



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

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“Muscatatuck National Wildlife Refuge provides an abundance of wildlife, including endangered species, and the courteous and friendly staff have enriched my outdoor experience. I always love coming to this refuge and look forward to my next visit.”—Survey comment from visitor to Muscatatuck National Wildlife Refuge.



Muscatatuck National Wildlife Refuge. Photo credit: US Fish and Wildlife Service.

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Introduction

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

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

Organization of Results

These results are for Muscatatuck NWR (this refuge) and are part of USGS Data Series 643 (Sexton and others, 2011). All refuges participating in the 2010/2011 surveying effort will receive individual refuge results specific to the visitors to that refuge. Each set of results is organized by the following categories:

- **Introduction:** An overview of the Refuge System and the goals of the national surveying effort.
- **Methods:** The procedures for the national surveying effort, including selecting refuges, developing the survey instrument, contacting visitors, and guidance for interpreting the results.
- **Refuge Description:** A brief description of the refuge location, acreage, purpose, recreational activities, and visitation statistics, including a map (where available) and refuge website link.
- **Sampling at This Refuge:** The sampling periods, locations, and response rate for this refuge.
- **Selected Survey Results:** Key findings for this refuge, including:
 - Visitor and Trip Characteristics
 - Visitor Spending in the Local Communities
 - Visitors Opinions about This Refuge
 - Visitor Opinions about National Wildlife Refuge System Topics
- **Conclusion**
- **References**
- **Survey Frequencies (Appendix A):** The survey instrument with the frequency results for this refuge.
- **Visitor Comments (Appendix B):** The verbatim responses to the open-ended survey questions for this refuge.

Methods

Selecting Participating Refuges

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

Developing the Survey Instrument

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

Contacting Visitors

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

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

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

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

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

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

Interpreting the Results

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

Herein, the sample of visitors who responded to the survey are referred to simply as "visitors." However, when interpreting the results for Muscatatuck NWR, any potential spatial and temporal sampling limitations specific to this refuge need to be considered when generalizing the results to the total population of visitors. For example, a refuge that sampled during a special event (for example, birding festival) held during the spring may have contacted a higher percentage of visitors who traveled greater than 50 miles to get to the refuge than the actual number of these people who would have visited throughout the calendar year (that is, oversampling of nonlocals). In contrast, another refuge may not have enough nonlocal visitors in the sample to adequately represent the beliefs and opinions of that group type. If the sample for a specific group type (for example, nonlocals, hunters, those visitors who paid a fee) is too low ($n < 30$), a warning is included. Additionally, the term "*this* visit" is used to reference the visit on which people were contacted to participate in the survey, which may or may not have been their most recent refuge visit.

Refuge Description for Muscatatuck National Wildlife Refuge

Muscatatuck NWR is located in southeastern Indiana, about 65 miles south of Indianapolis. This 7,800-acre refuge was established in 1966, with over 60% of refuge land coming from converted farm lands. Over 1,500 acres of lakes, ponds, moist soil and green tree units have been restored as a result of the refuge's management. The refuge is also home to archeological sites on the National Register of Historic Places. Muscatatuck was established to provide resting, nesting, and feeding habitat for waterfowl and other migratory birds; provide habitat for resident wildlife; protect endangered and threatened species; provide for biodiversity; and provide public opportunities for outdoor recreation and environmental education.

Over 170,000 visitors travel to Muscatatuck annually (based on 2008 RAPP database; U.S. Fish and Wildlife Service, 2011, written comm.) for a variety of activities. Visitors can enjoy eight hiking trails, environmental education and interpretive programs, wildlife observation, photography, fishing, hunting, a historic log cabin site, and a 4-mile auto tour route. Hunting opportunities include duck, turkey, small game and upland bird hunts. Figure 1 displays a map of the refuge. For more information, please visit <http://www.fws.gov/midwest/muscatatuck/>.

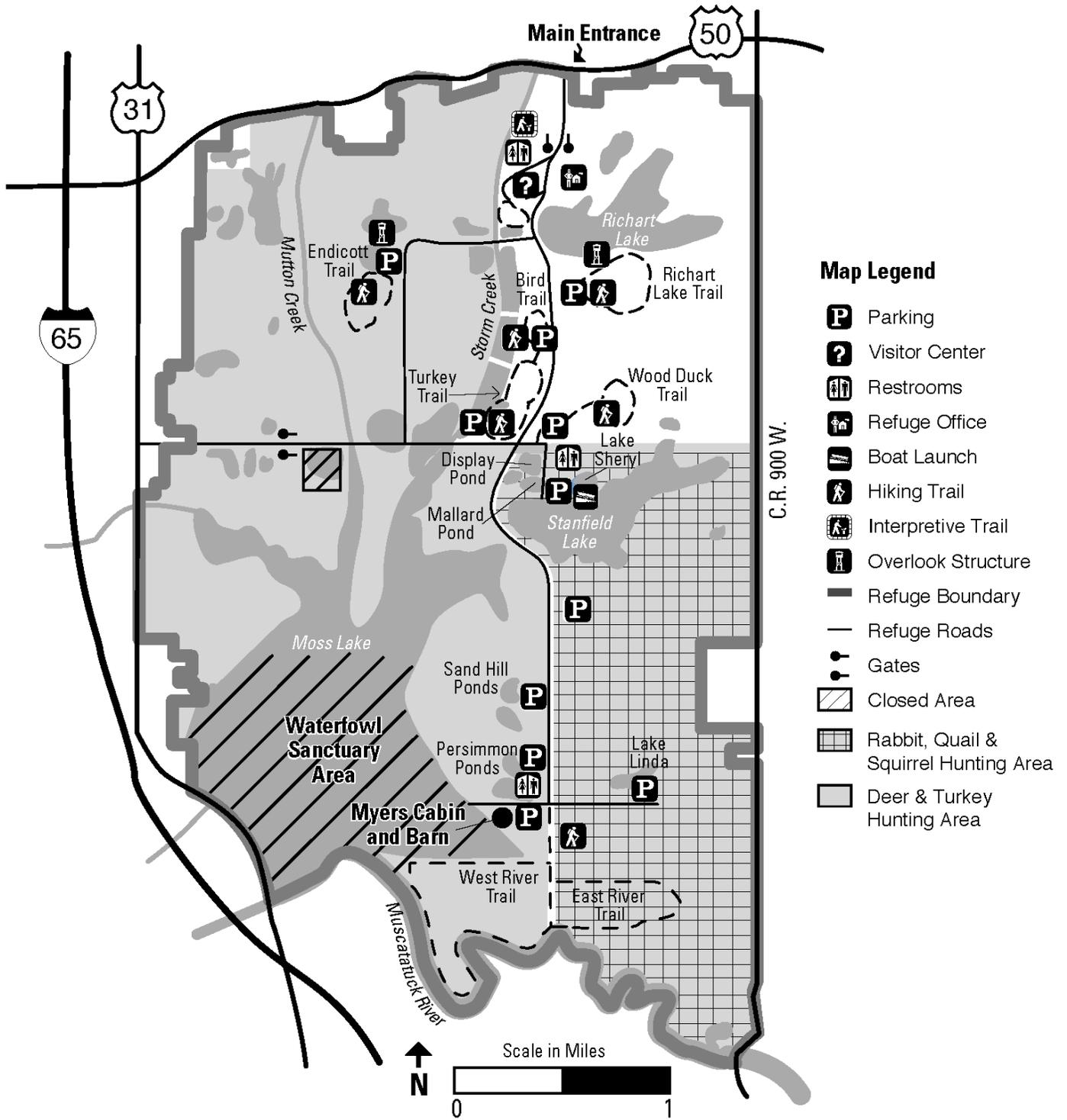


Figure 1. Map of Muscatatuck NWR, courtesy of U.S. Fish and Wildlife Service.

Sampling at Muscatatuck National Wildlife Refuge

A total of 318 visitors agreed to participate in the survey during the two sampling periods at the identified locations at Muscatatuck NWR (table 2). In all, 204 visitors completed the survey for a 68% response rate and $\pm 4\%$ margin of error at the 95% confidence level.¹

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

Sampling period	Dates	Locations	Total contacts	Undeliverable addresses	Completed surveys	Response rate
1	11/27/10 to 12/11/10	Refuge Entrance Kiosk	159	9	117	78%
2	4/30/11 to 5/14/11	Refuge Entrance Kiosk	159	7	87	57%
Total			318	16	204	68%

Selected Survey Results

Visitor and Trip Characteristics

A solid understanding of refuge visitors and details about their trips to refuges can inform communication outreach efforts, inform visitor services and transportation planning, forecast use, and gauge demand for services and facilities.

Familiarity with the Refuge System

While we did not ask visitors to identify the mission of the National Wildlife Refuge System or the U.S. Fish and Wildlife Service, visitors to Muscatatuck NWR reported that before participating in the survey, they were aware of the role of the U.S. Fish and Wildlife Service in managing national wildlife refuges (95%) and that the Refuge System has the mission of conserving, managing, and restoring fish, wildlife, plants and their habitat (98%). Positive responses to these questions concerning the management and mission of the Refuge System do not indicate the degree to which these visitors understand the day-to-day management practices of individual refuges, only that visitors feel they have a basic knowledge of who manages refuges and why. Compared to other public lands, many visitors feel that refuges provide a unique

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

recreation experience (87%; see Appendix B for visitor comments on “What Makes National Wildlife Refuges Unique?”); however, reasons for why visitors find refuges unique are varied and may not directly correspond to their understanding of the mission of the Refuge System. Some visitors to Muscatatuck NWR had been to at least one other National Wildlife Refuge in the past year (46%), with an average of 5 visits to other refuges during the past 12 months.

Visiting This Refuge

Some surveyed visitors (14%) had only been to Muscatatuck NWR once in the past 12 months, while most had been multiple times (86%). These repeat visitors went to the refuge an average of 26 times during that same 12-month period. Visitors used the refuge during only one season (20%), during multiple seasons (40%) and year-round (40%).

Most visitors first learned about the refuge from friends/relatives (52%), signs on the highway (38%), or people in the local community (24%; fig. 2). Key information sources used by visitors to find their way to this refuge include previous knowledge (80%), signs on highways (31%), or a road atlas/highway map (12%; fig. 3).

Most visitors (73%) lived in the local area (within 50 miles of the refuge), whereas 27% were nonlocal visitors. For most local visitors, Muscatatuck NWR was the primary purpose or sole destination of their trip (80%; table 3). For most nonlocal visitors, the refuge was also the primary purpose or sole destination of their trip (67%). Local visitors reported that they traveled an average of 16 miles to get to the refuge, while nonlocal visitors traveled an average of 131 miles. Figure 4 shows the residence of visitors travelling to the refuge. About 90% of visitors travelling to Muscatatuck NWR were from Indiana.

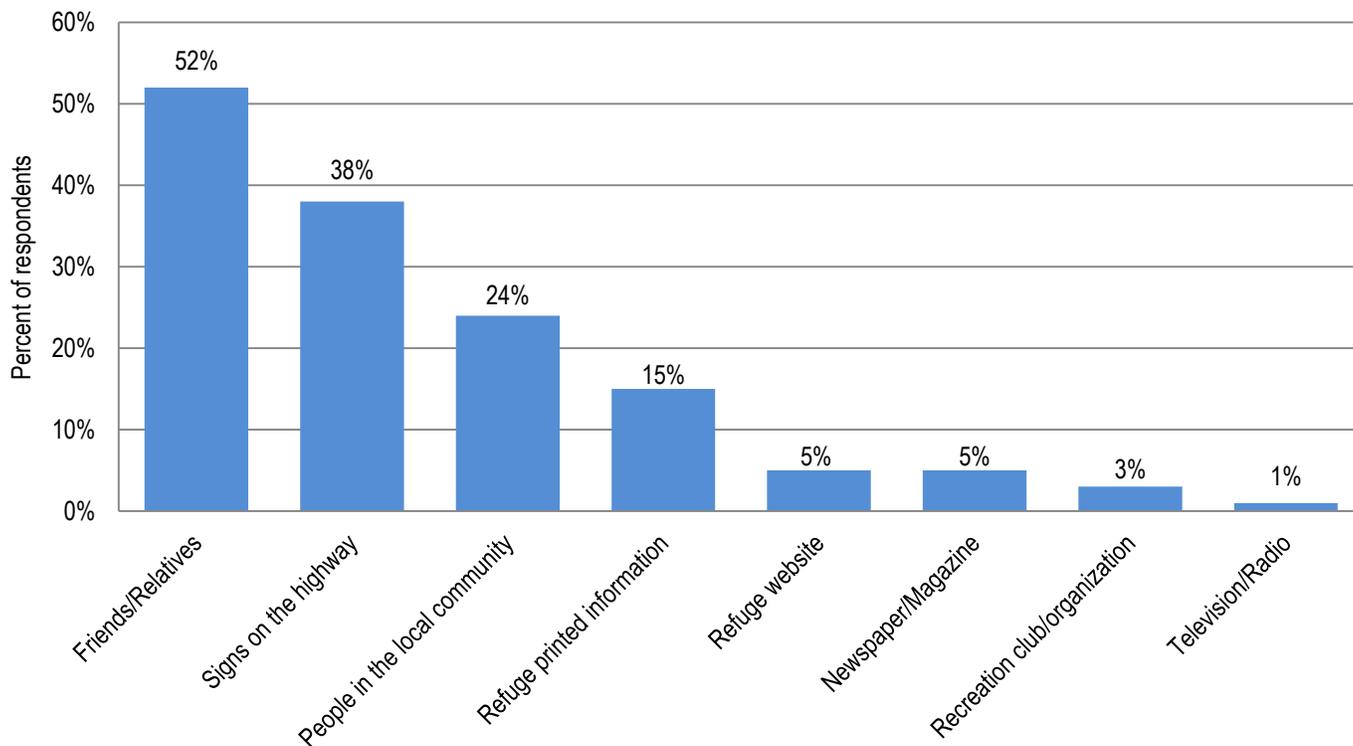


Figure 2. How visitors first learned or heard about Muscatatuck NWR (n = 188).

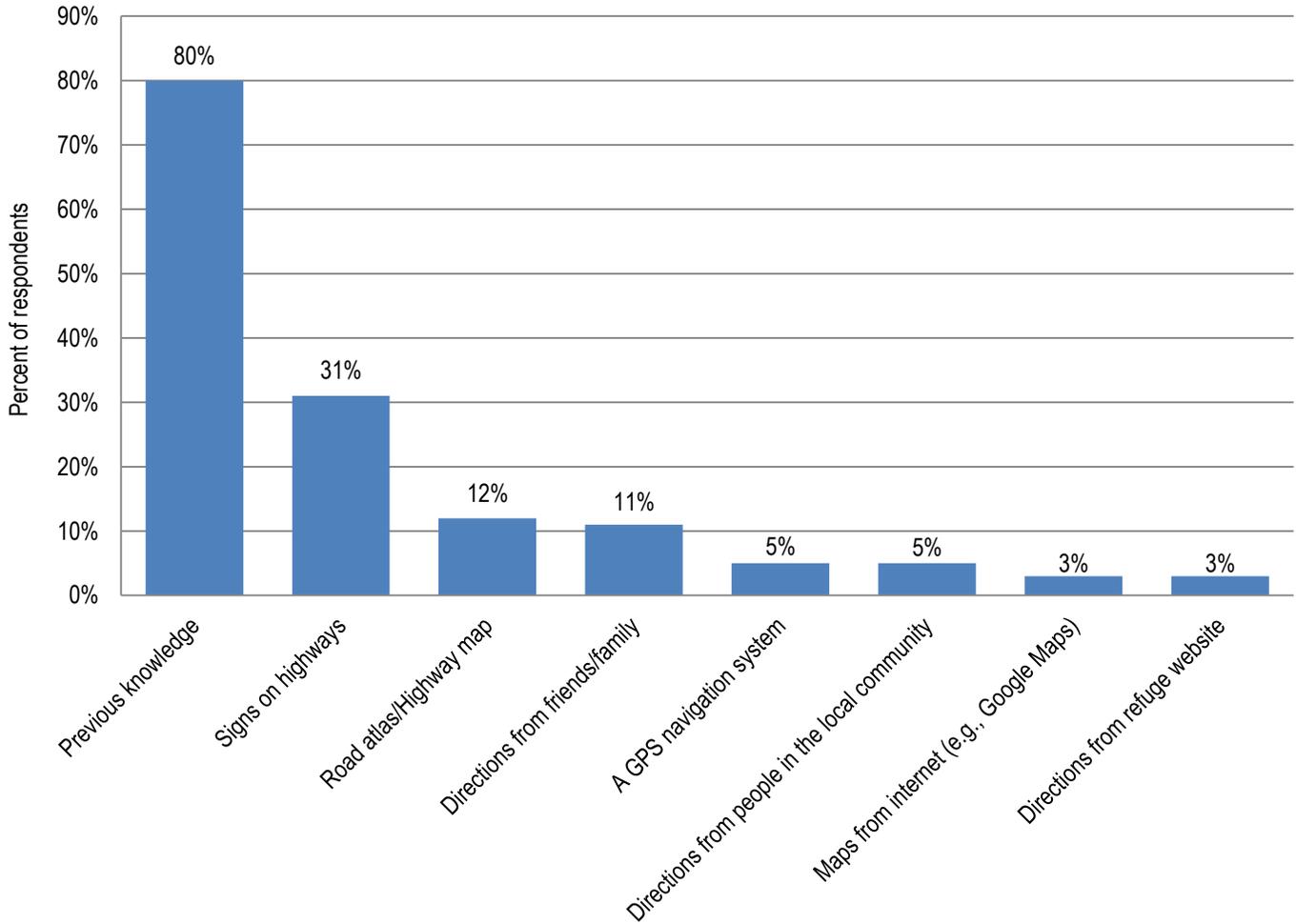


Figure 3. Resources used by visitors to find their way to Muscatatuck NWR during *this* visit (n = 201).

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

Visitors	Visiting this refuge was...		
	the primary reason for trip	one of many equally important reasons for trip	an incidental stop
Nonlocal	67%	15%	18%
Local	80%	7%	13%
Total	77%	9%	14%

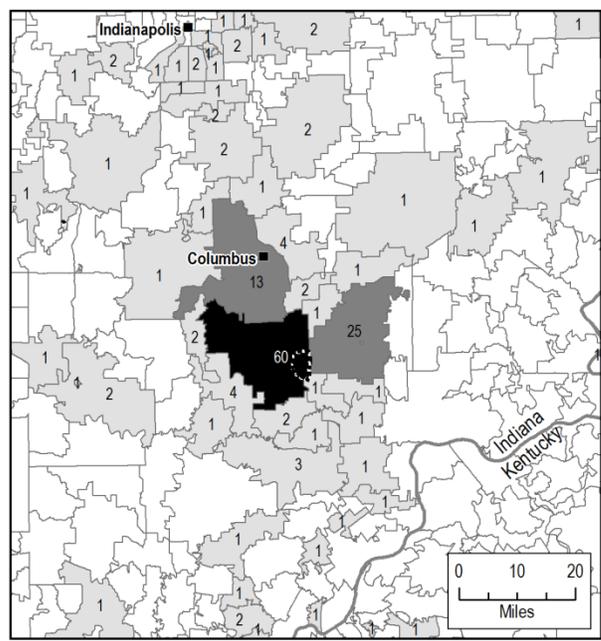
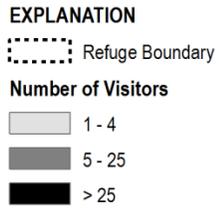
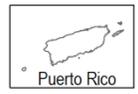
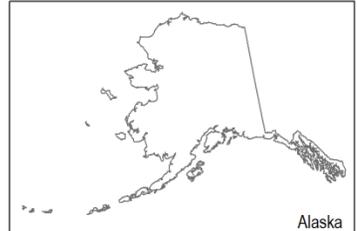


Figure 4. Number of visitors travelling to Muscatatuck NWR by residence. Top map shows residence by state and bottom map shows residence by zip codes near the refuge (n = 204).

Surveyed visitors reported that they spent an average of 4 hours at Muscatatuck NWR during one day there (a day visit is assumed to be 8 hours). However, the most frequently reported length of visit during one day was actually 8 hours (27%). The key modes of transportation used by visitors to travel around the refuge were private vehicle (98%) and walking/hiking (28%; fig. 5). About half of visitors indicated they were part of a group on their visit to this refuge (48%), travelling primarily with family and friends (table 4).

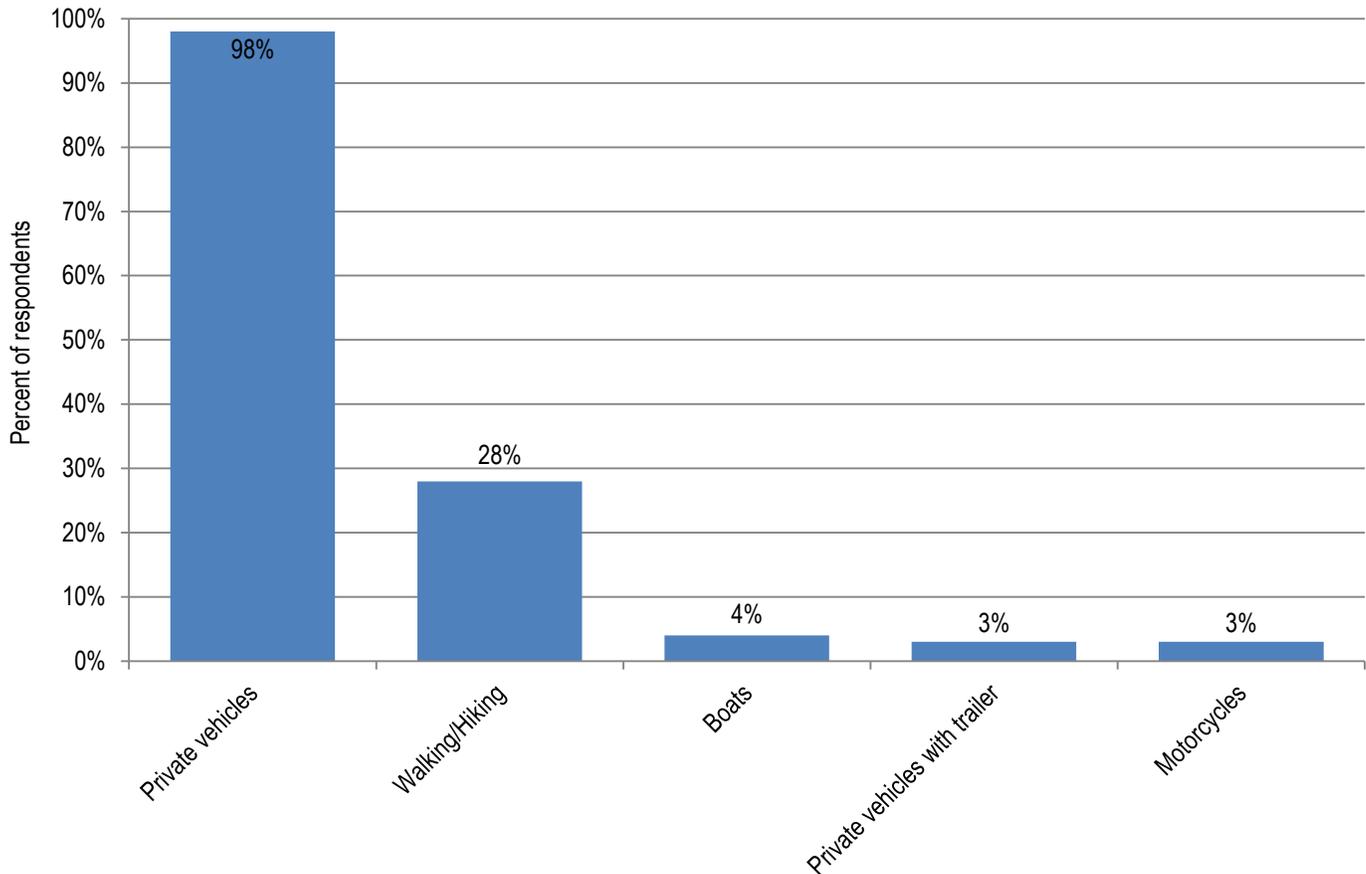


Figure 5. Modes of transportation used by visitors to Muscatatuck NWR during *this* visit (n = 203).

Table 4. Type and size of groups visiting Muscatatuck NWR (for those who indicated they were part of a group, n = 97).

Group type	Percent (of those traveling in a group)	Average group size		
		Number of adults	Number of children	Total group size
Family/Friends	95%	2	0	2
Commercial tour group	0%	0	0	0
Organized club/School group	2%	6	25	31
Other group type	3%	2	0	2

Surveyed visitors participated in a variety of refuge activities during the past 12 months (fig. 6); the top three activities reported were wildlife observation (65%), auto tour route/driving (55%), and bird watching (48%). The primary reasons for their most recent visit included hunting (20%), wildlife observation (16%), fishing (13%), and photography (13%; fig. 7). The visitor center was used by 59% of visitors, mostly to stop to use the facilities (for example, get water, use restroom; 78%), view the exhibits (71%), and visit the gift shop/bookstore (57%; fig. 8).

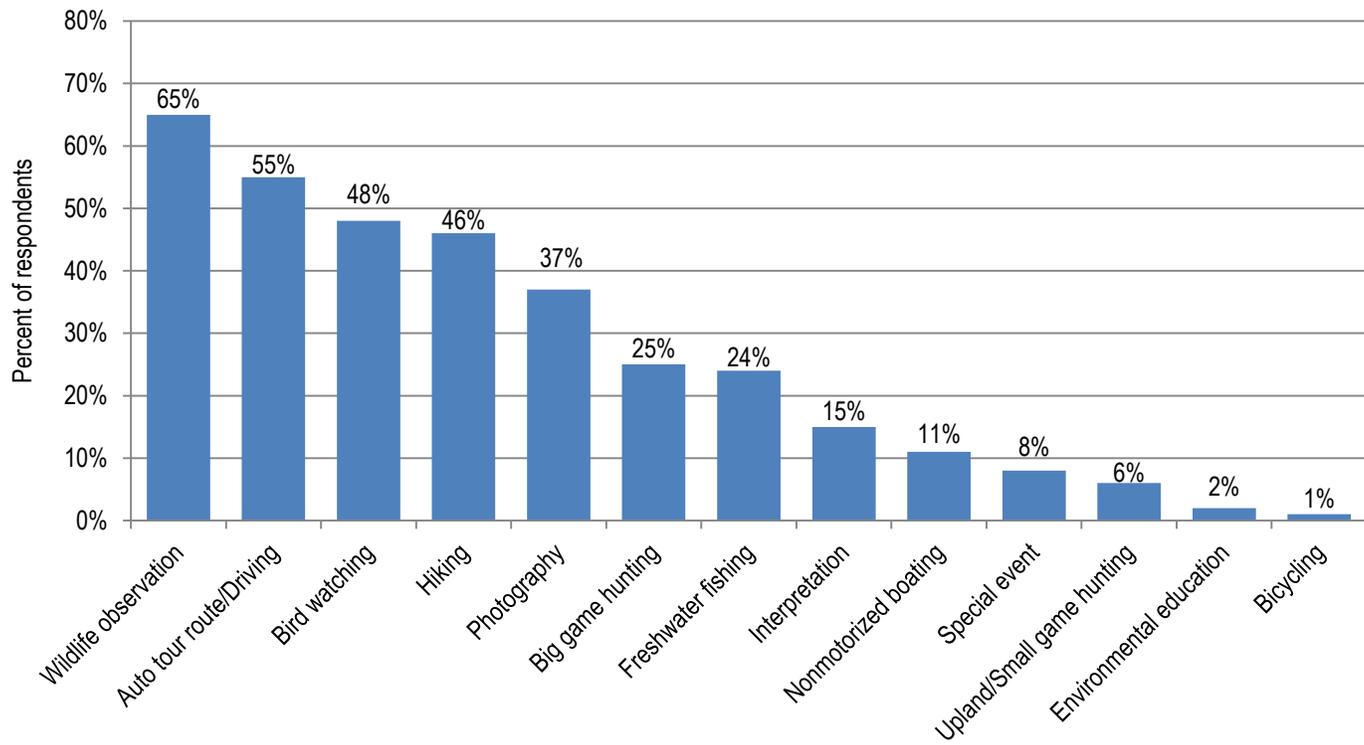


Figure 6. Activities in which visitors participated during the past 12 months at Muscatatuck NWR (n = 202). See Appendix B for a listing of “other” activities.

Visitor Characteristics

All surveyed visitors to Muscatatuck NWR indicated that they were citizens or permanent residents of the United States. Only those visitors 18 years or older were sampled. Visitors were a mix of 77% male with an average age of 52 years and 23% female with an average age of 50 years. Visitors, on average, reported they had 14 years of formal education (college or technical school). The median level of income was \$50,000–\$74,999. See Appendix A for more demographic information. In comparison, the 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation found that participants in wildlife watching and hunting on public land were 55% male and 45% female with an average age of 46 years, an average level of education of 14 years (associate degree or two years of college), and a median income of \$50,000–\$74,999 (Harris, 2011, personal communication). Compared to the U.S. population, these 2006 survey participants are more likely to be male, older, and have higher education and income levels (U.S. Department of the Interior and U.S. Department of Commerce, 2007).

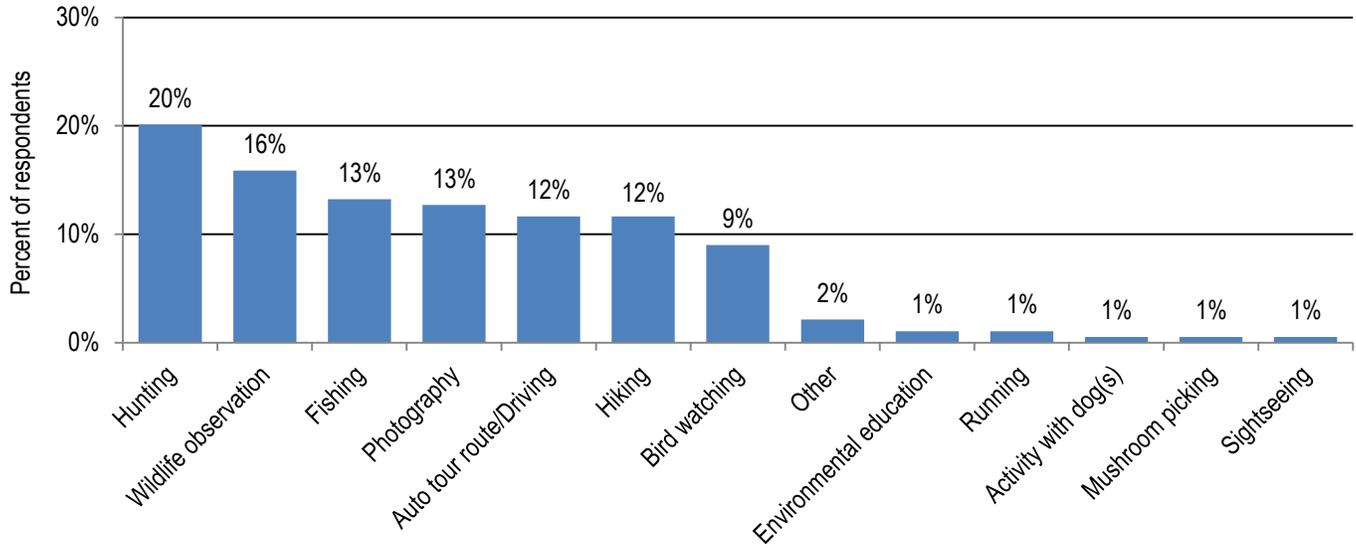


Figure 7. The primary activity in which visitors participated during *this* visit to Muscatatuck NWR (n = 189). See Appendix B for a listing of “other” activities.

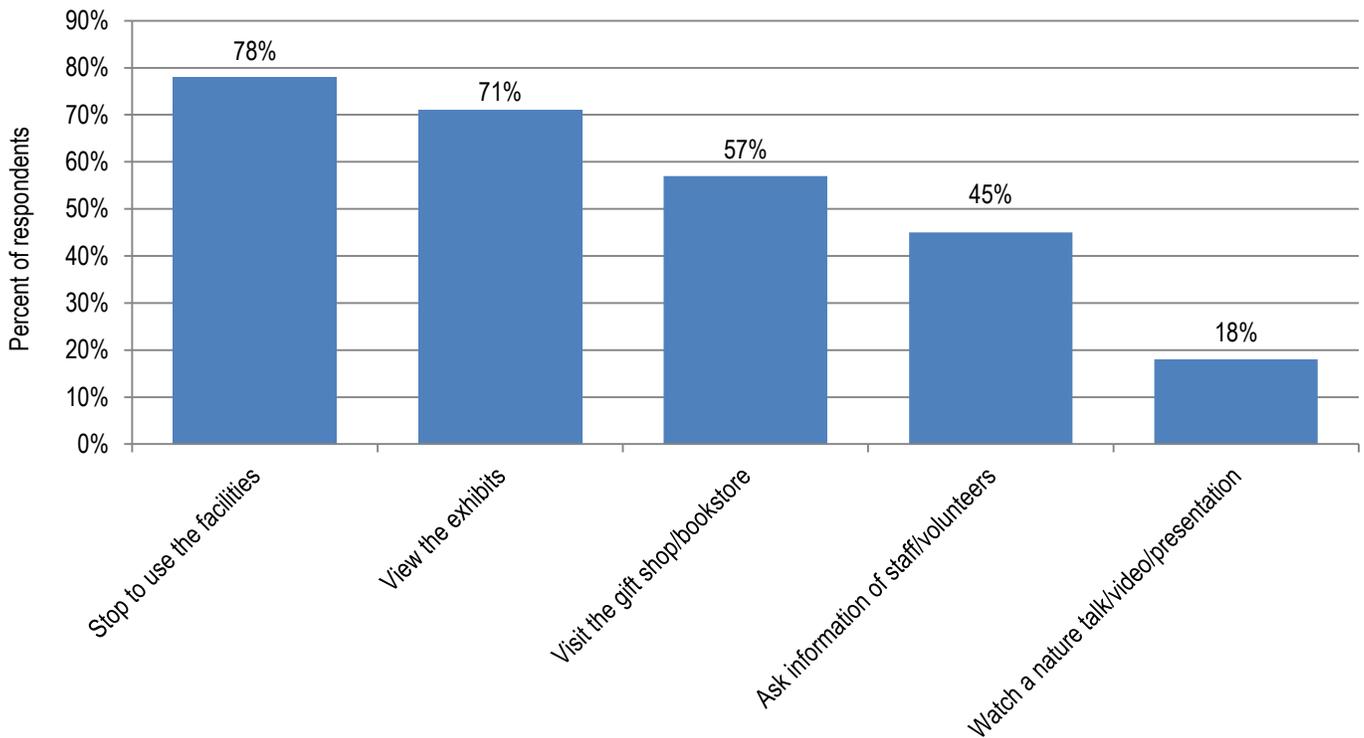


Figure 8. Use of the visitor center at Muscatatuck NWR (for those visitors who indicated they used the visitor center, n = 119).

Visitor Spending in Local Communities

Tourists usually buy a wide range of goods and services while visiting an area. Major expenditure categories include lodging, food, supplies, and gasoline. Spending associated with refuge visitation can generate considerable economic benefits for the local communities near a refuge. For example, more than 34.8 million visits were made to national wildlife refuges in fiscal year 2006; these visits generated \$1.7 billion in sales, almost 27,000 jobs, and \$542.8 million in employment income in regional economies (Carver and Caudill, 2007). Information on the amount and types of visitor expenditures can illustrate the economic importance of refuge visitor activities to local communities. Visitor expenditure information also can be used to analyze the economic impact of proposed refuge management alternatives.

A region (and its economy) is typically defined as all counties within 50 miles of a travel destination (Stynes, 2008). Visitors that live within the local 50-mile area of a refuge typically have different spending patterns than those that travel from longer distances. During the two sampling periods, 73% of surveyed visitors to Muscatatuck NWR indicated that they live within the local area. Nonlocal visitors (27%) stayed in the local area, on average, for 1 day. Table 5 shows summary statistics for local and nonlocal visitor expenditures in the local communities and at the refuge, with expenditures reported on a per person per day basis. During the two sampling periods, nonlocal visitors spent an average of \$65 per person per day and local visitors spent an average of \$28 per person per day in the local area. Several factors should be considered when estimating the economic importance of refuge visitor spending in the local communities. These include the amount of time spent at the refuge, influence of refuge on decision to take this trip, and the representativeness of primary activities of the sample of surveyed visitors compared to the general population. Controlling for these factors is beyond the scope of the summary statistics presented in this report. Detailed refuge-level visitor spending profiles which do consider these factors will be developed during the next phase of analysis.

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

Visitors	n ¹	Median	Mean	Standard deviation	Minimum	Maximum
Nonlocal	48	\$51	\$65	\$58	\$0	\$244
Local	110	\$14	\$28	\$38	\$0	\$207

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

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

Visitor Opinions about This Refuge

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

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

- 89% were satisfied with the recreational activities and opportunities,
- 93% were satisfied with the information and education about the refuge and its resources,
- 92% were satisfied with the services provided by employees or volunteers, and
- 90% were satisfied with the refuge's job of conserving fish, wildlife and their habitats.

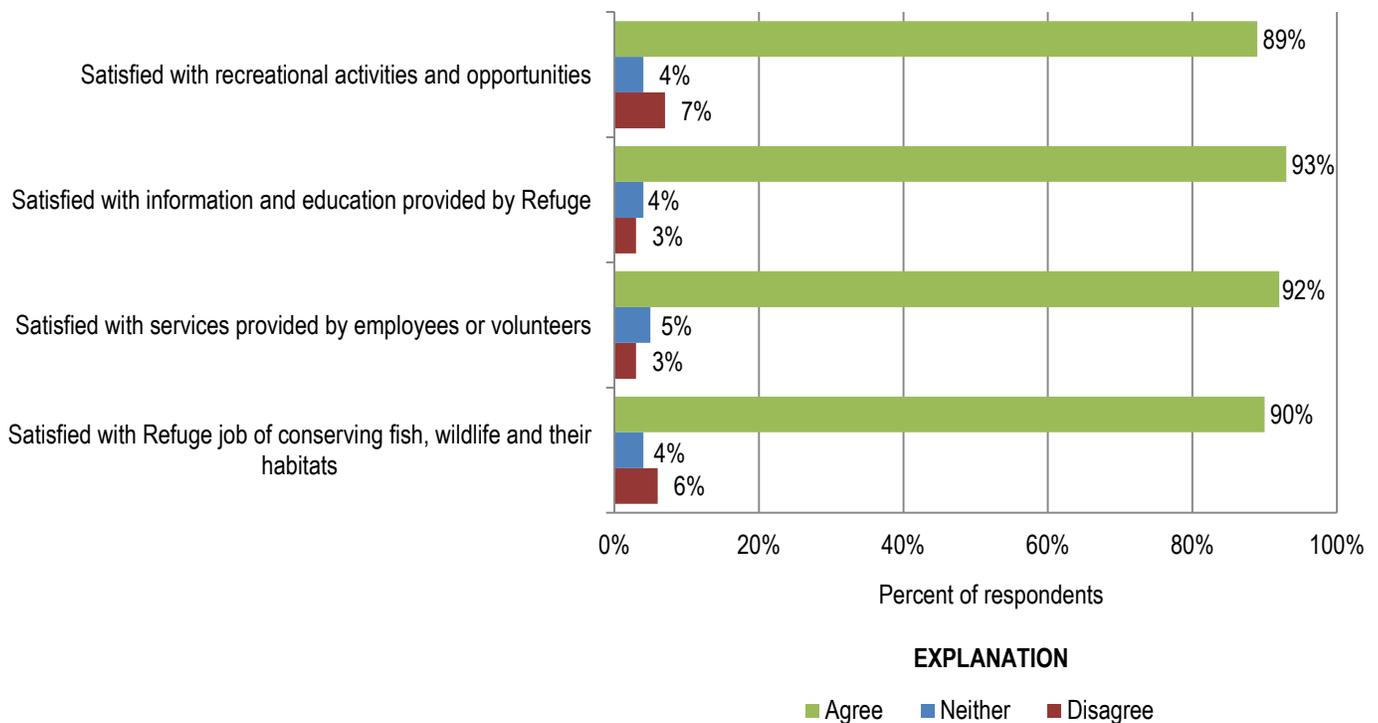


Figure 9. Overall satisfaction with Muscatatuck NWR during *this* visit (n ≥ 191).

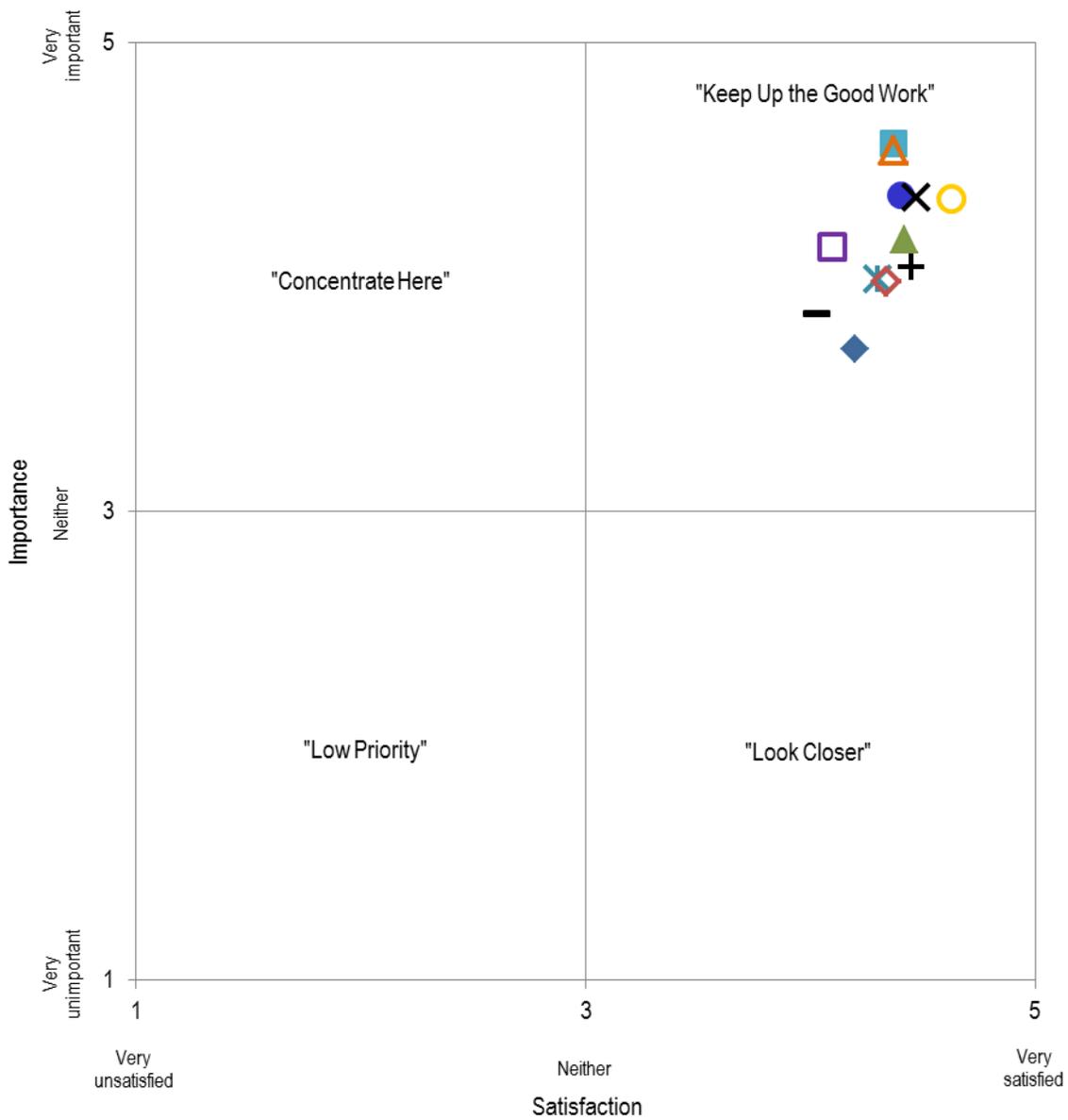
Importance/Satisfaction Ratings

Comparing the importance and satisfaction ratings for visitor services provided by refuges can help to identify how well the services are meeting visitor expectations. The importance-performance framework presented in this section is a tool that includes the importance of an attribute to visitors in relation to their satisfaction with that attribute. Drawn from marketing research, this tool has been applied to outdoor recreation and visitation settings (Martilla and James, 1977; Tarrant and Smith, 2002). Results for the attributes of interest are segmented into one of four quadrants (modified for this national study):

- Keep Up the Good Work = high importance/high satisfaction;
- Concentrate Here = high importance/low satisfaction;
- Low Priority = low importance/low satisfaction; and
- Look Closer = low importance/high satisfaction.

Graphically plotting visitors' importance and satisfaction ratings for different services, facilities, and recreational opportunities provides a simple and intuitive visualization of these survey measures. However, this tool is not without its drawbacks. One is the potential for variation among visitors regarding their expectations and levels of importance (Vaske et al., 1996; Bruyere et al., 2002; Wade and Eagles, 2003), and certain services or recreational opportunities may be more or less important for different segments of the visitor population. For example, hunters may place more importance on hunting opportunities and amenities such as blinds, while school group leaders may place more importance on educational/informational displays than would other visitors. This potential for highly varied importance ratings needs to be considered when viewing the average results of this analysis of visitors to Muscatatuck NWR. This consideration is especially important when reviewing the attributes that fall into the "Look Closer" quadrant. In some cases, these attributes may represent specialized recreational activities in which a small subset of visitors participate (for example, hunting, kayaking) or facilities and services that only some visitors experience (for example, exhibits about the refuge). For these visitors, the average importance of (and potentially the satisfaction with) the attribute may be much higher than it would be for the overall population of visitors.

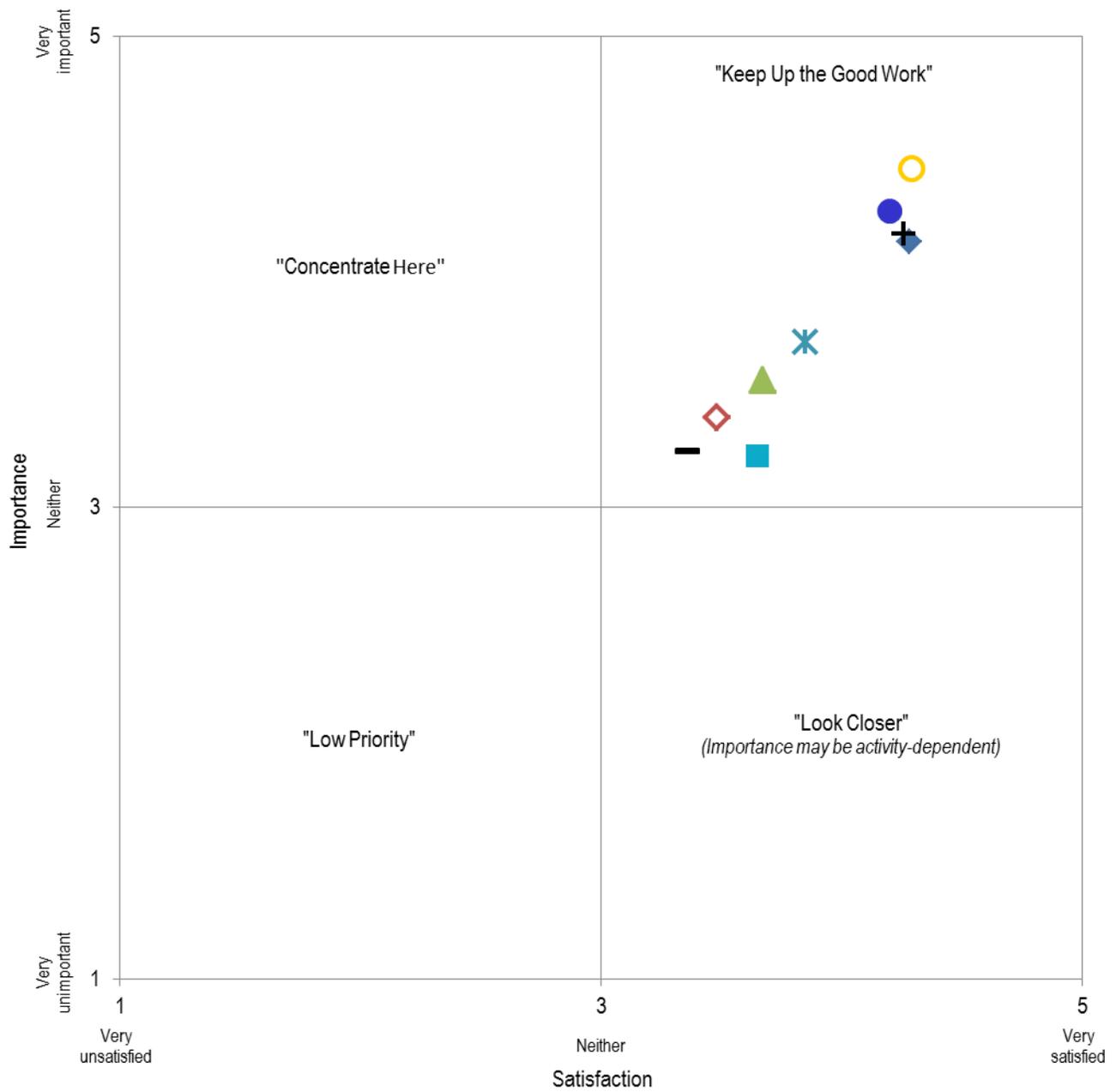
Figures 10-12 depict surveyed visitors' importance-satisfaction results for refuge services and facilities, recreational opportunities, and transportation-related features at Muscatatuck NWR, respectively. All refuge services and facilities fell in the "Keep Up the Good Work" quadrant (fig. 10). All refuge recreational opportunities fell in the "Keep Up the Good Work" quadrant (fig. 11). All transportation-related features fell in the "Keep Up the Good Work" quadrant (fig. 12).



EXPLANATION

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

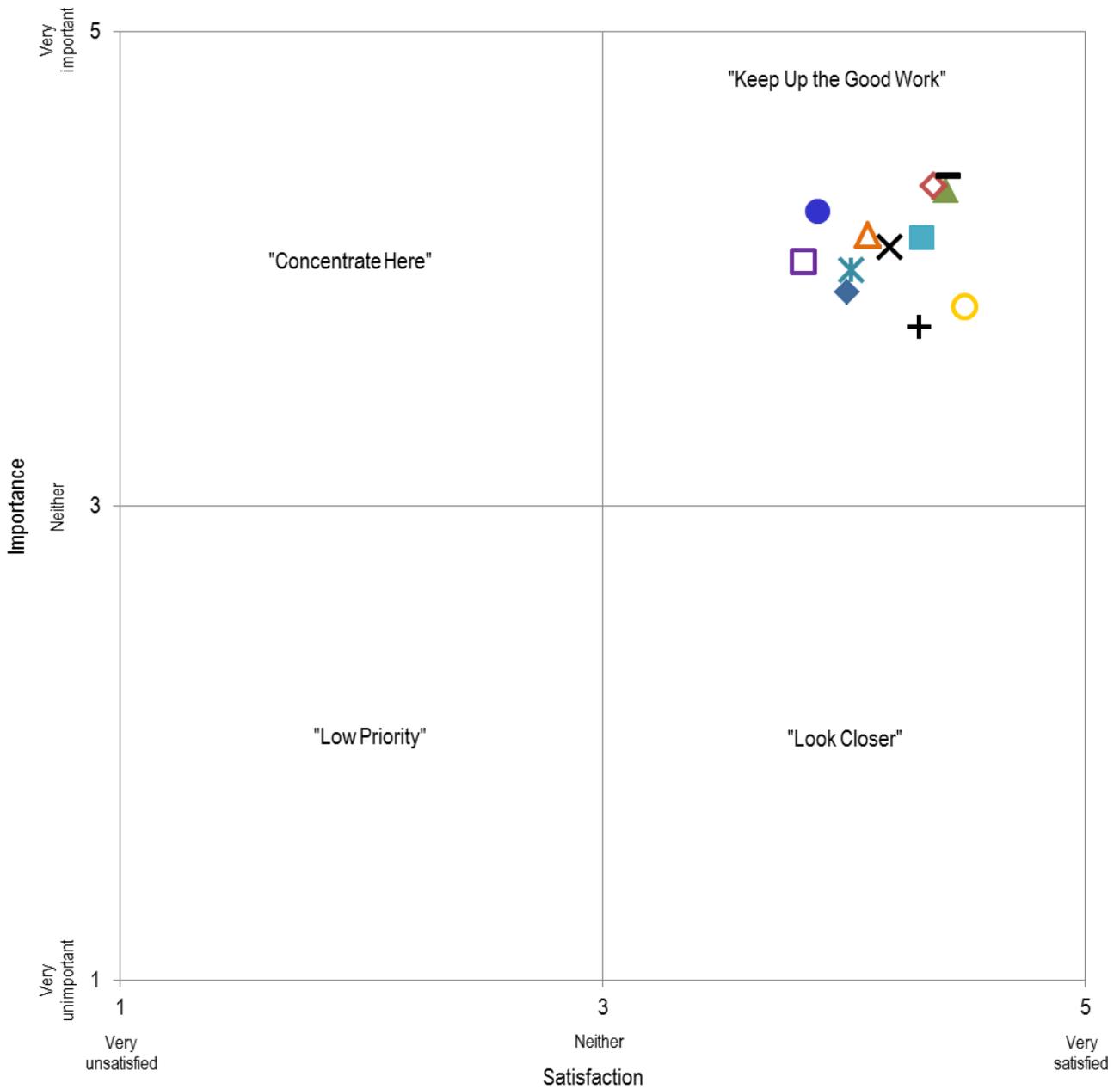
Figure 10. Importance-satisfaction ratings of services and facilities provided at Muscatatuck NWR.



EXPLANATION

- ◆ Bird watching opportunities
- Hunting opportunities
- ◇ Kayak/Canoe opportunities
- Wildlife viewing opportunities
- ✕ Fishing opportunities
- Bicycling opportunities
- ⊕ Photography opportunities
- Hiking opportunities
- ▲ Volunteer opportunities

Figure 11. Importance-satisfaction ratings of recreational opportunities provided at Muscatatuck NWR.



EXPLANATION

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

Figure 12. Importance-satisfaction ratings of transportation-related features at Muscatatuck NWR.

Visitor Opinions about National Wildlife Refuge System Topics

One goal of this national visitor survey was to identify visitor trends across the Refuge System to more effectively manage refuges and provide visitor services. Two important issues to the Refuge System are transportation on refuges and communicating with visitors about climate change. The results to these questions will be most meaningful when they are evaluated in aggregate (data from all participating refuges together). However, basic results for Muscatatuck NWR are reported here.

Alternative Transportation and the National Wildlife Refuge System

Visitors use a variety of transportation means to access and enjoy national wildlife refuges. While many visitors arrive at the refuge in a private vehicle, alternatives such as buses, trams, watercraft, and bicycles are increasingly becoming a part of the visitor experience. Previous research has identified a growing need for transportation alternatives within the Refuge System (Krechmer et al., 2001); however, less is known about how visitors perceive and use these new transportation options. An understanding of visitors' likelihood of using certain alternative transportation options can help in future planning efforts. Visitors were asked their likelihood of using alternative transportation options at national wildlife refuges in the future.

Of the six Refuge System-wide alternative transportation options listed on the survey, the majority of Muscatatuck NWR visitors who were surveyed were likely to use the following options at national wildlife refuges in the future (fig. 13):

- an offsite parking lot that provides trail access; and
- a boat that goes to different points on Refuge waterways.

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

When asked about using alternative transportation at Muscatatuck NWR specifically, 43% of visitors indicated they were unsure whether it would enhance their experience; however, some visitors thought alternative transportation would enhance their experience (22%) and others thought it would not (36%).

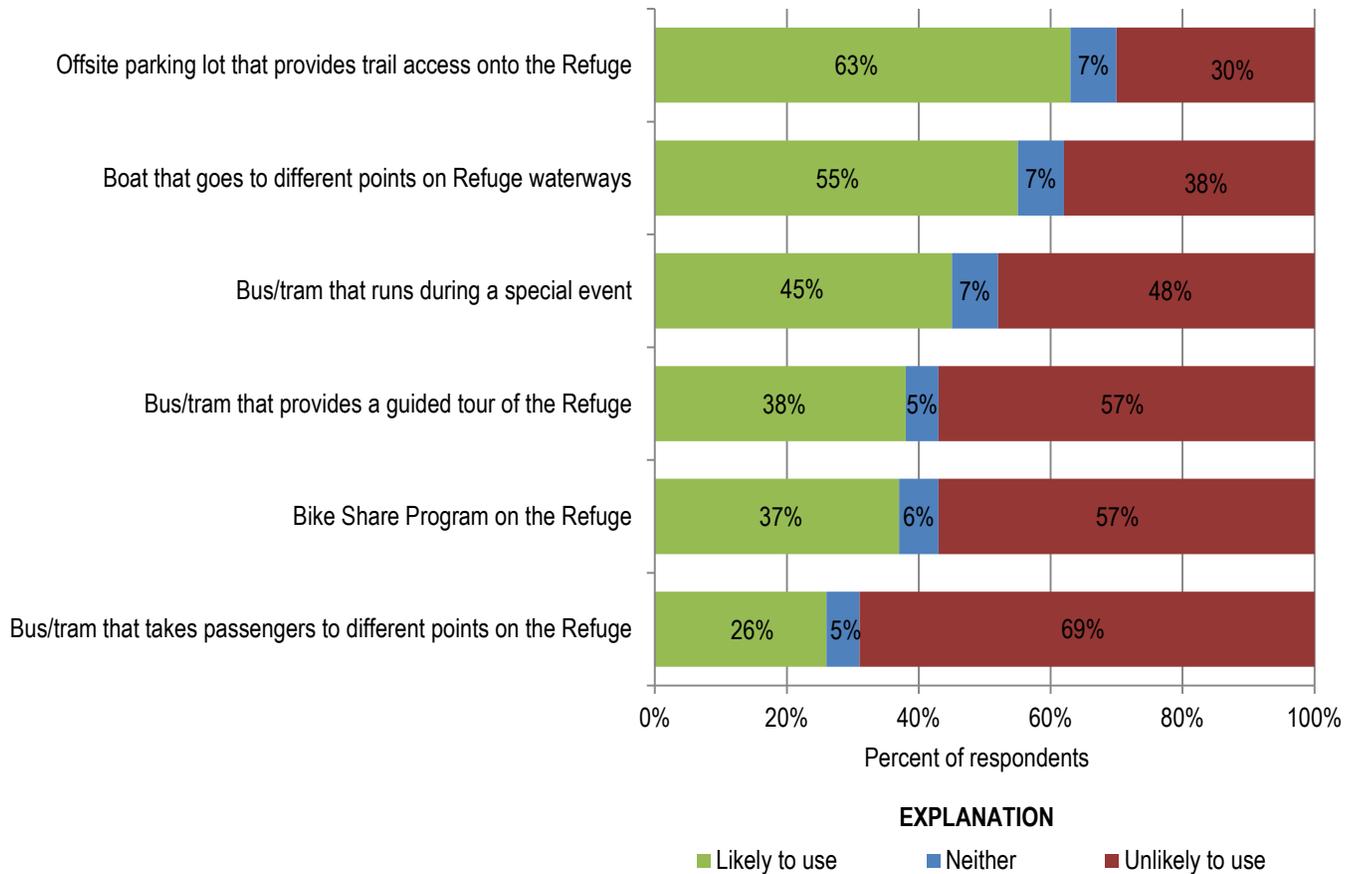


Figure 13. Visitors' likelihood of using alternative transportation options at national wildlife refuges in the future (n ≥ 195).

Climate Change and the National Wildlife Refuge System

Climate change represents a growing concern for the management of national wildlife refuges. The Service's climate change strategy, titled "Rising to the Urgent Challenge," establishes a basic framework for the agency to work within a larger conservation community to help ensure wildlife, plant, and habitat sustainability (U.S. Fish and Wildlife Service, 2010). To support the guiding principles of the strategy, refuges will be exploring options for more effective engagement with visitors on this topic. The national visitor survey collected information about visitors' level of personal involvement in climate change related to fish, wildlife and their habitats and visitors' beliefs regarding this topic. Items draw from the "Six Americas" framework for understanding public sentiment toward climate change (Leiserowitz, Maibach, and Roser-Renouf, 2008) and from literature on climate change message frames (for example, Nisbet, 2009). Such information provides a baseline for understanding visitor perceptions of climate change in the context of fish and wildlife conservation that can further inform related communication and outreach strategies.

Factors that influence how individuals think about climate change include their basic beliefs, levels of involvement, policy preferences, and behaviors related to this topic. Results presented below provide baseline information on visitors' levels of involvement with the topic of climate change related to fish,

wildlife and their habitats. The majority of surveyed visitors to Muscatatuck NWR agreed with the following statement (fig. 14):

- “I am personally concerned about the effects of climate change on fish, wildlife and habitats,” and
- “My experience would be enhanced if this Refuge provided more information on how I can help address climate change effects on fish, wildlife and habitats.”

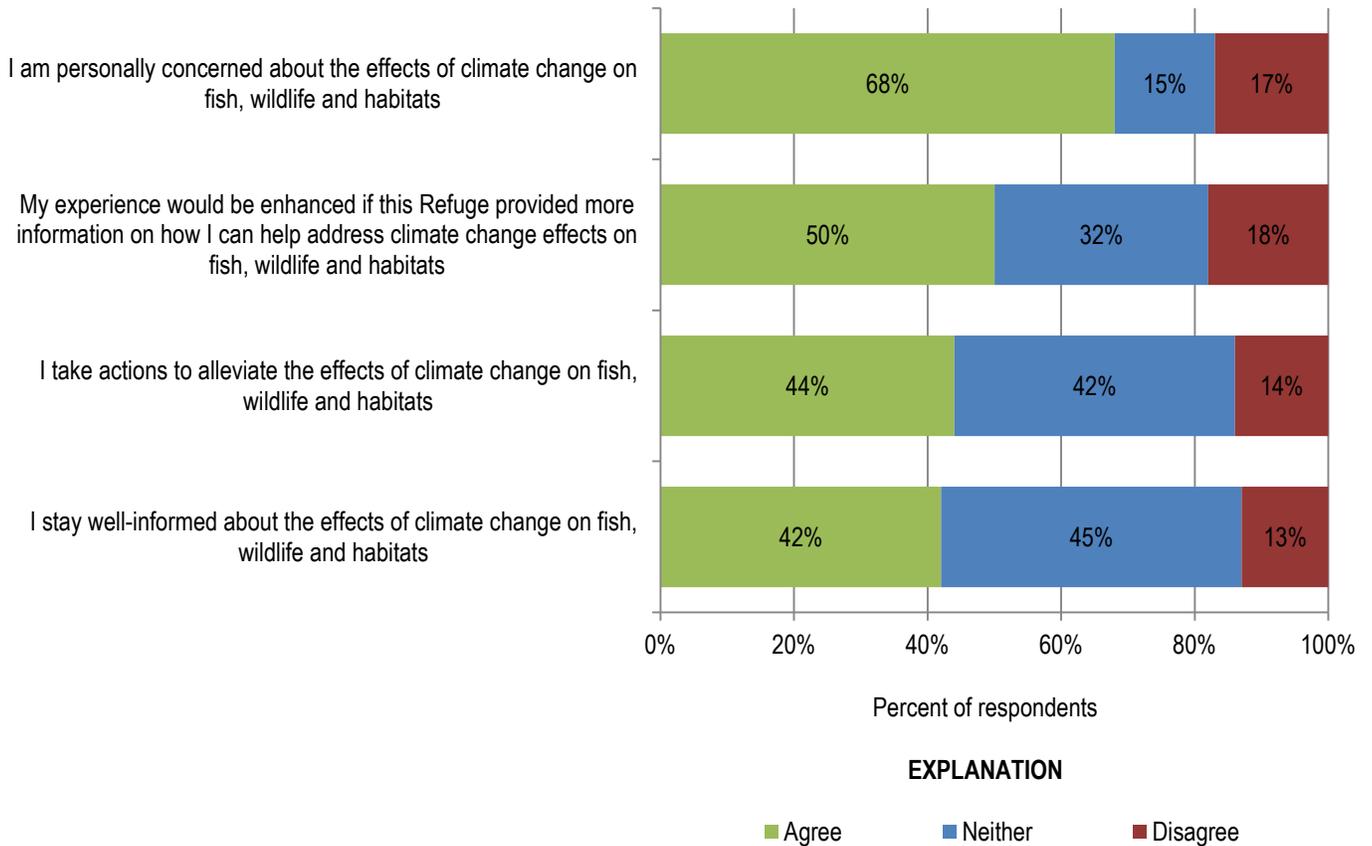


Figure 14. Visitors’ personal involvement with climate change related to fish, wildlife and their habitats (n ≥ 194).

These results are most useful when coupled with responses to belief statements about the effects of climate change on fish, wildlife and their habitats, because such beliefs may be used to develop message frames (or ways to communicate) about climate change with a broad coalition of visitors. Framing science-based findings will not alter the overall message, but rather place the issue in a context in which different audience groupings can relate. The need to mitigate impacts of climate change on Refuges could be framed as a quality-of-life issue (for example, preserving the ability to enjoy fish, wildlife, plants, and their habitat) or an economic issue (for example, maintaining tourist revenues, supporting economic growth through new jobs/technology).

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

- “Future generations will benefit if we address climate change effects;”
- “We can improve our quality of life if we address the effects of climate change;”
- “It is important to consider the economic costs and benefits to local communities when addressing climate change effects;” and
- “There is too much scientific uncertainty to adequately understand climate change effects.”

Such information suggests that certain beliefs resonate with a greater number of visitors than other beliefs do. This information is important to note because the majority of visitors (50%) indicated that their experience would be enhanced if Muscatatuck NWR provided information about how they could help address the effects of climate change on fish, wildlife, and their habitats (fig. 14), and framing the information in a way that resonates most with visitors may result in a more engaged public who support strategies aimed at alleviating climate change pressures. Data will be analyzed further at the aggregate or national level, to inform the development of a comprehensive communication strategy about climate change.

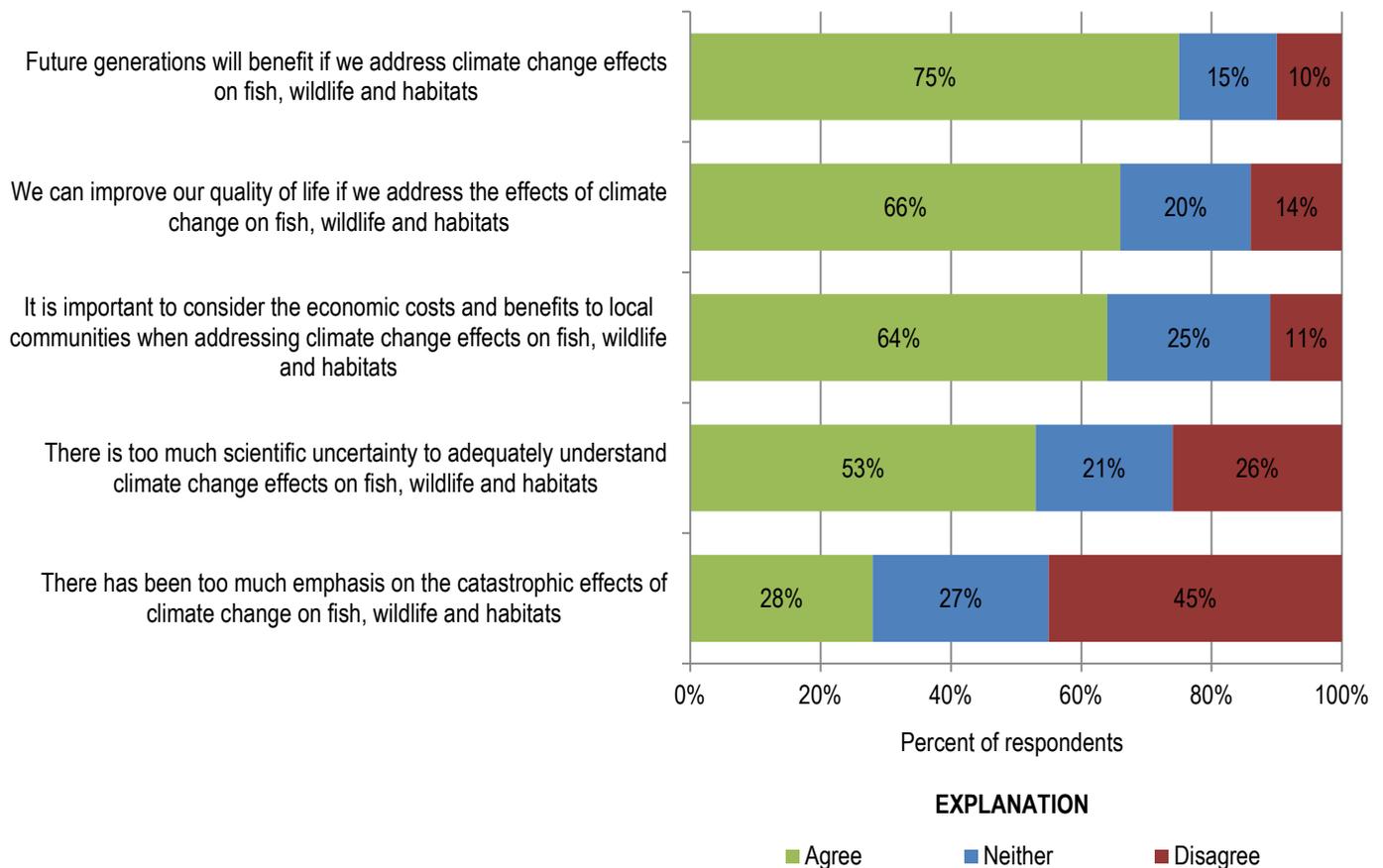


Figure 15. Visitors’ beliefs about the effects of climate change on fish, wildlife and their habitats (n ≥ 192).

Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Muscatatuck NWR during 2010–2011. These data can be used to inform decision-making efforts related to the refuge, such as Comprehensive Conservation Plan implementation, visitor services management, and transportation planning and management. For example, when modifying (either minimizing or enhancing) visitor facilities, services, or recreational opportunities, a solid understanding of visitors' trip and activity characteristics, their satisfaction with existing offerings, and opinions regarding refuge fees is helpful. This information can help to gauge demand for refuge opportunities and inform both implementation and communication strategies. Similarly, an awareness of visitors' satisfaction ratings with refuge offerings can help determine if any potential areas of concern need to be investigated further. As another example of the utility of these results, community relations may be improved or bolstered through an understanding of the value of the refuge to visitors, whether that value is attributed to an appreciation of the refuge's uniqueness, enjoyment of its recreational opportunities, or spending contributions of nonlocal visitors to the local economy. Such data about visitors and their experiences, in conjunction with an understanding of biophysical data on the refuge, can ensure that management decisions are consistent with the Refuge System mission while fostering a continued public interest in these special places.

Individual refuge results are available for downloading at <http://pubs.usgs.gov/ds/643/> as part of USGS Data Series 643 (Sexton and others, 2011). For additional information about this project, contact the USGS researchers at national_visitor_survey@usgs.gov or 970.226.9205.

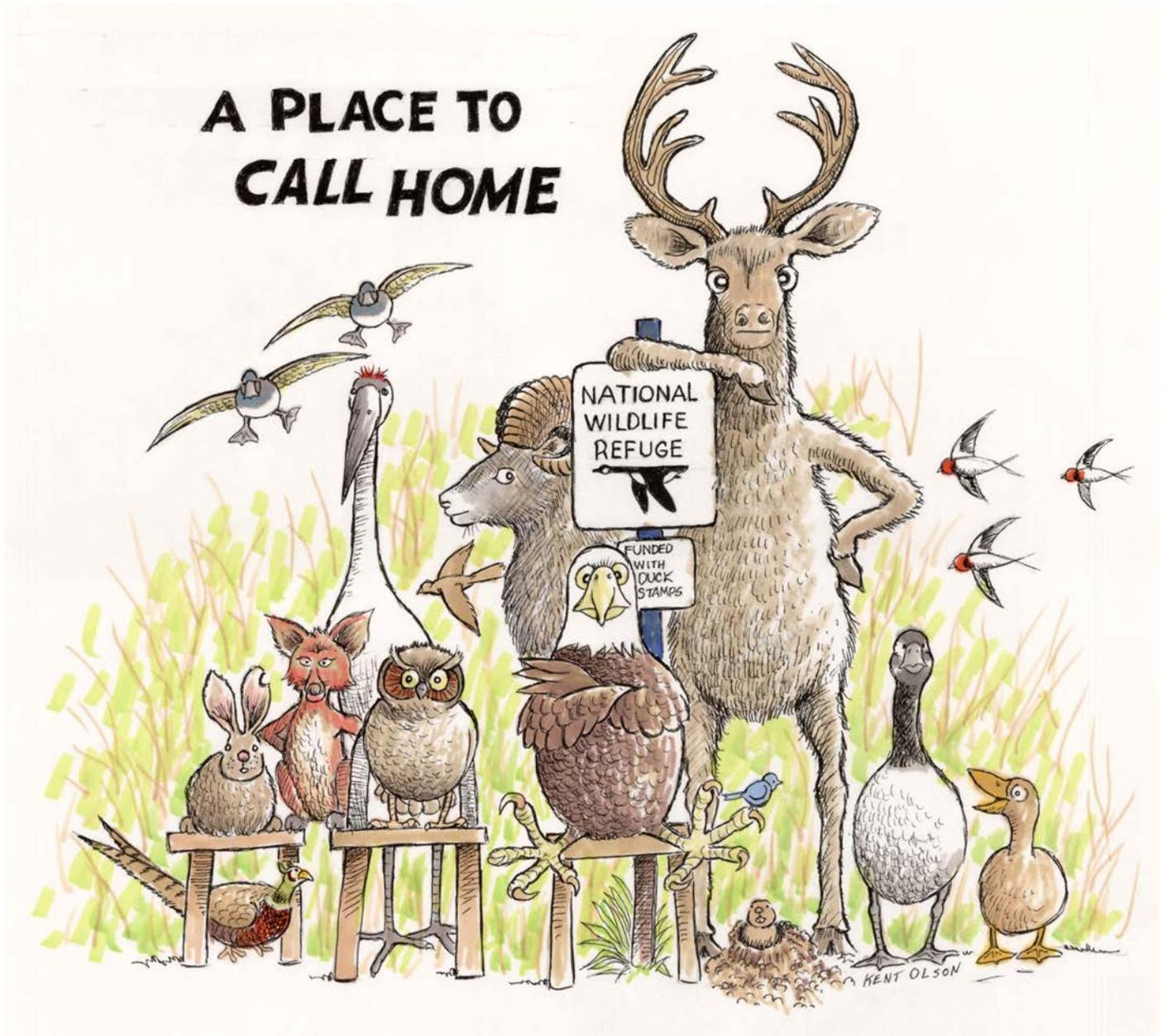
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National Wildlife Refuge Visitor Survey



PLEASE READ THIS FIRST:

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

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

SECTION 1. Your visit to this Refuge

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

- | | | |
|--|---|--|
| <input type="checkbox"/> 25% Big game hunting | <input type="checkbox"/> 46% Hiking | <input type="checkbox"/> 2% Environmental education (for example, classrooms or labs, tours) |
| <input type="checkbox"/> 6% Upland/Small-game hunting | <input type="checkbox"/> 1% Bicycling | |
| <input type="checkbox"/> 0% Migratory bird/Waterfowl hunting | <input type="checkbox"/> 55% Auto tour route/Driving | <input type="checkbox"/> 8% Special event (<i>please specify</i>)
<u>See Appendix B</u> |
| <input type="checkbox"/> 65% Wildlife observation | <input type="checkbox"/> 0% Motorized boating | |
| <input type="checkbox"/> 48% Bird watching | <input type="checkbox"/> 11% Nonmotorized boating (including canoes/kayaks) | <input type="checkbox"/> 8% Other (<i>please specify</i>)
<u>See Appendix B</u> |
| <input type="checkbox"/> 24% Freshwater fishing | | |
| <input type="checkbox"/> 0% Saltwater fishing | <input type="checkbox"/> 15% Interpretation (for example, exhibits, kiosks, videos) | <input type="checkbox"/> 1% Other (<i>please specify</i>)
<u>See Appendix B</u> |
| <input type="checkbox"/> 37% 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?

- 41% No
- 59% Yes → If yes, what did you do there? (Please mark **all that apply.**)
- | | |
|--|---|
| <input type="checkbox"/> 57% Visit the gift shop or bookstore | <input type="checkbox"/> 18% Watch a nature talk/video/presentation |
| <input type="checkbox"/> 71% View the exhibits | <input type="checkbox"/> 78% Stopped to use the facilities (for example, get water, use restroom) |
| <input type="checkbox"/> 45% Ask information of staff/volunteers | <input type="checkbox"/> 15% Other (<i>please specify</i>) <u>See Appendix B</u> |

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

Nonlocal	Local	Total	
67%	80%	76%	It was the primary purpose or sole destination of my trip.
15%	7%	9%	It was one of many equally important reasons or destinations for my trip.
18%	13%	14%	It was just an incidental or spur-of-the-moment stop on a trip taken for other purposes or to other destinations.

5. Approximately how many **miles** did you travel to get to this Refuge?

Nonlocal 131 number of miles

Local 16 number of miles

6. How much time did you spend at this Refuge on your visit?

See Report for Results

7. Were you part of a group on your visit to this Refuge?

52% No (*skip to question #9*)

48% Yes → What **type of group** were you with on your visit? (*Please mark **only one.***)

95% Family and/or friends

2% Organized club or school group

0% Commercial tour group

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

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

2 number 18 years and over

1 number 17 years and under

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

52% Friends or relatives

5% Refuge website

38% Signs on highway

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

3% Recreation club or organization

1% Television or radio

24% People in the local community

5% Newspaper or magazine

15% Refuge printed information (brochure, map)

9% Other (*please specify*) See Appendix B

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

80% Spring
(March-May)

60% Summer
(June-August)

76% Fall
(September-November)

65% Winter
(December-February)

11. How many times have you visited...

...this Refuge (including this visit) in the last 12 months? 22 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"/> 98% | Private vehicle without a trailer | <input type="checkbox"/> 0% | Refuge shuttle bus or tram | <input type="checkbox"/> 0% | Bicycle |
| <input type="checkbox"/> 3% | Private vehicle with a trailer
(for boat, camper or other) | <input type="checkbox"/> 3% | Motorcycle | <input type="checkbox"/> 28% | Walk/Hike |
| <input type="checkbox"/> 0% | Commercial tour bus | <input type="checkbox"/> 0% | ATV or off-road vehicle | <input type="checkbox"/> 0% | Other (<i>please specify below</i>) |
| <input type="checkbox"/> 0% | Recreational vehicle (RV) | <input type="checkbox"/> 4% | Boat | <u>See Appendix B</u> | |
| | | <input type="checkbox"/> 0% | Wheelchair or other mobility aid | | |

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

- | | | | |
|------------------------------|--|------------------------------|---|
| <input type="checkbox"/> 31% | Signs on highways | <input type="checkbox"/> 3% | Directions from Refuge website |
| <input type="checkbox"/> 5% | A GPS navigation system | <input type="checkbox"/> 5% | Directions from people in community near this Refuge |
| <input type="checkbox"/> 12% | A road atlas or highway map | <input type="checkbox"/> 11% | Directions from friends or family |
| <input type="checkbox"/> 3% | Maps from the Internet (for example,
MapQuest or Google Maps) | <input type="checkbox"/> 80% | Previous knowledge/I have been to this Refuge before |
| | | <input type="checkbox"/> 0% | Other (<i>please specify</i>) <u>See Appendix B</u> |

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

How likely would you be to use...	Very Unlikely	Somewhat Unlikely	Neither	Somewhat Likely	Very Likely
...a bus or tram that takes passengers to different points on the Refuge (such as the Visitor Center)?	<input type="checkbox"/> 54%	<input type="checkbox"/> 15%	<input type="checkbox"/> 5%	<input type="checkbox"/> 20%	<input type="checkbox"/> 7%
...a bike that was offered through a Bike Share Program for use while on the Refuge?	<input type="checkbox"/> 45%	<input type="checkbox"/> 12%	<input type="checkbox"/> 6%	<input type="checkbox"/> 25%	<input type="checkbox"/> 12%
...a bus or tram that provides a guided tour of the Refuge with information about the Refuge and its resources?	<input type="checkbox"/> 44%	<input type="checkbox"/> 13%	<input type="checkbox"/> 6%	<input type="checkbox"/> 23%	<input type="checkbox"/> 15%
...a boat that goes to different points on Refuge waterways?	<input type="checkbox"/> 31%	<input type="checkbox"/> 6%	<input type="checkbox"/> 7%	<input type="checkbox"/> 34%	<input type="checkbox"/> 22%
...a bus or tram that runs during a special event (such as an evening tour of wildlife or weekend festival)?	<input type="checkbox"/> 40%	<input type="checkbox"/> 8%	<input type="checkbox"/> 7%	<input type="checkbox"/> 28%	<input type="checkbox"/> 17%
...an offsite parking lot that provides trail access for walking/hiking onto the Refuge?	<input type="checkbox"/> 18%	<input type="checkbox"/> 11%	<input type="checkbox"/> 7%	<input type="checkbox"/> 36%	<input type="checkbox"/> 27%
...some other alternative transportation option? (<i>please specify</i>) <u>See Appendix B</u>	<input type="checkbox"/> 11%	<input type="checkbox"/> 11%	<input type="checkbox"/> 0%	<input type="checkbox"/> 22%	<input type="checkbox"/> 56%

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

- 22% Yes 36% No 43% Not Sure

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

Importance						Satisfaction					
Circle one for each item.						Circle one for each item.					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
<input type="checkbox"/> 4%	<input type="checkbox"/> 8%	<input type="checkbox"/> 10%	<input type="checkbox"/> 51%	<input type="checkbox"/> 28%	Surface conditions of roads	<input type="checkbox"/> 5%	<input type="checkbox"/> 8%	<input type="checkbox"/> 8%	<input type="checkbox"/> 35%	<input type="checkbox"/> 42%	NA
<input type="checkbox"/> 6%	<input type="checkbox"/> 9%	<input type="checkbox"/> 12%	<input type="checkbox"/> 49%	<input type="checkbox"/> 23%	Surface conditions of parking areas	<input type="checkbox"/> 4%	<input type="checkbox"/> 4%	<input type="checkbox"/> 7%	<input type="checkbox"/> 28%	<input type="checkbox"/> 57%	NA
<input type="checkbox"/> 4%	<input type="checkbox"/> 3%	<input type="checkbox"/> 4%	<input type="checkbox"/> 37%	<input type="checkbox"/> 53%	Condition of bridges	<input type="checkbox"/> 3%	<input type="checkbox"/> 2%	<input type="checkbox"/> 8%	<input type="checkbox"/> 22%	<input type="checkbox"/> 65%	NA
<input type="checkbox"/> 5%	<input type="checkbox"/> 4%	<input type="checkbox"/> 8%	<input type="checkbox"/> 44%	<input type="checkbox"/> 39%	Condition of trails and boardwalks	<input type="checkbox"/> 2%	<input type="checkbox"/> 4%	<input type="checkbox"/> 13%	<input type="checkbox"/> 33%	<input type="checkbox"/> 47%	NA
<input type="checkbox"/> 4%	<input type="checkbox"/> 6%	<input type="checkbox"/> 9%	<input type="checkbox"/> 49%	<input type="checkbox"/> 32%	Number of places for parking	<input type="checkbox"/> 5%	<input type="checkbox"/> 6%	<input type="checkbox"/> 10%	<input type="checkbox"/> 39%	<input type="checkbox"/> 40%	NA
<input type="checkbox"/> 4%	<input type="checkbox"/> 2%	<input type="checkbox"/> 6%	<input type="checkbox"/> 44%	<input type="checkbox"/> 45%	Number of places to pull over along Refuge roads	<input type="checkbox"/> 4%	<input type="checkbox"/> 12%	<input type="checkbox"/> 8%	<input type="checkbox"/> 43%	<input type="checkbox"/> 33%	NA
<input type="checkbox"/> 4%	<input type="checkbox"/> 2%	<input type="checkbox"/> 5%	<input type="checkbox"/> 33%	<input type="checkbox"/> 56%	Safety of driving conditions on Refuge roads	<input type="checkbox"/> 2%	<input type="checkbox"/> 3%	<input type="checkbox"/> 5%	<input type="checkbox"/> 35%	<input type="checkbox"/> 55%	NA
<input type="checkbox"/> 4%	<input type="checkbox"/> 3%	<input type="checkbox"/> 6%	<input type="checkbox"/> 25%	<input type="checkbox"/> 63%	Safety of Refuge road entrances/exits	<input type="checkbox"/> 3%	<input type="checkbox"/> 4%	<input type="checkbox"/> 5%	<input type="checkbox"/> 23%	<input type="checkbox"/> 65%	NA
<input type="checkbox"/> 9%	<input type="checkbox"/> 5%	<input type="checkbox"/> 16%	<input type="checkbox"/> 35%	<input type="checkbox"/> 36%	Signs on highways directing you to the Refuge	<input type="checkbox"/> 1%	<input type="checkbox"/> 3%	<input type="checkbox"/> 8%	<input type="checkbox"/> 22%	<input type="checkbox"/> 66%	NA
<input type="checkbox"/> 2%	<input type="checkbox"/> 6%	<input type="checkbox"/> 8%	<input type="checkbox"/> 43%	<input type="checkbox"/> 40%	Signs directing you around the Refuge roads	<input type="checkbox"/> 1%	<input type="checkbox"/> 6%	<input type="checkbox"/> 9%	<input type="checkbox"/> 30%	<input type="checkbox"/> 55%	NA
<input type="checkbox"/> 4%	<input type="checkbox"/> 4%	<input type="checkbox"/> 8%	<input type="checkbox"/> 42%	<input type="checkbox"/> 42%	Signs directing you on trails	<input type="checkbox"/> 1%	<input type="checkbox"/> 8%	<input type="checkbox"/> 14%	<input type="checkbox"/> 34%	<input type="checkbox"/> 43%	NA
<input type="checkbox"/> 4%	<input type="checkbox"/> 3%	<input type="checkbox"/> 20%	<input type="checkbox"/> 30%	<input type="checkbox"/> 42%	Access for people with physical disabilities or who have difficulty walking	<input type="checkbox"/> 4%	<input type="checkbox"/> 4%	<input type="checkbox"/> 28%	<input type="checkbox"/> 31%	<input type="checkbox"/> 32%	NA

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

See Appendix B

SECTION 3. Your expenses related to your Refuge visit

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

73% Yes

27% No → How much time did you spend **in local communities** on this trip?

 2 number of hours OR 2 number of days

2. Please record the amount that **you and other members of your group** with whom you shared expenses (for example, other family members, traveling companions) spent in the local 50-mile area during **your most recent visit** to this Refuge. *(Please enter the amount spent to the nearest dollar in each category below. Enter 0 (zero) if you did not spend any money in a particular category.)*

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

See Report for Results

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

 2 number of people sharing expenses

4. As you know, some of the costs of travel such as gasoline, hotels, and airline tickets often increase. If your total trip costs were to increase, what is the maximum extra amount you would pay and still visit this Refuge? *(Please circle the highest dollar amount.)*

\$0	\$10	\$20	\$35	\$50	\$75	\$100	\$125	\$150	\$200	\$250
11%	27%	23%	8%	16%	3%	7%	1%	0%	1%	3%

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

0%	Far too low	0%	Too low	100%	About right	0%	Too high	0%	Far too high	97%	Did not pay a fee <i>(skip to Section 4)</i>
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6. Please indicate whether you disagree or agree with the following statement. *(Please mark **only one**.)*

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

0%	Strongly disagree	0%	Disagree	20%	Neither agree or disagree	80%	Agree	0%	Strongly agree
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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.	3%	5%	4%	45%	44%	NA
Overall, I am satisfied with the information and education provided by this Refuge about its resources.	1%	2%	4%	42%	51%	NA
Overall, I am satisfied with the services provided by employees or volunteers at this Refuge.	1%	2%	5%	37%	55%	NA
This Refuge does a good job of conserving fish, wildlife and their habitats.	4%	3%	4%	26%	64%	NA

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

Importance					Refuge Services, Facilities, and Activities	Satisfaction					
Circle one for each item.						Circle one for each item.					
Very Unimportant	Somewhat Unimportant	Neither	Somewhat Important	Very Important		Very Unsatisfied	Somewhat Unsatisfied	Neither	Somewhat Satisfied	Very Satisfied	Not Applicable
4%	14%	14%	47%	22%	Availability of employees or volunteers	0%	2%	19%	36%	43%	NA
4%	4%	12%	43%	37%	Courteous and welcoming employees or volunteers	1%	2%	12%	24%	62%	NA
3%	4%	11%	39%	44%	Knowledgeable employees or volunteers	1%	1%	11%	29%	58%	NA
1%	2%	7%	42%	48%	Printed information about this Refuge and its resources (for example, maps and brochures)	1%	4%	6%	26%	63%	NA
3%	3%	18%	45%	31%	Informational kiosks/displays about this Refuge and its resources	0%	2%	19%	27%	52%	NA
2%	3%	6%	35%	54%	Signs with rules/regulations for this Refuge	1%	3%	8%	30%	57%	NA
2%	3%	16%	51%	28%	Exhibits about this Refuge and its resources	1%	1%	14%	34%	51%	NA
3%	4%	26%	39%	28%	Environmental education programs or activities	0%	1%	29%	36%	34%	NA
2%	2%	8%	38%	50%	Visitor Center	0%	1%	6%	21%	72%	NA
1%	1%	3%	31%	64%	Convenient hours and days of operation	2%	6%	4%	26%	61%	NA
1%	1%	5%	31%	63%	Well-maintained restrooms	3%	2%	10%	26%	60%	NA
2%	2%	16%	41%	39%	Wildlife observation structures (decks, blinds)	2%	7%	15%	32%	44%	NA
3%	4%	17%	29%	47%	Bird-watching opportunities	1%	2%	19%	26%	53%	NA
2%	1%	7%	34%	57%	Opportunities to observe wildlife other than birds	2%	4%	10%	31%	53%	NA
4%	3%	14%	32%	47%	Opportunities to photograph wildlife and scenery	2%	2%	15%	29%	52%	NA
28%	3%	21%	15%	33%	Hunting opportunities	5%	4%	40%	22%	28%	NA
15%	4%	18%	22%	41%	Fishing opportunities	5%	3%	32%	23%	37%	NA
4%	1%	10%	35%	50%	Trail hiking opportunities	2%	2%	13%	40%	43%	NA
13%	5%	33%	30%	20%	Water trail opportunities for canoeing or kayaking	4%	4%	52%	22%	18%	NA
13%	7%	40%	23%	17%	Bicycling opportunities	1%	7%	61%	16%	15%	NA
6%	4%	40%	26%	22%	Volunteer opportunities	1%	1%	54%	19%	25%	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?

95%

Yes

5%

No

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

98%

Yes

2%

No

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

87%

Yes

13%

No

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

See Appendix B

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

Statements about climate change	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I am personally concerned about the effects of climate change on fish, wildlife and their habitats.	7%	11%	14%	39%	30%
We can improve our quality of life if we address the effects of climate change on fish, wildlife and their habitats.	5%	9%	20%	40%	26%
There is too much scientific uncertainty to adequately understand how climate change will impact fish, wildlife and their habitats.	10%	16%	21%	40%	12%
I stay well-informed about the effects of climate change on fish, wildlife and their habitats.	2%	11%	45%	30%	12%
It is important to consider the economic costs and benefits to local communities when addressing the effects of climate change on fish, wildlife and their habitats.	5%	7%	24%	51%	13%
I take actions to alleviate the effects of climate change on fish, wildlife and their habitats.	5%	10%	42%	31%	12%
There has been too much emphasis on the catastrophic effects of climate change on fish, wildlife and their habitats.	17%	28%	28%	19%	8%
Future generations will benefit if we address the effects of climate change on fish, wildlife and their habitats.	4%	6%	16%	40%	35%
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.	8%	10%	32%	39%	11%

SECTION 6. A Little about You

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

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

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

2. Are you? 77% Male 23% Female

3. In what year were you born? 1960 (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)			
					3%			34%				44%				19%			

5. What ethnicity do you consider yourself? 2% Hispanic or Latino 98% Not Hispanic or Latino

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

- 5% American Indian or Alaska Native 0% Black or African American 99% White
 1% Asian 0% Native Hawaiian or Pacific Islander

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

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

- | | | |
|--|--|--|
| <input type="checkbox"/> 2% Less than \$10,000 | <input type="checkbox"/> 15% \$35,000 - \$49,999 | <input type="checkbox"/> 14% \$100,000 - \$149,999 |
| <input type="checkbox"/> 10% \$10,000 - \$24,999 | <input type="checkbox"/> 30% \$50,000 - \$74,999 | <input type="checkbox"/> 1% \$150,000 - \$199,999 |
| <input type="checkbox"/> 9% \$25,000 - \$34,999 | <input type="checkbox"/> 17% \$75,000 - \$99,999 | <input type="checkbox"/> 2% \$200,000 or more |

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

31 number of trips

Thank you for completing the survey.

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

See Appendix B for Comments

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Appendix B: Visitor Comments to Open-Ended Survey Questions for Muscatatuck National Wildlife Refuge

Survey Section 1

Question 1: "Including your most recent visit, which activities have you participated in during the past 12 months at this Refuge?"

Special Event	Frequency
2010 Muscatatuck Bird festival in May 2010	1
Adult/child fishing day	1
Day of Caring	1
January 1, 2011	1
Log Cabin Days	3
Wings over Muscatatuck	6
Wings over Muscatatuck, Christmas Bird Count (1-1-10)	1
Wings over Muscatatuck, Log Cabin Days	1
Total	15

Other Activity	Frequency
Classroom field trip	1
Education - grandchildren	1
Just passing thru and found on GPS	1
Looking for deer	1
Moral hunting	1
Mushroom hunting	2
Nature Center	1
Picnic	2

Running	2
Take dogs for a walk	1
Walking, enjoying the quietness	1
Watching deer	1
Waterfowl license purchase	1
Total	16

2 nd Other Activity	Frequency
Looking at the old cabin	1
Mushroom hunting	1
Total	2

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
I'm an expediter, and get to wait for a load at cool places like these.	1
Looking at the old cabin	1
Moral hunting	1
Peaceful	1
To see what was available	1
Total	5

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

Other Visitor Center Activity	Frequency
Backyard bird watching and photography.	1
Check the daily journal for bird/wildlife reports.	1
Get senior pass.	1
Got a map.	1
Love finding new places along My route.	1
Picked up a brochure.	1
Picked up a map of the refuge.	1
Picked up pamphlets.	1
To see what other birds people saw at the refuge.	1
Used bird viewing room.	1
View bird sanctuary.	1
Watched birds and critters.	1
Watched birds at feeders.	6
Total	18

Question 7: "Were you part of a group on your visit to this Refuge?"; If Yes, "What type of group were you with on your visit?"

Other Group Type	Frequency
Hunting partner	3

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

Other Website	Frequency
AAA	1
DNR	2
DNR website	1
Flickr	1
Web searches for bird watching	1
Total	6

Other Ways Heard about This Refuge	Frequency
"Indiana Best Hikes" and "Southern Indiana Nature Walks" by Alan McPherson and "Hiking Indiana" by Phil Bloom	1
DNR hunting guide	1
Fellow birdwatchers	1
Field trip with daughter	1
Found when I loaded Parks and Rec on my GPS.	1
Hunting regulations	1
Leadership Jackson County 1999	1
Map	1
National Geographic "Best 100 Wildlife Viewing Opportunities in the U.S."	1
Photo club	1
Read about it in literature	1
Recommended by staff at Big Oaks National Wildlife Refuge	1
Refuge hunts	1
School function	1

School trip when I was young	1
Special draw hunts	1
State maps	1
Total	17

Survey Section 2

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

Other Forms of Transportation	Frequency
Horse and wagon ride	1

Question 5: "Below are different alternative transportation options that could be offered at some National Wildlife Refuges in the future...please tell us how likely you would be to use each transportation option."

Other Transportation Option Likely to Use	Frequency
4 wheeler trails	1
ATV	6
ATV rentals	1
Boat rental or canoe	1
Canoe	1
Golf cart rentals?	1
Horseback	1
I usually carry my kayak with me	1
Maybe an ATV or boat rental	1
Paddle boat	1
Private vehicle	6

Private vehicle/walking/hiking	1
Total	22

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 = 41)

All roads should be black-topped (gravel is hard on finer vehicles). You'll get more of a rush with less dust.

As a senior citizen with arthritis, I find walking difficult, especially on uneven surfaces (unpaved surfaces, in other words). I've never been to the Moss Lake area because I can't walk to it. I'd love to see it!

At our local refuge, there's only one trail that I'm aware of that is accessible for handicapped people, and there should be more than one. Our refuge has only one entrance and exit, and it used to have a back exit, but it's shut down for some reason. For safety reasons, shouldn't there be more than just one entrance and exit?

Better/more frequent access to areas normally closed.

Closing Highway 31 was unnecessary.

During dry weather, the road past the Visitors Center is gravel and it gets very dusty. Any vehicle driving by raises a big cloud of dust. When doing photography, I have to wait until it settles.

Every time I stop to view wildlife on the gravel roads, another car zooms by and buries me in dust. This ruins the experience and also is very hard on my camera equipment. It would be so nice if Muscatatuck could be paved to eliminate the dust and reduce the noise of passing cars. I'm getting very reluctant to take my \$5,000 camera and lens to this dust-filled refuge. I love the place, but this is my biggest complaint. I'm not the only one that feels this way.

I am very pleased that they have closed the Hwy 31 entrance. It has cut out vehicles cutting through and driving fast through the refuge.

I am very pleased with the vast array of places I go to. I am an expediter, like an over-the-road trucker, but in my cargo van. When not on a load, I enjoy going to many different parks and such. I always enjoy the trails and waterways I get to see. I wish there was a multi-state fishing license that I could purchase. I camp, hike, fish and nature watch all over the area east of the Mississippi River. Most every day on the road, I get to go to a park somewhere, even if for only an hour or so. Thank you for a great park. I really would like to get a multi-state fishing license, but that is another group of people. Thank you again in preserving both nature and history.

I don't know why there are one way roads present.

I pour concrete for a living and would be willing to pour stamp sidewalks for all of your trails. It would be more accessible for everyone.

I wish more areas were handicap accessible. My mom would love to see more than just from the car, but she can't walk on rough or uneven ground.

I would appreciate some handicapped parking areas closer to various sites of interest (ponds, lakes, etc.).

In the fishing area, lines get caught in the debris.

It would be nice to have a way to drive quietly and creep slowly for photography from roads. Gravel does make noise. Paved road would make it too easy for speeding drivers, so I don't expect any realistic solution to this. Only a small thing, if a good idea were to come up.

It's not that important to me because I know where it is, but if there were more signs about and directing other people that don't know where it is to here, it would bring more people in to experience what a great place it is.

Mostly, gravel roads are in good condition.

My biggest issue with the wildlife refuge is that the roads are gravel. I love to drive through the wildlife refuge, but the gravel dust gets all over my car. I also think that the noise from driving over the gravel frightens away animals. (Which may be a good thing, but I come to the refuge to see as much wildlife as possible.) I don't want people to speed through the refuge if it were to ever be black topped but it sure would be nice. Isn't there some way to have a fund raiser to get the money to pave the roads? I'd gladly donate money to the cause. I love the wildlife refuge and making more of the roads as smooth as the one when you enter the refuge would be great! I've been going to the refuge since I was boy and I've always thought it would be nice if the roads were paved. It would make biking easier too. HEY there's an idea. Pave the roads (even just the main road) and paint a bicycle lane to the side. I think a lot of people would enjoy that.

Need more places to get in. Keep more gates open.

Need some handicap places to hunt if you have the right permits when hunts are going on.

Open the west gate.

Our concerns are with people disregarding speed restrictions. We experience rude individuals that speed by. This is a huge safety issue as far as we're concerned.

Possibly have some closed trails through the closed refuge area so park officials could take the public on tours of the closed area to show and make people aware of the importance of protected wetlands and to ultimately prove it with the evidence. Thank you. Seeing is believing.

Regarding handicapped access: I've not had to deal with this problem, I really don't know.

Reopen the Highway 31 exit! Why is the one road only one way?

Since the closure of the western gate at this refuge, it has made it very inconvenient for many in this community to gain access to the refuge. There was no reason for this closure and it puts those of us that visit the refuge on a regular basis at a disadvantage. I have visited this refuge only about half as much as usual since the closure of that gate. You should consider reopening this gate.

Some trails are no longer being maintained by the refuge, and they are hard to navigate. More signs for direction would be really helpful.

Sometimes the stone roads get full of small potholes and could be graded more frequently. Also if there were some kind of vehicle rental or loan for handicap people that would be great (like an electric golf cart) so that they could access more of the hiking trails.

The boat ramp is filled in and needs to be cleaned out. It is very hard for old people to launch their boat at Muscatatuck National Wildlife Refuge.

The gravel road needs to be graded more often to stop it from "wash-boarding."

The reason I gave a "somewhat unsatisfied" answer on surface conditions of roads is because the majority of the roads in the refuge are gravel surface, not blacktop.

The roads are gravel, which are OK I guess, but if they were cement I think it would be better. Everything gets so dusty in the summertime. I have allergies and allergy induced asthma, so it gets rough on me sometimes.

The roads at Muscatatuck NWR are always in good condition. It would be nice if the west entrance/exit was still open, but I understand why it

was closed (because of locals cutting through and speeding).

The US-31 exit and entrance should not be shut off (I used it a lot and I don't know why it is shut off). Need more trails for walking similar to the current ones. I think there COULD BE MORE.

There is only one way in and one way out on a busy highway. Why don't you open the road going to HWY-31 on the weekends?

There is too much gravel. You could use more blacktop for the auto tour route.

This refuge is very accessible for most!

This refuge is very remote and rugged. Terrain and wetlands hinder trail building and walkways for handicapped persons. Several million \$\$\$ for black top trails. Only two restrooms on refuge.

Trails did not appear mowed this year. It would have made it easier to walk.

Very good.

Wish the roads were paved and maybe a few more walkways around the marshes and ponds.

Survey Section 4

Question 6: "If you have any comments about services, facilities, and activities at this Refuge, please write them on the lines below."

Comments on Services, Facilities, and Activities at This Refuge (n = 70)

Absolutely loved the log cabin and the information about it. I would have liked to go inside, but understand why it is blocked. This was a great place to stop by, and I was very glad that I found it. Very cold that day, but still enjoyed a nice hike to an observation area by the lake, and nice facilities.

Canoeing access ramps could be installed on all ponds and creeks on the refuge. Needs another restroom on south end of property. This is a very REMOTE refuge, so careful planning is needed before installing any water recreation travel.

During hunting season, it takes more time to get out of the refuge.

Gravel roads are very dusty. Maintenance employees drove without consideration when passing us. Their "plume of dust" covered ourselves, vehicle & photo equipment. This happened more than once at every visit. Courtesy to visitors should be foremost.

Great facilities.

Hunting deer should be bow hunting only. There are not enough deer to justify a muzzle loader. As for fishing, there is no harm in a trolling motor. The licenses need to be checked more frequently.

I am a photographer and would like blinds and boardwalks to have viewing ability of the animals.

I appreciate the extended time we're allowed to fish in the evening without having to worry about getting out of the refuge before dark.

I believe that the deer hunting season is extremely too long.

I do not believe in hunting on a wildlife refuge. A wildlife refuge is for animal safety and shelter!!!!

I enjoy all of the state parks in Indiana.

I enjoy everything about this refuge and don't really have any complaints.

I get the opportunity to deer hunt Muscatatuck every year and the deer population is way down. I know it is due to disease, but with this, it would be a GOOD THING to implement an antler restriction and have it in place. I also have to say the draw hunts are a joke. I have met several people who say they spent about every day hunting the deer they can due to the lack of officers checking people for their paper work. I always follow the rules. These guys have shown me big bucks that they kill every year due to lack of officers and a check in station on the morning!!! I also notice that coyotes are overrunning the park. I see more of them than deer and there is no hunting allowed for them. I also noticed since then, I have seen a lot less Woodcock and rabbits, and I have not seen a quail in over 4 years. I am just wondering if a season for these varmints will ever happen.

I love Muscatatuck. Please continue to keep it simple and quiet. Everyone I've met there has been very nice and helpful.

I love nature.

I really enjoy my visits to the refuges. Employees are always nice and courteous, and facilities are always nicely maintained.

I want to make sure that you commend Donna Stanley for the services that she provides at Muscatatuck. She is an asset to the park and does an outstanding job. She is always helpful and goes above and beyond any expectations.

I was generally very impressed with the quality of the facilities.

I wish more of the property would be open to photographers and wildlife watching.

I would like to see it possible to hunt small game with a rifle or hand gun in rim-fire cal instead of being limited to shotgun only.

I would really love to have visited the Visitor Center; however, it has never been open during my multiple visits.

I'd like to see more information kiosks through the refuge.

It is very pretty, although water levels were down.

It is well maintained and good people work there. Great.

It was a sad day when the Visitor Center hours were cut, but that is part of our current economy. Muscatatuck NWR is a good place overall. It's too bad there are not more closer to Cincinnati, OH. I wish there were more days available to the back section. It is only open one day in spring for park rides and tours, and one week in the fall for NWR Week.

It would be great to have a trolling motor available on the bigger lakes for anyone over 55 years old!

It would be more convenient for us if the south entrance were opened back up.

It would be nice to see more places to rent a boat or kayak.

It's a good resource to show and teach my children and grandchildren about their home wildlife heritage. My children live less than a mile from

the refuge, and they respect it. They take their children and other guests to observe and appreciate it. It's a local treasure!

It's a pretty good facility. I would like more days to hunt.

It's a very nice place to visit. The employees are the best.

Less focus on hunting!

My only concern has been on how the waterfowl management areas have been managed, as well as the record keeping of deer harvest. Both of these issues seem to be headed in the right direction with the new management.

My son got the turkey youth draw. We waited to hunt until the draw. When we arrived, others were already hunting, including adults. When I asked, I was told it was just open season and there was no special place or time for my child to hunt.

On the drawn deer hunt that I was on, we never had to sign in and no one ever checked our paperwork to see if we were actually drawn for that day or not. There were also people parked on the county roads bordering the park who may or may not have been drawn for that day, so I think they could have done a better job checking to see if everyone had the correct paperwork and make everyone park inside the park so you at least have an idea of where everyone is hunting.

One of my favorite destinations. Wish it was closer, 90 miles. Again, better access to remote areas. Wish some areas were open more days during the year.

Our granddaughters, ages 5 and 7, enjoy visiting the Visitor Center. The trails were safe for them as well.

Our local refuge bathrooms are not maintained that well. You need more bike trails as well.

Overall, it's an outstanding refuge and an awesome place to spend the day. I want to see paved roads if at all possible. Hunting is probably necessary in the refuges to reduce deer, but it seems that hunters have no regard for people that are there to view wildlife.

Peaceful.

Please fix the boat ramp and small boat dock.

Please reopen US-31 access!

Restrooms were out of order when we visited.

Roads need improvement.

Services and activities are well advertised.

Several hiking trails are no longer open or maintained.

Some of the hiking trails were closed recently. I enjoyed the ones in particular that were closed because of their longer length. Now to complete a hike totaling several miles, I must hike multiple trails.

There could be more attention paid to areas that are used by people: bathrooms, piers, etc.

The deer hunt should be bow and arrow only. The deer population is low. There are bow hunts only every two to three years.

The only thing I am disappointed in is the gates closing early. You need to keep the gate open later at night during the hunts. You do not have

enough time to hunt until dark, then get out of your tree stand and make it back to your truck. You would have to come back the next day if you shot a deer just before dark, which is still during legal shooting hours!

The past two to three years, you seem to want to drain all the marshes. You can't drain them fast enough. Why? I do not see as many birds as I used to. I used to enjoy taking photos and watching grebes and heron catch fish. Now, since they start draining, I rarely see grebes and green heron; they are there a couple of days and then leave. One of my photography acquaintances told me this place is a "dead" refuge. I did not see as many woodchucks, teals, or tundra swans. I see them there a couple of days and then they leave. I did see two families of woodchucks though.

The restroom was closed the day we visited.

The staff and volunteers are always friendly and helpful. I enjoy the Visitor Center, especially the bird and small animal viewing area. I also enjoy the "Wings over Muscatatuck" held each May, plus the hiking trails. Overall it is a very nice facility.

The staff and volunteers do an excellent job. The refuge provides a beautiful escape into nature during every season. It is an important part of my life.

There are many fields available to be planted on this NWR that aren't. I think that if they were planted with crops, it would help deer, turkey, quail, and small game numbers. You could probably get local farmers to help.

There is too much growth around some edges of lakes and absolutely too much moss there. There needs to be some kind of snake control.

There should be a fee to visit the refuge to help costs. A \$5 fee for adults and \$2.50 for children.

This refuge does not allow us to use motors, but sometimes people do. You need to monitor this refuge more often. Also when fishing, bass should be 14 inches minimum, not 10 inches or 12 inches. People take home bass of this size.

This refuge needs a playground for kids and a picnic area with restrooms.

Very good.

Very nice job. I look forward to next year.

We are very glad you have draw hunts! We have had good luck so far!

We enjoy visiting the refuge. Please keep it open and fully staffed and funded.

We have always found the volunteers to be helpful, courteous and knowledgeable. The bird feeder area is no longer a viable place for pictures since the mesh was installed. It would be nice if there was an outdoor area to see it as well for picture taking.

We love it.

We love the addition to the informational area in the Visitors Center. It's great to have something hands-on for kids.

We love to drive through quite often at different times of the day to see what wildlife comes out at that time. We usually bring our dogs along; we like that we can do that (always with a leash).

We're both senior citizens, the ones who needs oxygen needs docks and ramps to enjoy the visit. When we fish, our lines get caught in moss and other things. You need an area for disabled only to fish where the trip can be enjoyed.

When I did fish here, I noticed the ponds needed stocking. It's not fun to fish when you are there for hours and can't catch anything but frogs and turtles.

When we were there, the trails were a muddy mess. It would've been awesome if they were gravel or something besides just dirt!

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 = 140)

An excellent opportunity to hunt deer close to home.

As a birdwatcher, it is my MAIN stop when birding in the state.

Authentic wildlife/bird watching.

Being able to observe wildlife in its truly natural habitat. To learn what it is that each species needs to exist on its own.

Draw hunt only hunters allowed. Note: I think hunters should be the only ones allowed out of cars because of safety.

Driving tours.

Employees are nice, and no one bothers you while you are visiting.

Enjoyable fishing, driving, and hiking makes it unique.

Few people, and more wild life.

For me, this refuge holds a lot of memories and if it were gone or shut down, I don't know what I would do. Every time I go there it is a unique experience for me.

For me, wildlife refuges provide an opportunity to see and photograph a lot of wildlife that are used to people. They also preserve many types of plants and animals that are hard to find elsewhere.

Game hunting and recreational management.

Good roads and more parking places.

Habitat management.

Hunting.

I appreciate the conservation of wildlife and preservation of natural habitat.

I believe Refuges allow people to enjoy the outdoors and wildlife, while limiting environmental impact and un-natural improvements, so it can be enjoyed by many but still be quiet and relaxing.

I believe that people (visitors) are more likely to respect refuges because they understand that the refuges are there to preserve and protect the animals. Most visitors are nature lovers, like myself.

I can take my grandchildren with me on the trail.

I have been a visitor of the refuge for about 30 years. I enjoy the hunting and fishing it offers. The management is doing a good job. I consider myself lucky to have access to wildlife areas that are close to home.

I have not been to a lot of refuges, but there is plenty to see and do if you're into photography. I always find more opportunities in refuges versus state parks and other places.

I have seen it all, from deer to bobcat to gray fox to more birds than I knew. It's a place that I look forward to going to every year once or twice. I enjoy it.

I think it is geared more to those who understand and enjoy the life cycle of nature without the big fancy park atmosphere. My wife and I prefer to go to somewhat secluded and more natural areas to day hike and camp if possible. Less crowded, too.

I think it's very important to maintain tracts of land that are either natural, or have been reverted back to natural habitat. Many different species of birds, mammals, reptiles, etc., need places that they can count on to continue to survive. It's also important to educate our youth on proper uses of land and a place for many to experience nature for the first time.

I'm able to observe nature in its true state.

If traveling, I would look for NWRs because they better suit my interests - nature observation. I used to think National Parks, but I think they do too much touristy stuff where the NWRs still try to keep it about nature.

In the instance of our local refuge, it provides habitat for migratory waterfowl, especially sandhill cranes. That is not available on any of the surrounding landscapes.

It brings everything to its natural habitat.

It gives me a chance to go hunting and fishing.

It gives our students an opportunity to learn about area wildlife and ways to take care of our earth.

It gives people the opportunity to see land and wildlife that they may never have the chance to see (unless they own the land).

It is a very good place to go.

It is not a "commercial" experience. It's good for kids to learn about nature and being outside.

It is quiet and well maintained.

It provides an experience to the outdoors. A lot of people don't have a chance to have and learn about a lot of wildlife.

It's a place for people to enjoy hunting and fishing, which is sometimes hard to find on private land.

It's a place to go to see wildlife and to walk in the wilderness.

It's all natural, which makes it more beautiful and peaceful.

It's close to home. There are very interesting sights. Overall it's a nice family place to visit.

It's close to natural setting where you can get with the needs of the refuge to maintain it.

It's natural, not commercial. It makes observing and learning about wildlife more bonding for families in way of their relationships and memories.

It's small, not overwhelming, has easy access with small children to wildlife, bird watching area, and identification. It has a wide variety of taxidermed specimens. The volunteers are excellent, knowledgeable, and engaging! Kiosks and exhibits are in good working condition.

Large areas of mostly undeveloped land compared even to state parks and similar facilities.

Less hunters control the hunts, but it needs to be open later at night, like at Big Oaks.

Limited public activity to preserve wildlife. Pet control a big plus.

Living close to the refuge for as long as it has been open, we have had the opportunity to see it develop. Two of our children worked there as summer employees while they were in high school in the late 1960's and early 1970's. The refuges are a very good teaching tool for youth growing up around them and for visitors. We have often seen otters playing on ice on the lakes and our grandson at four years had a great experience of seeing how curious otters are about the noise from an approaching road grader. Another set of grandchildren always asked to go to the refuge when they visited. Our son, who worked there in high school, now takes his kids there nearly every time he's home.

Location.

Making money is not the primary goal of refuges.

More pristine conditions and land compared to State Parks.

Most refuges I have been to are remote and less traveled. For the most part, they are open for exploring, except for things like extremely rare wildlife, so some areas are closed off. I just wish the sunset closing rule was done away with. Most are cleaner than state parks, with little trash, etc. I do think some refuges could offer camping facilities, not remote, but close to the Visitors Center, if space is available.

Much better in terms of management compared to parks, and places more emphasis on service and education.

My family and I love animals in the wild. Thanks.

Native wildlife and habitat are very hard to find in most areas. My grandchildren are seeing things they have not seen before and would not see without something like this.

Nice, clean, easy access, and free.

Not overcrowded due to being very basic in nature. For the purpose of animal and plant life rather than human entertainment, yet provides an opportunity to view wildlife in their environment unobstructed; also, people have some ability to get somewhat close.

Numerous trails and the lack of commercial "pollution."

Offers the opportunity to observe wildlife in natural habitat.

Once we enter the refuge, a stillness/peace comes over us. You can just be... observing the marvelous, vast array of Nature. It's like another world where time slows down just so we can take a breath and lay our burdens and cares of the day down for a while, before we have to leave back to the world.

Opportunity to see and photograph birds and wildlife and to get information about them from refuge staff.

Other public places do not protect and conserve wildlife. Refuges offer a place where you know you'll see their natural habitats and many opportunities.

Our refuge is beautiful and provides an enjoyable and affordable family outing opportunity. Because we live in town, the refuge gives us the opportunity to enjoy nature and the outdoors. We enjoy fishing too. It's nice to have public access to fishing.

Photography opportunities.

Preservation of everything the refuge has to offer, whether it be the woods, the open fields, hills, birds, deer, wildlife, fish, or even water.

Preservation of natural habitat for animals.

Raw untouched forest lands.

Refuge activities are calmer and more laid back. I enjoy being able to go out to the refuge and just relax.

Refuges have quite a bit more information and staff to help the visitors.

Refuges provide opportunities to people that might not be able to experience wildlife without ridiculous private fees. A fee puts a value on the very wildlife we are trying to conserve.

Sometimes there's good fishing.

The ability to provide a controlled environment that is far less polluted and much safer for wildlife. We must be stewards of nature.

The ability to view wildlife in a secure and protected area.

The abundance of wildlife.

The amount of space that can be used.

The area is set aside for observation, and my kids love to visit the old cabin.

The chance to see different types of wildlife.

The entire purpose of the refuge is awesome and very important for wildlife and wildlife education. It is a very peaceful and beautiful place to escape and enjoy nature in its finest.

The family cabin and barn and the cemeteries on property make it unique.

The food plots that are available make it unique.

The freedom to experience nature.

The hiking and bird watching make it unique.

The lakes are kept clean and stocked.

The natural habitat that it offers makes it unique. It is not overly updated.

The opportunity to enjoy a wide variety of activities in accessible areas and terrain.

The opportunity to hunt.

The opportunity to see area wildlife in their natural environment.

The privilege of wildlife in their habitat provides an awesome experience for our family.

The property is in almost pristine condition. Greater access, while it would be more entertaining, might threaten the very thing we are trying to preserve; hence the conflict...

They provide a place to observe birds and wildlife.

The reclamation and protection of land to facilitate a stable environment and ecosystem for historically present wildlife. In areas such as Indiana, there are few naturally occurring areas such as Muscatatuck NWR. Without it, there would not be an opportunity for people to witness the wildlife in its natural environment and ecosystem.

The refuge has a more diverse wildlife population than many other areas. Recreation areas are very well marked. Many trails have information, such as tree species or history of the area noted on them.

The refuge is a place I can go that is peaceful and beautiful in all four seasons; plus, I get the opportunity to view wildlife in their natural settings.

The refuge is self-contained with good interior roads but no non-refuge through traffic. A good mix of wildlife and birds.

The refuges protect area that, if not for the government, would not be accessible to the common person.

The unique wildlife, especially river otters, make it unique.

The variety of wildlife and their habitats make it unique.

The variety of wildlife observed here is good. The trails are good, especially for bird watching and photography. My only complaint here is "we need more available fish." Everything else is outstanding. :)

The wildlife present on this refuge and the refuges openness to people walking off trail in order to see the wildlife and plant life. Some areas do not allow you to leave the trails at all.

There are employees there to answer any questions on what you see or find.

There are many water areas for southern Indiana.

There is a variety of birds and wildlife to photograph in natural surroundings.

There is an abundance of wildlife, including endangered species, and the courteous and friendly staff that enriched my outdoor experience. I always love it and look forward to my next trip.

There is good maintenance of roads and trails and a good variety of things to do: hiking, fishing, hunting, and bird watching.

There is lots of wildlife to view.

There is more info and more focus on wildlife conservation than on history, camping, etc. Also it is usually not as crowded as national parks.

There is no other public land in my area where I can observe the diverse waterfowl collection that I can see at this refuge.

They are a natural habitat that not only conserve the land, but also work to maintain habitats for many types of wildlife. Refuges also provide a great educational experience for many groups and students.

They are clean, safe, well-kept, and have lots of wildlife.

They are extremely important in preserving a small amount of our country's original state. I hope our state, and others as well, can try to purchase and develop more natural habitats like this one to try to give some balance back to the original wildlife inhabitants.

They are nature specific in their mission. No sports fields, no playgrounds, etc. Traffic is limited to refuge guests; no sharing of roads with community traffic, etc.

They are unique in that there is a focus on protecting the wildlife communities.

They are unpredictable - you never know what you will see or hear. They are all natural - it's mother nature at her best.

They definitely provide a more natural setting to enjoy all parts of nature without all of the normal tourist type things that are distractions in some of our National Parks and other areas.

They do a good job managing the habitats for animals. I have had very good experiences with employees and information given.

They offer opportunities to view wildlife in natural surroundings and thus provide numerous learning experiences for children and adults.

This land lies in the middle of mostly urban settings and provides a refuge for many wildlife forms that would be unable to exist on private or developed areas.

This one allows easy access and simple opportunities to enjoy nature in all ways. The lack of campgrounds helps to keep it peaceful.

This one is unique in the preservation of wetlands.

This refuge appears to be maintained to a much higher extent for wildlife benefits than Hoosier National Forest, other state forests, and properties. There is a much greater likelihood for observing wildlife and waterfowl at this refuge. The staff appear to be more knowledgeable and dedicated as well.

This refuge is local and important for those who live near. It's a place to be at one with nature.

This refuge is pretty natural. You feel free to enjoy it at your own pace. My whole family appreciates it and has learned most of their local wildlife and enjoyment using this refuge in the past 30 to 40 years. From early dawn to sunset you can observe deer and birds, exclusively hawks, eagles, and owls, fish, enjoy exercise, and feel at peace. We all love it. What a blessing it is to live near such a wonderful place. (signature).

Too many other public lands are inundated by hunters. We create supposed "fish and wildlife areas" that attract waterfowl as a haven, then folks come in to shoot them. I don't have issues with the periodic one-day deer hunts--I realize that humans created the overpopulation and there is a need to control it.

Unlike other (military) hunts I have been on, this one is the best. 1: hunt hours are better. 2: fewer restrictions on entering and leaving. 3: FWS leaves you alone to hunt. 4: No overcrowding by too many hunters.

Untouched grounds (nature).

Waterfowl resting areas and viewing areas are there.

We love the Muscatatuck Refuge. It is great. We always have a new experience each time we're there. We enjoy being able to look, touch, and explore without being in a structured group, but if we want to talk with someone, the employees are very friendly and well informed.

We love watching wildlife, and here they have a good chance for survival. You can get pretty close to them (the animals), getting a good view. Of course we always bring the binoculars.

We think it is one of the best places to see wildlife and birds in Indiana! Wish more of the refuge was open to the public since a large part of it is closed off. Before going to the refuge, we had no idea there were so many different birds in Indiana that come to one place! We also were so excited when we saw our first river otter! We hope to see some osprey and bald eagle someday, too.

We think it's fantastic for wildlife to have a place to thrive without being bothered; a sanctuary, if you will for the wildlife and for those of us who wish to observe it with the utmost respect for it. We have also been impressed with the staff that maintains it. They seem to be doing a marvelous job policing the refuge. It's a comfort to know that if you get lost or have a problem, be patient, a Fish and Wildlife officer will soon be spotted on the road.

Well maintained areas for wildlife to thrive.

Wetland habitat, and bottomland hardwoods.

When visiting a refuge, you can either fish, take photographs, hunt, hike, or enjoy nature at its finest.

WILDLIFE - WILDLIFE - WILDLIFE.

Wildlife and habitat in pretty much an undisturbed state... We really hope that doesn't change with organized tours, buses, increased human traffic, etc.

Wildlife is more abundant.

Wildlife.

You can see birds and animals you don't see on public land.

You can use most of the land for hunting, fishing and hiking.

You get to see wildlife in its natural habitat, and you never know what you may see from visit to visit.

You have a chance to kill a big buck.

Additional Comments (n = 49)

1) Moss control. 2) Snake control. 3) Extraction of all bad fish from the lakes: bowfins, dogfish, carp, etc.

As an educator with a children's museum background, I was very impressed with this refuge!

Eliminate firearm hunting to allow bow hunting only. More efforts are needed to tighten up on those who do not obtain a hunting or fishing license. Allow fishing in both large lakes with boats with trolling motors (electric only). Rotate lakes to open every other year. There should be no parking on Lake Pricilla Road for hunting or fishing. Rules can be controlled and monitored more easily from inside the refuge. Charge \$20 to hunt on the refuge, but the hunters have to pay in advance like the Crane Navigation set up. People don't show up for the hunt they get picked for; if they pay, they may show up or not apply, which will allow those who want to hunt there a chance to go. Thank you for your time. (signature)

From the (last name) Family, thank you very much for our local wildlife refuge. It provides a great refuge for animal and plant life and is also our

favorite place for family outings. :)

Gravel roads are very dusty. Maintenance employees drove without consideration when passing us. Their "plume of dust" covered ourselves, vehicle & photo equipment. This happened more than once at every visit. COURTESY TO VISITORS SHOULD BE FOREMOST.

I am glad to help with this survey.

I am more concerned with urban sprawl impact and restoration of our natural wetlands woodlands and prairies and the balance of the creatures which inhabit these areas. I try within a reasonable way to be as conservative as I can with waste and what not, and I commend our governor Mitch Daniels for the efforts of restoration he has put forth.

I believe that the increased number of walkers or hikers on the driving roads are reducing the opportunity for viewing birds and wildlife.

I go to Muscatatuck NWR every weekend and every day off that I have, rain or shine, snow or not. I love it there. I do however believe that they should start charging an entry fee to get into the park to help pay for certain expenses.

I grew up beside this refuge and have been impressed with its evolution over the years. We always visit this refuge on my visits home. (Currently live in Chicago) But, sometimes there are no animals to see. I think it would be helpful to post "iconic" signs at the entrance that let people know when certain animals have returned. For example, a Canada goose icon sign lets us know that the geese are back. Or a mamma/baby deer icon sign lets us know to watch for "the babies" in the park, etc. Also, the driving tour hasn't seemed to have changed over the past 10 years or so - I would like to see longer/new driving trails so we "regulars" would have a new reason to return. Overall, I think the refuge in Seymour does a great job. Keep up the good work!

I had several people asking me why you are draining ponds. This is something I don't understand. This area was once a wetland. I have even attended one of their master naturalist classes where they lament the loss of wetlands. Now they seem bent on drying them out. I mostly see Canada geese, some blue heron, and lots of sterling and robins. I used to come here four times a week and enjoy wildlife viewing and photography. It's getting harder to find water birds to watch and photograph. It's the same way with otters and copper belly water snakes.

I have been told the trails are great, but I can't use them due to a bad back because of spine surgery. Back before this, my two youngest children and I took a walk on Turkey Trail. It was supposed to be a mile or two, but it and Bird Trail seem to merge. They were not well marked and we wandered around for four hours trying to get out. We even ended up falling in one of the ponds/marshes. I hope the trail will be marked better soon.

I have noticed that all the open fields are now overgrown with scrubland. Soon they will be gone. Why is this? The open fields are nice to walk through and now are all covered with nasty bushes. Are all the fields going to end up like this?

I hope this survey yields valuable input for providing additional experiences for learning and enjoyment.

I love the refuge. I live beside it so I visit it as often as possible--fishing and mushroom hunting mostly. I like to pick up turtles and move them out of the road. I'm on the Hoosier Environment Council planting trees, mostly blue spruce and walnut trees. I have ash trees that I'm concerned about. The emerald ash bore scare worries many of us. I like the limited burn I see at the refuge. I'm an ordained priest and care more for the animals than the people. Thank you for your time. (signature)

I love this refuge. I wish there were opportunities to hunt waterfowl on this refuge.

I primarily use this refuge for white-tail deer hunting. This refuge does not appear to manage its resources in any way for quality hunting opportunity. There is a lengthy and liberal hunt in place, however, it may be too lengthy and too liberal. Also, habitat quality for whitetails appears to have decreased on this refuge.

I really like the rain garden at the Visitors Center. Keep it up, so we learn to make natural habitats at our own homes. I do want to comment that every time we have interacted with refuge employees or volunteers, they have always been very cordial and courteous. Thank you.

I think the deer population is down because of blue tongue a few years ago. If there is a deer hunt, it needs to be bow hunting only. You have a

better chance to bring the deer population up. Don't get me wrong, I use a gun to hunt too, but the population is down in a lot of places. Hunting at the refuge is great, I have no problems, and now it's bows and muzzle loaders. Hunters are split up even better. Thanks. I hope to see you this spring. (signature) P.S. The safety zone needs to be bow hunted too, or make smaller for bow hunters.

I think they do a good job of keeping the trail & road in good shape. I like the bird watching in the Visitor Center. I do a lot of fishing, sometimes just to float around the lake and to talk to other visitors.

I will stop coming if a fee starts being charged. We really enjoy the refuge and look forward to our next visit.

I would like to see maybe a bottle water or coffee stand in the Visitors Center. I realize litter is a consideration, but it would enhance the experience and maybe provide a little revenue. Also, I would like to see a refuge calendar for sale with photos from this refuge. Thank you.

I'd like to thank all of those involved in allowing me to opportunity to have this survey. I hope this small contribution helps in your management.

It was Saturday and the Visitors Center was closed, the weather was bad, and I spent almost no time at it. I have been there before and found it to be a very interesting place.

It's a great place in Indiana for peaceful observation.

Keep up to good work - we need you.

Muscatatuck is a great place to spend an hour or a day. The only addition it could use is a snack bar, but I understand why they don't because too many people would throw their trash around and the visitors are so sporadic it probably wouldn't be profitable enough. However, a vending machine for drinks would be helpful maybe.

Muscatatuck is a great place to visit. I enjoy their wetland areas. It attracts a large variety of wildlife. It is a well maintained refuge with a lot of information (pamphlets, etc.). I appreciate that it is free to enter!

My husband and family have used this refuge for more than 30 years. My husband and I witnessed the release of the otter and establishment of a greater deer population. We saw and used structures like the Visitor Center, gazebo, trails, and lake docks built during this time. This is a wonderful, peaceful place! For my family and me, it is home!

Nothing other than to say thank you for the opportunity.

Open the west gate.

Our daughter, who worked on the refuge, was home over Christmas break. She has a PhD in Soil Science now and works for the National Forest Service at a forest in West Virginia. She goes to the refuge to check it out every time she's home, quite often more than once. We generally end up talking about our experiences on previous trips. This time we saw two blue jays. That was total! Normally we see many more birds, a few deer, an occasional coyote or various other animals, but it was very cold, in the teens, and they were probably all down in the Moss Lake area. Nevertheless, we enjoyed the drive and reminiscing about previous visits. By the way, I should add that a few summers ago, my husband and I saw a pair of eagles on Stanfield Lake. Another time that same fall, we saw a flotilla of eighteen swans on the same lake! That's a picture I'll never forget! (signature)

Overall good facilities. The personnel are friendly and helpful. (signature)

Overall, always a good experience.

Reopen the Hwy-31 gate! You changed what used to be a mile drive for me into an 8 mile drive as I live on Hwy-31, half a mile from Stanfield Lake, which I used to fish.

Thank you for having special hunts.

Thank you!

Thanks for the foresight to make areas like this to save the environment for animals, birds, fish, and forest. We need more of these areas.

The deer hunting is nothing like it used to be. Need to open for bow only and keep track of how many are taken each year.

This refuge is being hunted way too hard during deer season.

This refuge is very close to our home, so we get to visit quite often. We visit other refuges, parks, state forests, etc. when we travel.

Time outdoors is very important to me. I would like to give a big thank you to all the employees who care and manage our parks and refuges and a promise that I will not litter and will report any wrong doing.

We enjoy the ability to openly view and interact with nature in an area that is convenient to access. We use Muscatatuck regularly and even take road trips just to see wildlife as well as landscaping. We walk the paths, sometimes fish, drive, view, take photos, and even love the events (especially when they offer educational classes).

We may change our weather, but climate is a change over hundreds of years. Micro habitat weather change we may be able to control. Going green politically is totally different than being environmental friendly. To be environmental friendly, we must do without most of what we desire in material goods except basic simple needs. I believe preservation of lands such as this location is critical and more are needed.

We visit often. One thing we have found is the speed limit is too high. Cars drive through like they're on the main road. Should be a lower speed limit on gravel roads. If they don't want to enjoy the scenery, don't drive back there.

What a great place we have discovered!

Wildlife refuges are important for habitat protection, wildlife management, recreation, opportunities for people to interact with nature; visitor services are important--continue to provide.

Wings Over Muscatatuck was very enjoyable. The volunteers were knowledgeable and helpful.

Would like to see some more refuges in my area. I was pleased to find very little trash there. I have a habit of carrying a bag to gather up garbage when I am in an area such as this, especially when fishing or kayaking. Overall, a nice place. Sad to see vandals writing inside the observation area, but could not be helped.