21%	75%	40%	It was the primary purpose or sole destination of my trip.
59%	13%	42%	It was one of many equally important reasons or destinations for my trip.
21%	13%	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 **hours/minutes and miles** (one-way) did you travel from your home to this Refuge?

Nonlocal	<u>14</u> Hours	<u>40</u> Minutes	and	<u>1016</u> Miles
Local	<u>0</u> Hours	<u>52</u> Minutes	and	<u>22</u> Miles
All visitors	<u>8</u> Hours	<u>4</u> Minutes	and	<u>540</u> Miles

6. What type of group were you with on your visit to this Refuge?

☐ 11% None, I visited this Refuge alone

(of those visiting with a group)

☐ 86% Family and/or friends

☐ 9% Organized club or school group (for example, Boy/Girl Scouts, hiking club, bird watching group)

☐ 4% Commerical tour group

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

7. Including yourself, how many people were in your group? (*Please answer each category.*)

5 number 18 years and over

0 number 17 years and under

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

☐ 45% Family and/or friends

☐ 14% Refuge website

☐ 17% Signs on highway

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

☐ 7% Recreation club or organization

☐ 2% Television or radio

☐ 14% People in the local community

☐ 9% Newspaper or magazine

☐ 25% Refuge printed information (brochure, map)

☐ 33% Travel guidebook or other book

☐ 10% Map or atlas

☐ 10% Other (*please specify*) See Appendix B

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

☐ 29% Spring
(March-May)

☐ 27% Summer
(June-August)

☐ 13% Fall
(September-November)

☐ 70% Winter
(December-February)

10. How many times have you visited...

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

...other National Wildlife Refuges in the last 12 months? 4 number of visits

SECTION 2. Transportation and access at this Refuge

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

<input type="checkbox"/> 82%	Private vehicle without a trailer	<input type="checkbox"/> 15%	Refuge shuttle bus or tram	<input type="checkbox"/> 1%	Bicycle
<input type="checkbox"/> 1%	Private vehicle with a trailer (for boat, camper or other)	<input type="checkbox"/> 0%	Motorcycle	<input type="checkbox"/> 36%	Walk/Hike
<input type="checkbox"/> 2%	Commercial tour bus	<input type="checkbox"/> 0%	ATV or off-road vehicle	<input type="checkbox"/> 3%	Other (<i>please specify below</i>)
<input type="checkbox"/> 1%	Recreational vehicle (RV)	<input type="checkbox"/> 0%	Boat	<u>See Appendix B</u>	
		<input type="checkbox"/> 1%	Wheelchair or other mobility aid		

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

<input type="checkbox"/> 57%	Previous knowledge/I have been to this Refuge before	<input type="checkbox"/> 9%	Maps from the Internet (for example, MapQuest or Google Maps)
<input type="checkbox"/> 41%	Signs on highways	<input type="checkbox"/> 6%	Directions from Refuge website
<input type="checkbox"/> 22%	A GPS navigation system	<input type="checkbox"/> 3%	Directions from people in community near this Refuge
<input type="checkbox"/> 21%	A road atlas or highway map	<input type="checkbox"/> 12%	Directions from friends or family
		<input type="checkbox"/> 7%	Other (<i>please specify</i>) <u>See Appendix B</u>

2. 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"/> 12%	<input type="checkbox"/> 10%	<input type="checkbox"/> 4%	<input type="checkbox"/> 37%	<input type="checkbox"/> 37%
...a bike that was offered through a Bike Share Program for use while on the Refuge?	<input type="checkbox"/> 22%	<input type="checkbox"/> 18%	<input type="checkbox"/> 5%	<input type="checkbox"/> 31%	<input type="checkbox"/> 24%
...a bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources?	<input type="checkbox"/> 11%	<input type="checkbox"/> 10%	<input type="checkbox"/> 5%	<input type="checkbox"/> 31%	<input type="checkbox"/> 43%
...a boat that goes to different points on Refuge waterways?	<input type="checkbox"/> 12%	<input type="checkbox"/> 9%	<input type="checkbox"/> 10%	<input type="checkbox"/> 35%	<input type="checkbox"/> 35%
...a bus or tram that runs during a special event (such as an evening tour of wildlife or weekend festival)?	<input type="checkbox"/> 12%	<input type="checkbox"/> 11%	<input type="checkbox"/> 14%	<input type="checkbox"/> 34%	<input type="checkbox"/> 28%
...an offsite parking lot that provides trail access for walking/hiking onto the Refuge?	<input type="checkbox"/> 9%	<input type="checkbox"/> 13%	<input type="checkbox"/> 15%	<input type="checkbox"/> 34%	<input type="checkbox"/> 29%
...some other alternative transportation option? (<i>please specify</i>) <u>See Appendix B</u>	<input type="checkbox"/> 27%	<input type="checkbox"/> 9%	<input type="checkbox"/> 0%	<input type="checkbox"/> 27%	<input type="checkbox"/> 36%

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

☐ 35% Yes ☐ 18% No ☐ 46% Not Sure

4. 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 Circle one for each item.					Satisfaction 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
7%	17%	9%	44%	24%	Surface conditions of roads	3%	7%	6%	29%	54%	NA
5%	17%	8%	44%	25%	Surface conditions of parking areas	2%	1%	5%	16%	76%	NA
4%	6%	13%	34%	43%	Condition of bridges	3%	2%	13%	13%	70%	NA
4%	3%	1%	39%	54%	Condition of trails and boardwalks	5%	8%	5%	28%	54%	NA
4%	4%	8%	45%	39%	Number of places for parking	4%	1%	4%	13%	78%	NA
4%	8%	26%	36%	26%	Number of places to pull over along Refuge roads	1%	5%	33%	32%	29%	NA
2%	4%	20%	26%	48%	Safety of driving conditions on Refuge roads	2%	1%	25%	17%	55%	NA
2%	4%	6%	32%	56%	Safety of Refuge road entrances/exits	1%	4%	9%	24%	62%	NA
5%	3%	4%	35%	54%	Signs on highways directing you to the Refuge	3%	14%	3%	40%	41%	NA
3%	2%	11%	35%	49%	Signs directing you around the Refuge roads	3%	11%	15%	34%	37%	NA
5%	0%	0%	23%	73%	Signs directing you on trails	4%	15%	6%	38%	38%	NA
8%	3%	20%	30%	39%	Access for people with physical disabilities or who have difficulty walking	3%	8%	27%	30%	33%	NA

5. 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)?

☐ 36% Yes

☐ 64% No → How much time did you spend **in the local area** on this trip?

Nonlocals If you spent one day or more in the local area, enter the number of days: 17 day(s)

only If you spent less than one day in the local area, enter the number of hours: 7 hour(s)

2. How much time did you spend **at this Refuge** during your most recent visit?

If you spent one day or more at this Refuge, enter the number of days: 2 day(s)

If you spent less than one day at this Refuge, enter the number of hours: 3 hour(s)

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

See Report for Results

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

2 number of people sharing expenses

5. 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
7%	20%	15%	6%	9%	4%	16%	2%	1%	5%	16%

6. 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.***)

☐ 30% Did not pay a fee (*skip to Section 4*)

☐ 2% Far too low ☐ 13% Too low ☐ 84% About right ☐ 0% Too high ☐ 1% Far too high

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

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

☐ 2% Strongly disagree ☐ 1% Disagree ☐ 4% Neither agree or disagree ☐ 38% Agree ☐ 55% 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.	<input type="checkbox"/> 0%	<input type="checkbox"/> 3%	<input type="checkbox"/> 4%	<input type="checkbox"/> 41%	<input type="checkbox"/> 52%	NA
Overall, I am satisfied with the information and education provided by this Refuge about its resources.	<input type="checkbox"/> 0%	<input type="checkbox"/> 1%	<input type="checkbox"/> 2%	<input type="checkbox"/> 42%	<input type="checkbox"/> 55%	NA
Overall, I am satisfied with the services provided by employees or volunteers at this Refuge.	<input type="checkbox"/> 0%	<input type="checkbox"/> 1%	<input type="checkbox"/> 1%	<input type="checkbox"/> 29%	<input type="checkbox"/> 69%	NA
This Refuge does a good job of conserving fish, wildlife and their habitats.	<input type="checkbox"/> 1%	<input type="checkbox"/> 2%	<input type="checkbox"/> 3%	<input type="checkbox"/> 28%	<input type="checkbox"/> 66%	NA

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

Importance <i>Circle one for each item.</i>					Refuge Services, Facilities, and Activities	Satisfaction <i>Circle one for each item.</i>					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
3%	4%	3%	41%	49%	Availability of employees or volunteers	1%	1%	2%	14%	82%	NA
2%	3%	3%	36%	56%	Courteous and welcoming employees or volunteers	1%	0%	2%	11%	87%	NA
3%	4%	1%	23%	69%	Knowledgeable employees or volunteers	1%	3%	1%	18%	76%	NA
4%	2%	1%	34%	58%	Printed information about this Refuge and its resources (for example, maps and brochures)	2%	1%	2%	28%	67%	NA
1%	5%	9%	40%	46%	Informational kiosks/displays about this Refuge and its resources	2%	1%	6%	37%	53%	NA
1%	4%	10%	40%	45%	Signs with rules/regulations for this Refuge	2%	1%	12%	33%	52%	NA
0%	3%	6%	48%	43%	Exhibits about this Refuge and its resources	1%	1%	3%	39%	57%	NA
2%	5%	17%	33%	43%	Environmental education programs or activities	0%	3%	21%	26%	50%	NA
1%	2%	1%	32%	65%	Visitor Center	1%	0%	1%	16%	83%	NA
3%	1%	2%	29%	65%	Convenient hours and days of operation	1%	2%	2%	21%	75%	NA
1%	1%	3%	25%	70%	Well-maintained restrooms	1%	2%	2%	26%	69%	NA
2%	1%	2%	32%	63%	Wildlife observation structures (decks, blinds)	1%	2%	4%	30%	63%	NA
2%	1%	3%	19%	75%	Bird-watching opportunities	1%	2%	4%	29%	64%	NA
1%	2%	6%	42%	49%	Opportunities to observe wildlife other than birds	2%	4%	14%	43%	37%	NA
1%	4%	10%	31%	54%	Opportunities to photograph wildlife and scenery	1%	2%	7%	32%	57%	NA
64%	3%	25%	2%	5%	Hunting opportunities	0%	0%	73%	2%	25%	NA
52%	7%	25%	7%	9%	Fishing opportunities	0%	2%	69%	7%	22%	NA
1%	1%	8%	34%	55%	Trail hiking opportunities	0%	1%	6%	34%	59%	NA
21%	13%	27%	26%	13%	Water trail opportunities for canoeing or kayaking	5%	8%	50%	15%	22%	NA
17%	8%	19%	34%	22%	Bicycling opportunities	7%	14%	32%	23%	24%	NA
13%	6%	34%	27%	20%	Volunteer opportunities	0%	1%	38%	24%	36%	NA

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

See Appendix B

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?

☐ 88% Yes

☐ 12% No

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

☐ 92% Yes

☐ 8% No

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

☐ 89% Yes

☐ 11% No

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

See Appendix B

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.	4%	5%	10%	35%	45%
We can improve our quality of life if we address the effects of climate change on fish, wildlife and their habitats.	4%	6%	13%	34%	43%
There is too much scientific uncertainty to adequately understand how climate change will impact fish, wildlife and their habitats.	19%	25%	9%	35%	12%
I stay well-informed about the effects of climate change on fish, wildlife and their habitats.	3%	7%	24%	48%	17%
It is important to consider the economic costs and benefits to local communities when addressing the effects of climate change on fish, wildlife and their habitats.	3%	13%	13%	52%	19%
I take actions to alleviate the effects of climate change on fish, wildlife and their habitats.	5%	9%	28%	43%	16%
There has been too much emphasis on the catastrophic effects of climate change on fish, wildlife and their habitats.	29%	33%	16%	15%	7%
Future generations will benefit if we address the effects of climate change on fish, wildlife and their habitats.	2%	4%	11%	36%	47%
My experience at this Refuge would be enhanced if this Refuge provided more information about how I can help address the effects of climate change on fish, wildlife and their habitats.	5%	12%	36%	27%	21%

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?

95% Yes 5% No → If not, what is your home country? See Figure 2 in Report

2. Are you? 46% Male 54% Female

3. In what year were you born? 1951 (YYYY)

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
(elementary)					(junior high or middle school)			(high school)				(college or technical school)				(graduate or professional school)			
					0%			12%				39%				49%			

5. What ethnicity do you consider yourself? ☐ 13% Hispanic or Latino ☐ 87% Not Hispanic or Latino

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

<input type="checkbox"/> 2% American Indian or Alaska Native	<input type="checkbox"/> 2% Black or African American	<input type="checkbox"/> 98% White
<input type="checkbox"/> 0% Asian	<input type="checkbox"/> 0% Native Hawaiian or Pacific Islander	

7. How many members are in your household? 2 persons

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

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

<input type="checkbox"/> 1% Less than \$10,000	<input type="checkbox"/> 22% \$35,000 - \$49,999	<input type="checkbox"/> 14% \$100,000 - \$149,999
<input type="checkbox"/> 6% \$10,000 - \$24,999	<input type="checkbox"/> 20% \$50,000 - \$74,999	<input type="checkbox"/> 5% \$150,000 - \$199,999
<input type="checkbox"/> 5% \$25,000 - \$34,999	<input type="checkbox"/> 20% \$75,000 - \$99,999	<input type="checkbox"/> 7% \$200,000 or more

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

20 number of trips

Thank you for completing the survey.

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

Comments?

See Appendix B for Comments

PAPERWORK REDUCTION ACT STATEMENT: The Paperwork Reduction Act requires us to tell you why we are collecting this information, how we will use it, and whether or not you have to respond. The information that we collect in this survey will help us understand visitor satisfaction with and use of National Wildlife Refuges and to make sound management and policy decisions. Your response is voluntary. An agency may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a valid OMB Control Number. We estimate it will take an average of 25 minutes to complete this survey. You may send comments concerning the burden estimate or any aspect of the survey to the Information Collection Clearance Officer, Fish and Wildlife Service, 4401 North Fairfax Drive, MS 222-ARLSQ, Arlington, VA 22203. OMB CONTROL #1018-0145 EXPIRATION DATE 6/30/2013

Appendix B: Visitor Comments to Open-Ended Survey Questions for Santa Ana 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
Avian ecology research	1
Butterfly, dragonfly watching	1
Corer	1
Guided bird walk	1
Guided tour including birds, wildlife and history of Santa Ana.	1
I normally bike but the refuge was closed to bikes due to flooding.	1
Pass	1
Retired Faculty of UT Pan Am Tour	1
Retiree's Organization Visit	1
Sierra Club Meeting	3
Tram tour	3
Trolley ride, climbing observation tower/bridge	1
Wildlife walk	1

Other Activity	Frequency
Enjoy nature	1
I was just visiting and had never been there before.	1
Kids field trip	1
Suspended bridge	1
To Climb the towers	1

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

Other Visitor Center Activity	Frequency
Bought a net	1
Check in	1
I asked about other exhibits and tours.	1
I attempted to purchase duck stamps and none were available.	1
I taught a class in the visitor center.	1
Purchase tram ticket	2
Rest	1

Question 6: "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
University Class	1
University Retiree's Organization	1

Question 8: "How did you first learn or hear about this Refuge?"

Other Website	Frequency
Birding websites, E-bird	1
Facebook	2
Google	1
RGV Birding Sites	1

Other Ways Heard about This Refuge	Frequency
Chamber of Commerce in Weslaco	1
From other birders	4
I picked up information at a travel center in Harlingen, TX.	1
It is a well known birding site in the Rio Grande.	1
Master Naturalist Training	1
Middle school field trip	1
Naturalist Journeys Tour Company	1
Organized tour	2
Residents at Winter Ranch Rave Park Alamo, TX	1
School, Science Teacher	1
Texas Birding Trails	2
Texas Center	1
Tour information	1
Volunteer/Intern at Santa Ana Wildlife Refuge	1

Survey Section 2

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

Other Forms of Transportation	Frequency
15 passenger van	1
8 passenger van	1
Airplane	1
Camper van	1
Tram	1

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

Other Ways Found This Refuge	Frequency
Birding Guide	3
Birding Guide for South Texas	1
Brochure for things to do in this area	1
Brochure on bird watching in the RGV	1
Map of birding opportunities in Texas Valley Area	1
Refuge book	1
Texas Birding Trail Map	1
Tour Guide	4

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
Biking	1
Electric golf cart	1
Electric wheelchair	1
Four person peddle car or slow golf cart	1
Kayak	1
Personal auto	1
Private vehicles	1
Shuttle bus	1
There should be boarded walkway through areas of park for handicapped or small children to use.	1
Walking	2

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 = 42)

At Santa Ana, please allow biking on the ring road again. And, allow bikes to return on the ring road and eliminate one way travel. I do not believe there is a safety issue. The tram goes very slow and there is enough room when meeting a bike travelling in the opposite direction of the tram. This issue is important when the Texas winds blow in the spring. It is a protected route amongst the trees on the ring road. Plus, the average person cannot hike the total distance when the temperatures rise in the spring.

At some times, we were unsure of which trail we were on and where it was headed. We missed the turnoff and ended up walking a long way down the Willow Lake Trail before realizing we were heading south instead of west.

At the time of our visit bicycling was not allowed due to road construction work. I think the Bike Share Program would be awesome when construction work is done and I would certainly use that program.

Design of one section of wheelchair accessible trail was low, resulting in water accumulating to a point it covered the wheels.

For birdwatching, you need to get dropped off at a given place, do observations, then picked up late (i.e. a get on-get off tram setup...every hour or so).

I did not use the tram.

I like the availability of a tram for the elderly.

I like the tram here.

I would not like too much motorized or road bikes scooting around and flushing wildlife. Prioritize wildlife.

Most signs to refuges do not state how far to NWR!!!! I could not drive a car in Santa Ana NWR.

On your tram, the motor noise was so loud. We couldn't even hear the speaker. We went to the rear tram to hear.

Refuge road was closed due to flooding during my visit. Walking trail markers were somewhat confusing.

Santa Ana is pretty much a walking only refuge.

Santa Ana would be a big attraction for birders if the main road through the refuge was open to private cars more frequently.

Shady parking areas are very important, as our dog is often in the car.

Some of the charm comes from roads within the refuge that aren't fully paved, but signage is critical.

The day I was there the trails were muddy so I can't really say what they were like. My shoes weren't the best for the conditions.

The hiking trails looked as though they had been recently constructed yet the markers were confusing and misleading. The terrain of the trails looked unmaintained and in need of repair or at least leveling.

The paths were a bit messy but cleared; due to the flooding recently, it was to be expected. That is why I rated 'somewhat satisfied' to the conditions of trails or boardwalks question.

The road is closed to bicycling due to floods a couple years ago. I would like to be able to bike the road. I saw no problem with the roads on a recent tram tour.

The road leading into the refuge is in need of some love.

The signage to the entrance should have been posted in advance. I was unsure of entrance as came upon it so suddenly on a busy highway.

The signs at the beginning are unclear. Perhaps color coding to match the map at the beginning would help.

The substrate of the trails is clay that builds up severely on shoes following a rainstorm. I love to hike, but the substrate really discourages me from hiking. Keep trail substrate under foot (i.e. wood chips) not loud and crunchy (like gravel). The maps/ trail markers at this refuge are super confusing! At one point, early in the hike, you enter a "starburst" of trails with absolutely no signage on each trail! I have visited this refuge many, many times with different friends and we get lost every time.

The trails have no provisions for friends with mobility issues. Therefore, we can only use the tram when we take friends who have difficulty walking. The tram only runs a few times a day. I would suggest having a few motorized chairs available.

The tram ride is perfect.

The tram was very comfortable, but some of the trails were way too dry, and need to be resurfaced, and they were pretty bumpy, almost to the point of falling off the tram.

The tram wasn't operating. They wanted to replace the tram with a van. The van was too crowded. We got a refund for our tickets.

The two guides were very knowledgeable and were able to answer questions asked by people on the tour.

There should be more signs advertising the National Wildlife Refuges in south Texas.

Trails could be covered with mulch or something that would help with the sticky mud.

Trails should have distance markers, say every 1/10 of a mile, and an indication of length of each trail, so that older people can judge trails to take dependent on their own capabilities. Tram rides should not be replaced by van rides unless notification is given prior to purchase of tickets.

Trails were muddy during our visits in 2012.

Tram tour was enjoyed!

Tram was unavailable due to construction improvements on refuge road. I would like to see the trams go a little deeper into the refuge, perhaps to a bird blind to drop off photographers and pick up the next group.

Trams that travels around the refuge would be helpful since the refuge is very large. Something similar to Bentsen's tram would be excellent.

Walking is the best transportation.

We used to be able to drive around on our own. The current tram and tour guide were good, but frustrating when you want to get in early to observe wildlife. I am too old to hike 15 miles anymore!

We visited Santa Ana in the winter when the tram wasn't running, so we walked. We found signage to be inadequate. Signs lack arrows that point toward each lake. It would also help if there were some indication of the length of each trail. We got lost in the maze of trails and the map didn't help since we didn't know where we were.

We visited the refuge because of the tram ride. My husband and friend are both elder and cannot have made the trails without the tram's help. I know golf carts and other sources of transportation are expensive to provide, but they would be helpful in getting adventurous seniors or others out into the refuge.

We were heartbroken that we were so limited in our access to the roads and some of the trails due to the border issues. The border issues are not widely known to people who live in Lincoln, NE.

You need better signage for trails and distances would be of great help. I have run into people on trails that don't know which way to go and distances to each.

Survey Section 4

Question 3: "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 = 49)

Bird feeding station at Visitor Center is very important for those who cannot walk the trails.

Conserve and protect habitats for the broadest biodiversity. Limit hunting and fishing for species on decline. No lead. Educate hunters and fishermen about no lead.

Counting the most recent trip, we've visited Santa Ana four times and have always been satisfied.

Everyone of the staff members and guides were so very friendly and very informative.

Everything is great with the exception of bike access on the refuge road.

Everything was very good.

Excellent refuge.

Excellent volunteers, very knowledgeable. They led us down a trail to help us find where we wanted to go.

Feeding the birds all day is necessary to draw the birds in for viewing.

For some reason, the signs to indicate the bike trails were sign saying "no bicycles".

Friendly and helpful volunteers and staff made it an excellent experience.

Great service.

Hubinger's were great birding guides. Volunteers were very friendly and knowledgeable.

I am not the only one who thinks there is not as many birds at Santa Ana as there use to be. Also, the refuge as a whole has deteriorated in the last 2 to 3 years. I do not go there as often as I used to and I'm usually disappointed. It is so depressing now from what it used to be 5 or 10 years ago. It used to be a wonderful place to go.

I don't know how to answer some things. I didn't go far, I only went to the end of the pavement.

I don't know if this refuge offers hunting, fishing, water trail or volunteer opportunities.

I got lost on the Resaca Trail. Some of the most remote trails should be maintained to remove overgrown grass and weeds.

I just wonder if Santa Ana will ever again be open to bicycle traffic.

I loved the observation decks and the suspension bridge!

I think you should be told when is the best time to visit to observe birds and wildlife. Mid-morning we saw nothing except vegetation.

I visited in the summer. It would have been better birding in the winter. All the water ponds were dried up.

I was very pleased with the staff and volunteers. They were courteous and knowledgeable.

I'd like some night opportunities for photography.

It is a great refuge. We always enjoy coming here during our winter visits to south Texas.

It is on a downhill slide.

It just rained so I did not see this at its best.

Need some facilities (restrooms) near Jaguarondi Park.

Personnel was very helpful and pleasant. I was disappointed that roads were closed to private vehicles.

Restrooms could use some real attention.

Santa Ana is a great refuge in an area with few similar amenities. It offers good hiking trails and some shade. The paved road is good for biking and tram rides. Cost is very reasonable and is one of the factors we consider when selecting a venue. It is priced more reasonably and offers better hiking trails than Bentsen State Park but the birding opportunities are not as good. Overall it is my favorite hiking spots for Boy Scouts. We used the facility at least 6 times in the last 6 months.

Since we live so far, I am not interested personally in volunteer opportunities but the volunteers we birded with both times really helped make the experience.

The couple (man and wife) who conducted our birding, wildlife, etc., were excellent. We visited in late February, 2012.

The main trail map when entering the refuge (just over the levee and down the ramp) is confusing because it doesn't show the same number of trails as the printed map handed out at the Visitor Center. Because there are circular trails emanating from that single spot, it's confusing and difficult to tell exactly which one is the same as the paper map.

The one improvement I would urge is the provision and maintenance of some shorebird habitat throughout the year (this year at least, the most productive areas have been allowed to dry up completely).

The opportunities were very limited because of the boarder issues.

The rangers were great on this last visit! They engaged the visitors as we came in.

The unrest on the Rio Grande is a deterrent. We are denied canoe trips for safety reasons.

The volunteers and staff were very good!

There is a great canopy walkway and tower.

Trail signs need "you are here" markers. It would help a lot. Cattail lakes and Willow lakes trails need to be clarified a bit. Where does Cattail lakes trail start? Is the distance 1.6 miles? You need foot scrapers at end of muddy trails, especially around lakes. I did not use the tram since it was only available on weekends--that is okay.

Very good.

Volunteer leaders for bird walks from November to March are excellent.

Volunteers here are wonderful. When birds weren't available at a certain place, they offered to put out suet to attract them. More extensive signage is needed on some of the hiking trails. I've been concerned about getting lost or would like to have distances posted. Motorized carts or chairs would be nice as the trams run infrequently. We are seniors and frequently choose to take guests who have some mobility issues. It is a great place for hiking and just enjoy enjoying nature. We are winter Texans only and thoroughly enjoy this well run, excellent refuge.

We enjoy this refuge mainly because of the beauty of the vegetation, boardwalks and blinds, opportunity to see birds, and seeing the natural, native environment of the Rio Grande Valley. The visitor center is an informative attraction.

We enjoyed the time we were there. It was very hot and would like to come back when the weather is cooler.

We really enjoyed the tram tours and felt the volunteers were very knowledgeable and knew a lot about the refuge. We enjoyed the bird feeding station very much. They information center and restrooms were very clean and bright. It was a fun tour even though we did not see many birds on the tour.

We were there in the summer and all of the water features were dried up; there was very few birds and wildlife present.

You had some lovely things in your gift shop, actually one of the best I visited on this trip. The variety of habitat was great and the blind at one of the lakes was great.

You need to improve the entrance road from the main road, as the area nearby by is getting congested.

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 = 129)

Access to the area was better.

Because the focus is more on wildlife, natives, and conservation than on recreation.

Being a bird watcher, I think the NWRs provide the best opportunity for seeing birds without the disturbance of campers/boomboxes/ATVs, etc. Their primary purpose is to preserve the habitat, not to maximize visitors, even more so than National Parks.

Being able to view wildlife (mostly birds) in their natural habitat.

Bird watching opportunities.

By the way the property is maintained to protect wildlife makes it unique.

Compared with National Parks (and State), refuges protect the wildlife more that providing recreation for people. Therefore, it is easier to see wildlife in the own habitats without encroaching on their "privacy."

Conserva el ambiente de manera correcta y fomenta la recreación. (Preserves the environment correctly and encourages recreation).

Conservation of bird habitats.

Conserve habitat.

Despite my plea for more vehicle access, I am very happy for NWRs in their interest of wildlife and habitat above the visitors.

Efforts are made to replicate natural flora and fauna, wetlands, etc. to an area of birds, fish, and wildlife.

Excellent habitat, friendly and helpful personnel, generally not crowded, good walking trails, and easy access to viewable birds and wildlife makes it unique.

Exotic birds.

Follows their mission, minimizes outdoor recreation activity - hiking, ATVs, camping, boating, picnicking, etc.

Generally, they make it easy to view wildlife while still maintaining a safe environment for them.

Good wildlife viewing! Secluded and a quiet area to explore.

Great birding opportunities.

Guided tours!

I appreciate that we have opportunities to view wildlife and to go hunting and fishing.

I can see lots of birds.

I was able to view birds and mammals that in a normal park would be harder to find. The refuge seems like a safer place for wildlife and better viewing.

I was amazed by its history; how the land was acquired, etc.

In general, most trails are kept in better shape than some of the other parks and refuges.

It gives a chance to be with nature in its original state, to see things as they naturally are.

It gives you a chance to get away and enjoy nature! The people that work at refuges understand this concept very well!!

It is a good place to see migratory waterfowl, but I wish people didn't shoot them.

It is a sanctuary for wildlife and various habitats.

It is always so well maintained and well staffed.

It is clean and well kept.

It is not as large as some state parks, and the experience was easy to get to, easy to see a lot in a 1/2 day excursion, and affordable.

It is preserved to its best, except for the construction of the border fence barriers which I object to even though I am a former border official (retired). Added: Installation of cameras (video) to see what wildlife comes out after we all are gone during closing hours and view it once a week with selective video of special interest to visitors in order to appreciate nature to its fullest.

It is related exclusively to wildlife; national and state parks often have other interests.

It is the only region where one can hike and enjoy nature in the original habitat.

It is unique because of guided tours, information is more expansive than at national parks and the volunteers are more informed. It is less crowded, making the visit more enjoyable.

It is unique in that the wildlife refuge is able to preserve the natural setting of the wild for the animals' homes and for our enjoyment.

It is where wildlife can thrive.

It offers a unique chance to observe birds and wildlife in a natural setting.

It preserves the habitat and wildlife.

It provides an opportunity to get close to wildlife.

It provides habitat for viewing wildlife and their natural behavior. It provides easy viewing for visitors.

It's a place for people to become better educated to the area they're in and to enjoy and appreciate the beauties unique to the place.

It's an opportunity for people to see where their taxes go and to learn to appreciate the wilderness in all its varieties of "wild."

It's unique because you never know what you're going to see the next time you go.

Lookout locations.

Low-cost, easily accessible opportunities to be in nature--at my doorstep!

Maintaining the refuge with competent and friendly volunteers makes it unique.

My spouse has been coming to Santa Ana for over 30 years. It is a wonderful wildlife habitat.

National Wildlife Refuges give people an opportunity to get away from buildings and noise and appreciate nature. I've been to state parks, and other public lands, but I can't point out what is distinctly different in a National Wildlife Refuge. The more public land available for wildlife conservation, the better.

National Wildlife Refuges protect and restore the habitat for birds, animals, insects, fish, and native plants for a balanced environment and for future generations to see.

Native and natural flora preservation.

Natural environment.

Natural landscape and unusual opportunities to see many species in one location makes it unique.

Nature.

Never realized the recreational value of a wildlife refuge until coming to Rio Grande Valley and bird watching. I had a blast with my camera.

No hunting on refuges.

Not being commercialized.

Not sure I understand the difference in objectives between NWRs and National Parks in the US. In Canada, I believe we do not have an equivalent to NWRs.

NWRs are often larger with appropriate visitor restrictions. It gives a good feel for habitat, etc.

Of those I have been to, they provide a unique experience and educate the importance of conserving the land and wildlife here in this nature.

Overall, well maintained. Focus on preservation of natural flora and fauna.

Protected beauty of the land and wildlife make it unique.

Protecting wildlife.

Public land preservation.

Putting natural habitat first.

Refuges protect wildlife, birds, and the environment for future generations. Refuges allow us to enjoy wildlife and birds in their natural habitat.

Remoteness and conservation.

Solitude.

The agents or volunteers at the refuge make it unique.

The birds found there are only found in south Texas. The refuge system preserves place like native habitats that are disappearing at an alarming rate all over the country.

The deliberate contribution to the welfare of wildlife with more focus on sharing the information makes it unique.

The educational component of NWRs makes them unique, as does their commitment to conservation.

The employees were very informative.

The environment is rare.

The feds had the money and foresight to grab the best of what was left after the rape of the land by industrial America.

The helpful staff are willing to describe and educate about the refuge, animals, etc.

The lands in the system are unique and special. They are an example of stewardship for the unborn.

The large area it covers makes it unique.

The moss that grows on trees is very unique.

The natural environment; this one is unique because of the birds.

The nature center, staff and videos were the highlight to our visit to the National Wildlife Refuges. We enjoyed the trails we had access to, but were disappointed by the restriction of other activities because of the border issues.

The NWRs are unique in the sense that their goal is simply to preserve wildlife. There is no other organization funded by the government with such a goal. Their ability to preserve and provide exhibits of the wildlife is incredible.

The opportunity for bird walks and presentations by experience birders makes it unique.

The opportunity to see birds and snakes I've never seen makes it unique.

The opportunity to view wildlife in a clean, safe area makes it unique.

The opportunity to walk and hike the trails alone or with volunteers on the tram.

The people there are very helpful. They told us all about the refuges. We wish we visited others while we were in Texas.

The pleasure are experiences in visiting these places and having the opportunity to see birds and wildlife not seen in the backyard.

The primary focus on conservation of wildlife habitats is extremely important to me.

The protection of my/our habitat while keeping it out of commercial interest hands makes it unique. The National Parks are losing their interest for me because of their allowing commercial take over. I was robbed by a company handling reservations at Big Bend. If I go back, I will not stay at the lodge.

The refuge maintains a natural environment while making that environment open to the public.

The refuges are unique locations that provide a healthy environment for the species that dwell therein. They provide for a strong future for our generation to come to experience wildlife in their natural habitat.

The refuges emphasize wildlife conservation and opportunities for wildlife observation and environmental education. Other public lands tend to emphasize other aspects.

The tram ride was interesting and informational. Our volunteer guide was excellent.

The variety of wildlife potentially available for viewing and the preservation of wildlife species is extremely important to us.

The vast amounts of varied habitat makes it unique.

The volunteers were extremely helpful and inviting. They were also very knowledgeable about the subjects my children and I were interested in.

The well maintained property and well-educated volunteers makes it unique.

The wildlife and bird viewing makes it unique.

Their mission is to protect wildlife.

There are knowledgeable people working there.

There are many other birding sites in the valley called tracts. They are isolated and unsafe. We felt comfortable in the national areas. Also, our golden age pass helps us afford the visit.

There are more natural environments than structured areas.

There is a combined focus on natural resource conservation and public enjoyment/education.

There is a real dedication to preserving the wildlife and all its natural form without the gimmicks of merchandising it.

There is excellent birding, sometimes very good hunting, good hiking, and very good educational opportunities for the public.

There is more emphasis on wildlife viewing and management.

There is more focus on the plants, habitat and wildlife compared to seeing historical or man-made features.

They are a way of observing and appreciating the beautiful scenery and environment without disturbing the wildlife.

They are different from State and National Parks.

They are intended for conservation, not "lands of many uses" like Forest Service and BLM lands, which are mined, drilled and over-grazed.

There are not many left - we need them for future generations.

They have many birds that are new to us.

They make wildlife observation easier and more enjoyable.

They offer wildlife viewing in areas where it may not otherwise be readily available.

They provide an opportunity to watch wildlife and experience habitat.

They provide habitat for wildlife that needs protection from development. They also provide educational opportunities to show the importance of wildlife protection.

They provide vital habitat to certain animal species (i.e. whooping crane, sandhill crane, migrating birds) that continues to diminish and degrade outside refuges and parks. NWRs manage the entire habitat with an eye towards diversity and support of key species. Often NWRs provide a model and example for other management agencies to learn from and follow. To the human species, they provide employment and access to cheap recreation. Studies of American children are finding our children are not spending enough time in the wild natural areas. A NWR is not "wild" per se (see management comments above), but to the overly technologized general public, they provide a wild, natural experience which is becoming more and more rare. Keep up the good work. I will happily pay my taxes and entrance fees to continue to support your work.

They seem to be able to individualize the experience more than other public options.

They tend to be less developed/more natural so wildlife is generally in an appropriate environment.

They usually have unique habitat and an abundance of plants, birds and animals. Staff is professional and facilities are well-maintained.

This location is unique to birding opportunities. Preservation of nature and wildlife is important to me.

To be able to view birds/wildlife in their natural habitat that is protected without being caged/fenced makes it unique.

We like the trails, and also we love bike riding, which we haven't done for the past 2 years because they closed the bike trail. We also like the shade that Santa Ana has on the pavement trail.

We need to continue to set aside, maintain, and preserve the natural habitat of our wildlife treasures. Thanks for providing this option of entertainment and recreation.

We saw the Green Jay and took pictures.

What makes National Wildlife Refuges unique is the opportunity for the public to actively observe wildlife and feel connected but safe.

Wildlife refuges are primarily for wildlife habitats.

Wildlife such as birds and plants makes it unique.

Additional Comments (n = 50)

1. Born and raised on a farm. 2. Wildlife is very important to all of us. City or country folks.

Enjoy your day! Appreciate all you do!

Great birding - thank you.

Great refuge. Keep up the good work.

Great.

I came from Hong Kong.

I had been to this refuge a number of years back and was glad to see the improvements in the trails and the availability of the tram for those who could not hike the trails.

I know ecotourism is important, but I wish people would remember that Santa Ana is a wildlife refuge and not a city park. However, my husband and I love being there.

I love the NWRs. We also visited Laguna Atascosa, as well as multiple state parks on our visit.

I picked up a least grebe and Lichtenstein's oriole (can't remember new name) for my life list. Thanks.

I plan to visit this refuge more this year and the next.

I truly enjoy being outdoors and enjoying nature. Thanks for all the work you put into making these sights available to us.

I visited on a Sunday morning, so no tours available. I was sad to see effects of drought at the refuge. I will visit again!

In regard to the questions about climate change: 1) I agree that it has gotten warmer. 2) I feel that the cause of warming may well be normal cyclical climate change as has occurred multiple times in the past. 3) I do not feel that we need to make drastic societal change as the eco-freaks would have us do.

It is a nice place with nice people.

It's a very nice place to visit, especially when there is enough rain to keep the lakes full. It was very dry when we just went there, so no lakes.

Keep up the good work! I learn more at Santa Ana than any other LRGV site.

Me gustaria que se educara sobre impacto ambiental y calentamiento global en los parques. (I would like education about environmental impacts and global warming in parks.)

Teach community that there is more money to be made in keeping areas of good habitat. Folks spend eco bucks.

Thank you for being there and for your preservation and conservation efforts! Much appreciated.

The only complaint I have is that one of the main trails leads to nowhere. It gets a little confusing when you get to the empty patch of grass. Other than that, all the employees are very friendly. I am looking forward to the bike trail opening up since my family and I are very into biking. I can't wait to see how you guys make that better. Keep up the good work and I look forward to many visits in the future. Thank you.

The refuge is an attraction to many people and is a good way to preserve wildlife & plants.

The two volunteer bird guides were GREAT!

There is a TX state park in Progresso, TX that has bird watching down to a "T." I don't know if you are aware of all the bird watching activities there, but their Visitor Center is great even if you are not a "birder."

There is one of my favorite wildlife places I visited where there is no hunting/fishing activity.

They have excellent and knowledgeable employees. I visit Santa Ana often and will volunteer there at a future date.

This was my 5th year visiting Santa Ana and I have noticed a decrease in the number of birds in the last 2 visits. Granted, the weather was not ideal on this trip.

Too often refuges close areas to the public for no good reason. Refuges alone manage for only a few species instead of habitats, which offer diversity - this is a shame. You should educate about evolution, ecology, and climate change. Good luck! Science too often takes a back seat to political expediency, which I think must have engendered your questions about race, nationality and income.

We absolutely love Santa Ana and are so grateful to have this refuge in our community.

We are only in Texas during the winter months. This refuge is an excellent place to take family and friends when they come to visit. We really enjoy the birds and hiking. This refuge is well managed and has excellent, caring volunteers.

We enjoyed our stay despite the blistering heat. The staff was helpful and knowledgeable, yet down to earth and very attentive.

We enjoyed the natural environment the wildlife refuge provides, both to animals and birds, and even to humans.

We like to walk the trails and watch the wildlife.

We live in NE Texas. My husband works in the RGV and is there more than he is home. He is aware of the birding activities in the area because he 'lives there' for 1/2 a month at a time. We live in a rural area where we can observe wildlife daily, and think that the refuges are an important part of preserving what little natural areas our country has left. This refuge was a delightful experience, from the people who work there to the enjoyment of the natural area - it was a great experience and we have told our friends in NE Texas about it.

We would like the bike trail to please be open. It has been closed for 2 years. It was the best exercise we ever had, my wife and I. When the bike trail was open, our 2 sons and daughter-in-law would always come to Santa Ana with us. It would be nice if you put a restroom half way down the bike trail, like Altacosta National Wildlife Refuge has.