



U.S. Fish & Wildlife Service

NATIONAL WILDLIFE REFUGE VISITOR SURVEY

2018 Results for Crab Orchard National Wildlife Refuge



THE OHIO STATE
UNIVERSITY



Acknowledgments

This study was funded by the U.S. Fish & Wildlife Service/National Wildlife Refuge System's Natural Resource Program Center, Division of Visitor Services & Communications, and Division of Facilities, Equipment, & Transportation. The study design and survey instrument were developed collaboratively with representatives from the U.S. Fish & Wildlife Service and researchers from The Ohio State University. We would also like to thank any staff and volunteers at Crab Orchard

National Wildlife Refuge who assisted with the implementation of this survey effort. We would like to especially acknowledge the following American Conservation Experience team members for their work in implementing the on-the-ground sampling for the 2018 survey effort: Ellen Bley, Kylie Campbell, Michelle Ferguson, Justin Gole, James Puckett, Nicole Stagg, and Angelica Varela. Lastly, we thank Emily Neidhardt for designing this report.

Report citation:

Dietsch, A. M., Sexton, N. R., Lyon, K. M., Hartel, C. M., & Mengak, L. F. (2019). National Wildlife Refuge Visitor Survey: 2018 Results for Crab Orchard National Wildlife Refuge. Columbus, OH: The Ohio State University, School of Environment and Natural Resources.

Front cover: Visitors enjoy a sunny day of fishing at the Wolf Creek Recreation Area at Crab Orchard National Wildlife Refuge. Photo credit: Nicole Stagg.

Contents

Acknowledgments	ii
Understanding Wildlife Refuge Visitors & Their Experiences	1
Surveying Visitors at This Wildlife Refuge	3
Visitor Characteristics	5
Trip Characteristics	6
Information Sources Used for Trip Planning.....	9
Use of Social Media	11
Participation in Recreational Activities	12
Comfort in Nature/Feeling Safe & Welcome	14
Satisfaction with Refuge Experiences	16
Economic Benefits to Local Communities & Visitors.....	20
Encouraging Return Visits & Future Recreation Participation.....	22
Conclusion.....	25
References	26
Appendix A: Survey Methodology	27
Appendix B: Response Frequencies and Averages by Survey Question	29
Appendix C: Open-Ended Survey Responses by Question.....	41

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 Crab Orchard 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

Crab Orchard National Wildlife Refuge is located in southern Illinois near the town of Marion. The refuge was established in 1947 to provide habitat for wildlife under the condition that the land was still used in a way that generated jobs for local people. Prior to refuge establishment, extensive industry associated with World War II occurred in the area. Military related manufacturing plants still exist, and soybeans and corn are farmed on refuge lands as well. The 43,890 acres of this wildlife refuge are composed of three main habitat types: oak-hickory forests, crop land, and open water. Three large reservoirs - Crab Orchard Lake, Devil's Kitchen Lake, and Little Grassy Lake - provide open water habitat for a variety of warm-water sport fish species as well as waterfowl. Oak-hickory forests cover 56% of refuge land providing habitat for deer, squirrels, rabbit, raccoon, owls, and various migrating species. Bobcats, bald eagles, and wild turkeys can be seen frequenting the refuge in various habitats.

Crab Orchard National Wildlife Refuge attracts over 872,661 visitors annually (U.S. Fish and Wildlife Service, 2018, written comm.). Popular



Staff discusses Crab Orchard National Wildlife Refuge with a visitor on a guided kayak tour.
Photo credit: Kylie Campbell.

activities for visitors include hiking, fishing, and boating. Crab Orchard Lake hosts fishing tournaments and local high school bass fishing teams practice on the lake. In addition to fishing, this wildlife refuge offers a variety of hunting opportunities such as those related to big game, upland game, furbearers, waterfowl, and migratory birds. A unique recreational opportunity available for visitors is camping. Two popular campgrounds allow visitors to enjoy overnight sounds and experiences on the refuge. Visitors can also enjoy environmental education, interpretation, and more at the visitor center and the Pigeon Creek Environmental Education Complex.

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 374 visitors agreed to participate in the survey by providing their names and addresses.
- In all, 170 visitors completed the survey online (36%) or by mail (64%) after their refuge visit, resulting in a 46% response rate.
- Results for this wildlife refuge have a $\pm 6\%$ margin of error at the 95% confidence level. For more details on limitations of results and survey methodology, see Appendix A.

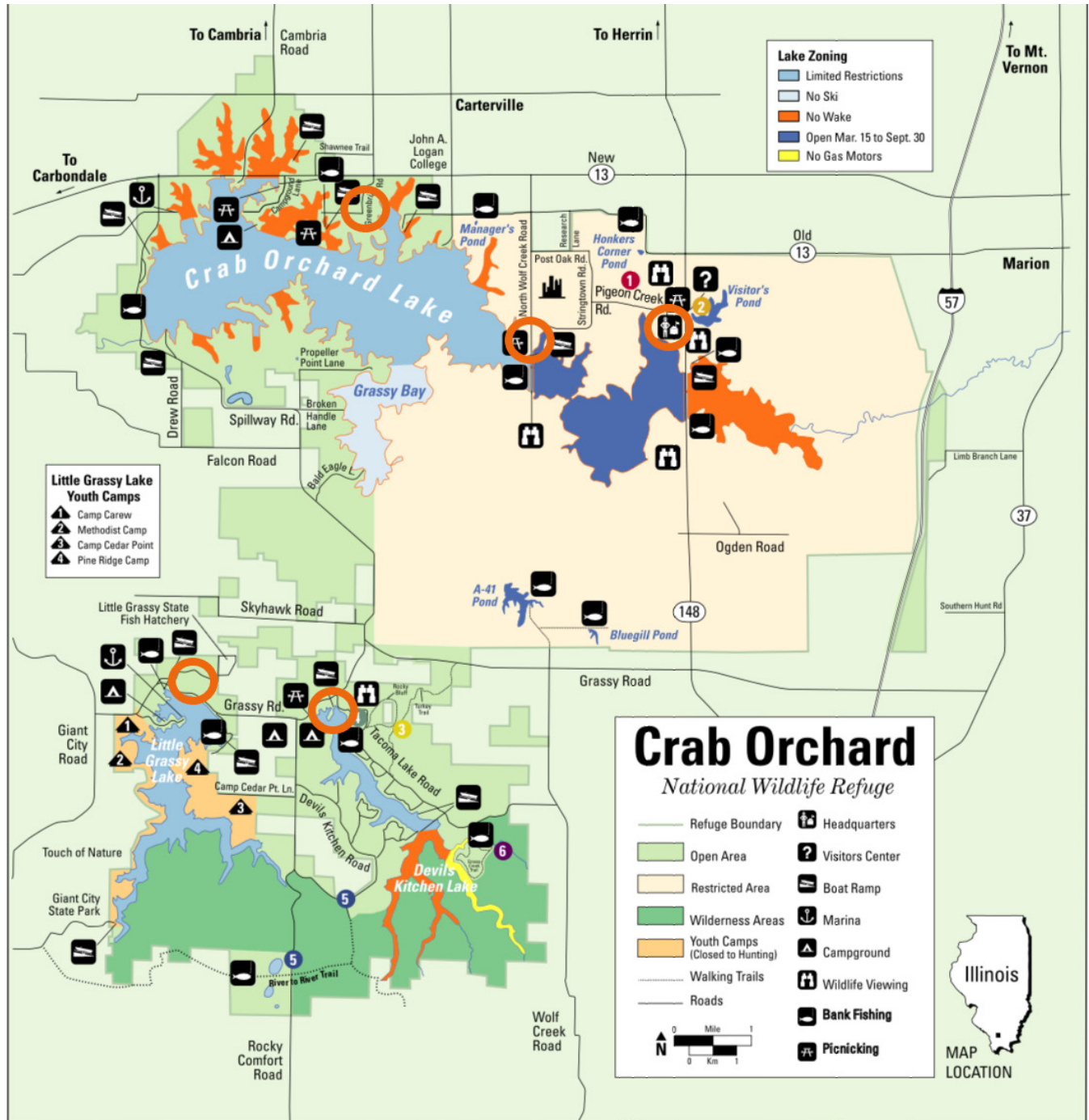


Fig. 2: Map of Crab Orchard National Wildlife Refuge. Visitors were contacted at the circled locations from 4/19/2018-4/26/2018 and 8/23/2018-9/2/2018.

Visitor Characteristics

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

AGE & GENDER

- 42% of visitors were female with an average age of 54 years (Fig. 3).
- 58% were male with an average age of 60 years.

EDUCATION

- 19% of visitors had a high school degree or less.
- 59% had at least some college.
- 21% had an advanced degree.

RACE & ETHNICITY

Most prevalent race or ethnicity (Fig. 4):

- White (95%).

INCOME

- Visitors had a mean income range of \$50,000-\$74,999 (Fig. 5).

OTHER TRIP CHARACTERISTICS

- Average group size of 4 people.
- 22% visited the refuge alone.
- 57% visited with at least one other adult.
- 20% visited with a combination of at least 1 adult and 1 child.

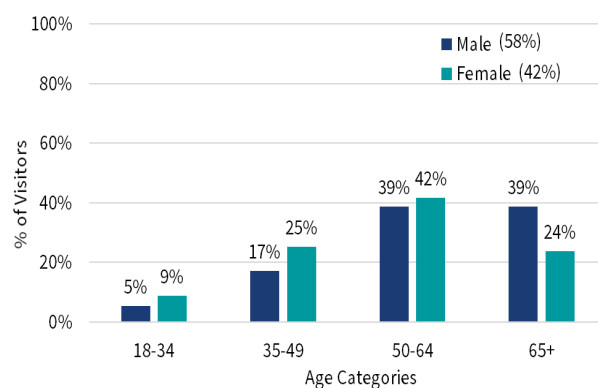


Fig. 3: Distribution of visitors to this refuge by gender and age group.

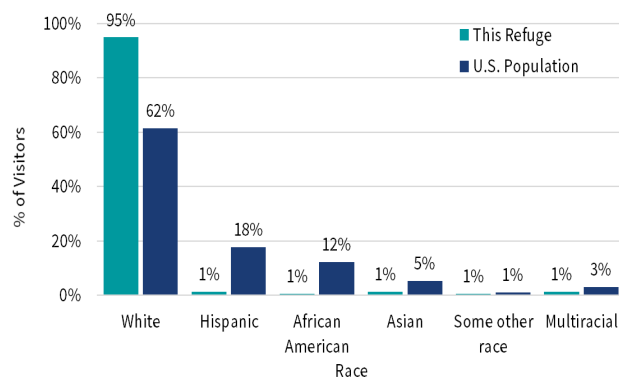


Fig. 4: Race and ethnicity of visitors to this refuge compared to the national average.

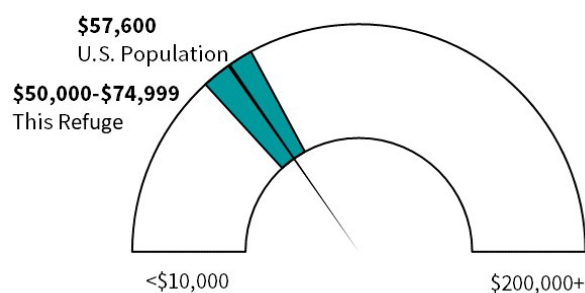


Fig. 5: Mean income range of visitors to this refuge compared to the national median income.

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 ≤ 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 (82%) include:

- For locals, this refuge was the primary reason for their trip (91%) (Fig. 6).
- Local visitors traveled an average of 21 minutes to arrive at this refuge (Fig. 7).

NONLOCAL VISITORS

Highlights of trip characteristics for nonlocal visitors to this wildlife refuge (18%) include:

- For nonlocals, this refuge was the primary reason for their trip (59%) (Fig. 6).
- Nonlocal visitors traveled an average of 5 hours to arrive at this refuge (Fig. 8).
- Of the 99% of visitors who lived in the U.S., nonlocal visitors were most often from Illinois (94%) and Missouri (2%).
- 1% of respondents were international visitors.

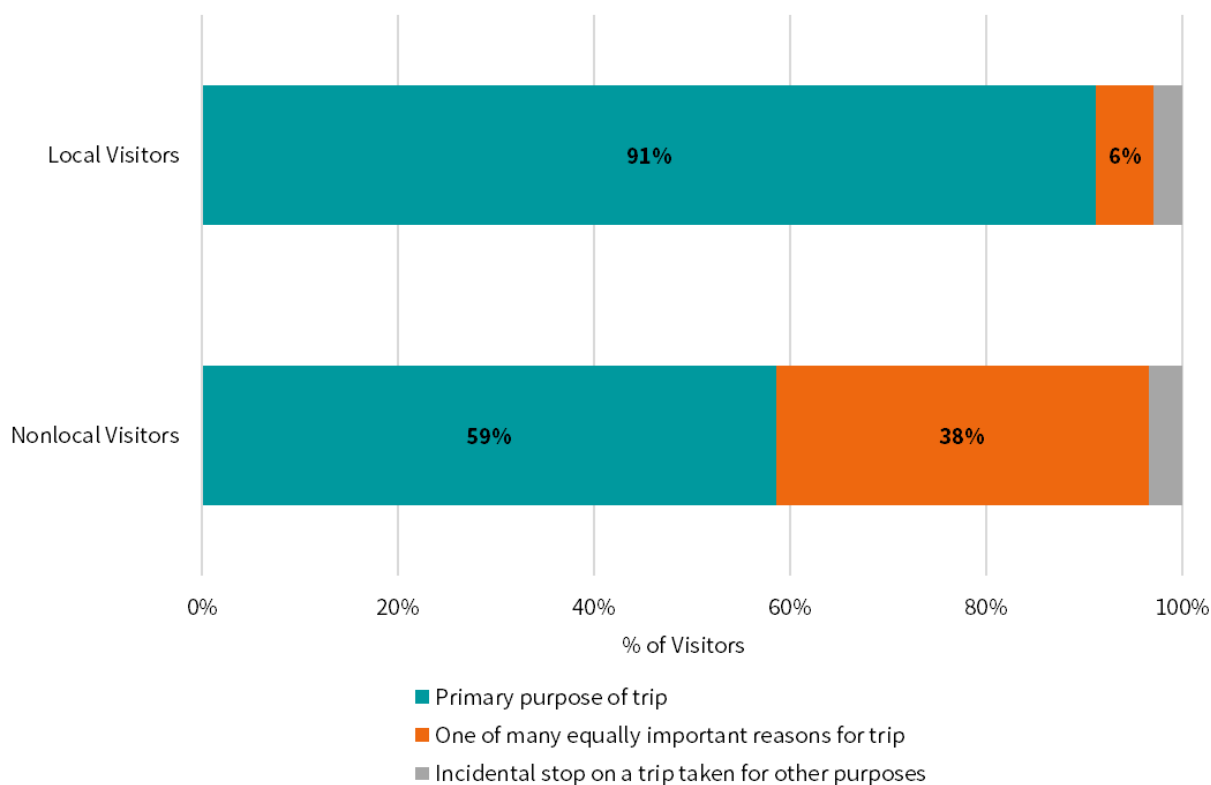


Fig. 6: Purpose of most recent refuge visit for local (living ≤ 50 miles from the refuge) and nonlocal (living > 50 miles from the refuge) visitors.

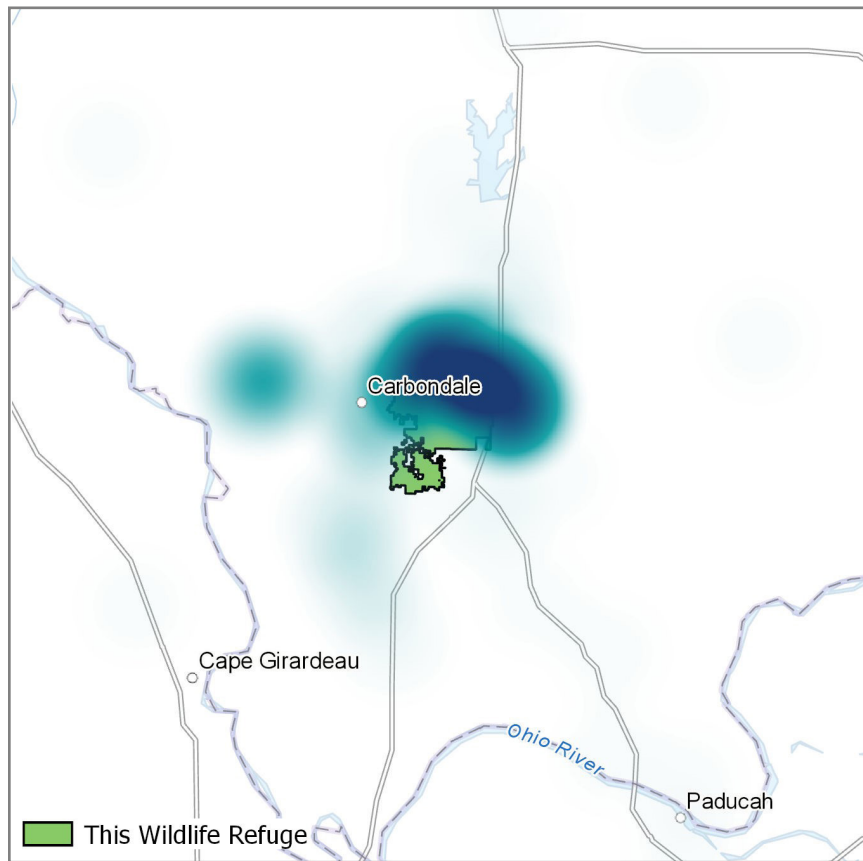


Fig. 7: Map showing residence of local visitors to this refuge. Darker shading represents relatively higher visitation from that area.

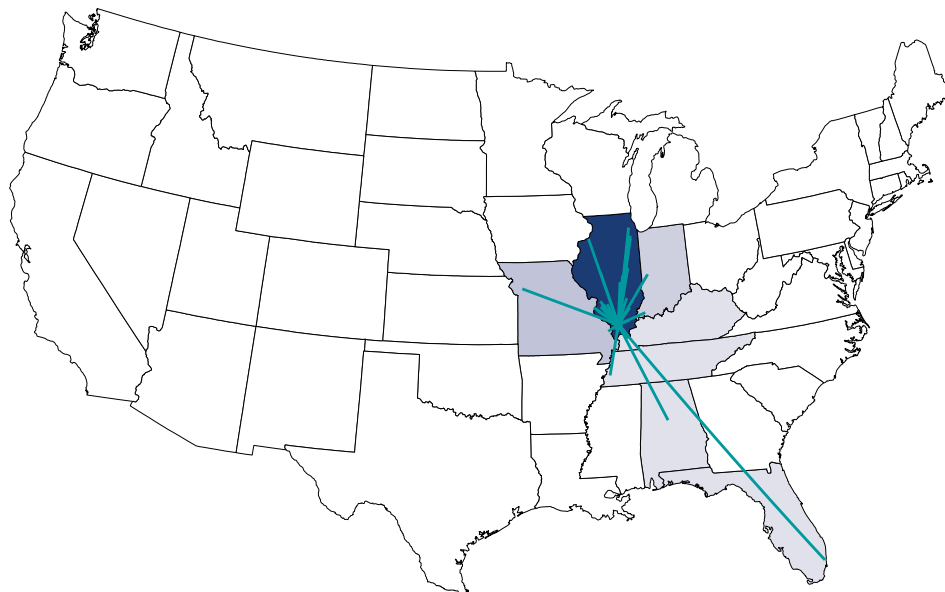


Fig. 8: Map showing residence of visitors to this refuge by zip code, with each line representing visitation from a different zip code. The convergence point of the lines is the geographical center of the refuge. Darker shading of the states represents higher visitation from that state.

OTHER TRIP CHARACTERISTICS

Other trip characteristics include:

- To get to this wildlife refuge, visitors primarily traveled by private vehicle without a trailer (71%) and by private vehicle with a trailer (29%) (Fig. 9).
- Once on the refuge, visitors primarily traveled by private vehicle without a trailer (51%) and by foot (45%) (Fig. 9).
- Visits occurred during winter (46%), spring (87%), summer (77%), and fall (73%).
- 74% of visitors made a single-day trip to this refuge, spending an average of 4 hours, while 26% of visitors were on a multi-day trip to this wildlife refuge that averaged 7 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:

- 89% were repeat visitors to this wildlife refuge, visiting an average of 39 times.
- 38% visited other national wildlife refuges, averaging 2 visits.
- 61% visited other public lands, averaging 7 visits.

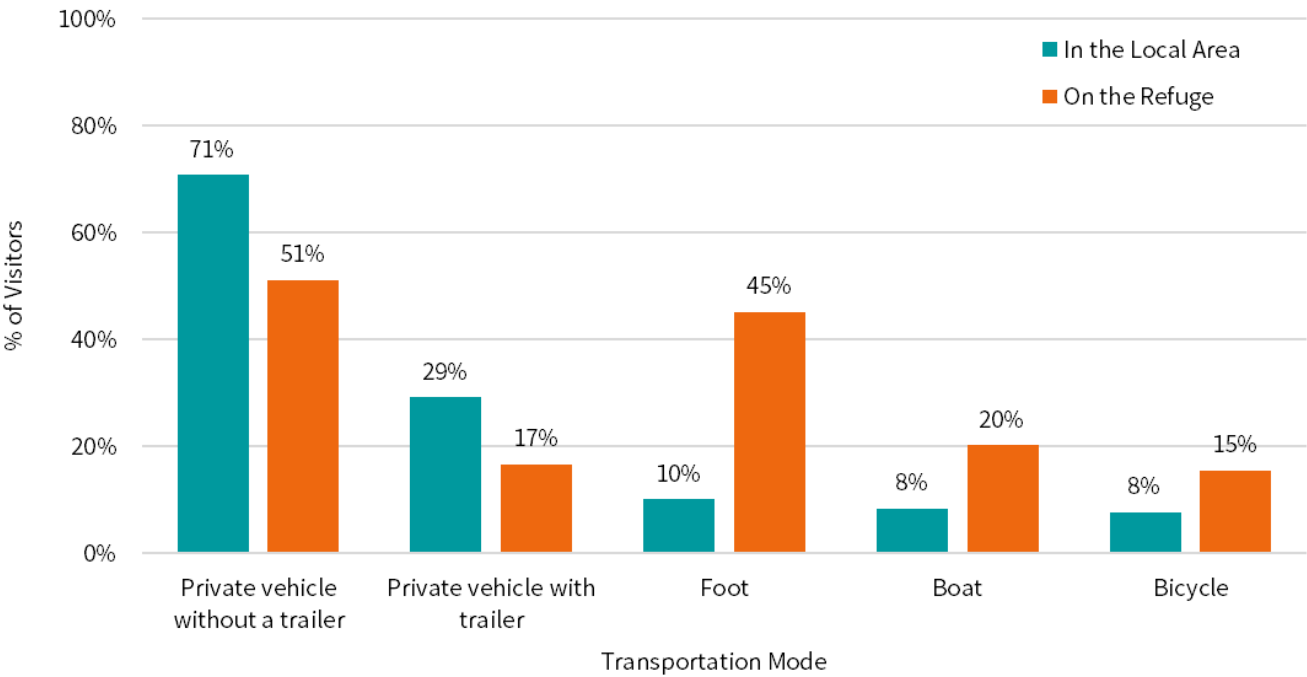


Fig. 9: Modes of transportation used by visitors to get from the local area to this refuge and within the boundaries of this refuge.

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

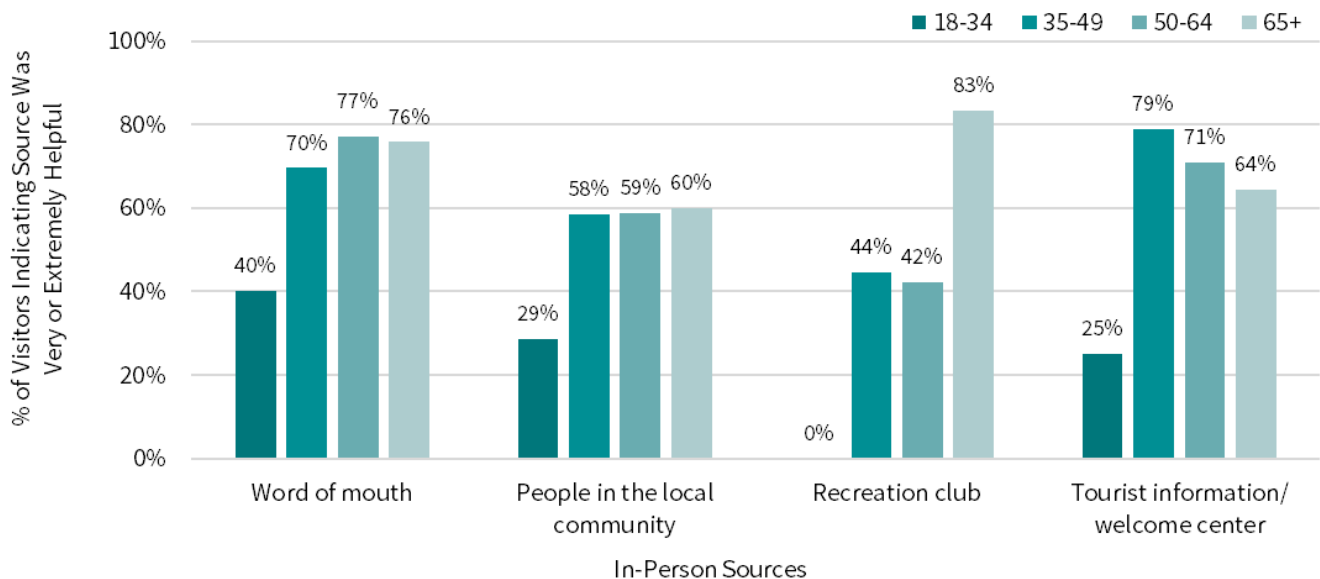


Fig. 10: Percent of visitors by age group who found in-person information sources very or extremely helpful in planning their trip.

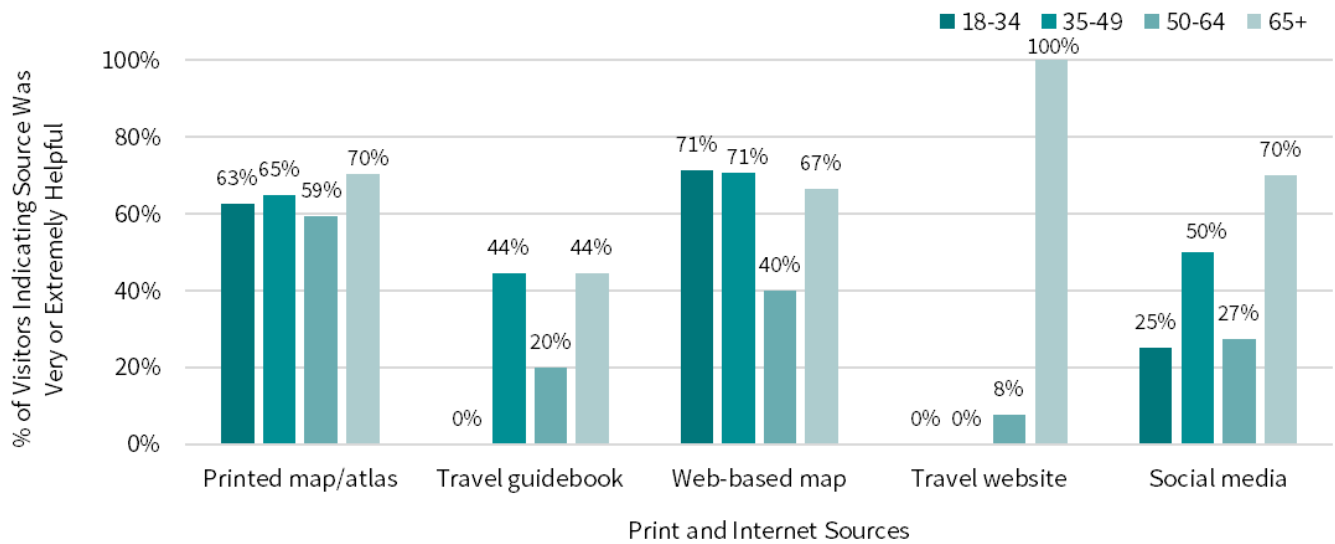


Fig. 11: Percent of visitors by age group who found print and internet information sources very or extremely helpful in planning their trip.

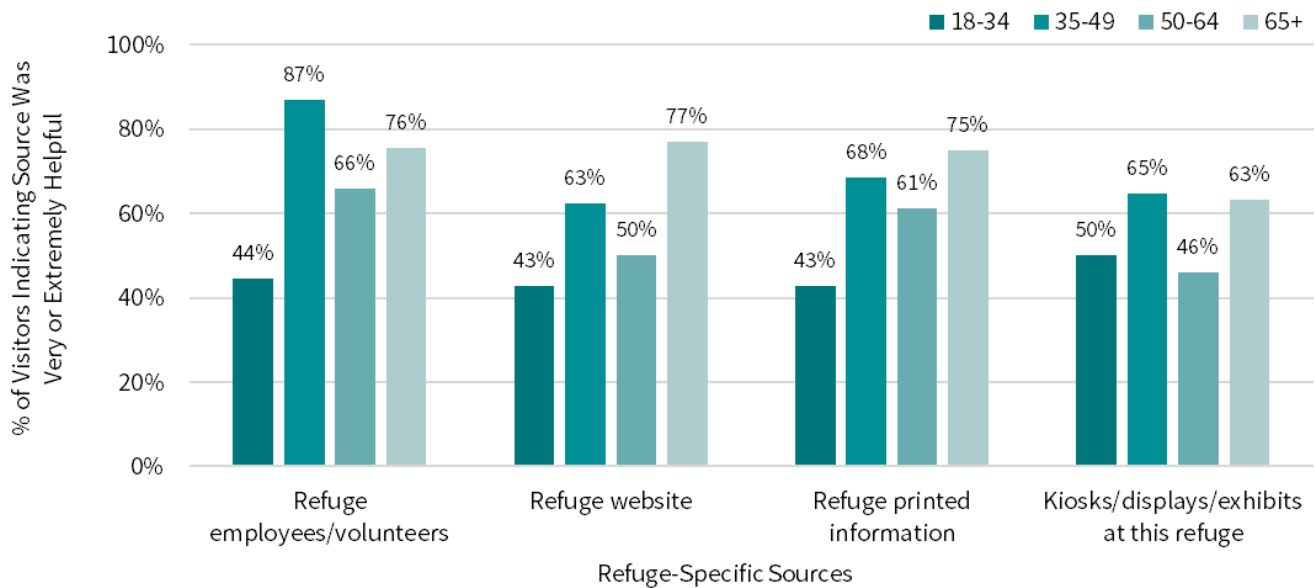


Fig. 12: Percent of visitors by age group who found refuge-specific information sources very or extremely helpful in planning their trip.

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 53% 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 Facebook (64%) and Instagram (36%).
- Visitors 35-49 years old preferred to use Facebook (65%).
- Visitors 50-64 years old preferred to use Facebook (54%) and Instagram (5%).
- Visitors 65 or older preferred to use Facebook (30%), Instagram (2%), and Flickr (2%).

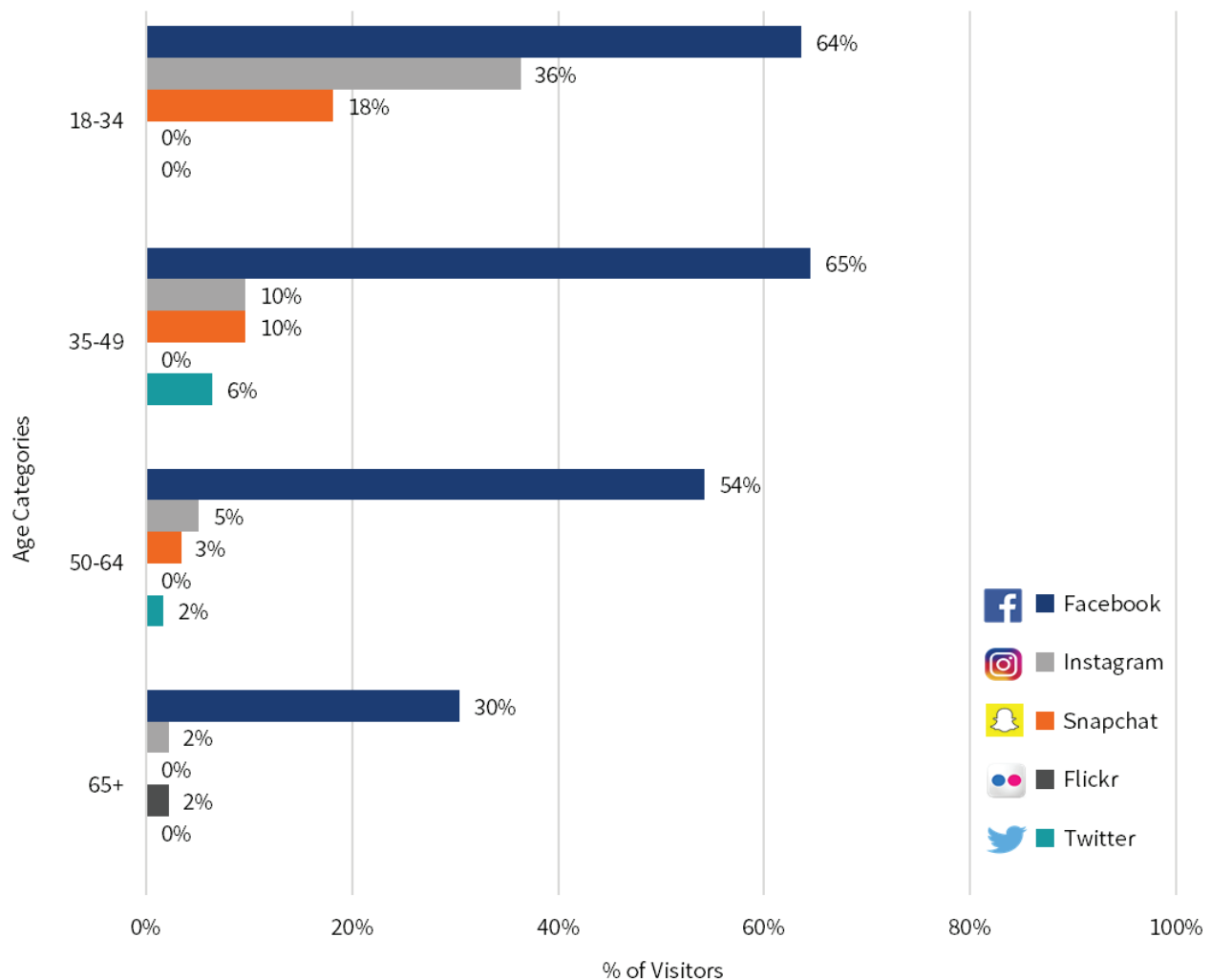


Fig. 13: Percent of visitors by age group who used various social media platforms to share their experience on this refuge with others.

Participation in Recreational Activities

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

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

- The top three activities in which visitors participated during the past 12 months were wildlife observation (64%), hiking (54%), and fishing (54%) (Fig. 14).
- The top three activities noted as their primary activity on the day visitors were contacted to participate in the survey were fishing (37%), hiking (13%), and camping (8%) (Fig. 14).
- Approximately 40% of visitors went to the visitor center, and they most often picked up or purchased a license, permit, or pass (49%), used the facilities (32%), and asked for information (31%) (Fig. 15).



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

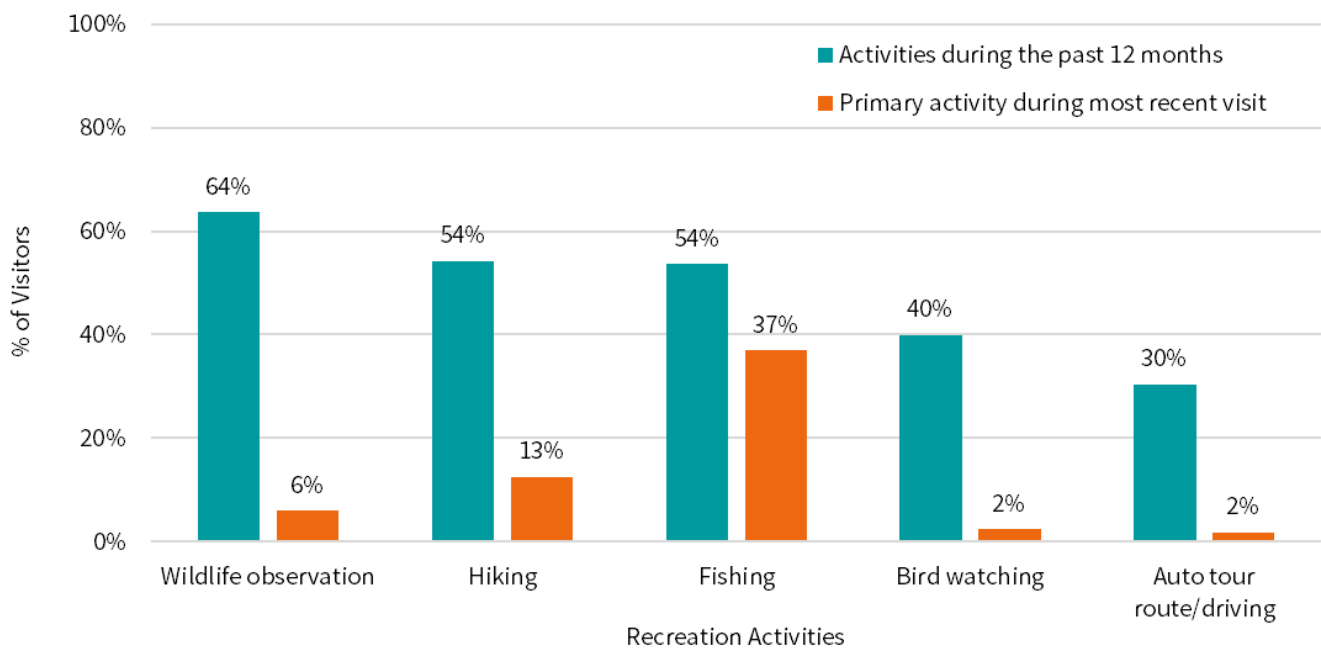


Fig. 14: Recreational activities visitors participated in during the past 12 months and their primary activity during their most recent visit to this refuge.

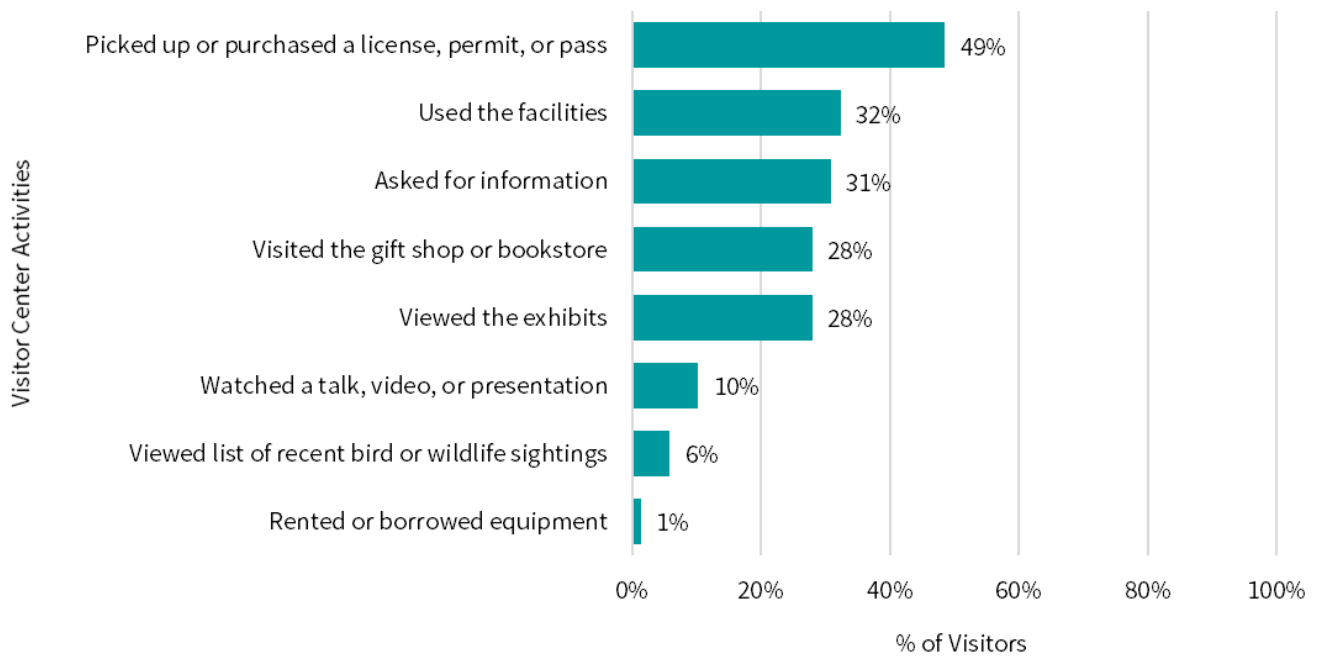


Fig. 15: Reasons visitors used the visitor center during their most recent visit to this refuge.

Comfort in Nature/Feeling Safe & Welcome

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

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

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

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

- 92% of visitors felt welcome during their refuge visit (Fig. 16).
- 93% of visitors felt safe during their refuge visit (Fig. 16).
- 98% of visitors felt comfortable in nature, but 10% did not like being in nature alone (Fig. 17).

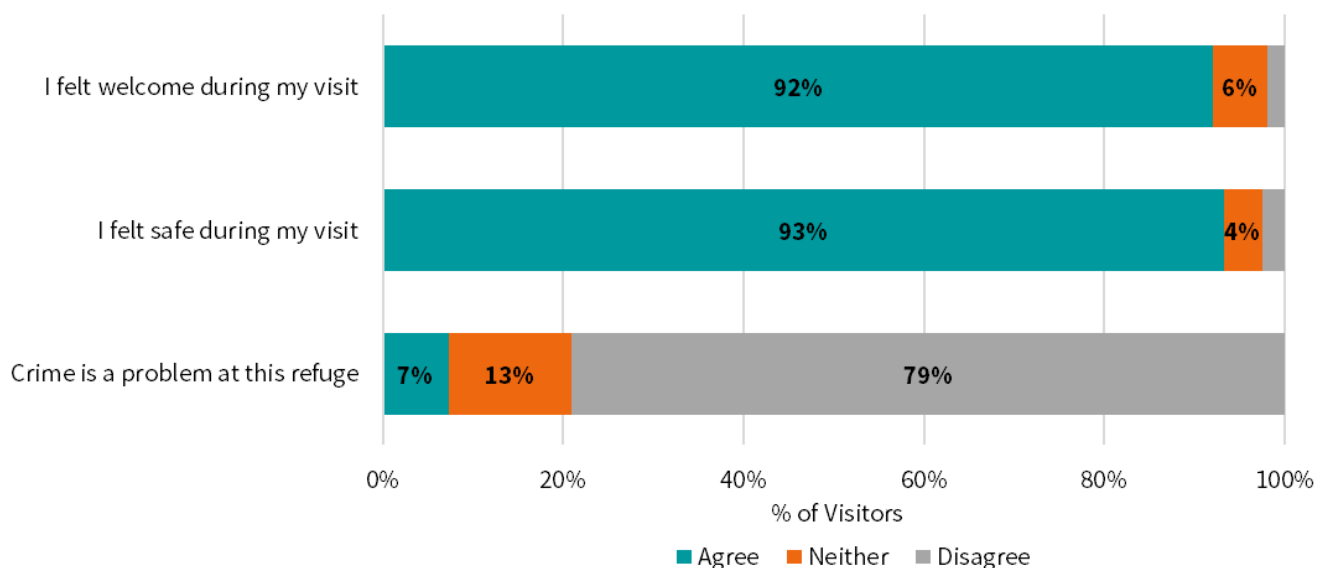


Fig. 16: Visitors' perceptions of safety and feeling welcome at this refuge during their visit.

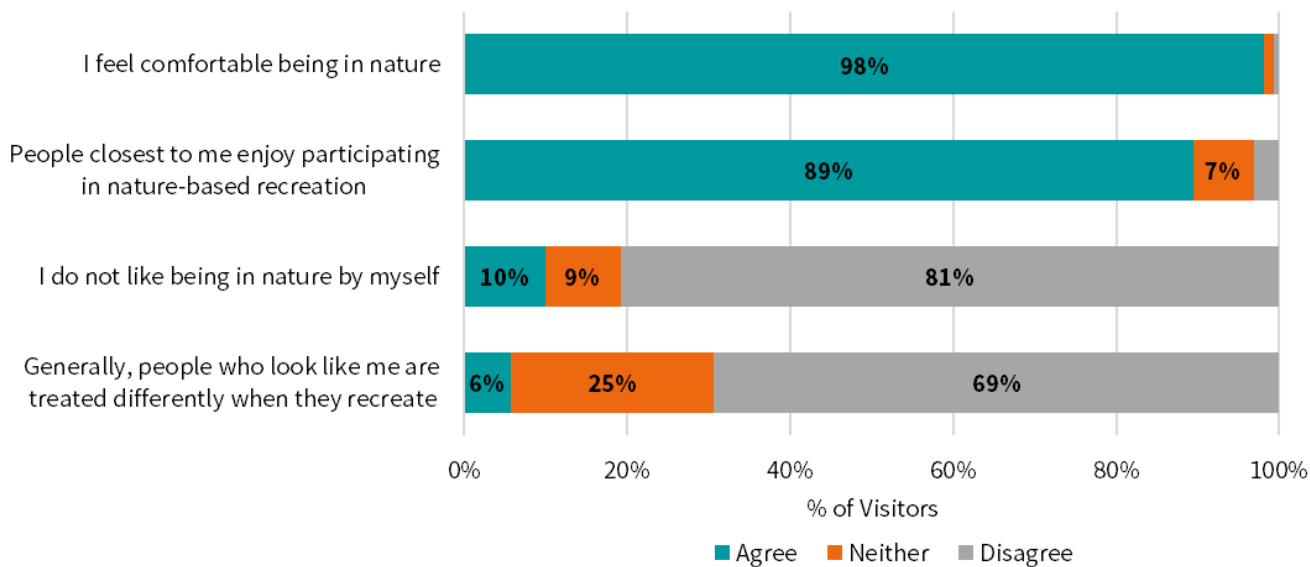


Fig. 17: Visitors’ comfort with being in nature.



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

Satisfaction with Refuge Experiences

OVERALL SATISFACTION

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

- 82% of visitors were very or extremely satisfied with the overall experience at this wildlife refuge (Fig. 18).
- 78% of visitors were very or extremely satisfied with this wildlife refuge's job of conserving fish, wildlife, and their habitats (Fig. 18).

CUSTOMER SERVICE

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

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

- refuge hours/days of operation (83%),
- courteous and welcoming employees/volunteers (83%), and
- visitor center (81%).

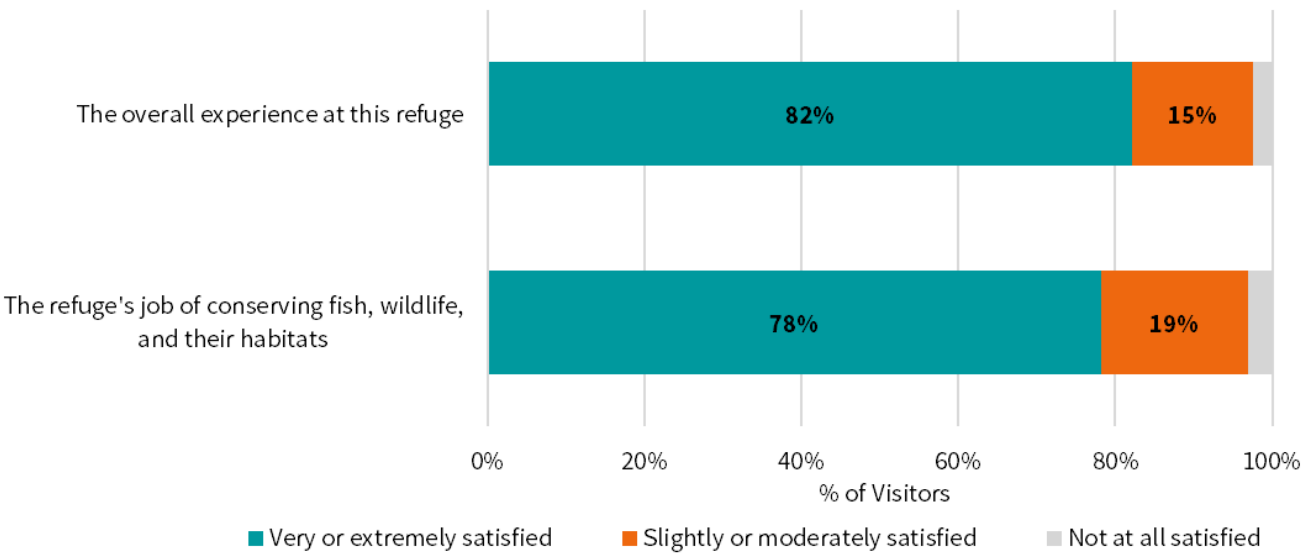


Fig. 18: Visitors' satisfaction with their experience at this refuge and with this refuge's job of conserving fish, wildlife, and habitats.

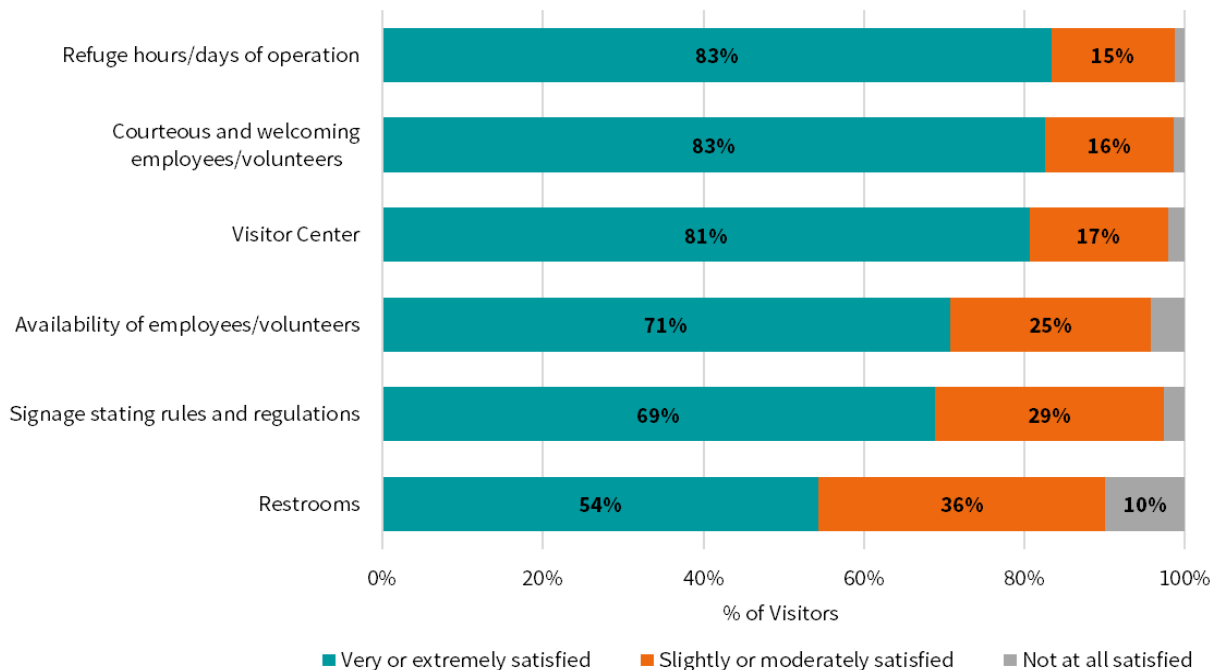


Fig. 19: Visitors' satisfaction with customer service and amenities at this refuge.

RECREATIONAL OPPORTUNITIES

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

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

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

- photography (88%),
- bird watching (85%), and
- fishing (83%).

"I am very satisfied with this wildlife refuge and the fact that we have such a wonderful place to participate in so many outdoor activities. I hunt and fish on public land, and Crab Orchard National Wildlife Refuge is my number one choice of areas to do almost all of my outdoor activities." – Visitor to Crab Orchard National Wildlife Refuge

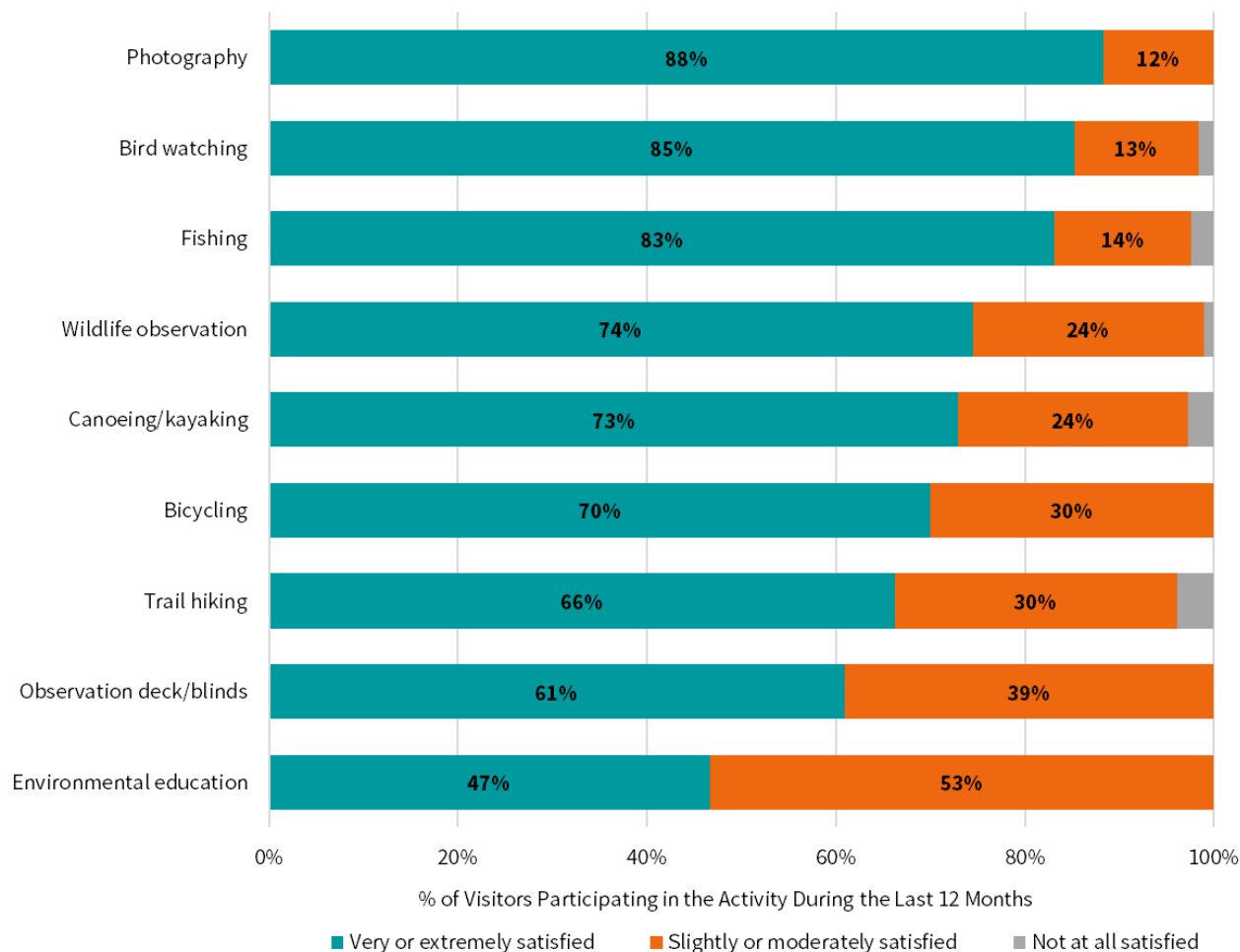


Fig. 20: Visitors' satisfaction with recreational opportunities at this refuge. Only visitors (10 or more) who participated in activities related to each opportunity at this refuge during the last 12 months were included.

TRANSPORTATION SAFETY & ACCESS

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

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

- Getting to this wildlife refuge, visitors were most satisfied with safety of refuge road entrances and exits (79%) and directional signs on highways (70%).
- Getting around this wildlife refuge, visitors were most satisfied with condition of bridges on roadways (80%), safety of driving conditions on refuge roads (77%), and condition of parking areas (77%).
- Accessing recreation on this wildlife refuge, visitors were most satisfied with condition of trails and boardwalks (66%), access for people who have physical disabilities or who have difficulty walking (66%), and safety of roads or trails for nonmotorized use (65%).

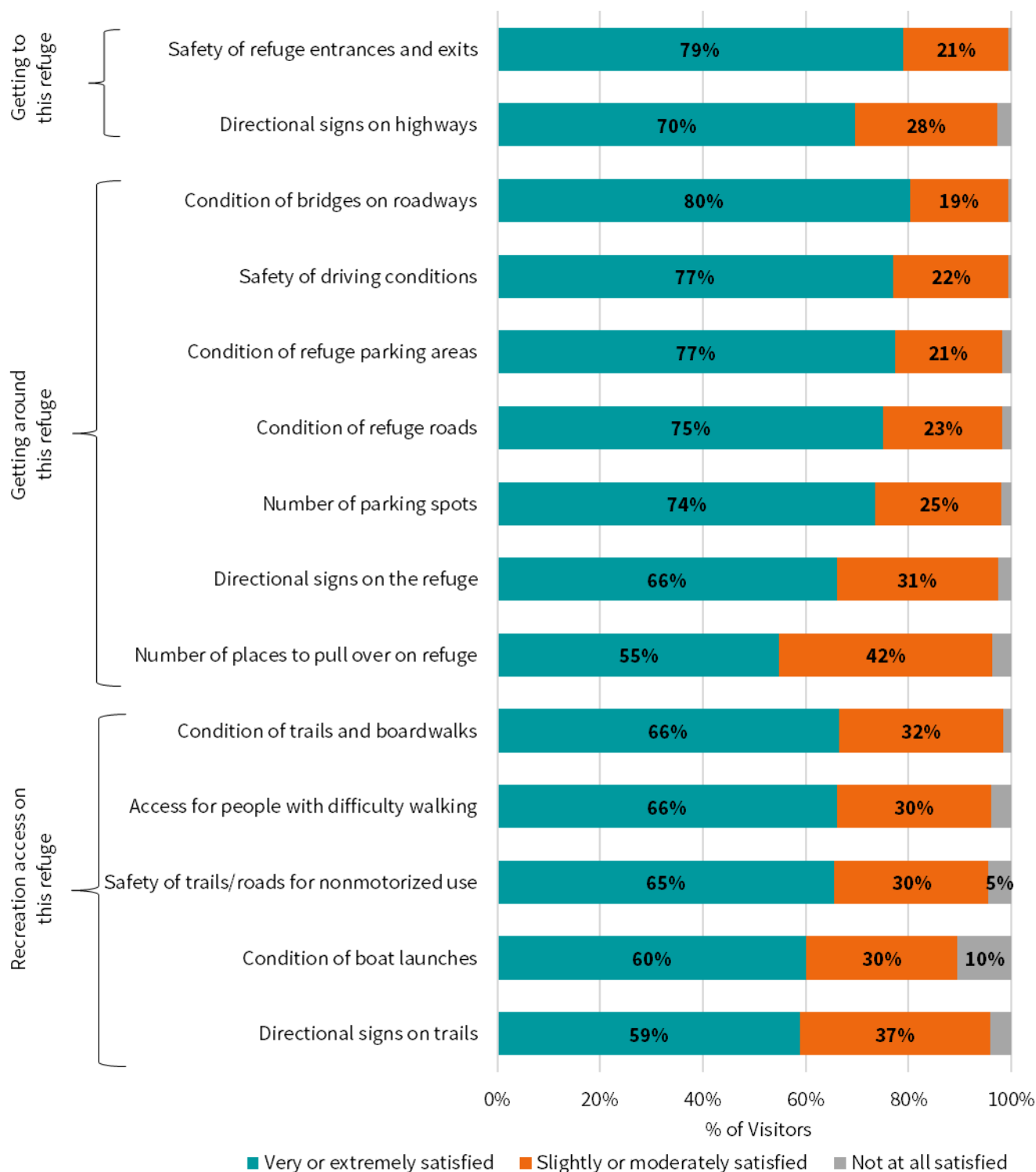


Fig. 21: Visitors' satisfaction with how the refuge is managing transportation-related features.

Economic Benefits to Local Communities & Visitors

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

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

Results for local visitors (those living ≤ 50 miles from this wildlife refuge; 82%) are as follows:

- On average, local visitors accounted for 56% of expenditures.
- Top trip expenditures by locals were for transportation and food/drink (Fig. 22).
- The average amount paid by locals to visit this wildlife refuge was \$60 per person per day (Fig. 22).
- Local visitors were personally willing to pay an additional \$43 per day on average to visit this wildlife refuge (Fig. 23).

Results for nonlocal visitors (those living >50 miles from this wildlife refuge; 18%) are as follows:

- On average, nonlocals accounted for 44% of expenditures.
- Top trip expenditures by nonlocals were for food/drink and lodging (Fig. 22).
- The average amount paid by nonlocals to visit this wildlife refuge was \$83 per person per day (Fig. 22).
- Nonlocal visitors were personally willing to pay an additional \$38 per day on average to visit this wildlife refuge (Fig. 23).
- Nonlocal visitors spent an average of 5 days in the local community during this visit.





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

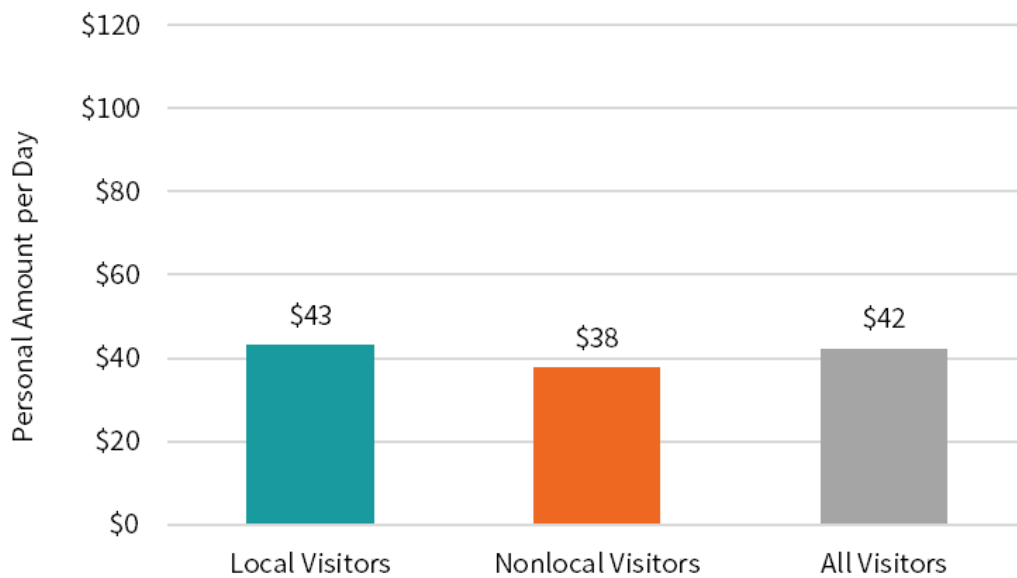


Fig. 23: Total personal willingness to pay per day above and beyond most recent trip expenses if costs were to increase for local, nonlocal, and all visitors. Due to the fixed-response question format, estimates of willingness to pay may underestimate the amount visitors would actually pay. Responses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

Encouraging Return Visits & Future Recreation Participation

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

PROGRAMS AND OTHER OFFERINGS

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

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

- Programs most likely to encourage visitors to return to this wildlife refuge included those focused on skill-building (59%), engaging families and multiple generations (52%), and engaging youth (48%) (Fig. 24).
- The top two factors likely to increase visitors' future participation in their primary recreation activity were more infrastructure (41%) and recreation equipment available for rent (23%) (Fig. 25).
- The top two factors likely to decrease visitors' future participation in their primary recreation activity were more people participating in their primary activity (19%) and less regulations on hunting (19%) (Fig. 25).

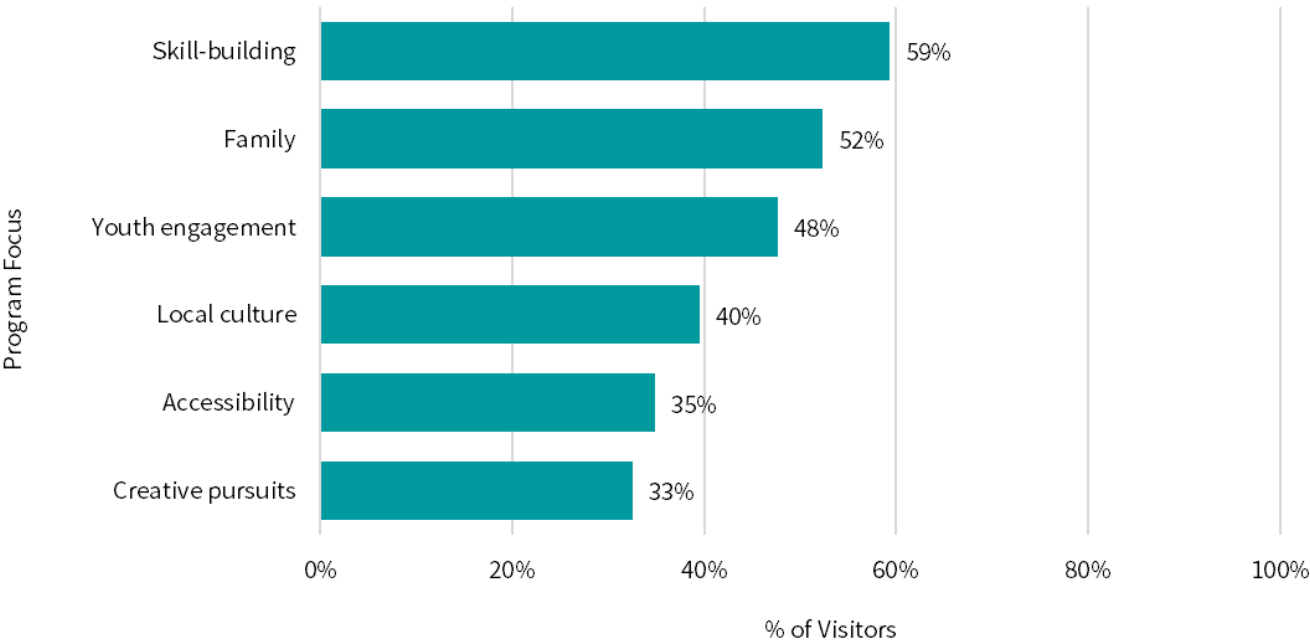


Fig. 24: Types of programs that would encourage visitors to return to this refuge.

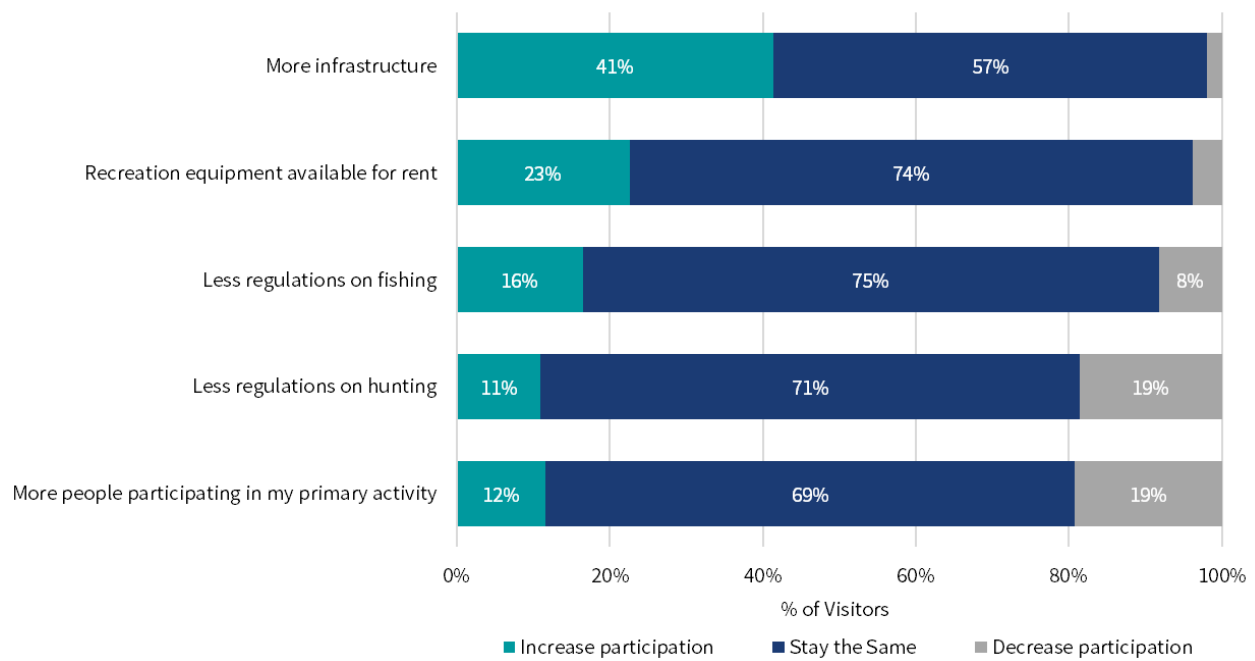


Fig. 25: Changes in visitors' participation in their primary activity if the listed recreation factors were to change.

ALTERNATIVE TRANSPORTATION

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

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

- pedestrian paths (21%), bus or tram that provides a guided tour (14%), and a bike-share program (14%) (Fig. 26).

ECOSYSTEM SERVICES

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

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

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

- The top two resource changes likely to increase visitors' future participation in their primary recreation activity were an improvement in the quality of wildlife habitat other than wetlands (43%) and a greater diversity of species (38%).
- 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 (25%).

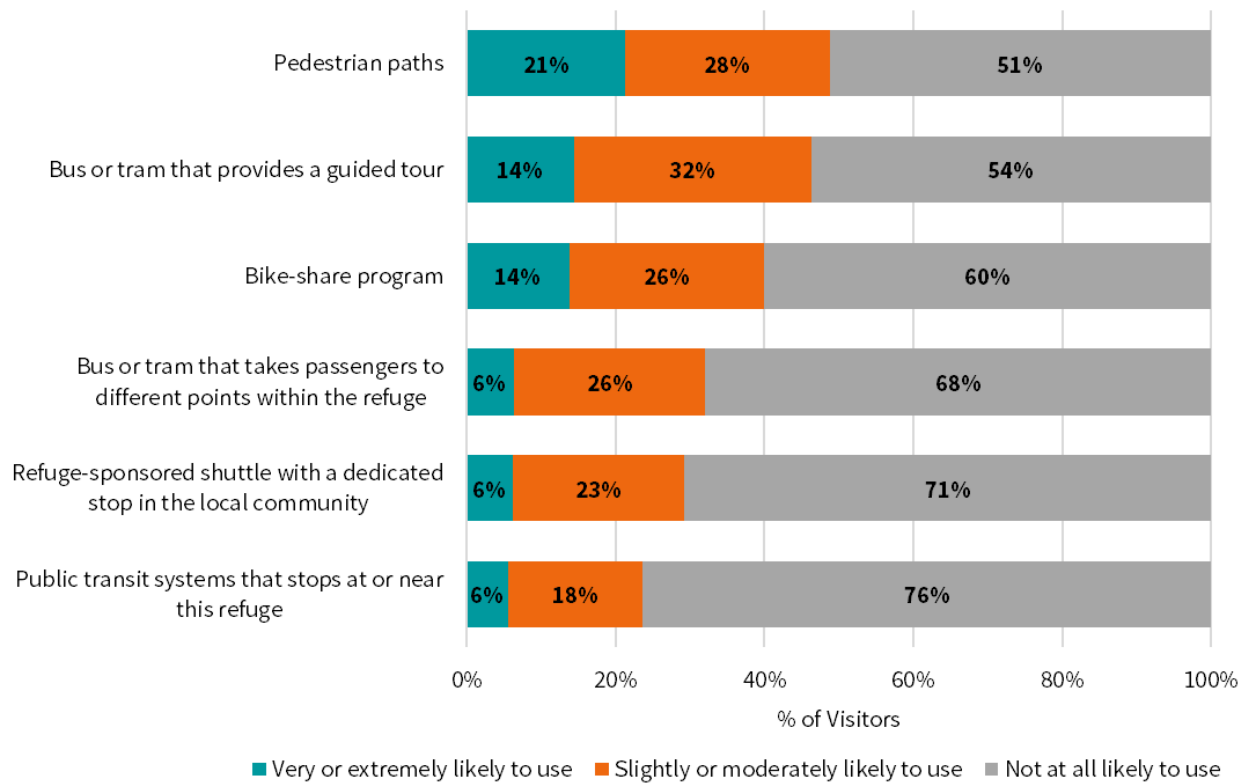


Fig. 26: Visitors' likelihood of using alternative transportation options if offered at this refuge.

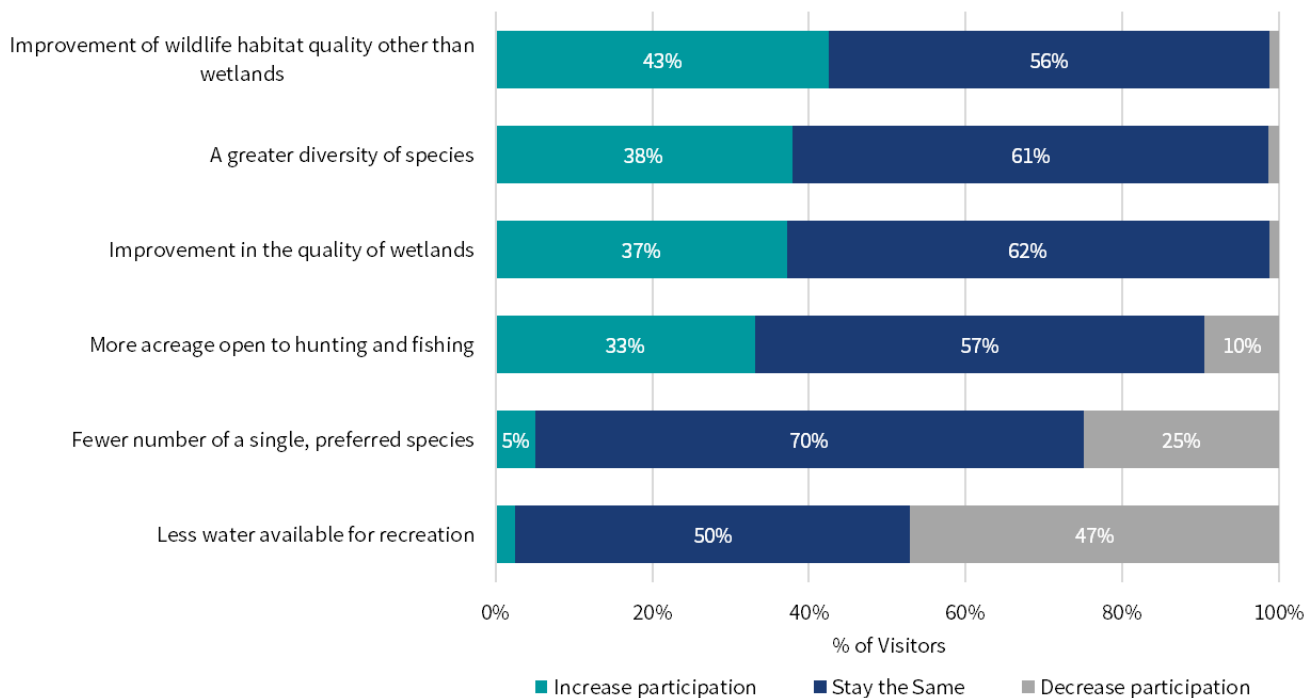


Fig. 27: Changes in visitors' participation in their primary activity if the listed resources were to change.

Conclusion

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

References

- Caudill, J., & Carver, E. (2019). *Banking on Nature 2017: The Economic Contributions of National Wildlife Refuge Recreational Visitation to Local Communities*. Washington, DC: U.S. Department of the Interior, U.S. Fish & Wildlife Service. Retrieved from <https://www.fws.gov/uploadedFiles/Banking-on-Nature-Report.pdf>.
- Charles, C., & Louv, R. (2009). *Children's Nature Deficit: What We Know—And Don't Know*. Minneapolis, MN: Children and Nature Network. Retrieved from <https://www.gufsee.org/uploads/6/5/0/5/65052893/cnnevidenceofthedeficit.pdf>.
- Kellert, S. R., Case, D. J., Escher, D., Witter, D. J., Mikels-Carrasco, J., & Seng, P. T. (2017). *The Nature of Americans: Disconnection and Recommendations for Reconnection—National Report*. Mishawaka, IN: DJ Case & Associates.
- Larson, L. R., Green, G. T., & Cordell, H. K. (2011). Children's Time Outdoors: Results and Implications of The National Kids Survey. *Journal of Park and Recreation Administration*, 29, 1-20.
- Manfredo, M. J., Sullivan, L., Don Carlos, A. W., Dietsch, A. M., Teel, T. L., Bright, A. D., & Bruskotter, J. (2018). *America's Wildlife Values: The Social Context of Wildlife Management in the U.S. National report from the research project entitled "America's Wildlife Values"*. Fort Collins, CO: Colorado State University, Department of Human Dimensions of Natural Resources.
- Millennium Ecosystem Assessment. (2005). *Ecosystems and Human Well-Being: A Framework for Assessment*. Washington, DC: Island Press. Retrieved from <https://www.millenniumassessment.org>.
- Neher, C., Duffield, J., & Patterson, D. (2013). Valuation of National Park system visitation: the efficient use of count data models, meta-analysis, and secondary visitor survey data. *Environmental Management* 52(3), 683-698.
- Outdoor Foundation. (2018). *2018 Outdoor Participation Report*. Washington, DC: The Outdoor Foundation. Retrieved from <https://outdoorindustry.org/resource/2018-outdoor-participation-report/>.
- Patton, D., Bergstrom, J., Covich, A., & Moore, R. (2012). *National Wildlife Refuge Wetland Ecosystem Service Valuation Model, Phase 1 Report*. Washington, DC: U.S. Department of the Interior, U.S. Fish & Wildlife Service. Retrieved from https://www.fws.gov/economics/Discussion%20Papers/USFWS_Ecosystem%20Services_Phase%20I%20Report_04-25-2012.pdf.
- Rosenberger, R. S., & Loomis, J. B. (2001). Benefit transfer of outdoor recreation use values: A technical document supporting the Forest Service Strategic Plan (2000 revision). Gen. Tech. Rep. RMRS-GTR-72. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Retrieved from: <https://www.fs.usda.gov/treeearch/pubs/4578>.
- Sexton, N. R., Ross-Winslow, D., Pradines, M., & Dietsch, A. M. (2015). *The Urban Wildlife Conservation Program: Building a Broader Conservation Community*. Cities and the Environment (CATE), 8(1), Article 3. Retrieved from <https://digitalcommons.lmu.edu/cate/vol8/iss1/3>.
- Smith, A., & Anderson, M. (2018). *Social Media Use in 2018*. Washington, DC: Pew Research Center. Retrieved from http://assets.pewresearch.org/wp-content/uploads/sites/14/2018/03/01105133/PI_2018.03.01_Social-Media_FINAL.pdf.
- U.S. Fish & Wildlife Service. (2011). *Conserving the Future: Wildlife Refuges and the Next Generation*. Washington, DC: U.S. Department of the Interior, U.S. Fish & Wildlife Service, National Wildlife Refuge System. Retrieved from <https://www.fws.gov/refuges/pdfs/FinalDocumentConservingTheFuture.pdf>.
- U.S. Fish & Wildlife Service. (2014). *Standards of Excellence*. Retrieved from <https://www.fws.gov/urban/soe.php>.
- U.S. Fish & Wildlife Service. (2016a). *National Wildlife Refuge System Communications Strategy*. Retrieved from <https://www.fws.gov/refuges/vision/pdfs/NWRSCommunicationsStrategy.pdf>.
- U.S. Fish & Wildlife Service. (2016b). *Plan 2035: The National Long Range Transportation Plan - Moving People, Conserving Wildlife*. Retrieved from <https://ecos.fws.gov/ServCat/DownloadFile/118522?Reference=76318>.
- Volpe Center. (2010). *Transit and Trail Connections-Assessment of Visitor Access to National Wildlife Refuges*. Washington, DC: U.S. Department of Transportation, Volpe National Transportation Systems Center; U.S. Fish & Wildlife Service.

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

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

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

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

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.

REFERENCES

- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method* (4th ed.). Hoboken, NJ: Wiley.
- Salant, P., & Dillman, A. D. (1994). *How to Conduct Your Own Survey*. New York, NY: Wiley.
- Scheaffer, R. L., Mendenhall, W. III, Ott, R. L., & Gerow, K. G. (2011). *Elementary Survey Sampling*. Boston, MA: Cengage Learning.

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.

SECTION 1. Your visit to this refuge

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"/> 64% Wildlife observation	<input type="checkbox"/> 54% Hiking/Walking	<input type="checkbox"/> 7% Volunteering
<input type="checkbox"/> 40% Bird watching	<input type="checkbox"/> 17% Jogging/Running/Exercising	<input type="checkbox"/> 6% Environmental education program (classroom visits, labs)
<input type="checkbox"/> 28% Photography	<input type="checkbox"/> 18% Bicycling	
<input type="checkbox"/> 3% Big game hunting	<input type="checkbox"/> 30% Auto tour route/Driving	<input type="checkbox"/> 8% Interpretative program (bird walks, staff/volunteer-led talks)
<input type="checkbox"/> 3% Upland/Small game hunting	<input type="checkbox"/> 23% Motorized boating	
<input type="checkbox"/> 1% Waterfowl/Migratory bird hunting	<input type="checkbox"/> 14% Nonmotorized boating (canoeing, kayaking)	<input type="checkbox"/> 8% Refuge special event (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 54% Freshwater fishing	<input type="checkbox"/> 10% Foraging (berries, nuts, other)	<input type="checkbox"/> 10% Other (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 0% Saltwater fishing	<input type="checkbox"/> 23% 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"/> 86% It was the primary purpose or sole destination of my trip.
<input type="checkbox"/> 11% It was one of many equally important reasons or destinations for my trip.
<input type="checkbox"/> 3% 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?

☐ 60% No / Not Applicable

☐ 40% Yes → If yes, what did you do there? (*Mark all that apply.*)

☐ 31% Asked information of employees/volunteers

☐ 6% Looked at list of recent bird/wildlife sightings

☐ 10% Attended a talk/video/presentation

☐ 32% Stopped to use the facilities (for example, got water, used restroom)

☐ 28% Viewed the exhibits

☐ 49% Picked up/purchased a license, permit, or pass

☐ 1% Rented/borrowed equipment (for example, binoculars, fishing rod, snowshoes)

☐ 28% Visited the gift shop or bookstore

☐ 7% Other (*specify*) See Appendix C

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

If you spent less than one day at this refuge, enter the number of hours: 4 hour(s)

If you spent one day or more at this refuge, enter the number of days: 7 day(s)

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

☐ 82% Yes

☐ 18% 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: 5 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: 22 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.*)

☐ 87% Spring
(March-May)

☐ 77% Summer
(June-August)

☐ 73% Fall
(September-November)

☐ 46% Winter
(December-February)

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

...this refuge (including this visit?) 35 number of visits

...other national wildlife refuges? 2 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"/> 49% Facebook	<input type="checkbox"/> 4% Snapchat	<input type="checkbox"/> 0% Personal blog (for example, Tumblr, Wordpress)
<input type="checkbox"/> 1% Flickr	<input type="checkbox"/> 2% Twitter	<input type="checkbox"/> 1% Travel-related website (for example, Trip Advisor)
<input type="checkbox"/> 8% Instagram	<input type="checkbox"/> 0% Vimeo	<input type="checkbox"/> 4% Other (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 1% Pinterest	<input type="checkbox"/> 1% YouTube	<input type="checkbox"/> 47% 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"/> 0%	<input type="checkbox"/> 1%	<input type="checkbox"/> 7%	<input type="checkbox"/> 28%	<input type="checkbox"/> 64%	<input type="checkbox"/> 7%
Word of mouth (for example, a friend or relative)	<input type="checkbox"/> 4%	<input type="checkbox"/> 8%	<input type="checkbox"/> 17%	<input type="checkbox"/> 36%	<input type="checkbox"/> 34%	<input type="checkbox"/> 26%
People in the local community near the refuge	<input type="checkbox"/> 10%	<input type="checkbox"/> 11%	<input type="checkbox"/> 24%	<input type="checkbox"/> 27%	<input type="checkbox"/> 29%	<input type="checkbox"/> 35%
Refuge employees or volunteers	<input type="checkbox"/> 3%	<input type="checkbox"/> 8%	<input type="checkbox"/> 18%	<input type="checkbox"/> 32%	<input type="checkbox"/> 39%	<input type="checkbox"/> 24%
Printed map or atlas	<input type="checkbox"/> 8%	<input type="checkbox"/> 3%	<input type="checkbox"/> 28%	<input type="checkbox"/> 45%	<input type="checkbox"/> 16%	<input type="checkbox"/> 42%
Web-based map (for example, Google Maps, Waze)	<input type="checkbox"/> 11%	<input type="checkbox"/> 12%	<input type="checkbox"/> 20%	<input type="checkbox"/> 31%	<input type="checkbox"/> 26%	<input type="checkbox"/> 58%
Refuge website	<input type="checkbox"/> 12%	<input type="checkbox"/> 16%	<input type="checkbox"/> 15%	<input type="checkbox"/> 34%	<input type="checkbox"/> 24%	<input type="checkbox"/> 57%
Travel website (for example, TripAdvisor)	<input type="checkbox"/> 43%	<input type="checkbox"/> 22%	<input type="checkbox"/> 17%	<input type="checkbox"/> 9%	<input type="checkbox"/> 9%	<input type="checkbox"/> 85%
Other website (<i>specify</i>) <u>See Appendix C</u>	<input type="checkbox"/> 67%	<input type="checkbox"/> 17%	<input type="checkbox"/> 17%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 95%
Social media (for example, Facebook, Instagram)	<input type="checkbox"/> 17%	<input type="checkbox"/> 10%	<input type="checkbox"/> 31%	<input type="checkbox"/> 25%	<input type="checkbox"/> 17%	<input type="checkbox"/> 68%
Recreation club or organization	<input type="checkbox"/> 18%	<input type="checkbox"/> 9%	<input type="checkbox"/> 24%	<input type="checkbox"/> 32%	<input type="checkbox"/> 18%	<input type="checkbox"/> 77%
Refuge printed information (for example, brochure)	<input type="checkbox"/> 4%	<input type="checkbox"/> 6%	<input type="checkbox"/> 25%	<input type="checkbox"/> 35%	<input type="checkbox"/> 29%	<input type="checkbox"/> 41%
Kiosks/displays/exhibits at the refuge	<input type="checkbox"/> 7%	<input type="checkbox"/> 12%	<input type="checkbox"/> 26%	<input type="checkbox"/> 31%	<input type="checkbox"/> 24%	<input type="checkbox"/> 56%
Travel guidebook or other book	<input type="checkbox"/> 21%	<input type="checkbox"/> 21%	<input type="checkbox"/> 21%	<input type="checkbox"/> 31%	<input type="checkbox"/> 7%	<input type="checkbox"/> 81%
Tourist information or welcome center	<input type="checkbox"/> 8%	<input type="checkbox"/> 6%	<input type="checkbox"/> 18%	<input type="checkbox"/> 34%	<input type="checkbox"/> 34%	<input type="checkbox"/> 60%
Other source (<i>specify</i>) <u>See Appendix C</u>	<input type="checkbox"/> 40%	<input type="checkbox"/> 20%	<input type="checkbox"/> 20%	<input type="checkbox"/> 0%	<input type="checkbox"/> 20%	<input type="checkbox"/> 95%

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
2%	8%	28%	40%	21%	Surface conditions of refuge roads	2%	4%	20%	41%	34%	NA
3%	11%	32%	37%	17%	Surface conditions of parking areas	2%	2%	19%	42%	36%	NA
2%	8%	23%	45%	23%	Condition of bridges on roadways	1%	2%	17%	47%	33%	NA
5%	4%	27%	40%	24%	Condition of trails and boardwalks	2%	4%	28%	38%	28%	NA
13%	10%	17%	28%	32%	Condition of boat launches	10%	5%	25%	35%	25%	NA
2%	8%	28%	40%	22%	Number of places for parking	2%	4%	21%	43%	30%	NA
3%	13%	37%	34%	13%	Number of places to pull over on refuge roads	4%	9%	33%	34%	21%	NA
1%	5%	20%	36%	38%	Safety of driving conditions on refuge roads	1%	1%	22%	45%	32%	NA
1%	5%	23%	36%	36%	Safety of refuge road entrances/exits	1%	1%	20%	40%	38%	NA
9%	6%	21%	31%	34%	Safety of roads/trails for nonmotorized users (for example, bicyclists and hikers)	4%	4%	26%	34%	32%	NA
7%	7%	26%	32%	27%	Signs on highways directing you to this refuge	3%	3%	25%	38%	32%	NA
4%	5%	29%	33%	29%	Signs directing you around refuge roads	3%	5%	26%	36%	30%	NA
9%	6%	23%	32%	30%	Signs directing you on trails	4%	6%	31%	32%	27%	NA
11%	9%	22%	32%	26%	Access for people with physical disabilities or who have difficulty walking	4%	8%	22%	37%	29%	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	71%	51%
Private/rental vehicle with a trailer (for boat, camper, or other)	29%	17%
Recreational vehicle (RV)	7%	5%
Refuge shuttle bus/tram	0%	1%
Tour bus/van	1%	1%
Public transportation	0%	0%
Motorcycle	2%	1%
Bicycle	8%	15%
Foot (for example, walking/hiking)	10%	45%
Boat	8%	20%
Other (<i>specify</i>): <u>See Appendix C</u>	3%	2%
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)	68%	14%	12%	4%	3%
Bus or tram that provides a guided tour of the refuge with information about this refuge and its resources	54%	16%	16%	10%	4%
Refuge-sponsored shuttle with a dedicated stop in the local community for picking up people at set times	71%	17%	6%	4%	2%
Public transit system that stops at or near this refuge	76%	12%	6%	3%	2%
Bike-share program that offers bicycles for rent on or near this refuge	60%	12%	14%	9%	5%
Pedestrian paths for access to this refuge from the local community	51%	13%	14%	9%	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?

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"/> 17% \$0	<input type="checkbox"/> 14% \$30	<input type="checkbox"/> 13% \$100	<input type="checkbox"/> 2% \$250
<input type="checkbox"/> 9% \$5	<input type="checkbox"/> 11% \$45	<input type="checkbox"/> 0% \$125	<input type="checkbox"/> 2% \$350
<input type="checkbox"/> 7% \$10	<input type="checkbox"/> 7% \$60	<input type="checkbox"/> 1% \$150	<input type="checkbox"/> 1% \$500
<input type="checkbox"/> 12% \$20	<input type="checkbox"/> 2% \$75	<input type="checkbox"/> 1% \$200	<input type="checkbox"/> 1% \$750

SECTION 5. Your experience at this refuge

1. First rate how important each of the following services, facilities, and opportunities is to you when visiting this refuge; then rate how satisfied you are with the way this refuge is managing each item. *If this refuge does not offer a specific item or you did not experience it on this visit, please rate how important it is to you and then circle NA "Not Applicable" under the satisfaction column.*

Importance <i>Circle one for each item.</i>					Refuge Services, Facilities, and Opportunities	Satisfaction <i>Circle one for each item.</i>					
Not at all Important	Slightly Important	Moderately important	Very Important	Extremely Important		Not at all Satisfied	Slightly Satisfied	Moderately satisfied	Very Satisfied	Extremely Satisfied	Not Applicable
1%	1%	17%	40%	41%	Convenient hours/days of operation for this refuge	1%	1%	14%	42%	42%	NA
10%	14%	25%	30%	21%	Availability of employees or volunteers	4%	4%	21%	34%	36%	NA
5%	10%	19%	35%	31%	Courteous and welcoming employees or volunteers	1%	2%	14%	39%	43%	NA
2%	6%	25%	36%	30%	Signs with rules/regulations for this refuge	3%	6%	22%	37%	32%	NA
5%	5%	28%	29%	33%	Visitor center	2%	2%	15%	36%	44%	NA
1%	1%	11%	35%	53%	Well-maintained restrooms	10%	8%	28%	26%	28%	NA
5%	10%	33%	28%	25%	Recreational structures (decks, blinds, platforms)	3%	6%	32%	32%	27%	NA
12%	18%	24%	24%	22%	Bird-watching opportunities	2%	2%	21%	37%	38%	NA
7%	7%	24%	32%	31%	Opportunities to observe wildlife other than birds	1%	2%	27%	33%	37%	NA
12%	12%	25%	24%	28%	Opportunities to photograph wildlife and scenery	1%	1%	24%	30%	44%	NA
13%	16%	28%	25%	17%	Environmental education opportunities	2%	5%	35%	27%	31%	NA
44%	6%	15%	12%	22%	Hunting opportunities	8%	7%	32%	26%	26%	NA
17%	5%	13%	19%	46%	Fishing opportunities	5%	6%	11%	33%	44%	NA
11%	9%	19%	22%	39%	Trail hiking opportunities	3%	3%	29%	31%	33%	NA
21%	15%	23%	17%	23%	Bicycling opportunities	2%	7%	32%	27%	31%	NA
21%	15%	20%	20%	24%	Water trail opportunities for canoeing or kayaking	4%	2%	32%	31%	31%	NA
28%	16%	22%	14%	19%	Volunteer opportunities	3%	4%	30%	27%	36%	NA
19%	7%	19%	32%	23%	Wilderness experience opportunities	0%	6%	24%	35%	34%	NA

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

See Appendix C

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

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I felt welcome during my visit to this refuge.	0%	2%	6%	44%	48%
I felt safe during my visit to this refuge.	1%	1%	4%	44%	49%
Crime <u>is</u> a problem at this refuge.	49%	30%	13%	5%	2%
I feel comfortable being in nature.	0%	1%	1%	32%	66%
I do <u>not</u> like being in nature by myself.	52%	28%	9%	6%	4%
People closest to me enjoy participating in nature-based recreation.	2%	1%	7%	48%	41%
Generally, people who look like me are treated differently when they participate in nature-based recreation.	48%	22%	25%	4%	2%

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

	Not at all Satisfied	Slightly Satisfied	Moderately satisfied	Very Satisfied	Extremely Satisfied
The job this refuge is doing of conserving fish, wildlife, and their habitats.	3%	2%	17%	51%	28%
The quality of the overall experience when visiting this refuge.	2%	3%	12%	45%	37%

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%	50%	3%
More acreage open to hunting and fishing	10%	57%	33%
More infrastructure (for example, bathrooms, observation decks)	2%	57%	41%
Recreation equipment available for rent (for example, fishing rods, binoculars, snowshoes)	4%	74%	23%
Less regulations on fishing	8%	75%	16%
Less regulations on hunting	19%	71%	11%
A greater diversity of species	1%	61%	38%
Fewer numbers of a single, preferred species	25%	70%	5%
More people participating in my primary activity	19%	69%	12%
An improvement in the quality of wetlands	1%	62%	37%
An improvement in the quality of wildlife habitat other than wetlands	1%	56%	43%

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

56% Yes 39% No 5% 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.*)

42% 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:

48% Programs that engage youth

33% Programs that focus on creative pursuits (for example, art, writing, meditation)

52% Programs that focus on family/multiple-generations

35% Programs that support people with accessibility concerns (for example, difficulty walking, in a wheelchair)

59% Programs that teach skills to visitors

13% Other (*specify*) See Appendix C

40% Programs that highlight unique local culture

SECTION 7. A little about you

**** 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? ☐ 58% Male ☐ 42% Female

2. In what year were you born? 1961 (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"/> 1%			<input type="checkbox"/> 19%				<input type="checkbox"/> 59%				<input type="checkbox"/> 21%			

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

<input type="checkbox"/> 96% White	<input type="checkbox"/> 2% 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"/> 1% 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? 2 persons

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

<input type="checkbox"/> 2% Less than \$10,000	<input type="checkbox"/> 12% \$35,000 - \$49,999	<input type="checkbox"/> 14% \$100,000 - \$149,999
<input type="checkbox"/> 7% \$10,000 - \$24,999	<input type="checkbox"/> 28% \$50,000 - \$74,999	<input type="checkbox"/> 3% \$150,000 - \$199,999
<input type="checkbox"/> 9% \$25,000 - \$34,999	<input type="checkbox"/> 19% \$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"/> 36% Employed full-time	<input type="checkbox"/> 0% Unemployed	<input type="checkbox"/> 45% Retired
<input type="checkbox"/> 10% Employed part-time	<input type="checkbox"/> 1% Homemaker/caregiver	<input type="checkbox"/> 4% Disabled/unable to work
<input type="checkbox"/> 3% Self-employed	<input type="checkbox"/> 0% 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?

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
Child activities	1
Child basic fishing instruction	1
Eagle tour	1
Earth Day	1
Friends of Crab Orchard photography contest	1
Kids fishing derby	1
Master Naturalist class	2
Monarch catch & release	1
Photography class	1
Turkey hunting	1
Youth Earth Day	1

Other Activity	Frequency
Bluebird trail monitor master	1
Camping	12
Dog walking	1
Meditation/mental health ID plants	1
Ride horses	1
Swimming	2

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

Primary Activity	Frequency
Activity with dog(s)	1
Auto tour route/driving	3
Bicycling	6
Bird watching	4
Camping	14
Environmental education	7
Fishing	62
Foraging	5
Hiking	21
Hunting	1
Interpretation	2
Motorized boating	7
Nonmotorized boating	6
Photography	3
Picnicking	2
Running	11
Sightseeing	1
Swimming	1
Wildlife observation	9

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
Attended refuge photo club meeting	1
Class/master naturalist	1
Hiked behind the visitor ctr	1
Master naturalist training	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	1
Strava	3
WeChat	1

Survey Section 2

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

Other Information Sources	Frequency
Gas stations in local area	1
Southern Illinois newspaper	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
Boating license	1
Entrance fee	1
Fee	1
Parking stickers	1
Portion of annual marina dock rental	1
Refuge annual pass	1
Refuge entrance fee	1

Survey Section 6

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

Other Programs	Frequency
Bird-related programs	1
Exercise-related activities	1
Nature-related programs	2
Other	2
Photography-related programs	2
Water-based activities	1
Wildlife-related programs	1

Survey Section 3

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

Comments on Transportation-Related Features at This Refuge (n=46)

A new bike path was built on Crab Orchard campground entry road. It was seeded with foxtail and is unmowed and almost unusable. Campground roads need to be oiled and chipped. Very dusty.

Benches are placed on trails at appropriate distances apart for us geezers to rest as needed.

Bike trail was surrounded by very high/tall weeds.

Boat ramp at dam needs work.

Boat ramps are complete junk! Please fix them.

Crab Orchard is a wonderful place to take the family, enjoy a bike ride and see all of what nature has to offer.

Drive it yourself and answer your own questions.

Frequently run with baby stroller. Roads are well paved, wide. Very nice.

Horseback is a low priority at this facility - it would be a valuable addition! Hunting/fishing is a low priority to me.

Horses ruin trails for hikers!

I acknowledge that funds are extremely limited for the creation and maintenance of trails. I respect that this land is a wildlife refuge, but trails within these thousands of acres are essentially nonexistent.

I can see my tax dollars at work on this refuge.

I feel like the entrance/exit is dangerous going into the campground. Especially when towing. It is on a curve and not much visibility of oncoming traffic.

I live about one mile from this refuge and I am out there almost every day. I really enjoy it.

I love to fish, and you have plenty! Thank you very much for all that you do.

Many of the boat ramps are in poor condition. Devil's Kitchen campground ramp is terrible. Grassy Lake ramp poor condition.

More law enforcement presence. Motorized vehicles seem to go above the speed limit.

More parking pullovers next to grain fields. Bike lanes on Pigeon Creek & North Wolf Creek Rd.

More paved roads would be great for running and bicycling. A nice long running path and bicycling path throughout the refuge would be great and I think a lot of people would use it!!

My concerns about safety on the refuge are mostly about the other drivers, who use the auto tour as a short cut and drive very fast - as well as the people employed by General Dynamics who may be in a hurry to get to work there.

Need bicycle and jogger caution warning signs.

Need more parking.

Not enough space for buses of people on weekends in parking area.

Not enough walking trails. Some trails closed for over a year.

Not much for bicycling except roads. Could use a bicycle map.

Old boat ramps need fixed. More docks next to ramps needed or sand/gravel on bank to pull boat up on -- not rip rap!

One road was paved and a place to pull off was not leaving a drop off. Nowhere to park. It was a way to get to fishing and forging.

Physical disabilities – I can't park south of Wolf Creek bridges because I can't walk that far.

Roads need repair, some boat docks need attention, not really handicap accessible.

Shower facility at campground is old and in need of repair or replacement. I found it to be dirty and in disrepair from long term neglect. I stayed in Loop B of campground. Really disappointed considering how well the rest of the campground and area is maintained.

Signage in park is kind of poor.

Signs to places off of the main roads was poor. We had to search and ask several times.

Some gravel roads I would like to see paved.

Some of the boat ramps need work. The most recent improvements at the west end boat ramp have been very useful, were desperately needed, and are much appreciated. Crab Orchard Marina needs its own boat ramp. If a boat becomes disabled in the marina, it must be towed into another cove, quite a distance, to reach west end boat ramp. Why have so many roads been closed to public access? I'd like to see many of these reopened.

Some pot holes need filled and rough patches smoothed.

The bridge at Wolf Creek Causeway is in bad condition. They have been letting some places grow up in weeds, tall, before mowing and when they do now, they leave weeds around all the signs - poor groundskeepers.

The number of boat ramps on Crab are dwindling.

The parking at the boat ramp needs better lighting. The light did not work this year.

The refuge maintains the roads very well. We have never had a problem with potholes, or any parking problems. It's very easy to navigate.

The trailheads were well-marked, but we came across areas with apparent multiple trails and no markings (even simple small ones) at all. Some of the signs to the lakes could be better too - you'd see one sign and follow it with no updating sign with where to turn or how many miles to the destination.

There does need to be more access for people with disabilities.

We enjoy camping and fishing here. Always a very good experience. However, we feel there isn't enough parking at the boat ramp at Wolf Creek.

We're getting to the age that access is becoming very important. Hiking no longer plays a large part in our birding trips.

When there was no fee to be on the refuge, there were more areas open to the public. I would like to see more areas opened back up and mowed.

Wide shoulders for a walking/running/biking lane would be nice.

Would like to see more rangers/sheriffs patrolling. People parking in handicap spots instead of parking where they are supposed to. I am handicapped and cannot walk long distances. Just makes me mad when I go to park in handicap spot and taken by someone not handicapped, just lazy!

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=49)

All the people at the visitor center and campground check-in were courteous and professional.

Bathroom are important and keeping them clean.

Better bathrooms for handicap.

Bike rental opportunities. Bathrooms at Wolf Creek Causeway upgraded.

Bike/running lanes could be helpful. Over the years trail maintenance has declined due to funding. I'd like to see this change.

Boat ramps are in need of upgrading. Some have huge holes underwater.

Called visitor's center for map, they had them. Asked forms of payment, agreed to come buy one. Drove there, person said cannot sell them to me. That is a function of Friends of Crab Orchard. Why was this not brought to my attention while on the phone since I said I was on my way at the time!?

Could not use the toilet facilities due to filth on several occasions.

Crab Orchard Lake is heavily patrolled on the water during summer months by refuge law enforcement. For the relatively low number of boaters, as compared to other nearby lakes, this seems excessive. I'm aware that this refuge is the training facility for law enforcement for all other national wildlife refuges. It seems that users of this refuge are subject to excessive law enforcement so the users can be part of the training program. This is unfair and unwelcoming. Also, the refuge is overgrown with an invasive plant species, Russian olive, also called autumn olive. These large bushes are taking over many areas visible from the roads. As an owner of 10 acres, I'd hate to own property adjacent to the refuge due to the difficulty of fighting these species. As a member of the public, I find it wasteful and careless that these bushes are being allowed to become so pervasive. Funds need to be redirected from excessive law enforcement toward eradication of invasive plant species such as Russian olive. Would like more infrastructure and concessions available to motorized boaters and more developed campgrounds with lakeside sites.

Crab Orchard Wildlife Refuge is superbly managed, staffed, and maintained. We have never had anything but a wonderful experience when we've spent time in its boundaries over the last 20 years. It was one of the major reasons we relocated to southern Illinois! We own a home that is in close proximity to it and we never tire of exploring and enjoying all that it has to offer.

Environmental education and access to outdoor recreation (trails, kayaking, wildlife viewing) is more important now, than ever. Crab Orchard National Wildlife Refuge provides excellent opportunities for all of these activities!

Everyone was helpful and friendly.

Fisherman keeping undersized fish.

I acknowledge that funds are extremely limited for the creation and maintenance of trails. I respect that this land is a wildlife refuge, but trails within these thousands of acres are essentially nonexistent.

I have been coming to Little Grassy since I was 5 years old. I am now 59. I have always enjoyed my time there with fishing and the scenery!

I think the refuge has great awareness programs about the refuge itself. The employees and volunteers are very personable and knowledgeable of the refuge. We visit here routinely for both photography and the peacefulness of the outdoors. There is always birds and mammals to see if you take your time.

I'm 80 and the fishing piers make this place ideal for an old fisherman. I felt like I had died and gone to heaven when I saw the fishing opportunities. Thank you for making it possible to have a place to fish without fear of falling.

I'm disappointed in how drastically they raised the price of lifetime passes for seniors.

Improve boat ramps, provide swimming area at grassy beach.

Just would like to see buttheads ticketed for parking in handicap spots that are not handicapped!

More educational opportunities, please.

My husband and I are semi disabled and do not own a boat. We need more shore access and dock fishing access and, in some cases, an easier way to get to those amenities.

Need more fishing docks. A lot of people don't use boats to fish.

Need more restrooms at Pirate's Cove.

Need port-o-potties closer to bank fishing off of RT 13, where the old marina used to be. Please.

Not sure if it's okay to use some trails. Signs confuse me, they are poorly marked.

Only restroom I know of is at visitor center & Martha's Theatre, education resources and programs are too limited. Why did they chop trees on the trail by the visitor center and why no posted information on this? They need plant id signs on the trail by the visitor center. Need more work to control invasive plants.

Outhouse at the main boat ramp on spillway road is in poor condition.

Power wheelchair would be nice.

Re-open trails asap after storms or other damage.

Refuge is very well maintained with pleasant staff. Great place to view and photograph wildlife.

Restrooms need hand soap and towels or functioning hand dryer. Campground needed improvements.

Signs in many cases are too small. A refuge is not a refuge if you promote hunting/fishing.

Some people at the visitor center act like they don't trust you. Top people.

Staffing is lacking. More recreational opportunities would be available if adequate staff was provided by Dept of Interior. Numerous beaches have been closed for example.

The 50-amp electrical service we were provided with our rental either had a bad receptacle or a loose wire in the outlet.

The area is kept extremely clean.

The bathhouses are infested with spiders and other bugs. Grass was uncut. Over ankle height. Constantly change rules on how to reserve camping spot. Host in Loop B is never polite. Host in Loop B campsite looks like a dump.

The facility is extremely hard to reach. A lot of times the phone is "disconnected", or no one answers. I've spoken with them to make them aware and no changes.

The sewers are not yet usable.

The solar lights at the Greenbriar boat ramp do not work. Extremely hard to find boat ramp/parking lot after dark.

The water was so disgusting, full of bacteria, even my grandchildren stated they would never swim in it again. My wife and I both came home with chiggers and never ventured into the wooded areas.

There are a few docks at campground area that set dormant for no reason. More places to buy ice without traveling a great distance.

There are no trash cans at the visitor's pond, honker's corner pond, and manager's pond. I have never seen a game warden at any of these ponds. There are too many people taking fish out that aren't the size limit (bass).

This is far and away my go to refuge for a quick solo walk and I often utilize the other awesome trails for longer excursions with other people. I'm extremely thankful to have them!

Vehicles are frequently vandalized and theft at boat ramp parking lots. More security needed. I must carry a gun. Not safe to leave vehicle unattended.

What about this at a refuge. I know they are not parks, but... <https://www.forestry.gov.uk/forestry/infd-5gzlsn>.

Why so many areas closed?

You need to open more campsites.

End of Survey

General Comments (n=34)

A great refuge! I wish more people were respectful of our land and environment! Thank you for all you do!!

Bank fishing too limited or inaccessible. Stocking of fish needed. Hunting also too limited or inaccessible. What little is accessible is nearly void of animals and birds like turkeys, quail and such. So, unless you enjoy looking at trees and such, you are bored! Each year I spend less money and time.

Bathrooms are horrible. Too many roads are closed, boat ramps as well. More money going to fish management needed. Patrol for crime.

Crab Orchard Rocky Bluff Trail is one of my favorites in the Shawnee.

Excluding the visitor center, the refuge could use employees around on a much more regular basis. I am there enough to witness activities that need to be reported and handled at that time.

Fishing and bird/wildlife photography are my main activities and hiking occasionally. Refuge has a lot of bank access for fishing and the fishing is very good. A new refuge photo club has been recently started that is very enjoyable.

Fix the boat ramps and fire the engineer who made them - have you been to Greenbriar ramp!? What a mess.

Great place.

Have a lot of good memories of fishing Crab Orchard Lake!

Have firewood for campers for a reasonable fee. Consider a reservation system for at least some camping spaces.

I have always enjoyed this refuge. Trusting people is a very good thing. Thank you.

I feel that at Crab Orchard Wolf Creek area they don't want disabled persons to fish - no maintenance on docks, and didn't replace docks at bridge that were washed out by storms.

I feel very blessed to live in such close proximity to a national wildlife refuge and have opportunities to observe animals in their native habitats.

I have been extremely disappointed in the water quality on my visits. Some of those with us have swam during our visits, but I have usually just put my feet in. I am not sure what can be done about the issue, but it looks very unhealthy.

I have been visiting this campground for over 10 years now.

I moved to this area 8 years ago specifically to be close to Crab Orchard National Wildlife Refuge. I am grateful that I can enjoy it almost daily. It is the best kept secret in Illinois, and every visit, which is often 3 times a week, delightfully surprises me with wildlife and new experiences. Thank you for maintaining the refuge. I still frequently go to the visitors center to meet other like-minded retirees, and buy from the giftshop, especially during holiday season.

I used to be a volunteer there and really enjoyed it. It's a great site.

I visit Crab Orchard National Wildlife Refuge many times a year for fishing, hunting, hiking, and pleasure boating. I am very satisfied with the refuge and its staff and appreciate the good job they do and the fact that we have such a wonderful place (the refuge) to participate in so many outdoor activities. I hunt and fish on public land, and Crab Orchard National Wildlife Refuge is my number one choice of areas to do almost all of my outdoor activities. Thanks, and keep up the good work - it is appreciated.

I wish they had more campsites available at Crab Orchard with more full hookups. Beautiful place to camp and only about an hour drive where we live. We love to go when we can.

Just more patrolling and ticketing people parking in handicap spots that aren't supposed to.

My primary reason to go to Crab Orchard National Wildlife Refuge is to photograph wildlife. I plan to enter pictures in the annual photography contest there this year. While there are other places that I also go to photograph wildlife closer to me, Crab Orchard National Wildlife Refuge is the one I enjoy going to the most.

Paddle boat rentals would be awesome.

Sometimes visitor center closes early. Make it easier to get stickers.

Stop closing off road. Stop closing off parking area. More fishing areas.

Thank you for my time at this refuge.

The crappie fishing has been exceptional the past couple years. I do wish there were more opportunities for mushroom hunting, also more opportunities for hunting.

The young man Justin who approached us about the survey was very nice and easy going with his conversation. We visit the refuge often because we all love the outdoors and the refuge is only 10 minutes away. The refuge provides many opportunities for people to learn more of the outdoors and the animals that are in the refuge. Every time we visit, we see something new. The staff are pleasant and helpful.

This is one of the few refuges with many developed recreational facilities. It has a special mandate that other refuges don't, for public recreation, including motorized boating. Over the years, refuge management has removed a huge amount of public recreation facilities, including 4 swimming beaches, a marina, marina concessions (can't even buy a bag of ice on the lake), group picnic areas (including tearing down pavilions), several boat ramps, many roads, numerous picnic areas, and campgrounds/parts of campgrounds. Accordingly, public use has declined substantially since the 1970s. We taxpayers paid for all that infrastructure, but government bureaucrats decided to remove it to make our refuge fit the model for all other national refuges, where little infrastructure, if any, exists. But the special mandate for our refuge is still in place, for this infrastructure to support public use, other than merely wildlife-oriented education. This refuge is in a relatively urban area, compared to most other refuges, where the public needed and made a lot of use of the infrastructure that has been removed. Most motorized boaters, with maybe the exception of bass fishermen, feel unwanted on the refuge and dread that we may be banned in the future. Please bring back as much of the removed infrastructure as possible. For example, Crab Orchard Lake's main picnic area is in a mostly unshaded area right next to a busy highway, Route 13. It'd be great if some of the other picnic areas, such as Lookout Point, Cambria Neck, and others could be reinstated. We also need a concessionaire at Crab Orchard Marina so we can obtain staples like ice and bait. In the meantime, with public use at such a low point, reduce some of the funding for law enforcement into developing more public use areas and eradicating invasive plant species.

This is one of the largest and most diverse refuges in the United States. However, the USFWS policies do not allow for or support institutional memory - it is important to have long term staff who are invested in the area, the refuge and who know its rich history. Staff are forced to move every 3-5 years for promotion. Local people, talented people are hired in temporary jobs only, forced to go to other states for permanent employment. This is unfair and creates numerous problems in running EE programs.

This refuge is becoming overrun with autumn olive an invasive species. Also, the refuge needs a lot more grasslands for wild turkey brood areas!!

We have purchased a book about all the wildlife refuges in the US. Due to my birding activities, we've been to several in Texas, Louisiana, Arizona, Utah, Montana and other states. We had not been to those along the Mississippi. We traveled along I-55 from St. Louis - south along the Missouri side. We travelled as far as Yazoo NWR then returned along the east side of the Mississippi. We're scoping out places for possible fall and spring trips in the future.

We love to camp here with our camper. We go often. The staff is very helpful and friendly.

You are doing a good job. Keep up the good work. We love to come back.