



U.S. Fish & Wildlife Service

NATIONAL WILDLIFE REFUGE VISITOR SURVEY

*2018 Results for
Shiawasse 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 Shiawassee

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 Shiawassee National Wildlife Refuge. Columbus, OH: The Ohio State University, School of Environment and Natural Resources.

Front cover: A fall view of the wetlands at Shiawassee 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 Shiawassee 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

Shiawassee National Wildlife Refuge is located in the central lower peninsula of Michigan. The area surrounding the refuge is referred to as the Shiawassee Flats: a wetland habitat formed over 10,000 years ago when a vast glacial lake covered the region. The lands of the refuge have a varied history dating back thousands of years. Most recently, the area was drained and used for agriculture. The refuge was established in 1953 to restore the natural wetlands and enhance migratory bird habitat. Cooperative farming continues as a management technique to feed the thousands of ducks and geese that use this wildlife refuge during their spring and fall migrations. In addition to waterfowl, shorebird, and raptors, more than 100 species of songbirds use the refuge. A notable songbird, the prothonotary warbler, is the only warbler that nests in tree cavities in the eastern United States. In addition to the widespread forested wetlands, the refuge is actively restoring its lake-plain prairie habitat, which is a globally imperiled ecosystem.

Shiawassee National Wildlife Refuge attracts over 67,639 visitors annually (U.S. Fish and Wildlife Service, 2018, written comm.). As one

of the largest and most productive wetlands in Michigan, this wildlife refuge offers ample opportunities for hunting and fishing. Annual goose and whitetail deer hunts draw in many visitors. Two trail systems allow visitors to explore miles of the refuge and see wildlife in their natural habitat. Visitors can also enjoy birdwatching and wildlife photography from the 6.5 mile auto tour route.

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 276 visitors agreed to participate in the survey by providing their names and addresses.
- In all, 148 visitors completed the survey online (48%) or by mail (52%) after their refuge visit, resulting in a 55% 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.



A flock of birds stopped to rest in a tree at Shiawassee National Wildlife Refuge. Photo credit: Nicole Stagg.

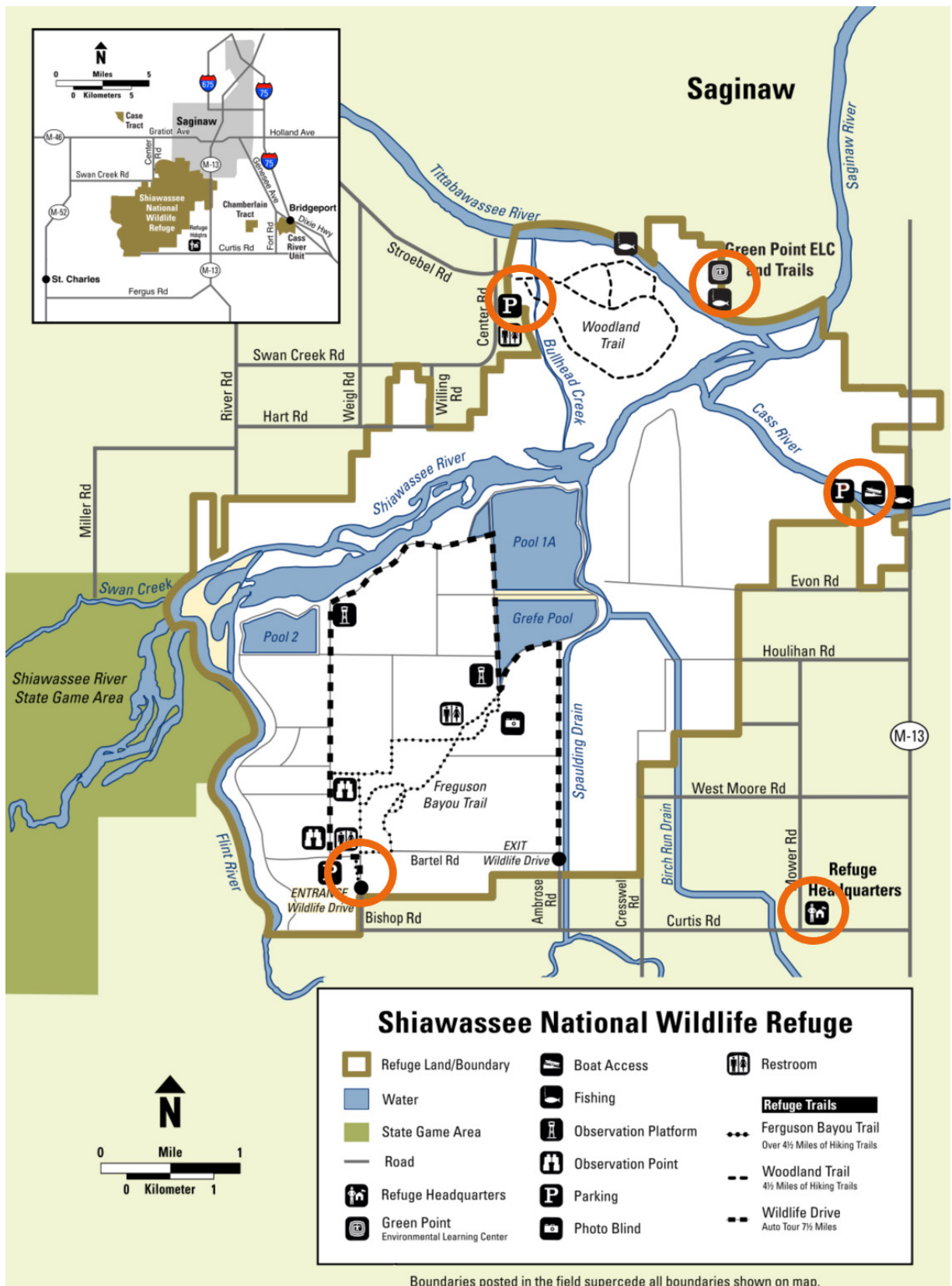


Fig. 2: Map of Shiawassee National Wildlife Refuge. Visitors were contacted at the circled locations from 6/28/2018–7/7/2018 and 10/31/2018–11/11/2018.

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

- 26% of visitors were female with an average age of 51 years (Fig. 3).
- 74% were male with an average age of 55 years.

EDUCATION

- 27% of visitors had a high school degree or less.
- 43% had at least some college.
- 29% had an advanced degree.

RACE & ETHNICITY

Most prevalent race or ethnicity (Fig. 4):

- White (94%).
- Hispanic (3%).

INCOME

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

OTHER TRIP CHARACTERISTICS

- Average group size of 2 people.
- 23% visited the refuge alone.
- 54% visited with at least one other adult.
- 23% visited with a combination of at least 1 adult and 1 child.

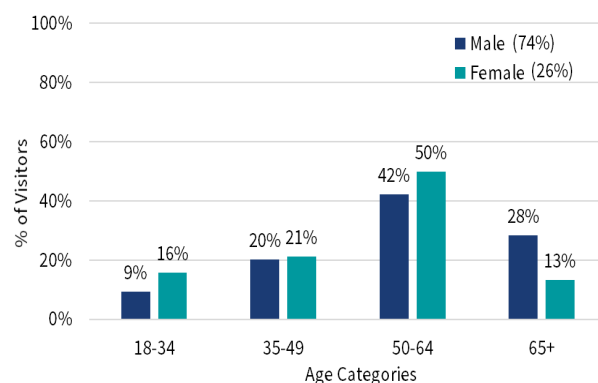


Fig. 3: Distribution of visitors to this refuge by gender and age group.

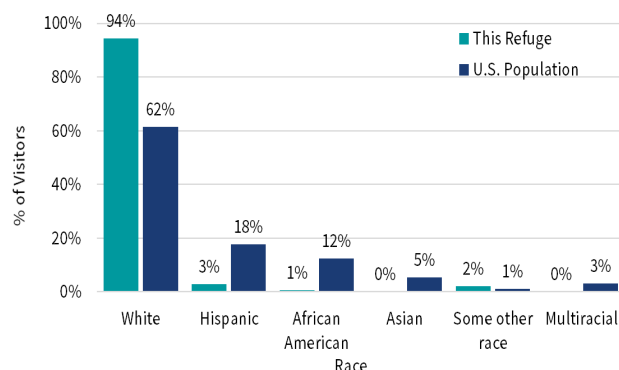


Fig. 4: Race and ethnicity of visitors to this refuge compared to the national average.

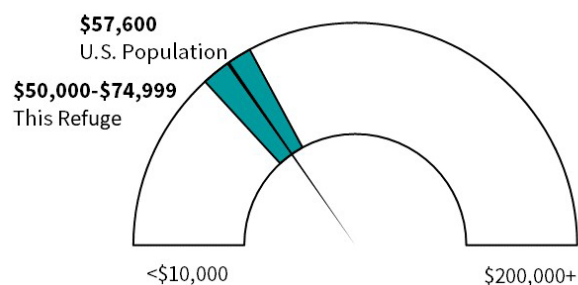


Fig. 5: Mean income range of visitors to this refuge compared to the national median income.

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 (72%) include:

- For locals, this refuge was the primary reason for their trip (89%) (Fig. 6).
- Local visitors traveled an average of 24 minutes to arrive at this refuge (Fig. 7).

NONLOCAL VISITORS

Highlights of trip characteristics for nonlocal visitors to this wildlife refuge (28%) include:

- For nonlocals, this refuge was the primary reason for their trip (71%) (Fig. 6).
- Nonlocal visitors traveled an average of 3 hours to arrive at this refuge (Fig. 8).
- Of the 100% of visitors who lived in the U.S., nonlocal visitors were most often from Michigan (78%) and Indiana (7%).

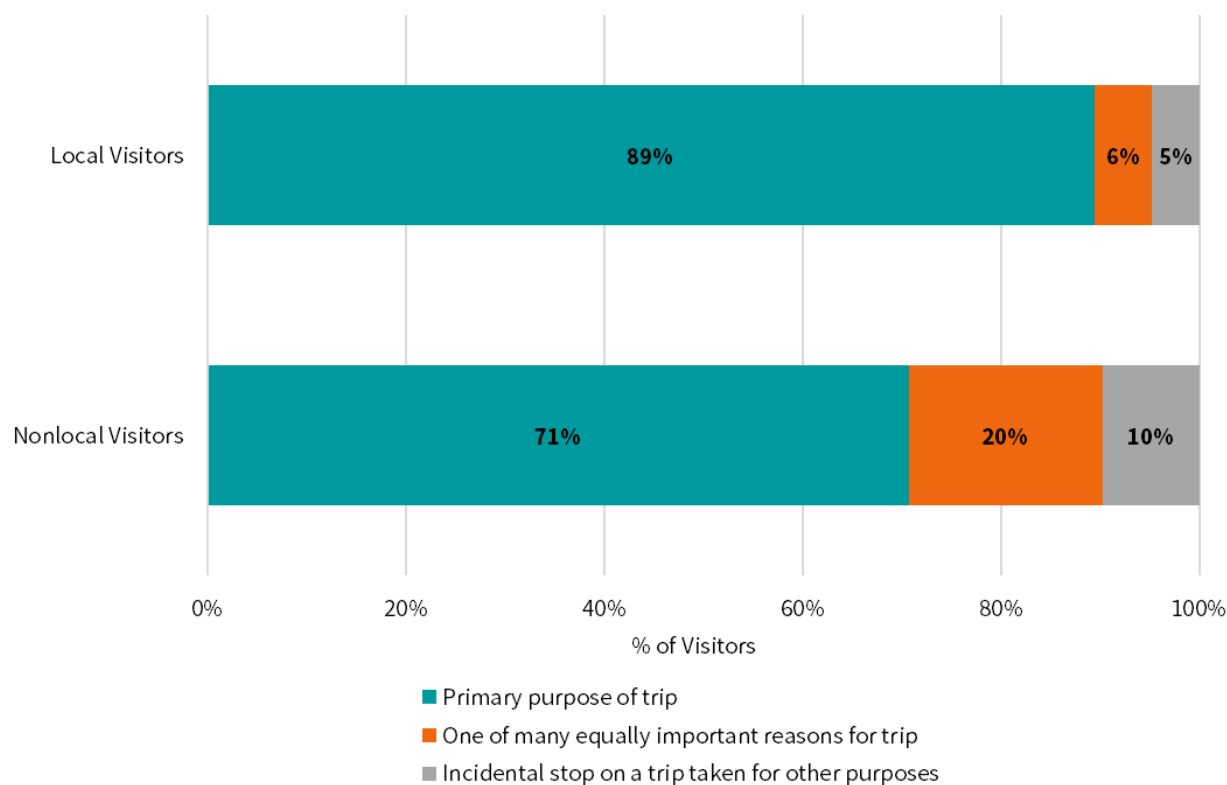


Fig. 6: Purpose of most recent refuge visit for local (living ≤ 50 miles from the refuge) and nonlocal (living > 50 miles from the refuge) visitors.

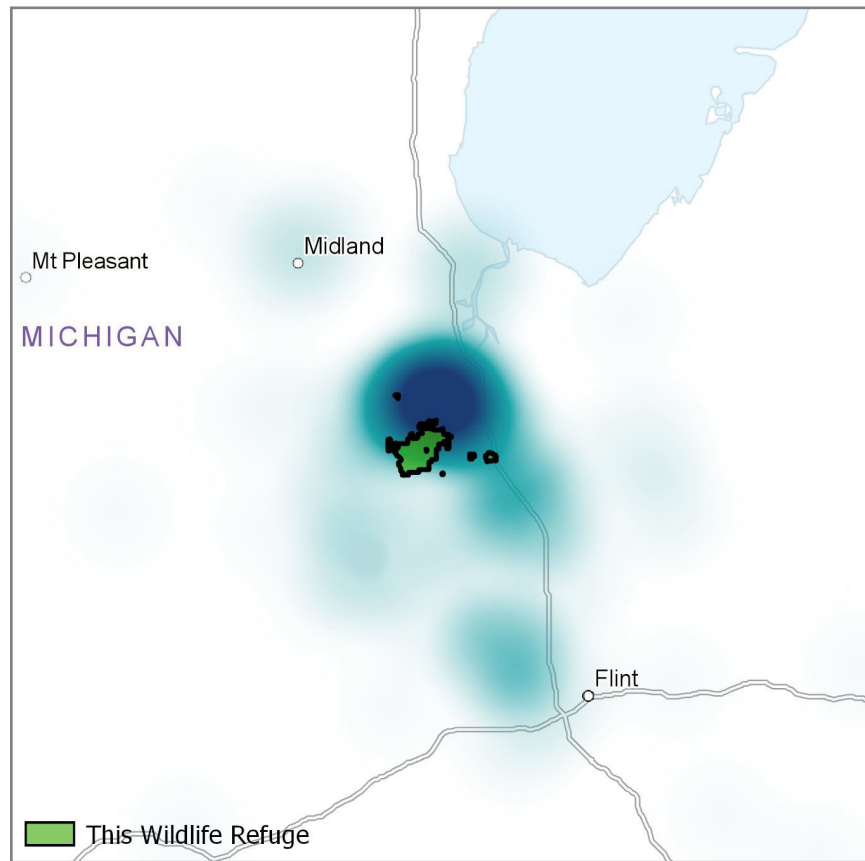


Fig. 7: Map showing residence of local visitors to this refuge. Darker shading represents relatively higher visitation from that area.

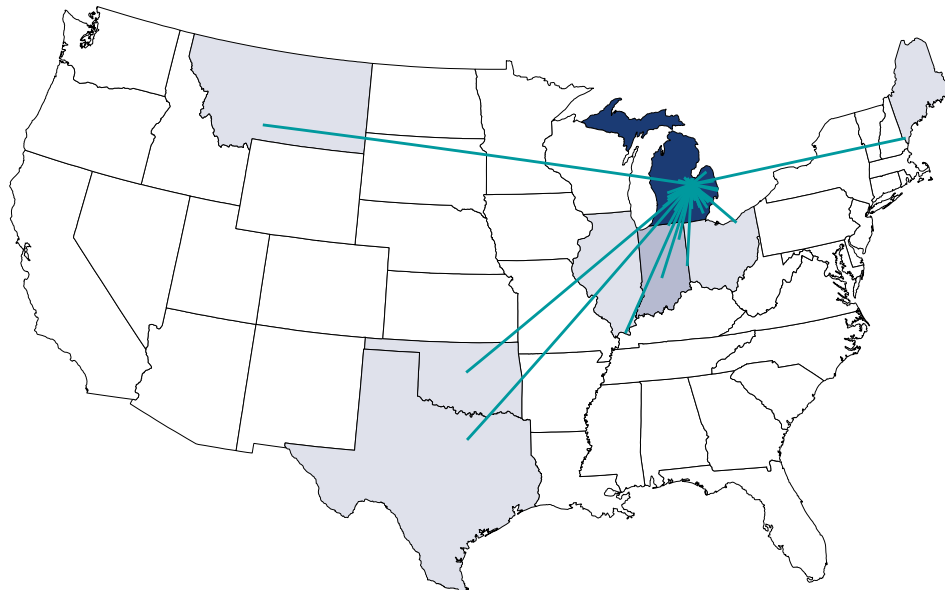


Fig. 8: Map showing residence of visitors to this refuge by zip code, with each line representing visitation from a different zip code. The convergence point of the lines is the geographical center of the refuge. Darker shading of the states represents higher visitation from that state.

OTHER TRIP CHARACTERISTICS

Other trip characteristics include:

- To get to this wildlife refuge, visitors primarily traveled by private vehicle without a trailer (82%) and by private vehicle with a trailer (12%) (Fig. 9).
- Once on the refuge, visitors primarily traveled by private vehicle without a trailer (53%) and by foot (36%) (Fig. 9).
- Visits occurred during winter (13%), spring (43%), summer (84%), and fall (62%).
- 94% of visitors made a single-day trip to this refuge, spending an average of 3 hours, while 6% of visitors were on a multi-day trip to this wildlife refuge that averaged 3 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:

- 79% were repeat visitors to this wildlife refuge, visiting an average of 15 times.
- 41% visited other national wildlife refuges, averaging 1 visit.
- 69% visited other public lands, averaging 8 visits.

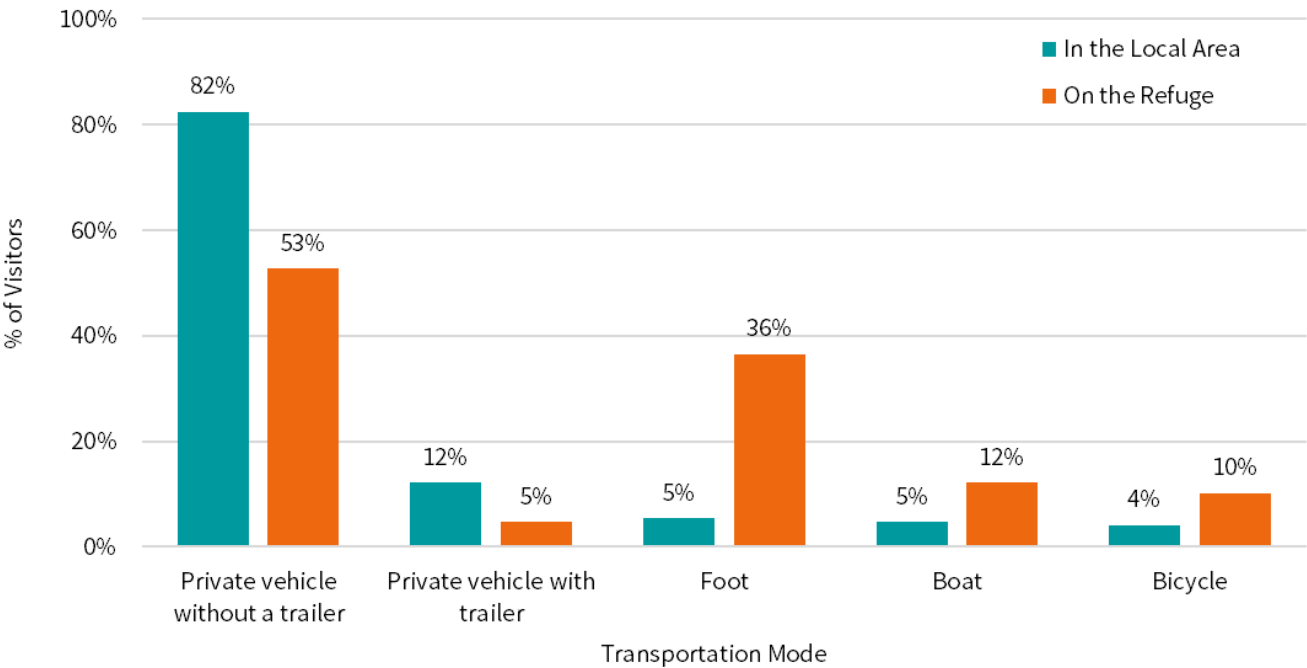


Fig. 9: Modes of transportation used by visitors to get from the local area to this refuge and within the boundaries of this refuge.

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

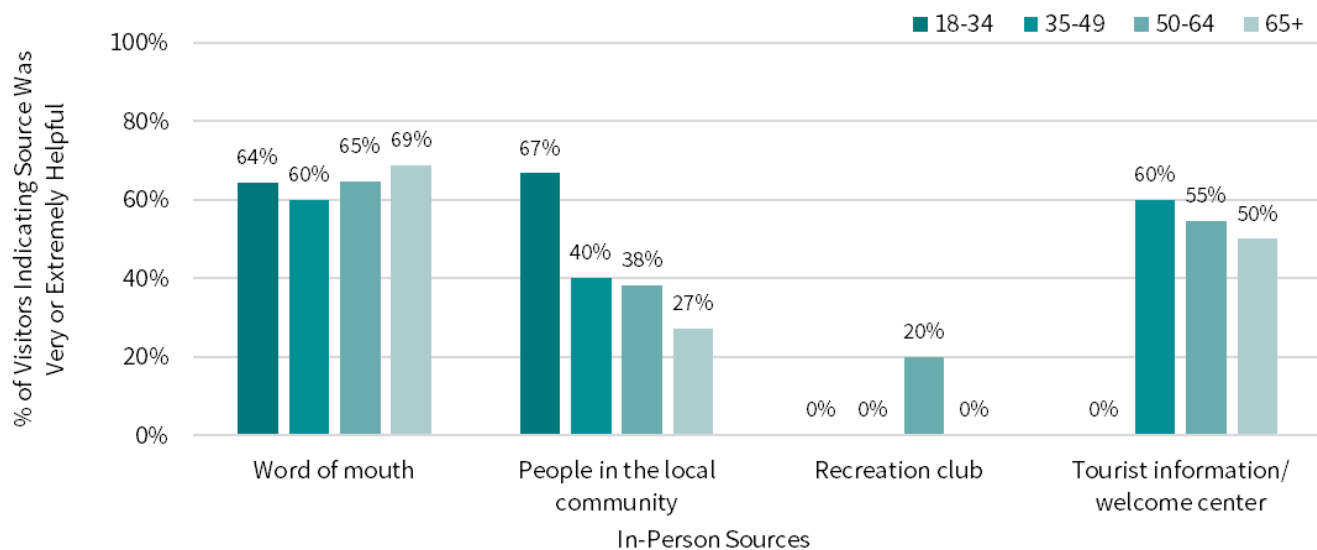


Fig. 10: Percent of visitors by age group who found in-person information sources very or extremely helpful in planning their trip.

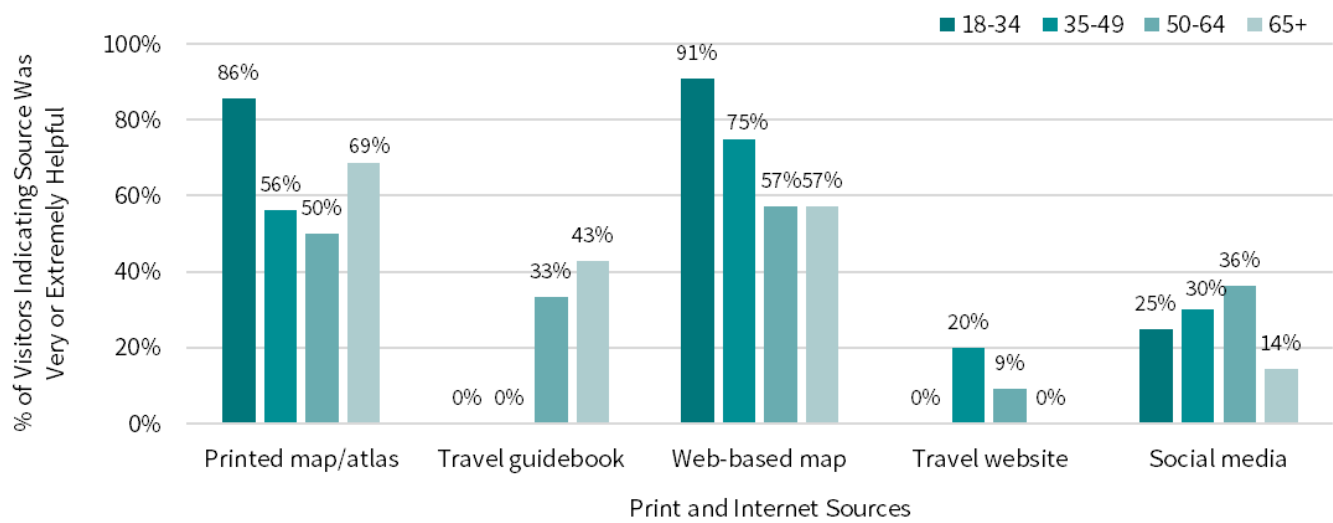


Fig. 11: Percent of visitors by age group who found print and internet information sources very or extremely helpful in planning their trip.

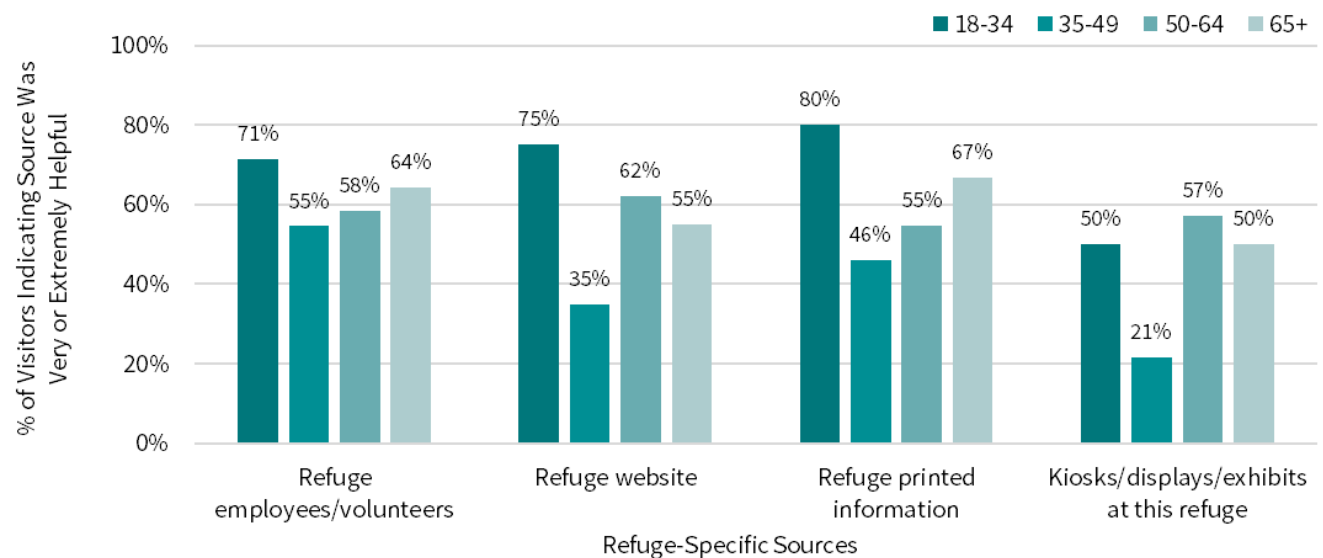


Fig. 12: Percent of visitors by age group who found refuge-specific information sources very or extremely helpful in planning their trip.

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 46% 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 (57%) and Snapchat (29%).
- Visitors 35-49 years old preferred to use Facebook (56%) and Instagram (15%).
- Visitors 50-64 years old preferred to use Facebook (41%).
- Visitors 65 or older preferred to use Facebook (15%).

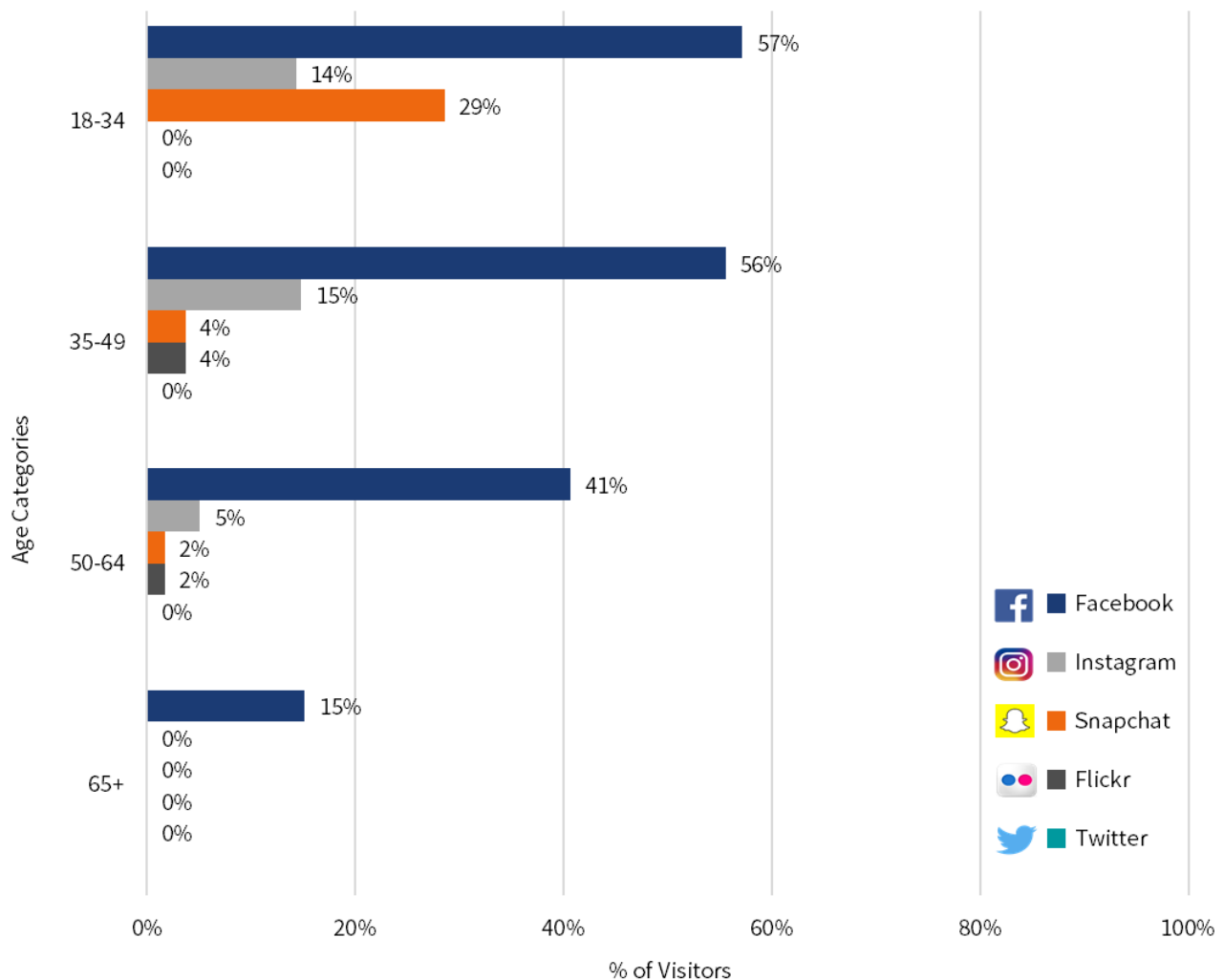


Fig. 13: Percent of visitors by age group who used various social media platforms to share their experience on this refuge with others.

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 (80%), auto tour route/driving (59%), and bird watching (59%) (Fig. 14).
- The top three activities noted as their primary activity on the day visitors were contacted to participate in the survey were wildlife observation (23%), auto tour route/driving (22%), and hunting (15%) (Fig. 14).
- Approximately 18% of visitors went to the visitor center, and they most often viewed the exhibits (46%), used the facilities (31%), and asked for information (23%) (Fig. 15).



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

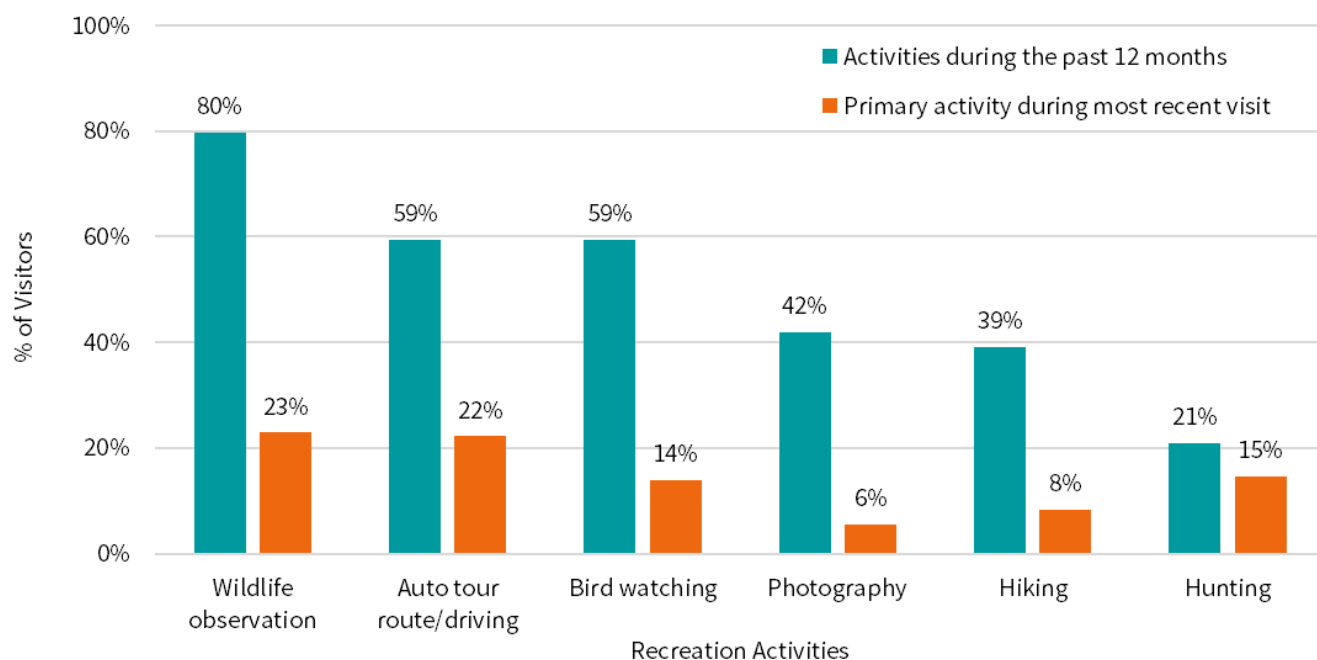


Fig. 14: Recreational activities visitors participated in during the past 12 months and their primary activity during their most recent visit to this refuge.

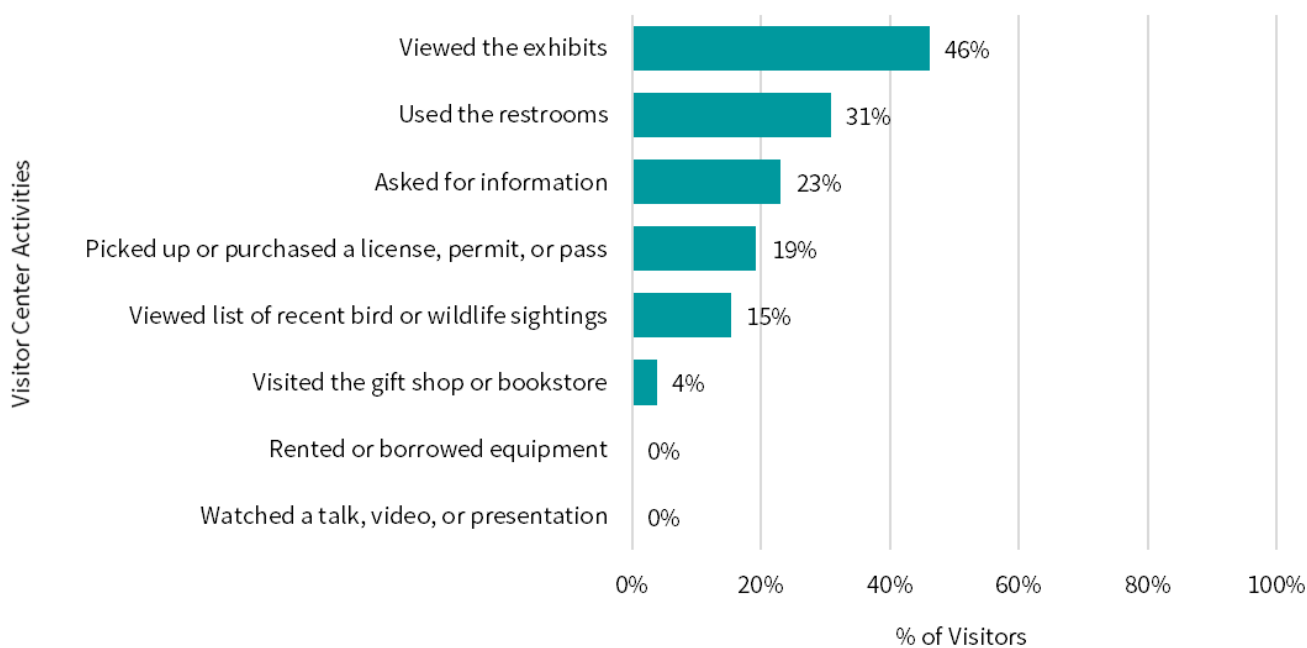


Fig. 15: Reasons visitors used the visitor center during their most recent visit to this refuge.

Comfort in Nature/Feeling Safe & Welcome

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

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

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

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

- 84% of visitors felt welcome during their refuge visit (Fig. 16).
- 95% of visitors felt safe during their refuge visit (Fig. 16).
- 99% of visitors reported that they feel comfortable being in nature, but 7% do not like being in nature alone (Fig. 17).

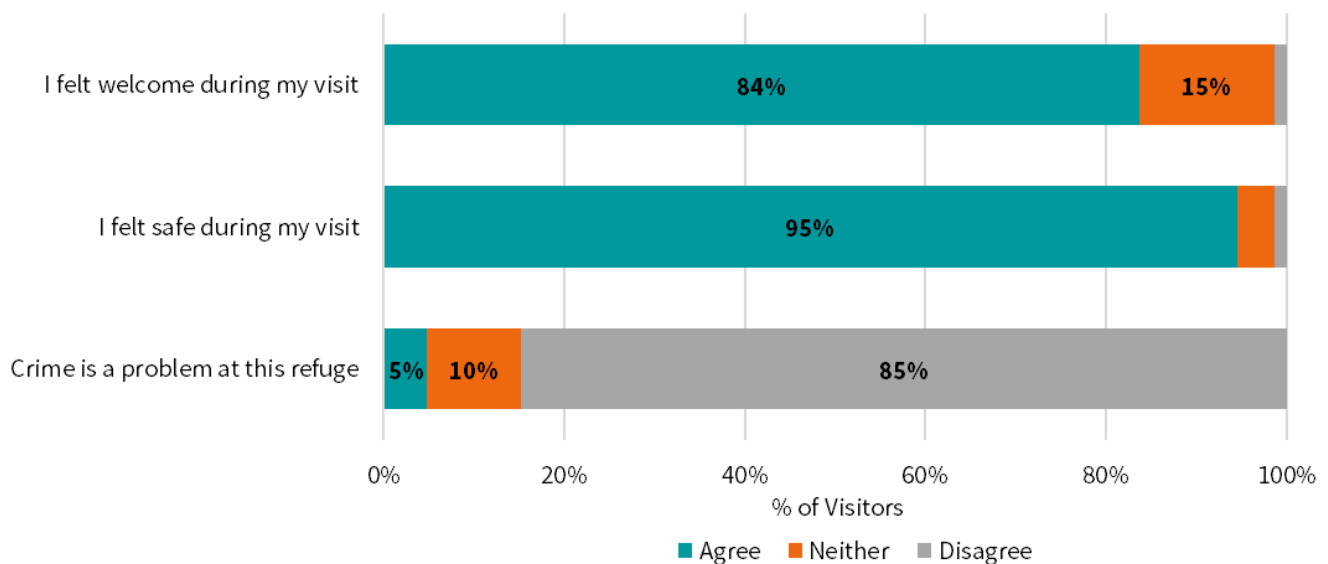


Fig. 16: Visitors' perceptions of safety and feeling welcome at this refuge during their visit.

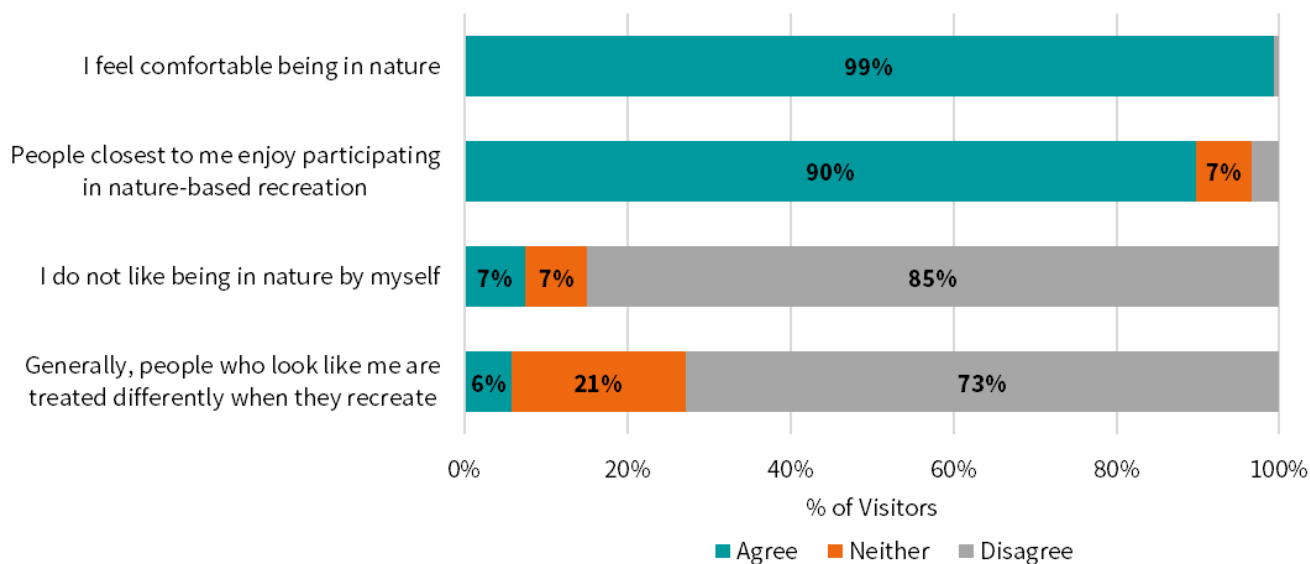


Fig. 17: Visitors’ comfort with being in nature.



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:

- 84% of visitors were very or extremely satisfied with the overall experience at this wildlife refuge (Fig. 18).
- 85% 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):

- courteous and welcoming employees/volunteers (72%),
- signage stating rules and regulations (67%), and
- refuge hours/days of operation (67%).

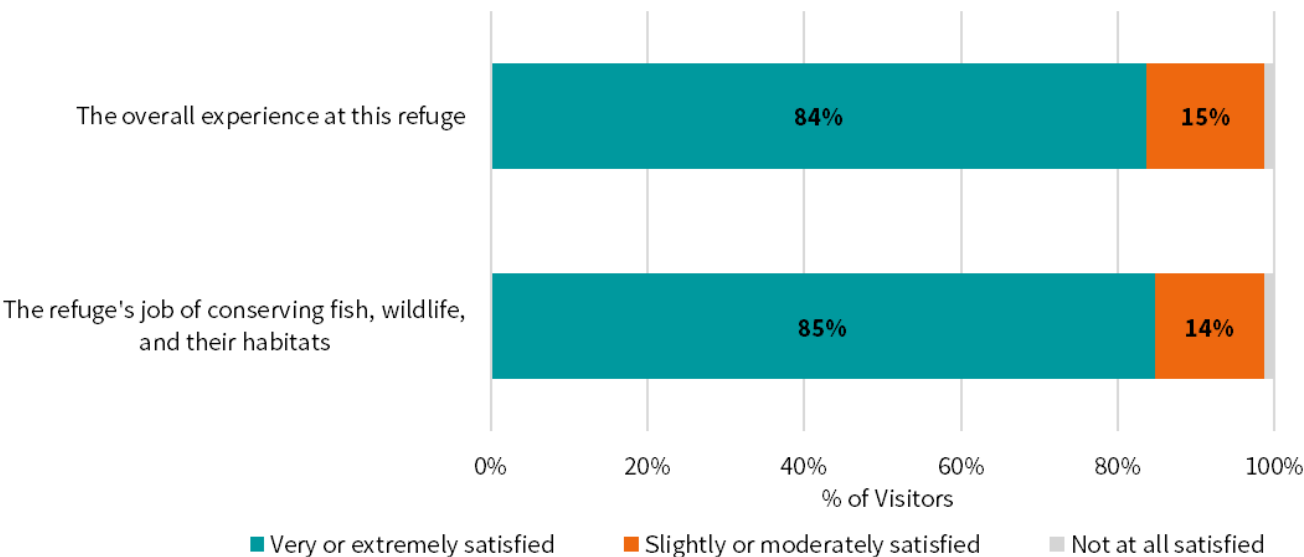


Fig. 18: Visitors' satisfaction with their experience at this refuge and with this refuge's job of conserving fish, wildlife, and habitats.

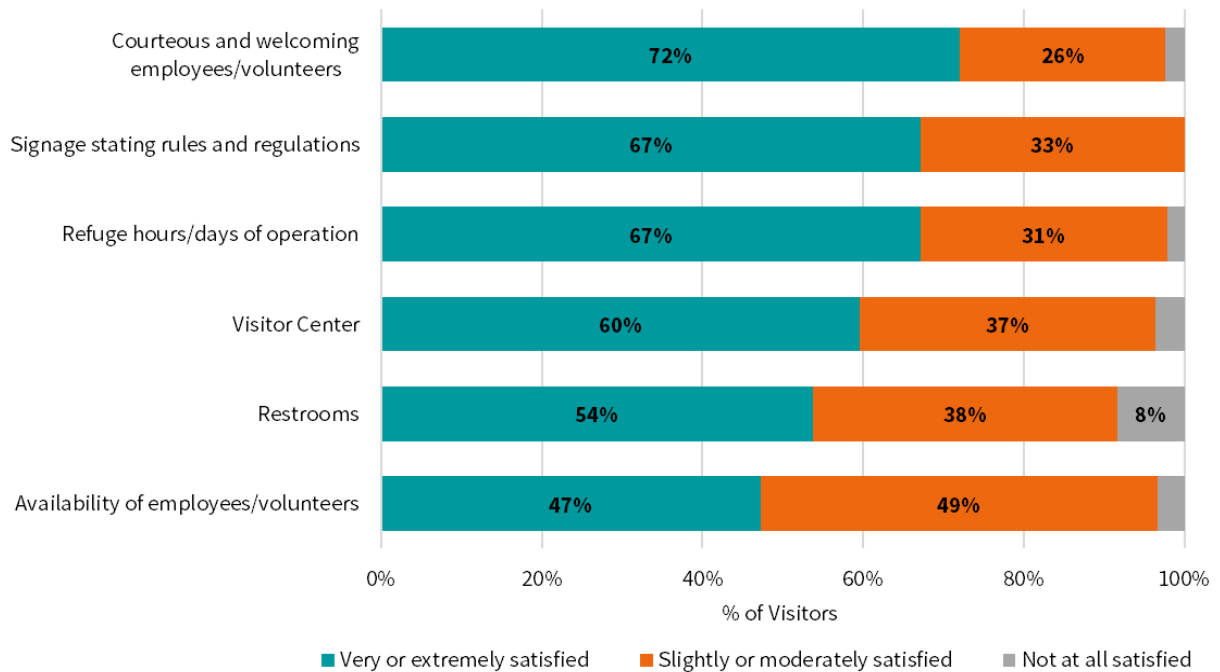


Fig. 19: Visitors' satisfaction with customer service and amenities at this refuge.

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):

- bird watching (81%),
- trail hiking (80%), and
- photography (78%).

"We loved this place. The juxtaposition against farmland and nearby urban decay really emphasized the uniqueness of the ecosystem." – Visitor to Shiawassee National Wildlife Refuge

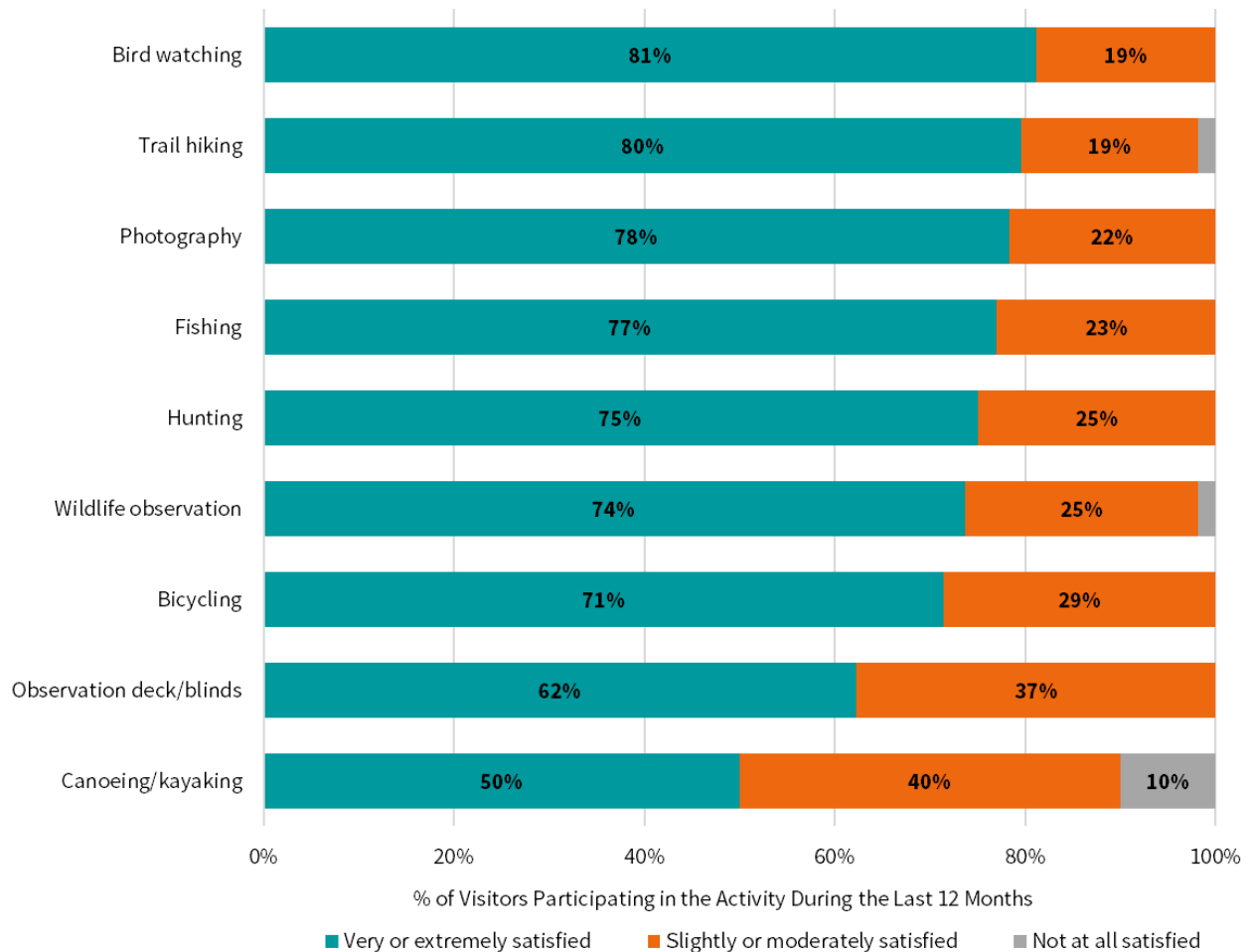


Fig. 20: Visitors' satisfaction with recreational opportunities at this refuge. Only visitors (10 or more) who participated in activities related to each opportunity at this refuge during the last 12 months were included.

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 (81%).
- Getting around this wildlife refuge, visitors were most satisfied with safety of driving conditions on refuge roads (75%), condition of bridges on roadways (75%), and condition of refuge roads (73%).
- Accessing recreation on this wildlife refuge, visitors were most satisfied with condition of trails and boardwalks (74%), and safety of roads or trails for nonmotorized use (72%).

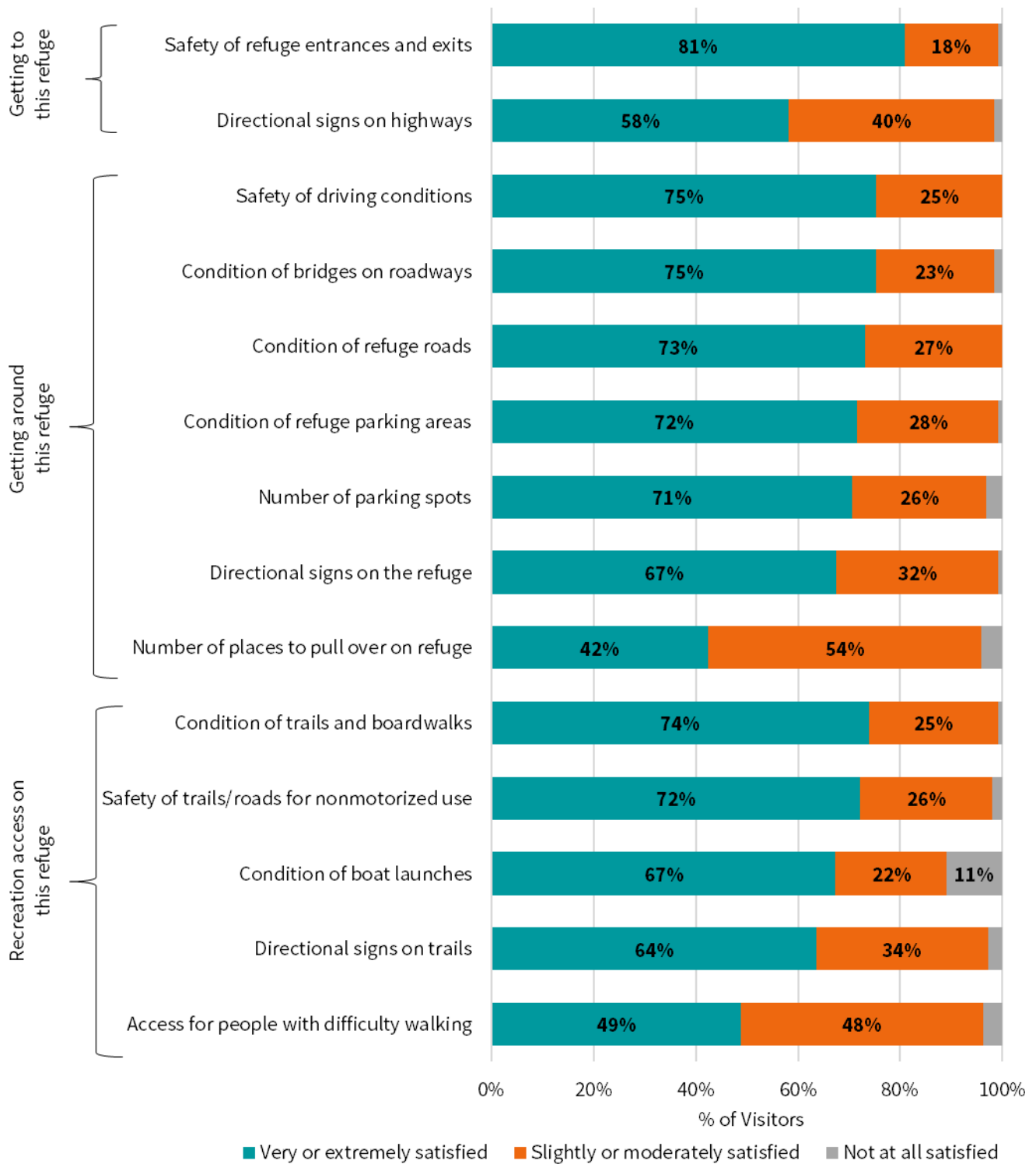


Fig. 21: Visitors' satisfaction with how the refuge is managing transportation-related features.

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; 72%) are as follows:

- On average, local visitors accounted for 46% of expenditures.
- Top trip expenditures by locals were for transportation and retail (Fig. 22).
- The average amount paid by locals to visit this wildlife refuge was \$29 per person per day (Fig. 22).
- Local visitors were personally willing to pay an additional \$38 per day on average to visit this wildlife refuge (Fig. 23).

Results for nonlocal visitors (those living >50 miles from this wildlife refuge; 28%) are as follows:

- On average, nonlocals accounted for 54% of expenditures.
- Top trip expenditures by nonlocals were for food/drink and transportation (Fig. 22).
- The average amount paid by nonlocals to visit this wildlife refuge was \$29 per person per day (Fig. 22).
- Nonlocal visitors were personally willing to pay an additional \$83 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.



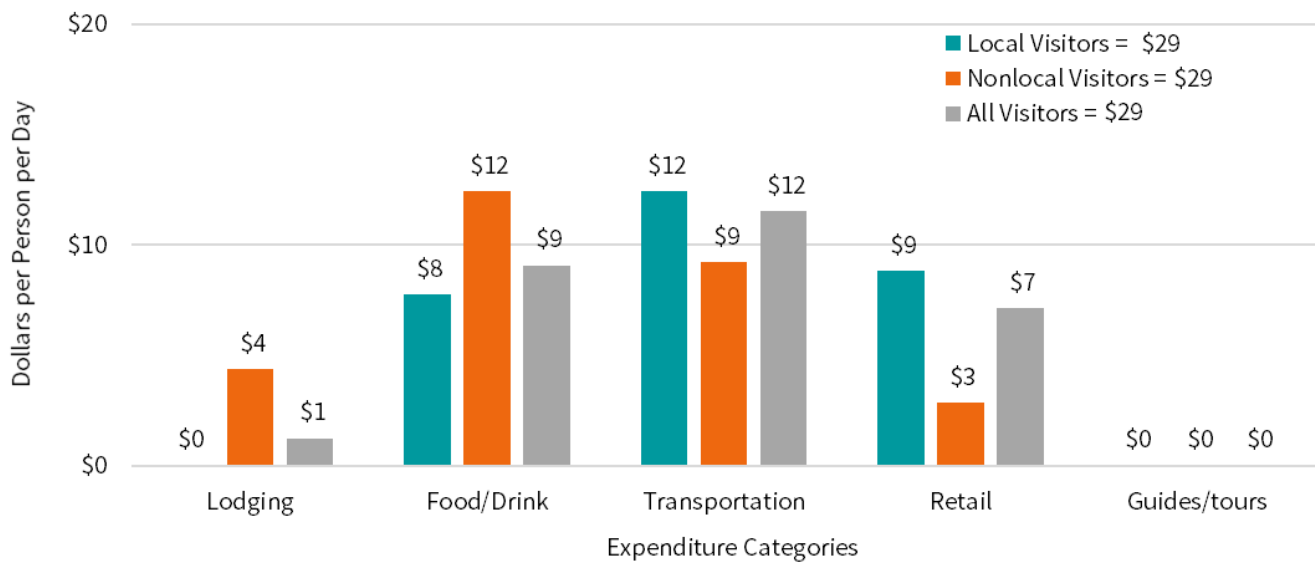


Fig. 22: Individual daily expenditures in the local community for local, nonlocal, and all visitors. Expenditures were reported by respondents on a per group basis; the total expenditures were divided by the number of people in the group who shared trip expenditures and the number of days spent in the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

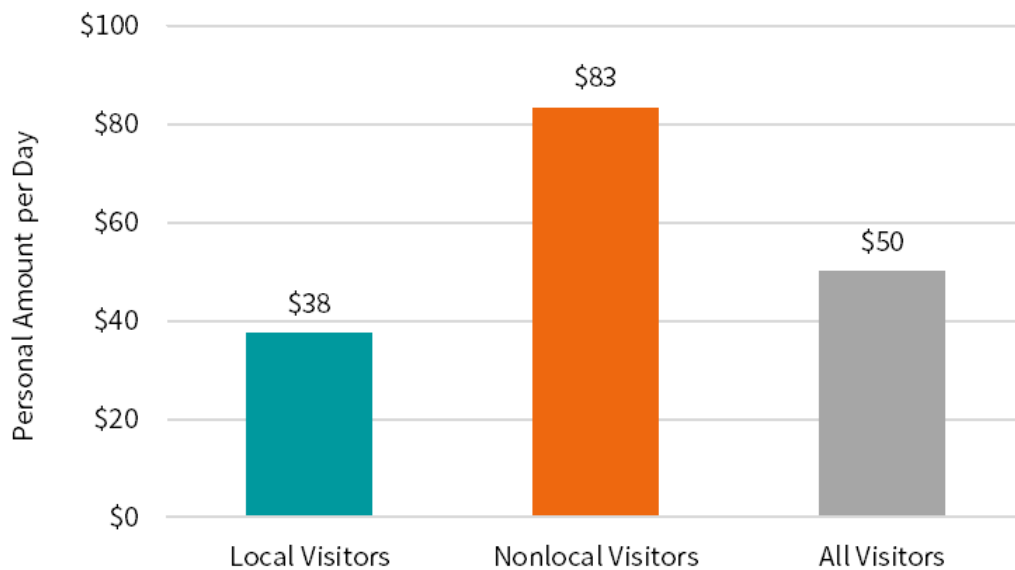


Fig. 23: Total personal willingness to pay per day above and beyond most recent trip expenses if costs were to increase for local, nonlocal, and all visitors. Due to the fixed-response question format, estimates of willingness to pay may underestimate the amount visitors would actually pay. Responses 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 (65%), engaging youth (50%), and engaging families and multiple generations (42%) (Fig. 24).
- The top two factors likely to increase visitors' future participation in their primary recreation activity were more infrastructure (35%) and less regulations on hunting (18%) (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 (26%) and less regulations on hunting (26%) (Fig. 25).

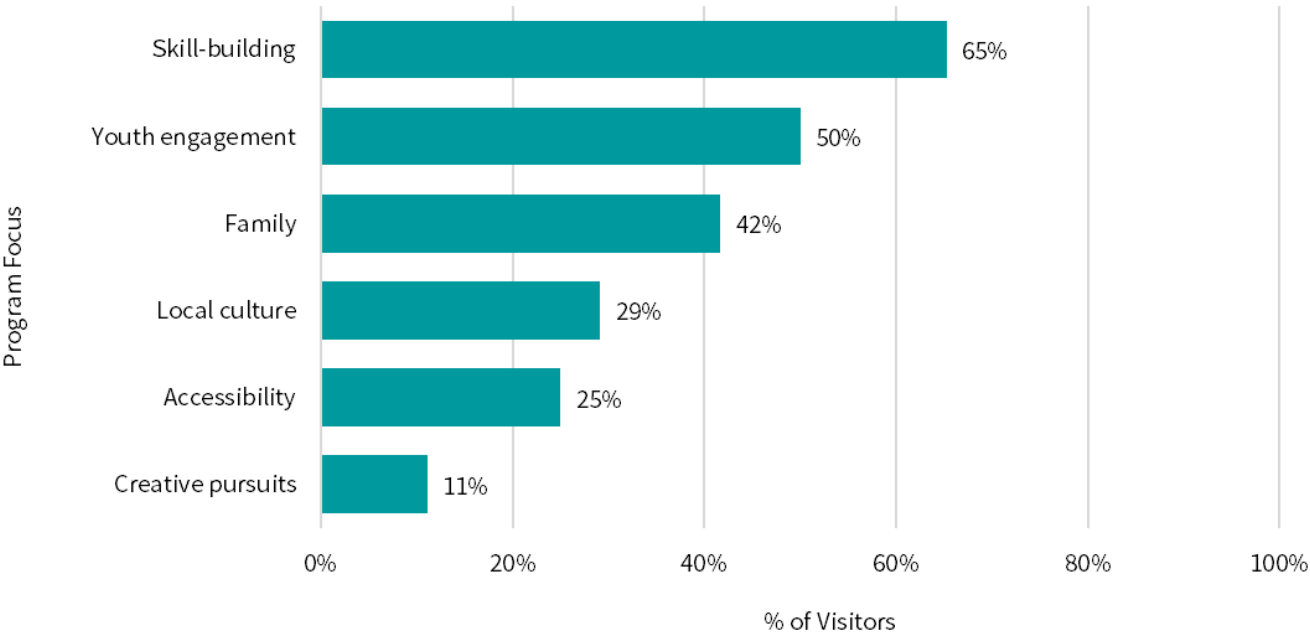


Fig. 24: Types of programs that would encourage visitors to return to this refuge.

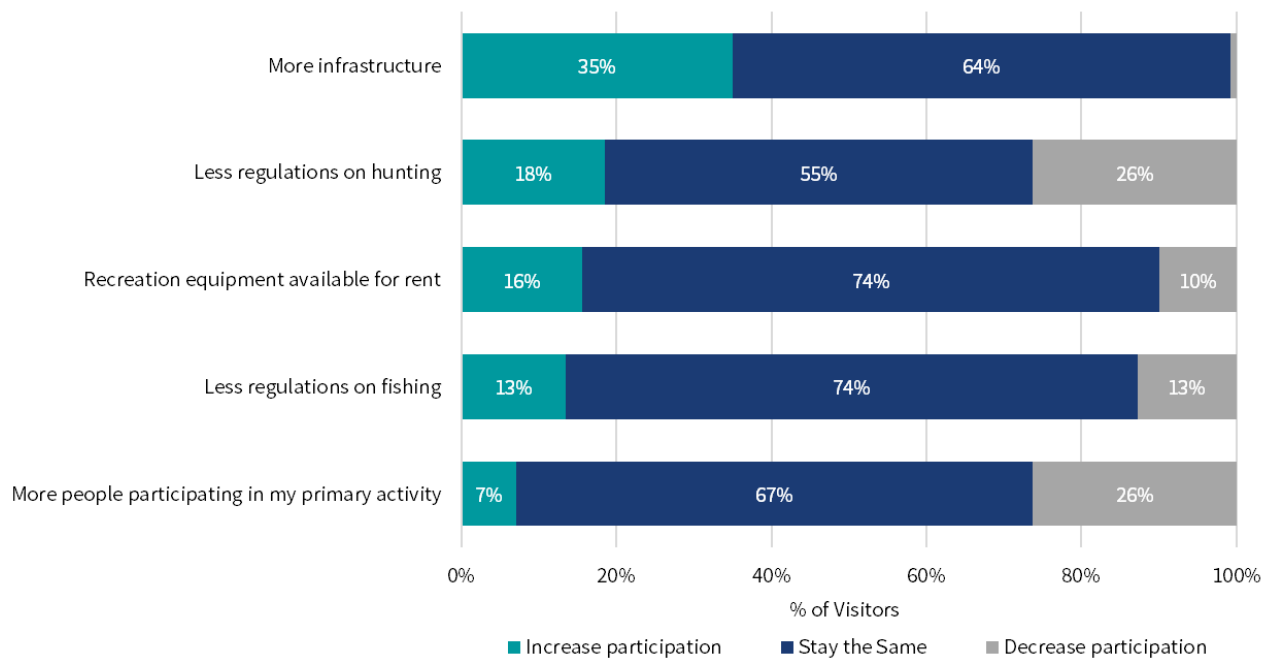


Fig. 25: Changes in visitors’ participation in their primary activity if the listed recreation factors were to change.

ALTERNATIVE TRANSPORTATION

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

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

- bus/tram that provides a guided tour (17%),
- a bike-share program (16%), and
- pedestrian paths (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 a greater diversity of species (54%) and an improvement in the quality of wildlife habitat other than wetlands (53%).
- The top two resource changes likely to decrease visitors’ future participation in their primary recreation activity were less water available for recreation (30%) and more acreage open to hunting and fishing (27%).

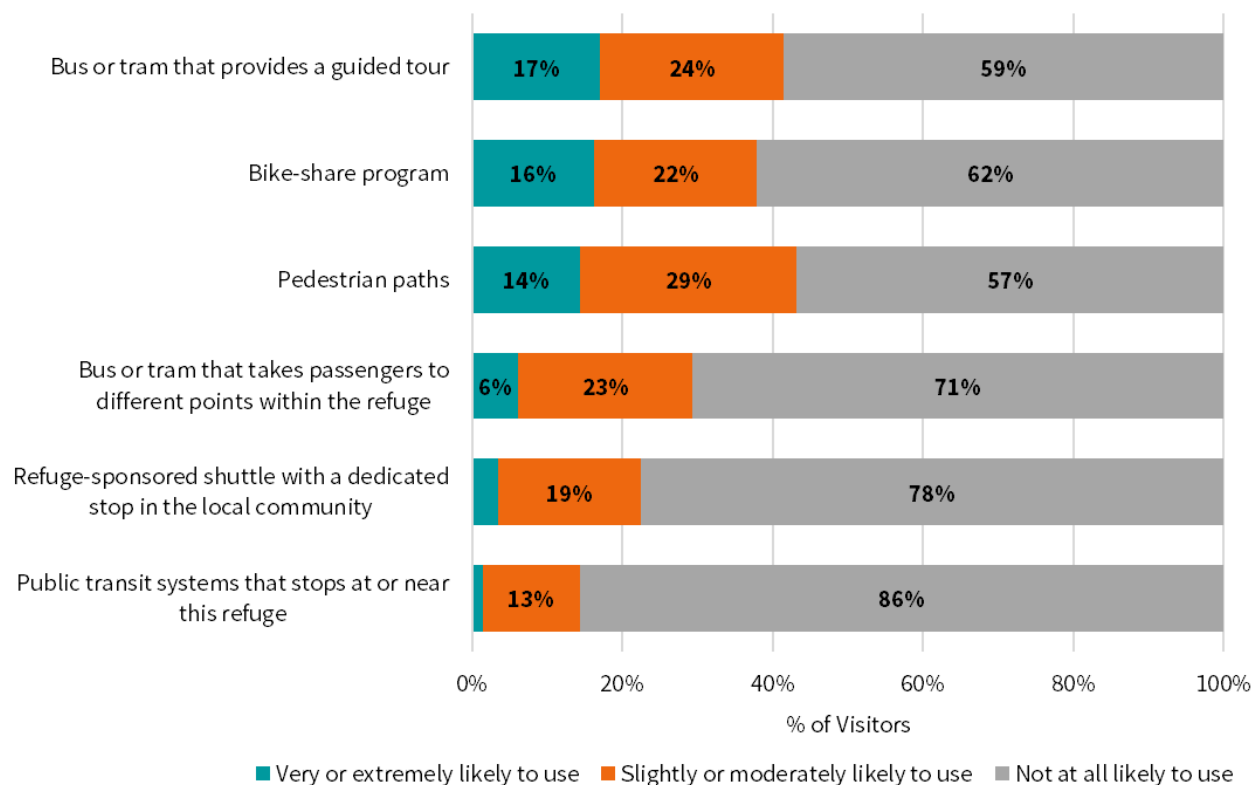


Fig. 26: Visitors' likelihood of using alternative transportation options if offered at this refuge.

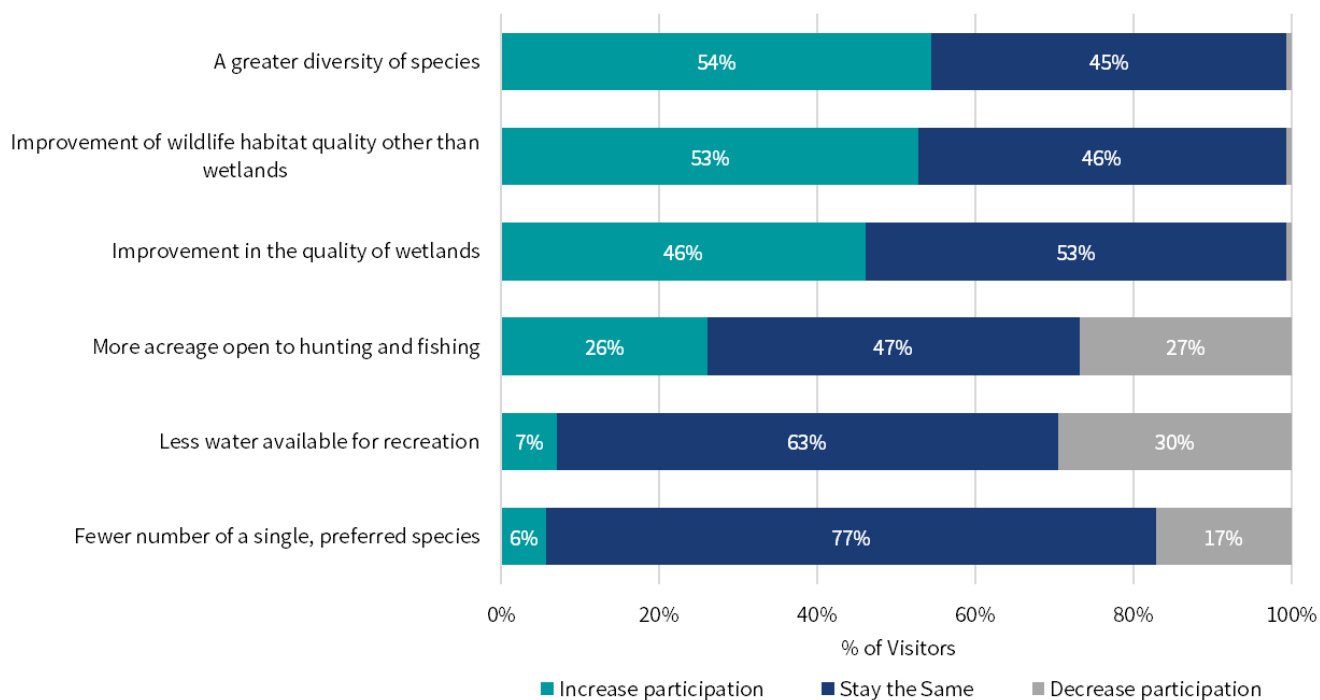


Fig. 27: Changes in visitors' participation in their primary activity if the listed resources were to change.

Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to Shiawassee 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/treearch/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

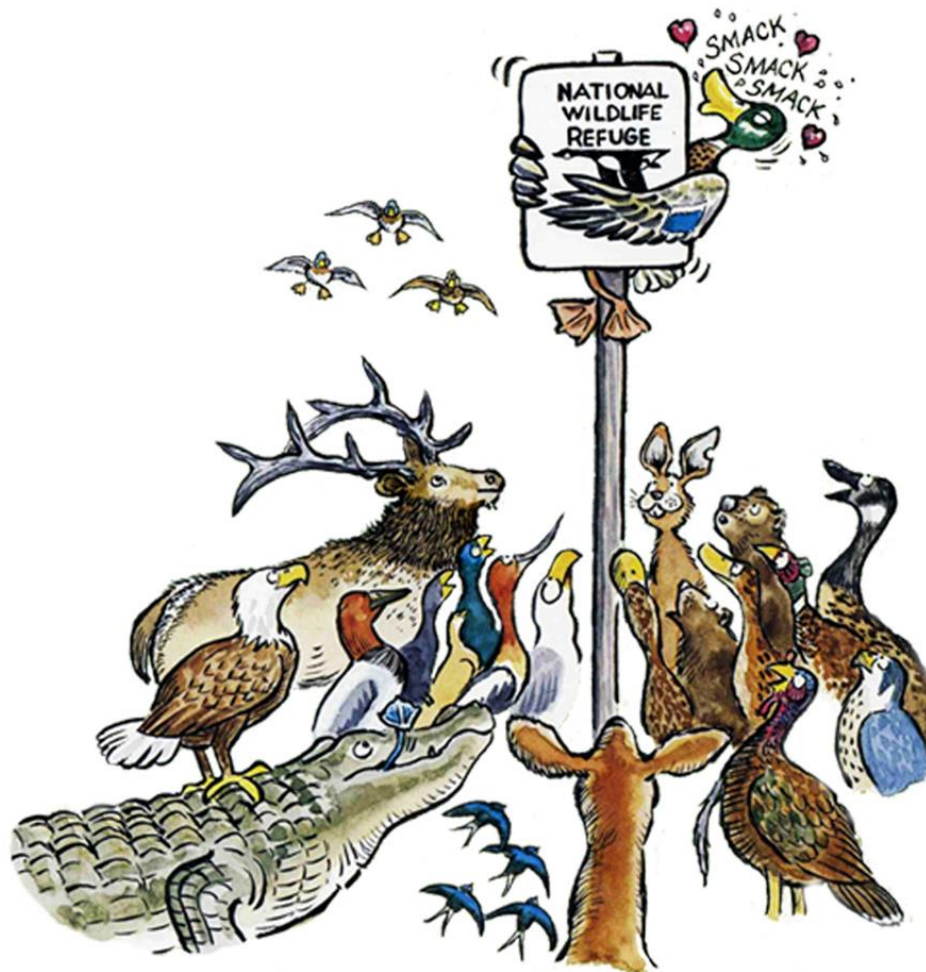
response distribution, meaning if respondents were given a dichotomous choice question, approximately 80% of respondents would select one choice and 20% would select the other (Salant & Dillman, 1994).

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"/> 80% Wildlife observation	<input type="checkbox"/> 39% Hiking/Walking	<input type="checkbox"/> 4% Volunteering
<input type="checkbox"/> 59% Bird watching	<input type="checkbox"/> 3% Jogging/Running/Exercising	<input type="checkbox"/> 1% Environmental education program (classroom visits, labs)
<input type="checkbox"/> 42% Photography	<input type="checkbox"/> 9% Bicycling	
<input type="checkbox"/> 9% Big game hunting	<input type="checkbox"/> 59% Auto tour route/Driving	<input type="checkbox"/> 1% Interpretative program (bird walks, staff/volunteer-led talks)
<input type="checkbox"/> 3% Upland/Small game hunting	<input type="checkbox"/> 8% Motorized boating	
<input type="checkbox"/> 14% Waterfowl/Migratory bird hunting	<input type="checkbox"/> 4% Nonmotorized boating (canoeing, kayaking)	<input type="checkbox"/> 5% Refuge special event (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 9% Freshwater fishing	<input type="checkbox"/> 1% Foraging (berries, nuts, other)	<input type="checkbox"/> 1% Other (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 0% Saltwater fishing	<input type="checkbox"/> 4% 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"/> 84% It was the primary purpose or sole destination of my trip.
<input type="checkbox"/> 10% It was one of many equally important reasons or destinations for my trip.
<input type="checkbox"/> 6% It was just an incidental or spur-of-the-moment stop on a trip taken for other purposes or to other destinations.

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

2 number of people 18 years and older 1 number of people under 18 years

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

☐ 82% No / Not Applicable

☐ 18% Yes → If yes, what did you do there? (*Mark all that apply.*)

☐ 23% Asked information of employees/volunteers

☐ 15% Looked at list of recent bird/wildlife sightings

☐ 0% Attended a talk/video/presentation

☐ 31% Stopped to use the facilities (for example, got water, used restroom)

☐ 46% Viewed the exhibits

☐ 19% Picked up/purchased a license, permit, or pass

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

☐ 4% Visited the gift shop or bookstore

☐ 15% Other (*specify*) See Appendix C

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

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

If you spent one day or more at this refuge, enter the number of days: 3 day(s)

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

☐ 72% Yes

☐ 28% No → How much time did you spend in **the local area** on this trip?

If you spent less than one day in the local area, enter the number of hours: 4 hour(s)

If you spent one day or more in the local area, enter the number of days: 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: 25 minutes

If you travelled more than one hour, round to the nearest hour: 3 hours

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

☐ 43% Spring
(March-May)

☐ 84% Summer
(June-August)

☐ 62% Fall
(September-November)

☐ 13% Winter
(December-February)

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

...this refuge (including this visit)? 12 number of visits

...other national wildlife refuges? 1 number of visits

...other public lands (for example, national or state parks) to participate in the same primary activity as this visit? 8 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"/> 39%	Facebook	<input type="checkbox"/> 5%	Snapchat	<input type="checkbox"/> 1%	Personal blog (for example, Tumblr, Wordpress)
<input type="checkbox"/> 2%	Flickr	<input type="checkbox"/> 0%	Twitter	<input type="checkbox"/> 1%	Travel-related website (for example, Trip Advisor)
<input type="checkbox"/> 7%	Instagram	<input type="checkbox"/> 0%	Vimeo	<input type="checkbox"/> 5%	Other (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 0%	Pinterest	<input type="checkbox"/> 2%	YouTube	<input type="checkbox"/> 54%	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"/> 2%	<input type="checkbox"/> 10%	<input type="checkbox"/> 32%	<input type="checkbox"/> 57%	<input type="checkbox"/> 18%
Word of mouth (for example, a friend or relative)	<input type="checkbox"/> 7%	<input type="checkbox"/> 7%	<input type="checkbox"/> 21%	<input type="checkbox"/> 35%	<input type="checkbox"/> 30%	<input type="checkbox"/> 42%
People in the local community near the refuge	<input type="checkbox"/> 26%	<input type="checkbox"/> 14%	<input type="checkbox"/> 22%	<input type="checkbox"/> 30%	<input type="checkbox"/> 8%	<input type="checkbox"/> 66%
Refuge employees or volunteers	<input type="checkbox"/> 10%	<input type="checkbox"/> 13%	<input type="checkbox"/> 16%	<input type="checkbox"/> 28%	<input type="checkbox"/> 32%	<input type="checkbox"/> 53%
Printed map or atlas	<input type="checkbox"/> 10%	<input type="checkbox"/> 12%	<input type="checkbox"/> 19%	<input type="checkbox"/> 30%	<input type="checkbox"/> 29%	<input type="checkbox"/> 50%
Web-based map (for example, Google Maps, Waze)	<input type="checkbox"/> 4%	<input type="checkbox"/> 9%	<input type="checkbox"/> 21%	<input type="checkbox"/> 32%	<input type="checkbox"/> 34%	<input type="checkbox"/> 48%
Refuge website	<input type="checkbox"/> 4%	<input type="checkbox"/> 11%	<input type="checkbox"/> 29%	<input type="checkbox"/> 31%	<input type="checkbox"/> 25%	<input type="checkbox"/> 37%
Travel website (for example, TripAdvisor)	<input type="checkbox"/> 58%	<input type="checkbox"/> 8%	<input type="checkbox"/> 25%	<input type="checkbox"/> 0%	<input type="checkbox"/> 8%	<input type="checkbox"/> 83%
Other website (<i>specify</i>) <u>See Appendix C</u>	<input type="checkbox"/> 33%	<input type="checkbox"/> 0%	<input type="checkbox"/> 13%	<input type="checkbox"/> 47%	<input type="checkbox"/> 7%	<input type="checkbox"/> 87%
Social media (for example, Facebook, Instagram)	<input type="checkbox"/> 19%	<input type="checkbox"/> 25%	<input type="checkbox"/> 28%	<input type="checkbox"/> 13%	<input type="checkbox"/> 16%	<input type="checkbox"/> 78%
Recreation club or organization	<input type="checkbox"/> 40%	<input type="checkbox"/> 47%	<input type="checkbox"/> 7%	<input type="checkbox"/> 0%	<input type="checkbox"/> 7%	<input type="checkbox"/> 90%
Refuge printed information (for example, brochure)	<input type="checkbox"/> 6%	<input type="checkbox"/> 13%	<input type="checkbox"/> 22%	<input type="checkbox"/> 33%	<input type="checkbox"/> 25%	<input type="checkbox"/> 54%
Kiosks/displays/exhibits at the refuge	<input type="checkbox"/> 8%	<input type="checkbox"/> 17%	<input type="checkbox"/> 28%	<input type="checkbox"/> 23%	<input type="checkbox"/> 23%	<input type="checkbox"/> 56%
Travel guidebook or other book	<input type="checkbox"/> 47%	<input type="checkbox"/> 18%	<input type="checkbox"/> 6%	<input type="checkbox"/> 18%	<input type="checkbox"/> 12%	<input type="checkbox"/> 88%
Tourist information or welcome center	<input type="checkbox"/> 25%	<input type="checkbox"/> 13%	<input type="checkbox"/> 8%	<input type="checkbox"/> 29%	<input type="checkbox"/> 25%	<input type="checkbox"/> 83%
Other source (<i>specify</i>) <u>See Appendix C</u>	<input type="checkbox"/> 50%	<input type="checkbox"/> 0%	<input type="checkbox"/> 17%	<input type="checkbox"/> 0%	<input type="checkbox"/> 33%	<input type="checkbox"/> 93%

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
7%	14%	35%	31%	14%	Surface conditions of refuge roads	0%	1%	26%	53%	20%	NA
8%	20%	39%	21%	11%	Surface conditions of parking areas	1%	3%	25%	53%	18%	NA
3%	13%	30%	37%	18%	Condition of bridges on roadways	2%	2%	22%	50%	25%	NA
4%	6%	28%	44%	19%	Condition of trails and boardwalks	1%	4%	21%	52%	22%	NA
45%	9%	14%	20%	12%	Condition of boat launches	11%	2%	20%	48%	20%	NA
10%	18%	39%	22%	11%	Number of places for parking	3%	5%	21%	47%	24%	NA
9%	15%	24%	33%	19%	Number of places to pull over on refuge roads	4%	18%	36%	32%	10%	NA
7%	10%	24%	38%	22%	Safety of driving conditions on refuge roads	0%	1%	24%	52%	23%	NA
5%	11%	27%	38%	19%	Safety of refuge road entrances/exits	1%	2%	16%	55%	26%	NA
12%	12%	19%	38%	19%	Safety of roads/trails for nonmotorized users (for example, bicyclists and hikers)	2%	4%	22%	49%	23%	NA
10%	18%	34%	28%	10%	Signs on highways directing you to this refuge	2%	9%	32%	37%	21%	NA
7%	15%	35%	28%	15%	Signs directing you around refuge roads	1%	5%	27%	49%	18%	NA
6%	12%	24%	36%	22%	Signs directing you on trails	3%	6%	28%	47%	17%	NA
18%	11%	20%	28%	23%	Access for people with physical disabilities or who have difficulty walking	4%	11%	36%	35%	14%	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	82%	53%
Private/rental vehicle with a trailer (for boat, camper, or other)	12%	5%
Recreational vehicle (RV)	0%	0%
Refuge shuttle bus/tram	0%	0%
Tour bus/van	0%	0%
Public transportation	0%	0%
Motorcycle	1%	1%
Bicycle	4%	10%
Foot (for example, walking/hiking)	5%	36%
Boat	5%	12%
Other (<i>specify</i>): <u>See Appendix C</u>	1%	0%
Other (<i>specify</i>): <u>See Appendix C</u>	0%	0%

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

Transportation options	Not at all Likely	Slightly Likely	Moderately Likely	Very Likely	Extremely Likely
Bus or tram that takes passengers to different points within refuge boundaries (such as the Visitor Center)	71%	12%	12%	5%	1%
Bus or tram that provides a guided tour of the refuge with information about this refuge and its resources	59%	9%	16%	14%	3%
Refuge-sponsored shuttle with a dedicated stop in the local community for picking up people at set times	78%	12%	7%	3%	0%
Public transit system that stops at or near this refuge	86%	10%	3%	1%	0%
Bike-share program that offers bicycles for rent on or near this refuge	62%	11%	11%	13%	3%
Pedestrian paths for access to this refuge from the local community	57%	13%	16%	11%	3%

SECTION 4. Your expenses related to your refuge visit

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

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

2. Including yourself, how many people in your group shared these trip expenses?
- 2 number of people sharing expenses
3. As you know, costs of travel such as gasoline, hotels, and public transportation often increase. If your total trip costs were to increase, what is the maximum extra amount you would pay and still visit this refuge? (*Mark the dollar amount that represents your response.*)

<input type="checkbox"/> 8% \$0	<input type="checkbox"/> 16% \$30	<input type="checkbox"/> 16% \$100	<input type="checkbox"/> 2% \$250
<input type="checkbox"/> 9% \$5	<input type="checkbox"/> 9% \$45	<input type="checkbox"/> 0% \$125	<input type="checkbox"/> 0% \$350
<input type="checkbox"/> 17% \$10	<input type="checkbox"/> 5% \$60	<input type="checkbox"/> 0% \$150	<input type="checkbox"/> 0% \$500
<input type="checkbox"/> 13% \$20	<input type="checkbox"/> 1% \$75	<input type="checkbox"/> 2% \$200	<input type="checkbox"/> 2% \$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
2%	3%	19%	43%	32%	Convenient hours/days of operation for this refuge	2%	6%	25%	45%	22%	NA
20%	30%	26%	17%	6%	Availability of employees or volunteers	3%	12%	37%	29%	18%	NA
23%	20%	24%	23%	10%	Courteous and welcoming employees or volunteers	2%	2%	23%	45%	27%	NA
6%	7%	32%	33%	23%	Signs with rules/regulations for this refuge	0%	2%	31%	49%	18%	NA
19%	13%	41%	20%	8%	Visitor center	4%	6%	31%	43%	17%	NA
6%	9%	23%	37%	24%	Well-maintained restrooms	8%	11%	27%	37%	17%	NA
8%	12%	34%	25%	22%	Recreational structures (decks, blinds, platforms)	0%	6%	31%	43%	20%	NA
8%	8%	20%	30%	35%	Bird-watching opportunities	2%	2%	19%	47%	29%	NA
4%	5%	14%	41%	36%	Opportunities to observe wildlife other than birds	1%	4%	21%	47%	27%	NA
8%	6%	17%	30%	38%	Opportunities to photograph wildlife and scenery	2%	3%	22%	42%	32%	NA
15%	13%	41%	20%	11%	Environmental education opportunities	4%	20%	41%	25%	11%	NA
48%	6%	7%	14%	25%	Hunting opportunities	6%	11%	19%	39%	24%	NA
43%	11%	15%	15%	16%	Fishing opportunities	10%	10%	22%	28%	29%	NA
7%	5%	26%	29%	33%	Trail hiking opportunities	2%	8%	24%	42%	25%	NA
20%	10%	26%	22%	22%	Bicycling opportunities	4%	11%	30%	38%	17%	NA
26%	13%	29%	14%	18%	Water trail opportunities for canoeing or kayaking	11%	13%	30%	36%	11%	NA
31%	17%	36%	8%	8%	Volunteer opportunities	6%	17%	32%	30%	15%	NA
17%	14%	21%	22%	27%	Wilderness experience opportunities	2%	9%	22%	40%	26%	NA

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

See Appendix C

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

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I felt welcome during my visit to this refuge.	1%	0%	15%	50%	34%
I felt safe during my visit to this refuge.	1%	0%	4%	49%	46%
Crime <u>is</u> a problem at this refuge.	53%	32%	10%	4%	1%
I feel comfortable being in nature.	1%	0%	0%	35%	64%
I do <u>not</u> like being in nature by myself.	62%	23%	7%	5%	3%
People closest to me enjoy participating in nature-based recreation.	1%	2%	7%	50%	40%
Generally, people who look like me are treated differently when they participate in nature-based recreation.	49%	24%	21%	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.	1%	2%	12%	51%	34%
The quality of the overall experience when visiting this refuge.	1%	1%	14%	52%	32%

SECTION 6. Future visits to this refuge

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

If there was...	My participation in my primary activity would...		
	Decrease	Stay the same	Increase
Less water in lakes, rivers, or streams available for recreation	30%	63%	7%
More acreage open to hunting and fishing	27%	47%	26%
More infrastructure (for example, bathrooms, observation decks)	1%	64%	35%
Recreation equipment available for rent (for example, fishing rods, binoculars, snowshoes)	10%	74%	16%
Less regulations on fishing	13%	74%	13%
Less regulations on hunting	26%	55%	18%
A greater diversity of species	1%	45%	54%
Fewer numbers of a single, preferred species	17%	77%	6%
More people participating in my primary activity	26%	67%	7%
An improvement in the quality of wetlands	1%	53%	46%
An improvement in the quality of wildlife habitat other than wetlands	1%	46%	53%

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

90% Yes 1% No 9% 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.*)

49% 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:

50% Programs that engage youth	11% Programs that focus on creative pursuits (for example, art, writing, meditation)
42% Programs that focus on family/multiple-generations	25% Programs that support people with accessibility concerns (for example, difficulty walking, in a wheelchair)
65% Programs that teach skills to visitors	14% Other (<i>specify</i>) <u>See Appendix C</u>
29% 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? ☐ 74% Male ☐ 26% Female

2. In what year were you born? 1964 (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"/> 27%				<input type="checkbox"/> 43%				<input type="checkbox"/> 29%			

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

<input type="checkbox"/> 97% White	<input type="checkbox"/> 0% American Indian or Alaska Native
<input type="checkbox"/> 3% 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"/> 0% Asian	<input type="checkbox"/> 2% Some other race or ethnicity

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

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

<input type="checkbox"/> 2% Less than \$10,000	<input type="checkbox"/> 18% \$35,000 - \$49,999	<input type="checkbox"/> 16% \$100,000 - \$149,999
<input type="checkbox"/> 5% \$10,000 - \$24,999	<input type="checkbox"/> 28% \$50,000 - \$74,999	<input type="checkbox"/> 5% \$150,000 - \$199,999
<input type="checkbox"/> 4% \$25,000 - \$34,999	<input type="checkbox"/> 20% \$75,000 - \$99,999	<input type="checkbox"/> 2% \$200,000 or more

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

<input type="checkbox"/> 50% Employed full-time	<input type="checkbox"/> 1% Unemployed	<input type="checkbox"/> 27% Retired
<input type="checkbox"/> 7% Employed part-time	<input type="checkbox"/> 3% Homemaker/caregiver	<input type="checkbox"/> 3% Disabled/unable to work
<input type="checkbox"/> 7% Self-employed	<input type="checkbox"/> 1% 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
Backyard field day	1
Child fishing	1
Clean up grounds	1
Family day	1
Family day open house	1
Field day	1
Stem	1

Other Activity	Frequency
Trapping	1
Wildflower observation	1

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

Primary Activity	Frequency
Auto tour route/driving	32
Bicycling	3
Bird watching	20
Environmental education	1
Fishing	4
Hiking	12
Hunting	21
Motorized boating	1
Nonmotorized boating	2
Photography	8
Running	3
Special event	3
Trapping	1
Wildlife observation	33

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
Checked the hours refuge is open	1
It was closed	1
Picked up a map of the auto tour	1
Visited the classroom	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	9
Strava	1

Survey Section 2

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

Other Websites	Frequency
AllTrails	1
MI DNR	1
Michigan.org	1
MiHUNT	1
Shiawassee website	1

Other Information Sources	Frequency
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
Trapping permit	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
Biking-related activities	1
Bird-related programs	3
Citizen science	1
Nature-related programs	2
Other	1
Wildlife-related programs	2

Survey Section 3

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

Comments on Transportation-Related Features at This Refuge (n=38)

Cannot have too much signage within the refuge to direct you to hunting sites during low light conditions.

Could have better signage and directions on roads.

Edges of the road needs the grass cut. Maintenance is poor. People in cars can't enjoy or see when the grass is taller than their car!

Entrance is quite crappy most of the year. Big potholes are all over the opening. Very rough on a boat trailer. Big potholes form on the driveway going down as well, but those are mostly on one side of the road way.

Everything was well-maintained.

Gravel roads and dirt paths in this park are appropriate and well-kept but may limit wheelchair access.

I grew up in Frankenmuth and visit this refuge when I visit, but I don't like that the refuge doesn't open until June 1st. I think opening the refuge road earlier in the spring would allow me to enjoy it over the memorial holidays.

I hate when they close in the fall for the hunters.

I have previously suggested having several places along the drive thru where the weeds are cut to allow visitors to better see animals (e.g. every 1/4 to 1/2 mile cut a 15-20 ft wide opening to allow visitors to walk into the fields). Would be most important toward the end of summer when weeds are 3-5 ft tall.

I would like more spots to pull over on the auto trail.

I would like to return with mountain bikes but am a bit concerned because bikes & motorized vehicles share a narrow 1-way loop with few areas to pull over. Not a problem if few visitors.

I would love to run/jog in the refuge. Putting in gravel or paved trails would be great. Instead of mowed down pathways that are hard to use.

It is helpful to have places for cars to pull over so faster vehicles can go around them.

It's a trail in a wildlife refuge, it should not need to be larger or paved. It is charming and adequate just the way it is.

Marked down a bit for parking pull offs in refuge, mainly when it is busy. Want to get a picture but have a line of cars behind you sometimes and wind up missing some great shots or even just to see and show the kids something.

More room for pull offs along wildlife loop that easily allow cars to get around.

Need more place to pull over on drive trail; post signs to tell others to pull over if someone is driving close and wants to go around (not sure how to word it). Drives should be open days/months - too short of time allowed on drive e.g. fall colors, winter.

Need more pull offs.

Need to open more trails.

One lane road thru refuge.

Parking lot on Cass River is too small.

Refuge was unexpectedly closed on the day we arrived, as there was hunting in the area. This is very disappointing, as it often closes unexpectedly. You must check the website every single visit before you go. Sometimes (as was on this day), I am not near a computer to go online to check if it's open. It's usually open in the fall when I've come before.

Road should go through the reserve more, not just around it.

Shiawassee refuge is very well maintained from we can see.

Should change directions on the one-way auto route once in a while.

SNWR is a great resource in our area.

Some people use the roads for a race track. But I don't know how you can stop that.

Thank you! I love our parks. When you're in the park taking photos of the one thing you have been looking for, it makes your day.

The brush along the road is getting to tall to see past it. With the addition of all the wetlands, you cannot see the animals as well as before.

The drive for cars needs to be open more than just June-September for people who are unable to use the trails to enjoy the refuge. Older visitors are the ones more likely making donations and they are very limited in the time they can enjoy the refuge throughout the year.

The handicap-accessible viewing station was built to make it impossible to navigate on wheelchair to it.

The only thing I wish is that there were more places to pull over for faster cars behind us.

There was only one road and one way to go. Road was good but narrow, with just a few places to pull over.

We enjoy driving slowly on the auto drive to observe birds and take pictures. Sometimes difficult to stop and observe when others are driving so close to your car and there isn't a pull off. Understand why there are not more pull offs to not disturb the refuge.

We like to take the drive "slow" to enjoy birding, wildlife and photography. There are not enough places to pull over safely to let faster vehicles go by. The access to the bathrooms along a dirt path up a hill to the one bathroom is very difficult to get to at the entrance for people who have difficulty walking.

Where the brick waterway is has taken its wear on my vehicle so something different at that area would be great.

Would like more access to restrooms during the auto tour.

Would like to see more access to some additional trails.

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=47)

All employees are great and are hardworking, friendly people. Nothing but good things to say. Have been enjoying the refuge over 40 years.

At Shiawassee National Wildlife Refuge, I wish the wildlife drive would be open before June 1 and after September 30. May would be a great time to use the wildlife drive!! Also, I wish more habitat could be managed for shorebirds.

At the location I usually use for fishing there is no restroom, kind of sucks, but the location is not the best neighborhood. But where the trailhead locations are at are great! Those places have nice restrooms and visitor kiosks.

Bathrooms are disgusting! Rarely, if ever, cleaned. Very gross.

Circle tour has only 1 bathroom that a disabled person can use. The other one you have to walk quite a way. Being a one-way road is hard on the disabled.

Great place to visit to see wildlife and just enjoy nature itself. A peaceful place to go.

I am happy they put the car trail in the refuge, been walking it for many years.

I am unhappy with how the goose hunting ground blind sites have been eliminated. I do like that ducks have been added to the hunting opportunity.

I do not receive information about volunteer opportunities. I'd like to! I am a local teacher, mom and grandmother - never hear about education programs for adults or kids here. I don't know of any outreach to Bridgeport schools or others nearby to encourage trips or education.

I have 2 young children and they had the most fun catching frogs with nets at the pond. I enjoy the trails, but there were too many mosquitoes when I visited.

I was extremely happy when the old golf course was taken over by Shiawassee NWR, fantastic pre-made trails (golf cart trails) and all kinds of wildlife. The area around this refuge is not the best, but I have never felt threatened, as it is tucked away and off the beaten path. I walk there daily, weather permitting, as therapy. Love this area, let me know if you need help with anything! You can contact me at [email].

I would happily volunteer to help improve this location. Slightly widen paths, clear debris from trails, host events. What is the intention of the refuge team for this site? If it's creating access, there is a lot of opportunity for improvement.

I would like the driving trail to be available more days of the year.

I would like the opportunity to hunt small game/upland birds (pheasant etc.) to continue.

I would like to see the auto route open earlier in the spring. I realize, however, that there are good reasons for not doing so. Thanks for asking for my input. The refuge is a great resource - not very well known to locals.

In regard to the auto tour, it seems that the diverse use of the trail has led to it being used by runners, bicyclists, walkers, and in one case a unicyclist. The rules for the auto tour need to be more available to users.

It is disappointing that all the years we have come here, the visitor center has never been open. Also, most importantly, the only bathrooms are a long walking distance up a hill near the entrance making it very difficult for people with disabilities. We also wish it was open the first of May and go into October, not June and September.

It would be nice if Green Point was open on the weekend.

It would be nice to have a restroom. I know this would be expensive to maintain so I understand why there is not one.

More restrooms.

My wife and I drive around this refuge almost weekly when we are home. We love it. We only wish we could get in earlier in the year and later in the fall. We love the place.

Need a bathroom facility at least at the halfway point on the drive.

Need handicapped restrooms on the auto drive.

Need more pull off sites.

Need a restroom facility.

Need a restroom in the center of the auto tour.

Nice drive, would like to see more trails opened, at least for walking or biking.

Ok you have opened up part of the area to small game hunting and predator hunting. Such as fox, coyotes, and raccoons. But you want us trappers, that are trying to help you control the populations, to pay you to do this. I don't think this is fair in those areas. I understand that you need numbers to see what is taken each year. And some people won't tell you that. But I trap most of the farms in that area. I have seen a huge increase of stolen traps now so some areas I won't set. But I don't think it is fair that you can hit those animals and have to pay to trap them is all I am saying.

Open the wildlife loop year-round please.

Opening the auto route earlier in the spring.

Other than stopping to get on platform and look out at the river or swampy area, we usually drive through. We drive through during all the time the refuge is open, love it.

Poor management, nothing gets fixed, where is the wildlife? The grassland is a joke, more animals outside than in the refuge. No deer, the pools are wastelands, no waterfowl.

Seems like it is more of a motor tour type of facility.

Stay open, longer hours.

The day of my visit all of the hiking and driving access was restricted due to hunting season. I was able to bird watch from a deck platform at the parking lot. It would be nice if, even during hunting season, there was a restricted/limited trail area where birders and non-hunters could at least experience a little bit of the refuge beyond just a stationary observation.

The facilities are wonderful. However, the visitor center can be difficult to locate since it is far from the refuge. I understand the need to limit access to ensure the security of the wildlife, but it would be very nice to have walking paths along the Shiawassee River, and some limited kayak access to the river as well.

The refuge has three trails. The river trail is overgrown, and the river has eroded the parts of the trail closest to the water. I would like to see the trail cleared and rerouted where the erosion has taken place. Other than that, I love the refuge and everything about it.

The unscheduled closures are a big pain. This time, we were on our way home to the Detroit area from up north, but it was a few miles out of our way. If we were coming from home, we'd have to remember to check the website first.

The wildlife drive should open by May 1st each year. Not June 1st as it is now. Possibly stay open till October 31st.

This is a managed refuge, not a national park. Hunting and fishing are important here. Many of the questions are not appropriate.

This place is a hidden gem. It's not far from home, but for some reason it's not "on the radar" of many local people. Our visit was a magical day - unforgettable!

This was just a "by chance" visit; saw the sign and came to the refuge. Didn't have a lot of time so just drove through. May take advantage of available services on the next trip.

Trails need some upkeep.

We have not found a restroom as of yet. That has made visits difficult with aging adults in our vehicle. We have to leave the area completely to use a restroom.

When hiking lost trail - need to cut weeds back on the roadway, you can't see over them.

Would be nice if the drive through could be open for part of October as it used to be - to allow opportunity to see more migrating birds.

Would like more roads for people having trouble walking.

End of Survey

General Comments (n=32)

Appreciate the new waterfowl hunting opportunities!

Auto tour routes are always a nice addition to refuges. More area can be covered to see more wildlife and a variety of habitats.

Create awareness and sponsor volunteer activities and we can drive more people to this resource. It's underutilized and underdeveloped. Perhaps underutilized because it's underdeveloped.

I enjoy visiting the farm that my grandfather and father built up only to have the Fish and Wildlife steal from them after my grandfather's death.

I love going there.

I would like more places for fishing, or at least more stocking of game fish would be nice.

If there's a safe way to cut down on the number of mosquitoes on the trails, that would be great! Or maybe have mosquito nets you can wear on your head and face available for rent. More organized events would be nice. My kids and I love nature and would participate in family-oriented events. This would include all of the seasons.

It is a family tradition to hike together through Shiawassee flats. We are all interested in biology/ecology/environment.

It would be nice if the trails were maintained so that when driving, you can see better. Brush is too tall; weeds are too tall. Maybe put more farm fields back in so we can see the deer aging.

Just love this place, I used to golf here as a teen, now I walk the paths and marvel at the deer, turkeys, and tons of birds as an adult. Just let me know when you need a full time attendant, I work cheap! [email address].

Love the Shiawassee NWR thanks!

My wife and I are very excited to have the opportunity to kayak throughout the Shiawassee National Wildlife Refuge on the Cass River. What a great time we have had already! Thank you for your service.

Please consider more developed walking paths.

Please open the wildlife drive earlier in the spring and later in the fall. Also, more shorebird habitat would be great.

Quality land-based blinds for goose hunting should be maintained!

Shiawassee NWR is a gem in/near this urban area. The staff has always been professional. One concern is safety in parking areas. Years ago, there was a murder in parking lot. Broken auto glass is occasional. Could be patrolled more often by staff. My family and self always have a wonderful time! Thanks!

Shiawassee NWR recently updated its hunting plan and expanded hunting opportunities. Expanded waterfowl hunting opportunities were my exclusive reason for visiting the refuge this year. While I'm very pleased that they've expanded these opportunities, I do believe that they could be further expanded with very little additional impact to the resource.

Thank you for preserving this beautiful refuge for all to enjoy!

The hunt that was opened up is great. But I still feel we should not have to pay to trap and help maintain animal populations. I can't run a ton of traps and come even close to the numbers they want, I work full-time. And with only being able to walk around out, there there's not a lot of time to do so. It would be nice if we could use UTVs out there on the auto drive and for trapping staying on the roads with them. Also being able to use boats for trapping to. Thanks.

The public lands of this country are very important to me and my family. It gives us a place to be in nature and escape the daily grind. We do not want these places to be destroyed by corporate interest and greed.

The Shiawassee Refuge is amazing for its beauty and natural wildlife.

Trails should be graded more often. Trails should be open year-round.

Want to thank everyone at the refuge for answering questions over the years, for not only my sons but myself as well. Looking forward to bringing my granddaughter to see all you have to offer; she is going to love it! Thank you for all you do and provide to the community.

Was disappointed that the river trail was closed, as I was there primarily to observe turtles. Surprised the people doing this survey didn't know the trail was closed.

We (my wife and I) love visiting the refuge at every opportunity and only wish it could be open (the auto tour) longer than 4 months.

We are thankful for what the refuge is now. Too many improvements could take some of the charm out of it. Easy access restrooms and a couple more parking spots with handicapped access would be nice.

We love this refuge. We like watching it change week to week and year to year. My wife and I use it to spend time together, just us.

We loved this place. The juxtaposition against farmland and nearby urban decay really emphasized the uniqueness of the ecosystem.

Where are the wildlife? The pools are dried up and there is no waterfowl, more deer outside the refuge than inside. Maybe because of the grass fields. If grass fields are so great, why do the deer go out of the refuge to eat? College educated biologists need to spend more time in the field instead of the office! Just like any government program, it is screwed up. Wasting our tax dollars. I am very disappointed in the way this refuge has gone down the tubes and I am not alone - ask any of the local people!

Wish access for birdwatchers was available for more months of the year.

Wish the auto drive had a longer season - not just June to September.

With a single lane road going one way only, it makes it difficult driving through the refuge and trying to sightsee the wildlife when other vehicles are on your bumper and wanting to pass. Another instance while we were driving through, a visitor proceeded to go ahead of us on their motorbike and speed through, making loud motor noises and throwing dust and stone up from the gravel one lane road. This in turn would frighten any wildlife and therefore ruin our drive through to be able to observe and enjoy the wildlife. These people are very rude. I wish there were park officers of some sort that were there or available to supervise this kind of behavior in a national refuge. There were none in both instances when we were there. This makes me question safety for the visitor, the wildlife and the lands if there are no park rangers available at all times while park is accessible during visiting hours.