

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

# **NATIONAL WILDLIFE REFUGE VISITOR SURVEY**

*2018 Results for  
Cache River National Wildlife Refuge*



**THE OHIO STATE  
UNIVERSITY**





## Acknowledgments

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**Note: This report summarizes responses from a sample of almost all male 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: The Bayou DeView watershed within Cache River National Wildlife Refuge. Photo credit: Eric S. Johnson.*

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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 Cache River 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

Cache River National Wildlife Refuge is located in northeast Arkansas. The refuge was established in 1986 to protect wetland habitats and provide resting and feeding areas for migratory waterfowl. This refuge consists of more than 72,000 acres throughout the Cache River Basin in non-continuous tracts located in the lower Mississippi River Valley, a region that has undergone dramatic hydrologic alteration resulting in the widespread loss of wetlands. The area represents a fragment of this region that was not disturbed and thus contains tracts of intact bottomland hardwood forest. This seasonally flooded habitat is home to a wide variety of wildlife, including many migratory waterfowl and songbird species. This wildlife refuge also contains moist soil units, which are impounded wetlands that are actively managed by refuge staff to provide ideal habitat for migratory birds. Cooperative farming in these units allows farmers to harvest crops from the refuge while leaving a portion of the harvest in the field to feed wildlife.

Cache River National Wildlife Refuge attracts over 187,000 visitors annually (U.S. Fish and Wildlife Service, 2018, written comm.). The



*A large flock of snow geese flies over a crop field at Cache River National Wildlife Refuge. Photo credit: Nicole Stagg.*

dominant public uses of this refuge revolve around hunting and fishing with the refuge being a notable destination for waterfowl and deer hunting. Commercial and recreational fishing occur on the refuge, and an annual youth fishing derby occurs each summer. In addition to these uses, visitors can also enjoy wildlife observation and photography, and canoe on the Bayou DeView water trail.

## 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 275 visitors agreed to participate in the survey by providing their names and addresses.
- In all, 125 visitors completed the survey online (46%) or by mail (54%) after their refuge visit, resulting in a 48% response rate.
- Results for this wildlife refuge have a  $\pm 7\%$  margin of error at the 95% confidence level. **However, all but one visitor who responded was male, and thus results contained in this report should be interpreted with caution.** For more details on limitations of results and survey methodology, see Appendix A.



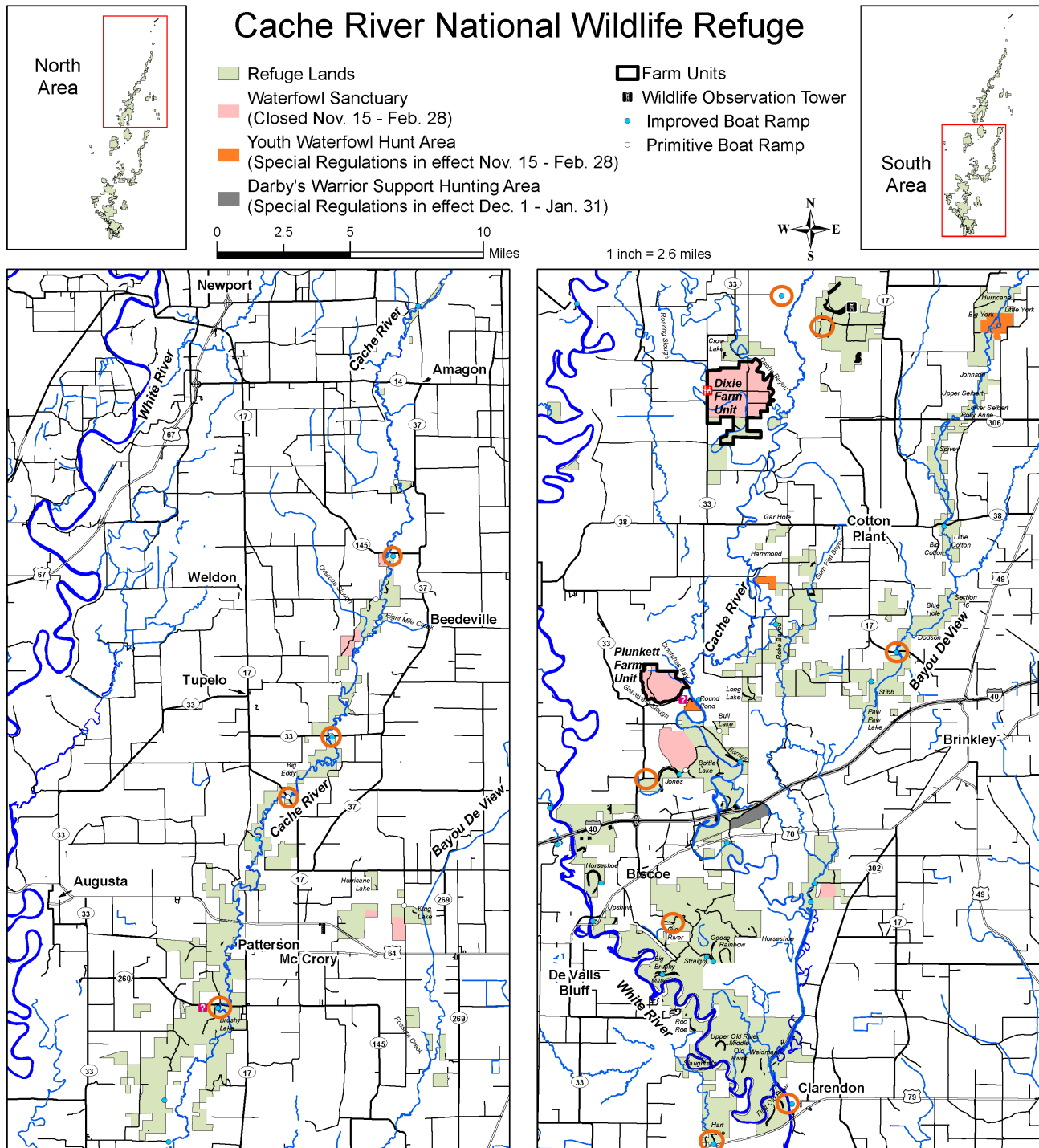


Fig. 2: Map of Cache River National Wildlife Refuge. Visitors were contacted at the circled locations from 10/19/2018–10/28/2018 and 1/10/2019–1/21/2019.

# 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

- 1% of visitors were female with an average age of 50 years (Fig. 3).
- 99% were male with an average age of 50 years.

## EDUCATION

- 30% of visitors had a high school degree or less.
- 54% had at least some college.
- 16% had an advanced degree.

## RACE & ETHNICITY

Most prevalent race or ethnicity (Fig. 4):

- White (97%).
- African American (2%).

## INCOME

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

## OTHER TRIP CHARACTERISTICS

- Average group size of 3 people.
- 16% visited the refuge alone.
- 63% visited with at least one other adult.
- 21% visited with a combination of at least 1 adult and 1 child.

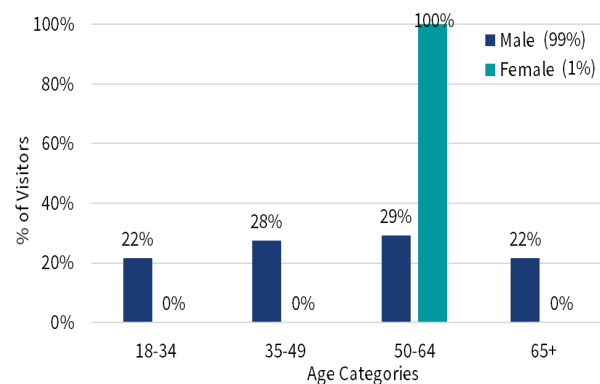


Fig. 3: Distribution of visitors to this refuge by gender and age group.

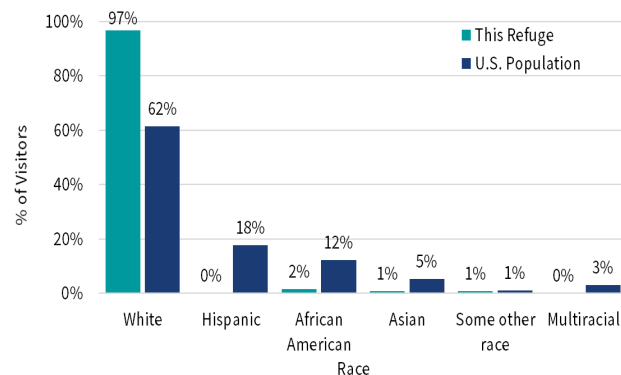


Fig. 4: Race and ethnicity of visitors to this refuge compared to the national average.

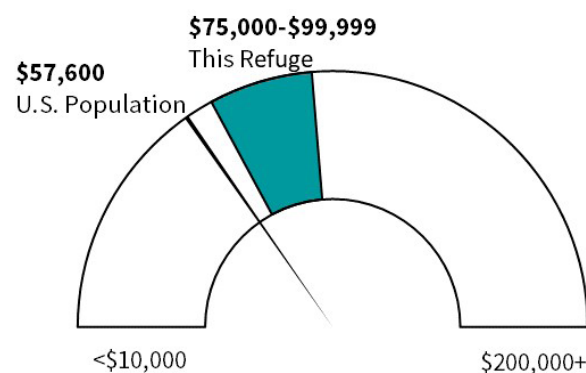


Fig. 5: Mean income range of visitors to this refuge compared to the national median income.

# 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

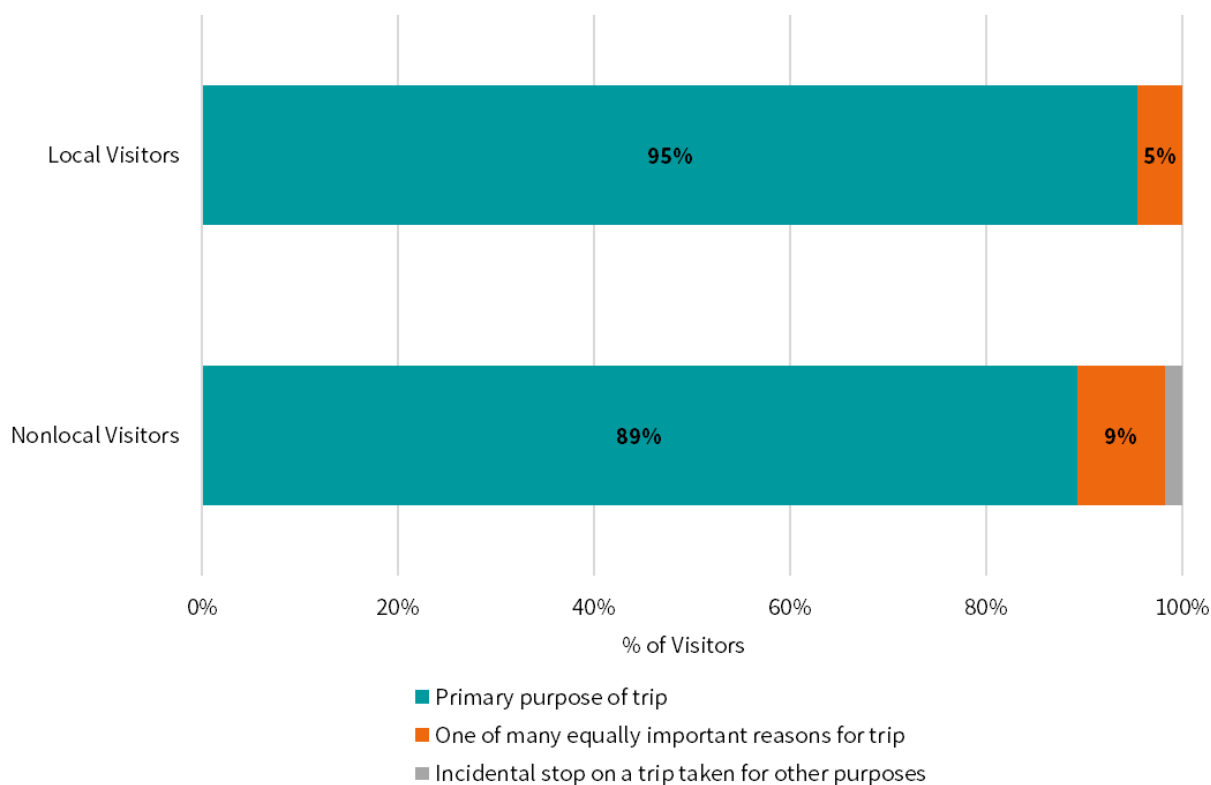
Highlights of trip characteristics for local visitors to this wildlife refuge (53%) include:

- For locals, this refuge was the primary reason for their trip (95%) (Fig. 6).
- Local visitors traveled an average of 30 minutes to arrive at this refuge (Fig. 7).

## NONLOCAL VISITORS

Highlights of trip characteristics for nonlocal visitors to this wildlife refuge (47%) include:

- For nonlocals, this refuge was the primary reason for their trip (89%) (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 Arkansas (59%) and Tennessee (14%).



*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.*



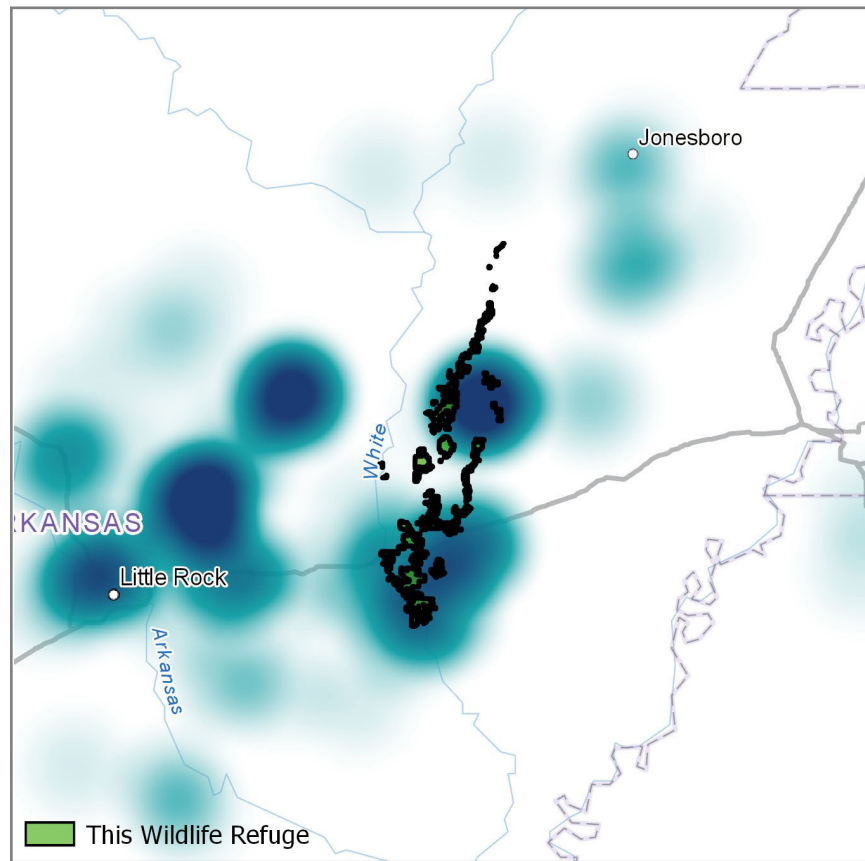


Fig. 7: Map showing residence of local visitors to this refuge. Darker shading represents relatively higher visitation from that area.

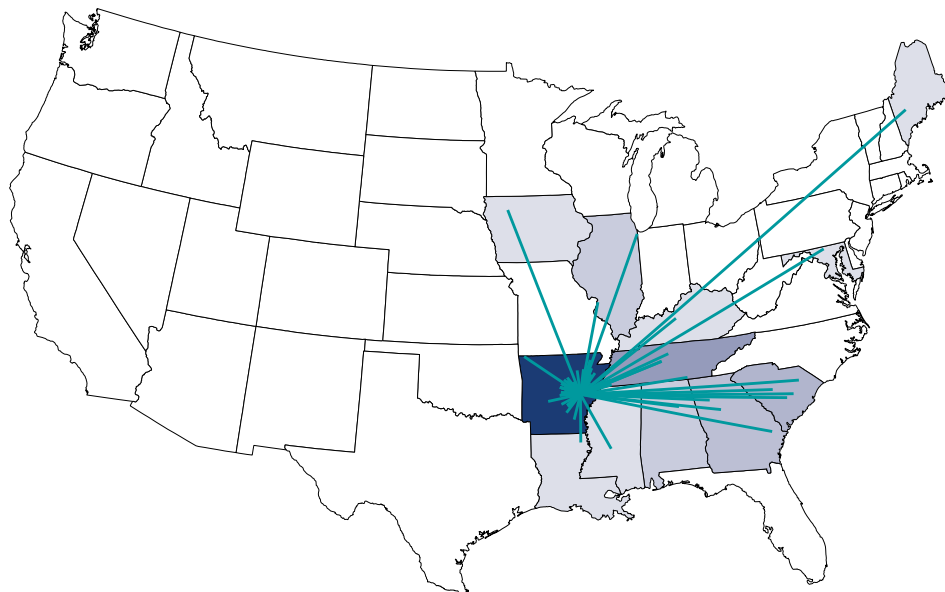


Fig. 8: Map showing residence of visitors to this refuge by zip code, with each line representing visitation from a different zip code. The convergence point of the lines is the geographical center of the refuge. Darker shading of the states represents higher visitation from that state.

## OTHER TRIP CHARACTERISTICS

Other trip characteristics include:

- To get to this wildlife refuge, visitors primarily traveled by private vehicle with a trailer (55%) and by private vehicle without a trailer (52%) (Fig. 9).
- Once on the refuge, visitors primarily traveled by boat (46%) and by foot (28%) (Fig. 9).
- Visits occurred during winter (82%), spring (30%), summer (25%), and fall (69%).
- 62% of visitors made a single-day trip to this refuge, spending an average of 5 hours, while 38% of visitors were on a multi-day trip to this wildlife refuge that averaged 5 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:

- 93% were repeat visitors to this wildlife refuge, visiting an average of 20 times.
- 52% visited other national wildlife refuges, averaging 5 visits.
- 53% visited other public lands, averaging 7 visits.

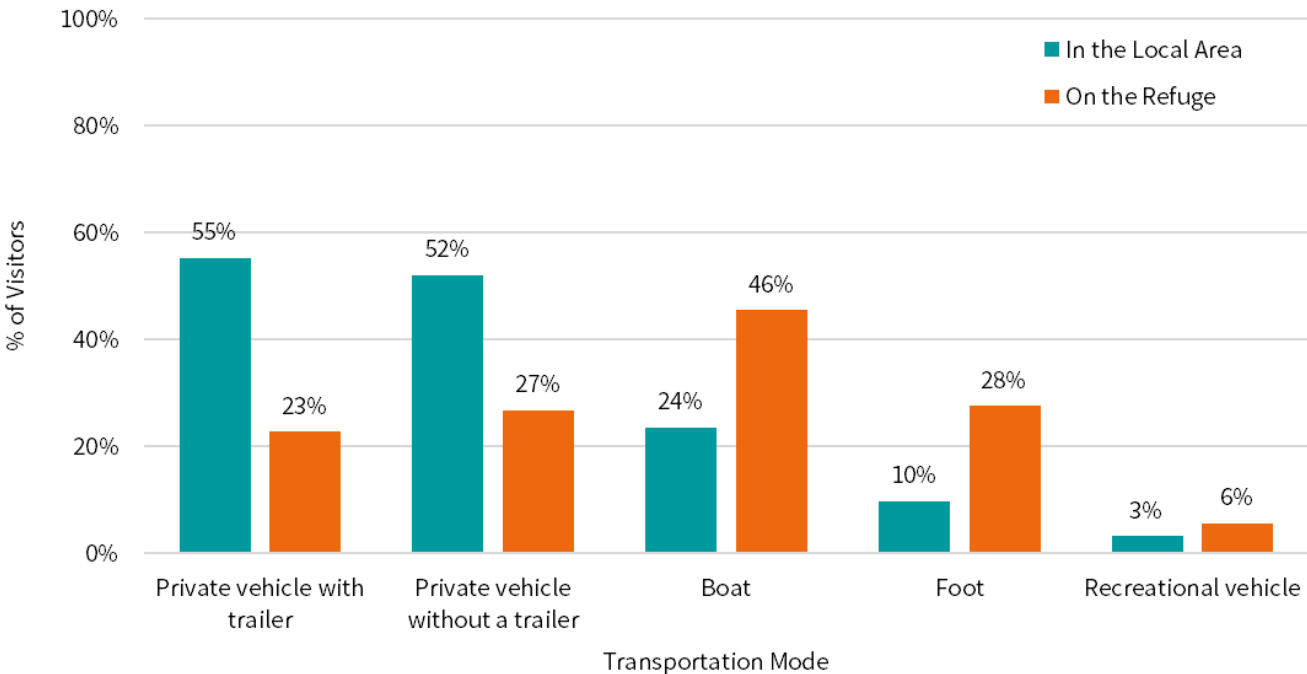


Fig. 9: Modes of transportation used by visitors to get from the local area to this refuge and within the boundaries of this refuge.

## 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 word of mouth and people in the local community.
- 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 printed information and refuge website.
- Use of information sources varied by age groups (see Figs. 10-12 for details).

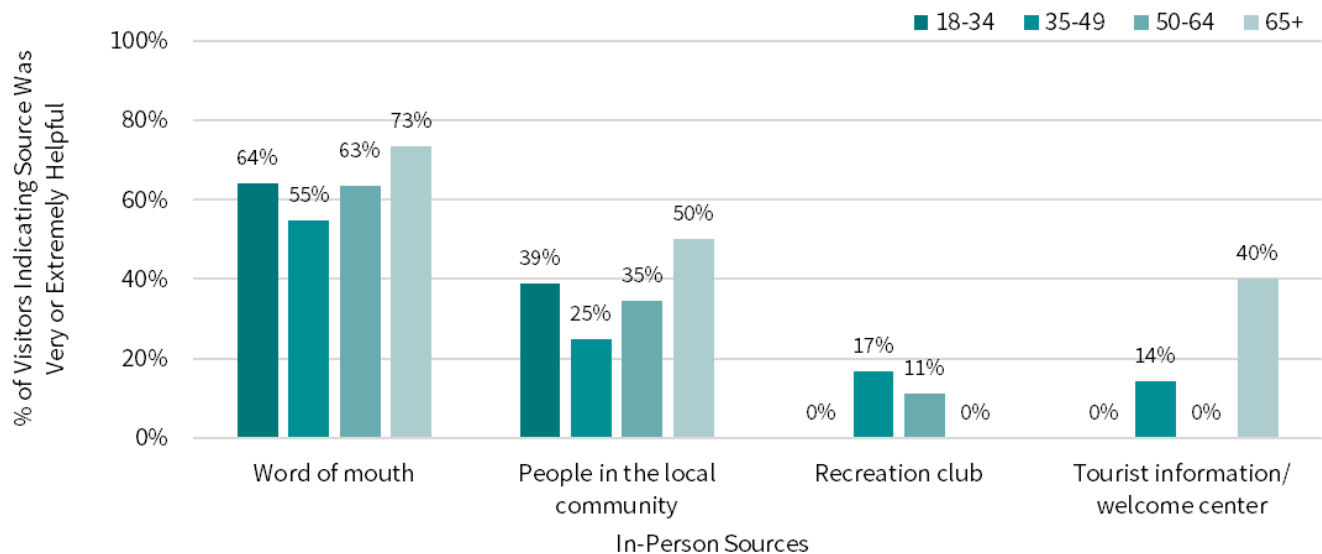


Fig. 10: Percent of visitors by age group who found in-person information sources very or extremely helpful in planning their trip.



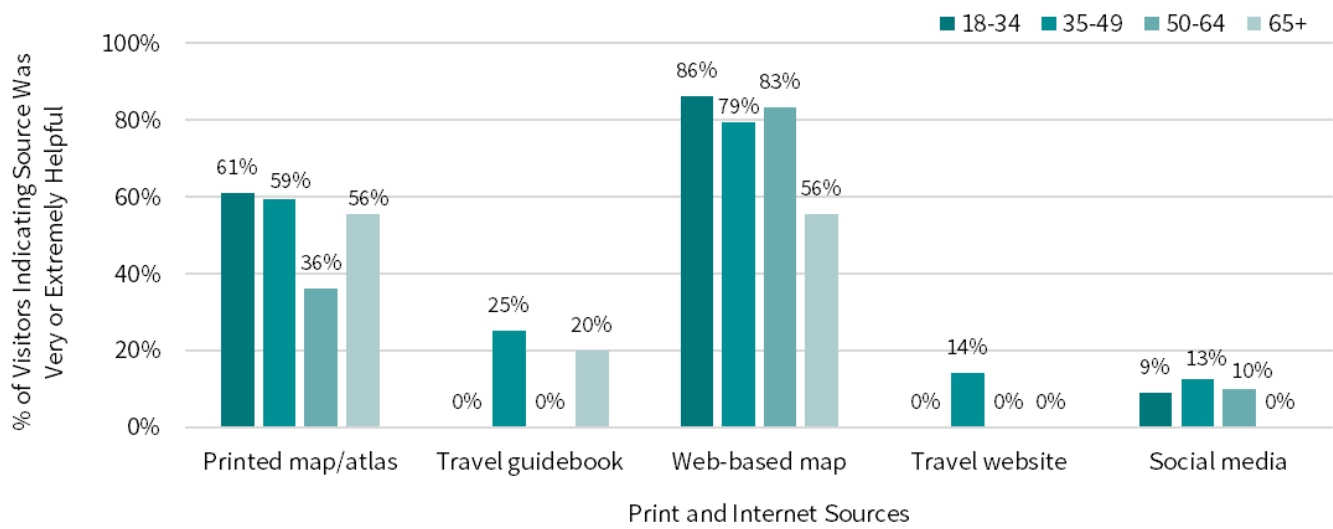


Fig. 11: Percent of visitors by age group who found print and internet information sources very or extremely helpful in planning their trip.

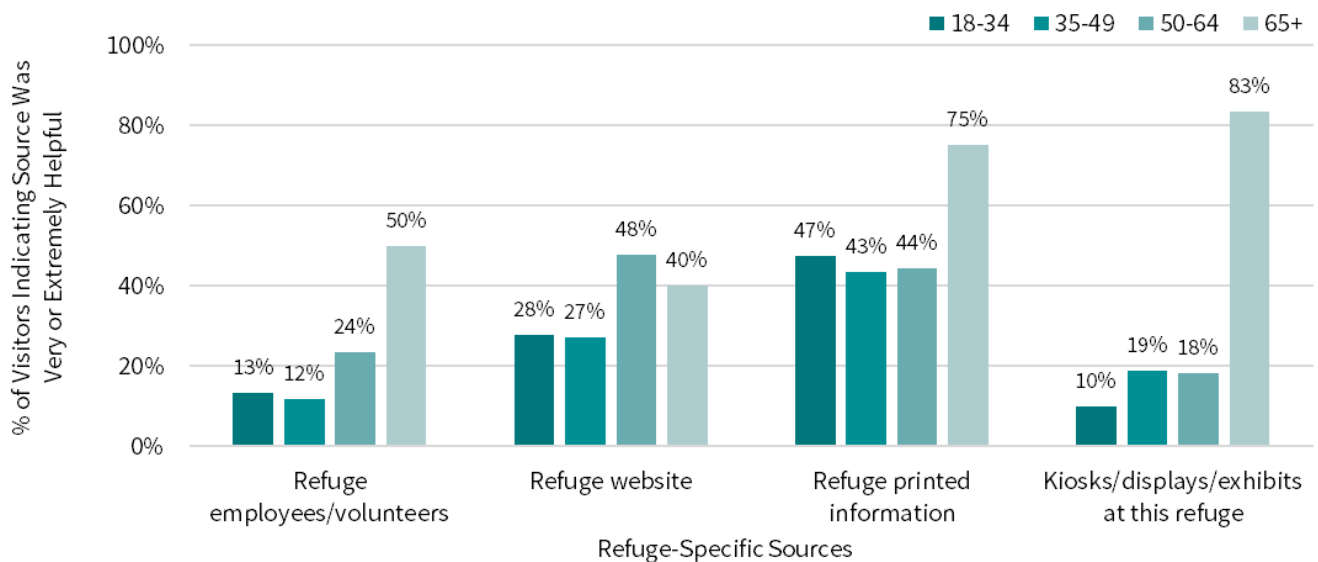


Fig. 12: Percent of visitors by age group who found refuge-specific information sources very or extremely helpful in planning their trip.

## 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 Snapchat (50%) and Instagram (38%).
- Visitors 35-49 years old preferred to use Facebook (41%) and Instagram (19%).
- Visitors 50-64 years old preferred to use Facebook (27%).
- Visitors 65 or older preferred to use Facebook (13%).

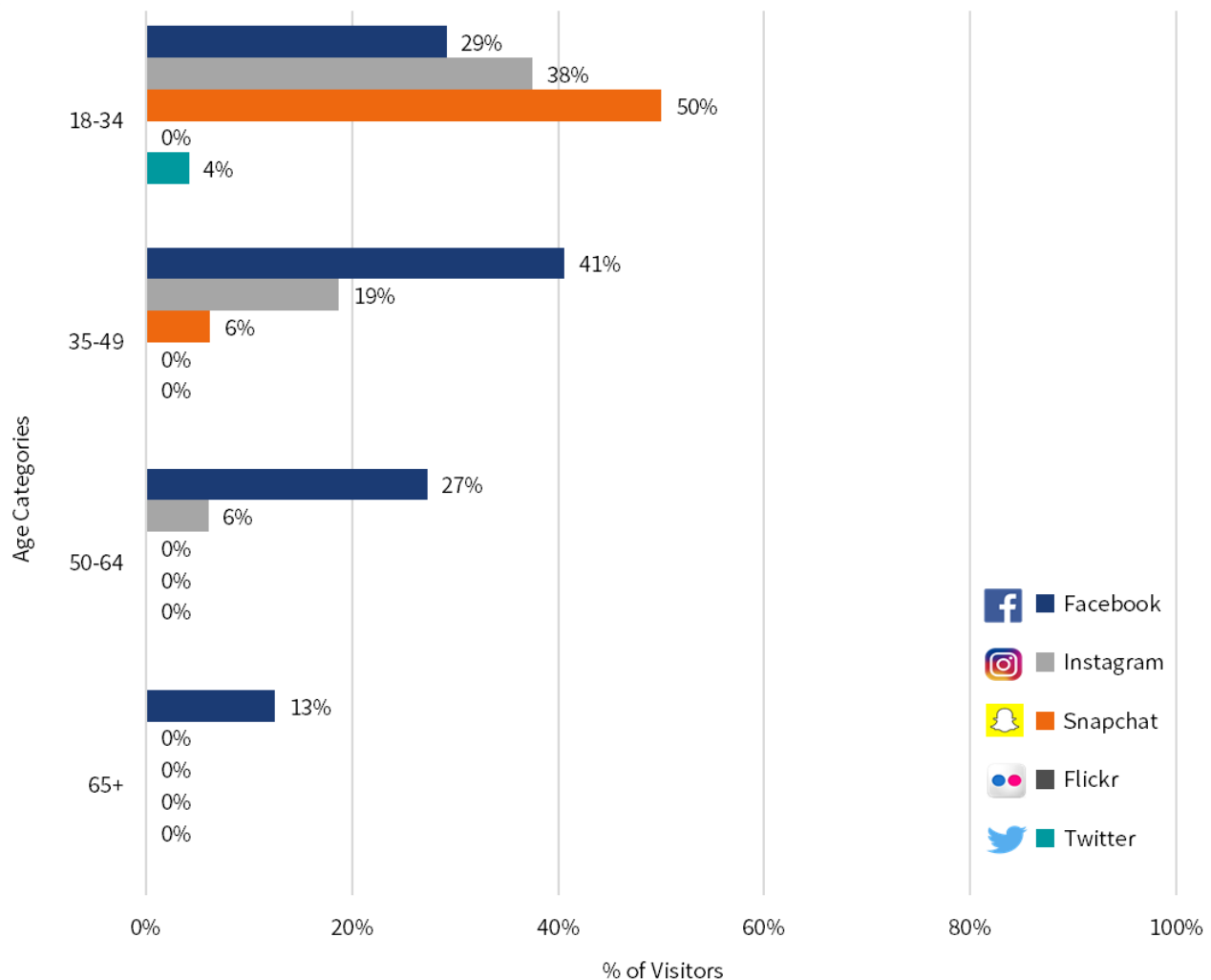


Fig. 13: Percent of visitors by age group who used various social media platforms to share their experience on this refuge with others.

## 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.

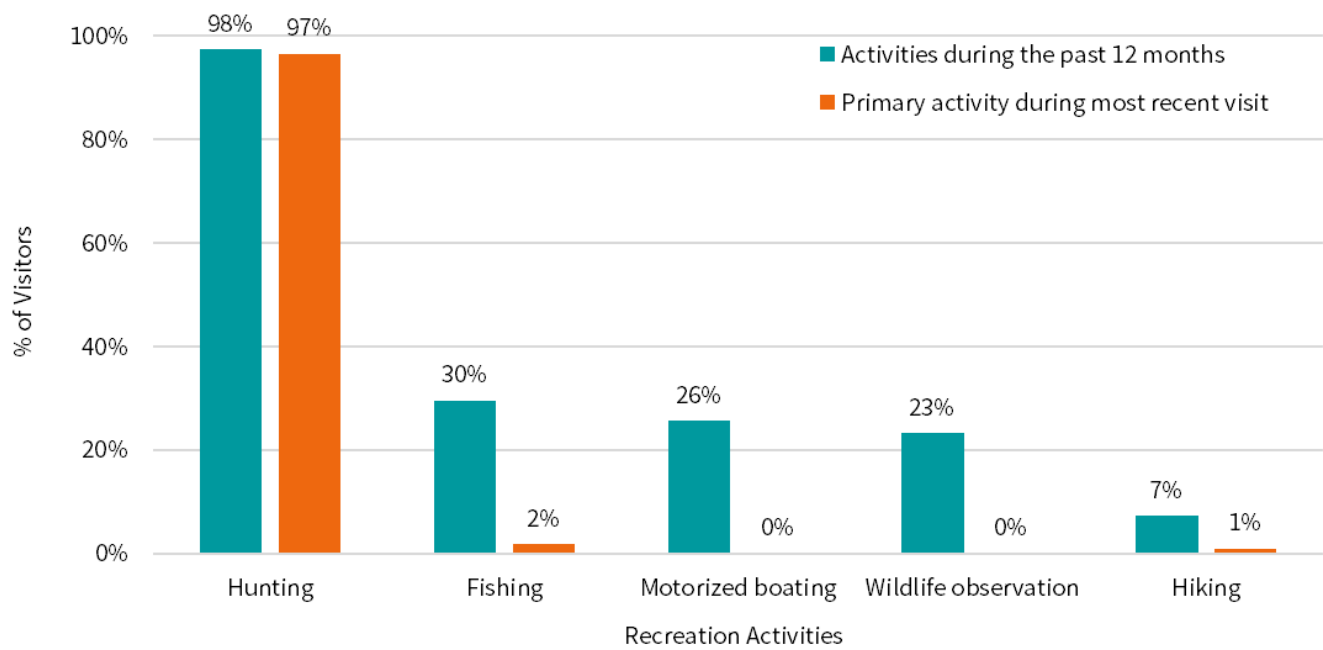
Participation in recreational activities at this wildlife refuge can be characterized as follows:

- The top three activities in which visitors participated during the past 12 months were hunting (98%), fishing (30%), and motorized boating (26%) (Fig. 14).
- The top three activities noted as their primary activity on the day visitors were contacted to participate in the survey were hunting (97%), fishing (2%), and hiking (1%) (Fig. 14).
- Approximately 2% of visitors went to the visitor center. However, results are not presented due to a low sample size.



*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.*



*Signage outside the Cache River National Wildlife Refuge Visitor Center. Photo credit: Nicole Stagg.*

## Comfort in Nature/Feeling Safe & Welcome

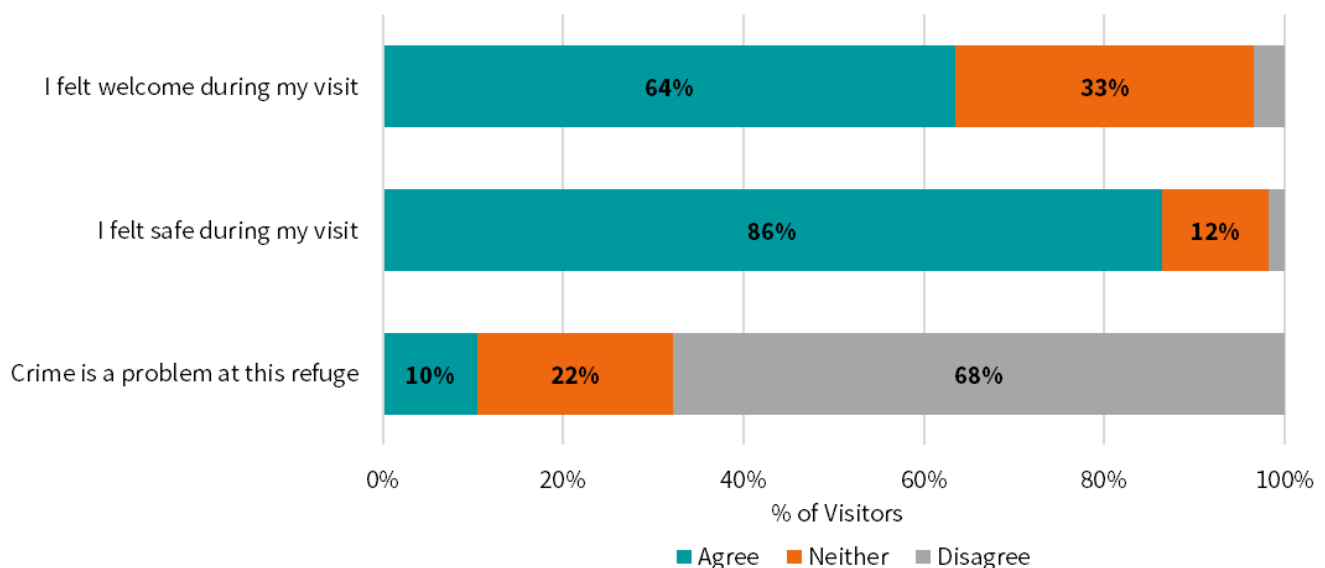
While many people are repeat visitors to refuges, each year thousands of people experience these lands and waters for the first time. One barrier for some visitors, particularly those living in urban areas or with little past exposure to nature-based recreation, is the perception that being in nature 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:

- 64% of visitors felt welcome during their refuge visit (Fig. 15).
- 86% of visitors felt safe during their refuge visit (Fig. 15).
- 95% of visitors reported that they feel comfortable being in nature, but 4% do not like being in nature alone (Fig. 16).



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

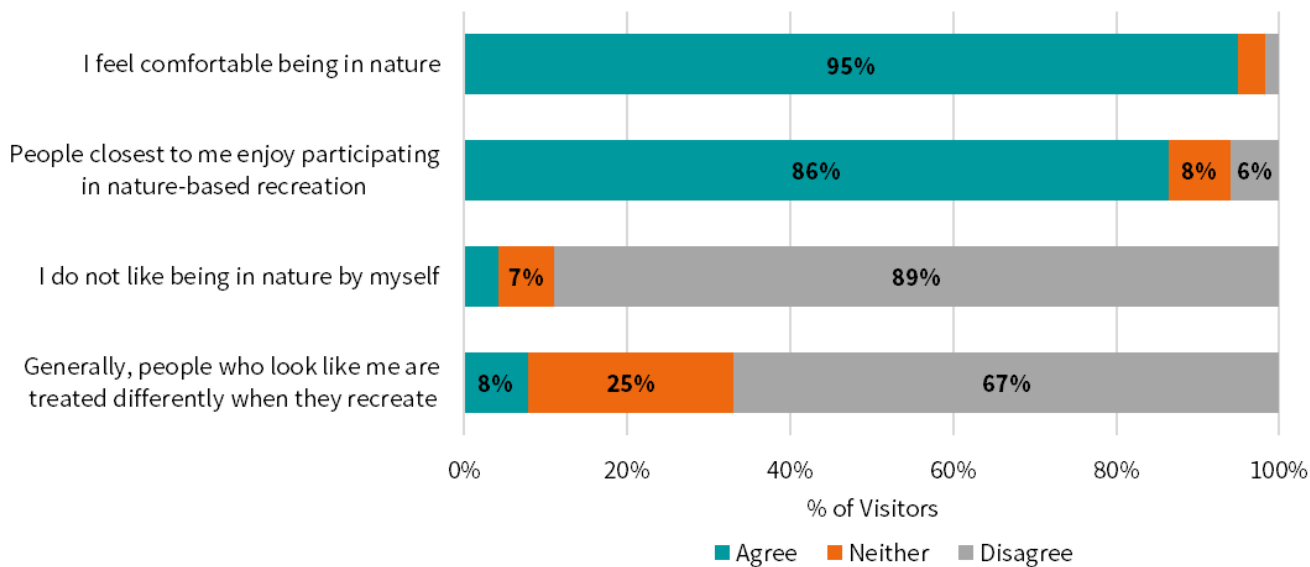


Fig. 16: Visitors' comfort with being in nature.



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:

- 63% of visitors were very or extremely satisfied with the overall experience at this wildlife refuge (Fig. 17).
- 47% 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 (69%),
- signage stating rules and regulations (38%), and
- courteous and welcoming employees/volunteers (36%).

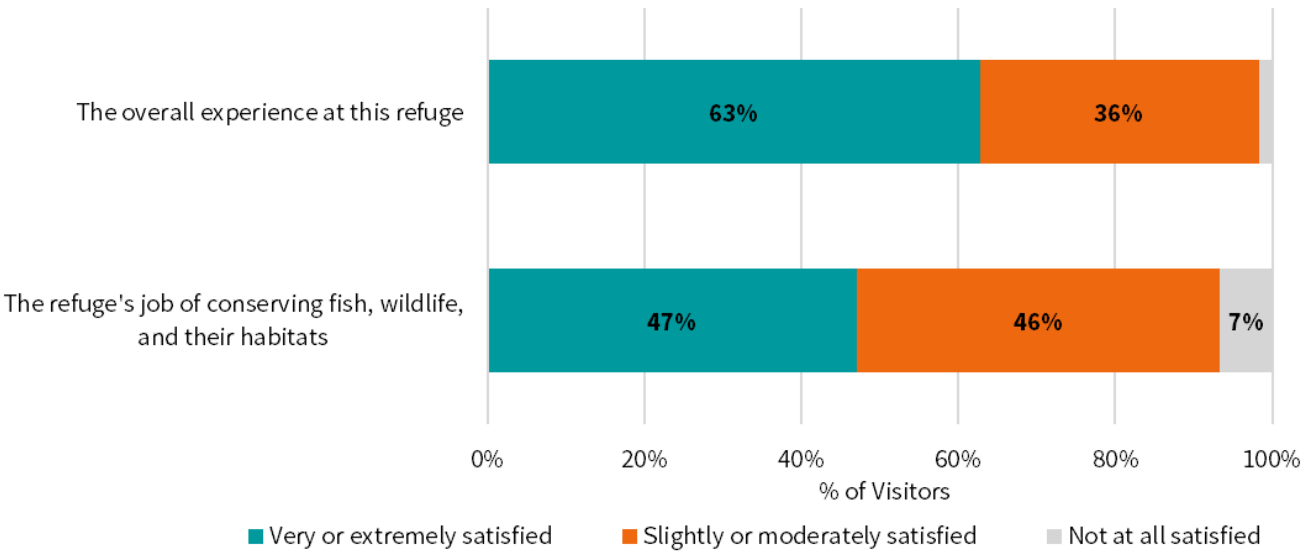


Fig. 17: Visitors' satisfaction with their experience at this refuge and with this refuge's job of conserving fish, wildlife, and habitats.



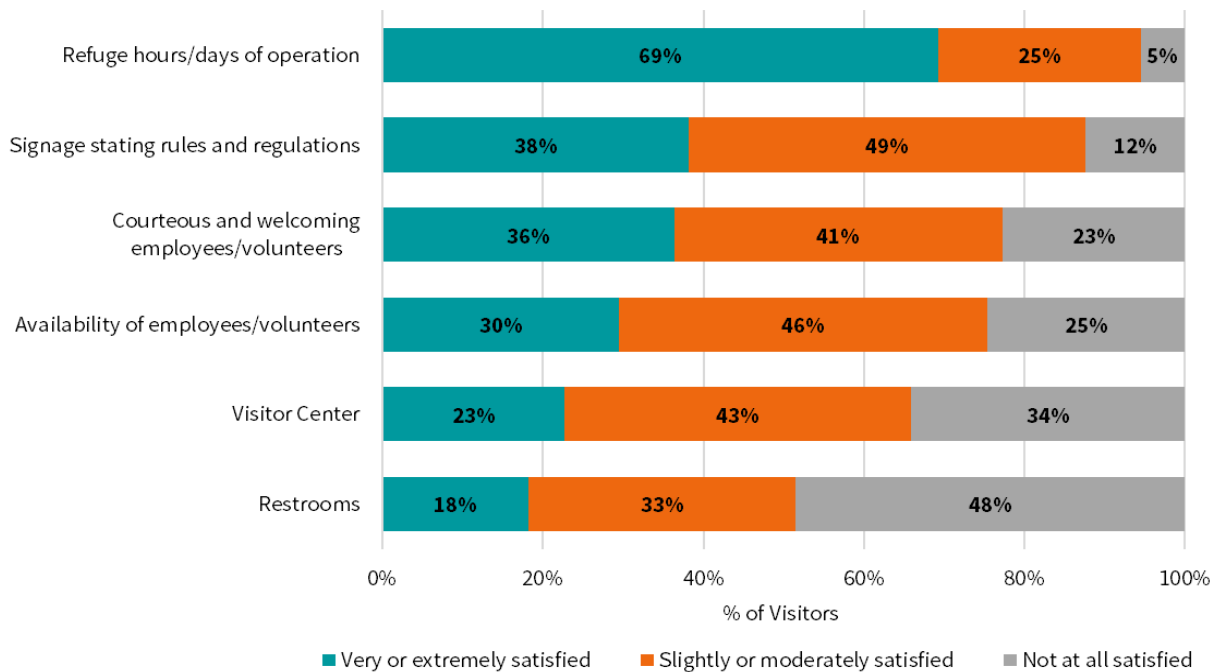


Fig. 18: Visitors' satisfaction with customer service and amenities at this refuge.

## RECREATIONAL OPPORTUNITIES

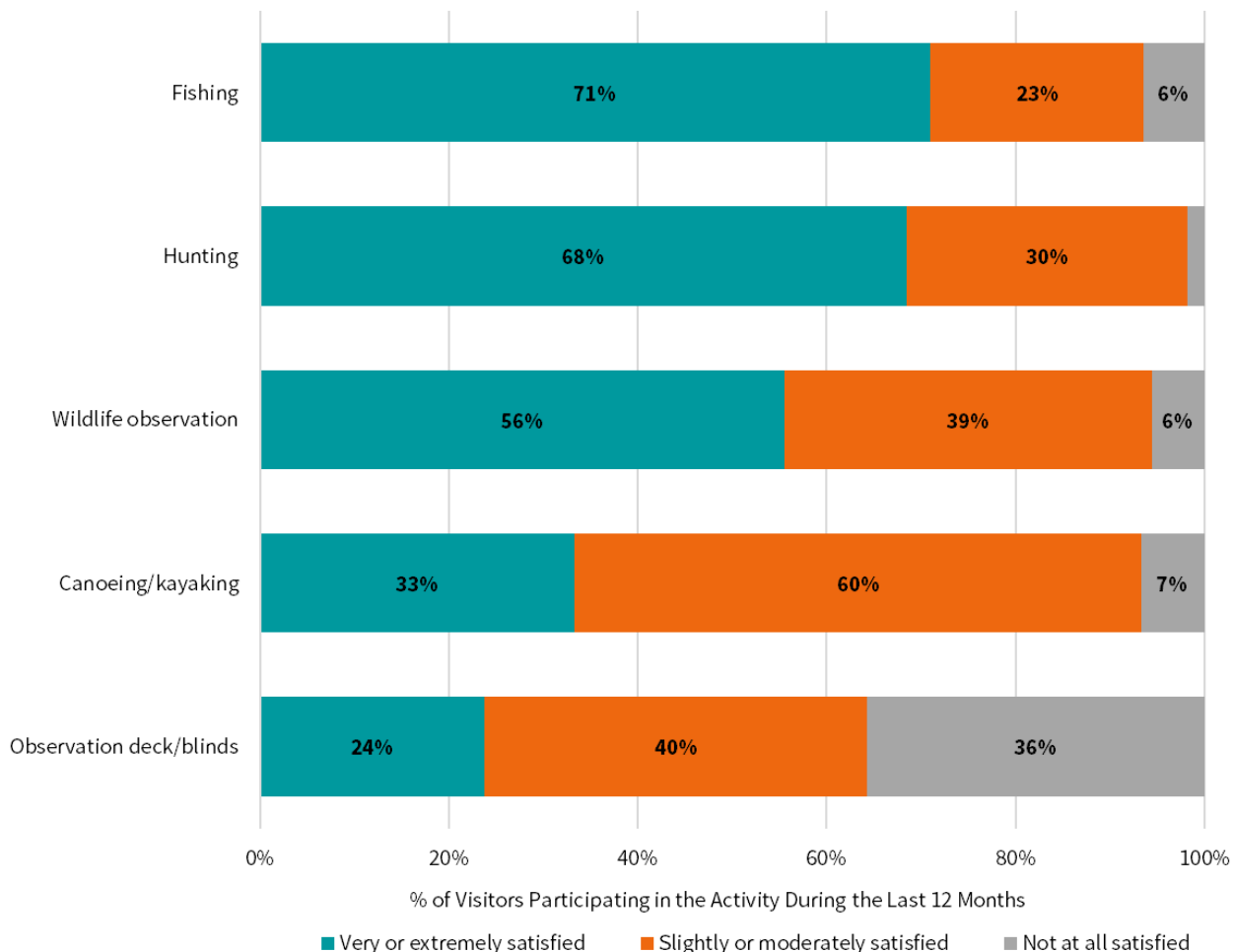
Outdoor recreation on wildlife refuges is a fundamental part of a visit. As American's values toward wildlife and their relationship with nature continue to shift (Kellert et al., 2017; Manfredo et al., 2018), public desires for recreational experiences on public lands are also likely to shift. In addition, 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 (71%)
- hunting (68%), and
- wildlife observation (56%).

*"I'm so grateful to live so close to refuge. It's a great place to hunt, fish and see wildlife...My kids love to hunt with me at the youth fishing derby and the youth hunts." - Visitor to Cache River 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 directional signs on highways (45%) and safety of refuge road entrances and exits (42%).
- Getting around this wildlife refuge, visitors were most satisfied with safety of driving conditions on refuge roads (38%), and condition of bridges on roadways (33%).
- Accessing recreation on this wildlife refuge, visitors were most satisfied with condition of boat launches (40%), and safety of roads or trails for nonmotorized use (30%).

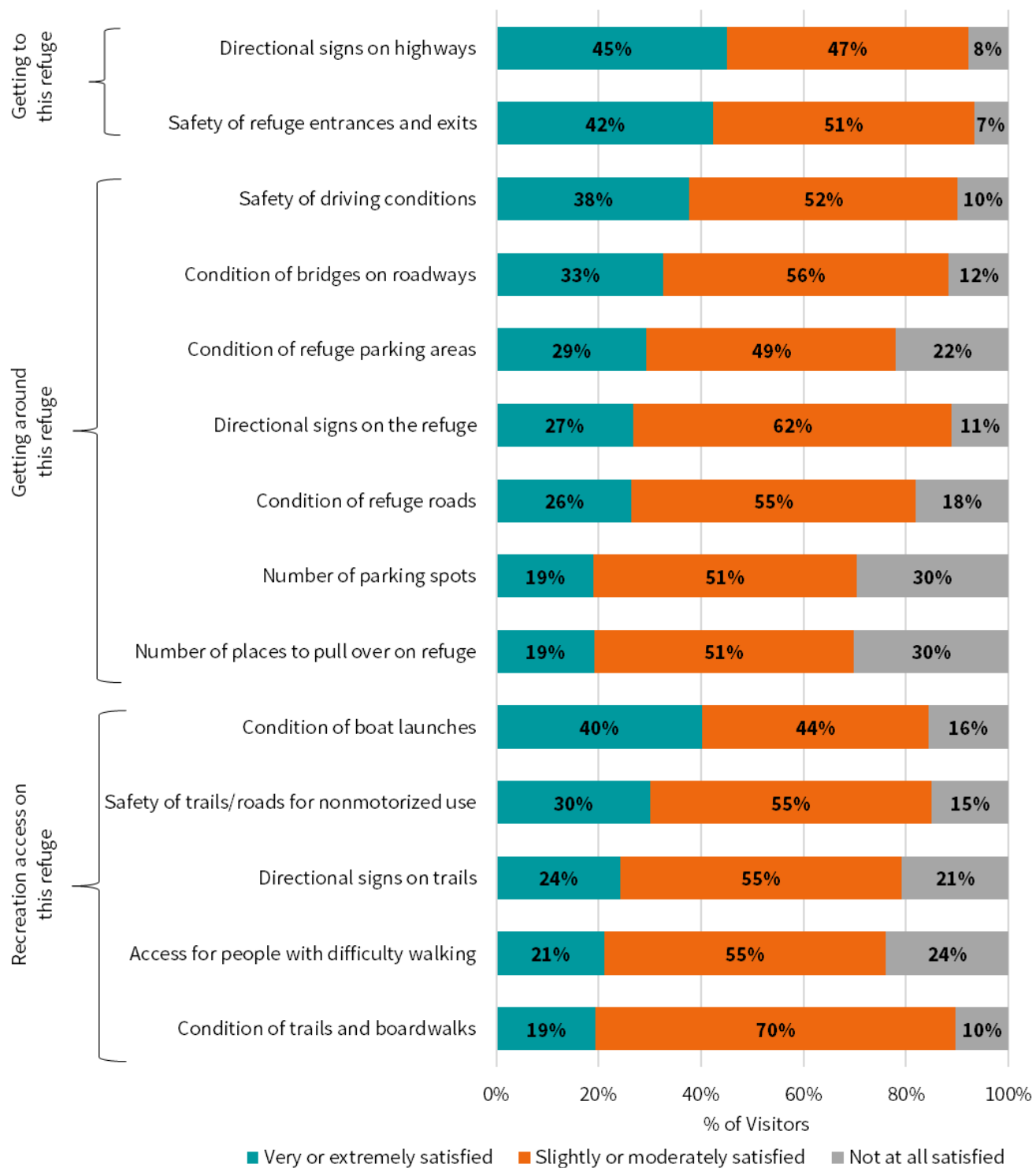


Fig. 20: Visitors' satisfaction with how the refuge is managing transportation-related features.

## 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; 53%) are as follows:

- On average, local visitors accounted for 22% of expenditures.
- Top trip expenditures by locals were for transportation and retail (Fig. 21).
- The average amount paid by locals to visit this wildlife refuge was \$125 per person per day (Fig. 21).
- Local visitors were personally willing to pay an additional \$84 per day on average to visit this wildlife refuge (Fig. 22).

Results for nonlocal visitors (those living  $>50$  miles from this wildlife refuge; 47%) are as follows:

- On average, nonlocals accounted for 78% of expenditures.
- Top trip expenditures by nonlocals were for transportation and food/drink (Fig. 21).
- The average amount paid by nonlocals to visit this wildlife refuge was \$116 per person per day (Fig. 21).
- Nonlocal visitors were personally willing to pay an additional \$122 per day on average to visit this wildlife refuge (Fig. 22).
- Nonlocal visitors spent an average of 7 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.

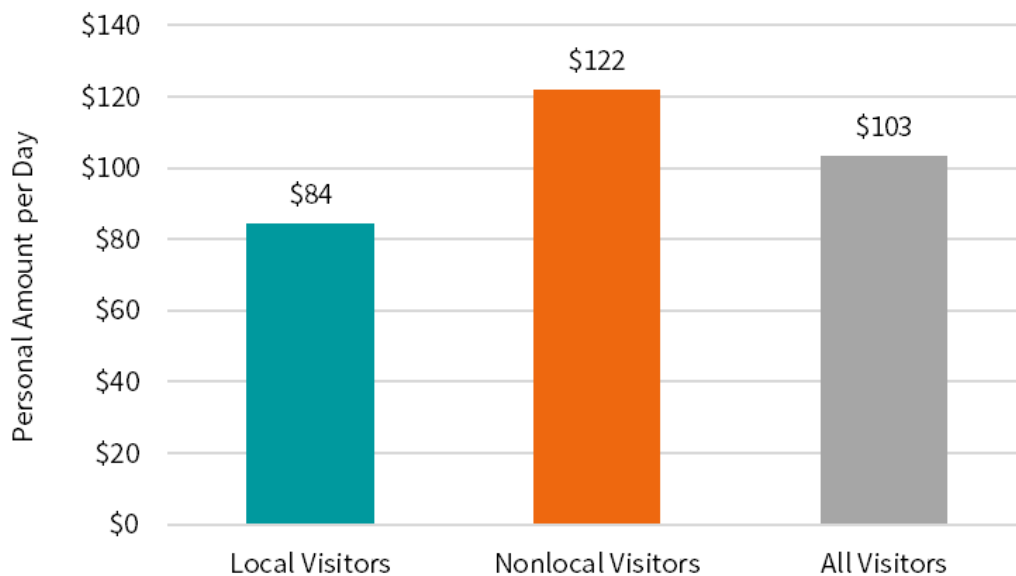


Fig. 22: Total personal willingness to pay per day above and beyond most recent trip expenses if costs were to increase for local, nonlocal, and all visitors. Due to the fixed-response question format, estimates of willingness to pay may underestimate the amount visitors would actually pay. Responses 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 engaging youth (85%), engaging families and multiple generations (51%), and supporting people with accessibility concerns (49%) (Fig. 23).
- The top two factors likely to increase visitors' future participation in their primary recreation activity were less regulations on hunting (30%) and more infrastructure (19%) (Fig. 24).
- The top two factors likely to decrease visitors' future participation in their primary recreation activity were more people participating in their primary activity (52%) and recreation equipment available for rent (20%) (Fig. 24).

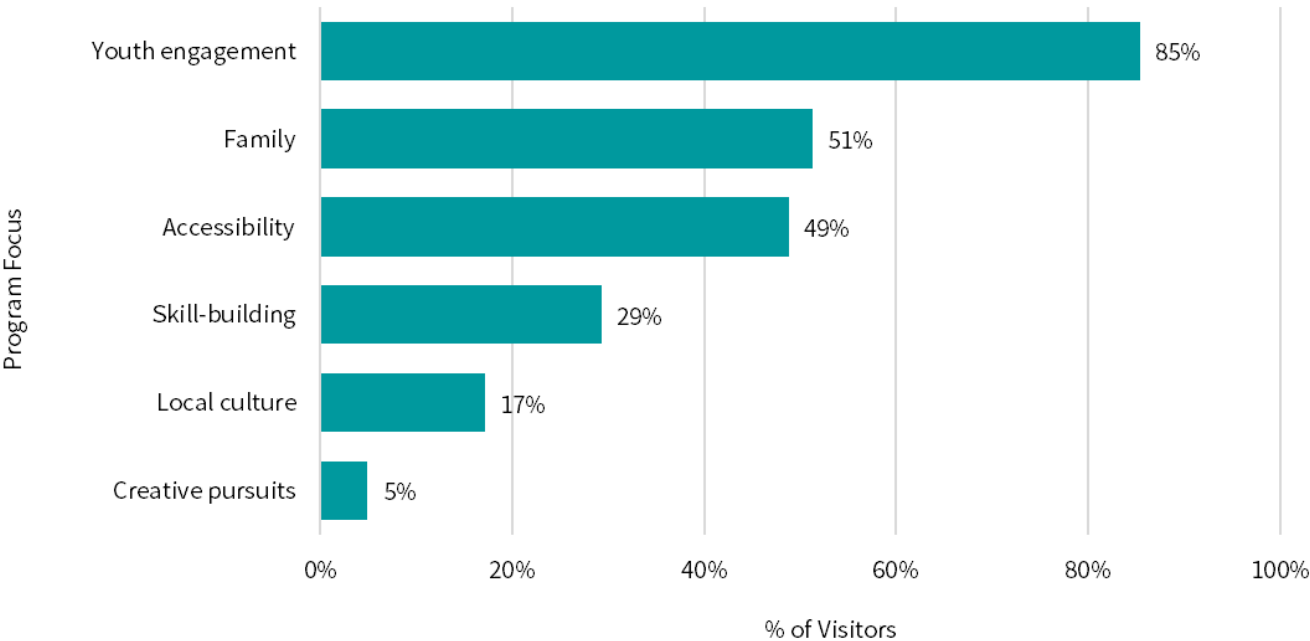


Fig. 23: Types of programs that would encourage visitors to return to this refuge.

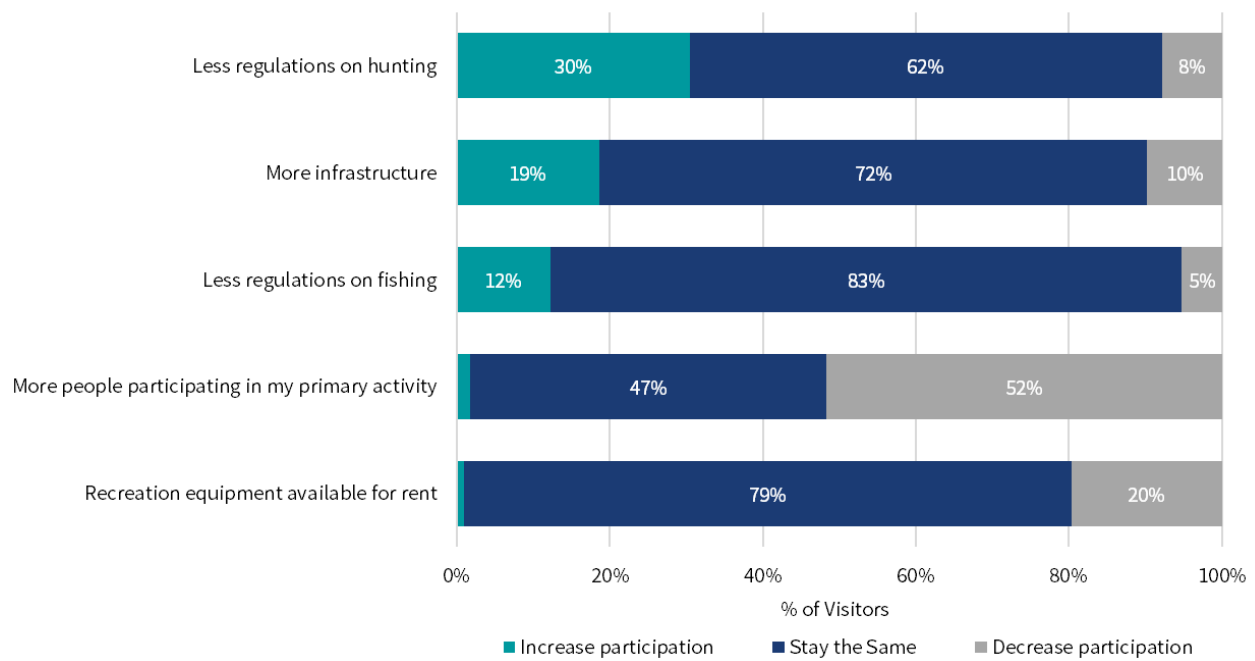


Fig. 24: Changes in visitors’ participation in their primary activity if the listed recreation factors were to change.

## 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 (4%),
- bus/tram that provides a guided tour (3%),
- bus/tram that takes passengers to different points within refuge boundaries (3%).

## 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 two resource changes likely to increase visitors’ future participation in their primary recreation activity were more acreage open to hunting and fishing (76%) and an improvement in the quality of wildlife habitat other than wetlands (60%).
- The top two resource changes likely to decrease visitors’ future participation in their primary recreation activity were less water available for recreation (47%) and fewer number of a single, preferred species (33%).

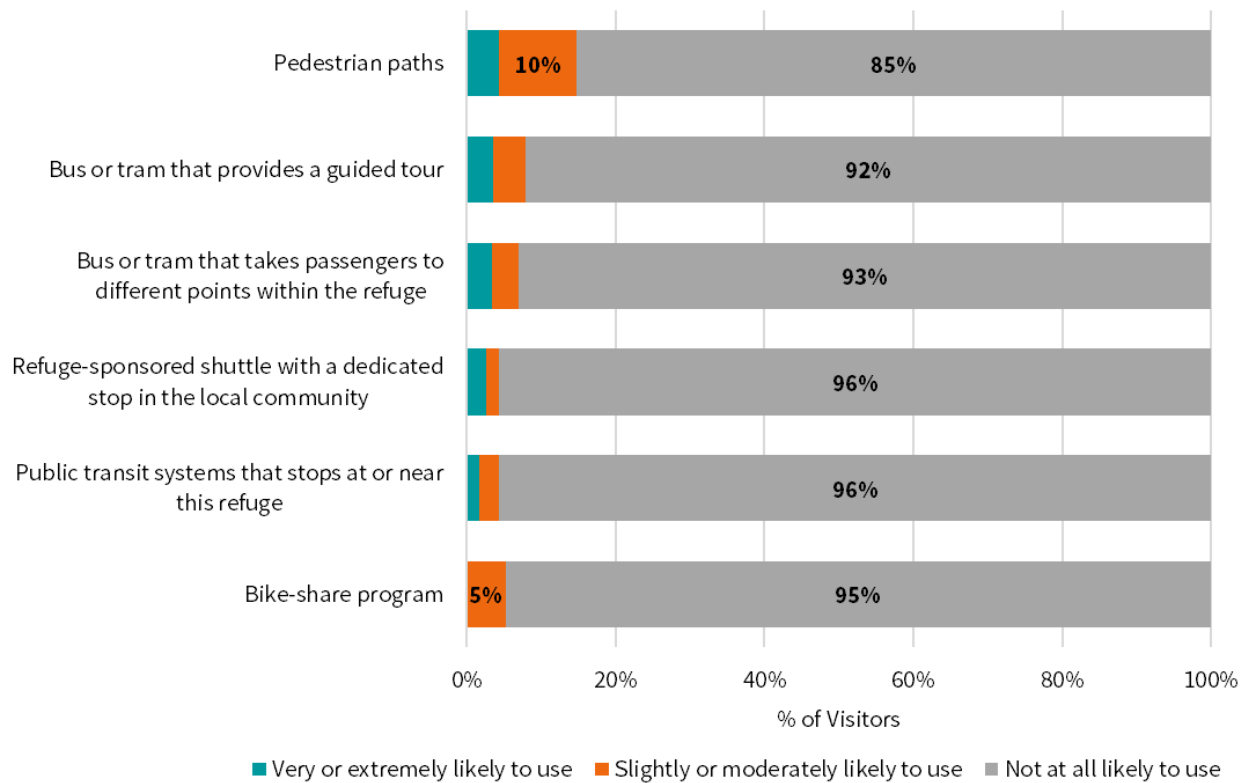


Fig. 25: Visitors' likelihood of using alternative transportation options if offered at this refuge.

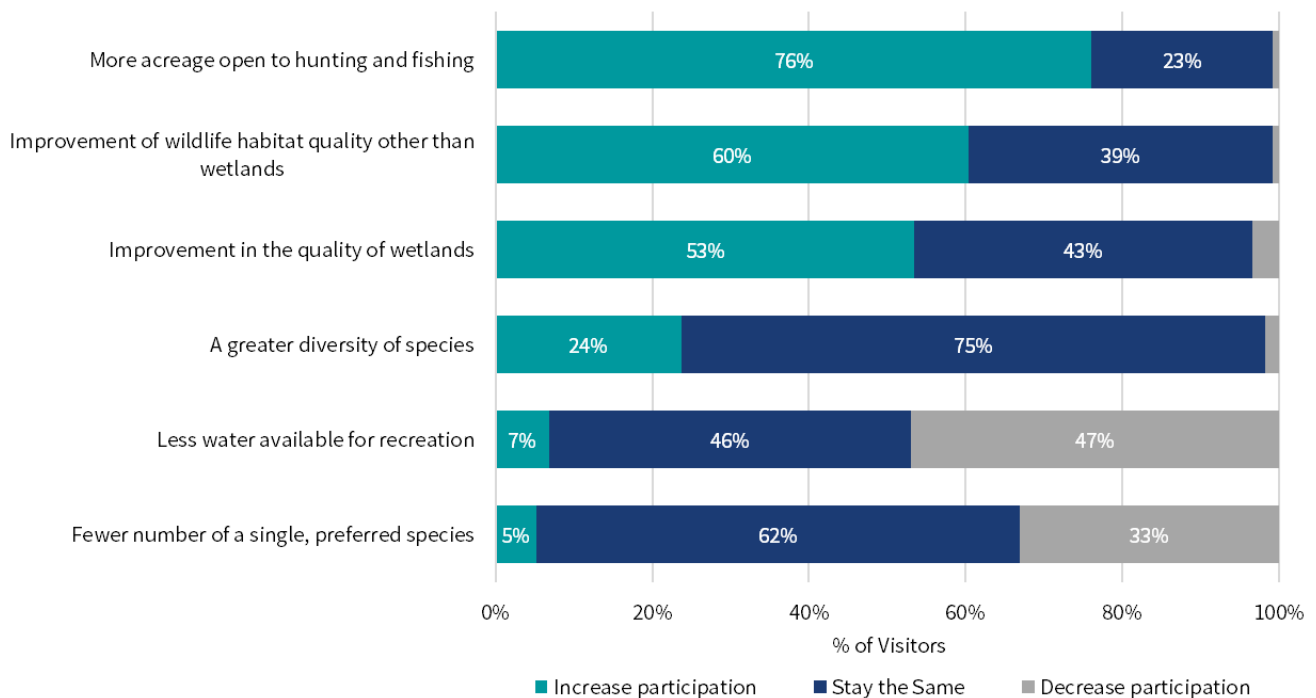


Fig. 26: Changes in visitors' participation in their primary activity if the listed resources were to change.



## Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Cache River 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.

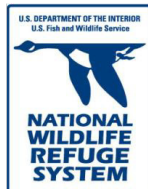
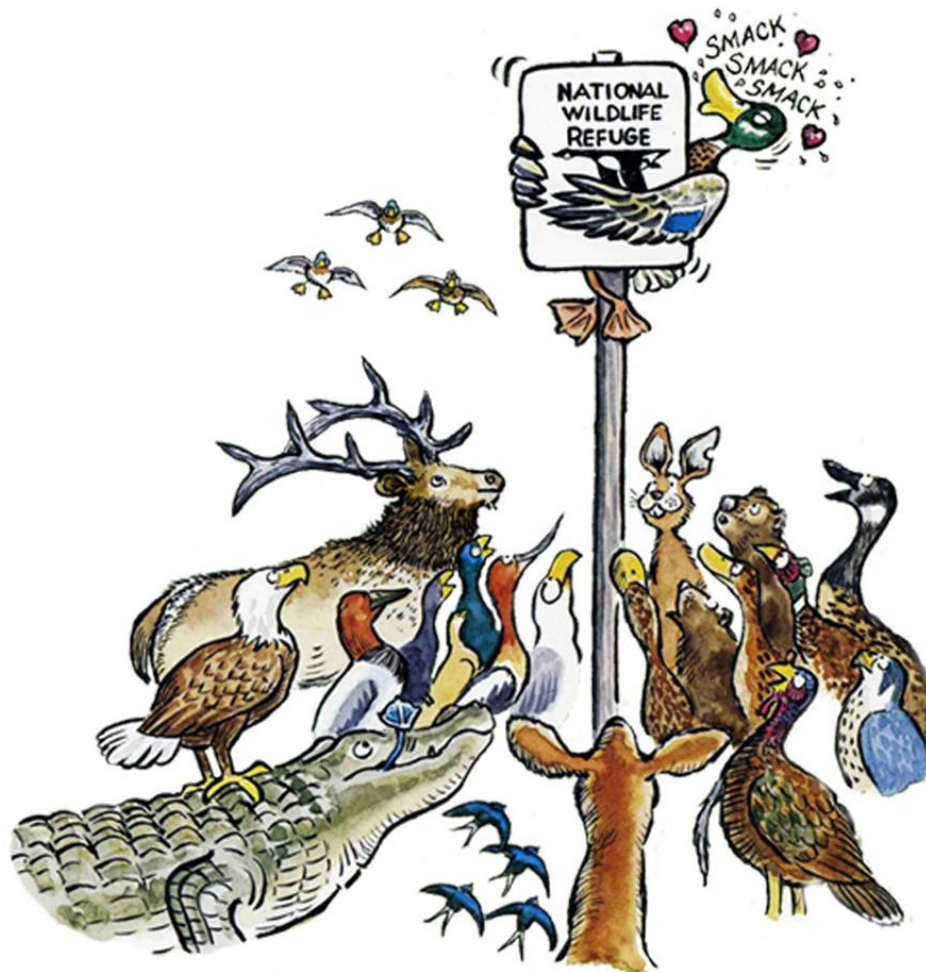
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# National Wildlife Refuge Visitor Survey



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"/> 23% Wildlife observation	<input type="checkbox"/> 7% Hiking/Walking	<input type="checkbox"/> 0% Volunteering
<input type="checkbox"/> 6% Bird watching	<input type="checkbox"/> 0% Jogging/Running/Exercising	<input type="checkbox"/> 0% Environmental education program (classroom visits, labs)
<input type="checkbox"/> 5% Photography	<input type="checkbox"/> 0% Bicycling	
<input type="checkbox"/> 52% Big game hunting	<input type="checkbox"/> 3% Auto tour route/Driving	<input type="checkbox"/> 0% Interpretative program (bird walks, staff/volunteer-led talks)
<input type="checkbox"/> 27% Upland/Small game hunting	<input type="checkbox"/> 26% Motorized boating	
<input type="checkbox"/> 60% Waterfowl/Migratory bird hunting	<input type="checkbox"/> 2% Nonmotorized boating (canoeing, kayaking)	<input type="checkbox"/> 1% Refuge special event ( <i>specify</i> ) <u>See Appendix C</u>
<input type="checkbox"/> 30% Freshwater fishing	<input type="checkbox"/> 0% Foraging (berries, nuts, other)	<input type="checkbox"/> 0% Other ( <i>specify</i> ) <u>See Appendix C</u>
<input type="checkbox"/> 0% Saltwater fishing	<input type="checkbox"/> 0% 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"/> 93% It was the primary purpose or sole destination of my trip.
<input type="checkbox"/> 7% It was one of many equally important reasons or destinations for my trip.
<input type="checkbox"/> 1% 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.)

3 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?

☐ 98% No / Not Applicable

☐ 2% Yes → If yes, what did you do there? (*Mark all that apply.*)

☐ 33% Asked information of employees/volunteers

☐ 0% Looked at list of recent bird/wildlife sightings

☐ 0% Attended a talk/video/presentation

☐ 0% Stopped to use the facilities (for example, got water, used restroom)

☐ 0% Viewed the exhibits

☐ 67% Picked up/purchased a license, permit, or pass

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

☐ 0% Visited the gift shop or bookstore

☐ 0% 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: 5 hour(s)

If you spent one day or more at this refuge, enter the number of days: 5 day(s)

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

☐ 53% Yes

☐ 47% 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: 7 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: 31 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.*)

☐ 30% Spring  
(March-May)

☐ 25% Summer  
(June-August)

☐ 69% Fall  
(September-November)

☐ 82% Winter  
(December-February)

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

...this refuge (including this visit?) 18 number of visits

...other national wildlife refuges? 5 number of visits

...other public lands (for example, national or state parks) to participate in the same primary activity as this visit? 7 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"/> 28% Facebook	<input type="checkbox"/> 12% Snapchat	<input type="checkbox"/> 1% 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"/> 15% Instagram	<input type="checkbox"/> 0% Vimeo	<input type="checkbox"/> 0% 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"/> 4%	<input type="checkbox"/> 30%	<input type="checkbox"/> 64%	<input type="checkbox"/> 9%
Word of mouth (for example, a friend or relative)	<input type="checkbox"/> 5%	<input type="checkbox"/> 13%	<input type="checkbox"/> 20%	<input type="checkbox"/> 42%	<input type="checkbox"/> 21%	<input type="checkbox"/> 13%
People in the local community near the refuge	<input type="checkbox"/> 23%	<input type="checkbox"/> 14%	<input type="checkbox"/> 27%	<input type="checkbox"/> 21%	<input type="checkbox"/> 14%	<input type="checkbox"/> 35%
Refuge employees or volunteers	<input type="checkbox"/> 43%	<input type="checkbox"/> 15%	<input type="checkbox"/> 20%	<input type="checkbox"/> 11%	<input type="checkbox"/> 11%	<input type="checkbox"/> 49%
Printed map or atlas	<input type="checkbox"/> 8%	<input type="checkbox"/> 13%	<input type="checkbox"/> 28%	<input type="checkbox"/> 36%	<input type="checkbox"/> 16%	<input type="checkbox"/> 24%
Web-based map (for example, Google Maps, Waze)	<input type="checkbox"/> 6%	<input type="checkbox"/> 2%	<input type="checkbox"/> 12%	<input type="checkbox"/> 36%	<input type="checkbox"/> 44%	<input type="checkbox"/> 29%
Refuge website	<input type="checkbox"/> 19%	<input type="checkbox"/> 19%	<input type="checkbox"/> 26%	<input type="checkbox"/> 22%	<input type="checkbox"/> 13%	<input type="checkbox"/> 39%
Travel website (for example, TripAdvisor)	<input type="checkbox"/> 82%	<input type="checkbox"/> 7%	<input type="checkbox"/> 7%	<input type="checkbox"/> 0%	<input type="checkbox"/> 4%	<input type="checkbox"/> 76%
Other website ( <i>specify</i> ) <u>See Appendix C</u>	<input type="checkbox"/> 83%	<input type="checkbox"/> 0%	<input type="checkbox"/> 8%	<input type="checkbox"/> 8%	<input type="checkbox"/> 0%	<input type="checkbox"/> 88%
Social media (for example, Facebook, Instagram)	<input type="checkbox"/> 69%	<input type="checkbox"/> 16%	<input type="checkbox"/> 6%	<input type="checkbox"/> 6%	<input type="checkbox"/> 3%	<input type="checkbox"/> 73%
Recreation club or organization	<input type="checkbox"/> 78%	<input type="checkbox"/> 11%	<input type="checkbox"/> 4%	<input type="checkbox"/> 4%	<input type="checkbox"/> 4%	<input type="checkbox"/> 77%
Refuge printed information (for example, brochure)	<input type="checkbox"/> 4%	<input type="checkbox"/> 13%	<input type="checkbox"/> 33%	<input type="checkbox"/> 25%	<input type="checkbox"/> 25%	<input type="checkbox"/> 23%
Kiosks/displays/exhibits at the refuge	<input type="checkbox"/> 43%	<input type="checkbox"/> 25%	<input type="checkbox"/> 7%	<input type="checkbox"/> 20%	<input type="checkbox"/> 5%	<input type="checkbox"/> 62%
Travel guidebook or other book	<input type="checkbox"/> 83%	<input type="checkbox"/> 3%	<input type="checkbox"/> 3%	<input type="checkbox"/> 3%	<input type="checkbox"/> 7%	<input type="checkbox"/> 75%
Tourist information or welcome center	<input type="checkbox"/> 79%	<input type="checkbox"/> 7%	<input type="checkbox"/> 3%	<input type="checkbox"/> 7%	<input type="checkbox"/> 3%	<input type="checkbox"/> 76%
Other source ( <i>specify</i> ) <u>See Appendix C</u>	<input type="checkbox"/> 88%	<input type="checkbox"/> 13%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 90%



### 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
8%	14%	19%	34%	24%	Surface conditions of refuge roads	18%	16%	39%	20%	6%	NA
12%	12%	19%	35%	21%	Surface conditions of parking areas	22%	18%	30%	23%	6%	NA
9%	12%	21%	38%	20%	Condition of bridges on roadways	12%	16%	40%	20%	13%	NA
26%	22%	19%	21%	12%	Condition of trails and boardwalks	10%	24%	46%	12%	7%	NA
7%	6%	14%	36%	38%	Condition of boat launches	16%	19%	25%	28%	12%	NA
8%	5%	26%	27%	34%	Number of places for parking	30%	24%	27%	11%	8%	NA
11%	13%	21%	27%	28%	Number of places to pull over on refuge roads	30%	27%	23%	13%	6%	NA
11%	8%	22%	33%	26%	Safety of driving conditions on refuge roads	10%	18%	35%	29%	9%	NA
11%	8%	22%	33%	26%	Safety of refuge road entrances/exits	7%	16%	35%	31%	12%	NA
27%	18%	26%	16%	13%	Safety of roads/trails for nonmotorized users (for example, bicyclists and hikers)	15%	13%	42%	25%	5%	NA
15%	19%	25%	21%	19%	Signs on highways directing you to this refuge	8%	18%	29%	28%	17%	NA
19%	14%	28%	21%	17%	Signs directing you around refuge roads	11%	23%	39%	20%	7%	NA
30%	14%	20%	21%	14%	Signs directing you on trails	21%	23%	32%	21%	3%	NA
17%	11%	23%	23%	26%	Access for people with physical disabilities or who have difficulty walking	24%	20%	35%	14%	7%	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	52%	27%
Private/rental vehicle with a trailer (for boat, camper, or other)	55%	23%
Recreational vehicle (RV)	3%	6%
Refuge shuttle bus/tram	1%	1%
Tour bus/van	0%	2%
Public transportation	0%	2%
Motorcycle	1%	1%
Bicycle	2%	1%
Foot (for example, walking/hiking)	10%	28%
Boat	24%	46%
Other ( <i>specify</i> ): <u>See Appendix C</u>	0%	4%
Other ( <i>specify</i> ): <u>See Appendix C</u>	1%	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)	93%	3%	1%	3%	1%
Bus or tram that provides a guided tour of the refuge with information about this refuge and its resources	92%	3%	1%	2%	2%
Refuge-sponsored shuttle with a dedicated stop in the local community for picking up people at set times	96%	2%	0%	1%	2%
Public transit system that stops at or near this refuge	96%	2%	1%	1%	1%
Bike-share program that offers bicycles for rent on or near this refuge	95%	3%	2%	0%	0%
Pedestrian paths for access to this refuge from the local community	85%	5%	5%	2%	3%

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?

3 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"/> \$0	<input type="checkbox"/> 10%	<input type="checkbox"/> \$30	<input type="checkbox"/> 25%	<input type="checkbox"/> \$100	<input type="checkbox"/> 5%	<input type="checkbox"/> \$250
<input type="checkbox"/> 4%	<input type="checkbox"/> \$5	<input type="checkbox"/> 2%	<input type="checkbox"/> \$45	<input type="checkbox"/> 3%	<input type="checkbox"/> \$125	<input type="checkbox"/> 0%	<input type="checkbox"/> \$350
<input type="checkbox"/> 1%	<input type="checkbox"/> \$10	<input type="checkbox"/> 3%	<input type="checkbox"/> \$60	<input type="checkbox"/> 5%	<input type="checkbox"/> \$150	<input type="checkbox"/> 10%	<input type="checkbox"/> \$500
<input type="checkbox"/> 9%	<input type="checkbox"/> \$20	<input type="checkbox"/> 0%	<input type="checkbox"/> \$75	<input type="checkbox"/> 5%	<input type="checkbox"/> \$200	<input type="checkbox"/> 6%	<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
18%	5%	13%	26%	38%	Convenient hours/days of operation for this refuge	5%	8%	18%	41%	29%	NA
52%	20%	10%	10%	7%	Availability of employees or volunteers	25%	16%	30%	20%	10%	NA
58%	15%	10%	9%	9%	Courteous and welcoming employees or volunteers	23%	16%	25%	25%	11%	NA
13%	10%	23%	28%	27%	Signs with rules/regulations for this refuge	12%	22%	27%	25%	13%	NA
51%	15%	21%	7%	7%	Visitor center	34%	18%	25%	20%	2%	NA
59%	9%	11%	9%	11%	Well-maintained restrooms	48%	12%	21%	12%	6%	NA
49%	21%	7%	15%	8%	Recreational structures (decks, blinds, platforms)	36%	26%	14%	12%	12%	NA
76%	7%	9%	3%	6%	Bird-watching opportunities	20%	20%	23%	18%	18%	NA
52%	7%	11%	16%	14%	Opportunities to observe wildlife other than birds	12%	7%	37%	22%	22%	NA
62%	4%	15%	12%	7%	Opportunities to photograph wildlife and scenery	17%	8%	37%	21%	17%	NA
61%	12%	17%	4%	6%	Environmental education opportunities	29%	13%	37%	16%	5%	NA
0%	0%	1%	13%	86%	Hunting opportunities	2%	5%	25%	32%	37%	NA
16%	4%	7%	14%	60%	Fishing opportunities	6%	6%	25%	33%	30%	NA
59%	13%	12%	11%	4%	Trail hiking opportunities	25%	13%	45%	13%	5%	NA
74%	10%	7%	7%	2%	Bicycling opportunities	41%	13%	28%	13%	6%	NA
60%	11%	14%	7%	8%	Water trail opportunities for canoeing or kayaking	25%	9%	39%	18%	9%	NA
66%	9%	12%	4%	8%	Volunteer opportunities	40%	14%	34%	9%	3%	NA
33%	8%	18%	18%	24%	Wilderness experience opportunities	11%	6%	32%	24%	26%	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.	3%	0%	33%	47%	16%
I felt safe during my visit to this refuge.	1%	1%	12%	58%	29%
Crime <u>is</u> a problem at this refuge.	36%	32%	22%	6%	4%
I feel comfortable being in nature.	0%	2%	3%	28%	67%
I do <u>not</u> like being in nature by myself.	62%	27%	7%	2%	3%
People closest to me enjoy participating in nature-based recreation.	3%	3%	8%	45%	42%
Generally, people who look like me are treated differently when they participate in nature-based recreation.	47%	20%	25%	3%	4%

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.	7%	9%	37%	34%	13%
The quality of the overall experience when visiting this refuge.	2%	6%	30%	47%	16%

## 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	47%	46%	7%
More acreage open to hunting and fishing	1%	23%	76%
More infrastructure (for example, bathrooms, observation decks)	10%	72%	19%
Recreation equipment available for rent (for example, fishing rods, binoculars, snowshoes)	20%	79%	1%
Less regulations on fishing	5%	83%	12%
Less regulations on hunting	8%	62%	30%
A greater diversity of species	2%	75%	24%
Fewer numbers of a single, preferred species	33%	62%	5%
More people participating in my primary activity	52%	47%	2%
An improvement in the quality of wetlands	3%	43%	53%
An improvement in the quality of wildlife habitat other than wetlands	1%	39%	60%

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

92% Yes      2% No      7% 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.*)

63% 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:

85% Programs that engage youth

5% Programs that focus on creative pursuits (for example, art, writing, meditation)

51% Programs that focus on family/multiple-generations      49% Programs that support people with accessibility concerns (for example, difficulty walking, in a wheelchair)

29% Programs that teach skills to visitors

5% Other (*specify*) See Appendix C

17% 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? ☐ 99% Male ☐ 1% Female

2. In what year were you born?  1968 (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"/> 30%				<input type="checkbox"/> 54%				<input type="checkbox"/> 16%			

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

<input type="checkbox"/> 97% White	<input type="checkbox"/> 0% American Indian or Alaska Native
<input type="checkbox"/> 0% Hispanic, Latino, or Spanish	<input type="checkbox"/> 1% Middle Eastern or North African
<input type="checkbox"/> 2% Black or African American	<input type="checkbox"/> 0% Native Hawaiian or Other Pacific Islander
<input type="checkbox"/> 1% Asian	<input type="checkbox"/> 0% Some other race or ethnicity

5. How many people (including yourself) live in your household?  3 persons

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

<input type="checkbox"/> 0% Less than \$10,000	<input type="checkbox"/> 14% \$35,000 - \$49,999	<input type="checkbox"/> 26% \$100,000 - \$149,999
<input type="checkbox"/> 3% \$10,000 - \$24,999	<input type="checkbox"/> 17% \$50,000 - \$74,999	<input type="checkbox"/> 6% \$150,000 - \$199,999
<input type="checkbox"/> 4% \$25,000 - \$34,999	<input type="checkbox"/> 23% \$75,000 - \$99,999	<input type="checkbox"/> 6% \$200,000 or more

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

<input type="checkbox"/> 62% Employed full-time	<input type="checkbox"/> 2% Unemployed	<input type="checkbox"/> 21% Retired
<input type="checkbox"/> 2% Employed part-time	<input type="checkbox"/> 0% Homemaker/caregiver	<input type="checkbox"/> 3% Disabled/unable to work
<input type="checkbox"/> 7% Self-employed	<input type="checkbox"/> 2% Student	<input type="checkbox"/> 1% 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
Youth fishing derby	1

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

Primary Activity	Frequency
Fishing	2
Hiking	1
Hunting	111
Other	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
OnX	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
Hunting gear	1
Insect repellent	1
Shells	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
Hunting-related activities	3

### Survey Section 3

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

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#### Comments on Transportation-Related Features at This Refuge (n=49)

The 260 boat ramp didn't have a permit in the box at the display. This box stayed empty all season so when new people come to hunt there isn't any permits. The game wardens will write tickets for not having these permits. They might want to go digital or online with these permits.

Four-wheelers should be allowed on gravel roads. Not everyone has four-wheel-drive trucks. Logging has messed up a lot of roads.

Bad potholes entering parking lot. Large pile of gravel right there not being used.

Better signs and pull over spots.

Blown down trees on the trails and old logging roads could be cut into to make boat access better. No one likes to hit trees lying under 3 to 4 feet of water and take a chance of breaking something or the safety of others.

Boat ramps and parking at ramps on the Cache River Refuge need lot of work.

Cache River does little or nothing to clear roads for boats, cars, four-wheeler. Cache River does not allow four-wheelers.

Cutting off the timber made a big mess and the area was left rough and a lot of timber wasted.

From the south boat launch area, near Clarendon the canal needs to be re-erected from the boat launch to the main channel of Rock Roe. To have this access only during times of flooding or by ATV roads. Does not help those with disabilities get the proper access for waterfowl hunting.

Handicapped should be able to ride ATV on roads.

I grew up on that land now I'm disabled and was hoping it would be more accommodation for disabled it wasn't. The laws for disabled folks are nearly nonexistent, it's wrong, and needs to be more accommodations made. I can't walk, have to use ATV only gun deer season I'm allowed to do this and then I can only go 300 feet of the road. That's discrimination.

I think that the Avenza maps used at Dale Bumpers White River National Wildlife Refuge is something all refuge needs. You will always know where you're at.

I think the roads could have more gravel and signs could be posted in more places so that people don't get on the wrong WMA.

I would like to see a little more attention given to the roads and trails for drainage and ditches.

It would be nice to have a little more parking at or near the boat ramp on the White River when the water levels are high and right for duck hunting.

It would be nice to see the gravel roads within the refuges get a good grading from time to time. That seems to never get done, and it is one of the easiest possible tasks.

More roads, trails.

Needs better handicapped access.

Need better pull over areas or more pullover areas. Don't need more roads, this forces the big deer out of the areas. People drive up and down these roads during hunting season just seeing who's there

Needs gravel in parking lot and entrance! Gravel is there, just not spread!

Need more spots for parking.

Needs more boundary markers or signs.

No parking. Boat launch was terrible.

No place to camp. Not all areas have access to land.

Not near enough parking.

Parking at the boat launch on U.S. Hwy 33 near Tupelo, AR needs to be drastically improved.

Refuge roads not bush hogged. Many low water crossings impassable due to flooding. Roads blocked due to logging trucks. There is no road maintenance at all at this refuge. Many areas have been logged.

Road needed grounded and mowed.

Roads and parking lots are not maintained.

Roads are horrible. Trees are being logged and leave the roads in a muddy mess. With our tax money, this should not happen. Never see any refuge personnel. Would visit more often if it wasn't such a hassle. Sad. Beautiful place.

Roads could be kept up better - water running across roads gets deep.

Roads need attention many potholes.

Roads need to be graded. Log trucks have messed them up pretty good!

Roads not cleared but 1 time a year. Bird watch tower parking and ramps only cleared one time a year.

Roads not mowed or graded.

Roads on this part of refuge are terrible potholes, side of roads not mowed. Two years in a row. Buella access.

Roads suck on George tract Cache River NWR.

Some areas need spots to pull over to hunt off the roads they build so people can get by or without you taking chance of getting stuck. Roads were mowed this year so that helps a lot. But they do a great job and I'm overall satisfied.

The Biscoe area of the Cache River NWR has been logged for the past few years with absolutely no maintenance on the main road i.e. gravel, road grating. The area has not been bush-hogged in over a year.

The boat ramps on Hwy 17 north of McCrory to Hwy 33 north are terrible. There was a semi-truck hit 3 parked vehicles this year on the side of the road.

The road was so narrow. Passing log trucks was scary. Grass was not mowed.

The roads are never kept up in decent condition. The sides of the roads are the biggest problem. They should be mowed in the summer, by the time hunting season rolls around, you can't pull off the road.

The White River was flooded. We launched the boat at clarendon to access Cache River NWR. There were not enough parking places for all of the vehicles that were there.

There are not any parking areas available around trail entrances. More times than not the dirt road or in poor condition. Since the logging of the refuge there has been no updates to the conditions of the roads or parking areas. Where is all this money going to?

There is a road bridge that is condemned that seems to be politically motivated as it is still in use by private individuals. It is disappointing to let public land become more difficult due to local politics. Someone should address this issue and money could be raised by access fees, NWTF grants, etc. to take on this access issue.

They were in the process of logging out sections of the refuge we've been hunting for 20 years. The main gravel road that goes thru refuge was in bad shape due to all the machinery and 18-wheeler hauling out the logs. This was being done during a wet summer and fall and continued while it was still wet conditions. The gravel road thru the refuge that took so long to complete and make it accessible has been converted back to a mud road. It's a shame they log out a federal wildlife refuge and let them leave it in such poor conditions, woods and roads when they leave!

When you kill a deer, I wish they would allow ATV-UTV usage to bring out the deer. But not to use for transportation to and from your stand for retrieval only!

Work on parking lot.

Y'all could use all the gravel that y'all have piled up in places to improve the roads instead of letting it grow up in weeds and not just let it sit there.

## 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=35)

Big game hunting days should be extended. Muzzle loading and rifle.

Boat ramp was in terrible shape.

Deer season should be 2 weeks later.

Government shutdown.

Gun deer season should be open longer than 9 days. Should be open at least 4 full weekends.

Hunting is my primary reason for visiting the refuge.

Hunting permit system does not give everyone a fair chance. People with no access to internet or people who don't know how to use internet have no chance.

I grew up in the area, Cache River has only been used to waterfowl hunting. Fishing has been done on White River.



I hunt deer would like more dogs to hunt.

I never seem to be able to catch anybody at the refuge headquarters (during the work week, during business hours). For the past two days I have been unable to reach anybody by telephone there either (work week, during business hours also). This has always seemed to be a difficult task for as long as I have been visiting the refuge.

I only hunt on public land fed or state land.

I think that any person over the age of 65 should be able to retrieve their game!

If you could cut permit numbers down so all these gun hunters would quit wiping out the deer herd, I've noticed deer numbers have fell considerably in the last few years.

Last 3 days of duck season open hunting all day.

Management for upland species is critical and much needed on public lands. Prescribed fire seems to be the most efficient tool to manage upland habitats, but it seems to be underutilized on this refuge. Scratching out and managing even meager amounts of upland habitats is critical to provide refuge on public lands as it is unlikely to be an undertaking of private landowners in the Cache River basin.

Need a bigger boat ramp at Preston Ferry.

Needs a large boat dock - slips, gas, groceries, educational tours. Trails should be developed and maintained w/maps/signage - duck holes/trails should be cleared. Have a partial lottery for the main holes if necessary.

Need better boat ramps and parking at boat ramps.

Need more parking areas for 4-wheeler trails.

Need more parking for duck hunters.

Needs shoulder on the roads to pull over, everything else was good. Parking lot was flooded but not much you can do about that. Could possibly pave other lot that was mud and hard to use.

Pads and parking lots are not maintained.

Please do something about the gnats in the area of the refuge and the carp in the White River.

Rest area management needs to see some changes. The Cache River NWR and Bald Knob NWR rest area have killed local duck hunting. I understand the need to provide food for wintering waterfowl, but when the ducks completely eat out the rest area fields by December (which comes straight from the mouth of one of the local federal waterfowl biologists) what are they supposed to do for the rest of the winter? The feds should wait till late January and February to flood these feed fields so that the birds actually gain something before returning north.

Roads more signs on road marking lakes and different hunting spots.

Roads were narrow grass not mowed passing log trucks were scary.

Services plenty good enough. Facilities plenty good. Opportunities great. I love being able to have a place to hunt and fish and the opportunities are terrific here.

The Biscoe bottoms at the Cache River NWR have a very poor maintained for the past few years due to logging.

The number of out of state hunters needs to be limited.

The permit box is all ways empty during season so we I bring a new person with me hunting we have to go to Augusta to get a permit. The signs coming into the refuge need to be clearer about what time you can enter the boat ramp area.

There aren't any services or facilities offered.

This refuge has turned into a logging refuge. No consideration for the sportsman. The worst part is operations take place during the limited amount of days available to hunt. Why not the summer time?

Very satisfied with the hunting opportunities at this refuge.

We visit the federal refuges in Arkansas annually and plan a couple of family vacations around it. I am a little disappointed in the federal refuges following the Arkansas Game and Fish yearly rule changes that are specifically targeted at nonresidents. Example is use of motion waterfowl decoys. I think that the ability to take game legally should be allowed. We are seniors and constantly using a jerk string gets rather old and tiring. I certainly hope the refuges don't follow the AGFC on limiting access to nonresidents. Thanks.

When you call headquarters, very seldom is the phone answered. The recording says your message will be returned within 24 hrs., but it took 2 wks. for someone to call me back after I had left message 3 days in a row. That needs improved on!

## End of Survey

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### General Comments (n=29)

Again, I wish the refuge would consider the use of motion waterfowl decoys within the refuge as it does on all other federal refuges and hopefully doesn't limit the number of access to nonresidents. The Arkansas Game and Fish Commission has proposed limiting opportunities on AGFC controlled properties and has forbidden the use of motion decoys on the same, however if you are on private property, there is no such rule. Migratory waterfowl belong to us all. Thanks in advance. We love the federal refuge system.

Arkansas does a great job of enhancing waterfowl opportunities on it refuges. At one time hunting was allowed both morning and afternoons- since going to morning only I have detected no real positives in the duck populations or hunting opportunities on the White and/or Cache River. Still don't need thousands to enjoy this beautiful setting.

Better roads for high water when fishing is the best.

Boundary signs, needs more, will help with property disputes.

Develop public parking lots on town side of levee and have public transportation back over to the river - of course this could be seasonal we've had 150 trucks/trailer parking at clarendon during duck season - it's a mess! Save the historic white river bridge at Clarendon, AR build your visitor/interpretive center/museum (river/big woods/bridge) allow biking, hiking, bird watching/camping, tours on the bridge - develop it w/state parks as a park clean out duck holes and roads and trails. Build a public boat dock. Bring in gas, grocery, and slips Have nature tours. Expand parking. Move the lower White River Museum from Ocs Ave to Clarendon. Develop a master plan of Clarendon and Cache River NWR. It is by far where most if not all of the public accesses Cache River NWR.

Discontinue the logging!

Don't need any more roads. This puts too much pressure on the big bucks, and this is what brings people into the areas. They need rest areas like the ducks. Need pull over areas at different places on the roads that is already present and upgrade some of the present roads. Need more food sources during the winter for the wildlife after the farmers harvest their crops. Example corn, millet and etc. On refuge land. Corn is great because it lasts all winter. The corn hangs down and it is protected from the water and wildlife feeds on it all winter. Too much access by roads is hard for wildlife habitat.

Fix roads, more signs.

High water during the growing season and beavers are killing massive amounts green timber. Overcrowding of out of state hunters has and will be a huge problem. There seems to be more restrictions every year.

I enjoyed my visit and I hope that it will be there for generations after me thanks for being there good luck in the future. I grew up in those woods as a boy I saw a lot of it cleared in the 50's and 60's and thank god almighty I lived to see it grow back up and now the government has bought it up and now it is protected by our United States government.

I feel that this refuge is more interested in making money from logging trees than taking care of the refuge. I have had wonderful times here at Cache River NWR, but the administration makes it tough on continuing these great times. The roads are in horrible shape. I wish someone outside of Arkansas would investigate or come down and see the conditions.

I have hunted this area for decades and I have never been asked for my opinion. Thanks for the opportunity to provide comments. Thanks to everyone associated with this survey and facility.

I know cost for such a thing would be enormous, but something that I think would really improve experiences is an interactive map in an app with everything market and doesn't necessarily need phone service to work. Like I said, I'm not sure what the expenditure would be but the safety that comes with accessibility doesn't have a dollar amount associated with it. I'm mostly using the refuge for hunting and as much as I want to have a successful hunt, safety and returning to hunt more days is more important and I think an interactive map could help everybody do that!

I love the Cache River NWR. I feel the staff are doing a good job. I just wish they were easier to get a hold of.

I think you need to provide more wetlands in the refuge area like along the White River and Cache River. Supply food like corn millet and other foods for wildlife that hunters can also hunt in, like field so when the rivers flood you can hunt in with food. More public fields to be able to hunt waterfowl.

I'm so grateful to live so close to refuge. It's a great place to hunt fish and just ride and see wildlife. They do great job at the refuge. My kid loves it to be able to hunt with me and the youth fishing derby and the youth hunts.

Many deer hunters in this area are concerned about effects that gnats have had on the herd the past two years. Deer sightings, let alone harvests, are severely declining. Many duck hunters in this area are also concerned about the amount of ducks migrating to Arkansas and farther south. Some believe it is due to the agriculture practices of northern states, along with large, private landowners and more importantly - public land with food plots. Arkansas had plenty of water and cool weather early in the season, with very little duck numbers to show for it. Either stop allowing food plots or make it fair across the board on public land.

My comment should be for Cache River access at Rock Roe. I have not visited the visitor center at cotton plant and my comments should by no means reflect on the visitor center. There are two locations to extend a canal to Rock Roe, ramp under roadway bridge or at boat ramp located at Rock Roe. Each location serves on each bank of Rock Roe.

My sole purpose for visiting the refuge was to hunt ducks. I have been hunting at this refuge since the early 90's. The only way I have ever accessed this refuge is by boat, so it really isn't accessible for someone bound to a wheelchair. And to hunt, you must be able to wear a pair of waders.

Myself and dozens of other people highly dislike the refuge being logged with the funds gained from logging the refuge. Where is this money going to? The roads have not improved, there are no additional parking areas, the sides of the roads have not been mowed and multiple trails are limited to foot traffic. At one point of time, you could drive an ATV down them. I would like to see them opened back up.

See my comment about opportunities at the refuge. Some changes need to take place with the rest areas. The way it's done now is hurting hunting. Feel free to reach out if anyone wants to discuss that further.

Some way to stop people from stealing deer stands.

Stop the "duck farming" in northern states, i.e. feeding ducks on rest areas and leased farms where no hunting is allowed and especially after the season for hunting is closed. Ducks don't migrate if they live "rent free" (plenty of food and no hunting pressure). A big portion of the economy in Arkansas is supported by duck hunting. The above practices will suppress the "hunting" revenue that has always been significant to help farmers and retailers, etc.

Thank you for supporting federal wildlife refuges and WMAs.

The National Wildlife Refuges, in particular White River NWR and Cache River NWR, have turned into a logging or deforestation operation, severely reducing my hunting opportunities. The answer I get is the woods have to be 'thinned' after x amount of years to allow for regrowth. I've hunted these refuges and no logging operation took place ever until about 10 years ago. 40 years of hunting these refuges and now they start logging? I have also been told it's to bring money (revenue) to the school systems, in particular Arkansas/Monroe counties. These are poor counties with a very low tax base. They conduct operations during our limited days of hunting. Why? They have all year to complete this. I believe the end goal is to discourage hunting activities, specifically deer, in order to concentrate on duck habitat. Bottom line - follow the money. Cache River also closed an access road called River Road that was used to enter the refuge during periods of high water, but was closed about 4 years ago due to 'safety' concerns with the road even though farmers drive very heavy farm equipment to plant, harvest crops. Again, the reason they closed it was due to pressure from private landowners not wanting 'their' ducks disturbed. They need to reopen the road for all traffic, not to mention a portion of the refuge is now closed to the public because of this closed road. I know this is not your area, but please put me in contact with someone who is.

When game and fish buys land for public hunting and fishing the need to provide more access points to get to some of the land. Because private landowners for the most part are not going to let you come across their property to get to public hunting grounds.

Wildlife improvements that have already been done are not working. I see them destroy this place and kill off a lot of wildlife and fish every year. This refuge is in the middle of prime duck and deer hunting, but they will not hold water in the duck holes. They are pushing trees down in piles after they drain the lowlands.

Wonderful place. Thank you for all the hard work that goes into public land. I wish we had more land for people to enjoy.

You could use the gravel that y'all have piled up to fix roads instead of just letting it stay piled up. Do something about gun hunters – they are wiping out deer herds. Need to limit it to youth hunts and a few days gun hunting of some sort. Need to get the numbers back up. Make it where every time you go up there you can kill a deer like it used to be.