

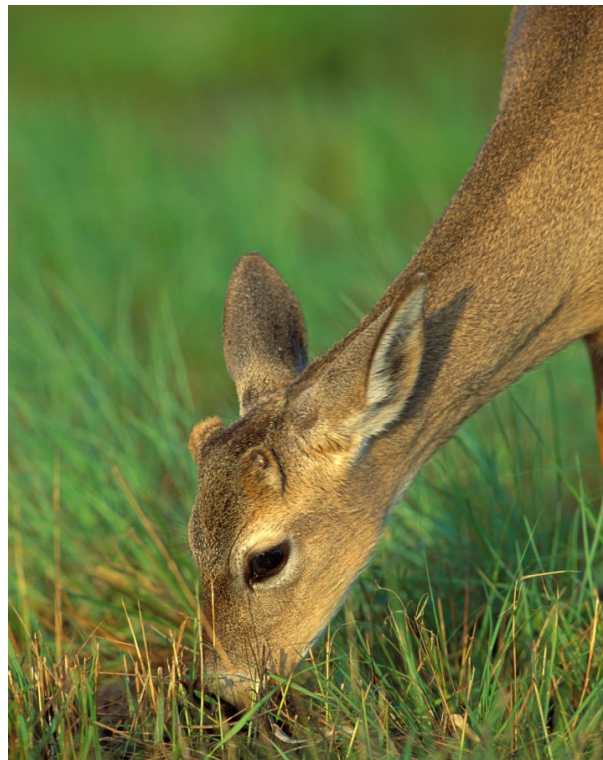


National Wildlife Refuge Visitor Survey 2012: Individual Refuge Results for National Key Deer Refuge

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

The refuge is unique because it is an area specifically set aside to maintain healthy habitat for the Key deer, and of course, other animals benefit and flourish as well. Wildlife refuges seem quieter, with not so many loud people or activities. Biking, hiking, watching, kayaking – the quiet sports that don't offend the animals are the norm, not waterparks, etc.

— *Survey comment from a visitor to National Key Deer Refuge*



National Key Deer 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 National Key Deer Refuge (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 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

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

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 National Key Deer Refuge, 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) 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 National Key Deer Refuge

National Key Deer Refuge is located in the Florida Keys, 100 mi south of Miami and 30 mi northeast of Key West. The refuge covers 9,200 acres of pine rockland forests, tropical hardwood hammocks, freshwater wetlands, salt marsh wetlands, and mangrove forests. This diverse area provides habitat for many endemic and migratory species, including 22 federally endangered or threatened listed species, five of which are found nowhere else in the world. National Key Deer Refuge is a part of the Florida Keys Complex which also includes the Great White Heron, Key West, and Crocodile Lake National Wildlife Refuges. Combined, these four refuges include over 416,000 acres of land and open water.

National Key Deer Refuge was established in 1957 to protect critical habitat for the beloved Key deer that the refuge is named after, as well as other threatened animal and plant species in the area. Before the refuge was created, it is estimated that the Key deer population was as low as 27 and has rebounded to approximately 800 today. Each year over 190,000 people visit the refuge (based on 2011 RAPP database; U.S. Fish and Wildlife Service, 2012, written comm.) participating in a variety of activities such as environmental education, fishing, photography, use of trails, and wildlife observation – often times in hope of spotting a Key deer or a number of unique birds. Figure 1 displays a map of National Key Deer Refuge. For more information please visit <http://www.fws.gov/nationalkeydeer/>.

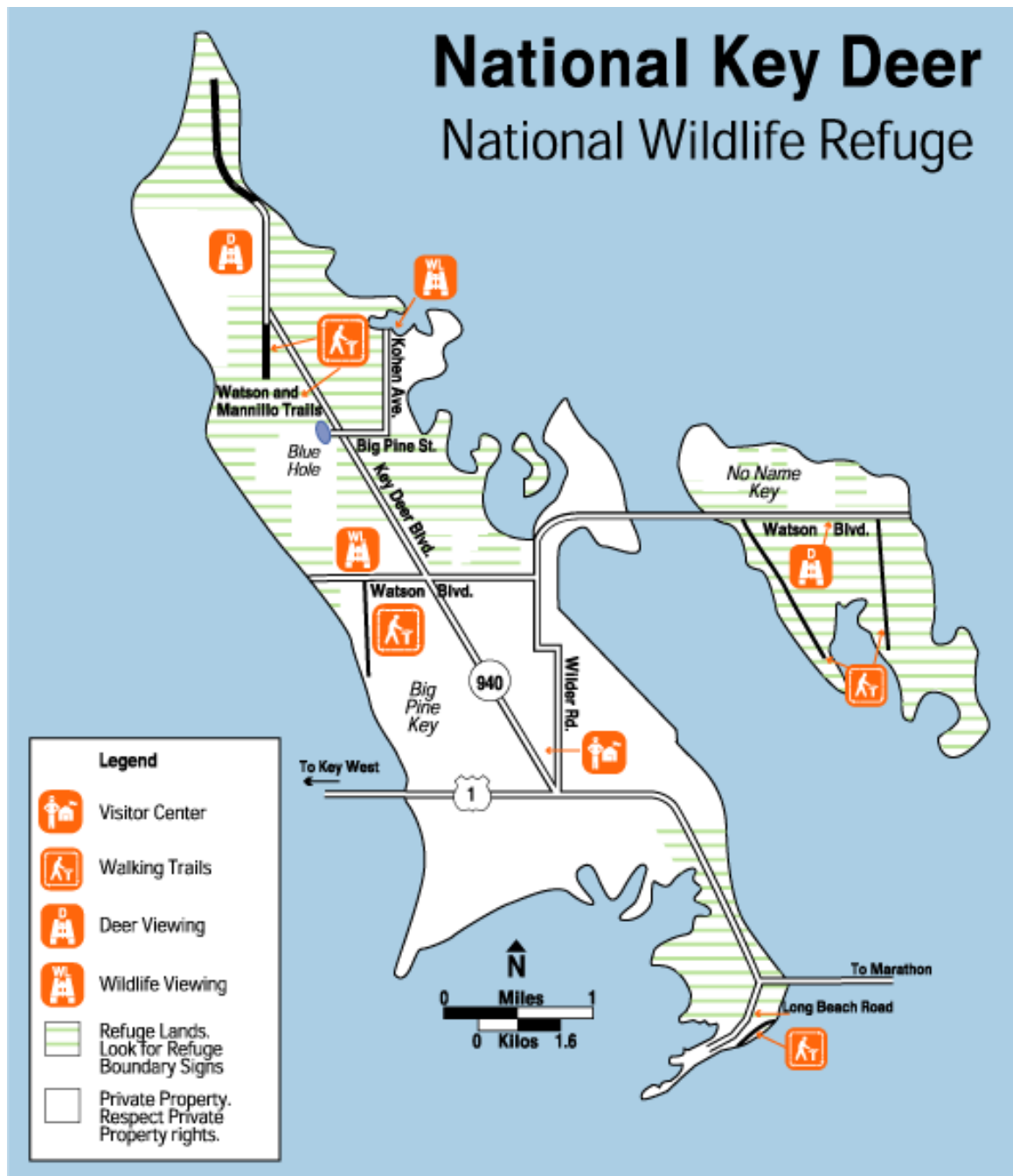


Figure 1. Map of National Key Deer Refuge, courtesy of U.S. Fish and Wildlife Service.

Sampling at National Key Deer Refuge

A total of 278 visitors agreed to participate in the survey during the two sampling periods at the identified locations at National Key Deer Refuge (table 2). In all, 194 visitors completed the survey for a 72% response rate, and $\pm 5.6\%$ margin of error at the 95% confidence level.²

Table 2. Sampling and response rate summary for National Key Deer Refuge.

Sampling period	Dates	Locations	Total contacts	Undeliverable addresses	Completed surveys	Response rate
1	2/18/2012 to 3/3/2012	Blue Hole Interpretation Site Visitor Center Watson and Mannillo Trails				
		SP1 Totals	160	3	113	72%
2	9/22/2012 to 10/6/2012	Blue Hole Interpretation Site Visitor Center				
		SP2 Totals	118	5	81	72%
		Combined Totals	278	8	194	72%

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 National Key Deer Refuge reported that before participating in the survey, they were aware of the role of the Service in managing refuges (78%) and that the Refuge System has the mission of conserving, managing, and restoring fish, wildlife, plants, and their habitats (84%). 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 (84%) 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.

More than half of visitors to National Key Deer Refuge had been to at least one *other* national wildlife refuge in the past year (60%), with an average of 4 visits to *other* refuges during the past 12 months.

Visiting This Refuge

A majority of surveyed visitors (76%) had only been to National Key Deer Refuge once in the past 12 months, while some had been multiple times (24%). These repeat visitors went to the refuge an average of 6 times during that same 12-month period. Visitors used the refuge during only one season (88%), during multiple seasons (8%), and year-round (4%).

Visitors first learned about the refuge from signs on the highway (34%), a travel guidebook or other book (33%), or friends/relatives (26%; fig. 2). Key information sources used by visitors to find their way to this refuge include signs on the highways (56%), previous knowledge (27%), a GPS navigation system (18%), or a road atlas/highway map (17%; fig. 3).

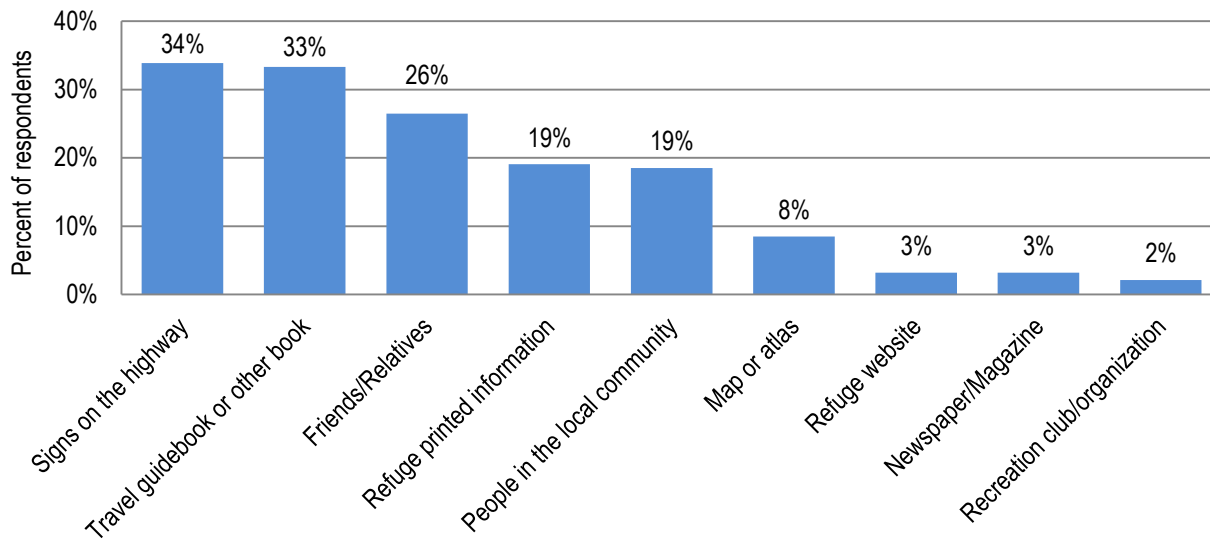


Figure 2. How visitors first learned or heard about National Key Deer Refuge (n = 189).

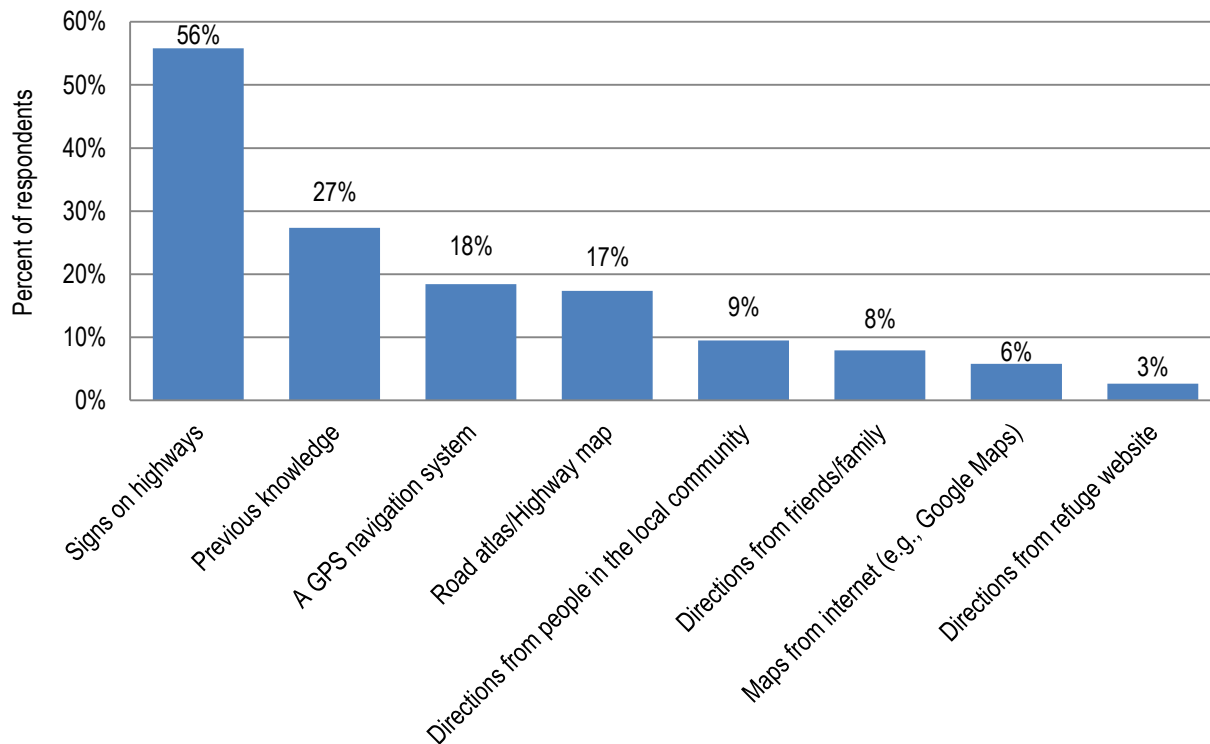


Figure 3. Resources used by visitors to find their way to National Key Deer Refuge during this visit (n = 190).

Few visitors (15%) lived in the local area (within 50 mi of the refuge), whereas 85% were nonlocal visitors. For most local visitors ($n = 28$), National Key Deer Refuge was an incidental or spur-of-the-moment stop on a trip taken for other purposes (41%) or the primary reason for their trip (37%; table 3). ***It is important to note that summary statistics based on a small sample size ($n < 30$) may not provide a reliable representation of that population.*** For most nonlocal visitors, the refuge was an incidental or spur-of-the-moment stop on a trip taken for other purposes (49%) or one of many equally important reasons for their trips (45%).

Local visitors reported that they traveled an average of 15 mi to get to the refuge, while nonlocal visitors traveled an average of 1,347 mi. The average distance traveled for all visitors to this refuge was 1,018 mi, while the median was 950 mi. Figure 4 shows the residences of visitors traveling to this refuge. About 30% of visitors traveling to National Key Deer Refuge were from Florida.

Table 3. Influence of National Key Deer Refuge 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	6%	45%	49%
Local	37%	22%	41%
All visitors	10%	42%	48%

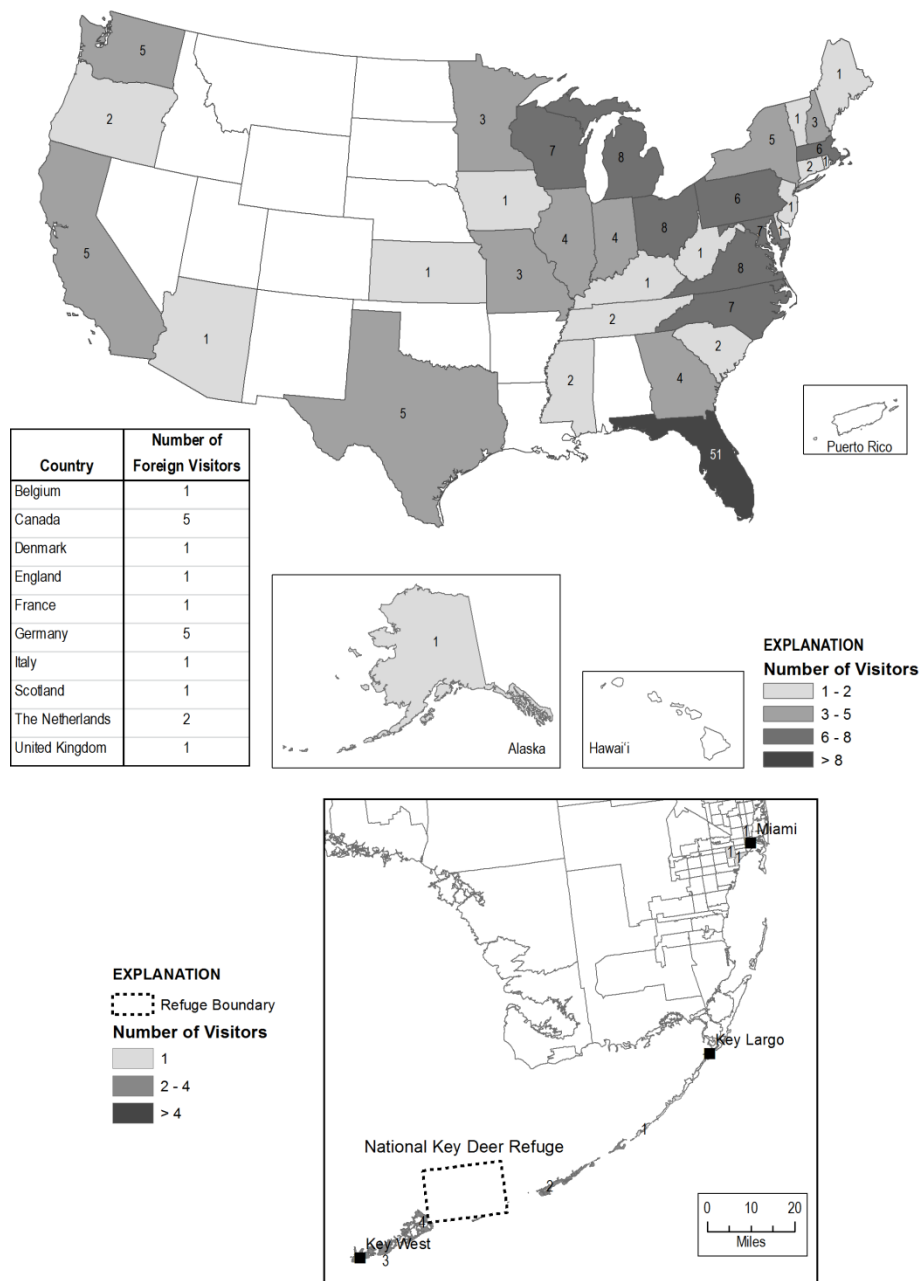


Figure 4. Number of visitors travelling to National Key Deer Refuge by place of residence. The top map shows visitors residence by state and the bottom map shows residence by zip codes near the refuge (n = 191).

Surveyed visitors reported that they spent an average of 3 hr at National Key Deer Refuge during one day there, while the most frequently reported length of a day visit, the modal response, was 2 hr (31%). Most visitors indicated they were part of a group on their visit to this refuge (94%). 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 National Key Deer Refuge (for those who indicated they were part of a group, n = 178).

Group type	Percent (of those traveling in a group)	Average group size		
		Number of adults	Number of children	Total group size
Family/Friends	94%	3	0	3
Commercial tour group	0%	0	0	0
Organized club/School group	3%	8	1	9
Other group type	2%	12	0	12

The key mode of transportation used by visitors to travel around the refuge was private vehicles (91%; fig. 5).

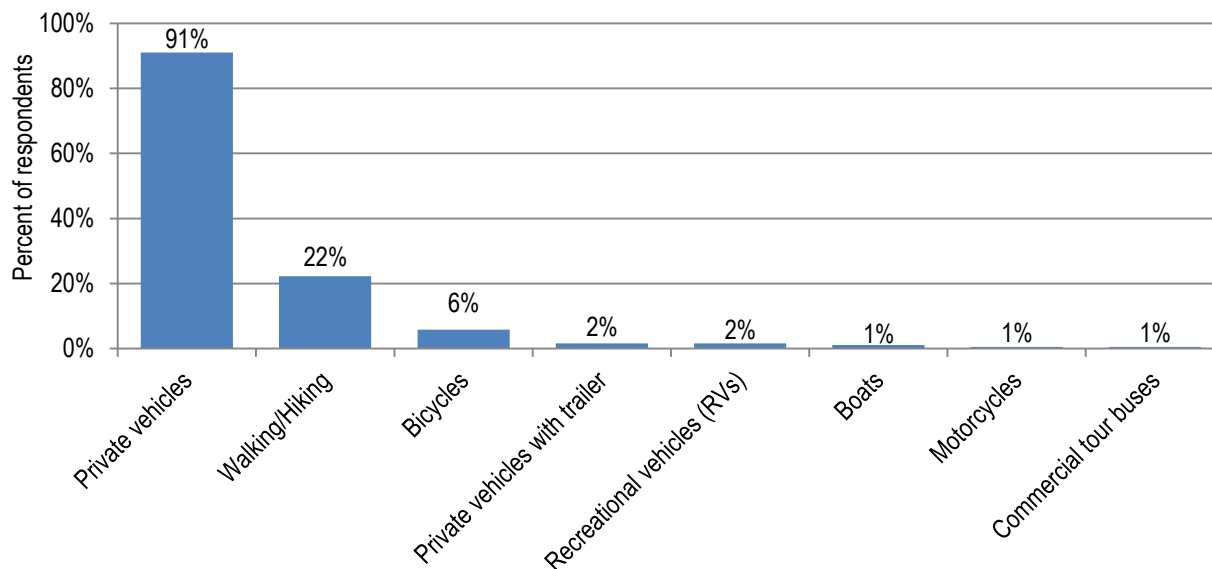


Figure 5. Modes of transportation used by visitors to National Key Deer Refuge during this visit (n = 189).

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 wildlife observation (89%), photography (55%), and bird watching (54%). The primary reason for visitors' most recent visits included wildlife observation (69%), bird watching (7%), and hiking (6%; fig. 7). Many visitors also used the Visitor Center during their trips (69%), mostly to ask information of staff or volunteers (86%), view the exhibits (80%), or visit the gift shop/bookstore (77%; fig. 8).

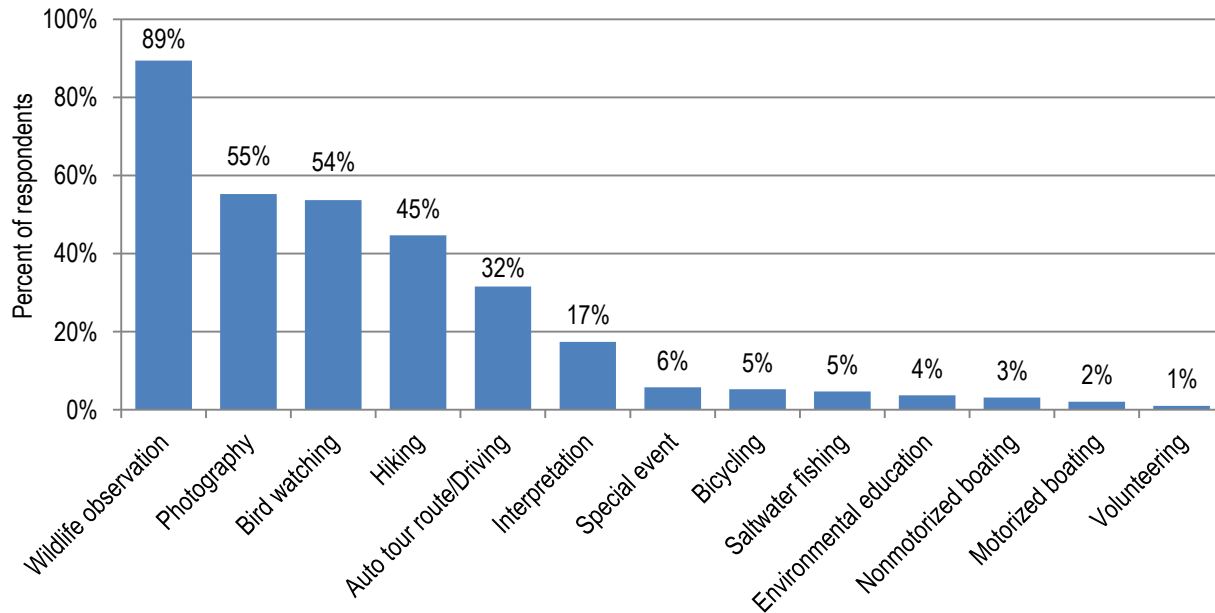


Figure 6. Activities in which visitors participated during the past 12 months at National Key Deer Refuge (n = 190). See Appendix B for a listing of “other” activities.

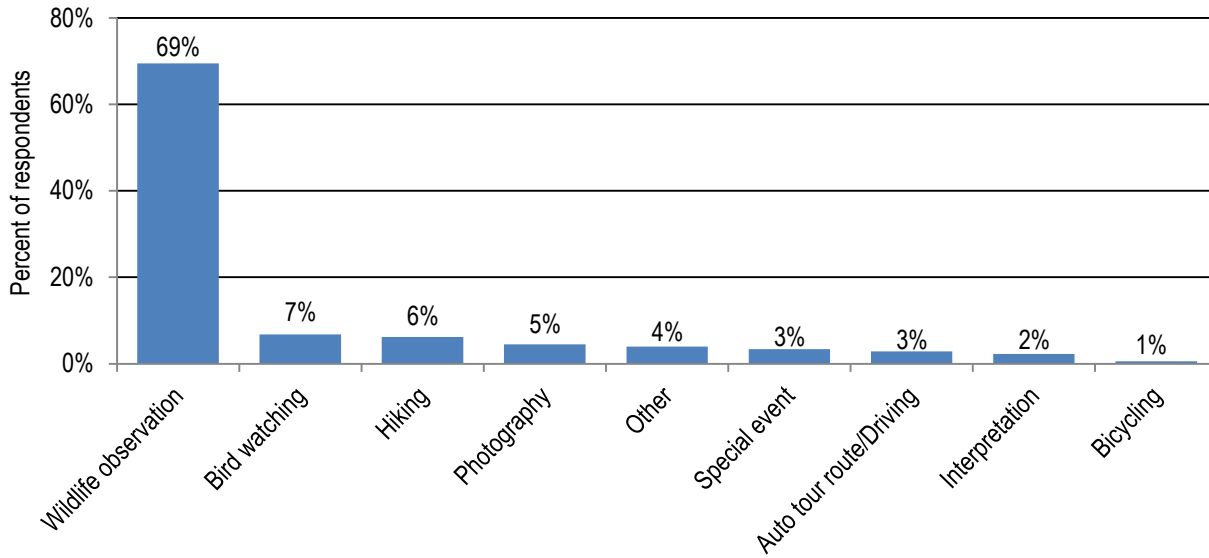


Figure 7. The **primary** activity in which visitors participated during this visit to National Key Deer Refuge (n = 177). See Appendix B for a listing of “other” activities.

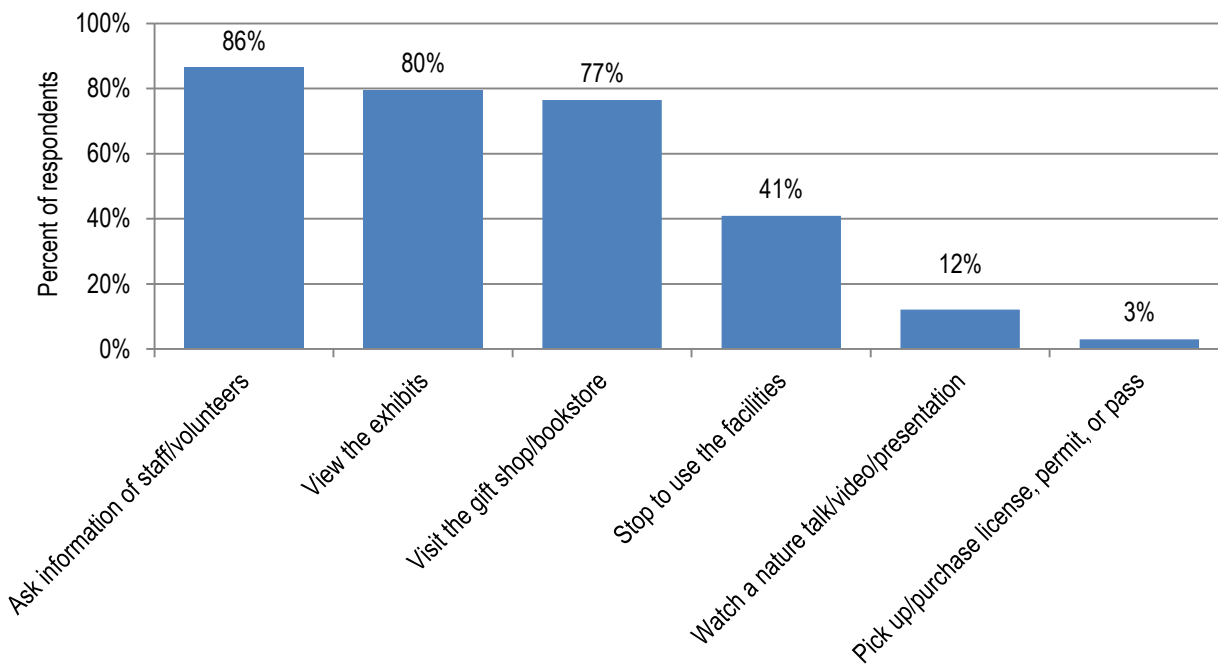


Figure 8. Visitor Center activities in which visitors participated at National Key Deer Refuge (n = 132).

Visitor Characteristics

Most (89%) visitors who participated in the survey at National Key Deer Refuge indicated that they were citizens or permanent residents of the United States. These visitors were a mix of 42% male (with an average age of 57 years) and 58% female (with an average age of 53 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 \$75,000-\$99,999. 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, 15% of surveyed visitors to National Key Deer Refuge indicated that they live within the local 50-mi area while nonlocal visitors (85%) stayed in the local area, on average, for 7 days. Table 5 shows summary statistics for 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 \$132 per person per day and local visitors ($n = 18$) spent an average of \$41 per person per day in the local area. ***It is important to note that summary statistics based on a small sample size ($n < 30$) may not provide a reliable representation of that population.*** 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 visitors' decisions 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 National Key Deer Refuge expressed in dollars per person per day.

Visitors	n ¹	Median	Mean	Standard deviation	Minimum	Maximum
Nonlocal	121	\$106	\$132	\$133	\$1	\$775
Local	<i>The sample size of locals ($n=18$) was too low to adequately represent this visitor group.</i>					

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 National Key Deer Refuge were as follows (fig. 9):

- 84% of visitors were satisfied with the recreational activities and opportunities,
- 91% of visitors were satisfied with the information and education about the refuge and its resources,
- 96% of visitors were satisfied with the services provided by employees or volunteers, and
- 90% of visitors were satisfied with the refuge's job of conserving fish, wildlife and their habitats.

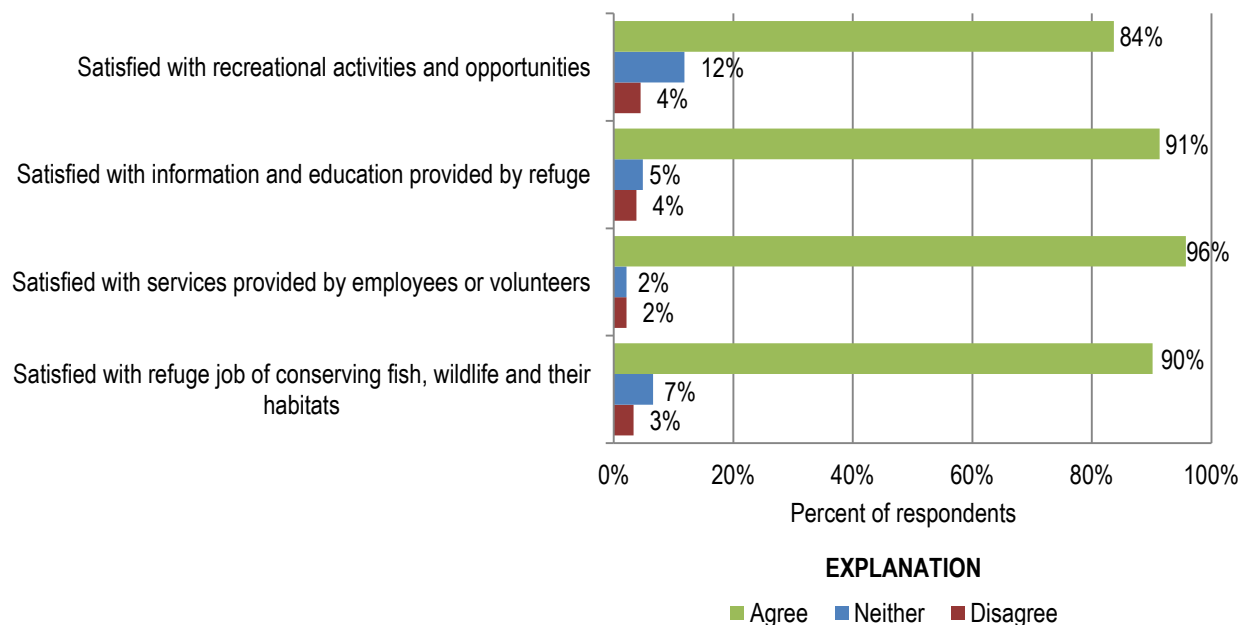


Figure 9. Overall satisfaction with National Key Deer Refuge during this visit (n ≥ 178).

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.

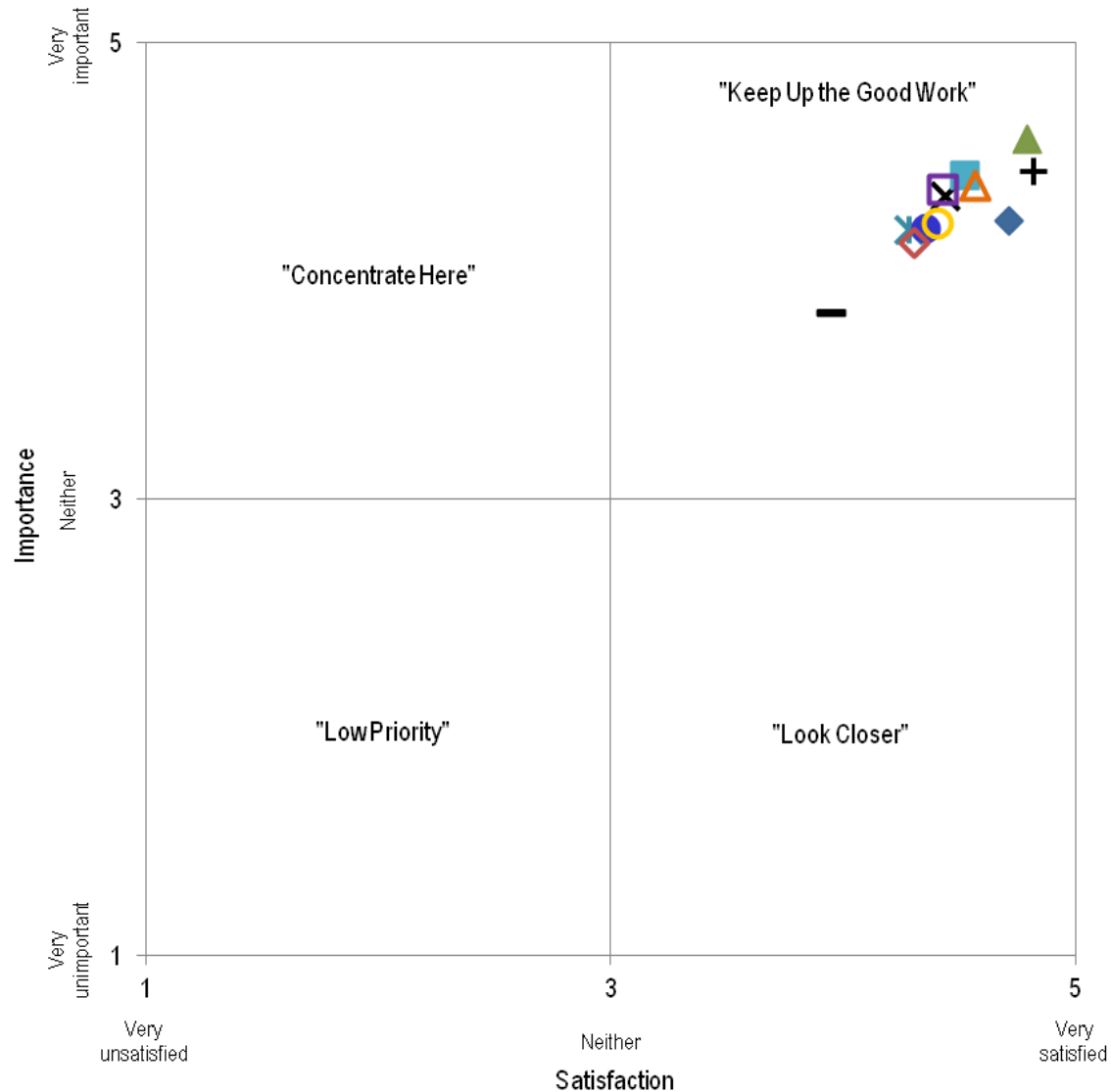
Graphically plotting visitors' importance and satisfaction ratings for different services, facilities, and recreational opportunities provides a simple and intuitive visualization of these survey measures. However, this tool is not without its drawbacks. One is the potential for variation among different 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 10–12 depict surveyed visitors' importance-satisfaction ratings for refuge services and facilities, recreational opportunities, and transportation-related features at National Key Deer Refuge. Results are summarized as follows:

- All refuge *services and facilities* fell in the "Keep Up the Good Work" quadrant (fig. 10).
- All refuge *recreational opportunities* fell in the "Keep Up the Good Work" quadrant except fishing and volunteer opportunities, which fell into the "Look Closer" quadrant (fig. 11). The average importance of these activities is likely higher among visitors to National Key Deer Refuge who actually participated in the activities during the 12 months prior to taking the survey than the score 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.

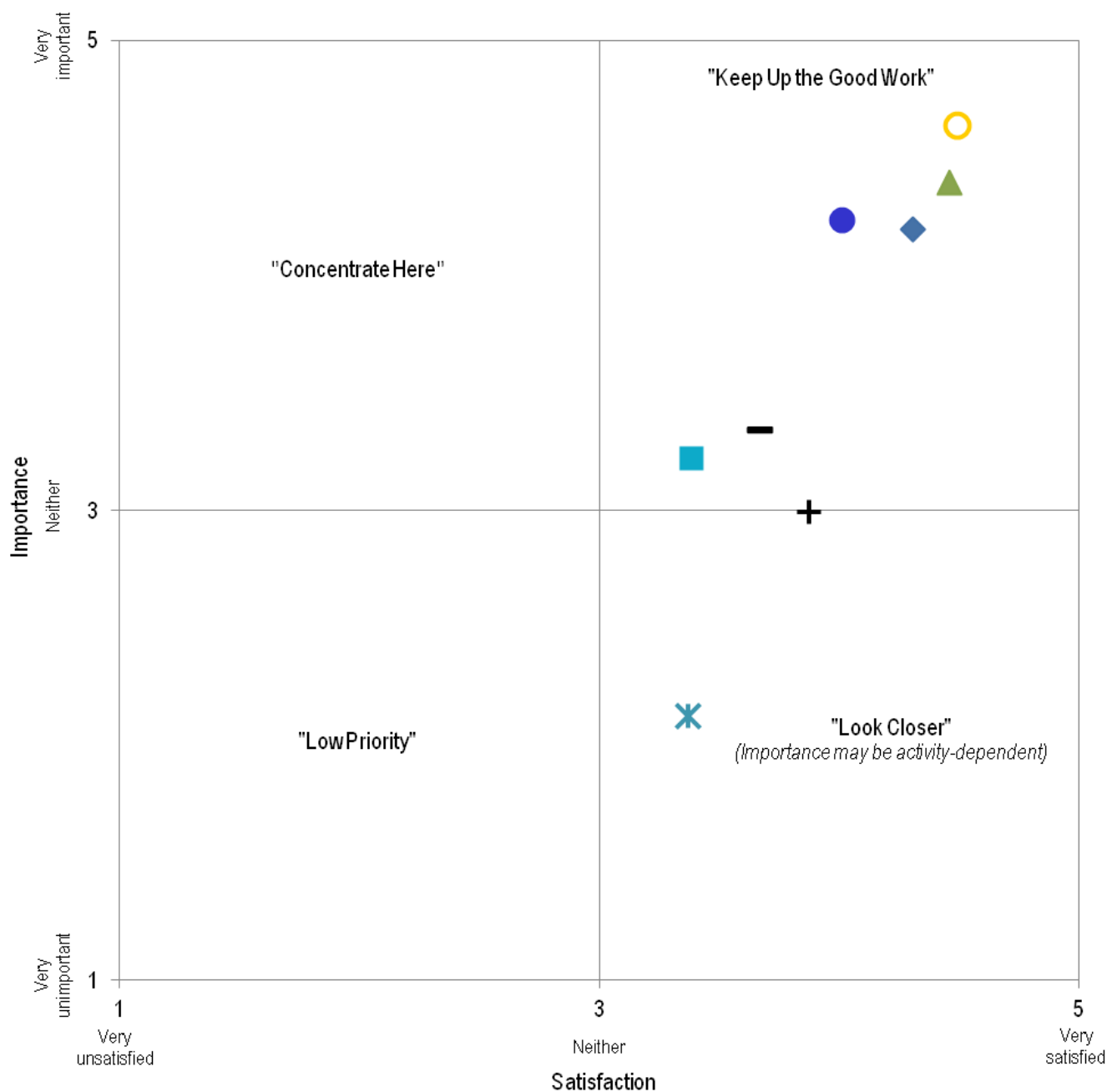
- All *transportation-related features* fell in the “Keep Up the Good Work” quadrant (fig. 12).



EXPLANATION

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

Figure 10. Importance-satisfaction ratings of services and facilities provided at National Key Deer Refuge.



EXPLANATION

◆ Bird watching opportunities

○ Wildlife viewing opportunities

▲ Photography opportunities

■ Kayak/Canoe opportunities

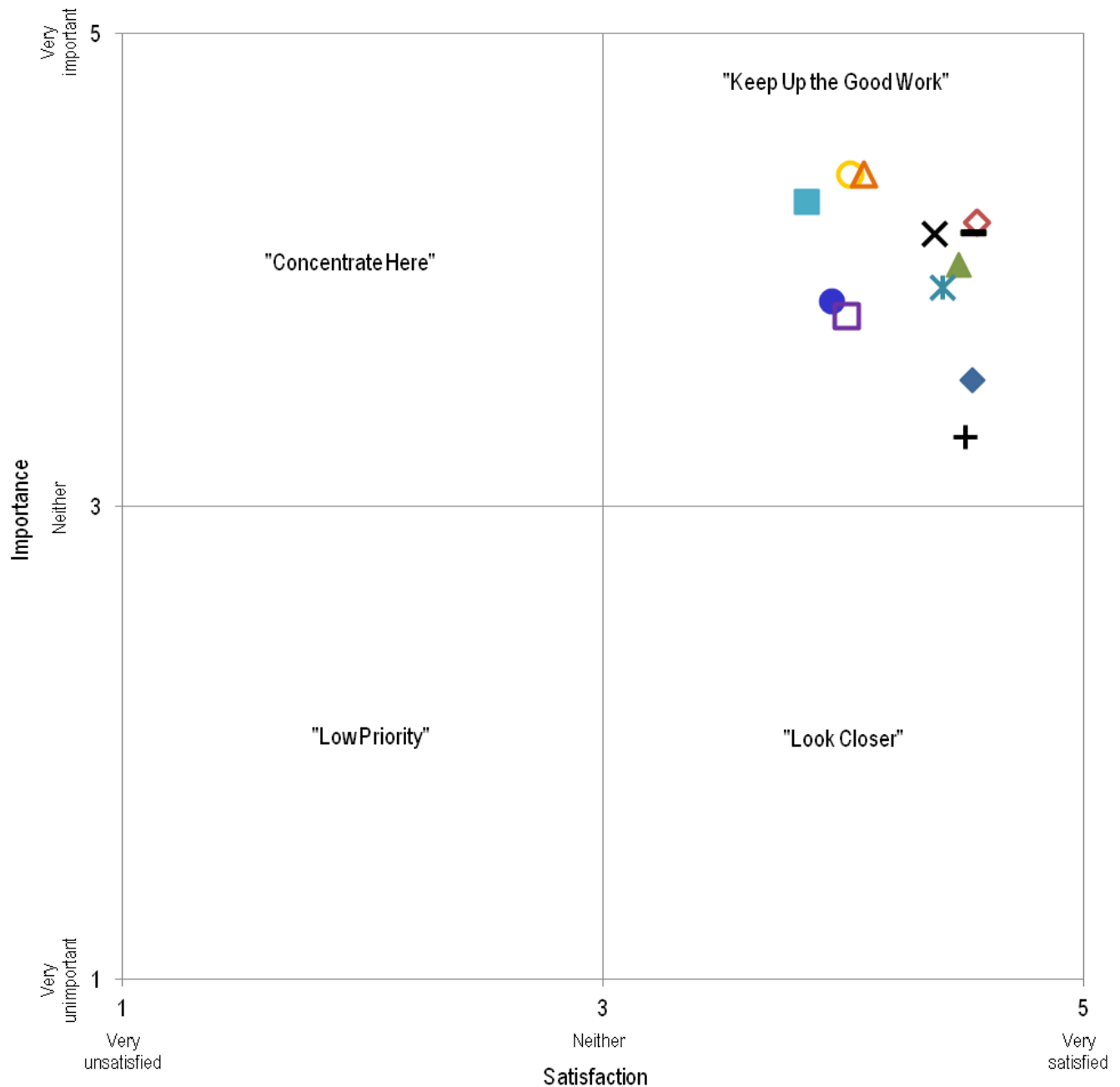
✕ Fishing opportunities

● Hiking opportunities

— Bicycling opportunities

+ Volunteer opportunities

Figure 11. Importance-satisfaction ratings of recreational opportunities provided at National Key Deer Refuge.



EXPLANATION

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

Figure 12. Importance-satisfaction ratings of transportation-related features at National Key Deer Refuge.

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 National Key Deer Refuge 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 National Key Deer Refuge visitors were likely to use the following at refuges in the future (fig. 13):

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

When asked specifically about using alternative transportation at National Key Deer Refuge, some visitors thought alternative transportation would enhance their experience (20%) while others thought it would not (42%). An additional 38% of surveyed visitors indicated they were unsure whether alternative transportation would enhance their experiences.

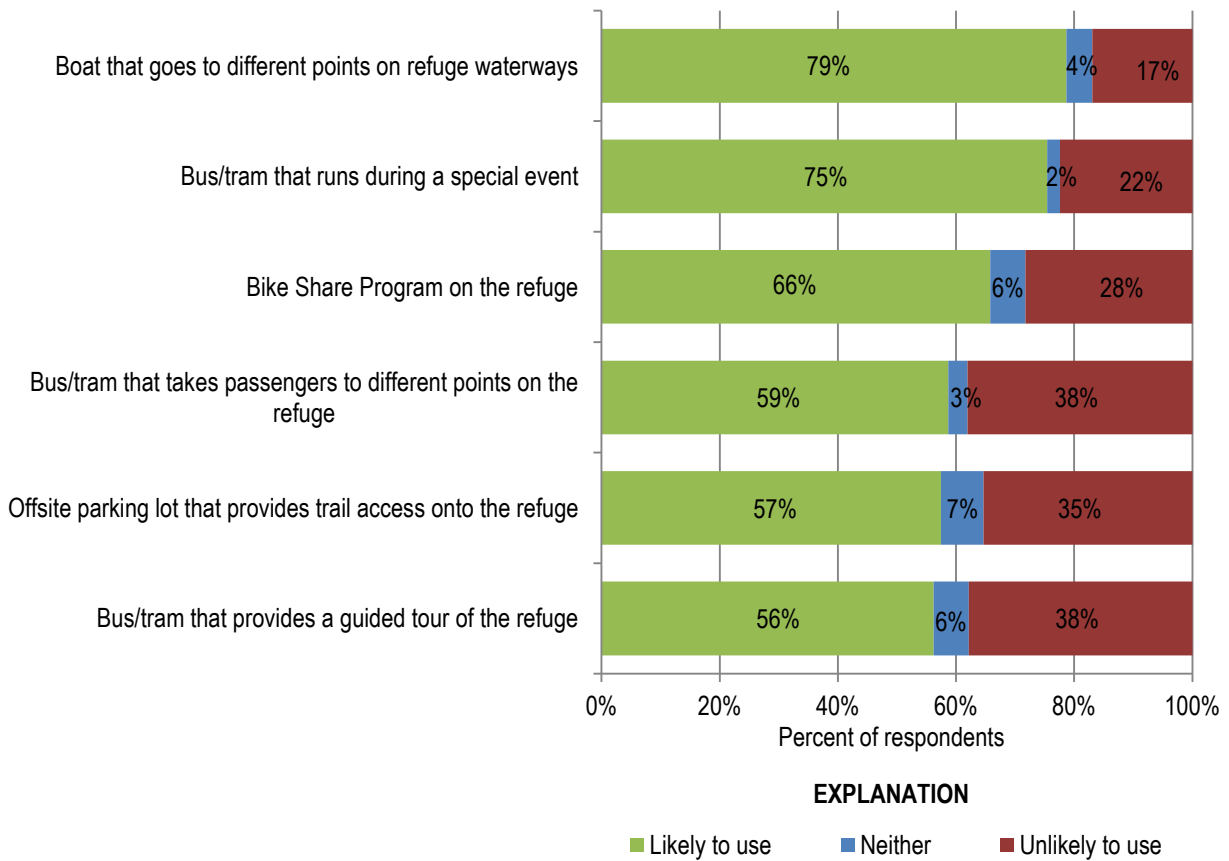


Figure 13. Visitors' likelihood of using alternative transportation options at refuges in the future (n ≥ 181).

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 National Key Deer Refuge 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. 14):

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

The majority of visitors also agreed with the following *belief statements* regarding climate change effects on fish, wildlife and their habitats (fig. 15):

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

Results regarding such beliefs are important to consider when communicating with visitors about this topic, since almost half of visitors (47%) indicated their experiences would be enhanced if National Key Deer Refuge provided information about how visitors can help to address climate change impacts on fish, wildlife, and their habitats (fig. 14).

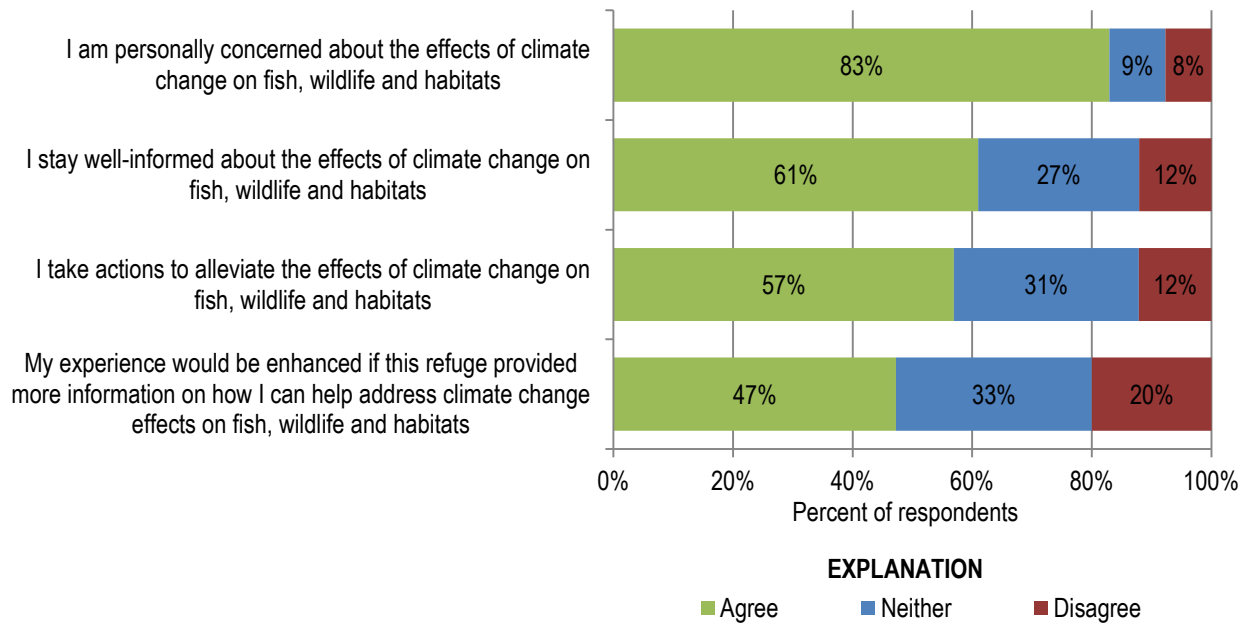


Figure 14. Visitors' personal involvement with climate change related to fish, wildlife and their habitats (n ≥ 180).

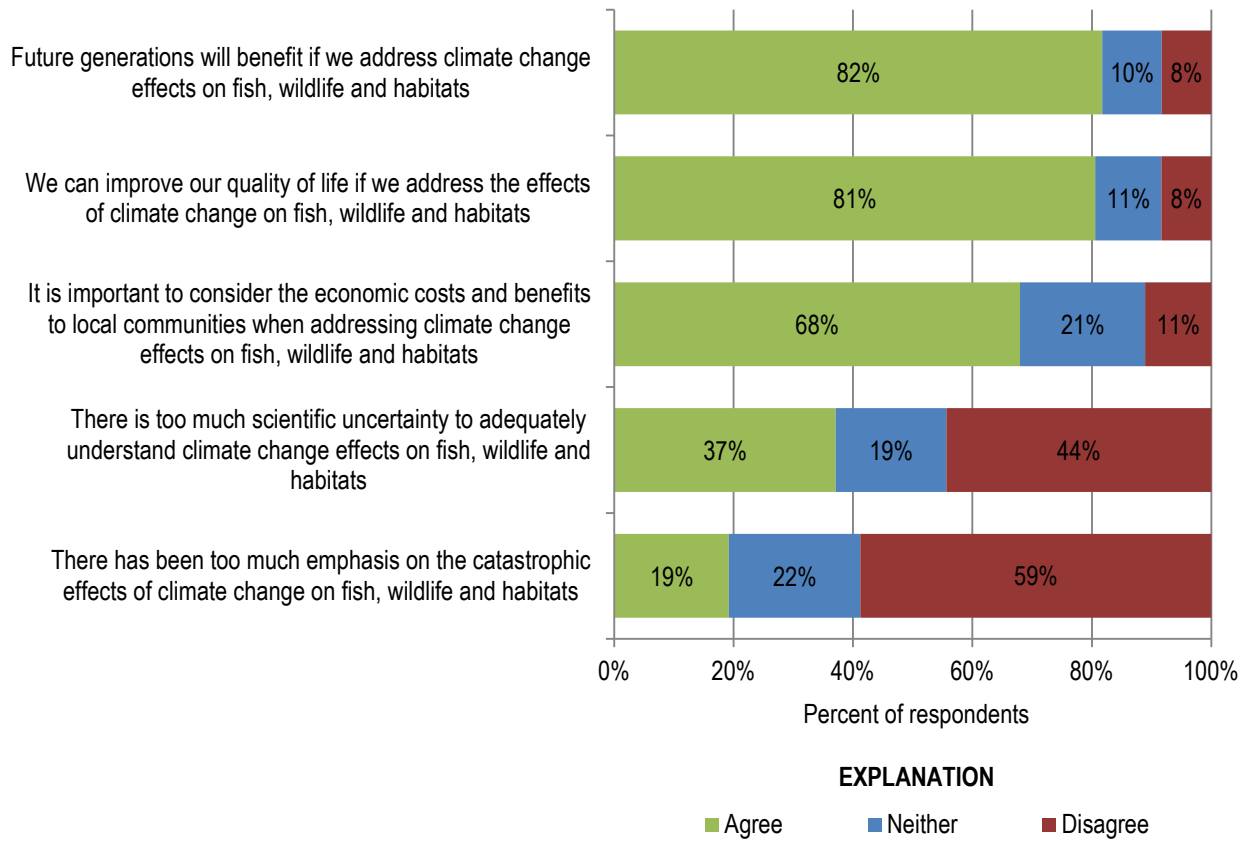


Figure 15. Visitors' beliefs about the effects of climate change on fish, wildlife and their habitats (n ≥ 177).

Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to National Key Deer Refuge 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 and visitor-satisfaction ratings with existing offerings, 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.**) (* indicates the activity is not offered at National Key Deer Refuge)

<input type="checkbox"/> *	Big game hunting	<input type="checkbox"/> 45%	Hiking	<input type="checkbox"/> 4%	Environmental education (for example, classrooms or labs)
<input type="checkbox"/> *	Upland/Small game hunting	<input type="checkbox"/> 5%	Bicycling		
<input type="checkbox"/> *	Migratory bird/Waterfowl hunting	<input type="checkbox"/> 32%	Auto tour route/Driving	<input type="checkbox"/> 17%	Interpretation (for example, exhibits, kiosks, videos)
<input type="checkbox"/> 89%	Wildlife observation	<input type="checkbox"/> 2%	Motorized boating		
<input type="checkbox"/> 54%	Bird watching	<input type="checkbox"/> 3%	Nonmotorized boating (including canoes/kayaks)	<input type="checkbox"/> 6%	Refuge special event (<i>please specify</i>) <u>See Appendix B</u>
<input type="checkbox"/> *	Freshwater fishing				
<input type="checkbox"/> 5%	Saltwater fishing	<input type="checkbox"/> 1%	Volunteering	<input type="checkbox"/> 1%	Other (<i>please specify</i>) <u>See Appendix B</u>
<input type="checkbox"/> 55%	Photography				

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

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

<input type="checkbox"/> 31%	No
<input type="checkbox"/> 69%	Yes → If yes, what did you do there? (Please mark <u>all that apply.</u>)
<input type="checkbox"/> 77%	Visit the gift shop or bookstore
<input type="checkbox"/> 3%	Pick up/purchase a license, permit, or pass
<input type="checkbox"/> 80%	View the exhibits
<input type="checkbox"/> 41%	Stop to use the facilities (for example, get water, use restroom)
<input type="checkbox"/> 86%	Ask information of staff/volunteers
<input type="checkbox"/> 12%	Watch a nature talk/video/presentation
<input type="checkbox"/> 3%	Other (<i>please specify</i>) <u>See Appendix B</u>

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

Nonlocal	Local **	All visitors	
<input type="checkbox"/> 6%	<input type="checkbox"/> 37%	<input type="checkbox"/> 10%	It was the primary purpose or sole destination of my trip.
<input type="checkbox"/> 45%	<input type="checkbox"/> 22%	<input type="checkbox"/> 42%	It was one of many equally important reasons or destinations for my trip.
<input type="checkbox"/> 49%	<input type="checkbox"/> 41%	<input type="checkbox"/> 48%	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 12 Hours 44 Minutes and 1347 Miles

Local (*n=28*) 0 Hours 27 Minutes and 15 Miles

All visitors 9 Hours 42 Minutes and 1018 Miles

*****It is important to note that summary statistics based on a small sample size ($n < 30$) may not provide a reliable representation of that population.***

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

☐ 6% None, I visited this Refuge alone

(of those visiting with a group)

☐ 94% Family and/or friends

☐ 3% Organized club or school group (for example, Boy/Girl Scouts, hiking club, bird watching group)

☐ 0% Commerical tour group

☐ 2% Other (*please specify*) See Appendix B

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

3 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.*)

☐ 26% Family and/or friends

☐ 3% Refuge website

☐ 34% Signs on highway

☐ 4% Other website (*please specify*) See Appendix B

☐ 2% Recreation club or organization

☐ 1% Television or radio

☐ 19% People in the local community

☐ 3% Newspaper or magazine

☐ 19% Refuge printed information (brochure, map)

☐ 33% Travel guidebook or other book

☐ 8% Map or atlas

☐ 5% 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.*)

☐ 15% Spring
(March-May)

☐ 11% Summer
(June-August)

☐ 41% Fall
(September-November)

☐ 54% Winter
(December-February)

10. How many times have you visited...

...this Refuge (including this visit) in the last 12 months? 2 number of visits

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

SECTION 2. Transportation and access at this Refuge

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

<input type="checkbox"/> 91% Private vehicle without a trailer	<input type="checkbox"/> 0% Refuge shuttle bus or tram	<input type="checkbox"/> 6% Bicycle
<input type="checkbox"/> 2% Private vehicle with a trailer (for boat, camper or other)	<input type="checkbox"/> 1% Motorcycle	<input type="checkbox"/> 22% Walk/Hike
<input type="checkbox"/> 1% Commercial tour bus	<input type="checkbox"/> 0% ATV or off-road vehicle	<input type="checkbox"/> 1% Other (<i>please specify below</i>)
<input type="checkbox"/> 2% Recreational vehicle (RV)	<input type="checkbox"/> 1% Boat	<u>See Appendix B</u>
	<input type="checkbox"/> 0% 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"/> 27% Previous knowledge/I have been to this Refuge before	<input type="checkbox"/> 6% Maps from the Internet (for example, MapQuest or Google Maps)
<input type="checkbox"/> 56% Signs on highways	<input type="checkbox"/> 3% Directions from Refuge website
<input type="checkbox"/> 18% A GPS navigation system	<input type="checkbox"/> 9% Directions from people in community near this Refuge
<input type="checkbox"/> 17% A road atlas or highway map	<input type="checkbox"/> 8% Directions from friends or family
	<input type="checkbox"/> 11% 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"/> 29%	<input type="checkbox"/> 9%	<input type="checkbox"/> 3%	<input type="checkbox"/> 40%	<input type="checkbox"/> 19%
...a bike that was offered through a Bike Share Program for use while on the Refuge?	<input type="checkbox"/> 28%	<input type="checkbox"/> 10%	<input type="checkbox"/> 6%	<input type="checkbox"/> 30%	<input type="checkbox"/> 26%
...a bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources?	<input type="checkbox"/> 20%	<input type="checkbox"/> 9%	<input type="checkbox"/> 6%	<input type="checkbox"/> 35%	<input type="checkbox"/> 31%
...a boat that goes to different points on Refuge waterways?	<input type="checkbox"/> 17%	<input type="checkbox"/> 5%	<input type="checkbox"/> 2%	<input type="checkbox"/> 36%	<input type="checkbox"/> 39%
...a bus or tram that runs during a special event (such as an evening tour of wildlife or weekend festival)?	<input type="checkbox"/> 24%	<input type="checkbox"/> 12%	<input type="checkbox"/> 7%	<input type="checkbox"/> 31%	<input type="checkbox"/> 26%
...an offsite parking lot that provides trail access for walking/hiking onto the Refuge?	<input type="checkbox"/> 11%	<input type="checkbox"/> 6%	<input type="checkbox"/> 4%	<input type="checkbox"/> 32%	<input type="checkbox"/> 47%
...some other alternative transportation option? (<i>please specify</i>) <u>See Appendix B</u>	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 9%	<input type="checkbox"/> 36%	<input type="checkbox"/> 55%

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

☐ 20% Yes ☐ 42% No ☐ 38% 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 <i>Circle one for each item.</i>						Satisfaction <i>Circle one for each item.</i>					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
6%	15%	17%	45%	17%	Surface conditions of roads	3%	3%	4%	18%	72%	NA
9%	17%	23%	39%	12%	Surface conditions of parking areas	2%	2%	5%	25%	66%	NA
4%	3%	19%	37%	38%	Condition of bridges	2%	2%	9%	20%	67%	NA
5%	2%	6%	48%	39%	Condition of trails and boardwalks	4%	5%	4%	24%	64%	NA
3%	8%	12%	47%	30%	Number of places for parking	2%	4%	8%	22%	64%	NA
4%	5%	12%	57%	21%	Number of places to pull over along Refuge roads	1%	9%	17%	39%	34%	NA
4%	3%	11%	35%	48%	Safety of driving conditions on Refuge roads	1%	2%	6%	20%	71%	NA
4%	3%	12%	37%	44%	Safety of Refuge road entrances/exits	0%	4%	6%	23%	68%	NA
3%	2%	4%	33%	58%	Signs on highways directing you to the Refuge	2%	13%	10%	32%	44%	NA
2%	4%	8%	37%	49%	Signs directing you around the Refuge roads	3%	14%	11%	39%	33%	NA
4%	1%	7%	28%	60%	Signs directing you on trails	1%	11%	12%	30%	46%	NA
7%	5%	22%	33%	33%	Access for people with physical disabilities or who have difficulty walking	3%	3%	27%	25%	42%	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)?

☐ 15% Yes

☐ 85% 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: 8 day(s)

only If you spent less than one day in the local area, enter the number of hours: 4 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 <u>Local Communities & at this Refuge</u> (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
12%	14%	14%	5%	12%	1%	16%	1%	4%	6%	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**.*)

☒ 100% Did not pay a fee (*skip to Section 4*)

National Key Deer Refuge does not charge an entrance fee. This question does not apply.

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.

National Key Deer Refuge does not charge an entrance fee. This question does not apply.

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"/> 2%	<input type="checkbox"/> 3%	<input type="checkbox"/> 12%	<input type="checkbox"/> 47%	<input type="checkbox"/> 37%	NA
Overall, I am satisfied with the information and education provided by this Refuge about its resources.	<input type="checkbox"/> 2%	<input type="checkbox"/> 2%	<input type="checkbox"/> 5%	<input type="checkbox"/> 39%	<input type="checkbox"/> 52%	NA
Overall, I am satisfied with the services provided by employees or volunteers at this Refuge.	<input type="checkbox"/> 2%	<input type="checkbox"/> 1%	<input type="checkbox"/> 2%	<input type="checkbox"/> 28%	<input type="checkbox"/> 68%	NA
This Refuge does a good job of conserving fish, wildlife and their habitats.	<input type="checkbox"/> 2%	<input type="checkbox"/> 1%	<input type="checkbox"/> 7%	<input type="checkbox"/> 36%	<input type="checkbox"/> 55%	NA

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

Importance <i>Circle one for each item.</i>					Refuge Services, Facilities, and Activities	Satisfaction <i>Circle one for each item.</i>					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
1%	5%	8%	44%	43%	Availability of employees or volunteers	1%	1%	5%	10%	82%	NA
1%	3%	4%	37%	56%	Courteous and welcoming employees or volunteers	1%	1%	3%	5%	90%	NA
2%	1%	1%	31%	65%	Knowledgeable employees or volunteers	1%	1%	4%	7%	87%	NA
1%	2%	7%	43%	47%	Printed information about this Refuge and its resources (for example, maps and brochures)	1%	5%	6%	28%	61%	NA
1%	2%	10%	52%	35%	Informational kiosks/displays about this Refuge and its resources	3%	5%	8%	29%	55%	NA
1%	1%	17%	40%	41%	Signs with rules/regulations for this Refuge	1%	2%	17%	23%	58%	NA
0%	6%	10%	49%	35%	Exhibits about this Refuge and its resources	1%	3%	16%	27%	54%	NA
3%	6%	27%	35%	29%	Environmental education programs or activities	0%	1%	39%	25%	35%	NA
2%	5%	11%	35%	47%	Visitor Center	2%	5%	8%	20%	65%	NA
0%	1%	8%	40%	51%	Convenient hours and days of operation	1%	3%	10%	16%	71%	NA
0%	1%	12%	37%	50%	Well-maintained restrooms	1%	1%	11%	15%	73%	NA
0%	3%	8%	39%	50%	Wildlife observation structures (decks, blinds)	0%	3%	9%	31%	57%	NA
2%	4%	12%	37%	45%	Bird-watching opportunities	0%	1%	14%	38%	47%	NA
1%	0%	2%	29%	68%	Opportunities to observe wildlife other than birds	0%	4%	6%	28%	63%	NA
2%	1%	7%	36%	54%	Opportunities to photograph wildlife and scenery	0%	3%	8%	30%	59%	NA
*	*	*	*	*	Hunting opportunities <i>(not offered at this Refuge)</i>	*	*	*	*	*	100%
52%	8%	22%	12%	6%	Fishing opportunities	5%	0%	65%	14%	16%	NA
2%	1%	12%	39%	45%	Trail hiking opportunities	1%	8%	17%	39%	36%	NA
16%	7%	31%	29%	16%	Water trail opportunities for canoeing or kayaking	9%	0%	56%	14%	21%	NA
15%	8%	25%	32%	20%	Bicycling opportunities	4%	0%	47%	23%	26%	NA
21%	8%	38%	17%	16%	Volunteer opportunities	1%	1%	46%	11%	40%	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?

☐ 78% Yes

☐ 22% No

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

☐ 84% Yes

☐ 16% No

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

☐ 84% Yes

☐ 16% 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%	3%	9%	35%	48%
We can improve our quality of life if we address the effects of climate change on fish, wildlife and their habitats.	5%	3%	11%	35%	46%
There is too much scientific uncertainty to adequately understand how climate change will impact fish, wildlife and their habitats.	24%	21%	19%	20%	17%
I stay well-informed about the effects of climate change on fish, wildlife and their habitats.	2%	10%	27%	41%	20%
It is important to consider the economic costs and benefits to local communities when addressing the effects of climate change on fish, wildlife and their habitats.	4%	7%	21%	51%	17%
I take actions to alleviate the effects of climate change on fish, wildlife and their habitats.	4%	8%	31%	38%	19%
There has been too much emphasis on the catastrophic effects of climate change on fish, wildlife and their habitats.	34%	24%	22%	12%	7%
Future generations will benefit if we address the effects of climate change on fish, wildlife and their habitats.	3%	5%	10%	30%	51%
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.	7%	13%	33%	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?

89% Yes 11% No → If not, what is your home country? See Figure 2 in Report

2. Are you? 42% Male 58% Female

3. In what year were you born? 1956 (YYYY)

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
(elementary)					(junior high or middle school)			(high school)				(college or technical school)				(graduate or professional school)			
					<input type="text" value="0%"/>			<input type="text" value="10%"/>				<input type="text" value="43%"/>				<input type="text" value="47%"/>			

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

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

<input type="text" value="3%"/> American Indian or Alaska Native	<input type="text" value="0%"/> Black or African American	<input type="text" value="97%"/> White
<input type="text" value="2%"/> Asian	<input type="text" value="1%"/> 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="text" value="3%"/> Less than \$10,000	<input type="text" value="6%"/> \$35,000 - \$49,999	<input type="text" value="22%"/> \$100,000 - \$149,999
<input type="text" value="2%"/> \$10,000 - \$24,999	<input type="text" value="20%"/> \$50,000 - \$74,999	<input type="text" value="13%"/> \$150,000 - \$199,999
<input type="text" value="3%"/> \$25,000 - \$34,999	<input type="text" value="20%"/> \$75,000 - \$99,999	<input type="text" value="12%"/> \$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.)?

9 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 National Key Deer 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
Florida Keys Birding and Wildlife Festival	6
Guided nature walks	1
Nature hike on No Name Key	1
Nature walks - Jan and March 2012, Birdfest.	1

Other Activity	Frequency
Garbage can project to protect Key deer.	1
Long Beach Road clean-up.	1

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

Other Miscellaneous Primary Activities	Frequency
Blue Hole visit for curiosity	1
Information gathering	1
Scavenger hunt	1
See nature	1
Take information about deer here in early 1900s to the refuge.	1
Vacation	1
Watch my grandchildren.	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
Get map/brochure - center was closed.	1
Met for guided tour.	1
Watch nature.	1
We went to view the exhibits and speak to volunteers, but it was closed.	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
General public	1
Group with the Florida Keys Birding and Wildlife Festival	3

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

Other Website	Frequency
floridabirdingandwildlifefestival.com	2
Information came up on things to see when I was searching for things to see in the Florida Keys.	1
Internet	1
Internet search for the Florida Keys	1
tripadvisor.com	1
www.keysbirdingtest.org	1

Other Ways Heard about This Refuge	Frequency
Garmin GPS	1
Great Florida and Wildlife Trail brochure	1
Hotel recommendation	1
In WinnDixie	1
Islands of Marathon (Chamber of Commerce)	1
Key West Birding Festival	1
Local tourist information	1
Local tourist office on Big Pine Key	1
Park Rangers	1
Winter Star Party	1

Survey Section 2

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

Other Forms of Transportation	Frequency
Pooled rides with other visitors.	1

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

Other Ways Found This Refuge	Frequency
Audubon Society - Where to bird in the Keys	1
By chance	1
Directions from Festival staff	1
Directions from hotel	1
Directions from Visitor Center staff	7
Great Florida Birding and Wildlife Trail, and volunteer at Visitor Center	1
Lead by refuge guide	2
Travel guide and refuge brochure and refuge site display boards.	1
Travel guidebook	4
Travel guidebook and map from Visitor Center	1

Question 3: "Below are different alternative transportation options that could be offered at some National Wildlife Refuges in the future...please tell us how likely you would be to use each transportation option."

Other Transportation Option Likely to Use	Frequency
Air boat :-)	1
Auto and bike	1
Canopy walk	1
Car	1
Electric golf cart	1
My own boat if applicable.	1
Private vehicle	2
Rental car	1
Ride our motorcycle	1
Segway	1
We have also done some air tours.	1

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 = 21)

A small tram used for tours would be great!!

A tad of difficulty finding Visitor Center, but no big deal.

Car park could have been larger (there could possibly be 2, I'm not sure). Also signs on US-1 could be a little better.

Easy to drive and park. Hard to find Visitor Center in shopping plaza.

Enjoyed our visit. Thought the docents were terrific!

Enjoyed the visit!

Found sign print too small. Visitor Center not well signposted.

Group tried to limit number of vehicles going into refuge.

Had trouble finding the Visitor Center in the shopping center. Better signage once in the shopping center parking lot would help.

I did not see any roads, just dirt paths.

It was difficult to find the Visitor Center and Blue Hole from the main road. Trails need to be signed clearly. If appropriate footwear is worn then the condition of the trails should not be a problem. However, if trying to attract spur-of-the moment or disabled visitors then the conditions of the trails etc need to be well-maintained. The idea of buses taking visitors to sights and at the same time information being given is good for exceptionally busy times. When we visited there were few visitors and it would be uneconomic to make buses available. (Small groups are likely to see more wildlife.)

It was difficult to locate by the signs alone.

Need for more areas to pull off road to view Key deer safely.

Not at all clear to me or other visitors (American and European) where the hiking trails were near Blue Hole. The map seemed to indicate that the hiking trails were right there at the Blue Hole. I needed to go back to the Visitor Center another day to find out that the trails were .5 miles away from the Blue Hole. I understand that a number of signs were lost in a recent controlled burn so maybe you are already working on replacing signs!

People should get to refuges on their own.

Signage from Route 1 a little confusing.

This is a relatively small user area with a short trail, so transportation is less important than at larger, more visited sites.

Too many questions unrelated to conditions at this refuge.

Travelling was on "town roads" that were well maintained. Hiking trails were well marked. Some displays at parking areas were weather worn.

Very few signs defining where to go or what to see. We left kind of wondering why we stopped.

We use our own vehicles and bikes.

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 = 56)

All volunteers were friendly and informative.

Both the volunteers at the ranger very courteous and helpful.

Everyone was very friendly, knowledgeable, and informative.

Fire damage in the area limited wildlife viewing.

Glad you are doing you're part to preserve the Key deer!

Glenn was a very helpful volunteer.

Great, very nice staff. Bathroom very clean.

Guides very friendly and helpful, good signage.

I have been to the Key Deer Refuge many times, but this was the first time I went to your Visitor Center. I went there because I was surprised at the number of invasive species at the Blue Hole. There was a volunteer there who was very entertaining for the retired snow-bird crowd that had gathered. The volunteer was very knowledgeable about a lot of stuff but not the invasives. There were several seniors there that were really monopolizing his time. So we went to the Visitor Center to find out about the invasives. The volunteers there were very knowledgeable and able to help me find the answers as well as several trinkets (my blue Key Largo wood rat is staring at me now). I was disappointed, I must say, that I did not encounter one of the refuge's staff. We enjoyed the variety of length of trails. We had planned on going snorkeling that day but the wind made it too choppy so it was nice to go on a Key Deer "hunt" (we found a few). Thank you for having the refuge there, and for it being free to enter. Thank you for the trails, we walked out to the overlook, but it had been burned, it was still a nice short hike. Thank you for all your interpretive signs it was nice to know the plants and ecosystem. Just thanks!

I live here in the area and frequent the refuge often.

If you spend a lot of money, then it will cost and may keep more people away. It is wonderful to be able to do a short walk and see beautiful ducks, alligators, birds, fish and turtles. And because it's donation only, we can stop by anytime to see if the alligators are close up -- especially great when bring little grandchildren. If the alligator is not close, then we can stop by every day until grandchildren can see one, which we did in the past.

It was great!

It was somewhat confusing finding the Visitor Center.....signs were unclear.

It would be nice to offer two trail options - a shorter and a longer loop, with clear marking on an entrance map and through trail signage. Also, not too many deer visible since the burn. :)

Kristie Killam is very personal and knowledgeable.

Manage the deer population better, tag/count deer. Provide better control to allow animals to survive harsh conditions in summer. Deer per acre habitat?

Need at least a couple of portable toilets out there at the Blue Hole.

Note that it was raining very hard when we went. We stopped by the Visitor Center and drove through the park, but didn't stay long.

Restrooms and parking lots away from the Visitor Center would be nice.

Staff was very helpful.

The only trail was only part-way open which was disappointing.

The service was very good at this refuge!! The volunteers are doing a very good job!!

The Visitor Center was closed by the time I got there but have been there in the past. It is a great refuge and glad to have the chance to visit.

The Visitor Center was closed on the day we visited (Saturday).

The Visitor Center was quite nice and the volunteers were very friendly and helpful. The refuge itself seemed rather uninteresting and the one place we parked and went to see the small lake was run down.

The Visitor Center was difficult to find since it's in a shopping center. Need better signs directing you toward it.

The volunteer on duty was excellent!

The volunteers at the lake were very informative and willing to answer any and all questions. Also, each answer was much more than just a word or two, giving us a complete understanding of where we were and what we were seeing. Excellent!!

The volunteers were excellent.

The volunteers were great- very knowledgeable, very informative.

The volunteers were very friendly and helpful!

The volunteers were very friendly and knowledgeable.

The volunteers were very knowledgeable and friendly. We drove down the main road and saw the Blue Hole and a Key Deer on the side of the road. However, we did not know how far the reserve went or if there was more to see past the Blue Hole.

The volunteers were wonderful

They do a good job with what they have - a relative small space in a shopping center, but it does not do justice to the cause of preserving the Key Deer. It's easy to miss.

This refuge did a very good job overall.

This refuge does a very poor job of maintaining the overall health of the Key Deer herd.

This refuge was a very small one - a "waterhole" at the Florida Keys where there is one pair of alligators and one person there to share information - very friendly.

Trail hiking opportunities are very important for this refuge, however for us personally we were time-limited and needed to be able to see main sights of interest from a nearby carpark. (We arrived in the area after the Visitor Center closed and before it opened, therefore we tried to find the main sights initially without a brochure and detailed map) To make it easier, it would have helped us if a map of the area sights was displayed in the Visitor Center window.

Try getting stand alone visitor facility. Shopping mall not too conducive to nature.

Very courteous and knowledgeable volunteers at this center. We enjoyed our visit.

Very informative and interesting.

Very much appreciate all the services that were offered! My trip was very worthwhile and I look forward to another opportunity.

Volunteers were amazing. Could answer any questions asked even if it merely was referring to another volunteer on hand.

Volunteers were knowledgeable and extremely friendly.

Volunteers were very engaging and knowledgeable.

We just stopped by to find birds, the Key Deer, and have a picnic lunch on our drive from Key West to West Palm Beach.

We met wonderful volunteers in the refuge who helped us identify birds and gave us a bit of history of the area.

We only came upon one observation deck/boardwalk area. More would be good with walking trails leading to them.

We were disappointed to find the Visitor Center closed. I can't remember which day it was but we thought it was strange that it was closed.

We were there a very short time without bikes. We weren't aware of what was offered other than one observation dock with volunteers.

Wildlife tours in the winter months are extremely interesting.

Would like to see the flora labeled.

Your office needs more prominent signs. Print size of signage should be larger for "spectacle wearers."

Your staff was excellent in field and in office out son is 2 years old and they were very friendly to him even at his age.

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 = 119)

Its mission and the opportunity to benefit from it.

Access for viewing wildlife.

All the different birds that I saw, fish and turtles too, makes it unique. Also the croc that I saw was so cool. One lady gave me some information about the croc that I didn't know - that was great. I won't ever forget my trip to the refuge. When I visit next year, I'm going to visit the refuge again.

As birders, hikers and cyclists we have visited many NWRs on our travels in the US and Puerto Rico. We always leave happy and satisfied with our visit. The NWRs are worth every penny of our taxpayers' dollars.

As opposed to National Parks, there are possibilities for other uses such as hunting, fishing, etc.

At Key Deer you are able to observe in their natural environment. Also, you're able to see other wildlife as we drove around. We took lots of pictures.

Can't see the deer anyplace else.

Chance to see wildlife without large crowds in their natural habitat.

Closeness to nature.

Compared to state parks, etc., National Wildlife Refuges always have a more streamlined, well-maintained feel to them. It's like going to Disneyland over a local carnival; both are fun, but you know Disneyland will have more to offer.

Conservation.

Each area that you visit is always different depending on the surrounding environments.

Emphasis on conservation.

Enjoy nature as it should be.

Extremely knowledgeable volunteers- very helpful.

Fewer rules, fewer people, greater opportunity to see protected (unhunted) wildlife species.

Focus on things (animals etc.) particular to a specific area, like the Key deer.

Fresh water lens over salt water quarry.

Friendly, knowledgeable staff at the interpretation centre.

Getting to see unique wildlife that cannot be seen other places, besides maybe a zoo.

Good exhibits, educational, videos and brochures, and directions to good observations. Also, there are very friendly and knowledgeable employees.

Good for birdwatching.

Great for kids and adults. Handicap accessible. You never know what you will see. The habitat for Key deer is unique. Key deer are fascinating and survivors if we continue to protect and educate about them. The fencing is very helpful to prevent more auto deaths. The locals are supportive of protection of the Key deer. You don't find them anyplace else.

I am so sick of being told "DON'T" at national parks. I love that you tell people how to enjoy the resource without putting it under a glass case. I also love that you include people as part of the ecosystem and use them to help hold nature in balance. I would not hunt, but there is a need for top predators. The information you gave out was helpful too to keep people enjoying your resource without harming it. Thanks!

I appreciate being able to visit areas that are left natural or are returning to a natural state.

I had never seen Key deer before. I enjoyed that greatly.

I love the simplicity of Blue Hole- very peaceful and my 2 year old loves it even if the alligators aren't there.

In most cases a large variety of animals are available for observation. Also provides the opportunity to visit nature in a natural setting.

Information that is available, very nice experience.

It is a well contained refuge and is well preserved with private homes in the area of No Name Key (Key deer) area and can be enjoyed mostly from the car.

It is an area specifically set aside to maintain healthy habitat for the Key deer, and of course, other animals benefit and flourish as well. Wildlife refuges seem quieter, not so many loud people activities. Biking, hiking, watching, kayaking--the quiet sports that don't offend the animals--are the norm, not waterparks, etc.

It is great to see wildlife in its natural habitat. I enjoy outdoors and hiking/biking.

It is the only freshwater hole in all of the Florida Keys. The alligators that live in the Blue Hole on Big Pine Key are a treat to observe. The volunteer ranger that was on site was very helpful and full of wonderful information regarding the Blue Hole.

It is the only organization that protects land and wildlife that is unique. I was impressed that such "effort" was given to this small refuge.

It preserves land that would probably be developed because it is valuable, but saving habitat is more important.

It provides safety for the animals/birds and preservation of the land so that all can enjoy true nature.

It was beautiful the volunteers were amazing.

It's a great space that preserves the natural resources. It's great to see animals how they should live rather than in a zoo.

It's nice to be able to see animals close and in their habitat instead of a zoo.

Key deer

Land set aside from commercial development that allows native wildlife to flourish.

Maintained in wild state, natural habitat.

Most are truly natural and you don't get the sanitized feeling. The volunteer was extremely knowledgeable.

Multiple uses and very different environments.

National Wildlife Refuges establish a safe haven for both wildlife and birdlife. It also preserves land where the wildlife and birds feel safe to roam. They are protected.

Natural habitat is very peaceful and informative and gives you insight into the natural landscape of the region. We very much enjoyed the experience. Good use for our tax dollars. Environment is very important to understand and preserve.

Nature in their natural habitat, free to live their lives as they were meant to.

Not so touristy! That's a good thing. I am so happy that you do not have all the stores and conveniences that have ruined many National Parks. We are happy you are keeping nature natural. Some information is great, and filling in large mud puddles appreciated, outhouses are fine. Keeping cost down is great.

NWR seems to offer a more serene natural environment experience and provide excellent habitats for wildlife.

NWRs provide a more comprehensive and detailed amount of information of the Parks than a state or county park would. I also find that the NWR personnel are more knowledgeable on the local wildlife than their counterparts at state or county parks.

Offer opportunities that other areas do not.

Only habitat of the endangered Key deer in the world.

Opportunity to see rare species.

Opportunity to see wildlife not available at other locations.

Opportunity to view natural landscapes and wildlife.

Preservation of nature and wildlife in their natural habitat.

Preservation.

Preserving the wildlife and land.

Primarily oriented towards maintaining refuge, but hiking, education, etc. opportunities available.

Primary focus on wildlife rather than multi-functional.

Promoting the preservation of wildlife and bringing the importance of preservation to the public awareness.

Protected with animal welfare being the first priority.

Provides opportunities for everyone to experience, which is not available in the private sector. This includes hunting and fishing.

Refuges are dedicated to wildlife and educating public on the importance of protecting lands and wildlife.

Refuges protect and help manage wildlife; offer the opportunity to observe wildlife and learn about them from knowledgeable staff.

Reliable, safe, informative.

Restoring habitat.

Saving animals.

Seeing wildlife in its natural habitat.

Seeing wildlife in their habitat is so nice, every time I watch wildlife, I realize how important it is that there are refuges where they are protected and safe! Also it's very important for children to learn about wildlife!

Some of the animals are unique to the area and it is maintained in a most pristine condition.

Special places- Key deer in Florida, birds of Wisconsin.

Staff is available seven days a week in the field even though the display center and administrative facilities are closed on Sunday. This refuge is surrounded by residences but its presence helps people to protect deer and other wildlife in this area.

That they are truly more "wild" than National Parks as there is less human access and that's okay by me as long as I have the opportunity to view wildlife in a natural setting without making a disturbance.

That they are truly refuges.

The ability to get up close to local flora and fauna.

The amount of opportunities to be directed to wildlife observation points.

The area and the deer.

The big pine key area is a unique wildlife habitat (Key deer, tree snails, local and migrating birds).

The conservation focus closes areas to visitors that might be open in, say, a National Park. I think that conserving habitat free of human visitors to the extent possible is an important conservation practice.

The deer at this refuge are specific to only this Key. As a white-tailed deer hunter from MN, it was interesting to learn about this endangered species of deer.

The employees (or volunteers) on the observation deck talking to people about the refuge versus simply a self-guided tour.

The fact that the refuges are there to protect wildlife and to give opportunities to observe the wildlife without distressing them. This is unlike most other parks where recreation is the main purpose.

The Key deer.

The Key deer- only place in the world where they live. Fresh water.

The National Wildlife Refuges are well maintained and very well accessible.

The opportunity to observe nature first-hand!

The opportunity to see and learn about wildlife in their natural habitat.

The opportunity to view wildlife.

The opportunity to visit wildlife relatively undisturbed by recreation.

The people at the Visitor Center were extremely knowledgeable and helpful.

The refuge was small clean and fun to take the grandkids to.

The refuge was so close to highway access.

The types of diversity they offer to the visitor.

The variety of wildlife seen at close range.

The way it's taken care of and maintained.

Their primary focus and purpose.

There is more wildlife in its natural habitat than most public lands we have visited.

There seems to be more wildlife other than people.

They allow the public to enjoy nature and preserve natural resources for future generations.

They are more natural and less crowded.

They have more facilities, more guides, exhibits, etc. I am spoiled because I lived in Ithaca NY for many years near Sapsucker woods, Cornell's ornithology center. The Key Deer Refuge is dear to my heart too- my daughter lives in the preserve and we love to visit the refuge when I visit her.

They protect out dwindling natural environmentally sensitive, critically important resources and land. They offer opportunities for the public to experience the wonder of nature and begin to understand the importance of protecting/saving such areas for future generations.

They provide a naturally safe way to observe wildlife in their environment without human interference to the animals and plants.

They seem to go all out for us to enjoy.

Type of wildlife.

Unique environment/ecosystem including unique species like the Key deer.

Usually have a ranger or volunteer available to answer questions.

Usually knowledgeable volunteers and rangers.

Viewing protected species.

We came to see Key deer, we didn't at that time, we did see other wildlife and on the levy we did see a Key deer!

We enjoy the opportunity to observe plants and animals in their natural environment.

We're only into wildlife observation and photography. The refuges offer great opportunities for seeing the natural wonders of our world. We're very glad they are open to the public.

Well informed staff and well maintained observation areas.

Well preserved, beautiful and educational.

Where else would you find the opportunity to view the unique wildlife (the Key deer)?

Wildlife makes refuges unique.

Wildlife refuges are in and on themselves unique- otherwise they wouldn't be named refuges. FWS does a good job placing the appropriate signs and information for visitors to see.

Wildlife refuges are wonderful for animals, and just like our parks, offer citizens an opportunity to observe wildlife. Possibly more money needs to be provided to these refuges for more satisfying experiences for visitors.

Additional Comments (n = 27)

Blue Hole was one of the highlights of our stay on Big Pine Key. Volunteers were well informed and very eager to share their knowledge with us. This interaction greatly enhanced our enjoyment of the refuge visit.

Climate change has become white noise in the background. I grew up on a farm, let me talk to you about recycling. I have always driven a car that gets at least 28 mpg, and I bicycle to work when I can, I stopped buying newspapers and magazines 10 years ago. I do NOT want to hear about climate change when I'm out. If you put something up, fine, but you are not going to change anyone's mind. Pick a topic like water conservation, or invasive insects like emerald ash, and address that aspect, and slip in climate change, but climate change as a topic is much too broad and over worked. Thank you, and thank Congress, for National Wildlife Refuges. And thank you for having paid staff that can answer questions about what I see and experience in the refuge, and thank you for the wayside exhibits about the refuges!

Climate change is an inevitable part of the planet's geologic cycles; the only issue is mitigating its effects on us, regardless of its cause.

Even though we didn't get to see any Key Deer, our experience was great. We're hoping to come back to try again. Please thank your staff and volunteers for the great time we had.

I am concerned that all the endangered species are not being managed. Why are they deer tagged/sprayed for recording? The deer have traffic from visitors every evening on No Name Key on the main road 4-5-6-7 at night, lots of feeding is going on and no ranger to enforce. Overpopulation a concern? Lots of land is available to purchase in the Florida Keys I have a friend that has 100 acres only 30 miles from Key West in the right habitat to help for marsh rabbit/ indigo snake/deer, he would sell it if someone in land acquisition for endangered species is interested. [phone number and name] Thank you for making me a part of your survey. The people that are on your team are awesome! Regards.

I appreciate the effort of the people who work there and the dedication of the volunteers, one who is a friend.

I greatly enjoyed the visit, and got to see several endangered species. I will say though, I saw a Key deer eating a carrot at one point, and I can't imagine that just happened on accident. Keep an eye out for that.

I have lived on this island for 5 years and have yet to see a dead deer anywhere. FWS has advertised over 500 road kills in that time. We think the probability of that is extremely remote. What oversight is in place to monitor the validity of these claims? We feel these numbers are more for obtaining year to year increased funding.

It is so important that all visitors, especially children, get introduced to climate change and the impacts of overpopulations, oil spills and other pollution. We can all learn to live with a more locally-oriented economy to combat the hidden "green" costs of transporting food and other consumer goods. Ecosystems suffer from humans wasteful and thoughtless lifestyles. Something else to impress on visitors, not releasing non-native species into the wild! Keep up the good work! We need first-hand nature experiences to be whole people.

Let me tell you that I really had a great time at the refuge. I'm happy that my daughter and her husband took me. I saw some really big fish, also one that was yellow and red. I didn't want to leave but a storm was coming. I did see a lot of cardinals; they are my favorite bird. I didn't see the croc until my son-in-law told me to look down. Oh, I couldn't believe my eyes; at first I thought she wasn't real. I looked closer and I could see her nose moving. I was so excited. I took lots of pictures of her, that's for sure. I went for a walk and came back she was gone. I'm just glad that I got to see her, that made my day. It isn't everyday that you get to see a croc. I just love Florida. Thank you so much for having refuges for people to enjoy cause I sure did. I will be back next year.

Our trip to the keys was for a winter vacation- to visit key west and stay at the beach. The refuge was just incredible, but we always try to visit wildlife refuges wherever we take a trip. So though we may not make a trip just to see a refuge, they are still very important to us.

Staff at National Key Deer was extremely friendly and helpful.

Staff was very courteous, knowledgeable, and helpful.

Statements about climate change: There is an impression from these questions that climate change (no doubt there is change) is only "effect" causing wildlife distress. Human beings are a much greater destructive force on all wildlife at this time. We fish to the point of species collapse, we hunt animals to extinction, we destroy the habitat of many creatures (air, water, land) in our bid to house and feed ourselves. Let us stop blaming climate change (this planet has had many climate changes in the past 4 billion years) and start funding ecologically sound practices to feed and house the human populations. Please keep up the good work in providing reserves until we figure out how to stop encroaching on natural wildlife habitat. thank you [signed and dated]

The parks staffer we met was friendly and very helpful. When she found out I hadn't seen a Key deer yet in my visit (despite walking the entire refuge trail), she directed us to an alternate site where there is a herd who frequently emerge at the roadside. Thanks to her, we saw several deer.

Thank you for allowing us to visit and keep up the good work everywhere.

The Visitor Center had great exhibits. Great for little kids and adults both. Would recommend this refuge to others!

This refuge is very undeveloped with very limited opportunities. It's not a great setting. We've visited many wildlife refuges and this is among the poorest we visited. Overall, we think most refuges are great places to visit.

Though small, extremely enjoyable!

Very interesting, especially looking for endangered species.

Very nice and interesting place. Thank you had a very nice time.

Very satisfied with facilities, staff, and site. We would visit again.

We are retired and from Pennsylvania. We flew to Miami and drove to Key West.

We had a very nice time in the refuge. Did some hikes and saw the Key deer of course. Sadly it was raining most of the time, so we didn't do all the trails. But we will be back to see the rest of the refuge!

We were on a trip to Key West, Florida and several people told us about National Key Deer. We flew to Key West but our friends drove from Naples, Florida. They had visited Key Deer before and wanted to share it with us. We loved our visit there and would recommend it.

Whenever I (we) visit the USA, we will visit one of your many refuges.
