



**U.S. Fish & Wildlife Service**

# **NATIONAL WILDLIFE REFUGE VISITOR SURVEY**

*2018 Results for  
Prime Hook National Wildlife Refuge*



**THE OHIO STATE  
UNIVERSITY**



## Acknowledgments

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*Front cover: A view from one of boardwalk trails available to visitors at Prime Hook National Wildlife Refuge. Photo credit: Nicole Stagg.*

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# Understanding Wildlife Refuge Visitors & Their Experiences

A hundred years in the making, the National Wildlife Refuge System (Refuge System) is a vast network of habitats that supports over 2,000 species of birds, mammals, reptiles, amphibians, and fish across the United States on national wildlife refuges (wildlife refuges). Wildlife refuges also provide unparalleled outdoor recreation experiences and health benefits to people by offering a chance to unplug from the stresses of modern life and reconnect with their natural surroundings. The National Wildlife Refuge System Improvement Act of 1997 specifically identified six priority recreational uses: hunting, fishing, wildlife observation and photography, environmental education, and interpretation (Fig. 1). These recreational activities are prioritized on every refuge where compatible with the refuge's stated purposes. Visitors may also engage in many other activities (for example, hiking, paddling, boating, and auto tour routes) where compatible.

At least one wildlife refuge exists within an hour's drive of most major metropolitan areas. With over 55 million visits per year, the Refuge System is committed to maintaining customer satisfaction and public engagement while helping people and wildlife to thrive. Increased

visitation is not limited to the Refuge System—over the past few years, there has been a rise in the number of people traveling to public lands and waters for recreation (Outdoor Foundation, 2018). This nationwide trend demands effective management of visitor access and use to ensure benefits for present and future generations.

The need to understand visitors and their experiences, as well as preferences for future opportunities, is further underscored by widespread societal changes that are shaping how people engage with nature and wildlife (Kellert et al., 2017; Manfredo et al., 2018). Researchers and land management professionals alike recognize the need to connect the next generation to nature and wildlife to enhance mental and physical well-being and build a broader conservation constituency (Charles & Louv, 2009; Larson, Green, & Cordell, 2011).

The National Wildlife Refuge Visitor Survey is a Refuge System-wide effort to monitor visitor characteristics, experience, and satisfaction with refuge experiences, as well as visitor economic contributions to local communities. The survey is conducted every five years on a rotating basis on wildlife refuges that have at least 50,000 visits per year. This effort provides refuge professionals with reliable baseline information and trend data that can be used to plan, design, and deliver quality visitor experiences, communicate the value of wildlife refuges to different audiences, and set future priorities. The National Wildlife Refuge Visitor Survey is a collaboration between the U.S. Fish & Wildlife Service (Service), The Ohio State University (OSU), and American Conservation Experience (ACE).

This report summarizes visitors and their experiences at Prime Hook National Wildlife Refuge, referred to as “this wildlife refuge” or “refuge” throughout this report. Percentages noted throughout the report were rounded



*Fig. 1: Priority recreational uses of National Wildlife Refuges.*

to the nearest whole number and, when summarized per survey question, may not equal 100%. Additionally, most figures do not display a percentage for any category containing less than 5% of visitors. See Appendix A for the

survey methodology and limitations of findings. See Appendix B and C for visitor responses to specific survey questions for this wildlife refuge.



*2018 National Visitor Survey interns in action at wildlife refuges across the United States. Photo credit: U.S. Fish & Wildlife Service.*



# Surveying Visitors at This Wildlife Refuge

## REFUGE DESCRIPTION

Prime Hook National Wildlife Refuge is located on the western shore of the Delaware Bay in western-central Delaware, just 22 miles southeast of the city of Dover. The refuge was established in 1963 under the authority of the Migratory Bird Conservation Act for the primary purpose of providing sanctuary habitat for migratory birds. The 10,144 acres are mainly composed of fresh and saltwater marshlands. Additional habitats include ponds and managed impoundments as well as swampy and upland woodlands. The marshlands are centrally located along the Atlantic Flyway and are an important stopover point for migrating ducks and geese: tens of thousands of snow geese visit this wildlife refuge during the fall. Migrating shorebirds such as dunlin, dowitchers, sandpipers, and plovers also use the refuge to feed. The upland forests provide habitat to migrating songbirds, such as the unique migrating coastal plain swamp sparrow. In addition to migratory birds, the refuge provides habitat for a variety of mammals including the formerly endangered Delmarva Peninsula fox squirrel. The refuge's name comes from the area's history: when Dutch settlers



*A snake suns itself on a fallen tree at Prime Hook National Wildlife Refuge. Photo credit: Nicole Stagg.*

arrived in the area that is now the refuge, they noticed large amounts of purple beach plum plants so they called the area Plum Point or “Priume Hoek” in their language.

Prime Hook National Wildlife Refuge attracts over 86,000 visitors annually (U.S. Fish and Wildlife Service, 2018, written comm.). Hunting and fishing are popular activities on the refuge. Anglers can expect to catch fish such as largemouth bass and crappie. Visitors can hunt whitetail deer, waterfowl, and upland game birds on the refuge as part of annual permitted hunts. Visitors can explore 15 miles of waterways via kayak or canoe, or the refuge's four hiking trails by foot. Birdwatching and wildlife photography are also popular from the roadways that bisect this refuge. A visitor center offers environmental education opportunities for kids and adults alike.

## SAMPLING

Refuge professionals at this wildlife refuge identified two separate 14-day sampling periods and one or more sampling locations that best reflected the primary uses of the refuge as well as the diversity of activities that occur (Fig. 2). For more details on methodology for the National Wildlife Refuge Visitor Survey, see Appendix A.

- During the two sampling periods, a total of 375 visitors agreed to participate in the survey by providing their names and addresses.
- In all, 169 visitors completed the survey online (44%) or by mail (56%) after their refuge visit, resulting in a 46% response rate.
- Results for this wildlife refuge have a  $\pm 6\%$  margin of error at the 95% confidence level. For more details on limitations of results and survey methodology, see Appendix A.

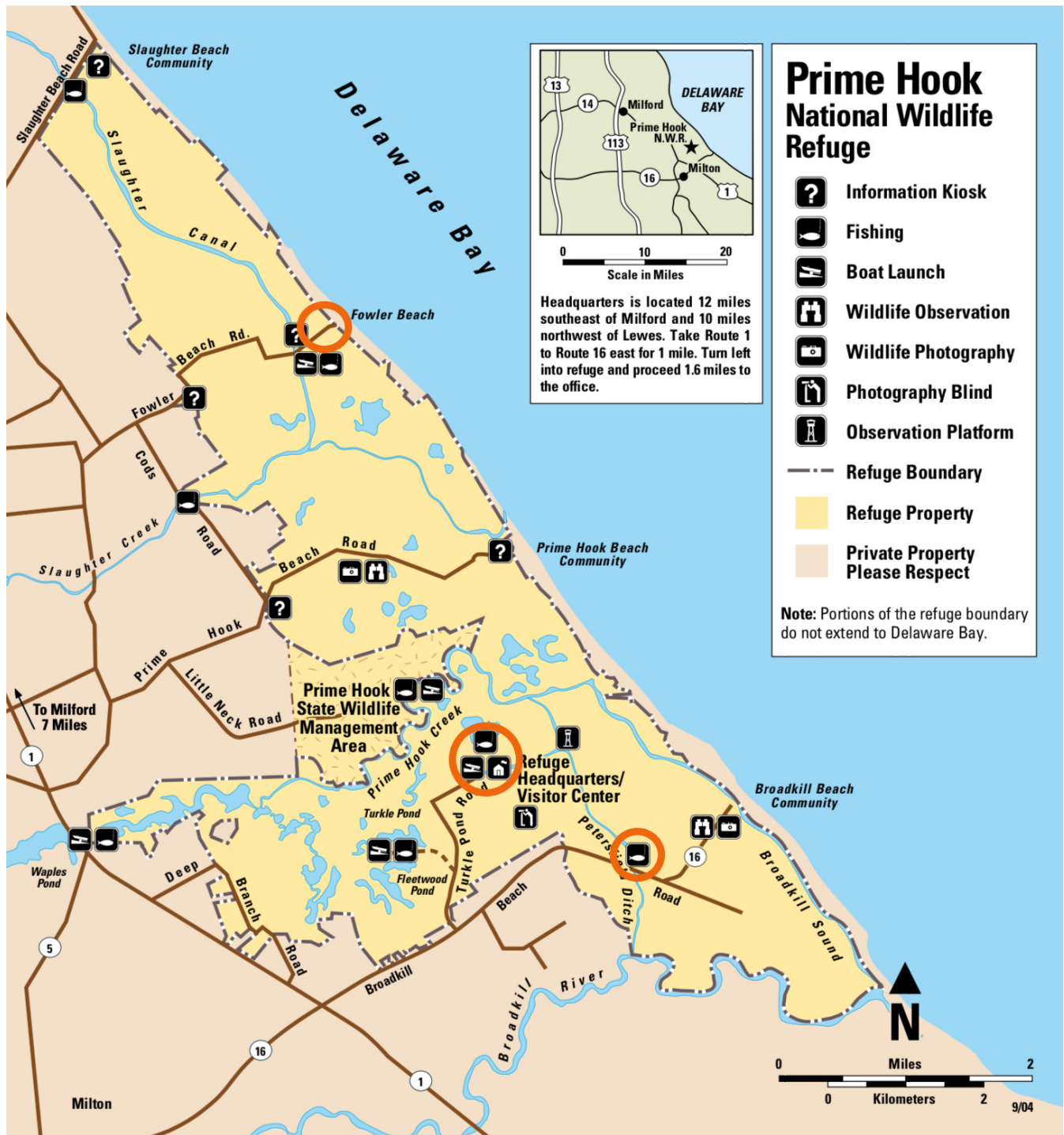


Fig. 2: Map of Prime Hook National Wildlife Refuge. Visitors were contacted at the circled locations from 6/28/2018-7/7/2018 and 8/23/2018-9/2/2018.

# Visitor Characteristics

An important first step in managing visitor experiences is to understand the characteristics of those who currently visit wildlife refuges. Refuge professionals can compare visitor demographics to the demographic composition of nearby communities or the nation to inform engagement efforts with new audiences. Useful tools for these comparisons include Headwaters Economics' Economic Profile System and their Populations at Risk (<https://headwaterseconomics.org>) or U.S. Census Bureau products ([www.census.gov](http://www.census.gov); [www.socialexplorer.com](http://www.socialexplorer.com)).

## AGE & GENDER

- 46% of visitors were female with an average age of 57 years (Fig. 3).
- 54% were male with an average age of 62 years.

## EDUCATION

- 13% of visitors had a high school degree or less.
- 46% had at least some college.
- 41% had an advanced degree.

## RACE & ETHNICITY

Most prevalent race or ethnicity (Fig. 4):

- White (91%).
- African American (3%).

## INCOME

- Visitors had a mean income range of \$75,000-\$99,999 (Fig. 5).

## OTHER TRIP CHARACTERISTICS

- Average group size of 2 people.
- 32% visited the refuge alone.
- 51% visited with at least one other adult.
- 18% visited with a combination of at least 1 adult and 1 child.

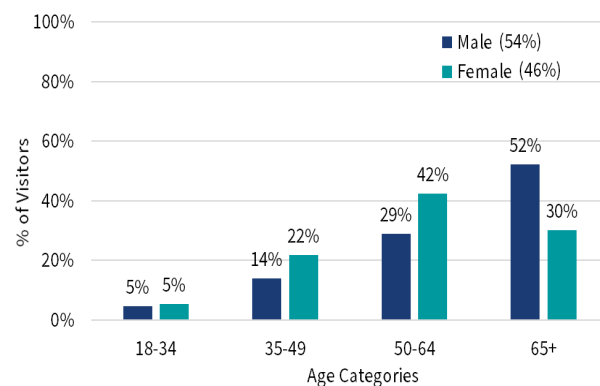


Fig. 3: Distribution of visitors to this refuge by gender and age group.

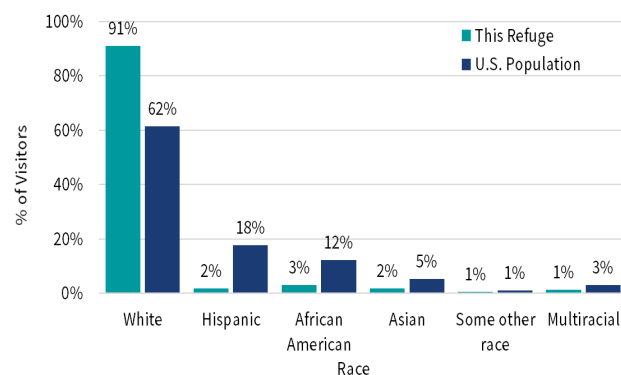


Fig. 4: Race and ethnicity of visitors to this refuge compared to the national average.

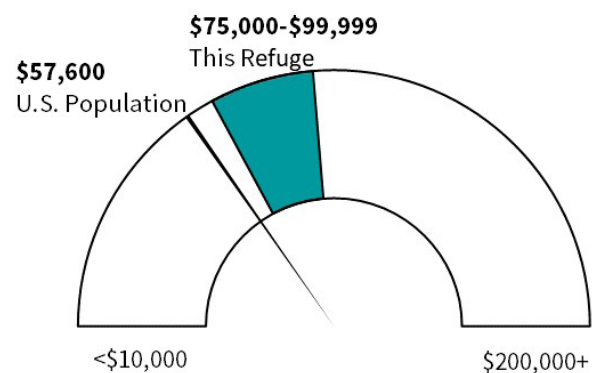


Fig. 5: Mean income range of visitors to this refuge compared to the national median income.



# Trip Characteristics

Understanding the travel patterns of visitors and why they choose to visit wildlife refuges is important for effective visitor use management. Comparisons of responses from local visitors (those living  $\leq 50$  miles from the refuge) and nonlocal visitors (those living  $> 50$  miles from the refuge) can inform communication efforts with current visitors and those who have yet to visit. Understanding seasonality helps refuge professionals better understand visitor use patterns and gauge supply and demand.

## LOCAL VISITORS

Highlights of trip characteristics for local visitors to this wildlife refuge (49%) include:

- For locals, this refuge was the primary reason for their trip (70%) (Fig. 6).
- Local visitors traveled an average of 23 minutes to arrive at this refuge (Fig. 7).

## NONLOCAL VISITORS

Highlights of trip characteristics for nonlocal visitors to this wildlife refuge (51%) include:

- For nonlocals, this refuge was an incidental stop as part of a trip for other purposes (48%) (Fig. 6).
- Nonlocal visitors traveled an average of 4 hours to arrive at this refuge (Fig. 8).
- Of the 100% of visitors who lived in the U.S., nonlocal visitors were most often from Delaware (50%) and Pennsylvania (15%).

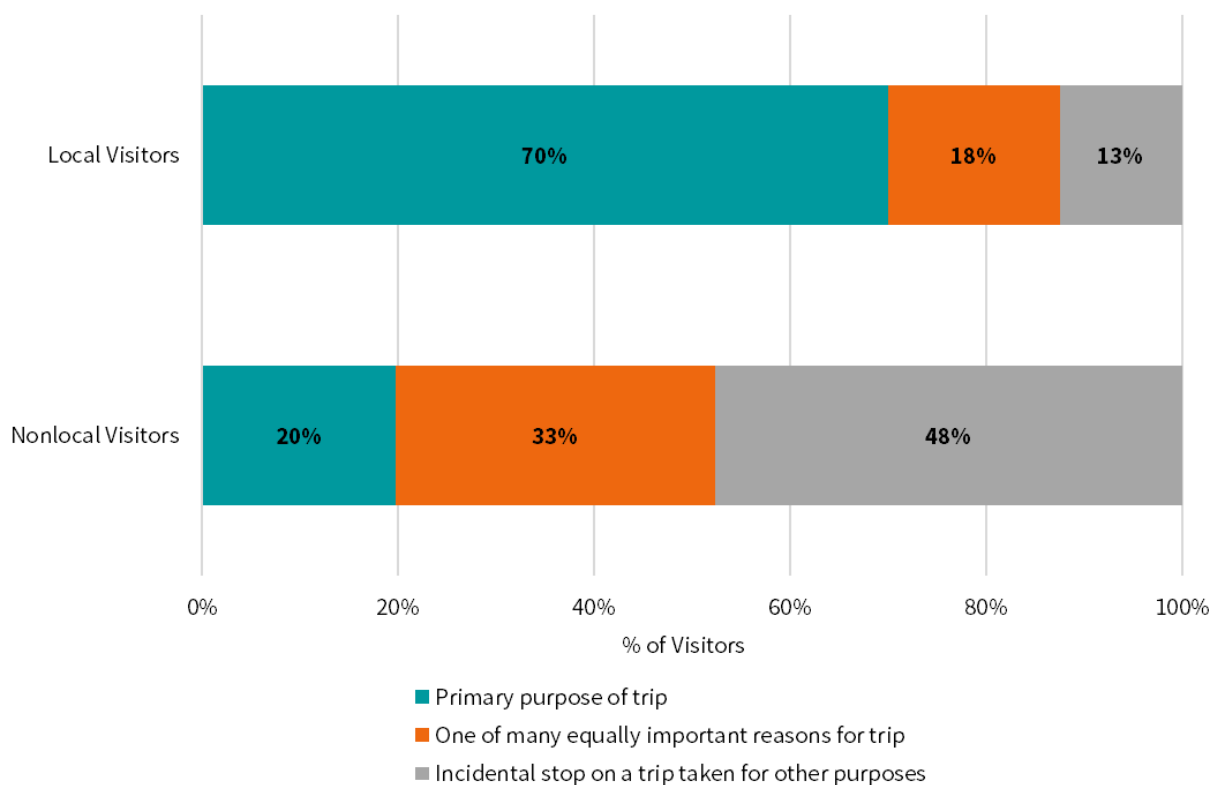
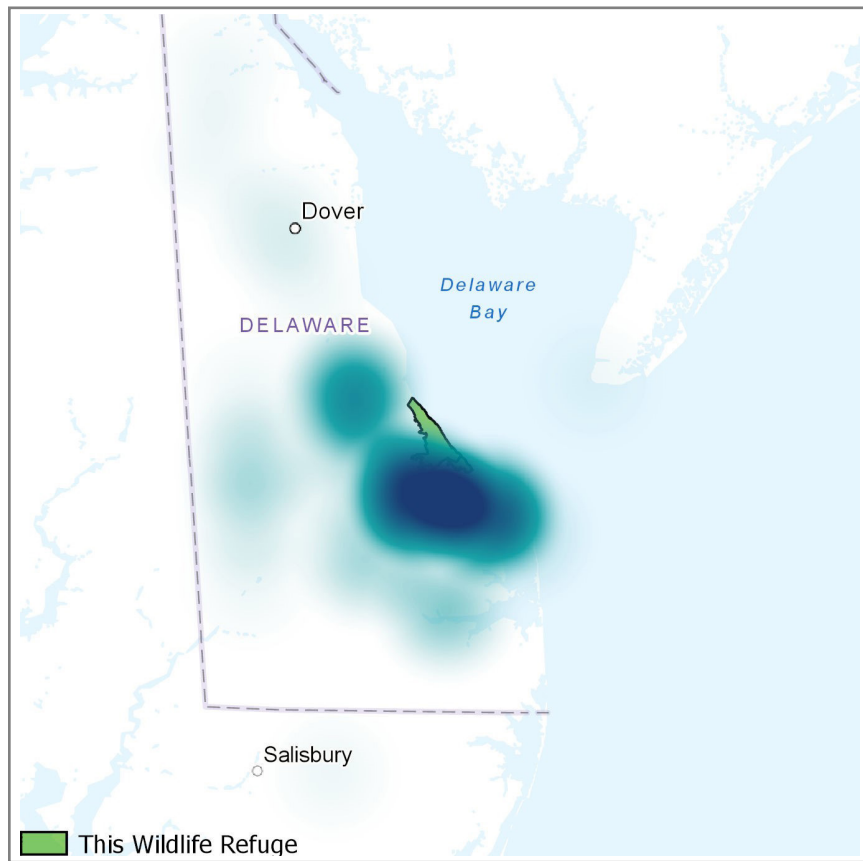
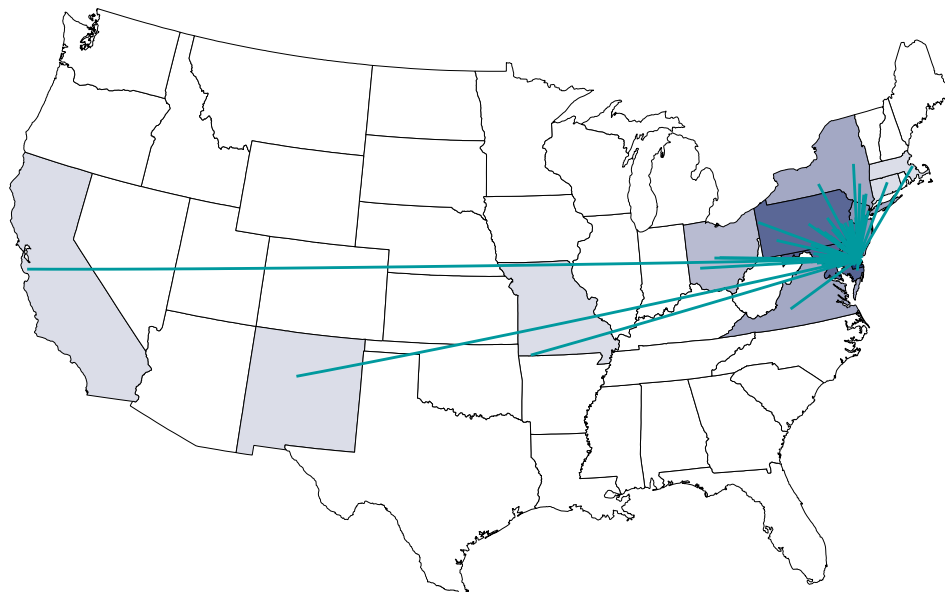


Fig. 6: Purpose of most recent refuge visit for local (living  $\leq 50$  miles from the refuge) and nonlocal (living  $> 50$  miles from the refuge) visitors.



*Fig. 7: Map showing residence of local visitors to this refuge. Darker shading represents relatively higher visitation from that area.*



*Fig. 8: Map showing residence of visitors to this refuge by zip code, with each line representing visitation from a different zip code. The convergence point of the lines is the geographical center of the refuge. Darker shading of the states represents higher visitation from that state.*

## OTHER TRIP CHARACTERISTICS

Other trip characteristics include:

- To get to this wildlife refuge, visitors primarily traveled by private vehicle without a trailer (93%) and by foot (7%) (Fig. 9).
- Once on the refuge, visitors primarily traveled by private vehicle without a trailer (73%) and by foot (39%) (Fig. 9).
- Visits occurred during winter (28%), spring (40%), summer (92%), and fall (48%).
- 94% of visitors made a single-day trip to this refuge, spending an average of 3 hours, while 6% of visitors were on a multi-day trip to this wildlife refuge that averaged 4 days.

During the 12 months prior to completing the survey, visitors also made multiple trips to this wildlife refuge, other wildlife refuges, and other public lands:

- 66% were repeat visitors to this wildlife refuge, visiting an average of 17 times.
- 63% visited other national wildlife refuges, averaging 3 visits.
- 78% visited other public lands, averaging 10 visits.

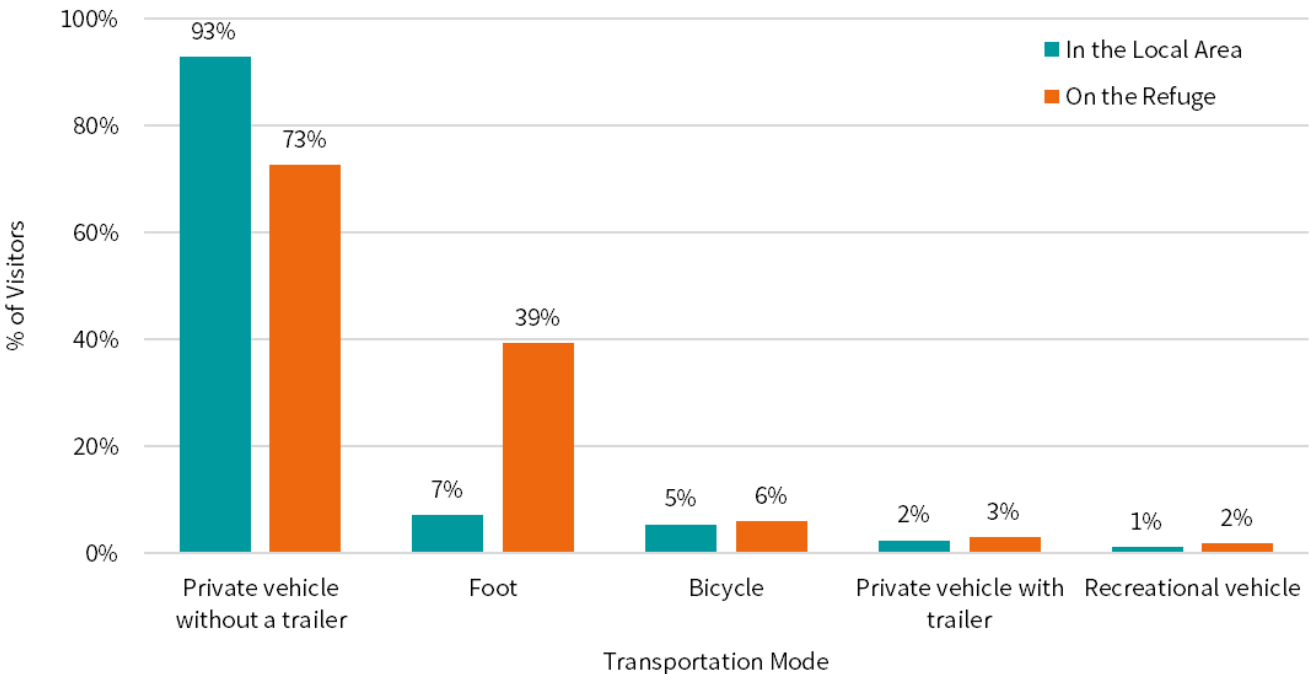


Fig. 9: Modes of transportation used by visitors to get from the local area to this refuge and within the boundaries of this refuge.

## Information Sources Used for Trip Planning

Knowing more about which information sources visitors use (or do not use) to plan their trips can improve communication strategies and facilitate positive experiences on refuges. The Refuge System's success in reaching new and diverse audiences as well as current visitors also depends on its ability to keep pace with communication trends (U.S. Fish & Wildlife Service, 2016a).

Visitors to this wildlife refuge found a variety of in-person, print/internet, and refuge-specific information sources helpful when planning their trips. Details for information sources identified as very or extremely helpful include:

- In-person sources that were most helpful to visitors regardless of age included tourist information/welcome center and word of mouth.
- Print and internet sources that were most helpful to visitors regardless of age included web-based map and printed map/atlas.
- Refuge-specific sources that were most helpful to visitors regardless of age included refuge employees/volunteers and refuge website.
- Use of information sources varied by age groups (see Figs. 10-12 for details).

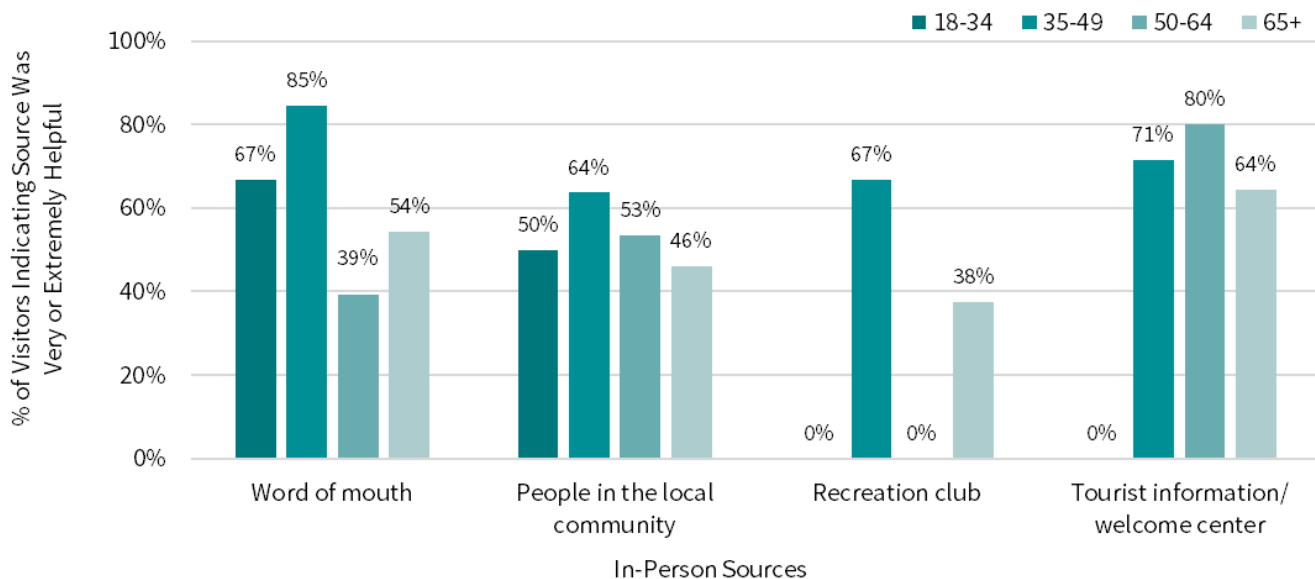


Fig. 10: Percent of visitors by age group who found in-person information sources very or extremely helpful in planning their trip.

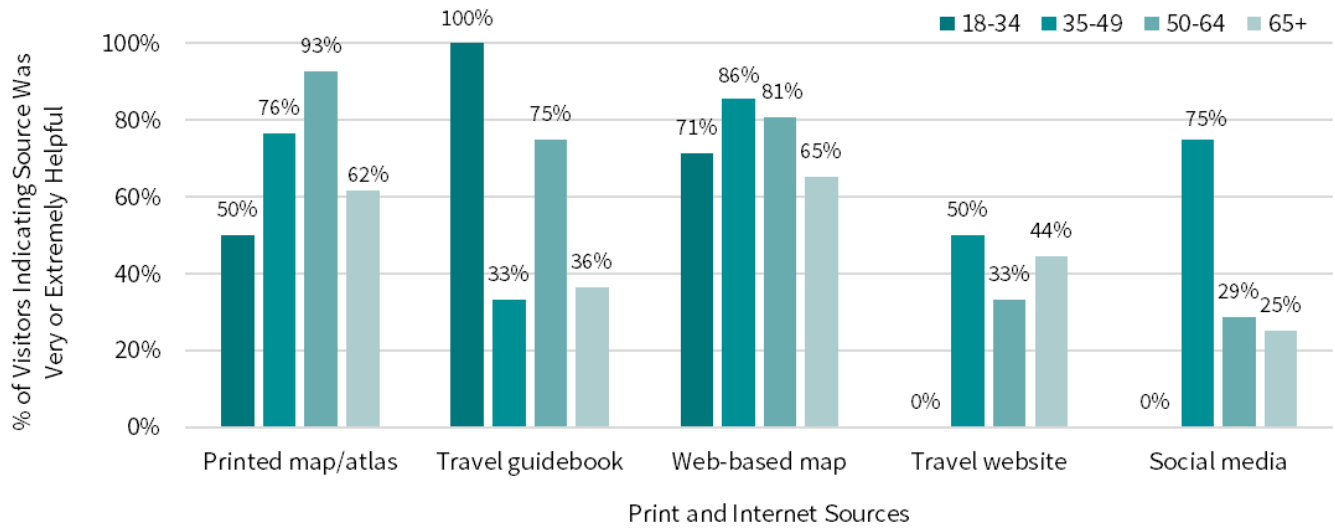


Fig. 11: Percent of visitors by age group who found print and internet information sources very or extremely helpful in planning their trip.

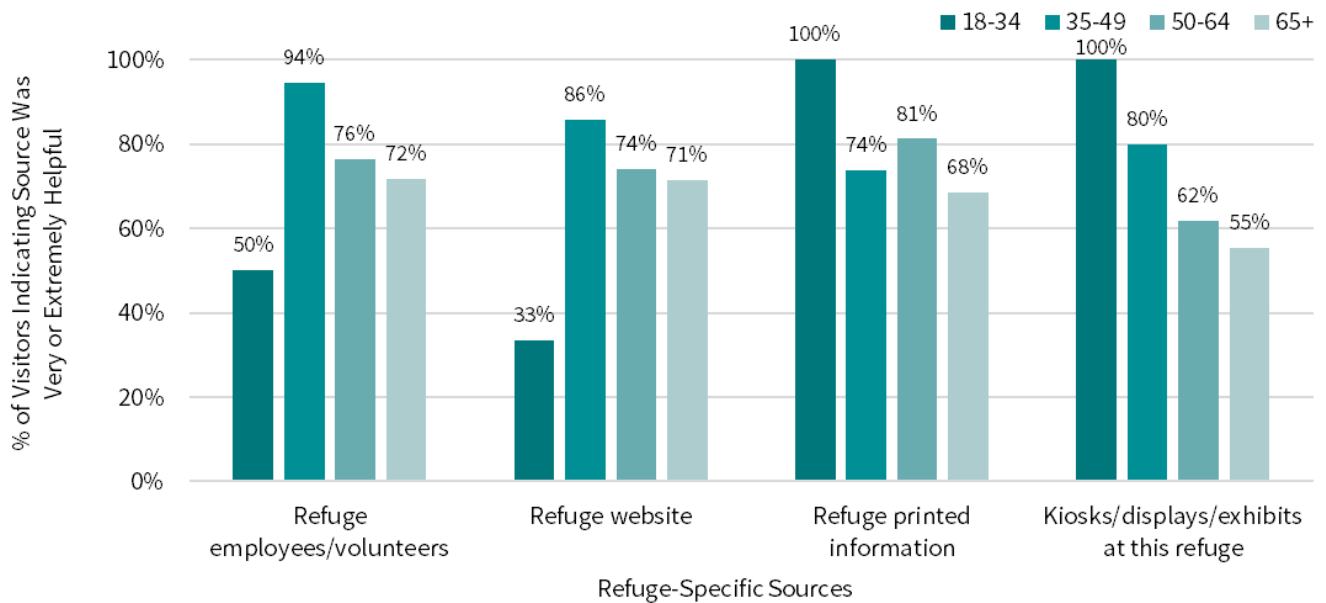


Fig. 12: Percent of visitors by age group who found refuge-specific information sources very or extremely helpful in planning their trip.



## Use of Social Media

Around 70% of Americans use social media to connect with one another, engage with news content, share information, and entertain themselves (Smith & Anderson, 2018). Social media posts can act as a virtual “word of mouth” method for increasing awareness about the refuge to the visitor’s network and beyond. A social media presence can further generate awareness of the refuge and its resources among audiences that do not use or did not otherwise learn about the refuge through traditional advertising outlets.

Social media was used by 37% of visitors to share their experience on this refuge with others. Use of specific social media platforms varied by age group (Fig. 13):

- Visitors 18-34 years old preferred to use Instagram (14%) and Facebook (14%).
- Visitors 35-49 years old preferred to use Facebook (58%) and Instagram (17%).
- Visitors 50-64 years old preferred to use Facebook (36%) and Instagram (13%).
- Visitors 65 or older preferred to use Facebook (8%).

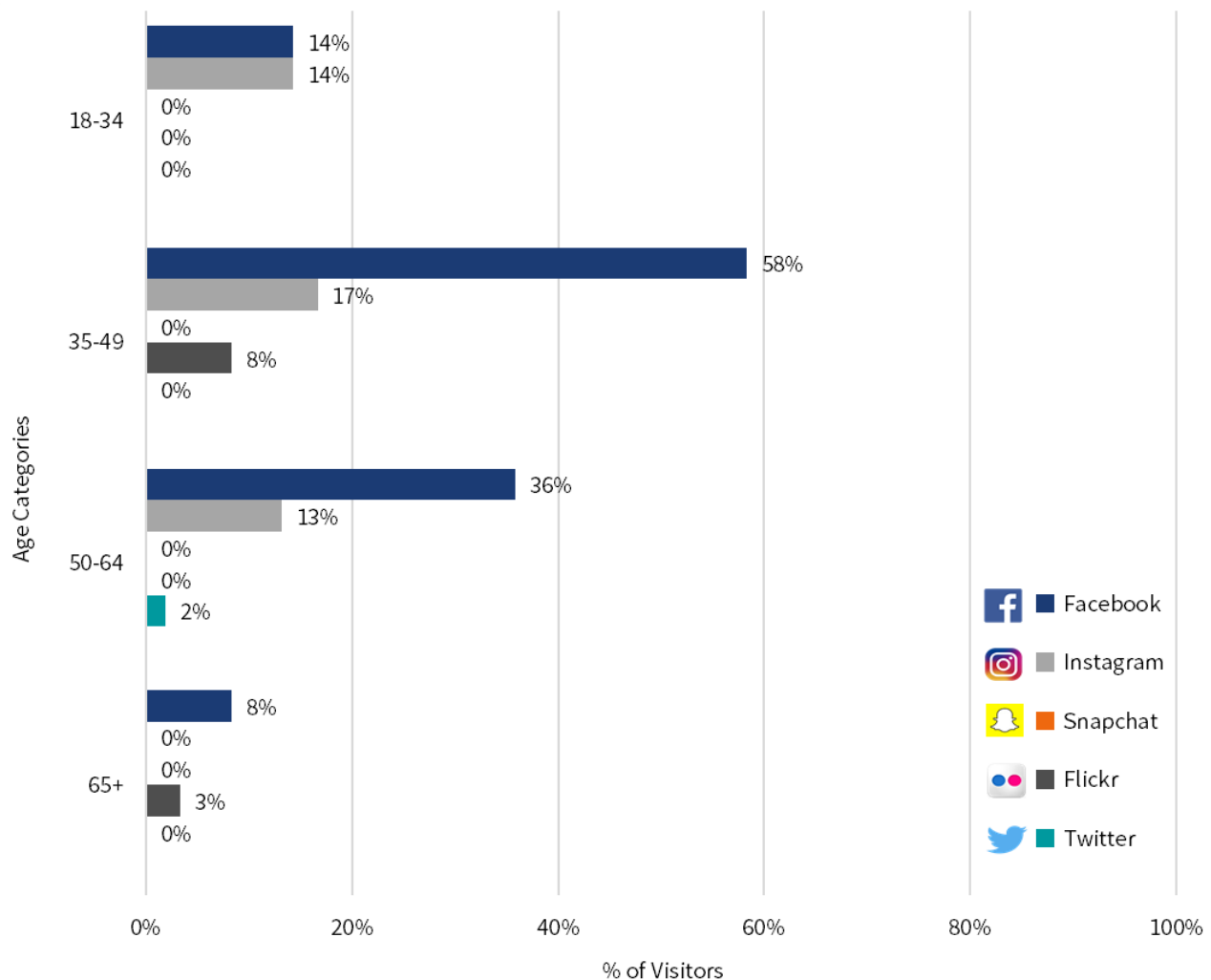


Fig. 13: Percent of visitors by age group who used various social media platforms to share their experience on this refuge with others.

## Participation in Recreational Activities

Some research shows that rates of participation in outdoor recreation activities have increased (Outdoor Foundation, 2018), while other studies have indicated declines in participation in heritage activities such as hunting (U.S. Fish & Wildlife Service, 2016a). In light of these trends it is important to understand recreation participation on refuges to create quality visitor experiences and foster personal and emotional connections to the refuge and its resources (U.S. Fish & Wildlife Service, 2011). Understanding what people do while visiting refuges can also aid in developing programs that facilitate meaningful interactions between visitors and refuge professionals. Finally, such information can help to ensure impacts to resources and conflicts among visitor groups are minimized.

Participation in recreational activities at this wildlife refuge can be characterized as follows:

- The top three activities in which visitors participated during the past 12 months were wildlife observation (72%), hiking (59%), and bird watching (53%) (Fig. 14).
- The top three activities noted as their primary activity on the day visitors were contacted to participate in the survey were bird watching (21%), hiking (21%), and wildlife observation (9%) (Fig. 14).
- Approximately 57% of visitors went to the visitor center, and they most often used the facilities (79%), visited the gift shop or bookstore (51%), viewed the exhibits (50%), and asked for information (50%) (Fig. 15).



*Photo credit: U.S. Fish & Wildlife Service.*

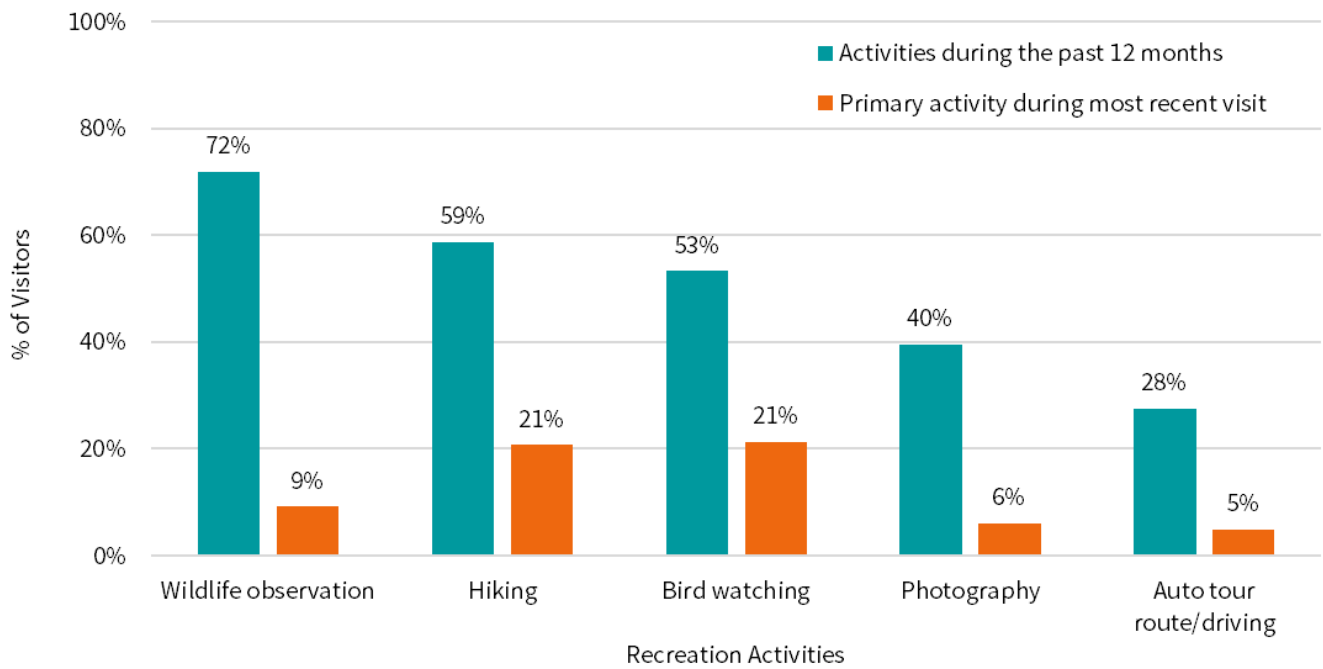


Fig. 14: Recreational activities visitors participated in during the past 12 months and their primary activity during their most recent visit to this refuge.

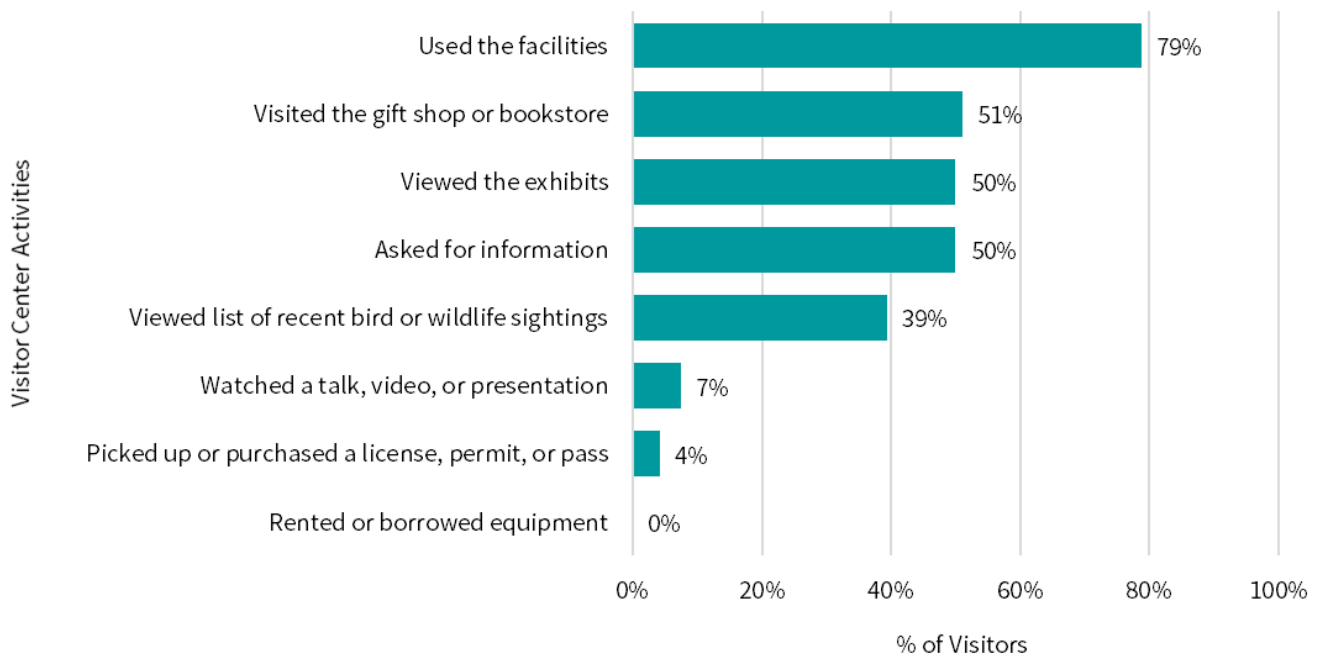


Fig. 15: Reasons visitors used the visitor center during their most recent visit to this refuge.

## Comfort in Nature/Feeling Safe & Welcome

While many people are repeat visitors to refuges, each year thousands of people experience these lands and waters for the first time. One barrier for some visitors, particularly those living in urban areas or with little past exposure to nature-based recreation, is the perception that being in nature is dangerous or unsafe (U.S. Fish & Wildlife Service, 2014). There may also be negative stigmas associated with outdoor spaces that arise from social contexts (for example, people associating being outdoors with poverty or ‘dirty’ contexts) and historical contexts in which being ‘in the woods’ was dangerous and unsafe (Sexton, Ross-Winslow, Pradines, & Dietsch, 2015).

While ensuring that visitors feel safe and welcome is a foundational standard of the Urban Wildlife Conservation Program (<https://www.fws.gov/urban>), these basic needs apply across the Refuge System.

Before visitors can appreciate the wonders of nature, their basic need for safety and belonging must be met. Thus, an understanding of how visitors perceive safety, belonging, accessibility, and comfort in nature is critical to ensure real threats to safety are minimized, and that individuals from all demographic groups feel as welcome and comfortable in nature as possible.

Visitors to this wildlife refuge shared the following about safety, belonging, and their comfort while being in nature:

- 84% of visitors felt welcome during their refuge visit (Fig. 16).
- 97% of visitors felt safe during their refuge visit (Fig. 16).
- 98% of visitors felt comfortable in nature, but 11% did not like being in nature alone (Fig. 17).

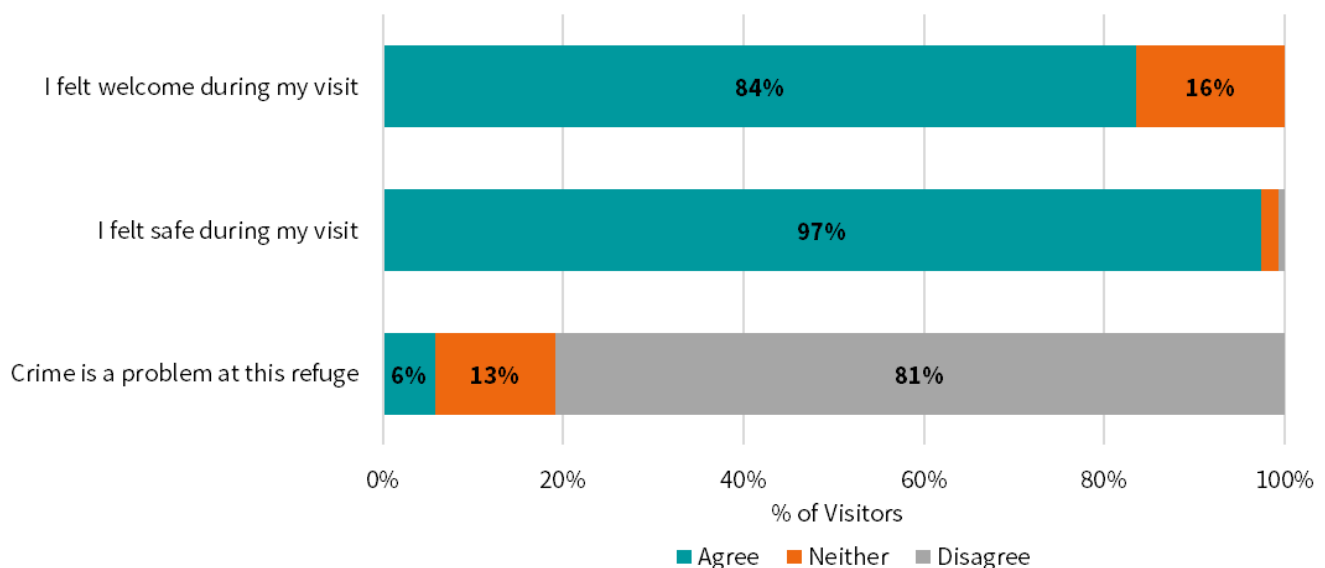


Fig. 16: Visitors' perceptions of safety and feeling welcome at this refuge during their visit.



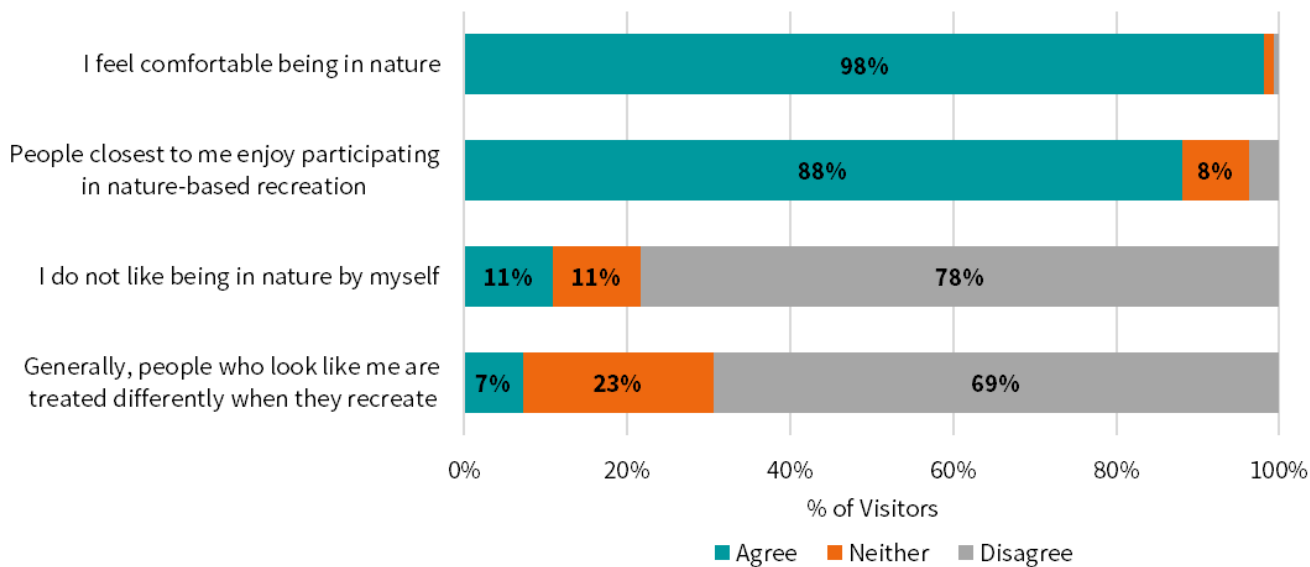


Fig. 17: Visitors' comfort with being in nature.



Photo credit: U.S. Fish & Wildlife Service.



# Satisfaction with Refuge Experiences

## OVERALL SATISFACTION

Refuge professionals strive to maintain a high level of customer satisfaction by operating visitor centers; designing, installing, and maintaining accessible trails; constructing viewing blinds; and much more to facilitate quality recreational experiences. A solid understanding of visitors' perceptions of their experiences provides a framework for monitoring and responding to trends across time. Overall satisfaction with this wildlife refuge is summarized as follows:

- 81% of visitors were very or extremely satisfied with the overall experience at this wildlife refuge (Fig. 18).
- 82% of visitors were very or extremely satisfied with this wildlife refuge's job of conserving fish, wildlife, and their habitats (Fig. 18).

## CUSTOMER SERVICE

Refuge professionals regularly interact with visitors and maintain facilities to ensure high quality experiences. From greeting visitors, to keeping bathrooms clean, to clearly stating regulations, providing quality customer service is important to ensuring overall satisfaction.

Satisfaction with customer service was highest among visitors for the following (Fig. 19):

- refuge hours/days of operation (91%),
- restrooms (90%), and
- courteous and welcoming employees/volunteers (84%).

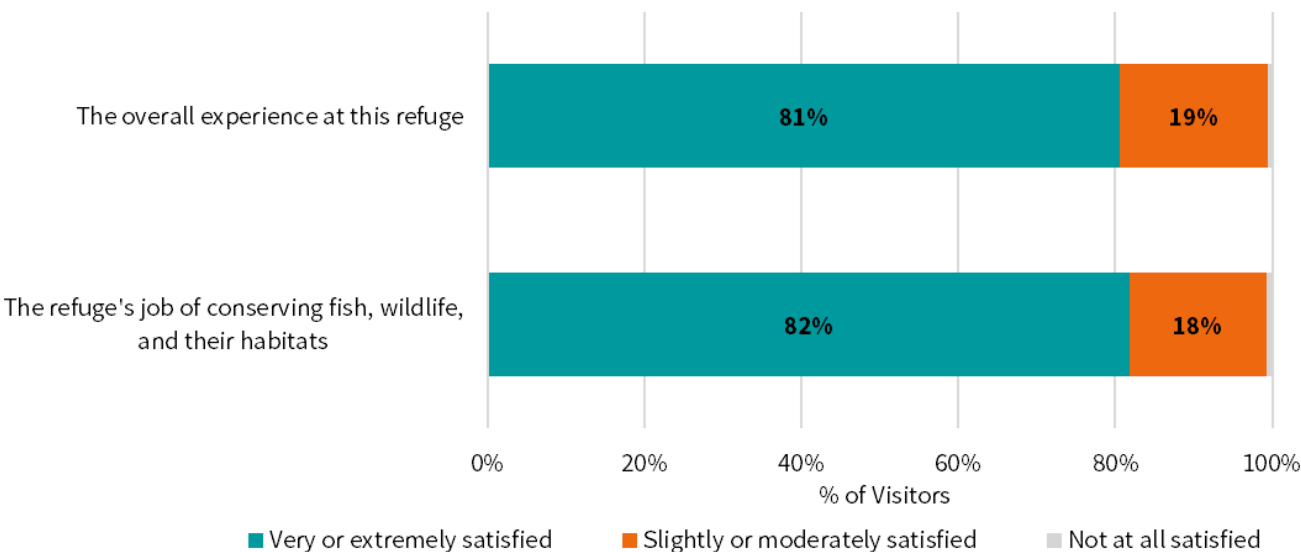


Fig. 18: Visitors' satisfaction with their experience at this refuge and with this refuge's job of conserving fish, wildlife, and habitats.

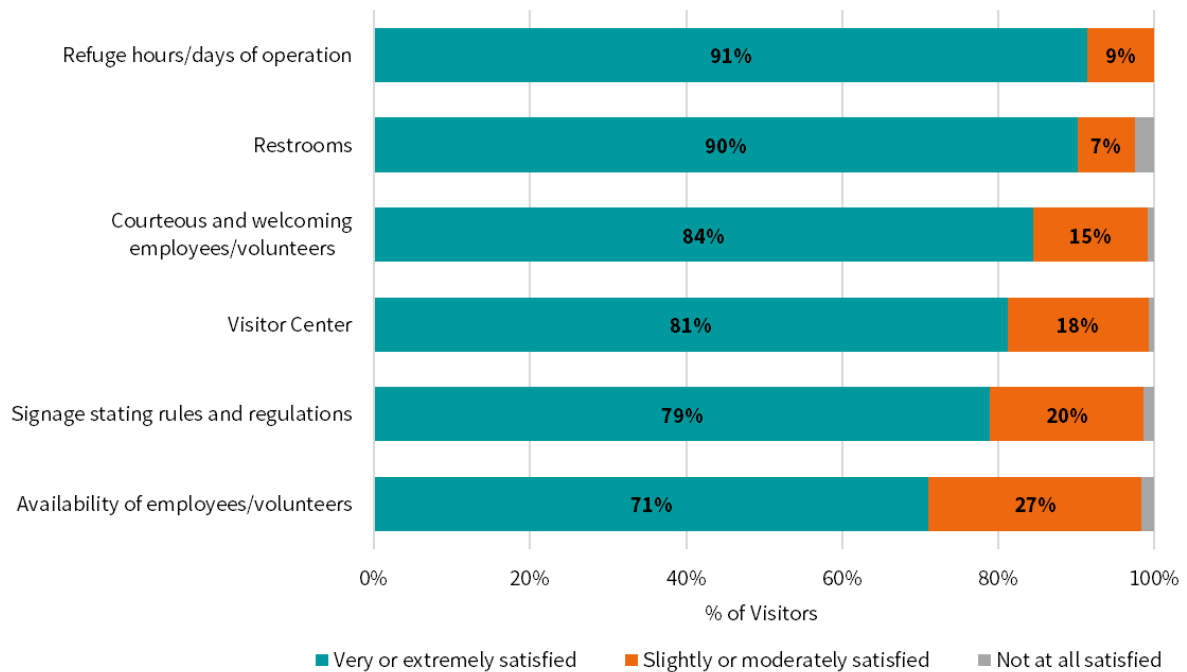


Fig. 19: Visitors' satisfaction with customer service and amenities at this refuge.

## RECREATIONAL OPPORTUNITIES

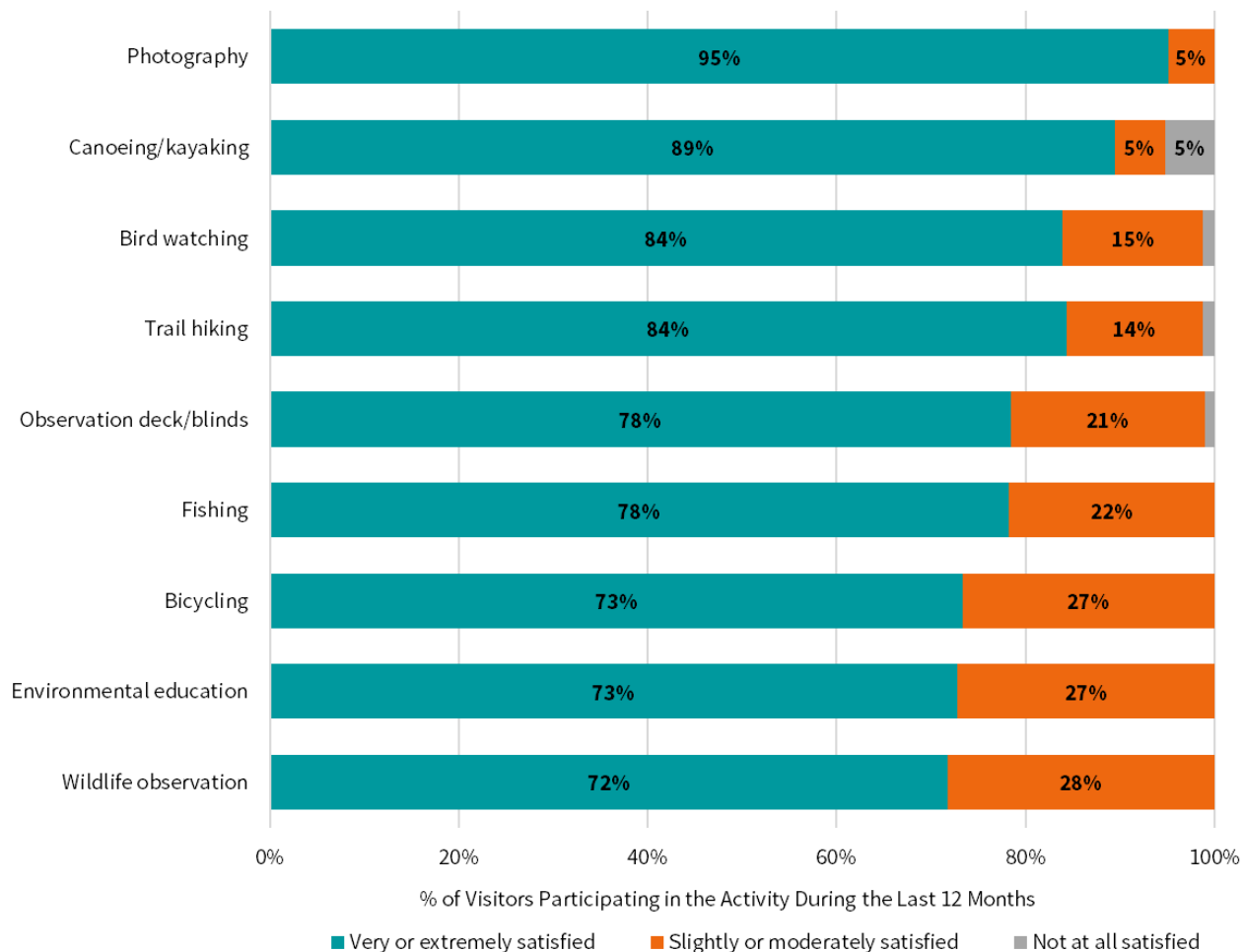
Outdoor recreation on wildlife refuges is a fundamental part of a visit. As American's values toward wildlife and their relationship with nature continue to shift (Kellert et al., 2017; Manfredo et al., 2018), public desires for recreational experiences on public lands are also likely to shift. In addition, researchers and land management professionals recognize the need to connect the next generation to nature and wildlife (Charles & Louv, 2009; Larson et al., 2011). A solid understanding of visitors' perceptions of their experiences provides a

framework for monitoring and responding to these recreation trends across time.

Satisfaction with recreation opportunities among visitors who had participated in the activity during the last 12 months was highest for the following (Fig. 20):

- photography (95%),
- canoeing/kayaking (89%),
- bird watching (84%), and
- hiking (84%).

*"Prime Hook National Wildlife Refuge is a little oasis of nature and peace just minutes from a hectic roadway. It is a much needed safe haven for local and transient wildlife, and human visitors too." – Visitor to Prime Hook National Wildlife Refuge*



*Fig. 20: Visitors' satisfaction with recreational opportunities at this refuge. Only visitors (10 or more) who participated in activities related to each opportunity at this refuge during the last 12 months were included.*

## TRANSPORTATION SAFETY & ACCESS

Transportation networks connect local communities to refuges and are critical to visitors' experiences there. Visitors access refuges by plane, car, train, boat, bike, and foot. The Service works to ensure that the roads, trails, and parking areas are welcoming and safe for visitors of all abilities. A goal of the Service's National Long-Range Transportation Plan is to enhance experiences on wildlife refuges and fish hatcheries through improvement to the transportation network (U.S. Fish & Wildlife Service, 2016b). How visitors perceive different transportation features can be used to prioritize access and transportation improvements.

Visitors were satisfied with transportation safety and access at this wildlife refuge as follows (Fig. 21):

- Getting to this wildlife refuge, visitors were most satisfied with safety of refuge road entrances and exits (85%) and directional signs on highways (76%).
- Getting around this wildlife refuge, visitors were most satisfied with condition of bridges on roadways (89%), condition of refuge roads (86%), safety of driving conditions on refuge roads (85%), and condition of refuge parking areas (85%).
- Accessing recreation on this wildlife refuge, visitors were most satisfied with safety of roads or trails for nonmotorized use (82%), condition of trails and boardwalks (82%), and condition of boat launches (74%).

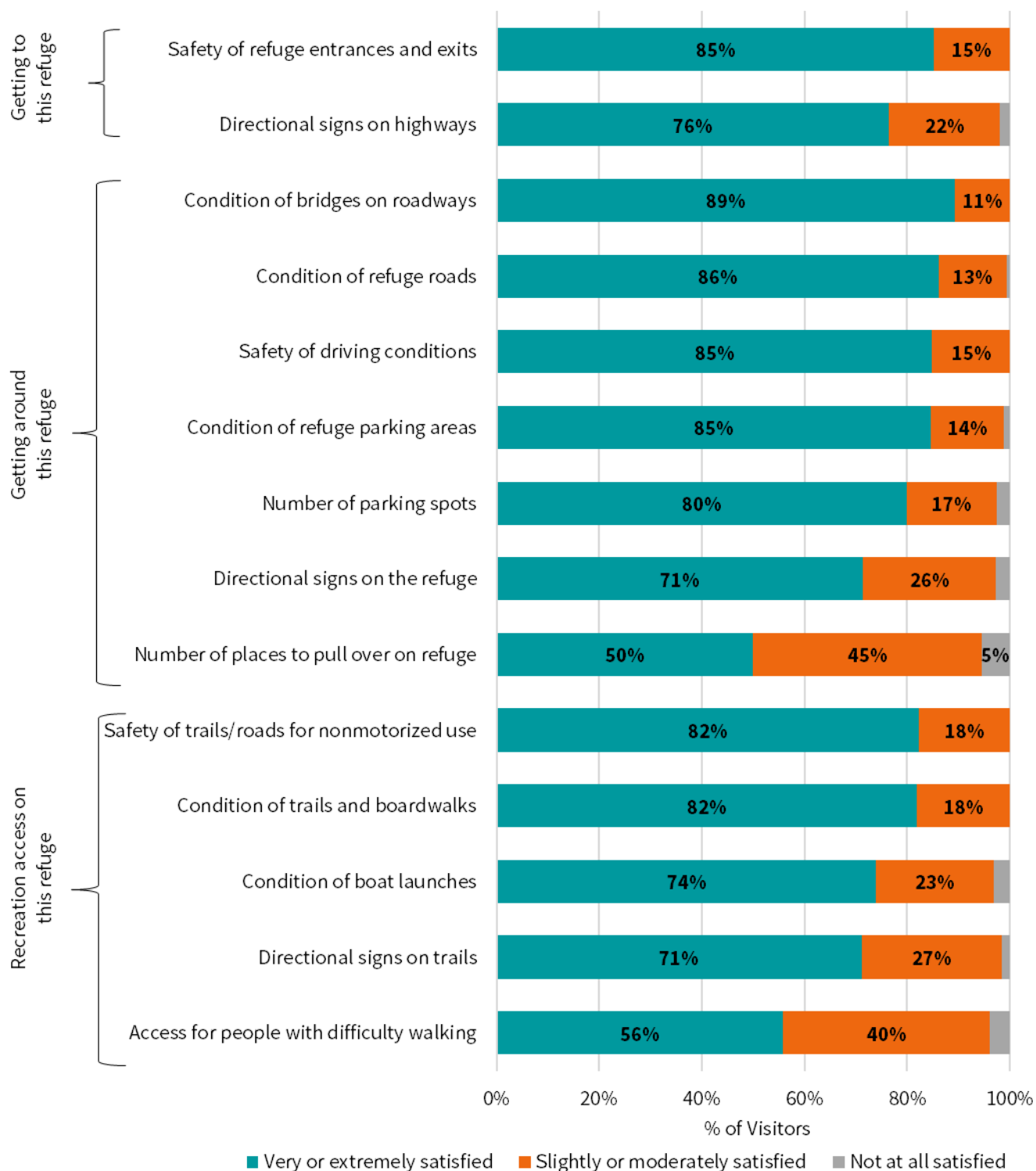


Fig. 21: Visitors' satisfaction with how the refuge is managing transportation-related features.

## Economic Benefits to Local Communities & Visitors

The value of any commodity is comprised of two elements: 1) the amount paid and 2) the additional benefit derived above and beyond what is paid. The first element equates to direct expenditures. Visitors to wildlife refuges pay for a variety of things, including nearby lodging, gas, food, and other purchases from local businesses. This spending has a significant positive contribution to local economies. The *Banking on Nature* report (Caudill & Carver, 2017) highlights how nearly 54 million visits to wildlife refuges during 2017 generated \$3.2 billion of economic output in local communities and supported over 41,000 jobs. The report further indicates that recreational spending on wildlife refuges generated \$229 million in tax revenue at the local, county, and state levels.

Determining benefits derived above and beyond what is paid is commonly estimated by “willingness to pay” for an experience. Studies show people are often willing to pay more for a recreational experience than what they actually spent (Neher, Duffield, & Patterson, 2011; Rosenberger & Loomis, 2001). For example, a visitor may have spent \$500 on lodging, food, and gasoline to make the trip possible, while also indicating that they would be willing to pay an additional \$50 to visit this wildlife refuge if total trip costs were to increase.

Results for local visitors (those living  $\leq 50$  miles from this wildlife refuge; 49%) are as follows:

- On average, local visitors accounted for 6% of expenditures.
- Top trip expenditures by locals were for food/drink and retail (Fig. 22).
- The average amount paid by locals to visit this wildlife refuge was \$28 per person per day (Fig. 22).
- Local visitors were personally willing to pay an additional \$30 per day on average to visit this wildlife refuge (Fig. 23).

Results for nonlocal visitors (those living  $>50$  miles from this wildlife refuge; 51%) are as follows:

- On average, nonlocals accounted for 94% of expenditures.
- Top trip expenditures by nonlocals were for lodging and food/drink (Fig. 22).
- The average amount paid by nonlocals to visit this wildlife refuge was \$105 per person per day (Fig. 22).
- Nonlocal visitors were personally willing to pay an additional \$91 per day on average to visit this wildlife refuge (Fig. 23).
- Nonlocal visitors spent an average of 4 days in the local community during this visit.







Fig. 22: Individual daily expenditures in the local community for local, nonlocal, and all visitors. Expenditures were reported by respondents on a per group basis; the total expenditures were divided by the number of people in the group who shared trip expenditures and the number of days spent in the local community. The number of people sharing trip expenditures was often smaller than the total group size.

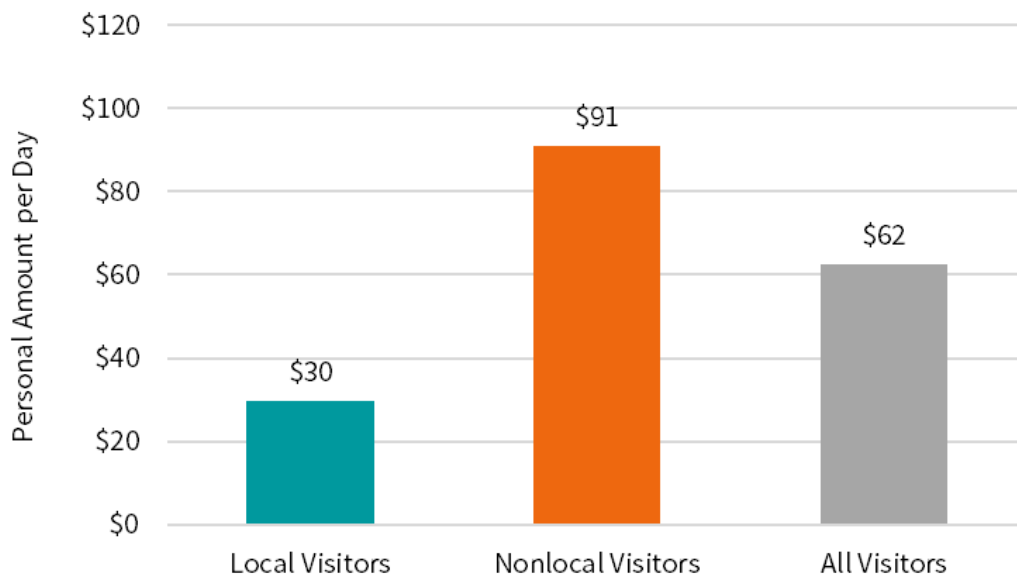


Fig. 23: Total personal willingness to pay per day above and beyond most recent trip expenses if costs were to increase for local, nonlocal, and all visitors. Due to the fixed-response question format, estimates of willingness to pay may underestimate the amount visitors would actually pay. Responses were divided by the number of days spent at the refuge.

# Encouraging Return Visits & Future Recreation Participation

Public land managers strive to maximize benefits for visitors while achieving and maintaining desired resource conditions. This complex task requires that managers accurately estimate visitor numbers, as well as where visitors go, what they do, their impacts on resources, how they perceive their experiences, and their desires for future visits. Gaining a sense of what would encourage visitors to return and how management activities affect their likelihood of returning can lead to improved visitor use and resource management (U.S. Fish & Wildlife Service, 2014).

## PROGRAMS AND OTHER OFFERINGS

Programming and other offerings that are compatible with the purpose of a refuge and the Refuge System mission can encourage people to continue visiting the refuge. Additionally, changes to regulations and access for improving resource availability may increase or decrease future participation, or have little effect at all.

In the future, changes in programming, offerings, or regulations would have an effect on visitation to this wildlife refuge as follows:

- Programs most likely to encourage visitors to return to this wildlife refuge included those focused on skill-building (70%), highlighting unique local culture (54%), and engaging youth (35%) (Fig. 24).
- The top two factors likely to increase visitors' future participation in their primary recreation activity were more infrastructure (32%) and recreation equipment available for rent (20%) (Fig. 25).
- The top two factors likely to decrease visitors' future participation in their primary recreation activity were less regulations on hunting (23%) and more people participating in their primary activity (18%) (Fig. 25).

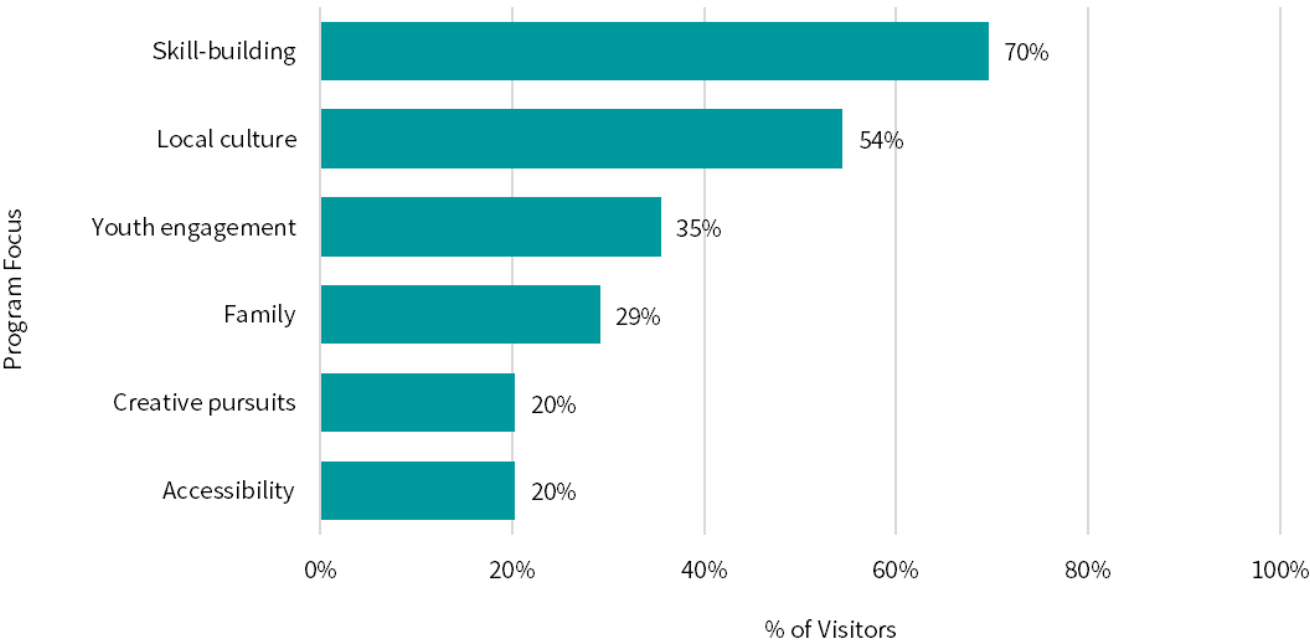


Fig. 24: Types of programs that would encourage visitors to return to this refuge.

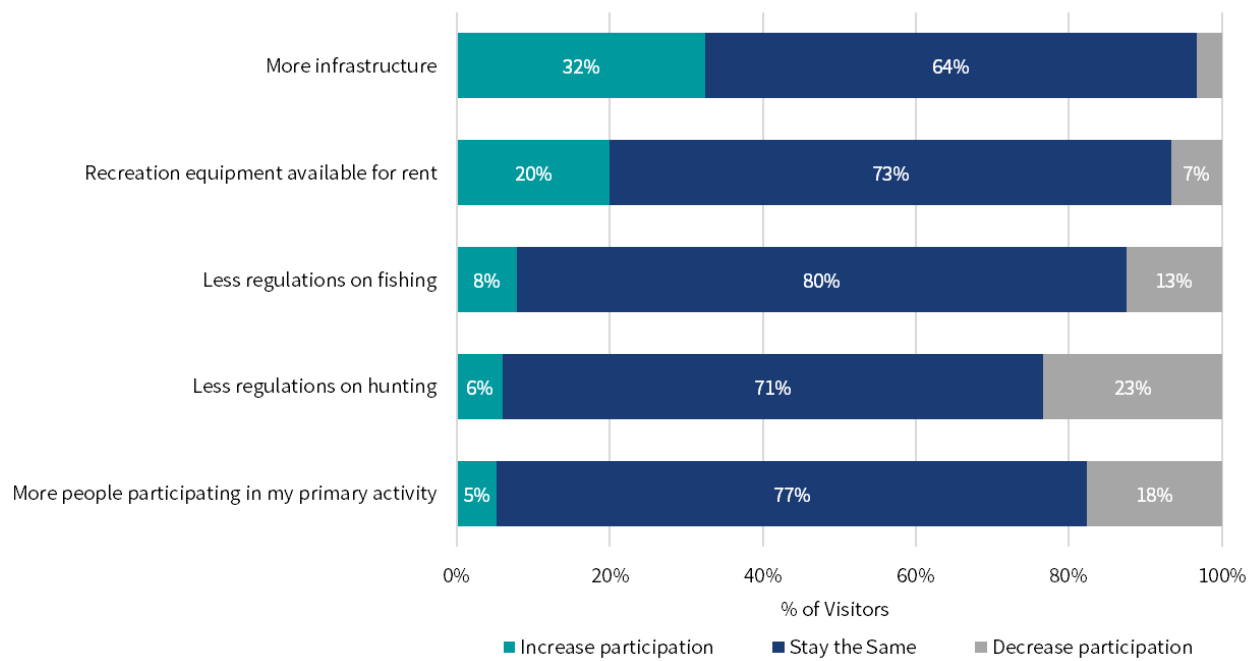


Fig. 25: Changes in visitors' participation in their primary activity if the listed recreation factors were to change.

## ALTERNATIVE TRANSPORTATION

Understanding visitor demand for alternative transportation options is a goal of the Service's National Long-Range Transportation Plan (U.S. Fish & Wildlife Service, 2016b). Alternative transportation options can be valuable in realizing refuge goals to conserve natural resources, reduce visitors' carbon footprint (Volpe Center, 2010), and improve visitor experiences. Even though demand may be relatively small, any use of alternative transportation that is feasible at a wildlife refuge can help to meet goals.

The top future alternative transportation options supported by visitors at this wildlife refuge included:

- bus/tram that provides a guided tour (19%),
- pedestrian paths (15%), and
- a bike-share program (11%) (Fig. 26).

## ECOSYSTEM SERVICES

Natural processes associated with wildlife refuges can provide benefits to people, including provisioning services such as food and water; regulating services such as flood

and disease control; cultural services such as spiritual, recreational, and educational benefits; and supporting services such as nutrient cycling (Millennium Ecosystem Assessment, 2005). Understanding how changes in natural resources and related processes may impact future visitation and participation in certain recreation activities can improve resource and visitor management, as well as inform communication efforts with stakeholders and policy-makers (Patton, Bergstrom, Covich, & Moore, 2012).

In the future, changes to resources would affect visitation to this refuge as follows (Fig. 27):

- The top resource changes likely to increase visitors' future participation in their primary recreation activity were a greater diversity of species (62%), an improvement in the quality of wetlands (58%), and an improvement in the quality of wildlife habitat other than wetlands (58%).
- The top resource changes likely to decrease visitors' future participation in their primary recreation activity were less water available for recreation (52%) and more acreage open to hunting and fishing (27%).

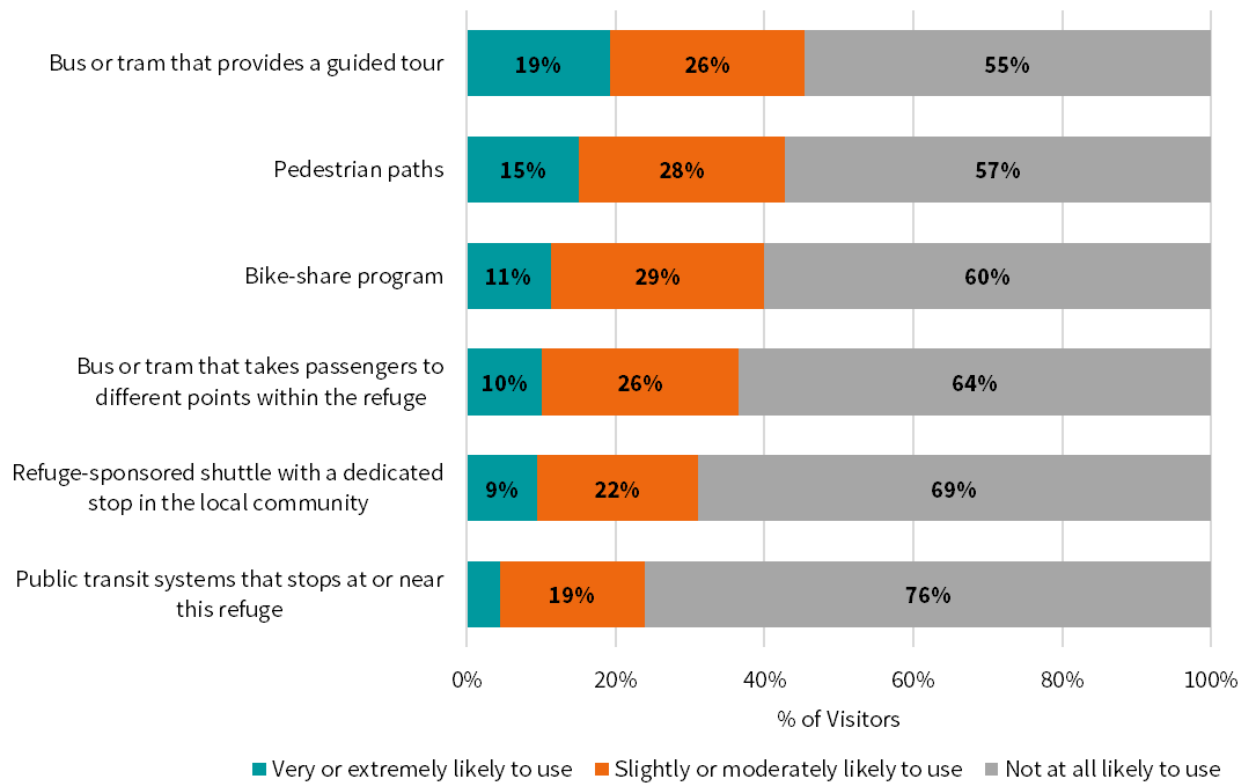


Fig. 26: Visitors' likelihood of using alternative transportation options if offered at this refuge.

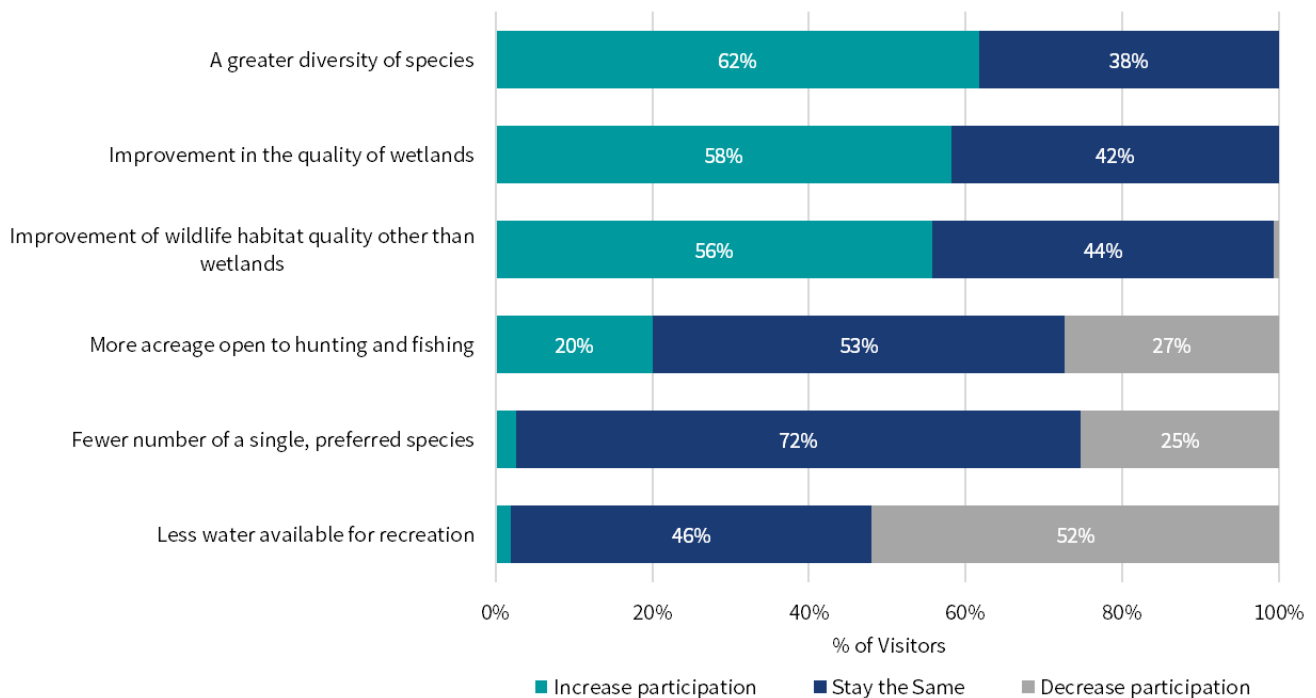


Fig. 27: Changes in visitors' participation in their primary activity if the listed resources were to change.

## Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Prime Hook National Wildlife Refuge during 2018. They are intended to inform refuge planning, including the management of natural resources, recreation, and the design and delivery of programs for visitors. These results offer a baseline that can be used to monitor and evaluate efforts over time. Refuge professionals who understand

visitor demographics, trip characteristics, and desires for future conditions can make informed decisions for proactive visitor management and resource protection. Integrating this social science with biophysical science ensures that management decisions are consistent with the Refuge System mission while fostering a continued public interest in and connection with these special places we call national wildlife refuges.



*Photo credit: U.S. Fish & Wildlife Service.*



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## Appendix A: Survey Methodology

The National Wildlife Refuge Visitor Survey (NVS) team consisted of staff from The Ohio State University (OSU), U.S. Fish & Wildlife Service (Service), and American Conservation Experience (ACE) who collectively developed the following NVS methodology. Staff from OSU and the Service designed the survey instrument with multiple reviewers within the Refuge System providing feedback about content and wording. The logistical coordinator and interns from ACE conducted sampling on refuges. OSU staff coordinated survey mailings, analyzed data, and in cooperation with Service staff, designed the report template and created each refuge report.

### SAMPLING SCHEDULE

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Interns (survey recruiters) sampled on each participating refuge for two 14-day sampling periods between March 2018 and February 2019. Refuge staff identified the sampling periods and locations that best reflected the diversity of use and visitation patterns of the refuge.

The national visitor survey team developed a sampling schedule for each refuge that included eight randomly selected sampling shifts during each 14-day sampling period. Shifts were four-hour time bands stratified across mornings and afternoons/evenings. The NVS team customized the schedule as needed to accommodate the individual refuge sampling locations and specific spatial and temporal patterns of visitation. The target number of contacts was 25 adult visitors (18 years of age or older) per shift for a total of 375 participants contacted per refuge. Shifts were moved, added, or extended to address logistical limitations (for example, bad weather or low visitation).

### CONTACTING VISITORS ONSITE

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ACE interns received a multi-day training that included role-play exercises on a refuge to

simulate engagement of visitors. Once onsite, the interns contacted visitors following a protocol developed by OSU and Service staff. Interns surveyed across the entire sampling shift and only one visitor per group was asked to participate. If a visitor declined to participate, interns recorded a direct refusal. Visitors willing to participate provided their name, mailing address, language preference (English or Spanish), and answered a few initial questions about their experience that could be used for nonresponse comparisons. Willing visitors were also given a small token incentive (for example, sticker) as a thank you and reminder of their participation.

### COMPLETING A SURVEY AT HOME

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All visitors that agreed onsite to participate in the survey received a postcard mailed to their address within 10 days. The postcard thanked visitors for agreeing to participate, provided a weblink and unique password, and invited the visitor to complete the survey online. All participants then received the following sequence of correspondence by mail from OSU until a survey was returned and the address removed from the mailing list (as suggested by Dillman et al., 2014):

- 1) A packet consisting of a cover letter, survey, and postage-paid return envelope approximately seven days after the first postcard was mailed.
- 2) A reminder postcard mailed 14 days after the first packet was mailed.
- 3) A final packet consisting of a cover letter, survey, and postage-paid return envelope mailed seven days after the reminder postcard.

All printed correspondence and online material were provided in the language chosen by visitors onsite; however, visitors who went online to complete the survey were able to switch between English and Spanish. The

survey was designed to take no more than 25 minutes to complete, and the average completion time recorded by the online survey software was approximately 20 minutes.

## DATA ENTRY & ANALYSIS

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The NVS team used Qualtrics survey software to collect survey data online. OSU staff then exported the data for cleaning (for example, treatment of missing data) and analyses. The team entered data from the paper surveys into Microsoft Excel using a standardized survey codebook and data entry procedures. All data from the two sources (paper and online) were merged and analyzed using Statistical Package for the Social Sciences (SPSS, v.25) software.

## LIMITATIONS OF RESULTS

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The degree to which these results represent overall visitation at a wildlife refuge depends on the number of visitors who completed the survey (sample size), and how well the sample reflects the degree of use at the refuge (Scheaffer et al., 2011). Many respondents completing the survey will produce a smaller margin of error, leading to greater confidence in results, but only to a point. For example, a margin of error of  $\pm 5\%$  at a 95% confidence level signifies that if a reported percentage is 55%, then 95 out of 100 times that sample estimate would fall between 50% and 60% (if the same question was asked in the same way of the same sample). The margin of error for this survey was calculated with an 80/20

response distribution, meaning if respondents were given a dichotomous choice question, approximately 80% of respondents would select one choice and 20% would select the other (Salant & Dillman, 1994).

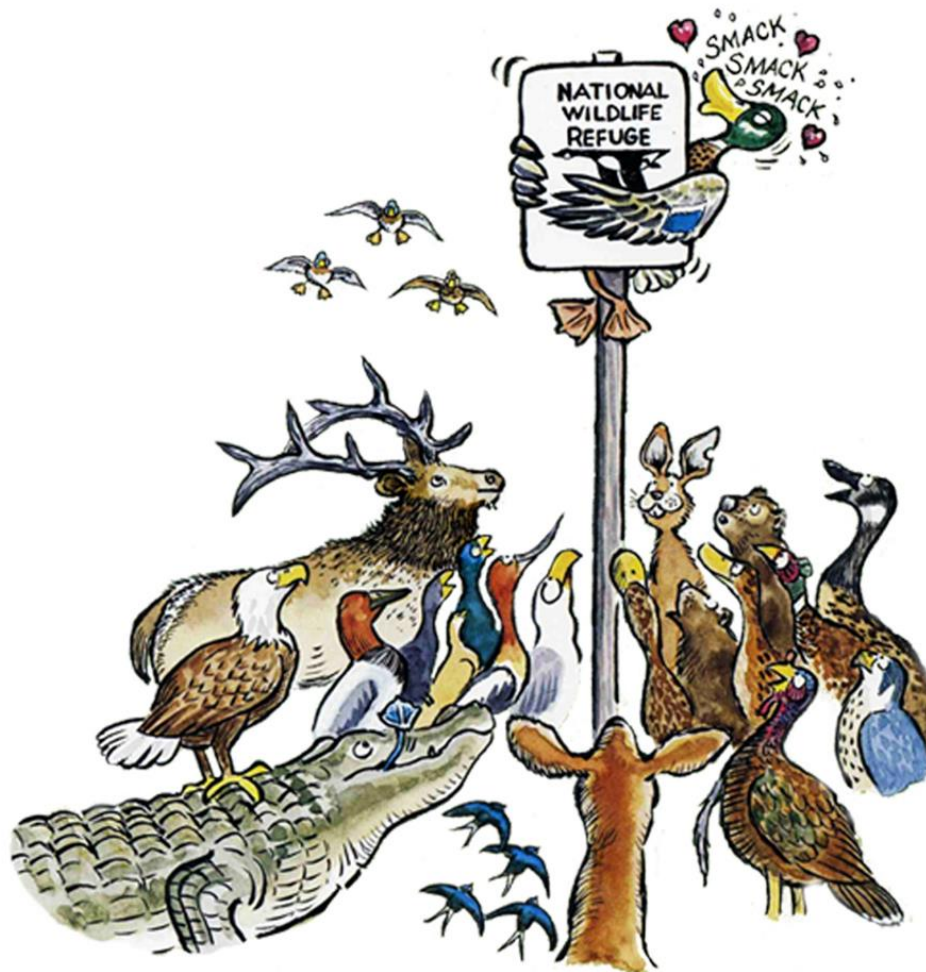
While OSU designed the standardized sampling protocol to account for spatial and temporal visitation patterns, the geography and infrastructure of wildlife refuges vary widely. This variation can affect who is ‘captured’ as part of the survey. For example, contacting visitors is much easier if everyone must pass through a single-entry point and much more difficult if a refuge has multiple access points over a large area. Additionally, the two 14-day sampling periods may not have effectively captured all visitor activities throughout the year on some wildlife refuges (for example, visitors who solely engage in ice fishing). As such, results presented in any one of these reports are aimed at representing overall visitation at a wildlife refuge while recognizing that particular visitor groups may vary in their beliefs and activities.

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# National Wildlife Refuge Visitor Survey



Front cover of the 2018 National Wildlife Refuge Visitor Survey instrument. Artwork credit: Kent Olson.

PLEASE READ THIS FIRST:

Thank you for visiting a national wildlife refuge and agreeing to participate in this study! We hope that you had an enjoyable experience. The U.S. Fish and Wildlife Service and The Ohio State University are conducting this survey to learn more about refuge visitors and their experiences in order to improve management and enhance visitor opportunities.

Please respond regarding the refuge and the visit for which you were asked to participate in this survey. The cover letter indicates the refuge you visited.

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SECTION 1. Your visit to this refuge

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1. Including your most recent visit, which activities did you participate in during the past 12 months at this refuge? (Mark all that apply.)

<input type="checkbox"/> 72% Wildlife observation	<input type="checkbox"/> 59% Hiking/Walking	<input type="checkbox"/> 2% Volunteering
<input type="checkbox"/> 53% Bird watching	<input type="checkbox"/> 4% Jogging/Running/Exercising	<input type="checkbox"/> 4% Environmental education program (classroom visits, labs)
<input type="checkbox"/> 40% Photography	<input type="checkbox"/> 10% Bicycling	
<input type="checkbox"/> 2% Big game hunting	<input type="checkbox"/> 28% Auto tour route/Driving	<input type="checkbox"/> 4% Interpretative program (bird walks, staff/volunteer-led talks)
<input type="checkbox"/> 1% Upland/Small game hunting	<input type="checkbox"/> 3% Motorized boating	
<input type="checkbox"/> 3% Waterfowl/Migratory bird hunting	<input type="checkbox"/> 12% Nonmotorized boating (canoeing, kayaking)	<input type="checkbox"/> 5% Refuge special event ( <i>specify</i> ) _____ See Appendix C
<input type="checkbox"/> 9% Freshwater fishing	<input type="checkbox"/> 0% Foraging (berries, nuts, other)	<input type="checkbox"/> 11% Other ( <i>specify</i> ) _____ See Appendix C
<input type="checkbox"/> 10% Saltwater fishing	<input type="checkbox"/> 7% Picnicking	

2. Which of the activities above was the primary purpose of your most recent visit to this refuge?

(Please write **only one activity** here.) \_\_\_\_\_ See Appendix C

3. Which of the following best describes your most recent visit to this Refuge? (Mark only one.)

<input type="checkbox"/> 44% It was the primary purpose or sole destination of my trip.
<input type="checkbox"/> 25% It was one of many equally important reasons or destinations for my trip.
<input type="checkbox"/> 31% It was just an incidental or spur-of-the-moment stop on a trip taken for other purposes or to other destinations.

4. How many people were in your personal group, including yourself, on your most recent visit to this refuge? (Please answer each category.)

\_\_\_\_\_ 2 \_\_\_\_\_ number of people 18 years and older      \_\_\_\_\_ 0 \_\_\_\_\_ number of people under 18 years



5. Did you go to a visitor center at this refuge during your most recent visit?

☐ 43% No / Not Applicable

☐ 57% Yes → If yes, what did you do there? (*Mark all that apply.*)

☐ 50% Asked information of employees/volunteers

☐ 39% Looked at list of recent bird/wildlife sightings

☐ 7% Attended a talk/video/presentation

☐ 79% Stopped to use the facilities (for example, got water, used restroom)

☐ 50% Viewed the exhibits

☐ 4% Picked up/purchased a license, permit, or pass

☐ 0% Rented/borrowed equipment (for example, binoculars, fishing rod, snowshoes)

☐ 51% Visited the gift shop or bookstore

☐ 7% Other (*specify*) See Appendix C

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

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

If you spent one day or more at this refuge, enter the number of days: 4 day(s)

7. Do you live in the local area (within 50 miles of this refuge)?

☐ 49% Yes

☐ 51% No → How much time did you spend in **the local area** on this trip?

If you spent less than one day in the local area, enter the number of hours: 5 hour(s)

If you spent one day or more in the local area, enter the number of days: 4 day(s)

8. Approximately how many hours/minutes (one-way) did you travel from your home to this refuge?

If you travelled less than one hour, enter the number of minutes: 24 minutes

If you travelled more than one hour, round to the nearest hour: 4 hours

9. Including this visit, during which seasons did you visit this refuge in the last 12 months? (*Mark all that apply.*)

☐ 40% Spring  
(March-May)

☐ 92% Summer  
(June-August)

☐ 48% Fall  
(September-November)

☐ 28% Winter  
(December-February)

10. In the last 12 months, how many times have you visited...

...this refuge (including this visit?) 11 number of visits

...other national wildlife refuges? 3 number of visits

...other public lands (for example, national or state parks) to participate in the same primary activity as this visit? 10 number of visits

11. Which, if any, of the following social media outlets did you use to share your refuge experience with other people? (*Mark all that apply.*)

<input type="checkbox"/> 27% Facebook	<input type="checkbox"/> 0% Snapchat	<input type="checkbox"/> 0% Personal blog (for example, Tumblr, Wordpress)
<input type="checkbox"/> 3% Flickr	<input type="checkbox"/> 1% Twitter	<input type="checkbox"/> 2% Travel-related website (for example, Trip Advisor)
<input type="checkbox"/> 8% Instagram	<input type="checkbox"/> 0% Vimeo	<input type="checkbox"/> 5% Other ( <i>specify</i> ) <u>See Appendix C</u>
<input type="checkbox"/> 0% Pinterest	<input type="checkbox"/> 1% YouTube	<input type="checkbox"/> 63% I do not use social media

## SECTION 2. Information about this refuge and its resources

1. How helpful was each of the following sources to get information about this refuge and its resources? (*Circle one number for each source, or mark the box if you did **not** use a source.*)

Information source	For those who used a source, the % who found it to be...					Did not use
	Not at all helpful	Slightly helpful	Moderately helpful	Very helpful	Extremely helpful	
Personal knowledge from previous visit(s)	<input type="checkbox"/> 1%	<input type="checkbox"/> 1%	<input type="checkbox"/> 12%	<input type="checkbox"/> 32%	<input type="checkbox"/> 54%	<input type="checkbox"/> 35%
Word of mouth (for example, a friend or relative)	<input type="checkbox"/> 5%	<input type="checkbox"/> 13%	<input type="checkbox"/> 26%	<input type="checkbox"/> 38%	<input type="checkbox"/> 18%	<input type="checkbox"/> 48%
People in the local community near the refuge	<input type="checkbox"/> 7%	<input type="checkbox"/> 18%	<input type="checkbox"/> 21%	<input type="checkbox"/> 44%	<input type="checkbox"/> 11%	<input type="checkbox"/> 65%
Refuge employees or volunteers	<input type="checkbox"/> 4%	<input type="checkbox"/> 6%	<input type="checkbox"/> 11%	<input type="checkbox"/> 42%	<input type="checkbox"/> 36%	<input type="checkbox"/> 41%
Printed map or atlas	<input type="checkbox"/> 3%	<input type="checkbox"/> 2%	<input type="checkbox"/> 19%	<input type="checkbox"/> 48%	<input type="checkbox"/> 27%	<input type="checkbox"/> 46%
Web-based map (for example, Google Maps, Waze)	<input type="checkbox"/> 6%	<input type="checkbox"/> 2%	<input type="checkbox"/> 14%	<input type="checkbox"/> 46%	<input type="checkbox"/> 32%	<input type="checkbox"/> 47%
Refuge website	<input type="checkbox"/> 5%	<input type="checkbox"/> 5%	<input type="checkbox"/> 16%	<input type="checkbox"/> 43%	<input type="checkbox"/> 30%	<input type="checkbox"/> 52%
Travel website (for example, TripAdvisor)	<input type="checkbox"/> 35%	<input type="checkbox"/> 5%	<input type="checkbox"/> 15%	<input type="checkbox"/> 30%	<input type="checkbox"/> 15%	<input type="checkbox"/> 88%
Other website ( <i>specify</i> ) <u>See Appendix C</u>	<input type="checkbox"/> 27%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 18%	<input type="checkbox"/> 55%	<input type="checkbox"/> 91%
Social media (for example, Facebook, Instagram)	<input type="checkbox"/> 29%	<input type="checkbox"/> 5%	<input type="checkbox"/> 29%	<input type="checkbox"/> 24%	<input type="checkbox"/> 14%	<input type="checkbox"/> 87%
Recreation club or organization	<input type="checkbox"/> 33%	<input type="checkbox"/> 13%	<input type="checkbox"/> 20%	<input type="checkbox"/> 20%	<input type="checkbox"/> 13%	<input type="checkbox"/> 91%
Refuge printed information (for example, brochure)	<input type="checkbox"/> 0%	<input type="checkbox"/> 7%	<input type="checkbox"/> 20%	<input type="checkbox"/> 40%	<input type="checkbox"/> 33%	<input type="checkbox"/> 41%
Kiosks/displays/exhibits at the refuge	<input type="checkbox"/> 1%	<input type="checkbox"/> 8%	<input type="checkbox"/> 29%	<input type="checkbox"/> 39%	<input type="checkbox"/> 23%	<input type="checkbox"/> 51%
Travel guidebook or other book	<input type="checkbox"/> 5%	<input type="checkbox"/> 11%	<input type="checkbox"/> 37%	<input type="checkbox"/> 26%	<input type="checkbox"/> 21%	<input type="checkbox"/> 88%
Tourist information or welcome center	<input type="checkbox"/> 5%	<input type="checkbox"/> 0%	<input type="checkbox"/> 21%	<input type="checkbox"/> 45%	<input type="checkbox"/> 29%	<input type="checkbox"/> 77%
Other source ( <i>specify</i> ) <u>See Appendix C</u>	<input type="checkbox"/> 50%	<input type="checkbox"/> 0%	<input type="checkbox"/> 25%	<input type="checkbox"/> 0%	<input type="checkbox"/> 25%	<input type="checkbox"/> 96%

### SECTION 3. Transportation and access at this refuge

1. First rate how important each of the following transportation-related features 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 have a specific feature or you did not experience it during this visit, please rate how important it is to you and then circle NA “Not Applicable” under the satisfaction column.*

Importance <i>Circle one for each item.</i>					Transportation-Related Features	Satisfaction <i>Circle one for each item.</i>					
Not at all Important	Slightly Important	Moderately important	Very Important	Extremely Important		Not at all Satisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Extremely Satisfied	Not Applicable
5%	12%	37%	35%	11%	Surface conditions of refuge roads	1%	2%	11%	57%	29%	NA
7%	10%	46%	26%	10%	Surface conditions of parking areas	1%	1%	13%	50%	35%	NA
2%	7%	30%	44%	17%	Condition of bridges on roadways	0%	1%	10%	57%	33%	NA
5%	4%	23%	49%	19%	Condition of trails and boardwalks	0%	5%	14%	49%	33%	NA
41%	10%	14%	26%	10%	Condition of boat launches	3%	8%	15%	52%	22%	NA
4%	9%	36%	36%	15%	Number of places for parking	3%	3%	14%	47%	33%	NA
9%	10%	30%	27%	23%	Number of places to pull over on refuge roads	5%	11%	34%	31%	19%	NA
2%	5%	26%	43%	23%	Safety of driving conditions on refuge roads	0%	2%	13%	50%	35%	NA
2%	7%	23%	40%	28%	Safety of refuge road entrances/exits	0%	1%	14%	48%	37%	NA
14%	6%	14%	40%	26%	Safety of roads/trails for nonmotorized users (for example, bicyclists and hikers)	0%	2%	16%	48%	35%	NA
5%	7%	25%	38%	25%	Signs on highways directing you to this refuge	2%	6%	16%	47%	29%	NA
3%	8%	21%	42%	26%	Signs directing you around refuge roads	3%	4%	22%	43%	28%	NA
5%	8%	16%	44%	27%	Signs directing you on trails	2%	7%	20%	45%	26%	NA
21%	9%	21%	25%	23%	Access for people with physical disabilities or who have difficulty walking	4%	4%	36%	36%	19%	NA

2. If you have any comments about transportation-related features at this refuge, please write them here.

See Appendix C

3. What modes of transportation did you use to travel from the local area to this refuge and within this refuge during your most recent trip? (*Mark all that apply.*)

Transportation modes used to travel...	...from the local area to this refuge	...within the boundaries of this refuge
Private/rental vehicle without a trailer	93%	73%
Private/rental vehicle with a trailer (for boat, camper, or other)	2%	3%
Recreational vehicle (RV)	1%	2%
Refuge shuttle bus/tram	0%	0%
Tour bus/van	0%	0%
Public transportation	0%	1%
Motorcycle	1%	1%
Bicycle	5%	6%
Foot (for example, walking/hiking)	7%	39%
Boat	0%	7%
Other ( <i>specify</i> ): <u>See Appendix C</u>	1%	2%
Other ( <i>specify</i> ): <u>See Appendix C</u>	1%	1%

4. Please tell us how likely you would be to use each transportation option **at this refuge** if it were available in the future. Not all options are currently available at every refuge. (*Circle one number for each option.*)

Transportation options	Not at all Likely	Slightly Likely	Moderately Likely	Very Likely	Extremely Likely
Bus or tram that takes passengers to different points within refuge boundaries (such as the Visitor Center)	64%	14%	13%	6%	4%
Bus or tram that provides a guided tour of the refuge with information about this refuge and its resources	55%	12%	14%	8%	11%
Refuge-sponsored shuttle with a dedicated stop in the local community for picking up people at set times	69%	13%	8%	5%	4%
Public transit system that stops at or near this refuge	76%	11%	9%	3%	2%
Bike-share program that offers bicycles for rent on or near this refuge	60%	14%	15%	8%	4%
Pedestrian paths for access to this refuge from the local community	57%	16%	12%	12%	3%

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## SECTION 4. Your expenses related to your refuge visit

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1. Record the amount of money that you and other members of your group spent in the local 50-mile area during your most recent visit to this refuge. Your group would include you and those with whom you shared expenses (for example, family members, traveling companions). *Enter the amount spent or enter 0 (zero) if you did not spend any money in a particular category.*

Categories	Amount spent in the local area/communities & at this refuge (within 50 miles of this refuge)
Hotel, bed & breakfast, cabin, etc.	
Camping fees (for example, tent, RV)	
Restaurants and bars	
Groceries	
Gasoline and oil (for private vehicles, boats, RVs, or other motors)	
Local transportation (for example, public transit, rental car)	See report for summary of visitor expenditures
Guides and tour fees	
Equipment rental (for example, bicycle, canoe, kayak)	
Sporting goods (for example, bait, binoculars)	
Souvenirs/clothing and other retail	
Other (specify) <u>See Appendix C</u>	

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

2 number of people sharing expenses

3. As you know, costs of travel such as gasoline, hotels, and public transportation often increase. If your total trip costs were to increase, what is the maximum extra amount you would pay and still visit this refuge? (*Mark the dollar amount that represents your response.*)

<input type="checkbox"/> 10% \$0	<input type="checkbox"/> 15% \$30	<input type="checkbox"/> 10% \$100	<input type="checkbox"/> 2% \$250
<input type="checkbox"/> 7% \$5	<input type="checkbox"/> 7% \$45	<input type="checkbox"/> 2% \$125	<input type="checkbox"/> 0% \$350
<input type="checkbox"/> 13% \$10	<input type="checkbox"/> 6% \$60	<input type="checkbox"/> 1% \$150	<input type="checkbox"/> 3% \$500
<input type="checkbox"/> 16% \$20	<input type="checkbox"/> 1% \$75	<input type="checkbox"/> 3% \$200	<input type="checkbox"/> 1% \$750



## SECTION 5. Your experience at this refuge

1. First rate how important each of the following services, facilities, and opportunities 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 item or you did not experience it on this visit, please rate how important it is to you and then circle NA "Not Applicable" under the satisfaction column.*

Importance <i>Circle one for each item.</i>					Refuge Services, Facilities, and Opportunities	Satisfaction <i>Circle one for each item.</i>					
Not at all Important	Slightly Important	Moderately important	Very Important	Extremely Important		Not at all Satisfied	Slightly Satisfied	Moderately satisfied	Very Satisfied	Extremely Satisfied	Not Applicable
3%	1%	9%	55%	32%	Convenient hours/days of operation for this refuge	0%	0%	9%	54%	38%	NA
13%	21%	26%	28%	13%	Availability of employees or volunteers	2%	3%	24%	41%	30%	NA
11%	11%	24%	31%	24%	Courteous and welcoming employees or volunteers	1%	3%	11%	41%	43%	NA
1%	7%	26%	38%	29%	Signs with rules/regulations for this refuge	1%	2%	18%	48%	31%	NA
5%	6%	33%	33%	23%	Visitor center	1%	2%	16%	50%	31%	NA
4%	3%	14%	43%	37%	Well-maintained restrooms	2%	2%	6%	46%	44%	NA
11%	6%	23%	40%	20%	Recreational structures (decks, blinds, platforms)	1%	3%	18%	48%	30%	NA
9%	6%	23%	28%	35%	Bird-watching opportunities	2%	1%	18%	45%	35%	NA
4%	7%	18%	39%	31%	Opportunities to observe wildlife other than birds	0%	5%	23%	43%	29%	NA
7%	7%	20%	36%	30%	Opportunities to photograph wildlife and scenery	0%	1%	10%	57%	32%	NA
13%	15%	26%	32%	13%	Environmental education opportunities	2%	1%	27%	53%	16%	NA
72%	5%	5%	8%	8%	Hunting opportunities	13%	13%	19%	38%	19%	NA
46%	12%	10%	18%	15%	Fishing opportunities	2%	4%	20%	46%	29%	NA
9%	3%	17%	42%	29%	Trail hiking opportunities	1%	3%	15%	56%	25%	NA
25%	17%	23%	23%	11%	Bicycling opportunities	0%	7%	30%	45%	18%	NA
20%	10%	24%	31%	15%	Water trail opportunities for canoeing or kayaking	3%	6%	14%	46%	31%	NA
44%	13%	17%	18%	7%	Volunteer opportunities	3%	8%	21%	41%	28%	NA
27%	9%	18%	27%	18%	Wilderness experience opportunities	2%	2%	15%	54%	28%	NA

2. If you have comments about the services, facilities, and opportunities at this refuge, please write them here.

See Appendix C

3. How much do you disagree or agree with each statement below? (*Circle one number for each statement.*)

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I felt welcome during my visit to this refuge.	0%	0%	16%	43%	41%
I felt safe during my visit to this refuge.	0%	1%	2%	49%	48%
Crime <u>is</u> a problem at this refuge.	57%	24%	13%	4%	2%
I feel comfortable being in nature.	0%	1%	1%	41%	58%
I do <u>not</u> like being in nature by myself.	55%	23%	11%	8%	3%
People closest to me enjoy participating in nature-based recreation.	1%	3%	8%	49%	39%
Generally, people who look like me are treated differently when they participate in nature-based recreation.	51%	19%	23%	5%	2%

4. How satisfied are you with the following? (*Circle one number for each statement.*)

	Not at all Satisfied	Slightly Satisfied	Moderately satisfied	Very Satisfied	Extremely Satisfied
The job this refuge is doing of conserving fish, wildlife, and their habitats.	1%	1%	17%	52%	30%
The quality of the overall experience when visiting this refuge.	1%	1%	18%	49%	32%

## SECTION 6. Future visits to this refuge

1. Considering **the primary activity** you participated in during your most recent visit to this refuge, please tell us how the following factors, if they occurred, could affect your future participation in that activity at this refuge. (*Circle one number for each factor.*)

If there was...	My participation in my primary activity would...		
	Decrease	Stay the same	Increase
Less water in lakes, rivers, or streams available for recreation	52%	46%	2%
More acreage open to hunting and fishing	27%	53%	20%
More infrastructure (for example, bathrooms, observation decks)	3%	64%	32%
Recreation equipment available for rent (for example, fishing rods, binoculars, snowshoes)	7%	73%	20%
Less regulations on fishing	13%	80%	8%
Less regulations on hunting	23%	71%	6%
A greater diversity of species	0%	38%	62%
Fewer numbers of a single, preferred species	25%	72%	3%
More people participating in my primary activity	18%	77%	5%
An improvement in the quality of wetlands	0%	42%	58%
An improvement in the quality of wildlife habitat other than wetlands	1%	44%	56%

2. Do you plan to return to this refuge in the next 12 months?

74% Yes      9% No      17% Not sure

3. Which of the following types of programs, if offered, would encourage you to return to this refuge in the future? (*Mark all that apply.*)

47% I do not typically participate in refuge programs

For those that do participate in refuge programs, the % that would be encouraged to return if the following programs were offered:

35% Programs that engage youth	20% Programs that focus on creative pursuits (for example, art, writing, meditation)
29% Programs that focus on family/multiple-generations	20% Programs that support people with accessibility concerns (for example, difficulty walking, in a wheelchair)
70% Programs that teach skills to visitors	6% Other ( <i>specify</i> ) <u>See Appendix C</u>
54% Programs that highlight unique local culture	

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## SECTION 7. A little about you

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**\*\* Please tell us a little bit about yourself. Your answers to these questions will help us to know more about who visits national wildlife refuges. Answers will not be linked to any individual taking this survey. \*\***

1. Are you? ☐ 54% Male ☐ 46% Female

2. In what year were you born?  1959 (YYYY)

3. How many years of formal schooling have you had? (Circle one number.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
(elementary)					(junior high or middle school)			(high school)				(college or technical school)				(graduate or professional school)			
					<input type="checkbox"/> 0%			<input type="checkbox"/> 13%				<input type="checkbox"/> 46%				<input type="checkbox"/> 41%			

4. What race or ethnicity do you consider yourself? (Mark all that apply.)

<input type="checkbox"/> 93% White	<input type="checkbox"/> 2% American Indian or Alaska Native
<input type="checkbox"/> 2% Hispanic, Latino, or Spanish	<input type="checkbox"/> 0% Middle Eastern or North African
<input type="checkbox"/> 4% Black or African American	<input type="checkbox"/> 0% Native Hawaiian or Other Pacific Islander
<input type="checkbox"/> 2% Asian	<input type="checkbox"/> 1% Some other race or ethnicity

5. How many people (including yourself) live in your household?  2 persons

6. What was your approximate household income from all sources (before taxes) last year? (Mark only one.)

<input type="checkbox"/> 1% Less than \$10,000	<input type="checkbox"/> 7% \$35,000 - \$49,999	<input type="checkbox"/> 27% \$100,000 - \$149,999
<input type="checkbox"/> 1% \$10,000 - \$24,999	<input type="checkbox"/> 23% \$50,000 - \$74,999	<input type="checkbox"/> 12% \$150,000 - \$199,999
<input type="checkbox"/> 4% \$25,000 - \$34,999	<input type="checkbox"/> 17% \$75,000 - \$99,999	<input type="checkbox"/> 8% \$200,000 or more

7. Which of the following best describes your current employment situation? (Mark only one.)

<input type="checkbox"/> 42% Employed full-time	<input type="checkbox"/> 0% Unemployed	<input type="checkbox"/> 42% Retired
<input type="checkbox"/> 6% Employed part-time	<input type="checkbox"/> 2% Homemaker/caregiver	<input type="checkbox"/> 1% Disabled/unable to work
<input type="checkbox"/> 7% Self-employed	<input type="checkbox"/> 1% Student	<input type="checkbox"/> 0% Other (specify): <u>See Appendix C</u>

**Thank you for completing the survey.**

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

## Comments?

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See Appendix C

PAPERWORK REDUCTION ACT STATEMENT: The Paperwork Reduction Act requires us to tell you why we are collecting this information, how we will use it, and whether or not you have to respond. The information that we collect in this survey will help us understand visitor satisfaction with and use of national wildlife refuges and to inform management and policy decisions. Your response is voluntary. An agency may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a valid OMB Control Number. We estimate it will take an average of 25 minutes to complete this survey. You may send comments concerning the burden estimate or any aspect of the survey to the Information Collection Clearance Officer, Fish and Wildlife Service, 4401 North Fairfax Drive, MS 222-ARLSQ, Arlington, VA 22203. OMB CONTROL # 0596-0236 EXPIRATION DATE 11/30/2020



## Appendix C: Open-Ended Survey Responses by Question

### Survey Section 1

Question 1: “Including your most recent visit, which activities did you participate in during the past 12 months at this refuge?”

Special Event	Frequency
Christmas Bird Count	1
Horseshoe crab festival	1
MERR training	3
Photo contest	3

Other Activity	Frequency
Crabbing	12
Dog walking/exercise/sun	1
Meditation	1
Relaxation	1
Sightseeing	1
Training for marine mammal stranding response NGO	1
Went to visitor’s center, checked out what was available for future visits	1

Question 2: “Which of the activities above was the primary purpose of your most recent visit to this refuge?”

Primary Activity	Frequency
Activity with dog(s)	2
Auto tour route/driving	8
Bicycling	5
Bird watching	35
Crabbing	14
Environmental education	2
Fishing	11
Hiking	34
Hunting	3
Interpretation	1
Kayaking	1
Nonmotorized boating	10
Other	4
Photography	10
Picnicking	1
Running	1
Sightseeing	4

Use facilities	1
Volunteering	2
Wildlife observation	15

Question 3: “Did you go to a visitor center at this refuge during your most recent visit?”; If Yes, “What did you do there?”

Other Visitor Center Activity	Frequency
Grabbed a couple of pamphlets, looked for maps of trails	1
Made a donation to the facility	1
Obtained passport stamp	1
Read about, got info on upcoming events/ongoing programs	1
Try to purchase insect repellent	1
Used bug spray that was provided	1
Volunteer at visitor center	1

Question 11: “Which, if any, of the following social media outlets did you use to share your refuge experience with other people?”

Other Social Media Outlets	Frequency
eBird	3
Listserv	1
Uglyhedgehog.com	1

## Survey Section 2

Question 1. “How helpful was each of the following sources to get information about this refuge and its resources?”

Other Websites	Frequency
AllTrails	1
Delaware birds	1
eBird	3
Goodsams.com	1
Google search	1
Local Sussex birding sites	1

Other Information Sources	Frequency
Refuge signs	1
Street signs	1

#### Survey Section 4

Question 1: “Record the amount of money that you and other members of your group spent in the local 50-mile area during your most recent visit to this refuge. Your group would include you and those with whom you shared expenses (for example, family members, traveling companions).”

Other Expenses	Frequency
Entertainment	1
Old Bay and beer	1
Parking fees	1
Tolls	1

#### Survey Section 6

Question 3: “Which of the following types of programs, if offered, would encourage you to return to this refuge in the future?”

Other Programs	Frequency
Bird-related programs	1
Hiking-related programs	1
Nature-related programs	2
Other	1

#### Survey Section 7

Question 7: “Which of the following best describes your current employment situation?”

Other Employment	Frequency
I have a post retirement job	1

### Survey Section 3

Question 2: "If you have any comments about transportation-related features at this refuge, please write them here."

#### Comments on Transportation-Related Features at This Refuge (n=30)

- 1.) The road to Ford's Landing boat launch seems too narrow for two boat trailers going in opposite directions.
- 2.) Trail signs - does the distance marked mean 1-way or round trip? 3.) Nice grass walking paths! Thanks.

Access to this refuge is mostly from public roads with few safe places to pull over. The provision of "wildlife drives" would be a great asset.

As noted, it wasn't clear at the entrance that there was more to the place than hunting and fishing since what was there was the hunting/fishing license station.

Better signs off of main road.

Don't want any hunting or motorbikes or powerboating ever! Protect wildlife, fire Ryan Zinke.

First visit to refuge, discovering it as we drove back to hotel from beach. Impressed with the refuge and plan on making it a planned stop next time we visit Delaware from home in Maryland.

Great easy access to waterways with well-maintained boat ramps and good roadways to get to the boat ramps. Plenty of parking nearby.

Having more pull outs would be extremely helpful. If I see a bird on the side of the road, it's hard to find a good spot to pull over, even in places that seem like a lot of people would want to stop (the road to Broadkill Beach, for example).

I have a handicapped wife; we need paved paths since she is in a transport chair (going to purchase an all-terrain chair to be able to go on non-paved trails). All-terrain/beach wheelchairs would be very helpful if visitors didn't own one.

If I were an out-of-stater wanting to find this refuge, I might miss its entrance due to minimal signage. I grew up in DE and frequented this place as a kid - very familiar.

In general, all the roads, boardwalks, and trails were in good condition and well-marked.

It is a nice refuge and we appreciate finding it while on a beach trip.

It is a rustic area but roads and paths, parking areas, docks, seating kept clear and accessible for all to enjoy.

Low water level limited access to many areas even by canoe.

Much of the access to this refuge is along public roads. Creating and maintaining larger and safer pull-offs would be very helpful to refuge visitors and for the public using these roads and have to deal with refuge visitors.

My last visit was unusual in the sense every parking space was taken. First time in several years.

Need to improve boat launch.

Nice park in good shape...we will return!

Not enough parking, not enough signage.

Part of the refuge is along Broadkill Rd. and Prime Hook Rd. Although there are some turnoffs, more turnoffs would be safer for watching birds in the marsh impoundments.

The improvements of adding gravel and a trash can to the crabbing area are nice.

The north access to Prime Hook leading to Prime Hook Beach had no parking or safe walking space.

The NWR paved the road into refuge HQ a few years ago. I always wondered where the money came from!

There need to be more pull-offs on the main road heading to HQ around the fields.

They need to improve the boat ramp at Ford's Landing. It is in need of repair to launch boat safely.

They removed speedbumps which is good at 20mph.

This is one of the most beautiful and clean areas in DE. The refuge is amazing, lots of bird species and an amazing time with family just walking trails, etc.

This refuge needs more signs, directions, and border markings in the northern hunting areas. It also needs more pull-off parking with better surface treatments on all northern areas. High grass with less defined parking can be a fire hazard from mufflers.

Trails for walking and hiking should be maintained better.

Well maintained roads and parking lot at the refuge headquarters.

## Survey Section 5

Question 2: "If you have comments about these services, facilities, and opportunities at this refuge, please write them here."

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### Comments on Services, Facilities, and Opportunities at This Refuge (n=46)

Bathroom is not being maintained properly.

Have a summer house just outside Prime Hook. Walk dogs and bike ride a lot.

I came to visit on a day when the visitor's center was closed. I really appreciated that restrooms were still accessible. Thank you for keeping them open!

I encountered one refuge employee in the fall of 2017 who was very disrespectful and rude. Refuge employees should understand their responsibility to be polite to and respectful of visitors to the refuge and to safeguard visitor usage of the refuge, as these visitors own the refuge and have every conceivable right to use it lawfully.

I enjoyed the lecture series. I also liked visits with shorebird skins from DE Museum of Natural History.

I like the scenery to watch wildlife and photographing opportunities to kayak.

I like the way it is run. Volunteers could use some more familiarity with ongoing activities of animals/birds. Change hours to 1 hour after sunset to close.



I live very close to this facility and enjoy this area for this reason. It was a deciding factor along with the state park to move here.

I was most impressed by two "seniors" (male and female) who volunteer to pick up litter at the Peterfield Ditch Bridge (on RT 16) leading to Broadkill Beach. Thanked them for their services and spoke with them for about 20 minutes on 7/31/18 at 9:30am.

I would like to see the gift shop expanded. I love the refuge and would like to give gifts from the shop. It would be nice to buy items online. Note cards, bumper stickers, etc.

I've visited Prime Hook many times over the past 10 years or so. A few years ago, the hurricane wiped out a lot of the natural habitat and with this most recent visit I was pleased to see that nature is starting to rebuild the waterways, etc. A couple years ago I had stopped by to kayak and everything was pretty much bone dry. Nothing that can be done about that but let nature take its course, just wanted to mention it here that I'm glad to see it's coming back.

It needs more hunting access and as the freshwater tares over and the canoe/kayak trails become re-defined, rentals and tours would be nice. At one time (70s) this was my favorite place until storms destroyed the sea wall and saltwater killed every bit of the forest land.

It was not clear which door led to the visitor's center. Ranger seemed preoccupied and did not know about the passport stamp. The whole facility looked a bit tired.

It would be nice to have a port-a-potty.

Just checking it out for future trips; we looked at a housing development in the area for possible retirement living.

MERR's training should be videotaped and shared as an educational tool. It was very educational.

More duck blinds and blind sites.

More observation and control over people who do not have a valid fishing license and people who cannot clean up after themselves!

Multiple water trails and ponds provide excellent opportunities to enjoy short or longer canoe/kayak excursions and to enjoy the quiet wilderness. Also, several hiking trails through woods, fields or along waterways are excellent for walking, bird-watching and a chance to see other wildlife.

Need deer stands fixed and replaced.

No restrooms.

Only the beach should be opened up for walking, the nesting season needs permanent.

Recently members of this refuge and staff of a local senior center have joined together to provide monthly wildlife lectures. It is turning out to be a win-win for all! Prime Hook and Milton Senior Center are local community!

Representatives in visitor center were both very helpful and nice. Much appreciated!

See section 3 items. About 2 years ago they stopped seasonal variation in the water level. Many ponds are nearly inaccessible due to mud and will likely dry up in the next five years.

Some of these questions are not pertinent as we have just moved to the immediate area and just begun exploring.

The bathrooms were very clean, and the shaded picnic area was great. We would have bought more at the refuge visitor's center, but it was closed.

The facilities are very clean, thanks.

The facility is sparse and rustic. It lacks the welcome feeling. Not modern.

The interns were extremely nice and helpful in guiding to local fishing areas.

The Prime Hook Refuge is a little oasis of nature and peace just minutes from a hectic roadway. It is a much-needed safe haven for local and transient wildlife and human visitors, too.

The refuge should expand opportunities and facilities for non-consumptive users (birdwatchers, etc.). Most of the refuge is closed to these users while the areas are open for hunters.

The room with the drawers of bugs and dung was very interesting. Book store with stuffed animals was amazing.

They need to be patrolled more by officials to monitor game minimum size violations and people leaving trash even though there are dumpsters and trash cans.

They need to resume planting crops in the fields to attract deer and waterfowl to the area. This was done in the past and now the fields are growing trees and there is no place to observe wildlife. People using motor vehicles have decreased due to lack of visibility of wildlife.

This is a "primitive" sight in the refuge.

This is a great place. Small, but well run.

This part of the park was closed when we arrived, with student volunteers/survey takers there to explain. It was due to reopen the following weekend.

This refuge is very large. We do not spend time in all other areas. We only go fishing and crabbing. It is a beautiful place. I wish visitors were cleaner.

Though not recently, I have canoed on the two ponds and enjoyed it very much!

Very clean facilities - bathrooms and visitor center.

Very satisfied.

Visitor center was small, and no personnel were seen when we stopped.

We did not use any facilities or visit the visitor's center.

We enjoyed the trails in the past and found the visitor's center helpful. We particularly enjoyed videos and books on horseshoe crabs.

We've thought the refuge would be nice for rental cabins.

## End of Survey

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### General Comments (n=29)

A really cool place and very friendly people. Thanks for being there!

Access to river for crabbing and fishing on other side of the river and bathrooms.

Access to this refuge is hampered by the lack of "wildlife drives" such as are found in many other NWRs. What access there is, is from public roads with few safe pull offs.

Excellent, well-maintained facility that provides opportunities to explore and enjoy wildlife habitat in our local area. I particularly appreciated the ease of access to waterways within the refuge.

God bless.

Good job clearing trails, crush and run on trails, bridges and boardwalks.

I hunt deer, and fish and crab the refuge.

I live in Millsboro so brought my grandchildren here one day in summer. They are age 11 and 9. After the refuge, we visited the Dupont Center near Slaughter Beach and they liked it much better because of more hands-on exhibits.

I live on west coast. Not likely to be in area again, therefore not likely to visit again.

I live very close to this facility and enjoy this area for this reason. It was a deciding factor along with the state park to move here.

I love the facility.

I love the raw beauty of the Delaware beaches and have purchased a pass so I can see them all, very excited, and I love that you offer discounts for those who have less money - it makes it affordable, thank you, keep up the great work.

I plan to go back next year with my grandchildren, ages 5 and 11. We will crab on some of these visits. Prime Hook is a very special place for me and other family members.

It was a great day. The staff at the facility were very friendly and helpful. Very welcoming!

Keep up the good work! Connecting with the earth and its creatures is in our nature.

More FWS to check on illegal fishing and crabbing.

Not enough questions for those of us that live locally.

Please maintain the trails to the best of your ability or to the extent resources allow. Also, please safeguard the refuge for people who simply want to enjoy it for its peace and tranquility and natural beauty. Thank you.

Staff at visitor center were extremely helpful, courteous, and informative!

Stock for fishing.

Thank you for the opportunity to provide my feedback.

The refuges are not just refuges for wildlife. They are refuges for people - refuges from stress and pressures that drive deterioration of our planet. Keep up the good work!

This is the finest NWR in Delaware, with lots of habitat diversity and dedicated staff and volunteers. It is a wonderful asset to the state and Sussex County. It should be noted that although I live in the Washington, DC area, I own property in Dewey Beach, about 20 miles from the refuge, and am usually based there when visiting the refuge.

Trump will ruin places like this. He ruins all things to do with the environment [name].

Unfortunately, we got there too late for the gift shop this trip, but the rangers were very helpful and let us look around anyhow. Kudos!

We are new to the Lewes Delaware area. We plan on visiting the refuge and parks and beaches often. My wife is handicapped so until we purchase an all-terrain wheelchair (beach) she is limited on outdoor activities.

We enjoy visits to the refuge. We both are animal and bird lovers. My husband has hunted on the refuge in past years. Age catches up.

We enjoyed our two visits to the refuge while vacationing in the area. My only concern was that we noticed a red mylar balloon in the wetlands. When we returned to the office, we notified the staff of the balloon so it could be removed before it harmed any wildlife. When we returned two days later for our second visit, I was alarmed to see the balloon was still there. We notified the office staff again, but since we were leaving that day, I can't be sure if/when it was removed. It made me a little concerned that it was not a higher priority considering how balloons are known to harm/injure/kill animals and birds.

We had a lovely spontaneous visit to Prime Hook NWR. We were on our home from Bethany Beach where we usually make an annual visit and decided to make a stop. We have passed the signs for many years and talked about stopping but never had because of time constraints. This year we had more flexibility and decided to make some stops on the way home. We checked out the exhibits at the visitor center and watched an informational video and interacted with the volunteer staffing the center that day. He was informative and helpful. And my sons got new stamps in their NPS passports. We did some light hiking and then the driving tour of the refuge. We enjoyed seeing a variety of birds and experiencing the refuge. I'm so glad we took the time to visit and am only sorry that I did not do it sooner.

We sometimes get a little lost on trails. The park is small enough that we can eventually find ourselves again.