



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

# **NATIONAL WILDLIFE REFUGE VISITOR SURVEY**

*2018 Results for  
Bayou Sauvage National Wildlife Refuge*



**THE OHIO STATE  
UNIVERSITY**





## Acknowledgments

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**Note: This report summarizes responses from a small sample of visitors (see pg. 3 for details). Thus, results may not reflect the full range of visitor experiences on this refuge and should be interpreted with caution.**

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*Front cover: A boardwalk on the Ridge Trail at Bayou Sauvage 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 Bayou Sauvage 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

Bayou Sauvage National Wildlife Refuge is located entirely in the city limits of New Orleans, Louisiana. The refuge was established in 1990 by president Ronald Reagan to provide opportunities for fish and wildlife oriented recreation under the Emergency Wetland Act of 1986. This refuge is the second largest urban refuge in the nation and was formed by the abandoned St. Bernard delta of the Mississippi River. It consists of 25,000 total acres, including 13,000 acres of freshwater habitat, 11,000 acres of brackish water, and 200 acres of forested lands on low ridges. The wildlife refuge is home to numerous species including great blue herons, white egrets, American alligators, whitetail deer, and 350 various bird species. In addition, the freshwater wetlands are only recharged by rainfall. Therefore, during dry periods some areas may dry up totally. Introducing brackish water from Lake Pontchartrain may provide some drought relief, but too much will damage freshwater grasses and other plants.

During Hurricane Katrina in 2005, levees on the south shore of Pontchartrain were damaged by storm surge. The U.S. Army Corps of Engineers



*Great egrets and white ibis at Ridge Trail Unit of Bayou Sauvage National Wildlife Refuge. Photo credit: Nicole Stagg.*

expanded the levees but altered the refuge's wetland. To restore the wetland, the Corps used sediment pumped from Pontchartrain to create brackish marsh in what was open water. For several years now the National Guard has dropped thousands of used Christmas trees into selected spots of the wetland areas. These trees provide extra habitat and reverse the effects of shoreline erosion, ultimately benefiting the people of New Orleans. Bayou Sauvage attracts over 80,000 visitors annually (U.S. Fish and Wildlife Service, 2018, written comm.). Visitors can participate in recreation such as hiking, fishing, kayaking, boating, bird watching, crabbing, crawfishing, and wildlife observation.

## 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 274 visitors agreed to participate in the survey by providing their names and addresses.
- In all, 84 visitors completed the survey online (48%) or by mail (52%) after their refuge visit, resulting in a 35% response rate. **Due to the small sample size, results contained in this report should be interpreted with caution.**
- Results for this wildlife refuge have a  $\pm 9\%$  margin of error at the 95% confidence level. For more details on limitations of results and survey methodology, see Appendix A.

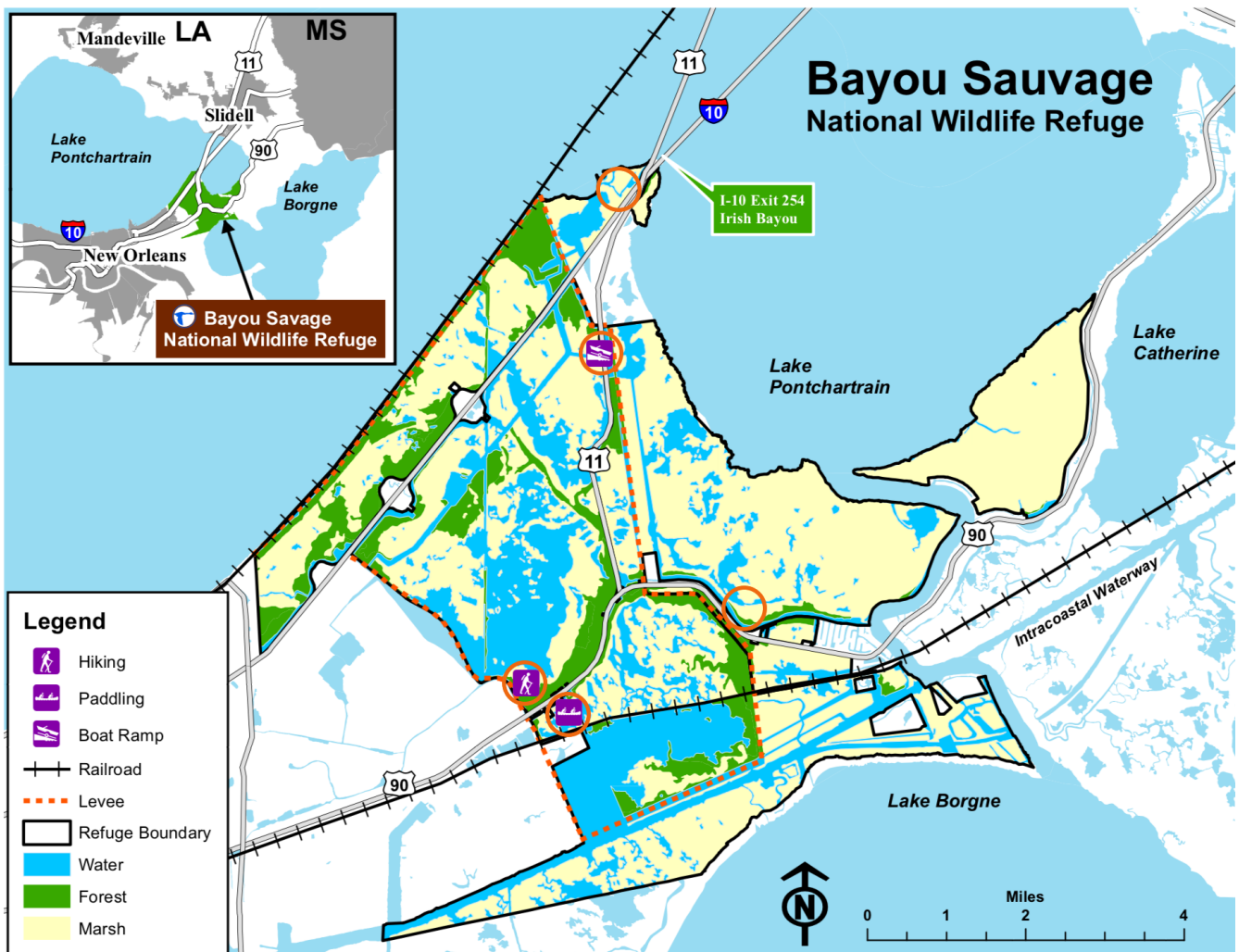


Fig. 2: Map of Bayou Sauvage National Wildlife Refuge. Visitors were contacted at the circled locations from 3/23/2018–4/1/2018 and 9/21/2018–10/15/2018.



# 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

- 48% of visitors were female with an average age of 50 years (Fig. 3).
- 52% were male with an average age of 55 years.

## EDUCATION

- 15% of visitors had a high school degree or less.
- 37% had at least some college.
- 48% had an advanced degree.

## RACE & ETHNICITY

Most prevalent race or ethnicity (Fig. 4):

- White (89%).
- Some other race (4%).

## INCOME

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

## OTHER TRIP CHARACTERISTICS

- Average group size of 4 people.
- 23% visited the refuge alone.
- 63% visited with at least one other adult.
- 14% visited with a combination of at least 1 adult and 1 child.

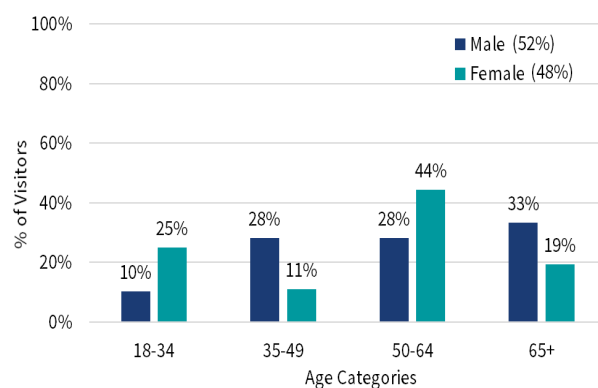


Fig. 3: Distribution of visitors to this refuge by gender and age group.

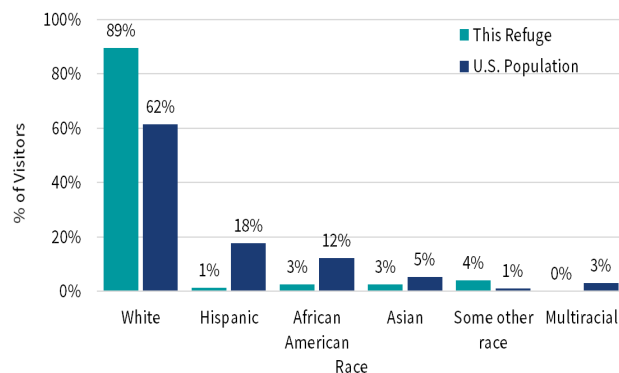


Fig. 4: Race and ethnicity of visitors to this refuge compared to the national average.

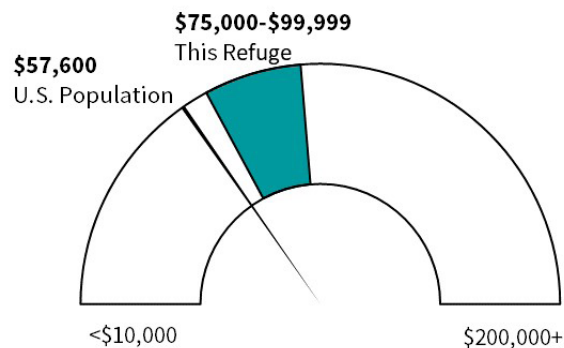


Fig. 5: Mean income range of visitors to this refuge compared to the national median income.

# 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

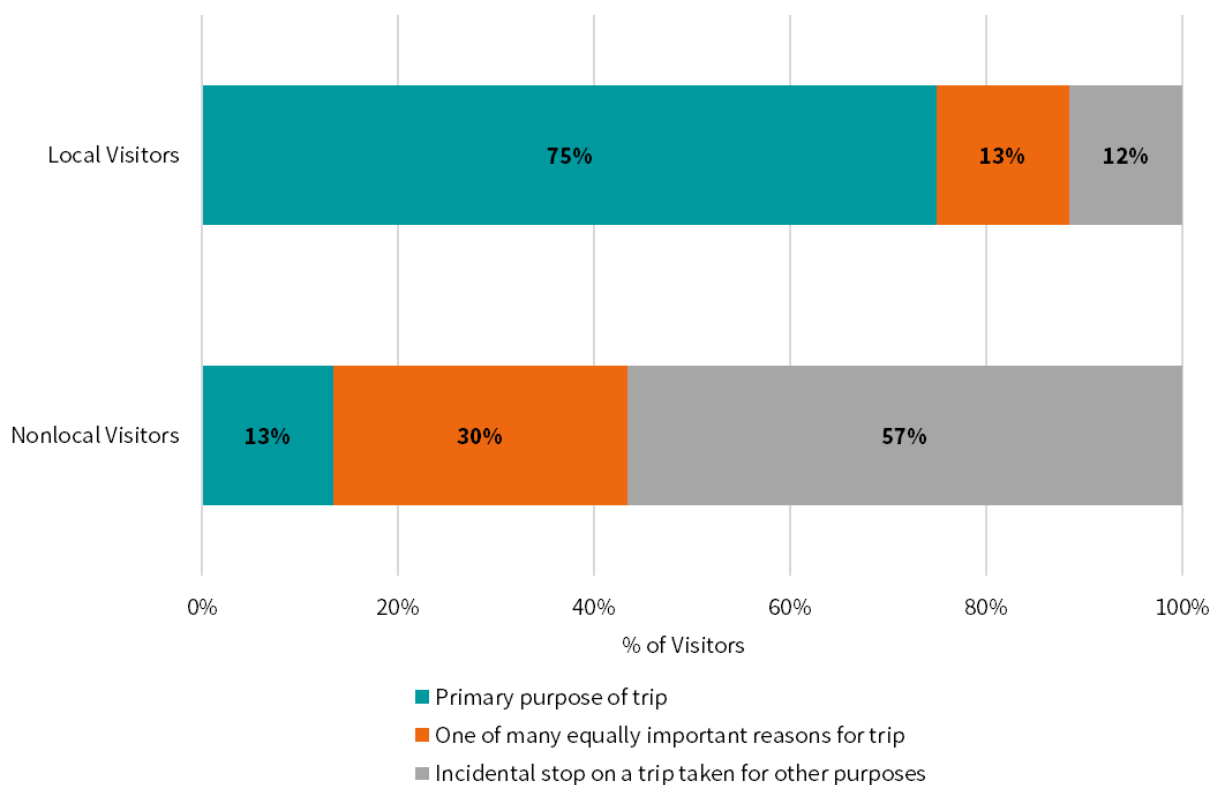
Highlights of trip characteristics for local visitors to this wildlife refuge (64%) include:

- For locals, this refuge was the primary reason for their trip (75%) (Fig. 6).
- Local visitors traveled an average of 31 minutes to arrive at this refuge (Fig. 7).

## NONLOCAL VISITORS

Highlights of trip characteristics for nonlocal visitors to this wildlife refuge (36%) include:

- For nonlocals, this refuge was an incidental stop as part of a trip taken for other purposes (57%) (Fig. 6).
- Nonlocal visitors traveled an average of 11 hours to arrive at this refuge (Fig. 8).
- Of the 95% of visitors who lived in the U.S., nonlocal visitors were most often from Louisiana (63%) and Mississippi (8%).
- 5% of respondents were international visitors.



*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.*



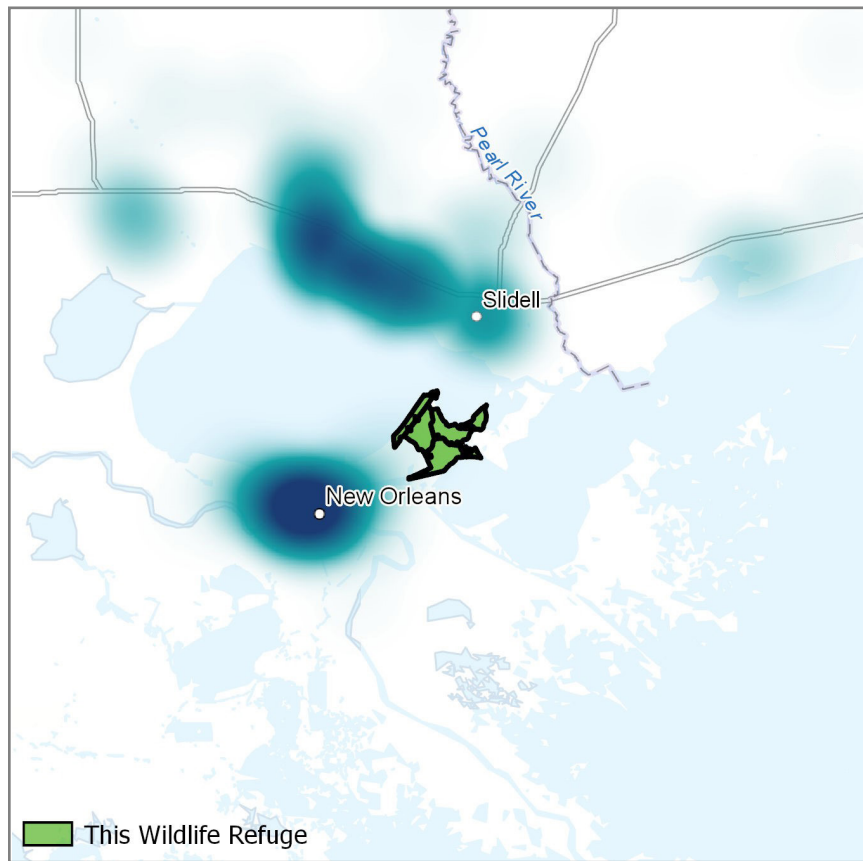


Fig. 7: Map showing residence of local visitors to this refuge. Darker shading represents relatively higher visitation from that area.

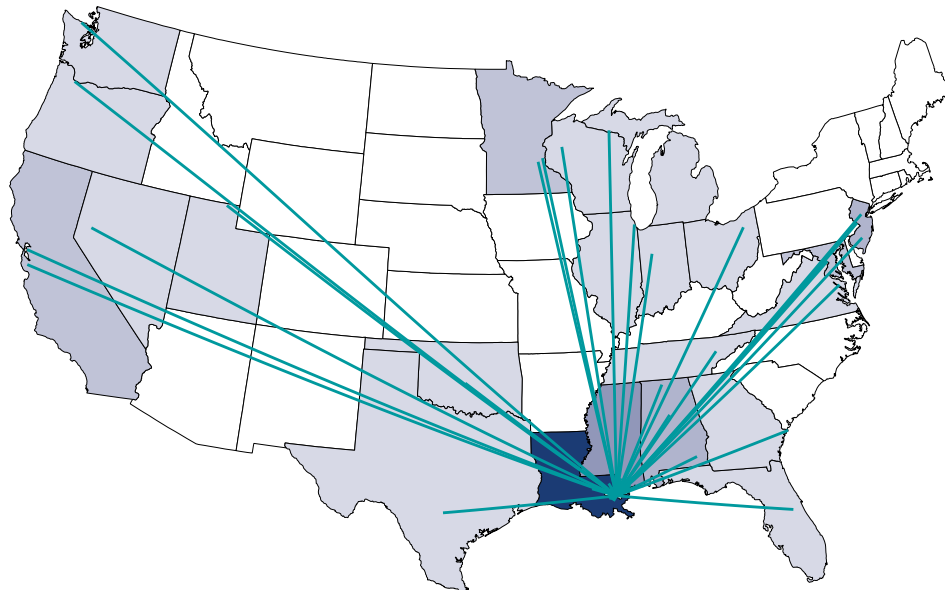


Fig. 8: Map showing residence of visitors to this refuge by zip code, with each line representing visitation from a different zip code. The convergence point of the lines is the geographical center of the refuge. Darker shading of the states represents higher visitation from that state.

## OTHER TRIP CHARACTERISTICS

Other trip characteristics include:

- To get to this wildlife refuge, visitors primarily traveled by private vehicle without a trailer (90%) and by foot (10%) (Fig. 9).
- Once on the refuge, visitors primarily traveled by foot (43%) and by private vehicle without a trailer (33%) (Fig. 9).
- Visits occurred during winter (27%), spring (57%), summer (33%), and fall (71%).
- 99% of visitors made a single-day trip to this refuge, spending an average of 3 hours, while 1% of visitors were on a multi-day trip to this wildlife refuge that averaged 2 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:

- 52% were repeat visitors to this wildlife refuge, visiting an average of 10 times.
- 66% visited other national wildlife refuges, averaging 4 visits.
- 80% visited other public lands, averaging 9 visits.

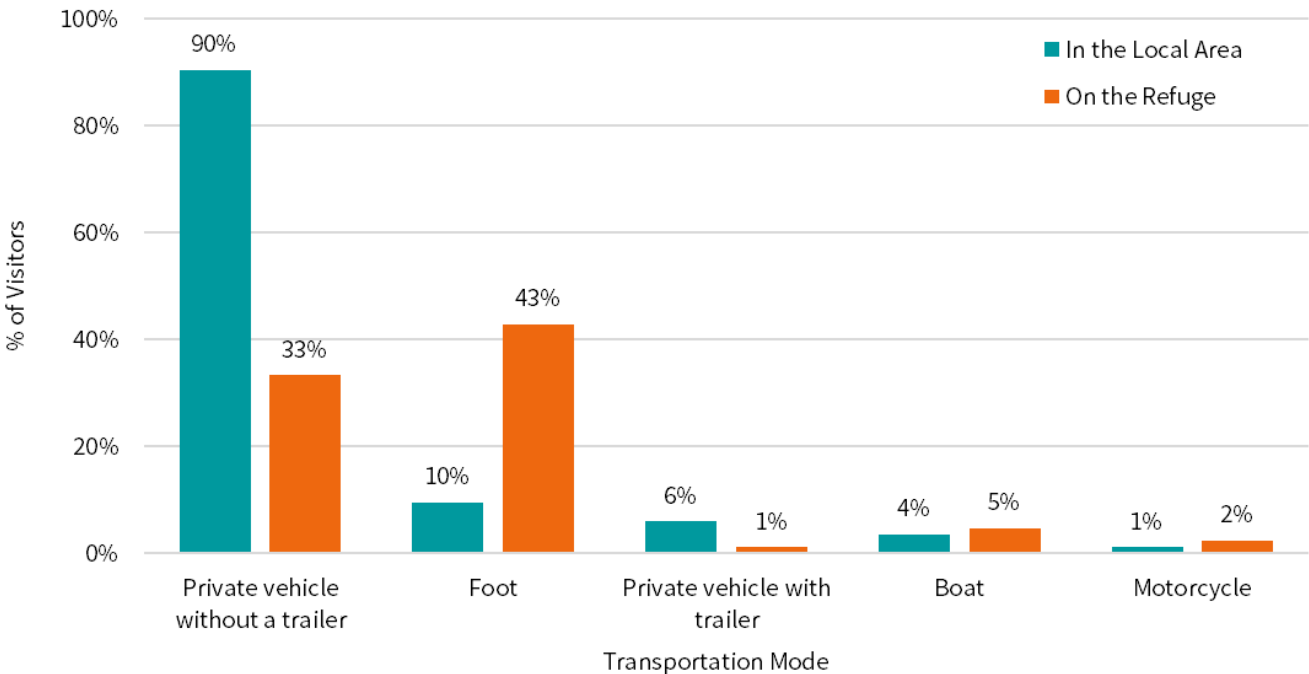


Fig. 9: Modes of transportation used by visitors to get from the local area to this refuge and within the boundaries of this refuge.



# 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 such as word of mouth (64%) (Fig. 10).
- Print and internet sources such as a web-based map (65%) (Fig. 11).
- Refuge-specific sources such as refuge employees/volunteers (78%) (Fig. 12).

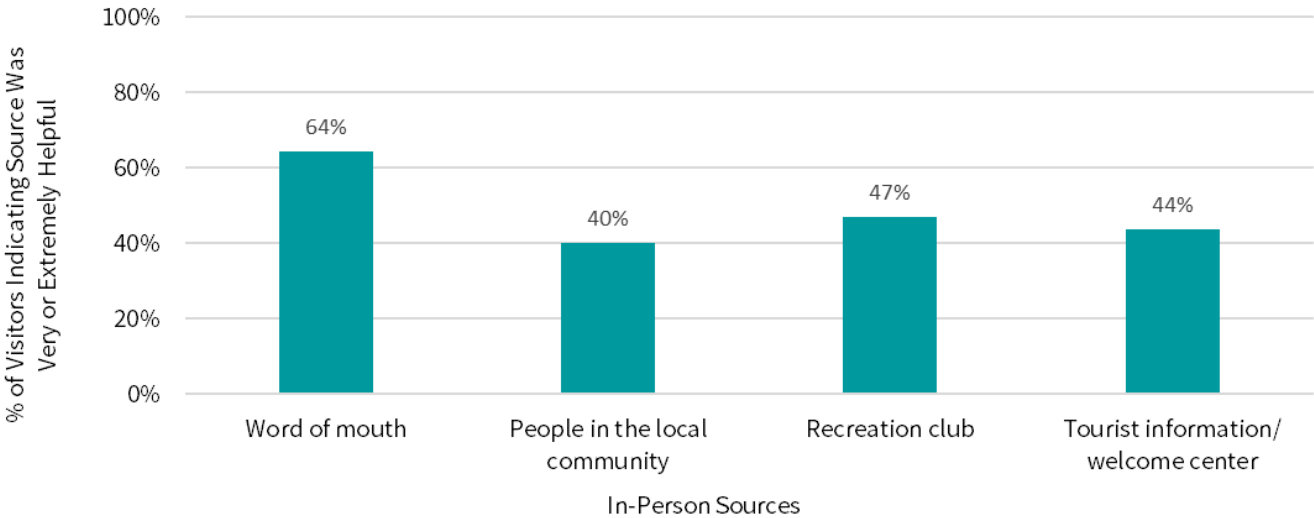


Fig. 10: Percent of visitors who found in-person information sources very or extremely helpful in planning their trip.

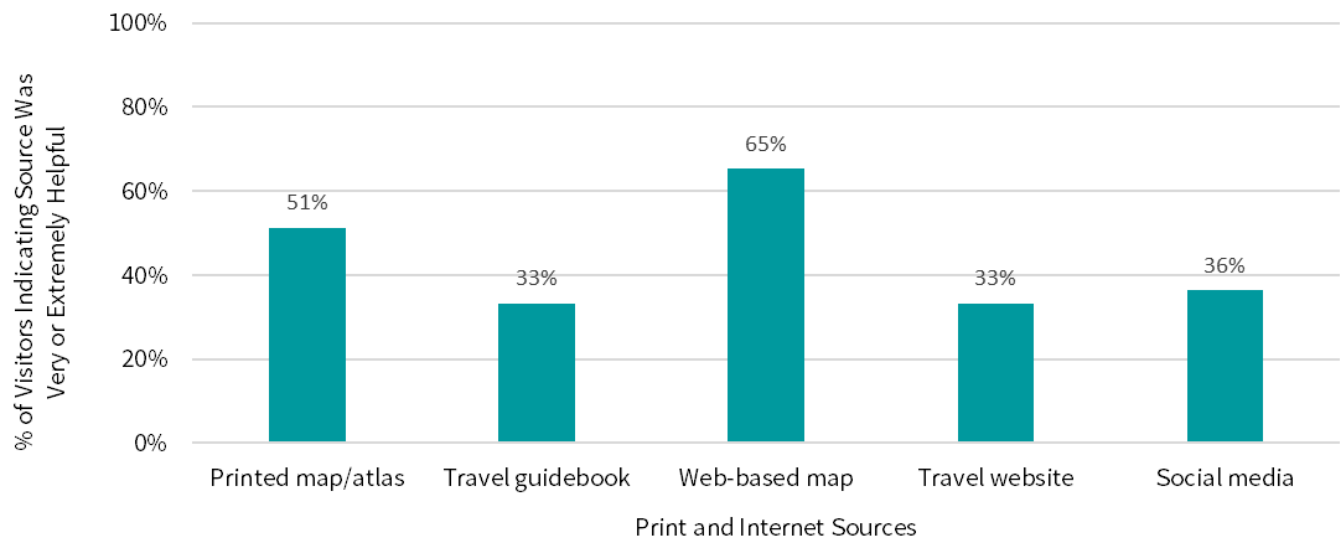


Fig. 11: Percent of visitors who found print and internet information sources very or extremely helpful in planning their trip.

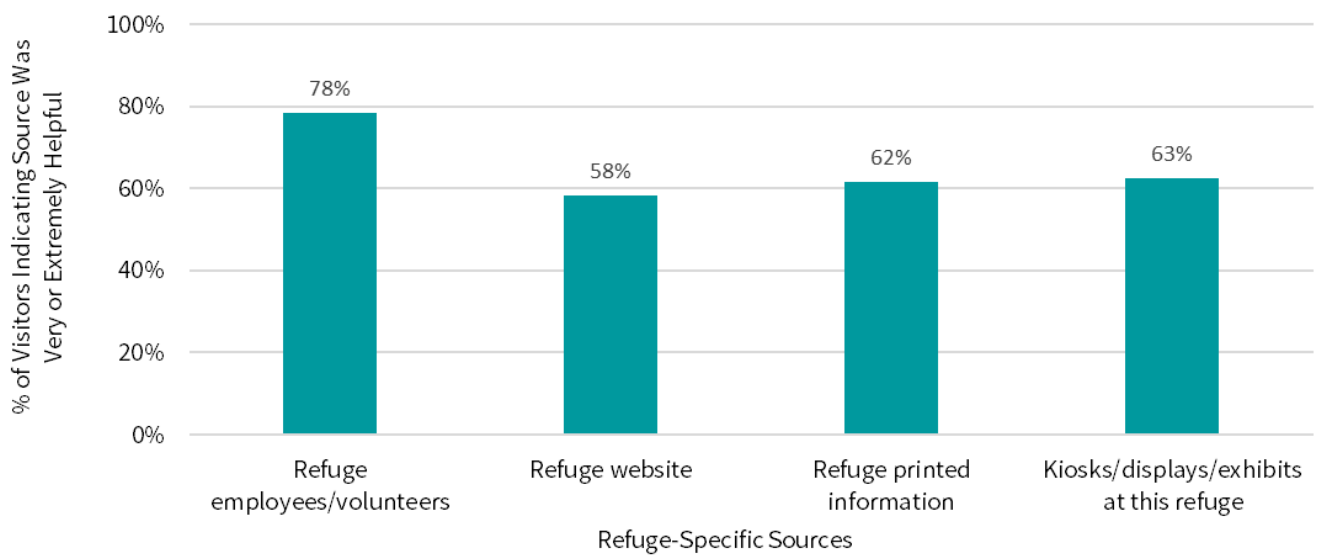


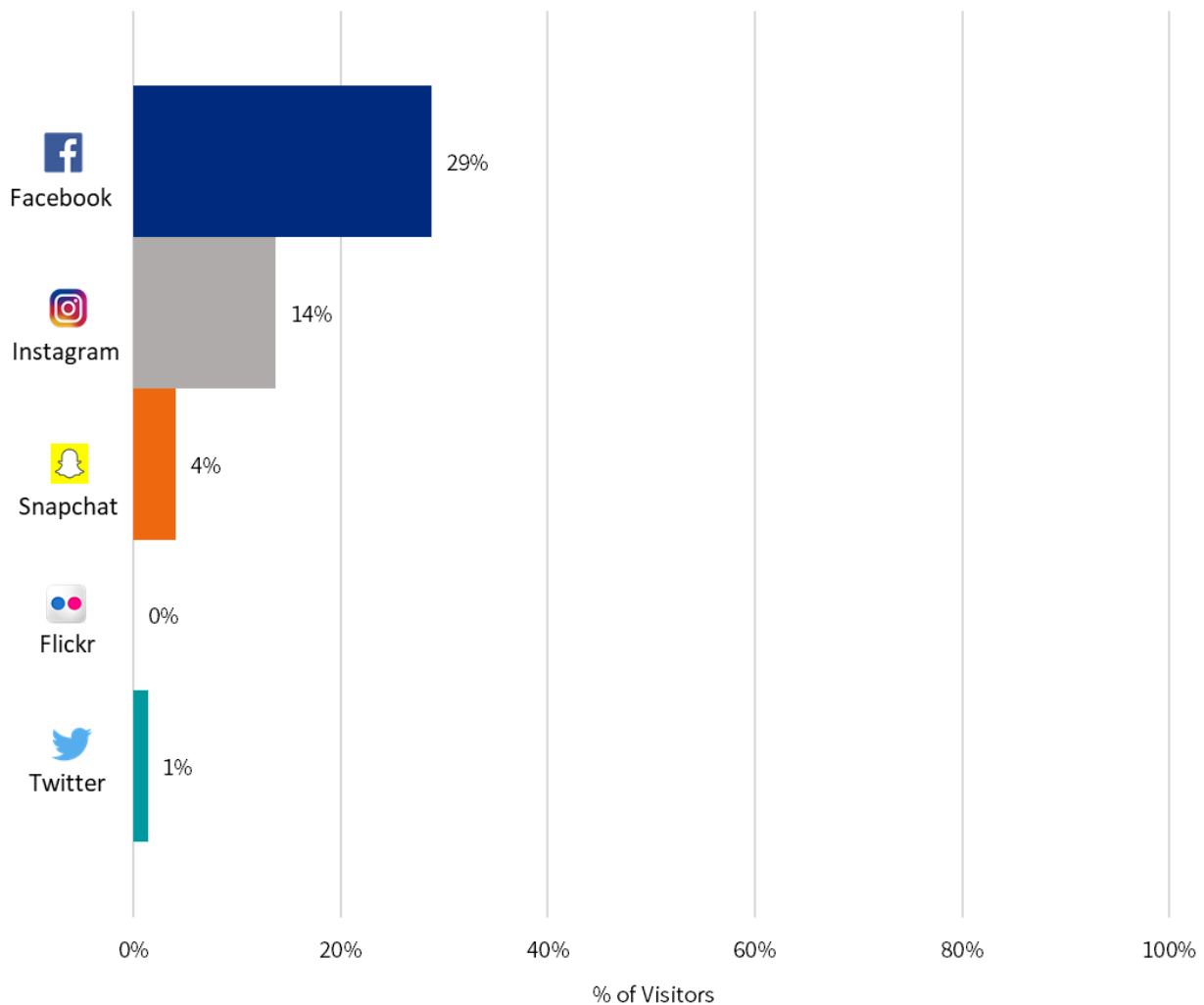
Fig. 12: Percent of visitors who found refuge-specific information sources very or extremely helpful in planning their trip.

## 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 47% of visitors to share their experience on this refuge with others. Visitors used the following specific social media platforms to share about their refuge experiences (Fig. 13):

- Facebook (29%)
- Instagram (14%)
- Snapchat (4%)
- Twitter (1%).



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



## Participation in Recreational Activities

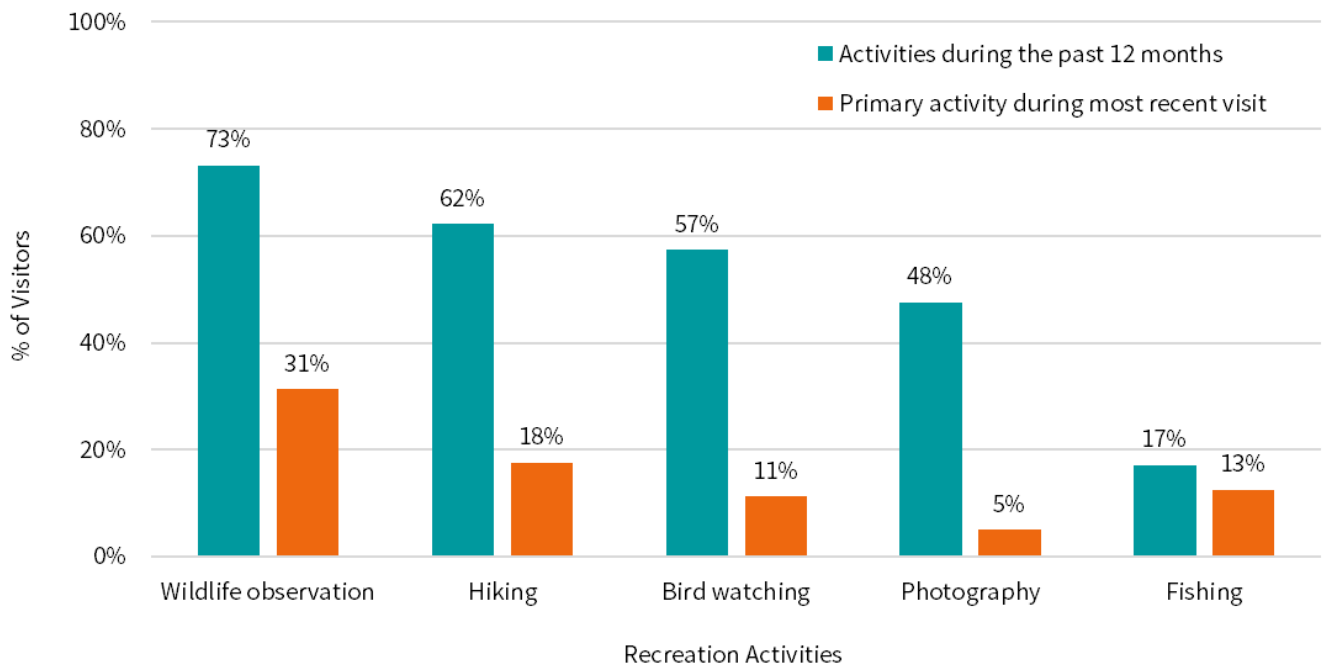
Some research shows that rates of participation in outdoor recreation activities have increased (Outdoor Foundation, 2018), while other studies have indicated declines in participation in heritage activities such as hunting (U.S. Fish & Wildlife Service, 2016a). In light of these trends it is important 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 (73%), hiking (62%), and bird watching (57%) (Fig. 14).
- The top three activities noted as their primary activity on the day visitors were contacted to participate in the survey were wildlife observation (31%), hiking (18%), and fishing (13%) (Fig. 14).



*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.*



*A boat launch site at Bayou Sauvage National Wildlife Refuge. Photo credit: Nicole Stagg.*

## 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:

- 73% of visitors felt welcome during their refuge visit (Fig. 15).
- 88% of visitors felt safe during their refuge visit (Fig. 15).
- 96% of visitors reported that they feel comfortable being in nature, but 17% do not like being in nature alone (Fig. 16).

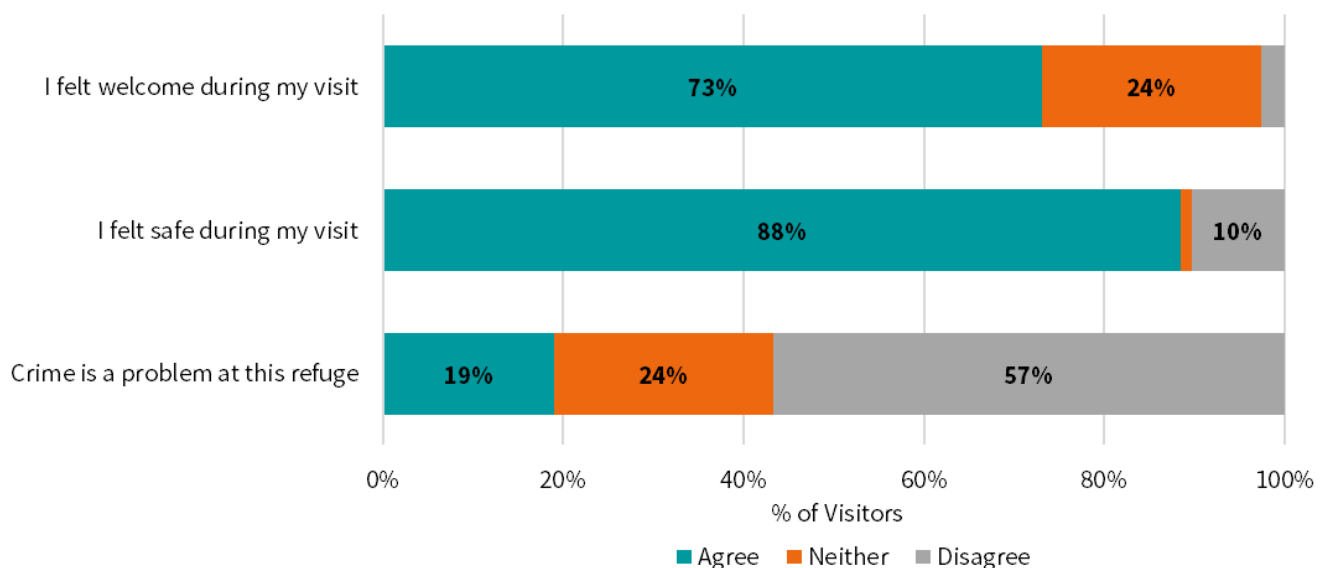


Fig. 15: Visitors' perceptions of safety and feeling welcome at this refuge during their visit.



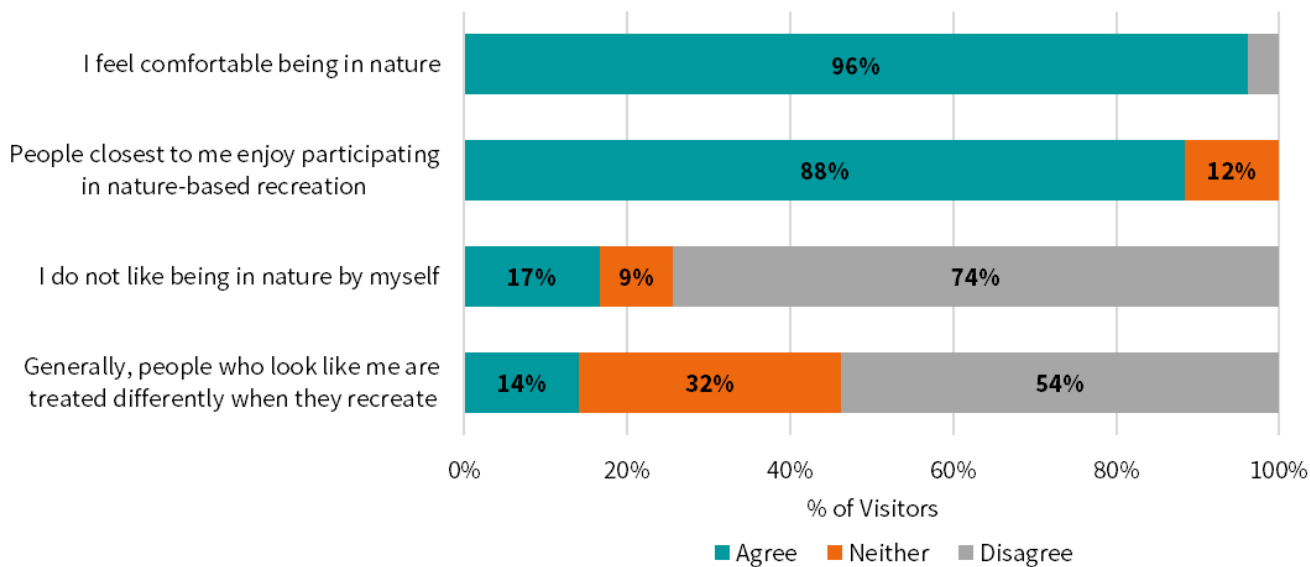


Fig. 16: Visitors' comfort with being in nature.



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:

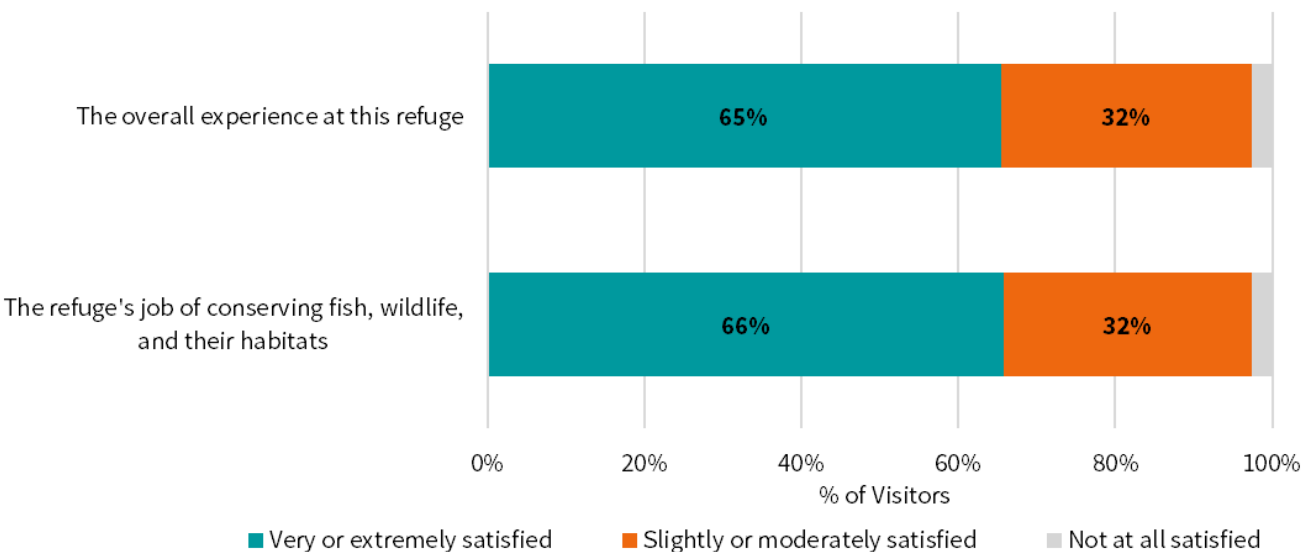
- 65% of visitors were very or extremely satisfied with the overall experience at this wildlife refuge (Fig. 17).
- 66% of visitors were very or extremely satisfied with this wildlife refuge's job of conserving fish, wildlife, and their habitats (Fig. 17).

## 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. 18):

- refuge hours/days of operation (85%),
- courteous and welcoming employees/volunteers (71%), and
- restrooms (62%).



*Fig. 17: Visitors' satisfaction with their experience at this refuge and with this refuge's job of conserving fish, wildlife, and habitats.*

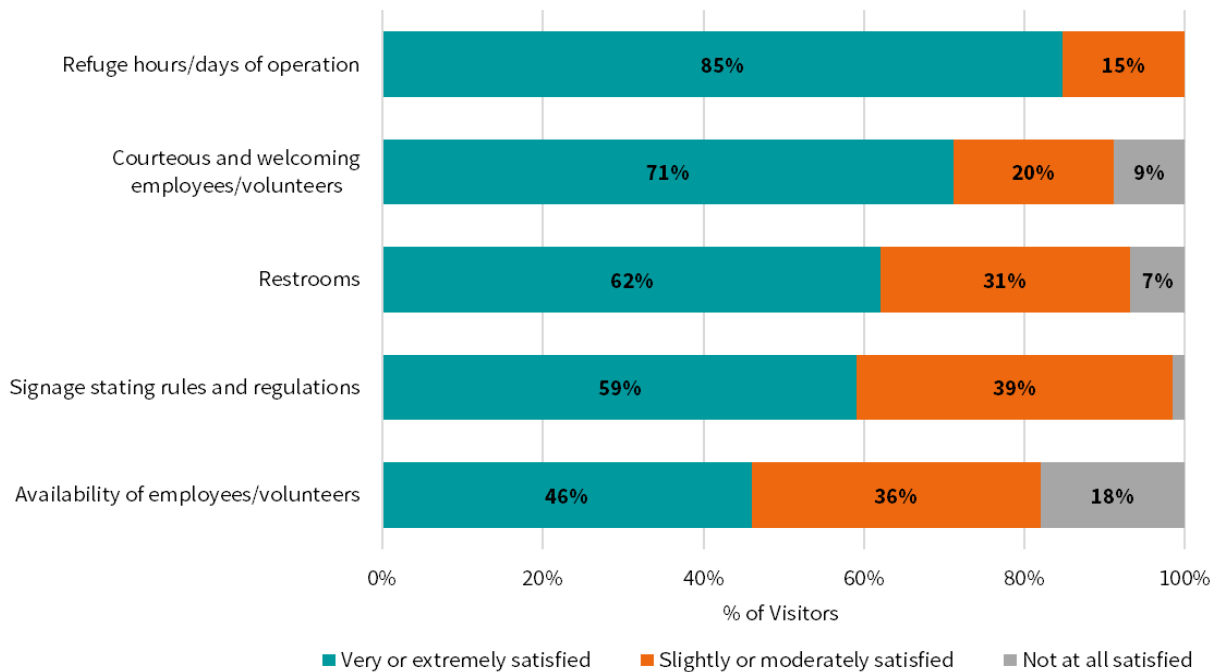


Fig. 18: Visitors' satisfaction with customer service and amenities at this refuge.

## 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

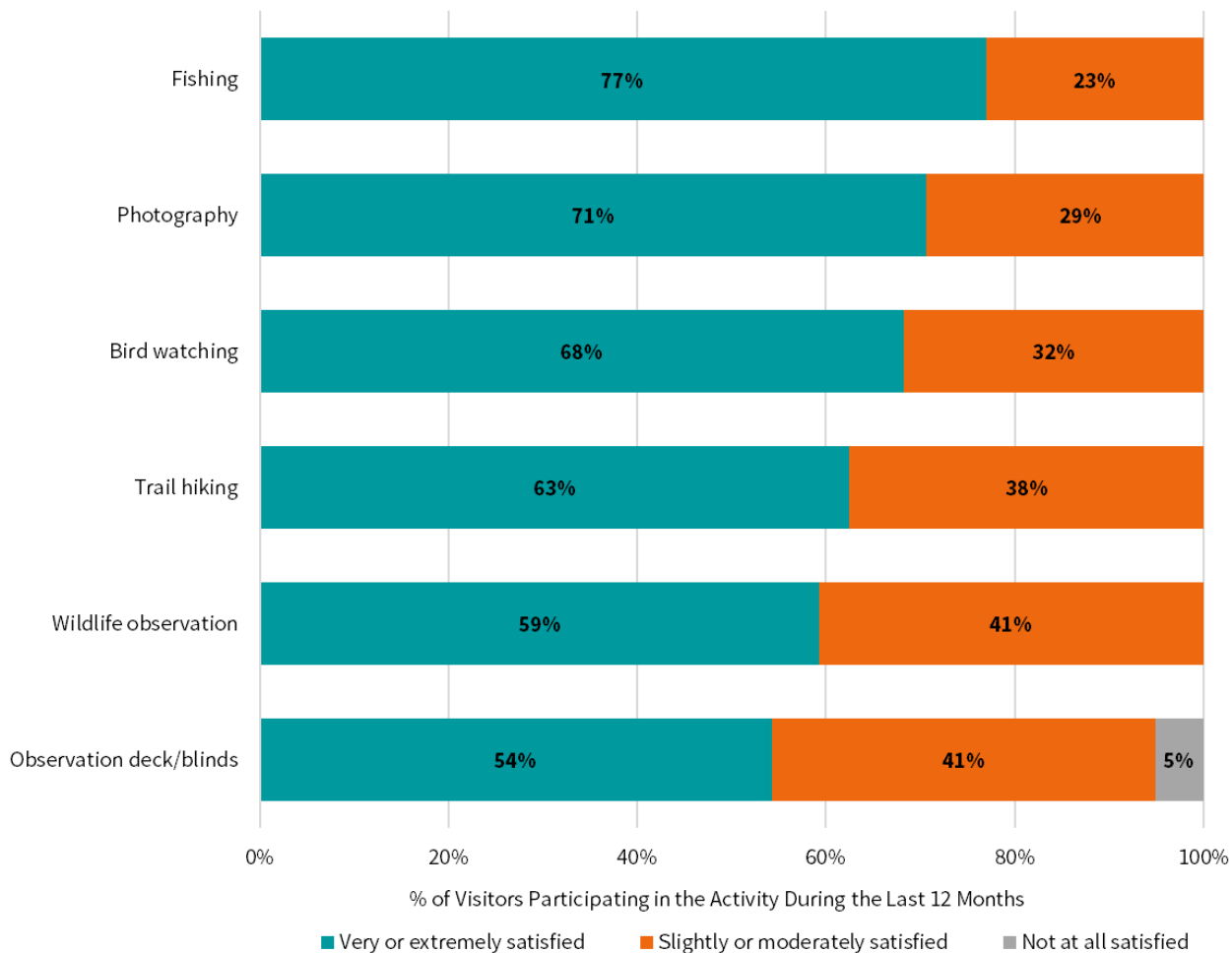
framework for monitoring and responding to these recreation trends across time.

Satisfaction with recreation opportunities among visitors who had participated in the activity during the last 12 months was highest for the following (Fig. 19):

- fishing (77%),
- photography (71%), and
- bird watching (68%).

*"[Bayou Sauvage National Wildlife Refuge] is beautiful and vital to the community and ecosystem. [T]hanks for the hard work in keeping our planet safe, flourishing, and available to the public." – Visitor to Bayou Sauvage National Wildlife Refuge*





*Fig. 19: 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. 20):

- Getting to this wildlife refuge, visitors were most satisfied with safety of refuge road entrances and exits (76%).
- Getting around this wildlife refuge, visitors were most satisfied with number of parking places (81%), safety of driving conditions on refuge roads (70%), condition of bridges on roadways (68%), and condition of refuge roads (67%).
- Accessing recreation on this wildlife refuge, visitors were most satisfied with safety of roads or trails for nonmotorized use (70%), condition of trails and boardwalks (61%), and condition of boat launches (60%).

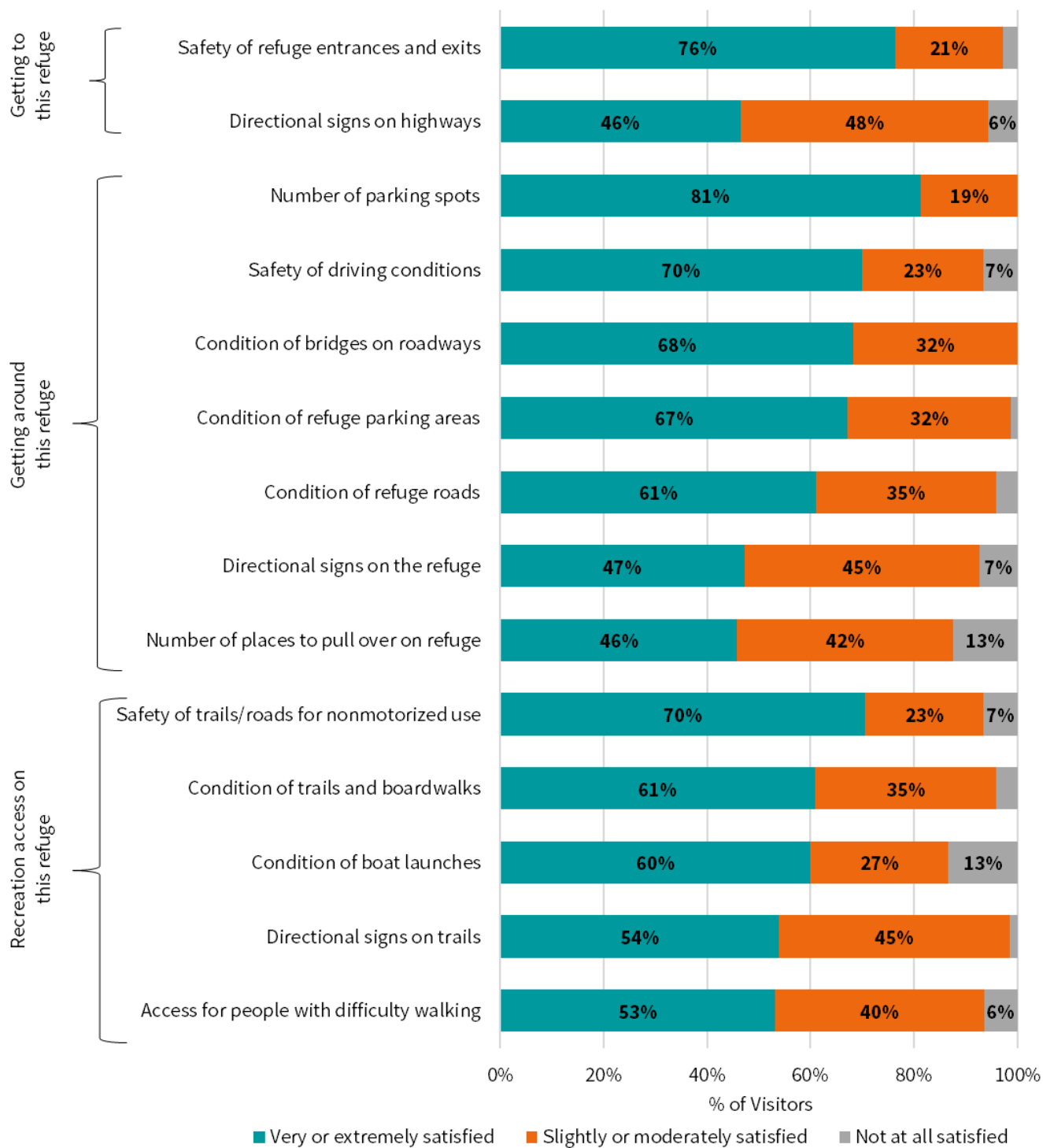


Fig. 20: Visitors' satisfaction with how the refuge is managing transportation-related features.

## 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; 64%) are as follows:

- On average, local visitors accounted for 10% of expenditures.
- Top trip expenditures by locals were for food/drink and retail (Fig. 21).
- The average amount paid by locals to visit this wildlife refuge was \$31 per person per day (Fig. 21).
- Local visitors were personally willing to pay an additional \$30 per day on average to visit this wildlife refuge (Fig. 22).

Results for nonlocal visitors (those living  $>50$  miles from this wildlife refuge; 36%) are as follows:

- On average, nonlocals accounted for 90% of expenditures.
- Top trip expenditures by nonlocals were for lodging and food/drink (Fig. 21).
- The average amount paid by nonlocals to visit this wildlife refuge was \$103 per person per day (Fig. 21).
- Nonlocal visitors were personally willing to pay an additional \$136 per day on average to visit this wildlife refuge (Fig. 22).
- Nonlocal visitors spent an average of 4 days in the local community during this visit.







Fig. 21: 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.

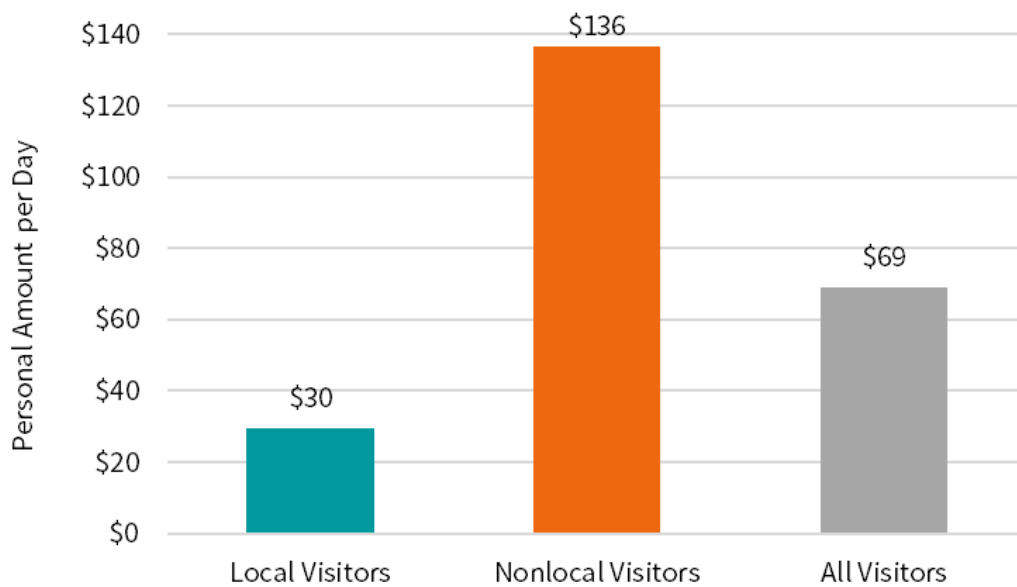


Fig. 22: Total personal willingness to pay per day above and beyond most recent trip expenses if costs were to increase for local, nonlocal, and all visitors. Due to the fixed-response question format, estimates of willingness to pay may underestimate the amount visitors would actually pay. Responses 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 (69%), highlighting unique local culture (65%), and engaging youth (44%) (Fig. 23).
- The top two factors likely to increase visitors' future participation in their primary recreation activity were more infrastructure (49%) and recreation equipment available for rent (30%) (Fig. 24).
- The top two factors likely to decrease visitors' future participation in their primary recreation activity were less regulations on hunting (28%) and less regulations on fishing (17%) (Fig. 24).

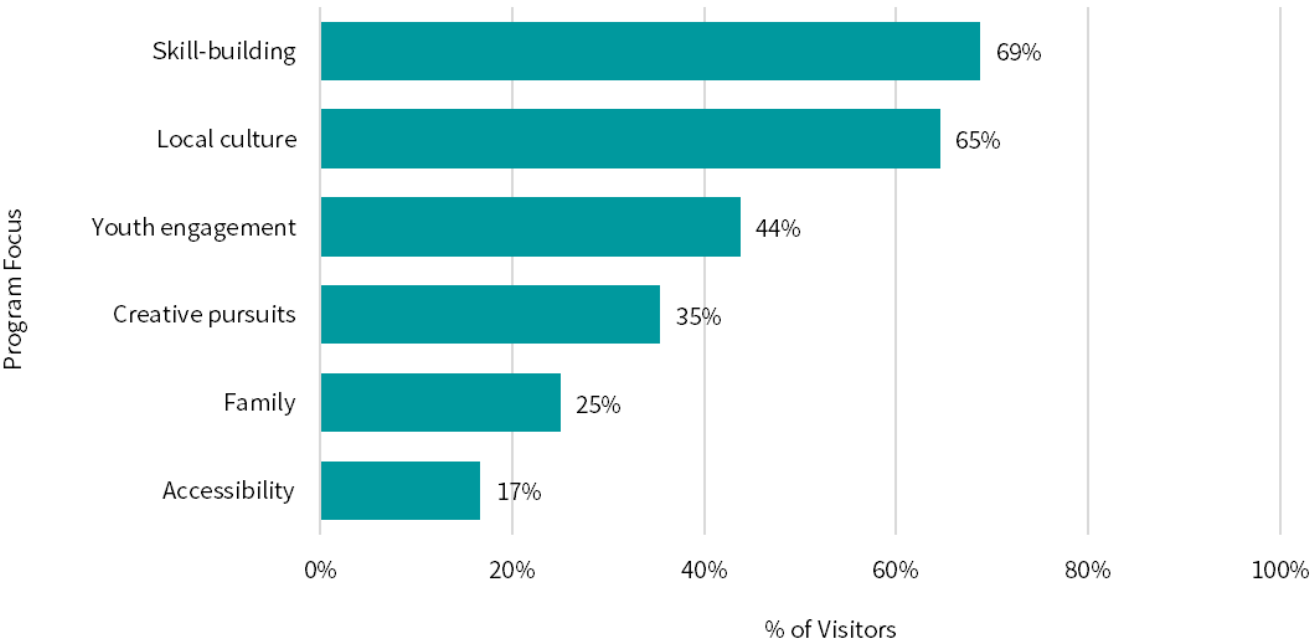


Fig. 23: Types of programs that would encourage visitors to return to this refuge.

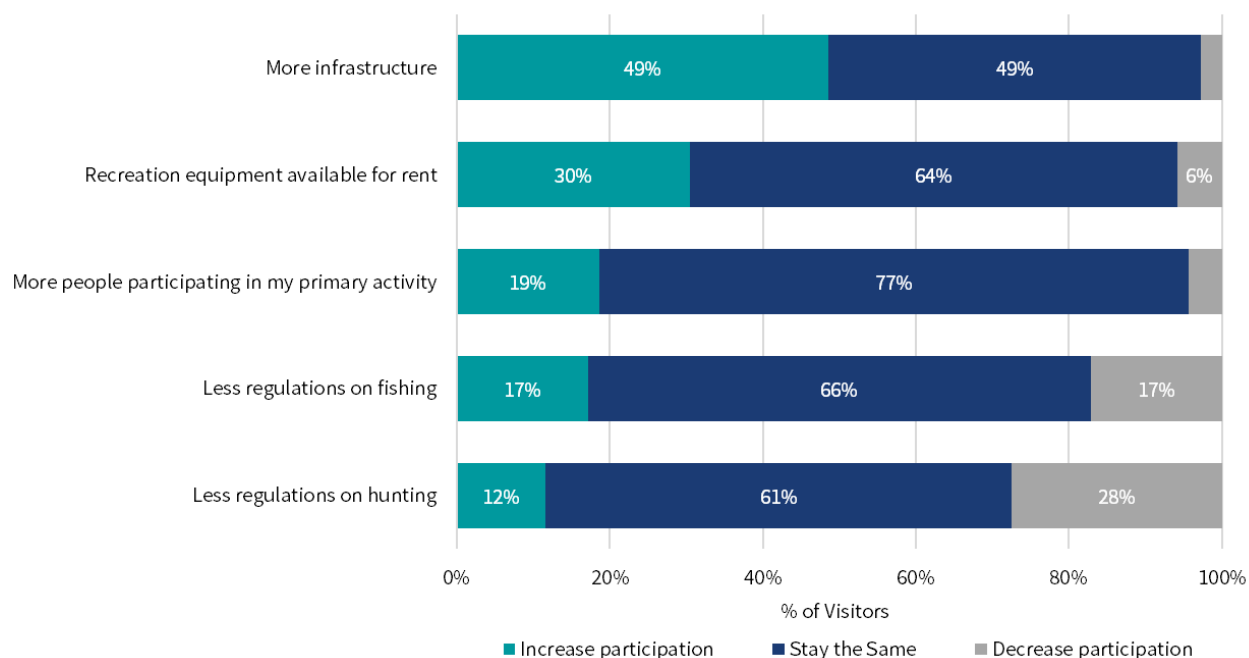


Fig. 24: Changes in visitors’ participation in their primary activity if the listed recreation factors were to change.

## 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 (Fig. 25):

- pedestrian paths (27%),
- a bike-share program (22%), and
- bus/tram that takes passengers to different points within refuge boundaries (21%).

## 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. 26):

- The top three resource changes likely to increase visitors’ future participation in their primary recreation activity were an improvement in the quality of wetlands (68%), a greater diversity of species (66%), and an improvement in the quality of wildlife habitat other than wetlands (66%).
- The top two resource changes likely to decrease visitors’ future participation in their primary recreation activity were less water available for recreation (46%) and more acreage open to hunting and fishing (32%).

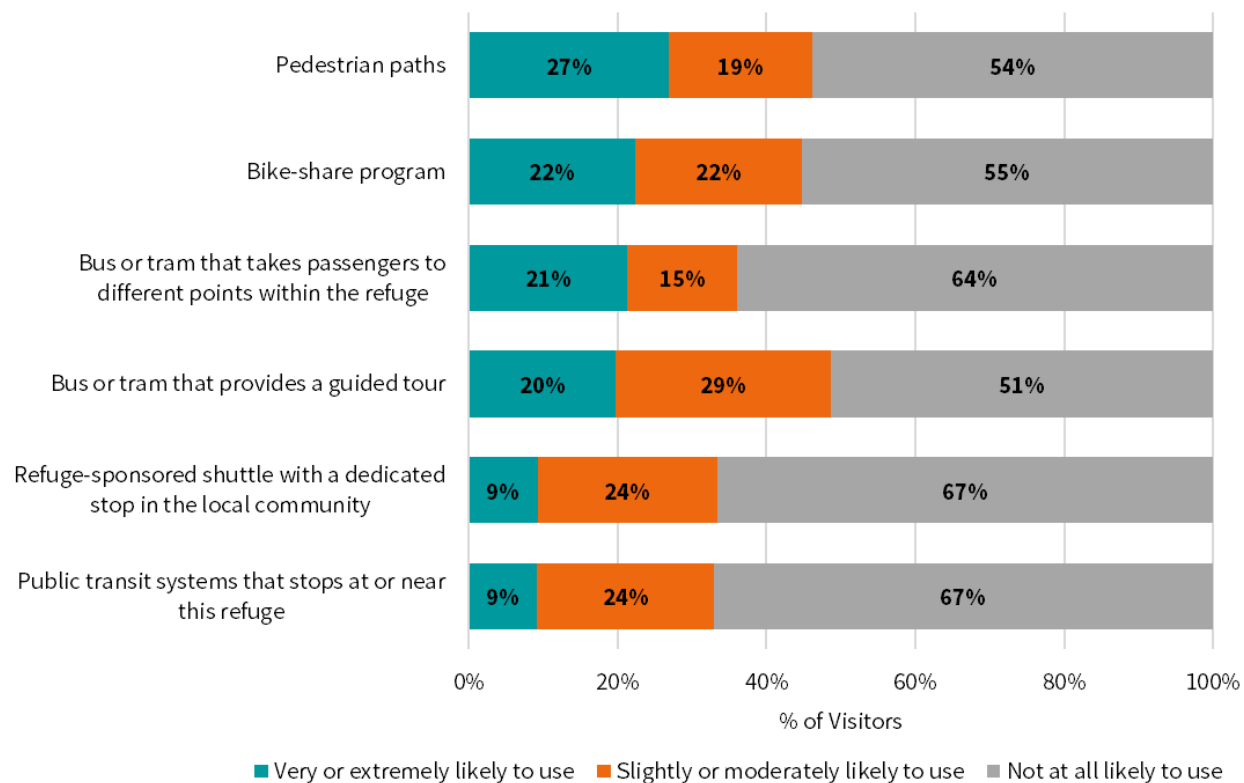


Fig. 25: Visitors' likelihood of using alternative transportation options if offered at this refuge.

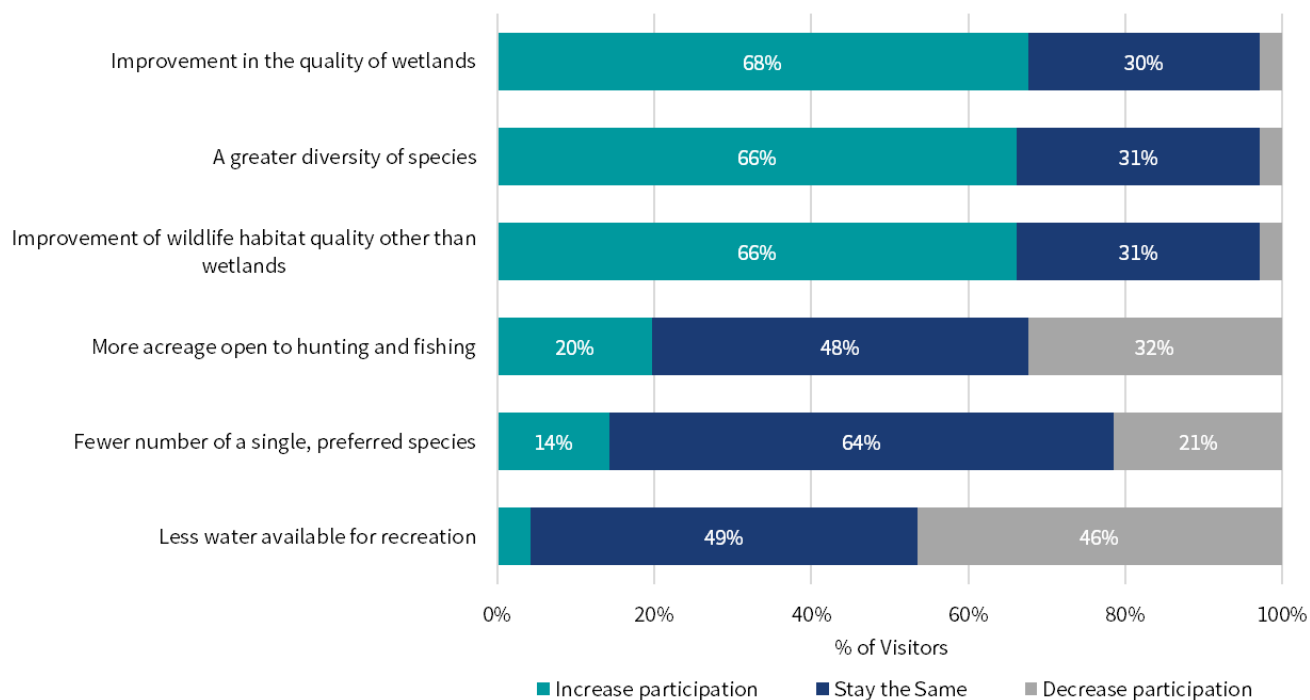


Fig. 26: Changes in visitors' participation in their primary activity if the listed resources were to change.



## Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Bayou Sauvage 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

---

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.

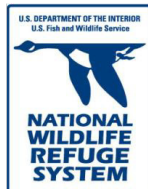
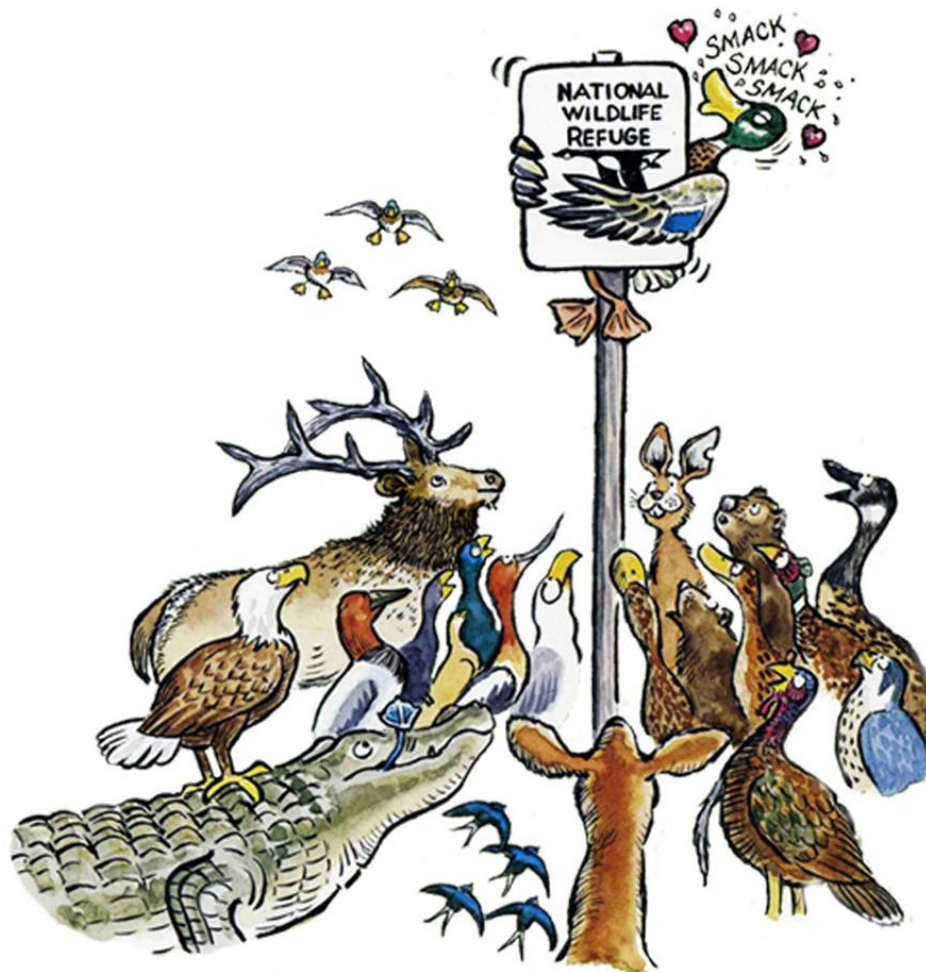
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# National Wildlife Refuge Visitor Survey



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"/> 73% Wildlife observation	<input type="checkbox"/> 62% Hiking/Walking	<input type="checkbox"/> 7% Volunteering
<input type="checkbox"/> 57% Bird watching	<input type="checkbox"/> 5% Jogging/Running/Exercising	<input type="checkbox"/> 13% Environmental education program (classroom visits, labs)
<input type="checkbox"/> 48% Photography	<input type="checkbox"/> 5% Bicycling	
<input type="checkbox"/> 0% Big game hunting	<input type="checkbox"/> 10% Auto tour route/Driving	<input type="checkbox"/> 10% Interpretative program (bird walks, staff/volunteer-led talks)
<input type="checkbox"/> 0% Upland/Small game hunting	<input type="checkbox"/> 1% Motorized boating	
<input type="checkbox"/> 0% Waterfowl/Migratory bird hunting	<input type="checkbox"/> 10% Nonmotorized boating (canoeing, kayaking)	<input type="checkbox"/> 1% Refuge special event ( <i>specify</i> ) <u>See Appendix C</u>
<input type="checkbox"/> 16% Freshwater fishing	<input type="checkbox"/> 2% Foraging (berries, nuts, other)	<input type="checkbox"/> 2% Other ( <i>specify</i> ) <u>See Appendix C</u>
<input type="checkbox"/> 9% Saltwater fishing	<input type="checkbox"/> 9% 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"/> 52% It was the primary purpose or sole destination of my trip.
<input type="checkbox"/> 20% It was one of many equally important reasons or destinations for my trip.
<input type="checkbox"/> 28% 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.)

4 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?

This refuge does not have a Visitor Center – no results are presented.

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: 2 day(s)

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

☐ 64% Yes

☐ 36% 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: 4 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: 32 minutes

If you travelled more than one hour, round to the nearest hour: 9 hours

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

☐ 57% Spring  
(March-May)

☐ 33% Summer  
(June-August)

☐ 71% Fall  
(September-November)

☐ 27% Winter  
(December-February)

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

...this refuge (including this visit)? 6 number of visits

...other national wildlife refuges? 4 number of visits

...other public lands (for example, national or state parks) to participate in the same primary activity as this visit? 9 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"/> 29% Facebook	<input type="checkbox"/> 4% Snapchat	<input type="checkbox"/> 3% Personal blog (for example, Tumblr, Wordpress)
<input type="checkbox"/> 0% Flickr	<input type="checkbox"/> 1% Twitter	<input type="checkbox"/> 0% Travel-related website (for example, Trip Advisor)
<input type="checkbox"/> 14% Instagram	<input type="checkbox"/> 0% Vimeo	<input type="checkbox"/> 10% Other ( <i>specify</i> ) <u>See Appendix C</u>
<input type="checkbox"/> 0% Pinterest	<input type="checkbox"/> 1% YouTube	<input type="checkbox"/> 53% 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"/> 6%	<input type="checkbox"/> 2%	<input type="checkbox"/> 18%	<input type="checkbox"/> 39%	<input type="checkbox"/> 35%	<input type="checkbox"/> 35%
Word of mouth (for example, a friend or relative)	<input type="checkbox"/> 14%	<input type="checkbox"/> 7%	<input type="checkbox"/> 14%	<input type="checkbox"/> 40%	<input type="checkbox"/> 24%	<input type="checkbox"/> 41%
People in the local community near the refuge	<input type="checkbox"/> 20%	<input type="checkbox"/> 20%	<input type="checkbox"/> 20%	<input type="checkbox"/> 27%	<input type="checkbox"/> 13%	<input type="checkbox"/> 57%
Refuge employees or volunteers	<input type="checkbox"/> 4%	<input type="checkbox"/> 2%	<input type="checkbox"/> 15%	<input type="checkbox"/> 33%	<input type="checkbox"/> 46%	<input type="checkbox"/> 35%
Printed map or atlas	<input type="checkbox"/> 11%	<input type="checkbox"/> 8%	<input type="checkbox"/> 30%	<input type="checkbox"/> 41%	<input type="checkbox"/> 11%	<input type="checkbox"/> 46%
Web-based map (for example, Google Maps, Waze)	<input type="checkbox"/> 4%	<input type="checkbox"/> 4%	<input type="checkbox"/> 27%	<input type="checkbox"/> 29%	<input type="checkbox"/> 37%	<input type="checkbox"/> 30%
Refuge website	<input type="checkbox"/> 6%	<input type="checkbox"/> 14%	<input type="checkbox"/> 22%	<input type="checkbox"/> 42%	<input type="checkbox"/> 17%	<input type="checkbox"/> 46%
Travel website (for example, TripAdvisor)	<input type="checkbox"/> 33%	<input type="checkbox"/> 0%	<input type="checkbox"/> 33%	<input type="checkbox"/> 20%	<input type="checkbox"/> 13%	<input type="checkbox"/> 77%
Other website ( <i>specify</i> ) <u>See Appendix C</u>	<input type="checkbox"/> 17%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 50%	<input type="checkbox"/> 33%	<input type="checkbox"/> 88%
Social media (for example, Facebook, Instagram)	<input type="checkbox"/> 36%	<input type="checkbox"/> 0%	<input type="checkbox"/> 27%	<input type="checkbox"/> 18%	<input type="checkbox"/> 18%	<input type="checkbox"/> 83%
Recreation club or organization	<input type="checkbox"/> 35%	<input type="checkbox"/> 6%	<input type="checkbox"/> 12%	<input type="checkbox"/> 24%	<input type="checkbox"/> 24%	<input type="checkbox"/> 73%
Refuge printed information (for example, brochure)	<input type="checkbox"/> 8%	<input type="checkbox"/> 4%	<input type="checkbox"/> 27%	<input type="checkbox"/> 42%	<input type="checkbox"/> 19%	<input type="checkbox"/> 59%
Kiosks/displays/exhibits at the refuge	<input type="checkbox"/> 5%	<input type="checkbox"/> 20%	<input type="checkbox"/> 13%	<input type="checkbox"/> 40%	<input type="checkbox"/> 23%	<input type="checkbox"/> 41%
Travel guidebook or other book	<input type="checkbox"/> 56%	<input type="checkbox"/> 0%	<input type="checkbox"/> 11%	<input type="checkbox"/> 22%	<input type="checkbox"/> 11%	<input type="checkbox"/> 86%
Tourist information or welcome center	<input type="checkbox"/> 25%	<input type="checkbox"/> 6%	<input type="checkbox"/> 25%	<input type="checkbox"/> 19%	<input type="checkbox"/> 25%	<input type="checkbox"/> 75%
Other source ( <i>specify</i> ) <u>See Appendix C</u>	<input type="checkbox"/> 75%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 25%	<input type="checkbox"/> 0%	<input type="checkbox"/> 91%



### 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
11%	12%	33%	27%	16%	Surface conditions of refuge roads	4%	3%	32%	46%	15%	NA
10%	16%	38%	23%	12%	Surface conditions of parking areas	1%	5%	27%	48%	19%	NA
10%	6%	28%	37%	20%	Condition of bridges on roadways	0%	5%	27%	55%	13%	NA
4%	3%	16%	49%	29%	Condition of trails and boardwalks	4%	8%	27%	42%	19%	NA
43%	12%	12%	20%	12%	Condition of boat launches	13%	3%	23%	57%	3%	NA
8%	12%	39%	27%	14%	Number of places for parking	0%	4%	15%	49%	32%	NA
15%	14%	31%	23%	17%	Number of places to pull over on refuge roads	13%	17%	25%	31%	15%	NA
11%	6%	24%	29%	30%	Safety of driving conditions on refuge roads	7%	3%	20%	48%	22%	NA
6%	4%	28%	36%	26%	Safety of refuge road entrances/exits	3%	7%	14%	56%	21%	NA
9%	2%	29%	35%	25%	Safety of roads/trails for nonmotorized users (for example, bicyclists and hikers)	7%	7%	16%	51%	20%	NA
4%	6%	15%	49%	25%	Signs on highways directing you to this refuge	6%	20%	28%	35%	11%	NA
9%	7%	15%	47%	22%	Signs directing you around refuge roads	7%	18%	27%	33%	15%	NA
3%	3%	18%	39%	36%	Signs directing you on trails	2%	18%	26%	40%	14%	NA
20%	9%	25%	22%	25%	Access for people with physical disabilities or who have difficulty walking	6%	19%	21%	40%	13%	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	90%	33%
Private/rental vehicle with a trailer (for boat, camper, or other)	6%	1%
Recreational vehicle (RV)	0%	1%
Refuge shuttle bus/tram	1%	1%
Tour bus/van	0%	1%
Public transportation	0%	1%
Motorcycle	1%	2%
Bicycle	0%	1%
Foot (for example, walking/hiking)	10%	43%
Boat	4%	5%
Other ( <i>specify</i> ): <u>See Appendix C</u>	5%	0%
Other ( <i>specify</i> ): <u>See Appendix C</u>	0%	0%

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%	9%	5%	16%	5%
Bus or tram that provides a guided tour of the refuge with information about this refuge and its resources	51%	9%	20%	13%	7%
Refuge-sponsored shuttle with a dedicated stop in the local community for picking up people at set times	67%	9%	15%	8%	1%
Public transit system that stops at or near this refuge	67%	13%	11%	8%	1%
Bike-share program that offers bicycles for rent on or near this refuge	55%	12%	11%	16%	7%
Pedestrian paths for access to this refuge from the local community	54%	13%	6%	15%	12%

SECTION 4. Your expenses related to your refuge visit

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>	

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"/> 14%	<input type="checkbox"/> 18%	<input type="checkbox"/> 12%	<input type="checkbox"/> 1%
<input type="checkbox"/> \$0	<input type="checkbox"/> \$30	<input type="checkbox"/> \$100	<input type="checkbox"/> \$250
<input type="checkbox"/> 13%	<input type="checkbox"/> 6%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%
<input type="checkbox"/> \$5	<input type="checkbox"/> \$45	<input type="checkbox"/> \$125	<input type="checkbox"/> \$350
<input type="checkbox"/> 6%	<input type="checkbox"/> 6%	<input type="checkbox"/> 0%	<input type="checkbox"/> 3%
<input type="checkbox"/> \$10	<input type="checkbox"/> \$60	<input type="checkbox"/> \$150	<input type="checkbox"/> \$500
<input type="checkbox"/> 12%	<input type="checkbox"/> 3%	<input type="checkbox"/> 3%	<input type="checkbox"/> 3%
<input type="checkbox"/> \$20	<input type="checkbox"/> \$75	<input type="checkbox"/> \$200	<input type="checkbox"/> \$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
1%	0%	20%	42%	37%	Convenient hours/days of operation for this refuge	0%	1%	14%	47%	38%	NA
19%	21%	31%	18%	12%	Availability of employees or volunteers	18%	14%	22%	34%	12%	NA
16%	14%	28%	23%	19%	Courteous and welcoming employees or volunteers	9%	4%	16%	56%	16%	NA
1%	7%	35%	30%	26%	Signs with rules/regulations for this refuge	2%	15%	24%	39%	20%	NA
This refuge does not have a Visitor Center.											
1%	4%	24%	33%	37%	Well-maintained restrooms	7%	5%	26%	41%	21%	NA
0%	4%	30%	31%	34%	Recreational structures (decks, blinds, platforms)	4%	11%	34%	34%	16%	NA
4%	10%	22%	24%	40%	Bird-watching opportunities	2%	6%	29%	38%	26%	NA
1%	1%	23%	41%	33%	Opportunities to observe wildlife other than birds	1%	16%	25%	32%	25%	NA
7%	7%	19%	29%	37%	Opportunities to photograph wildlife and scenery	2%	5%	25%	38%	30%	NA
8%	8%	33%	29%	23%	Environmental education opportunities	10%	17%	26%	29%	19%	NA
77%	5%	10%	6%	2%	Hunting opportunities	44%	17%	22%	11%	6%	NA
47%	12%	12%	9%	20%	Fishing opportunities	10%	13%	13%	43%	20%	NA
5%	2%	24%	38%	32%	Trail hiking opportunities	2%	9%	38%	31%	21%	NA
29%	19%	27%	16%	10%	Bicycling opportunities	20%	16%	28%	28%	8%	NA
22%	10%	25%	24%	18%	Water trail opportunities for canoeing or kayaking	22%	22%	22%	22%	13%	NA
33%	17%	21%	17%	11%	Volunteer opportunities	19%	15%	15%	22%	30%	NA
17%	7%	23%	29%	23%	Wilderness experience opportunities	13%	9%	32%	30%	17%	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.	1%	1%	24%	47%	26%
I felt safe during my visit to this refuge.	4%	6%	1%	62%	27%
Crime <u>is</u> a problem at this refuge.	30%	27%	24%	12%	7%
I feel comfortable being in nature.	1%	3%	0%	40%	56%
I do <u>not</u> like being in nature by myself.	45%	29%	9%	13%	4%
People closest to me enjoy participating in nature-based recreation.	0%	0%	12%	55%	33%
Generally, people who look like me are treated differently when they participate in nature-based recreation.	37%	17%	32%	12%	3%

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.	3%	5%	26%	53%	13%
The quality of the overall experience when visiting this refuge.	3%	9%	23%	51%	14%

## 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	46%	49%	4%
More acreage open to hunting and fishing	32%	48%	20%
More infrastructure (for example, bathrooms, observation decks)	3%	49%	49%
Recreation equipment available for rent (for example, fishing rods, binoculars, snowshoes)	6%	64%	30%
Less regulations on fishing	17%	66%	17%
Less regulations on hunting	28%	61%	12%
A greater diversity of species	3%	31%	66%
Fewer numbers of a single, preferred species	21%	64%	14%
More people participating in my primary activity	4%	77%	19%
An improvement in the quality of wetlands	3%	30%	68%
An improvement in the quality of wildlife habitat other than wetlands	3%	31%	66%

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

47% Yes      36% 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.*)

38% 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:

44% Programs that engage youth

35% Programs that focus on creative pursuits (for example, art, writing, meditation)

25% Programs that focus on family/multiple-generations

17% Programs that support people with accessibility concerns (for example, difficulty walking, in a wheelchair)

69% Programs that teach skills to visitors

10% Other (*specify*) See Appendix C

65% 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? ☐ 52% Male ☐ 48% Female

2. In what year were you born?  1966 (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"/> 15%				<input type="checkbox"/> 37%				<input type="checkbox"/> 48%			

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

<input type="checkbox"/> 89% White	<input type="checkbox"/> 0% American Indian or Alaska Native
<input type="checkbox"/> 1% Hispanic, Latino, or Spanish	<input type="checkbox"/> 0% Middle Eastern or North African
<input type="checkbox"/> 3% Black or African American	<input type="checkbox"/> 0% Native Hawaiian or Other Pacific Islander
<input type="checkbox"/> 3% Asian	<input type="checkbox"/> 4% 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"/> 14% \$35,000 - \$49,999	<input type="checkbox"/> 26% \$100,000 - \$149,999
<input type="checkbox"/> 10% \$10,000 - \$24,999	<input type="checkbox"/> 15% \$50,000 - \$74,999	<input type="checkbox"/> 7% \$150,000 - \$199,999
<input type="checkbox"/> 4% \$25,000 - \$34,999	<input type="checkbox"/> 13% \$75,000 - \$99,999	<input type="checkbox"/> 10% \$200,000 or more

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

<input type="checkbox"/> 55% Employed full-time	<input type="checkbox"/> 3% Unemployed	<input type="checkbox"/> 26% Retired
<input type="checkbox"/> 1% Employed part-time	<input type="checkbox"/> 1% Homemaker/caregiver	<input type="checkbox"/> 1% Disabled/unable to work
<input type="checkbox"/> 8% Self-employed	<input type="checkbox"/> 4% 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?”

Other Activity	Frequency
Louisiana Master Naturalist Greater New Orleans workshop	1

Other Activity	Frequency
Picking up shells	1
Viewing landscape	1

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

Primary Activity	Frequency
Auto tour route/driving	1
Bicycling	1
Bird watching	9
Environmental education	8
Fishing	10
Hiking	14
Nonmotorized boating	2
Other	2
Photography	4
Sightseeing	2
Use facilities	1
Wildlife observation	25

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
Just observed the scenery	1
Parked	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	2
Websites	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
eBird	2
Hiking app	1
NO Audubon	1
TripAdvisor	1

Other Information Sources	Frequency
LA Master Naturalists of Greater New Orleans	1
Saw in local newspaper advocate	1
We came with a personal guide.	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
Friend’s membership	1
Toll	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
General environmental education	1
Nature-related programs	2

### 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=25)

Bicycle lanes could be a great addition.

Boardwalks needed maintenance.

Fished by old bridge on Irish Bayou, the entrance/exit from Hwy11/I-10 is dangerous. Bad drop off when pulling off road and when pulling back on road - you can't see oncoming traffic due to bushes - needs to be cut.

I had no idea we were on the refuge until we pulled over to take a selfie. There were people there (I thought they were fishing) that took our picture and told us about the refuge.

I very much enjoy this particular refuge. Keep up the good work!!!

I would like to see more free boat launches to the area on the Pontchartrain Lake side of refuge.

More gravel for small vehicles at entrances. Overall, I've never had an issue with this refuge growing up near the area.

One of the walk bridges was not well maintained.

Since they are non-existent, there is nothing to say. It would be nice to have driving access on recovery 1 road, but I understand this does not belong to the refuge but to the city of New Orleans. It would be an asset to have a driving tour there.

The boardwalk at one of our stops was very short. Both trails we went on were fairly overgrown & there were loose boards. Would have loved to have been able to go into the fort.

The boardwalk at the larger trail site was in disrepair, broken boards at several places and the entire thing looked like it needed to be treated against rain/moisture.

The parking was acceptable, even though the area was not quite fixed up, but seems safe.

The part of the refuge I use is off of U.S. Hwy 11. There are 2 big ponds called Barrow Pits. These were dug in the 60's to get fill for Interstate 10. This is a great urban fishery, but in the past year the canal going to ponds are blocked and unpassable. Lily pads & debris have blocked canal. No one seems to be doing anything about it. You have a nice launch and parking lot and nowhere to go once you launch. Thanks, [name].

The pier is missing the whole front section, rotted boards and the grass is really high!

There are always parking spaces, so I appreciate that.

There are huge potholes in the entrance road to the refuge. The boardwalk is completely overgrown with vegetation. There are no pull offs along Hwy 11.

There needs to be a better sign off of the highway. You go over the canal and boom you have to immediately come to a halt because you're going 55 and it's not super visible.

There was no on-road signage directing me to other points in the refuge. For example, no signage from "main" lot to handicapped-accessible alligator viewing.

This is nice place and whenever I have some spare time, I am visiting all those wildlife refuges in the New Orleans area.

To be honest, I didn't pay attention since our guide did the driving and directing.

Trash container was marked as trash and recycling. This is not cool. They need to be separated.

Very well maintained.

We enjoy the trails and go on a regular routine to get away from the daily grind. Its relaxing and love to show off our wildlife to visitors.

We pulled off on a road of rocks. There was no obvious parking. We then got lost trying to head back to the interstate due to lack of signage.

Would like to see more employees on premises due to trail to wildlife very isolated - concern for safety.

## Survey Section 5

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

### Comments on Services, Facilities, and Opportunities at This Refuge (n=30)

A platform to overview the marsh would be a welcomed asset.

Again, recycling and trash need to be separated.

At some places, the wood board on the refuge roads need to be inspected for tripping hazards. My overall experience is great. By the way, I have two beehives with bees, and I believe visitors would be excited if they can see at least one hive with bees 20 to 30 feet apart from the Refuge Road. Bees and beekeeping are related to mother nature. Thank you, [name]

Dissatisfied with the lack of garbage cans to put trash in.

Excellently maintained.

I could not find any services, facilities or opportunities at this refuge. It has great potential, but I doubt anything will happen. Word of mouth was that+ it is a dangerous/crime area.

I frequently pause at this refuge while driving into New Orleans. It's located off Highway 90, which is the alternate, stress free, route into the city from my home in the city. I've always enjoyed spending a few minutes here when I have business in the city. It's a gem of a wildlife refuge that I enjoy immensely.

I only stopped by during a trip to New Orleans because I wanted to see a bayou, and this was the closest to the north ward.

I would like to see a stronger presence of rangers (law enforcement).

I would like to see more events run by the refuge. There are never any people there when we go.

It was a nice place to fish, even though it was not designed for it.

It was small. No visitor center or workers available.

It would be nice to have benches about every quarter mile along the long gravel path beside the canal, with brush cleared so the water is visible.

It's too bad whomever mowed the brush next to the elevated boardwalks, mowed too wide and cut down many of the newly planted trees, evidence by all the torn-up nutria guards laying on the ground.

Need a bathroom.

Once again, you cannot get to a great urban fishery because refuge people won't take time or effort to check out why there are no trucks and boat trailers within the beautiful parking lot and nice launch. The canal going there is blocked.

Really enjoyed the bird watching hike - good information and good group - found out about it from the advocate. Suggest more publicity for these events - it was advertised as breakfast with the birds, great title!

Safety with person available around trails, maybe cameras. Many times [I] do not take trail since no one is around.

Surprisingly nice restroom.

The bathrooms were overflowing with trash and disgusting. The lookout areas are overrun with vegetation that you can't see past. The boardwalk has holes and loose boards. There were no signs indicating the regulations. The pavilion had a burned area in it.

The most important suggestion is to provide maintenance for the boardwalk--at this point, it would be difficult to navigate some areas for mobility impaired persons because of the state of disrepair. A visitor center with a dedicated employee would also be nice. The signs currently present provide good information, but are not as helpful as having a good visitor center. In the future, it would probably be nice to add some more trail areas. Overall, this was a nice ancillary stop to our visit to New Orleans.

The refuge needs financial support from the parent government agency!

There are no restrooms at the refuge that we visited and when we visited the other refuge off Chef Menteur Hwy, the bathrooms are always locked. The pier at Spanish Trail is falling apart. Very dangerous.

There was lots of trash all over the place and the trash bins were full.

This refuge clearly needs more funding. You can tell the employees try really hard to maintain it, but they need more money.

This refuge is rather isolated even though it is located in the city limits of New Orleans and the headquarters is 30 miles away. I'm not sure that it gets the visitation to warrant a bigger presence of personnel, but it would be nice.

Trails are often overgrown with vines and foliage - possibly poison ivy - making it tricky to walk around.

We did not see much water. It appears the place has been overgrown with plants.

We did not observe any services. We met two volunteers near the sign indicating that this was a refuge. It is an ideal location for a restroom with a wildlife center.

Well maintained, sturdy walkways. Most of scenery pretty monotonous, not much variety but pleasant just the same.



## End of Survey

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### General Comments (n=21)

As I mentioned before, my overall experience was great. By the way, I have two beehives with bees, and I believe visitors would be excited if they can see at least one hive with bees 20 to 30 feet apart from the Refugee Road. If it is necessary, I can participate as a volunteer in any youth-oriented educational program relating to the bees. Thank you, [name].

As I previously mentioned in an earlier comment field, I've stopped at Bayou Sauvage NWR many times over the years on my commutes to and from New Orleans (I live about an hour east in Mississippi). On my recent visit, I thoroughly enjoyed speaking to the young people who were there to canvass visitors to the refuge. Keep up the good work!

As stated previously, just as you pass over the causeway on your way into the city there is nothing around to stop should the need arise. The refuge should capitalize on this. Build a visitor's center. This would not only address a need, but provide an opportunity for visitors to learn about Louisiana's wildlife. This must be a popular location. Though we have never stopped here before, we have frequently observed visitors fishing in this location.

Bayou Sauvage is beautiful and vital to the community and ecosystem. Thanks for the hard work in keeping our planet safe, flourishing, and available to the public.

Bayou Sauvage Louisiana, well maintained and easy to access/get around---but not a lot to see.

Bayou Sauvage NWR could be a gem for the city visitors, yet it is slowly deteriorating into an overgrown jungle along the boardwalk. The refuge needs to increase its investment into the refuge to include more on site programs, walks and education opportunities. It also needs to remove invasive species along the bayous that prevent canoeists and boaters from using the refuge. This is not a public friendly refuge.

Best place to see gators, but signs on the road could be better and the bridge to walk over the water could be maintained better.

I always come to the refuge for birding and sometimes lead groups of birders. We always tally the birds on eBird. Bayou Sauvage NWR is an exciting place to find birds in our area.

I enjoy Bayou Sauvage.

I visited the trail off Route 90. I live on the edge of the vast marsh that comprises most of the refuge. That is mainly where I go fishing. My comments are mostly reflective of walking down the gravel trail, not fishing in the vast marsh.

I want more people in New Orleans to know about the refuge. Advertise to the city!!!

It's a wonderful refuge that could really benefit from more funding.

Loved having breakfast with the birds "at the refuge." Would definitely attend a mushroom or mycology foray here. Thank you for doing this survey!

NWRs are a national jewel.

Please get us access to fishing area.

Safety is main concern when stopping to use restroom. Would like to use trail, but not comfortable. Did it once with group, loved it but have not used it since.

Thank you, I hope I was able to help.

This is a nice refuge, but would benefit from more investment, including a visitor center and improved website describing the activities and trails available at the refuge. It does not seem like there is much promotion of the refuge as a visitor site--we are staying in a motel about 10 minutes from the refuge and mentioned it to another couple staying at the same place. They had not heard of the refuge, but sounded very interested to visit once we told them about it.

This refuge seems to be less cared for than the other refuges we have been in. This includes boardwalks and habitat.

We only viewed 2 small areas of this refuge on the boardwalk/nature trails. People in the area indicated that Hurricane Katrina had a significant impact on the refuge. We did not see the amount of birdlife that we had hoped to see in late March. We visited this refuge on a trip to Louisiana. We went there as part of our goal to visit all 50 states. We do not plan to return to Louisiana, so we do not plan to visit this refuge again.

We were in the area for a conference. Whenever we travel, we look for wildlife refuges to spend some time bird watching, wildlife watching, and/or hiking. It is especially satisfying when we travel by air to a large urban setting and can easily access a refuge by rental car or public transportation. It is wonderful to be able to go beyond the normal tourist attractions to see the local wildlife.