



U.S. Fish & Wildlife Service

NATIONAL WILDLIFE REFUGE VISITOR SURVEY

*2018 Results for
Kirwin National Wildlife Refuge*



**THE OHIO STATE
UNIVERSITY**



Acknowledgments

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

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Front cover: A prairie dog peeks out of its burrow at Kirwin National Wildlife Refuge. Photo credit: Michelle Ferguson.

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Understanding Wildlife Refuge Visitors & Their Experiences

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

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

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

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

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

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



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

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

Kirwin National Wildlife Refuge is located in northcentral Kansas. The refuge was established in 1954 for the purpose of conserving and managing habitat for migratory waterfowl. The 10,778 acres are made up of rolling hills in the valley of the North Fork of the Solomon River. This portion of the river is impounded at Kirwin Dam and the resulting Kirwin Reservoir is located entirely within the refuge. The main habitats in this wildlife refuge include open water, wetlands, grasslands, and wooded riparian areas. The croplands that surround the refuge and the large expanses of open water on the Kirwin Reservoir attract large flocks of waterfowl including Canada geese and snow geese. In addition, this wildlife refuge is home to many native prairie species such as whitetail deer, upland birds such as the greater prairie-chicken and ring-necked pheasant, and prairie dogs.

Kirwin National Wildlife Refuge attracts over 90,000 visitors annually (U.S. Fish and Wildlife Service, 2018, written comm.). Fishing and hunting are two of the most popular activities on the refuge. Multiple boat launches and recreation areas allow visitors to fish from



Pheasant hunters line a roadway at Kirwin National Wildlife Refuge in hopes of bagging their first birds of the season. Photo credit: Kylie Campbell.

boats as well as along the shoreline. The large male deer (bucks) that thrive on the refuge draw in visitors from all over the country for the annual archery deer hunt. Two nature trails are available to visitors, including one that winds through active prairie dog habitat.

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 153 visitors agreed to participate in the survey by providing their names and addresses.
- In all, 78 visitors completed the survey online (38%) or by mail (62%) after their refuge visit, resulting in a 52% response rate. **Due to the small sample size, results contained in this report should be interpreted with caution.**
- Results for this wildlife refuge have a $\pm 9\%$ margin of error at the 95% confidence level. For more details on limitations of results and survey methodology, see Appendix A.

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

- 14% of visitors were female with an average age of 55 years (Fig. 3).
- 86% were male with an average age of 58 years.

EDUCATION

- 31% of visitors had a high school degree or less.
- 55% had at least some college.
- 15% had an advanced degree.

RACE & ETHNICITY

Most prevalent race or ethnicity (Fig. 4):

- White (95%).
- Multiracial (4%).

INCOME

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

OTHER TRIP CHARACTERISTICS

- Average group size of 3 people.
- 19% visited the refuge alone.
- 61% visited with at least one other adult.
- 19% visited with a combination of at least 1 adult and 1 child.

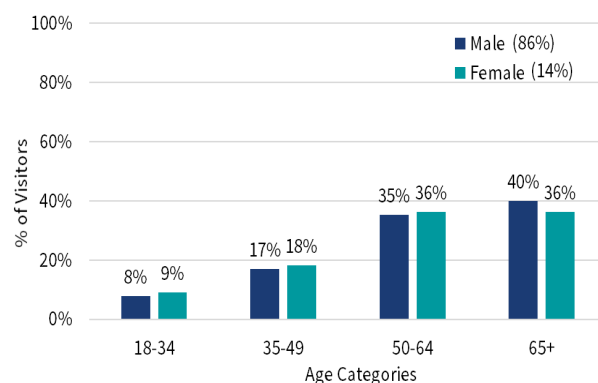


Fig. 3: Distribution of visitors to this refuge by gender and age group.

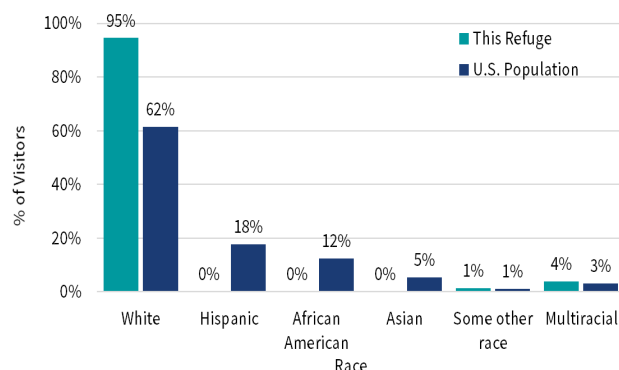


Fig. 4: Race and ethnicity of visitors to this refuge compared to the national average.

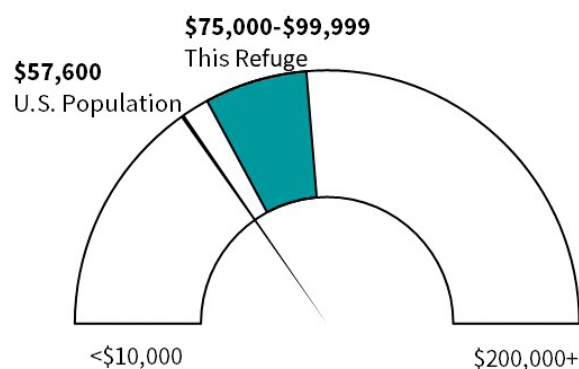


Fig. 5: Mean income range of visitors to this refuge compared to the national median income.

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 (55%) include:

- For locals, this refuge was the primary reason for their trip (83%) (Fig. 6).
- Local visitors traveled an average of 25 minutes to arrive at this refuge (Fig. 7).

NONLOCAL VISITORS

Highlights of trip characteristics for nonlocal visitors to this wildlife refuge (45%) include:

- For nonlocals, this refuge was the primary reason for their trip (69%) (Fig. 6).
- Nonlocal visitors traveled an average of 8 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 Kansas (31%) and Nebraska (16%).



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.

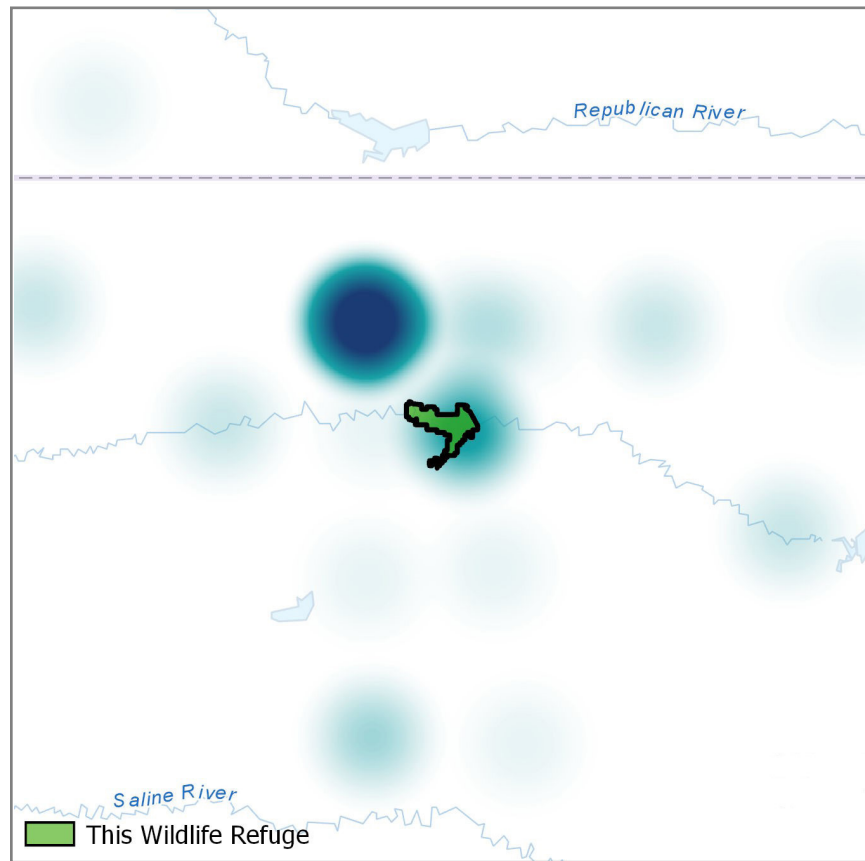


Fig. 7: Map showing residence of local visitors to this refuge. Darker shading represents relatively higher visitation from that area.

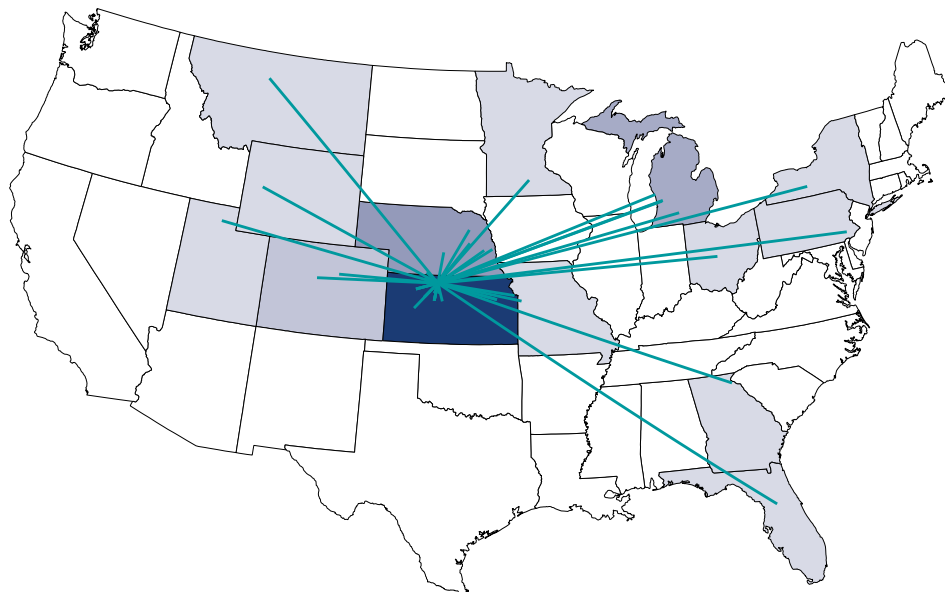


Fig. 8: Map showing residence of visitors to this refuge by zip code, with each line representing visitation from a different zip code. The convergence point of the lines is the geographical center of the refuge. Darker shading of the states represents higher visitation from that state.

OTHER TRIP CHARACTERISTICS

Other trip characteristics include:

- To get to this wildlife refuge, visitors primarily traveled by private vehicle without a trailer (61%) and by private vehicle with a trailer (49%) (Fig. 9).
- Once on the refuge, visitors primarily traveled by private vehicle without a trailer (38%) and by boat (26%) (Fig. 9).
- Visits occurred during winter (39%), spring (64%), summer (59%), and fall (67%).
- 74% of visitors made a single-day trip to this refuge, spending an average of 5 hours, while 26% of visitors were on a multi-day trip to this wildlife refuge that averaged 6 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 27 times.
- 25% visited other national wildlife refuges, averaging 1 visit.
- 55% visited other public lands, averaging 8 visits.

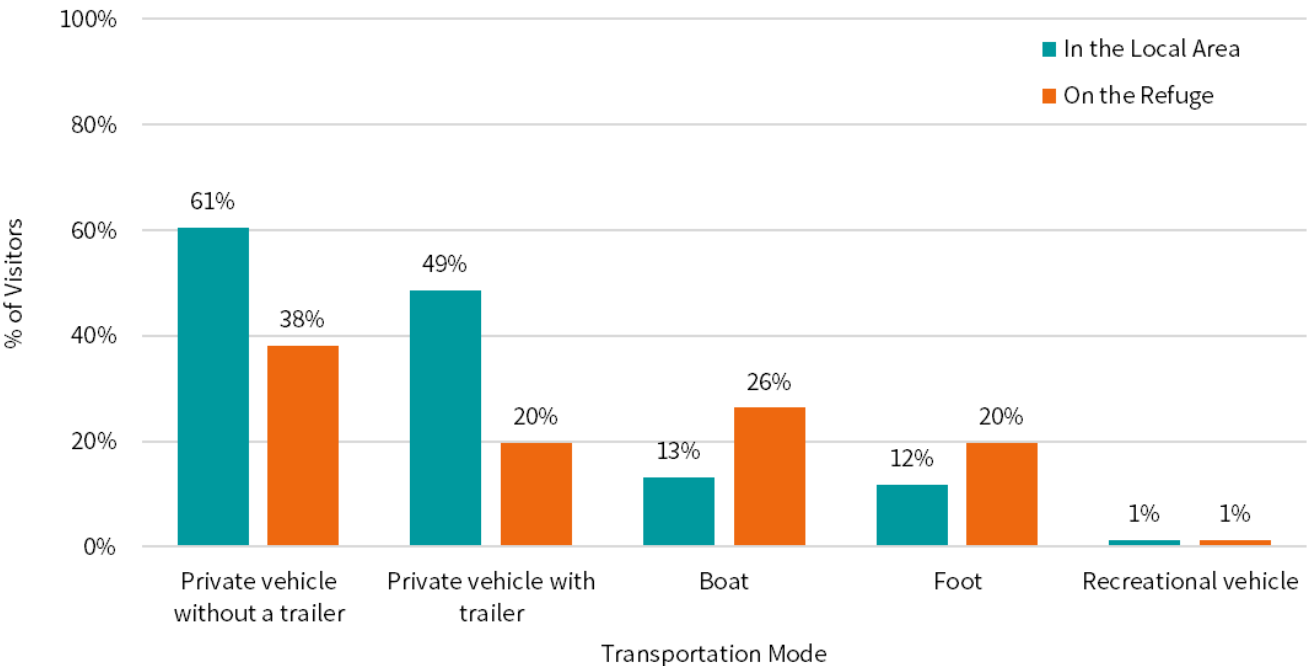


Fig. 9: Modes of transportation used by visitors to get from the local area to this refuge and within the boundaries of this refuge.

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 such as word of mouth (55%) (Fig. 10).
- Print and internet sources such as a printed map/atlas (54%) (Fig. 11).
- Refuge-specific sources such as refuge employees/volunteers (45%) and refuge printed information (44%) (Fig. 12).

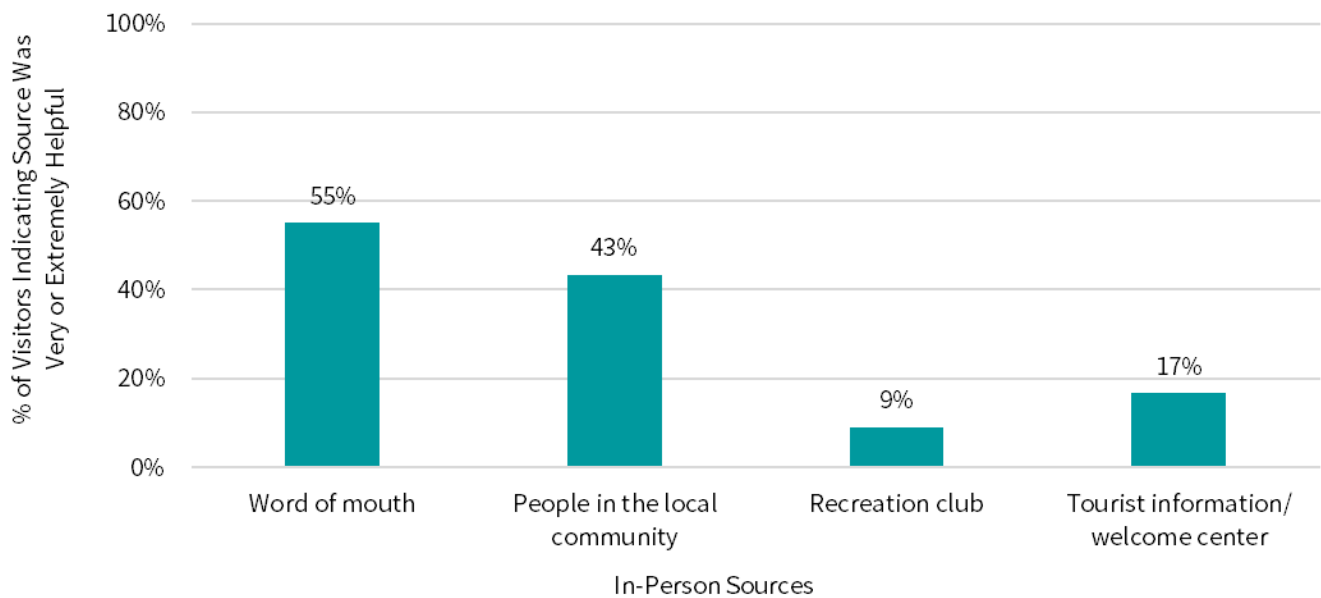


Fig. 10: Percent of visitors who found in-person information sources very or extremely helpful in planning their trip.

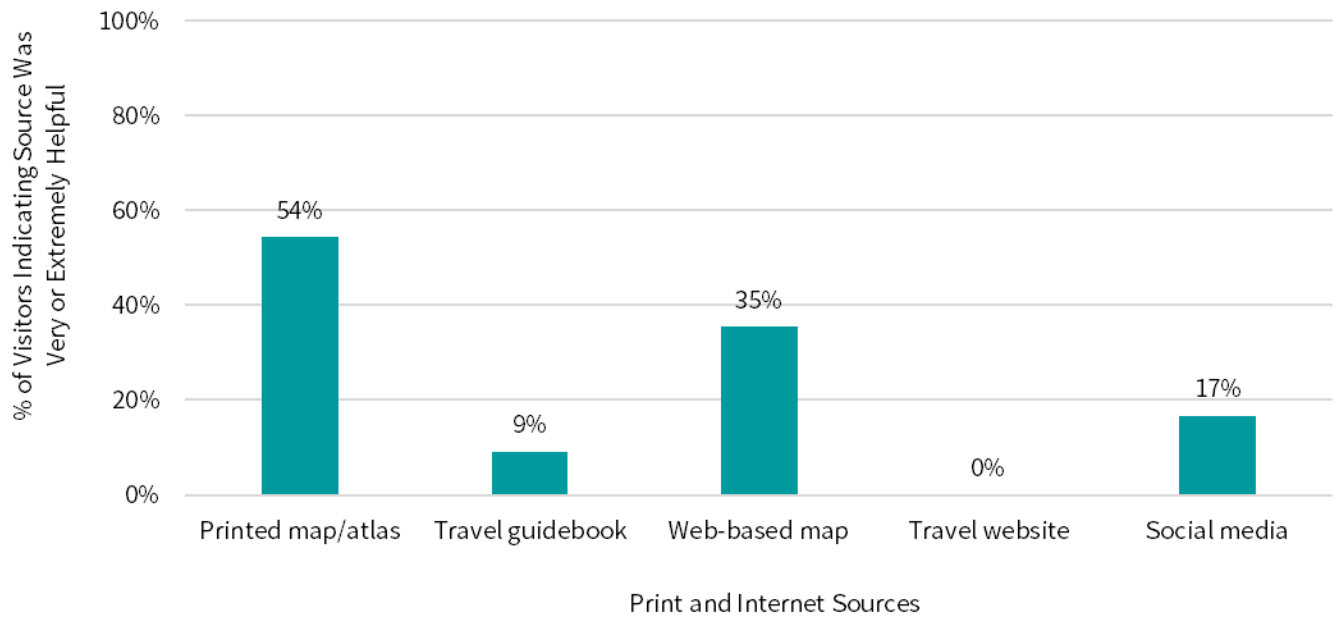


Fig. 11: Percent of visitors who found print and internet information sources very or extremely helpful in planning their trip.

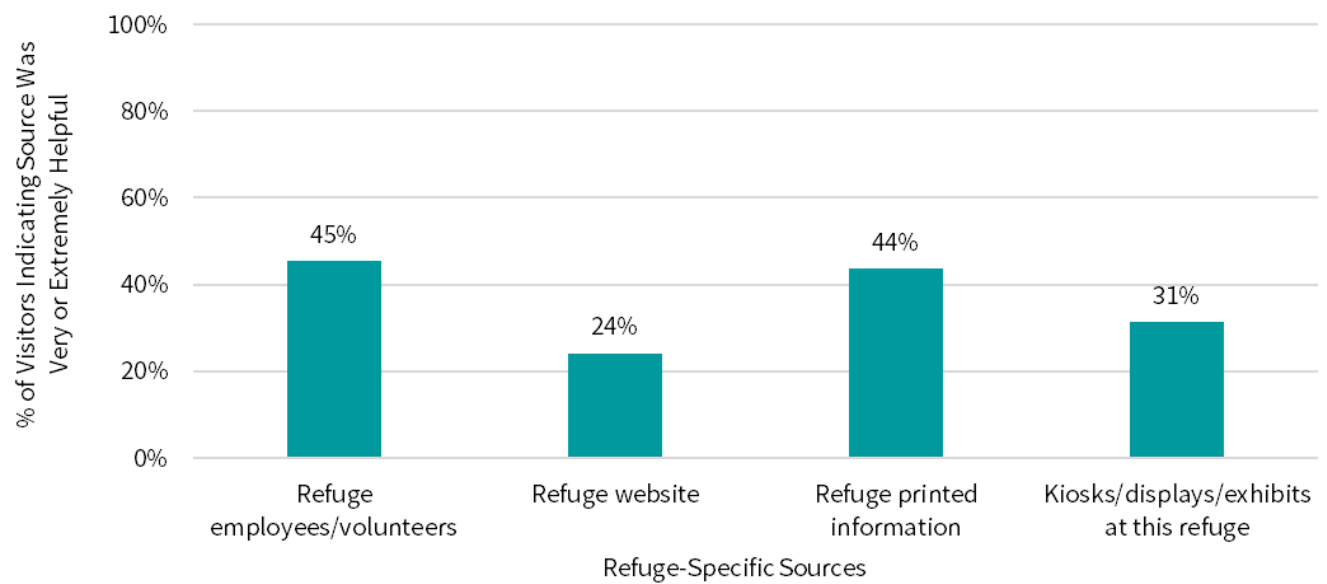


Fig. 12: Percent of visitors who found refuge-specific information sources very or extremely helpful in planning their trip.

Use of Social Media

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

Social media was used by 30% of visitors to share their experience on this refuge with others. Visitors used the following specific social media platforms to share about their refuge experiences (Fig. 13):

- Facebook (28%),
- Instagram (5%),
- Snapchat (4%), and
- Twitter (5%).

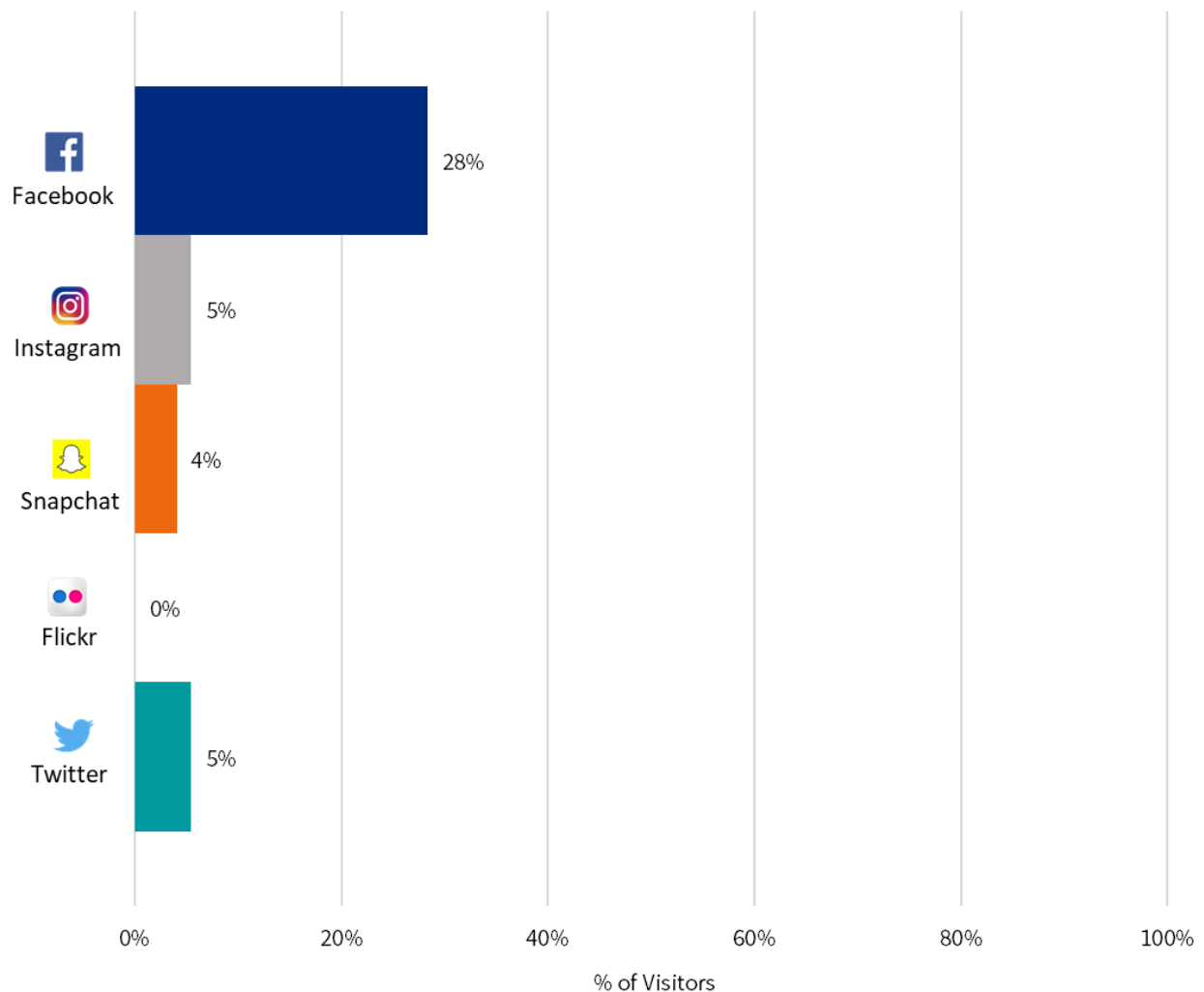


Fig. 13: Percent of visitors who used various social media platforms to share their experience on this refuge with others.

Participation in Recreational Activities

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

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

- The top three activities in which visitors participated during the past 12 months were fishing (75%), hunting (52%), and wildlife observation (40%) (Fig. 14).
- The top three activities noted as their primary activity on the day visitors were contacted to participate in the survey were fishing (57%), hunting (37%), and wildlife observation (4%) (Fig. 14).
- Approximately 10% of visitors went to the visitor center. However, results are not presented due to a low sample size.



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

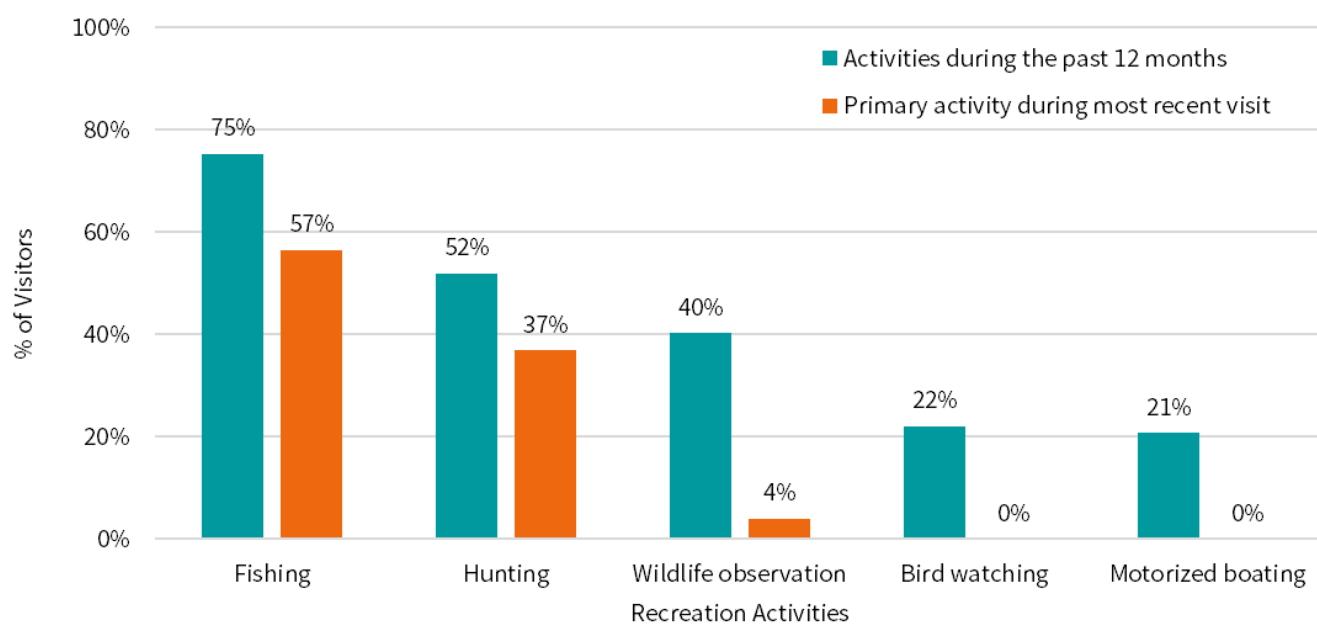


Fig. 14: Recreational activities visitors participated in during the past 12 months and their primary activity during their most recent visit to this refuge.



A view of the south shore at Kirwin National Wildlife Refuge. Photo credit: Michelle Ferguson.

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:

- 65% of visitors felt welcome during their refuge visit (Fig. 15).
- 91% of visitors felt safe during their refuge visit (Fig. 15).
- 95% of visitors reported that they feel comfortable being in nature, but 6% do not like being in nature alone (Fig. 16).

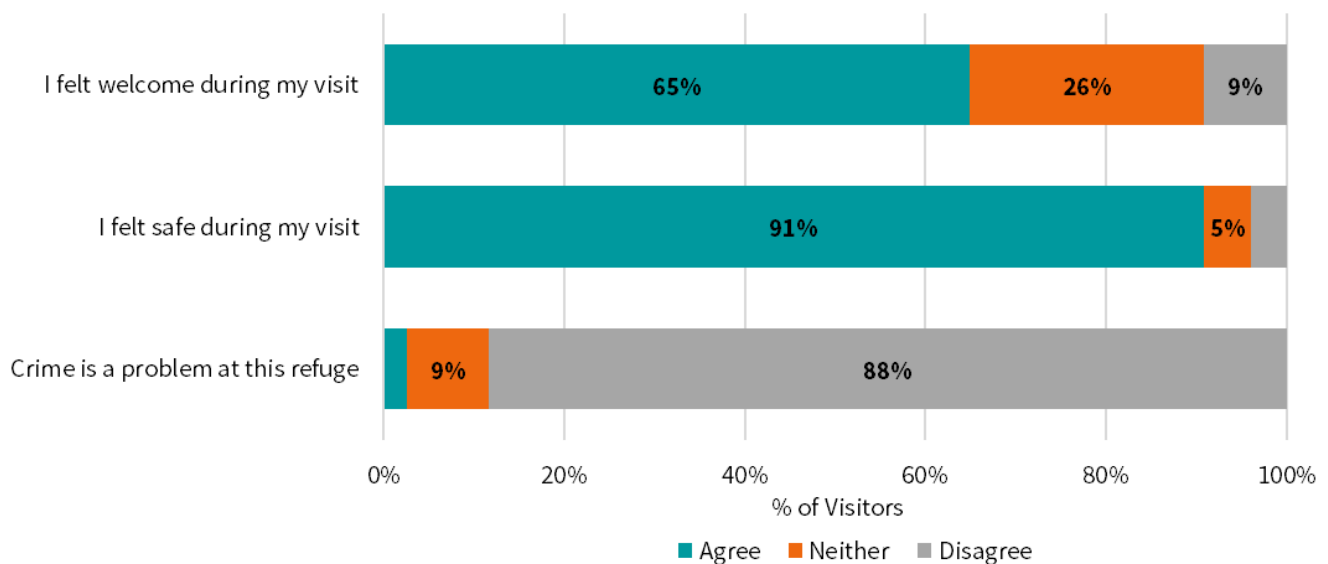


Fig. 15: Visitors' perceptions of safety and feeling welcome at this refuge during their visit.

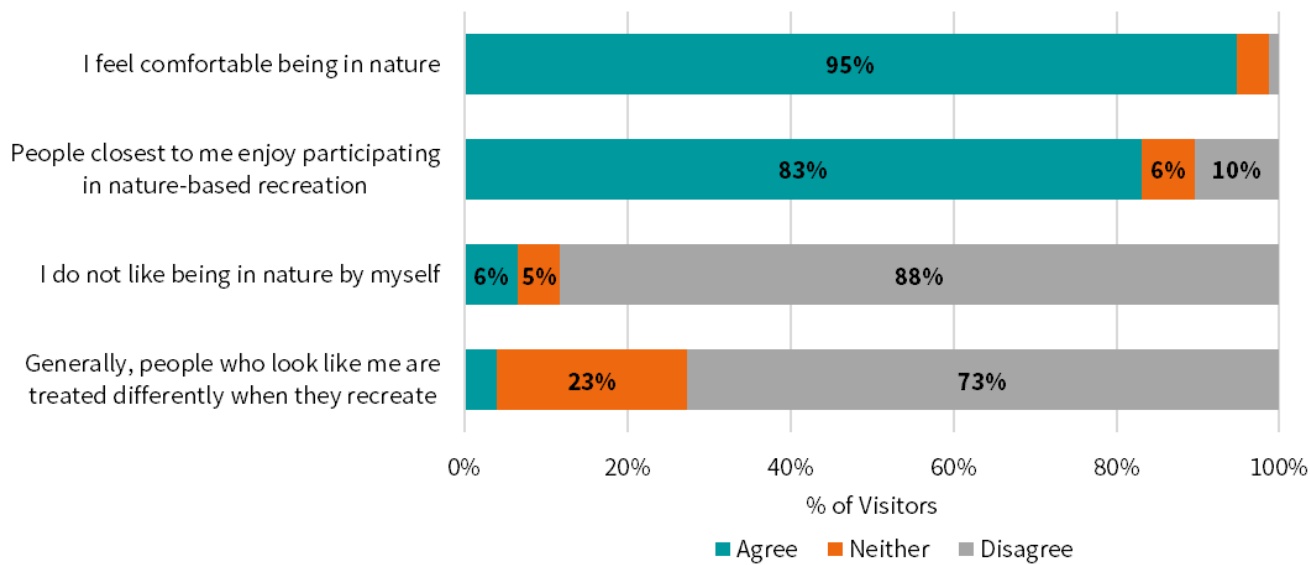


Fig. 16: Visitors' comfort with being in nature.



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

Satisfaction with Refuge Experiences

OVERALL SATISFACTION

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

- 54% of visitors were very or extremely satisfied with the overall experience at this wildlife refuge (Fig. 17).
- 46% of visitors were very or extremely satisfied with this wildlife refuge's job of conserving fish, wildlife, and their habitats (Fig. 17).

CUSTOMER SERVICE

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

Satisfaction with customer service was highest among visitors for the following (Fig. 18):

- refuge hours/days of operation (72%),
- courteous and welcoming employees/volunteers (59%), and
- signage stating rules and regulations (54%).

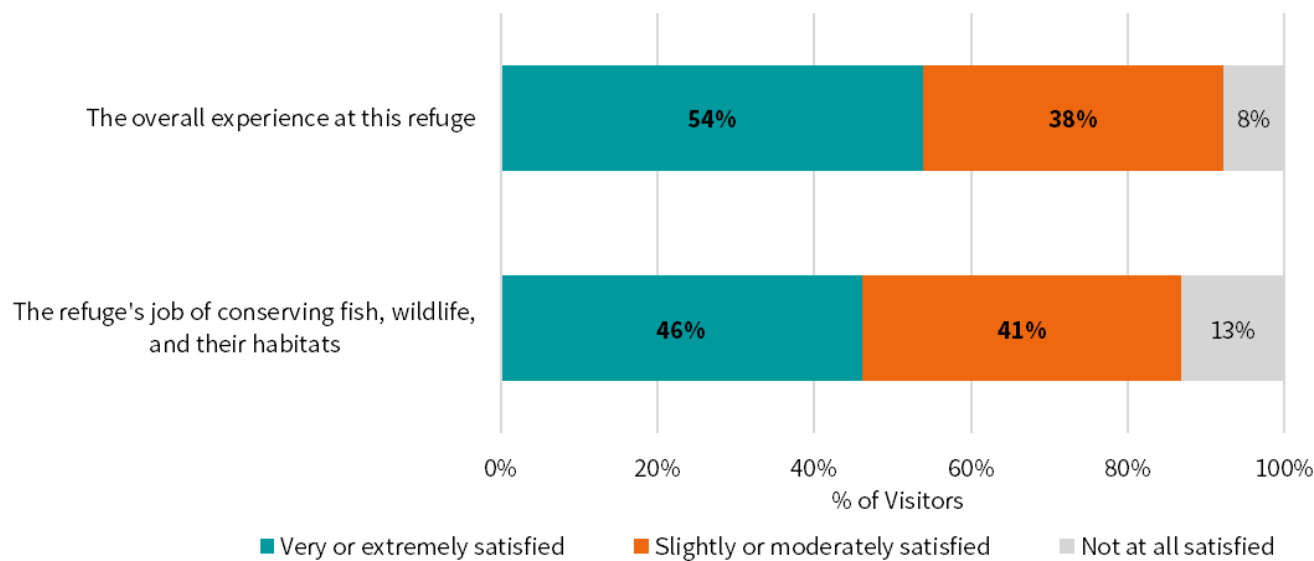


Fig. 17: Visitors' satisfaction with their experience at this refuge and with this refuge's job of conserving fish, wildlife, and habitats.

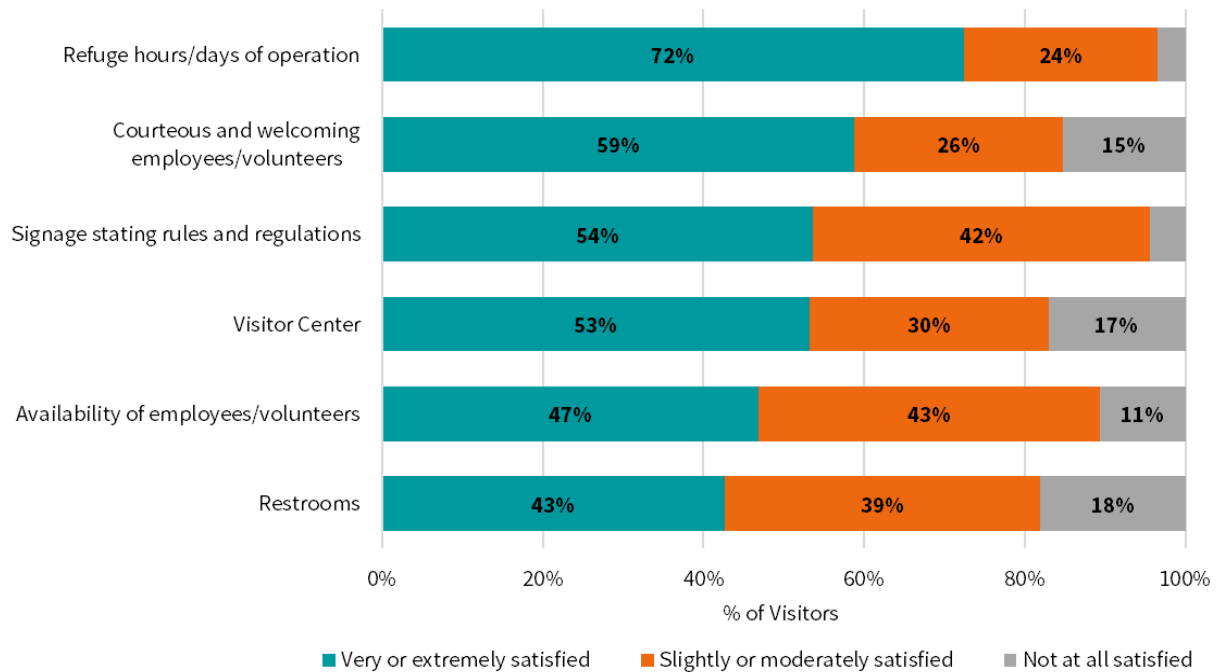


Fig. 18: Visitors' satisfaction with customer service and amenities at this refuge.

RECREATIONAL OPPORTUNITIES

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

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

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

- fishing (67%),
- wildlife observation (63%), and
- bird watching (57%).

"[Kirwin National Wildlife Refuge] is a nice place with great people working for it and great communities around it. I've loved growing up here and am hoping to be able to come back as much as possible for more hunting and fishing." – Visitor to Kirwin National Wildlife Refuge

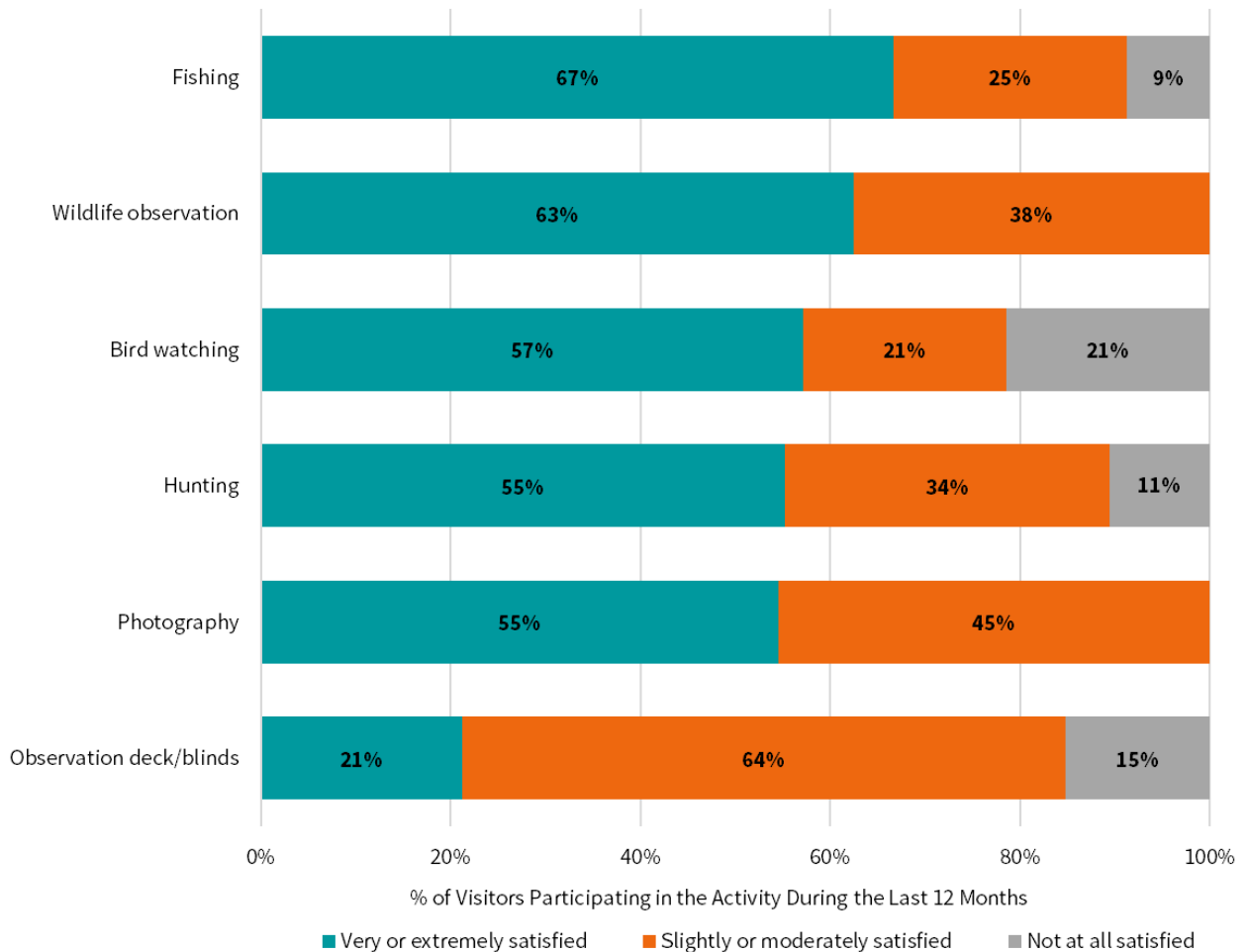


Fig. 19: Visitors' satisfaction with recreational opportunities at this refuge. Only visitors (10 or more) who participated in activities related to each opportunity at this refuge during the last 12 months were included.

TRANSPORTATION SAFETY & ACCESS

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

Visitors were satisfied with transportation safety and access at this wildlife refuge as follows (Fig. 20):

- Getting to this wildlife refuge, visitors were most satisfied with directional signs on highways (58%).
- Getting around this wildlife refuge, visitors were most satisfied with condition of bridges on roadways (57%), and directional signs on the refuge (55%).
- Accessing recreation on this wildlife refuge, visitors were most satisfied with safety of roads or trails for nonmotorized use (43%), and directional signs on trails (43%).

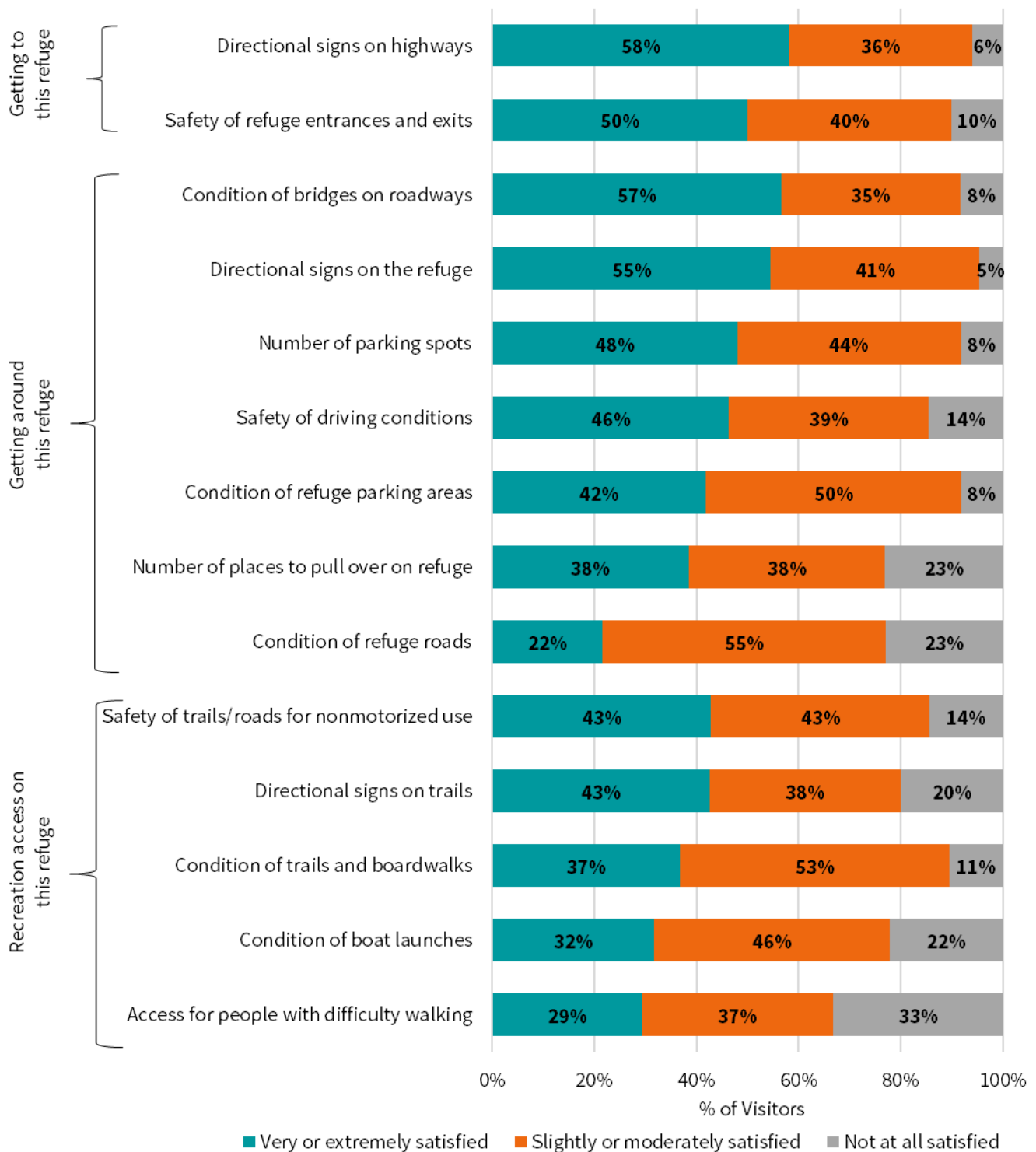


Fig. 20: Visitors' satisfaction with how the refuge is managing transportation-related features.

Economic Benefits to Local Communities & Visitors

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

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

Results for local visitors (those living ≤ 50 miles from this wildlife refuge; 55%) are as follows:

- On average, local visitors accounted for 26% of expenditures.
- Top trip expenditures by locals were for food/drink and transportation (Fig. 21).
- The average amount paid by locals to visit this wildlife refuge was \$55 per person per day (Fig. 21).
- Local visitors were personally willing to pay an additional \$74 per day on average to visit this wildlife refuge (Fig. 22).

Results for nonlocal visitors (those living >50 miles from this wildlife refuge; 45%) are as follows:

- On average, nonlocals accounted for 74% of expenditures.
- Top trip expenditures by nonlocals were for lodging and food/drink (Fig. 21).
- The average amount paid by nonlocals to visit this wildlife refuge was \$53 per person per day (Fig. 21).
- Nonlocal visitors were personally willing to pay an additional \$95 per day on average to visit this wildlife refuge (Fig. 22).
- Nonlocal visitors spent an average of 10 days in the local community during this visit.





Fig. 21: Individual daily expenditures in the local community for local, nonlocal, and all visitors. Expenditures were reported by respondents on a per group basis; the total expenditures were divided by the number of people in the group who shared trip expenditures and the number of days spent in the local community. The number of people sharing trip expenditures was often smaller than the total group size.

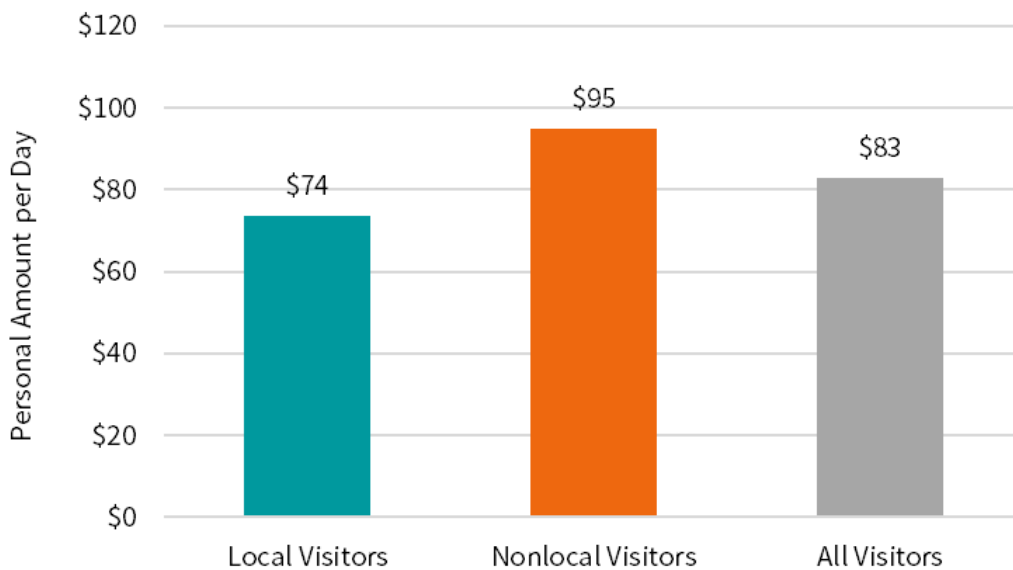


Fig. 22: Total personal willingness to pay per day above and beyond most recent trip expenses if costs were to increase for local, nonlocal, and all visitors. Due to the fixed-response question format, estimates of willingness to pay may underestimate the amount visitors would actually pay. Responses were divided by the number of days spent at the refuge.

Encouraging Return Visits & Future Recreation Participation

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

PROGRAMS AND OTHER OFFERINGS

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

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

- Programs most likely to encourage visitors to return to this wildlife refuge included those focused on engaging youth (62%), supporting people with accessibility concerns (38%), and engaging families and multiple generations (33%) (Fig. 23).
- The top two factors likely to increase visitors' future participation in their primary recreation activity were more infrastructure (32%) and less regulations on hunting (21%) (Fig. 24).
- The top two factors likely to decrease visitors' future participation in their primary recreation activity were more people participating in their primary activity (40%) and recreation equipment available for rent (15%) (Fig. 24).

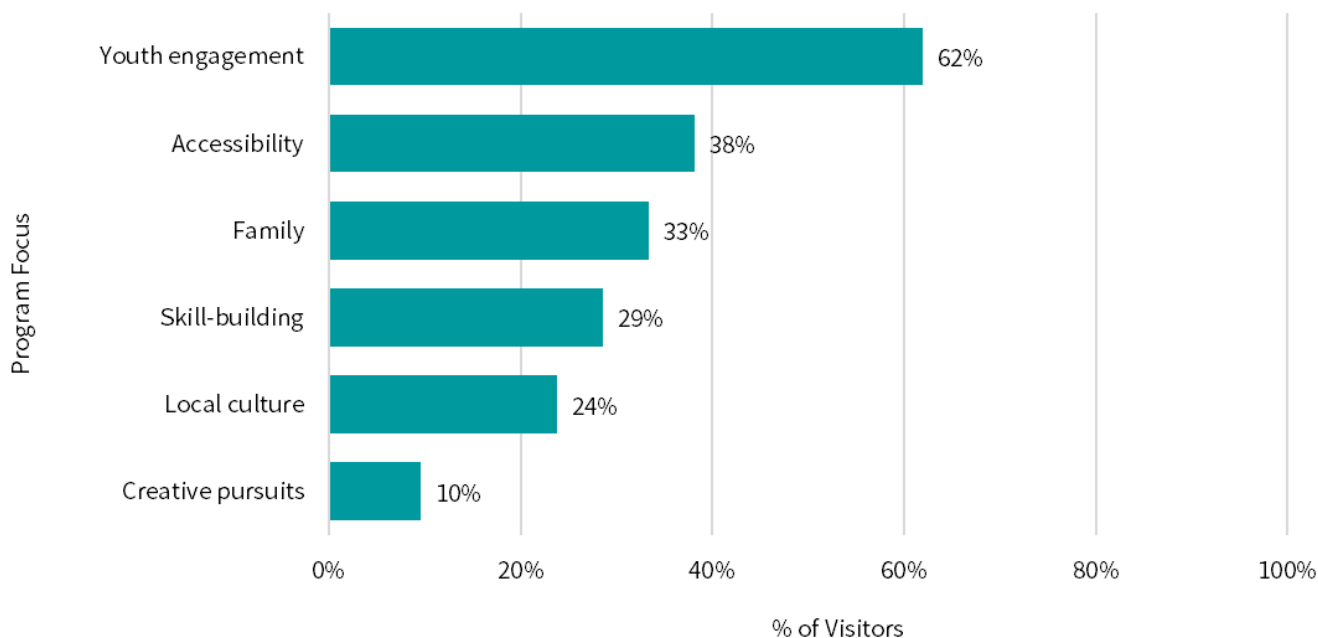


Fig. 23: Types of programs that would encourage visitors to return to this refuge.

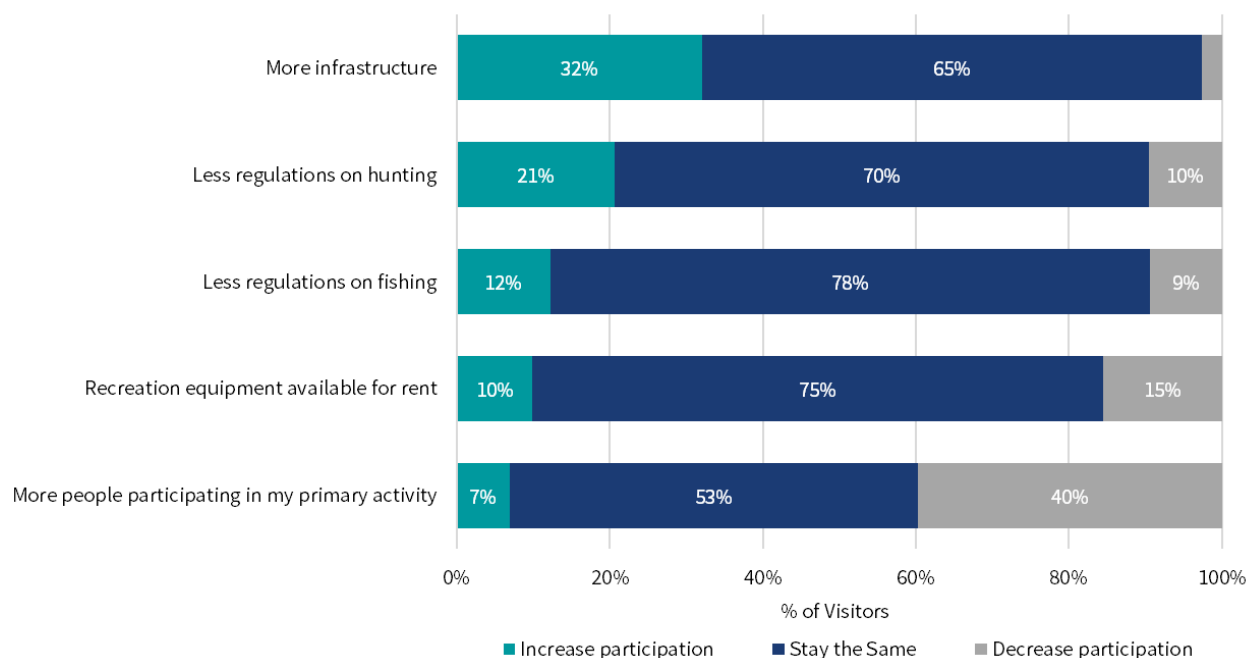


Fig. 24: Changes in visitors’ participation in their primary activity if the listed recreation factors were to change.

ALTERNATIVE TRANSPORTATION

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

The top future alternative transportation options supported by visitors at this wildlife refuge included (Fig. 25):

- pedestrian paths (8%),
- a bike-share program (3%), and
- bus/tram that provides a guided tour (3%).

ECOSYSTEM SERVICES

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

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

In the future, changes to resources would affect visitation to this refuge as follows (Fig. 26):

- The top two resource changes likely to increase visitors’ future participation in their primary recreation activity were more acreage open to hunting and fishing (67%) and an improvement in the quality of wildlife habitat other than wetlands (47%).
- The top two resource changes likely to decrease visitors’ future participation in their primary recreation activity were less water available for recreation (38%) and fewer number of a single, preferred species (21%).

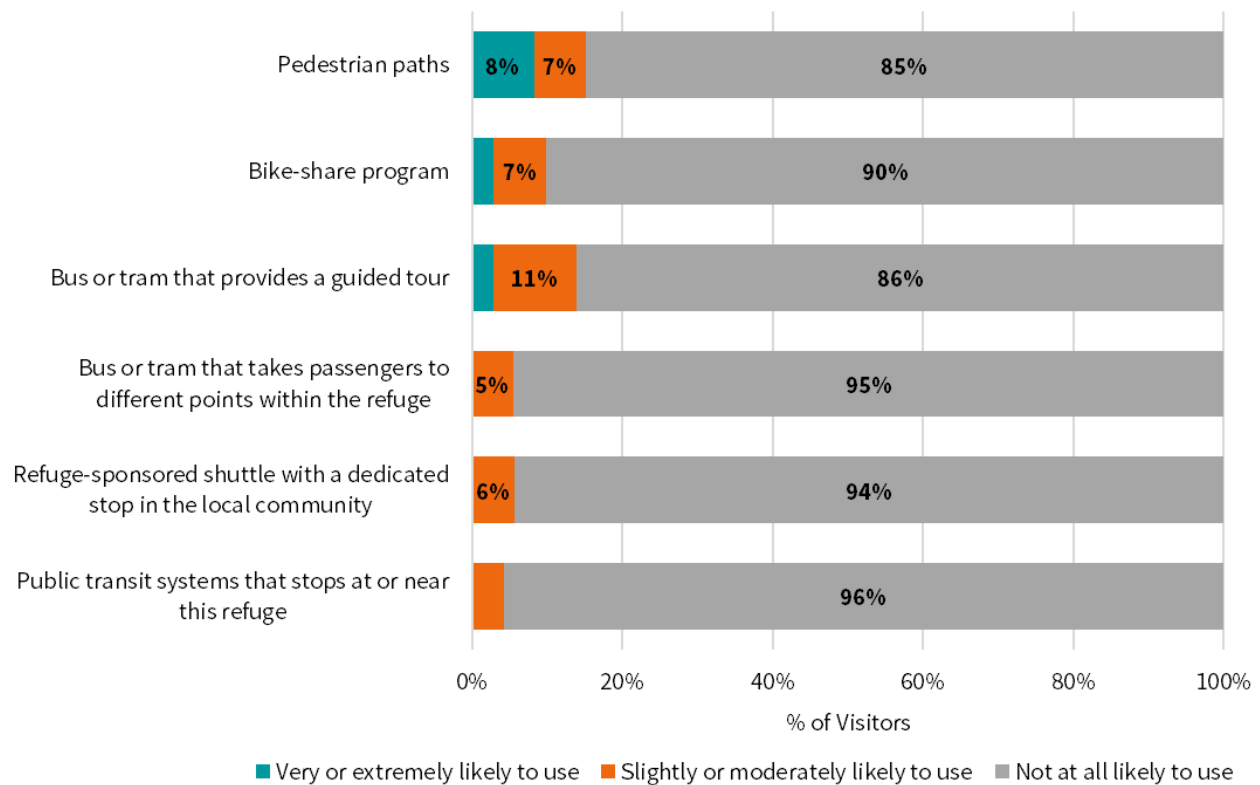


Fig. 25: Visitors' likelihood of using alternative transportation options if offered at this refuge.

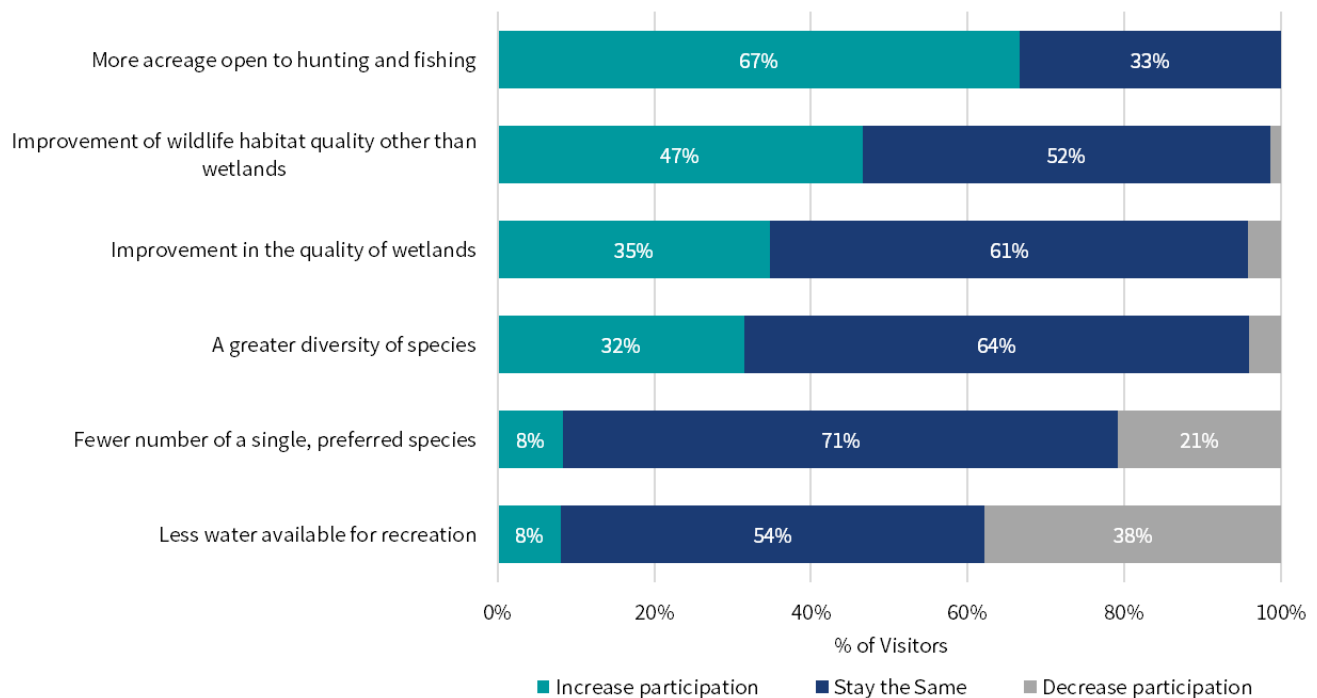


Fig. 26: Changes in visitors' participation in their primary activity if the listed resources were to change.

Conclusion

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

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



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

References

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

Appendix A: Survey Methodology

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

SAMPLING SCHEDULE

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

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

CONTACTING VISITORS ONSITE

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

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

COMPLETING A SURVEY AT HOME

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

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

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

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

DATA ENTRY & ANALYSIS

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

LIMITATIONS OF RESULTS

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

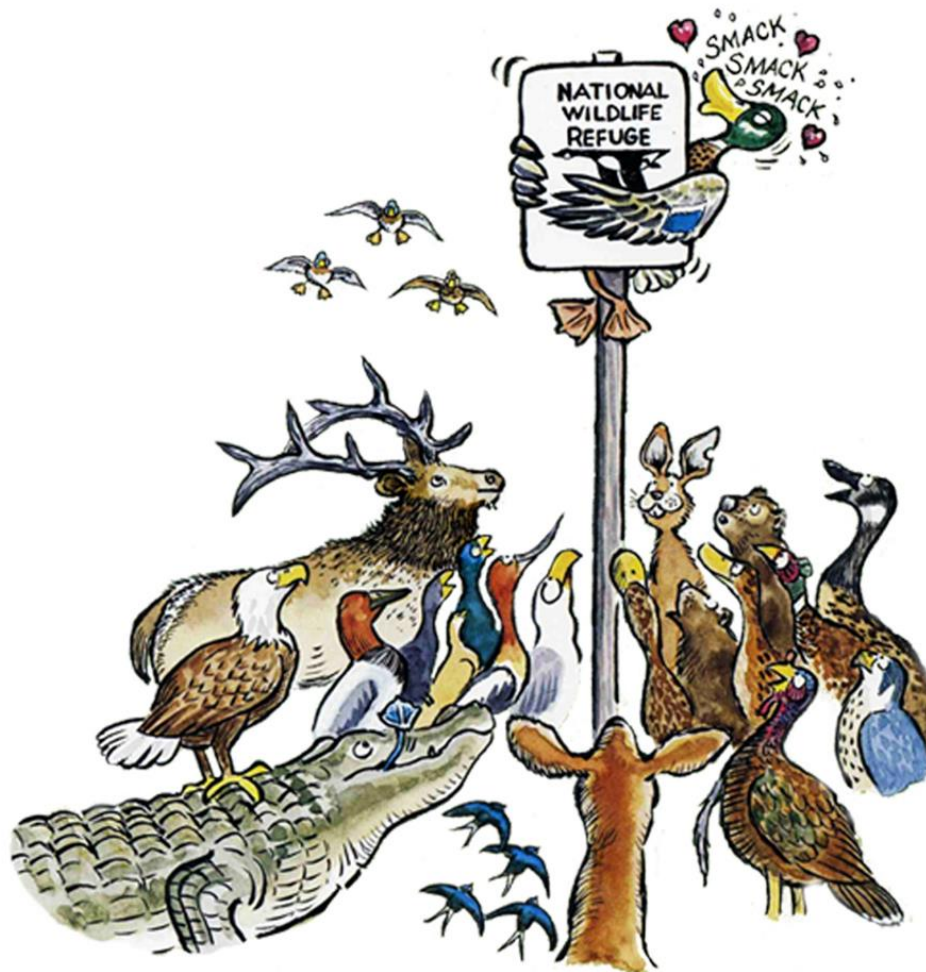
response distribution, meaning if respondents were given a dichotomous choice question, approximately 80% of respondents would select one choice and 20% would select the other (Salant & Dillman, 1994).

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

REFERENCES

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

National Wildlife Refuge Visitor Survey



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

PLEASE READ THIS FIRST:

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

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

SECTION 1. Your visit to this refuge

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

<input type="checkbox"/> 40%	Wildlife observation	<input type="checkbox"/> 14%	Hiking/Walking	<input type="checkbox"/> 1%	Volunteering
<input type="checkbox"/> 22%	Bird watching	<input type="checkbox"/> 4%	Jogging/Running/Exercising	<input type="checkbox"/> 1%	Environmental education program (classroom visits, labs)
<input type="checkbox"/> 16%	Photography	<input type="checkbox"/> 1%	Bicycling		
<input type="checkbox"/> 8%	Big game hunting	<input type="checkbox"/> 13%	Auto tour route/Driving	<input type="checkbox"/> 3%	Interpretative program (bird walks, staff/volunteer-led talks)
<input type="checkbox"/> 35%	Upland/Small game hunting	<input type="checkbox"/> 21%	Motorized boating		
<input type="checkbox"/> 34%	Waterfowl/Migratory bird hunting	<input type="checkbox"/> 3%	Nonmotorized boating (canoeing, kayaking)	<input type="checkbox"/> 3%	Refuge special event (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 75%	Freshwater fishing	<input type="checkbox"/> 0%	Foraging (berries, nuts, other)	<input type="checkbox"/> 0%	Other (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 0%	Saltwater fishing	<input type="checkbox"/> 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"/> 77%	It was the primary purpose or sole destination of my trip.
<input type="checkbox"/> 22%	It was one of many equally important reasons or destinations for my trip.
<input type="checkbox"/> 1%	It was just an incidental or spur-of-the-moment stop on a trip taken for other purposes or to other destinations.

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

3 number of people 18 years and older 0 number of people under 18 years

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

☐ 90% No / Not Applicable

☐ 10% Yes → If yes, what did you do there? (*Mark all that apply.*)

☐ 63% Asked information of employees/volunteers

☐ 25% Looked at list of recent bird/wildlife sightings

☐ 13% Attended a talk/video/presentation

☐ 25% Stopped to use the facilities (for example, got water, used restroom)

☐ 63% Viewed the exhibits

☐ 13% Picked up/purchased a license, permit, or pass

☐ 13% Rented/borrowed equipment (for example, binoculars, fishing rod, snowshoes)

☐ 13% Visited the gift shop or bookstore

☐ 13% Other (*specify*) See Appendix C

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

If you spent less than one day at this refuge, enter the number of hours: 5 hour(s)

If you spent one day or more at this refuge, enter the number of days: 6 day(s)

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

☐ 55% Yes

☐ 45% 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: 7 hour(s)

If you spent one day or more in the local area, enter the number of days: 10 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: 7 hours

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

☐ 64% Spring
(March-May)

☐ 59% Summer
(June-August)

☐ 67% Fall
(September-November)

☐ 39% Winter
(December-February)

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

...this refuge (including this visit?) 22 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"/> 28% Facebook	<input type="checkbox"/> 4% Snapchat	<input type="checkbox"/> 0% Personal blog (for example, Tumblr, Wordpress)
<input type="checkbox"/> 0% Flickr	<input type="checkbox"/> 5% Twitter	<input type="checkbox"/> 0% Travel-related website (for example, Trip Advisor)
<input type="checkbox"/> 5% Instagram	<input type="checkbox"/> 0% Vimeo	<input type="checkbox"/> 0% Other (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 0% Pinterest	<input type="checkbox"/> 3% YouTube	<input type="checkbox"/> 70% 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"/> 3%	<input type="checkbox"/> 12%	<input type="checkbox"/> 23%	<input type="checkbox"/> 62%	<input type="checkbox"/> 16%
Word of mouth (for example, a friend or relative)	<input type="checkbox"/> 7%	<input type="checkbox"/> 13%	<input type="checkbox"/> 25%	<input type="checkbox"/> 30%	<input type="checkbox"/> 25%	<input type="checkbox"/> 21%
People in the local community near the refuge	<input type="checkbox"/> 15%	<input type="checkbox"/> 19%	<input type="checkbox"/> 23%	<input type="checkbox"/> 21%	<input type="checkbox"/> 23%	<input type="checkbox"/> 30%
Refuge employees or volunteers	<input type="checkbox"/> 16%	<input type="checkbox"/> 16%	<input type="checkbox"/> 23%	<input type="checkbox"/> 25%	<input type="checkbox"/> 20%	<input type="checkbox"/> 42%
Printed map or atlas	<input type="checkbox"/> 26%	<input type="checkbox"/> 11%	<input type="checkbox"/> 9%	<input type="checkbox"/> 30%	<input type="checkbox"/> 24%	<input type="checkbox"/> 40%
Web-based map (for example, Google Maps, Waze)	<input type="checkbox"/> 39%	<input type="checkbox"/> 3%	<input type="checkbox"/> 23%	<input type="checkbox"/> 23%	<input type="checkbox"/> 13%	<input type="checkbox"/> 59%
Refuge website	<input type="checkbox"/> 45%	<input type="checkbox"/> 14%	<input type="checkbox"/> 17%	<input type="checkbox"/> 24%	<input type="checkbox"/> 0%	<input type="checkbox"/> 62%
Travel website (for example, TripAdvisor)	<input type="checkbox"/> 87%	<input type="checkbox"/> 13%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 80%
Other website (<i>specify</i>) <u>See Appendix C</u>	<input type="checkbox"/> 83%	<input type="checkbox"/> 0%	<input type="checkbox"/> 17%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 90%
Social media (for example, Facebook, Instagram)	<input type="checkbox"/> 56%	<input type="checkbox"/> 17%	<input type="checkbox"/> 11%	<input type="checkbox"/> 11%	<input type="checkbox"/> 6%	<input type="checkbox"/> 76%
Recreation club or organization	<input type="checkbox"/> 82%	<input type="checkbox"/> 0%	<input type="checkbox"/> 9%	<input type="checkbox"/> 9%	<input type="checkbox"/> 0%	<input type="checkbox"/> 86%
Refuge printed information (for example, brochure)	<input type="checkbox"/> 13%	<input type="checkbox"/> 15%	<input type="checkbox"/> 28%	<input type="checkbox"/> 23%	<input type="checkbox"/> 21%	<input type="checkbox"/> 49%
Kiosks/displays/exhibits at the refuge	<input type="checkbox"/> 22%	<input type="checkbox"/> 25%	<input type="checkbox"/> 22%	<input type="checkbox"/> 19%	<input type="checkbox"/> 13%	<input type="checkbox"/> 58%
Travel guidebook or other book	<input type="checkbox"/> 64%	<input type="checkbox"/> 27%	<input type="checkbox"/> 0%	<input type="checkbox"/> 9%	<input type="checkbox"/> 0%	<input type="checkbox"/> 86%
Tourist information or welcome center	<input type="checkbox"/> 39%	<input type="checkbox"/> 28%	<input type="checkbox"/> 17%	<input type="checkbox"/> 11%	<input type="checkbox"/> 6%	<input type="checkbox"/> 77%
Other source (<i>specify</i>) <u>See Appendix C</u>	<input type="checkbox"/> 100%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 96%

SECTION 3. Transportation and access at this refuge

1. First rate how important each of the following transportation-related features is to you when visiting this refuge; then rate how satisfied you are with the way this refuge is managing each feature. *If this refuge does not have a specific feature or you did not experience it during this visit, please rate how important it is to you and then circle NA “Not Applicable” under the satisfaction column.*

Importance <i>Circle one for each item.</i>					Transportation-Related Features	Satisfaction <i>Circle one for each item.</i>					
Not at all Important	Slightly Important	Moderately important	Very Important	Extremely Important		Not at all Satisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Extremely Satisfied	Not Applicable
1%	3%	22%	33%	40%	Surface conditions of refuge roads	23%	16%	39%	18%	4%	NA
4%	10%	27%	28%	31%	Surface conditions of parking areas	8%	15%	35%	35%	7%	NA
7%	7%	21%	31%	34%	Condition of bridges on roadways	8%	8%	27%	43%	13%	NA
32%	17%	22%	17%	12%	Condition of trails and boardwalks	11%	24%	29%	37%	0%	NA
14%	4%	6%	31%	45%	Condition of boat launches	22%	29%	17%	25%	6%	NA
6%	7%	30%	34%	24%	Number of places for parking	8%	10%	34%	40%	8%	NA
8%	17%	28%	24%	23%	Number of places to pull over on refuge roads	23%	14%	25%	35%	3%	NA
4%	6%	20%	41%	29%	Safety of driving conditions on refuge roads	14%	13%	26%	41%	6%	NA
6%	6%	24%	38%	27%	Safety of refuge road entrances/exits	10%	10%	30%	41%	9%	NA
35%	12%	21%	17%	15%	Safety of roads/trails for nonmotorized users (for example, bicyclists and hikers)	14%	20%	23%	34%	9%	NA
14%	23%	18%	30%	15%	Signs on highways directing you to this refuge	6%	10%	25%	42%	16%	NA
11%	24%	15%	35%	14%	Signs directing you around refuge roads	5%	20%	21%	41%	14%	NA
43%	19%	15%	16%	6%	Signs directing you on trails	20%	15%	23%	40%	3%	NA
22%	12%	13%	23%	30%	Access for people with physical disabilities or who have difficulty walking	33%	18%	20%	24%	6%	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	61%	38%
Private/rental vehicle with a trailer (for boat, camper, or other)	49%	20%
Recreational vehicle (RV)	1%	1%
Refuge shuttle bus/tram	0%	0%
Tour bus/van	0%	0%
Public transportation	0%	0%
Motorcycle	0%	0%
Bicycle	0%	3%
Foot (for example, walking/hiking)	12%	20%
Boat	13%	26%
Other (<i>specify</i>): <u>See Appendix C</u>	3%	1%
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)	95%	5%	0%	0%	0%
Bus or tram that provides a guided tour of the refuge with information about this refuge and its resources	86%	7%	4%	3%	0%
Refuge-sponsored shuttle with a dedicated stop in the local community for picking up people at set times	94%	4%	1%	0%	0%
Public transit system that stops at or near this refuge	96%	4%	0%	0%	0%
Bike-share program that offers bicycles for rent on or near this refuge	90%	1%	6%	3%	0%
Pedestrian paths for access to this refuge from the local community	85%	4%	3%	5%	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"/> 13% \$0	<input type="checkbox"/> 8% \$30	<input type="checkbox"/> 17% \$100	<input type="checkbox"/> 1% \$250
<input type="checkbox"/> 6% \$5	<input type="checkbox"/> 8% \$45	<input type="checkbox"/> 0% \$125	<input type="checkbox"/> 4% \$350
<input type="checkbox"/> 6% \$10	<input type="checkbox"/> 8% \$60	<input type="checkbox"/> 6% \$150	<input type="checkbox"/> 6% \$500
<input type="checkbox"/> 7% \$20	<input type="checkbox"/> 1% \$75	<input type="checkbox"/> 7% \$200	<input type="checkbox"/> 1% \$750

SECTION 5. Your experience at this refuge

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

Importance <i>Circle one for each item.</i>					Refuge Services, Facilities, and Opportunities	Satisfaction <i>Circle one for each item.</i>					
Not at all Important	Slightly Important	Moderately important	Very Important	Extremely Important		Not at all Satisfied	Slightly Satisfied	Moderately satisfied	Very Satisfied	Extremely Satisfied	Not Applicable
18%	4%	21%	26%	31%	Convenient hours/days of operation for this refuge	3%	9%	16%	34%	38%	NA
29%	21%	21%	15%	14%	Availability of employees or volunteers	11%	13%	30%	32%	15%	NA
30%	13%	17%	20%	19%	Courteous and welcoming employees or volunteers	15%	7%	20%	33%	26%	NA
1%	4%	22%	38%	35%	Signs with rules/regulations for this refuge	4%	9%	33%	38%	16%	NA
24%	25%	24%	19%	9%	Visitor center	17%	0%	30%	30%	23%	NA
3%	10%	25%	30%	32%	Well-maintained restrooms	18%	11%	28%	28%	15%	NA
23%	6%	23%	33%	14%	Recreational structures (decks, blinds, platforms)	18%	22%	27%	27%	6%	NA
39%	19%	15%	15%	12%	Bird-watching opportunities	16%	5%	32%	22%	24%	NA
25%	11%	21%	25%	17%	Opportunities to observe wildlife other than birds	6%	13%	28%	38%	15%	NA
33%	13%	21%	17%	16%	Opportunities to photograph wildlife and scenery	7%	7%	36%	30%	20%	NA
35%	20%	22%	13%	10%	Environmental education opportunities	12%	18%	33%	27%	9%	NA
20%	3%	10%	13%	55%	Hunting opportunities	17%	8%	25%	21%	29%	NA
8%	3%	5%	22%	62%	Fishing opportunities	9%	6%	17%	32%	36%	NA
39%	20%	23%	14%	5%	Trail hiking opportunities	24%	15%	27%	33%	0%	NA
58%	21%	12%	6%	3%	Bicycling opportunities	36%	21%	18%	25%	0%	NA
53%	15%	17%	11%	5%	Water trail opportunities for canoeing or kayaking	33%	19%	26%	19%	4%	NA
52%	18%	22%	5%	3%	Volunteer opportunities	25%	21%	29%	21%	4%	NA
35%	14%	20%	18%	12%	Wilderness experience opportunities	18%	24%	15%	36%	6%	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.	4%	5%	26%	45%	19%
I felt safe during my visit to this refuge.	1%	3%	5%	64%	27%
Crime <u>is</u> a problem at this refuge.	58%	30%	9%	1%	1%
I feel comfortable being in nature.	1%	0%	4%	46%	49%
I do <u>not</u> like being in nature by myself.	68%	21%	5%	4%	3%
People closest to me enjoy participating in nature-based recreation.	5%	5%	6%	48%	35%
Generally, people who look like me are treated differently when they participate in nature-based recreation.	56%	17%	23%	4%	0%

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.	13%	8%	33%	29%	17%
The quality of the overall experience when visiting this refuge.	8%	8%	30%	32%	22%

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	38%	54%	8%
More acreage open to hunting and fishing	0%	33%	67%
More infrastructure (for example, bathrooms, observation decks)	3%	65%	32%
Recreation equipment available for rent (for example, fishing rods, binoculars, snowshoes)	15%	75%	10%
Less regulations on fishing	9%	78%	12%
Less regulations on hunting	10%	70%	21%
A greater diversity of species	4%	64%	32%
Fewer numbers of a single, preferred species	21%	71%	8%
More people participating in my primary activity	40%	53%	7%
An improvement in the quality of wetlands	4%	61%	35%
An improvement in the quality of wildlife habitat other than wetlands	1%	52%	47%

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

88% Yes 4% No 8% 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.*)

69% 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:

62% Programs that engage youth	10% Programs that focus on creative pursuits (for example, art, writing, meditation)
33% Programs that focus on family/multiple-generations	38% Programs that support people with accessibility concerns (for example, difficulty walking, in a wheelchair)
29% Programs that teach skills to visitors	5% Other (<i>specify</i>) <u>See Appendix C</u>
24% 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? ☐ 86% Male ☐ 14% Female

2. In what year were you born? 1960 (YYYY)

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+
(elementary)					(junior high or middle school)			(high school)				(college or technical school)				(graduate or professional school)			
					<input type="checkbox"/> 0%			<input type="checkbox"/> 31%				<input type="checkbox"/> 55%				<input type="checkbox"/> 15%			

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

<input type="checkbox"/> 99% White	<input type="checkbox"/> 5% American Indian or Alaska Native
<input type="checkbox"/> 0% Hispanic, Latino, or Spanish	<input type="checkbox"/> 0% Middle Eastern or North African
<input type="checkbox"/> 0% Black or African American	<input type="checkbox"/> 0% Native Hawaiian or Other Pacific Islander
<input type="checkbox"/> 0% Asian	<input type="checkbox"/> 0% Some other race or ethnicity

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

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

<input type="checkbox"/> 1% Less than \$10,000	<input type="checkbox"/> 13% \$35,000 - \$49,999	<input type="checkbox"/> 24% \$100,000 - \$149,999
<input type="checkbox"/> 6% \$10,000 - \$24,999	<input type="checkbox"/> 25% \$50,000 - \$74,999	<input type="checkbox"/> 6% \$150,000 - \$199,999
<input type="checkbox"/> 4% \$25,000 - \$34,999	<input type="checkbox"/> 13% \$75,000 - \$99,999	<input type="checkbox"/> 6% \$200,000 or more

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

<input type="checkbox"/> 41% Employed full-time	<input type="checkbox"/> 0% Unemployed	<input type="checkbox"/> 43% Retired
<input type="checkbox"/> 3% Employed part-time	<input type="checkbox"/> 3% Homemaker/caregiver	<input type="checkbox"/> 0% Disabled/unable to work
<input type="checkbox"/> 8% 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
Eagle Days	1
Kids fishing clinic	1

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

Primary Activity	Frequency
Auto tour route/driving	1
Fishing	43
Hunting	28
Photography	1
Wildlife observation	3

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
Social visit with employees	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
KDWP	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
Support of veteran's parade & special auction dinner	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
Nature-related programs	1

Survey Section 7

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

Other Employment	Frequency
Semi-retired	1

Survey Section 3

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

Comments on Transportation-Related Features at This Refuge (n=23)

Boat launch could use some improvement.

Boat ramp to launch duck boats could be better.

Boat ramps at the refuge could have been improved when lake was low but wasn't done. One ramp is decent. The other is so narrow it is difficult to launch on. Doable but not fun with a larger boat.

Boat ramps need to be rebuilt. County roads around parts of the refuge can be very muddy and inaccessible at times. It would be nice if they were gravel.

Fishing docks, other than boat ramps.

Icy conditions are not well-maintained on black roads. We have slid off the roads into ditches.

Let us camp.

Maintenance of access roads to boat ramps needs better attention.

Needs better roads ASAP.

Needs to fix boat ramps. It would be nice if they were widened and if there were more.

Road conditions are terrible with many ruts and washouts. Many are filled with coarse rock loaded from outcroppings. Many roads that are not all-weather. Weeds have grown up on edge of road so rain water cannot escape and causes washouts or ditches in road.

Roads are not kept in good conditions. Very poor management of roads.

Signage in town specifying which way to dock and which way to fish cleaning station. Also, a bigger sign on the road instructing people to turn in to town. Current sign is quite small.

The boat docks need to be updated and they need to be put out into the water before April. Now sometimes it's not until the middle of May until they are installed. It ruins my boat having to beach it to load and unload.

The boat ramps are very poorly designed and maintained. And whose idea was it to heap massive rocks next to the ramps? There is almost no place for a handicapped person to access the water's edge if they want to fish. Well designed, patron friendly refuge amenities are not hard to find and study. As far as we can tell, the only people who earn their wages out there (Kirwin res.) are the wardens.

The roads are in very poor condition at all times. The washboards are terrible. They will tear the front end out of your truck. Also, when the maintenance worker goes to fix the roads, he just dumps a big load of rock in the middle of the road and doesn't spread it out at all. Some of the rocks are bigger than a grapefruit. It has been this way for years. The refuge I am referring to is Kirwin national wildlife refuge.

The roads are terrible and need worked on.

The roads didn't seem to be maintained at all.

The roads have good rock coverage, just need to blade roads to get rid of washboards and potholes.

There is no boat ramp accessible for handicapped people (especially wheelchairs).

There is no place for the disabled to fish and enjoy the lake—the docks are bad. I cannot get a disabled person on the boat. The roads are bad year-round. Whoever is in charge needs to get a new person to run the road grater. The roads are so bad people don't want to drive around. I personally think the manager and staff don't want hunters and fishing people to use refuge. They cut down all the trees. What for? Still doing that?

Very limited disabled access.

Very little shore access for fishing and no shore access for the disabled.

Survey Section 5

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

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

Again, the boat ramps and no handicapped access. The docks are minimal at best. We were told years ago that there would be new ones but that hasn't happened. The wardens seem to be pretty decent but we don't really see any of the others. Next time the lake level goes down rebuild those ramps. There's no reason to put off designing a handicap access plan for the lake.

Boat ramp conditions are very poor and unkept. I see no reason to block boating and fishing from the western half of the refuge.

Boat ramps in need of replacement, north and south side ramp.

Boat ramps in real bad condition.

I appreciate that the deer hunting lottery is limited to 40 to maximize the chances of a big buck and not running the deer out of the refuge; however, unfortunately, I have never been selected in the lottery to hunt on the refuge.

I don't like Kirwin being used as a large pay for use cow pasture in competition with local property owners. I see less wildlife now than the last 50 years I have visited the refuge.

I have hunted at Kirwin for around 40 years and in the 1st years it seems there was a better bird population that now (upland). There were a lot more food plots especially sunflowers by parking areas on west side. The duck regulations seemed strange on the east and north side with no decoys in water and shell limits.

I think it's a shame that you cannot camp there. It's crazy that they burn the refuge at the time of the year since birds (upland) are nesting at that time.

It would be nice if there was something to hold on to at the dock to help get in and out of boats.

It would be nice to be able to camp at the lake. Also I think we should be able to fish on down the lake to the refuge.

Needs boat docks on the south side.

Needs restroom facilities by willow flats and catfish cove!

No trash pickup, poorly maintained restrooms, poorly maintained roads. Limited access to fishing spots.

Not enough places that older people can access fishing areas.

Overall the refuge is a nice place to be. There is an ample amount of opportunities for fishing, hunting, etc. The problem I run into a lot is the amount of space given for hunting. As an avid waterfowl hunter I don't like people setting up 80 yards from me because they have nowhere else to go. There just isn't enough room for more than about 2-3 groups. At this like it seems the west side in particular doesn't get used at all and I feel in order to get more hunters in the area you need to give them more places to hunt rather than just part of a creek arm. That is really the only thing I feel strongly about the refuge that needs changed.

The bathrooms are bad. I do not use them because of that. Nothing for the handicapped. Roads are bad. Cutting trees down and still cutting does not make sense. Hunting. Bird watching needs a manager that wants people there. Too much trouble to make workable for public. The only one doing a good job is game warden.

The boat ramps and docks are in very poor condition as well. The roads that lead to the ramps are in very poor condition also. Some of the boat ramps have pot holes and one of the ramps even had a pile of rocks on it under water and was opened up for use this way. Docks have nails sticking off the sides that scratch boats. Hunting opportunities are poor due to the lack of crops planted on the refuge. We hunted pheasants for 3 days and deer also and both species were few and far between.

The decrease in wildlife habitat has had a substantial effect on wildlife numbers and opportunity for harvest. Most tree cover has been removed and food plots are no longer planted. My satisfaction with the area has decreased substantially in the last several years, I have used the area for the last 30 years.

The east restroom door at the main boat ramp was warped and I had to have my husband wrench it open for me and I'm not a weakling. He's 6'2" and 220 lbs. I'd have felt bad for a smaller person to get it open. I'm not handicapped but if I were, I'd be disappointed in the set up at the boat dock. It is possible that the other toilets are better but I couldn't tell for sure from the boat.

The fact that someone ordered the removal of all the trees around the lake several years ago is a travesty. Very few songbirds now. Also 2 employees (law enforcement and maintenance personnel) act as if they resent out of state visitors to the point of harassment, despicable! Especially considering how much money I spend at the local economy. I've been coming for 27 years.

The visitor center personnel were extremely helpful on where to go hunting.

There are 4 refuge that we visit or try to visit each year. Bathroom are most important and visitor guides.

There are no facilities at this refuge. Only outhouses at certain locations and they are nasty.

There are no opportunities at this lake besides fishing because that is the only thing you can do. There is no reason why this lake is not open to boating, camping, swimming and so on when they took that from the lake they might as well have drained it because that is what it done to Philips county.

They need to expand the archery only deer hunting area to include the entire north shore and area west of the overlook (closed area). They also need to suspend the earn-a-buck requirement until the lake level decreases, which will create more security cover for the deer and increase the number of deer on the refuge. In 2018, I typically saw more deer off refuge than on refuge, in my 11 days of hunting and observing with binoculars. In 2018, had more hunts where I didn't even see a deer than in previous years.

This refuge is confusing. No camping, no night fishing (small campfires). Swimming is a whole other mystery. (fishing behind dam at irrigation canals open for fishing?).

Wildlife management of this refuge declined in past year due cutting down tree and planting of prairie grass and no crops for wildlife. Very disappointed in management of this refuge.

Would like more places to hunt rather than just bow creek. Once you get about 3 groups in there it too crowded for others.

Would like to see more of the refuge opened up for more use.

You should plant more grain around the lake. All around the lake.

End of Survey

General Comments (n=20)

I always enjoy coming to Kirwin and have had a number of different hunting partners over the years of experience at this public area. We started coming for bobwhite quail years ago and now also hunt dove and pheasant, but quail hunting is our primary interest. I have not figured out how to hunt ducks at Kirwin. Private land hunting is a bygone experience with all the leasing going on. Too bad the land owners do not realize they are not going to live long enough on earth to really own anything.

I'm a retired wildlife biologist. I live 45 miles from Kirwin NWR. I use it for duck hunting and fishing. The human population in this area is low. Kirwin serves well as a national goose/waterfowl refuge. It does not need a lot of people programs because participation will not justify the cost. High to good fish and wildlife populations attract excellent public use to the area. The lake fluctuates due to the irrigation priority. This affects structures and recreational use.

It's a nice place with great people working for it and great communities around it. I've loved growing up here and am hoping to be able to come back as much as possible for more hunting and fishing. The lake is great fish population and it provides great entertainment in the off season from hunting whether it be from the white bass run early in the spring to jigging up walleyes in the middle of summer.

Kirwin NWR is a remarkable place to enjoy wildlife and related activities!

Kirwin Refuge is a good place to fish and its ok for hunting. However, when the federal government put in all the restrictions for the area, I believe it has declined as an animal refuge. I have been fishing and hunting at this lake for over 45 years. It used to be called the goose capital of Kansas with a hundred thousand geese or more. It would be nothing to go to the lake and see a field filled with 50 or more deer in it. I used to bow hunt on the south side of the lake and took my first deer there. Now they don't plant the fields that fed the birds and deer anymore, they have cut down all the tress around the lake and you're lucky to see a couple of deer when you are there. This refuge is hardly used do to all the restrictions that has been put on it. No camping, swimming, skiing, they have removed all but three bathrooms, block off most roads all winter. Our government with bigger and better ideas that just making things worse.

More boat ramps in working condition at Kirwin National Wildlife Refuge would be great.

Most of my concerns are with the fishing access to this lake (Kirwin res.). My older friends have decreased their participation on this lake because of the lack of handicap access. I can see this in my future and don't like it. This is the most poorly maintained public access lake I have seen in any of the central states. The bathrooms I have no complaints about. The road maintenance workers have not had much in the way of formal equipment training. That is obvious. The boat ramps are a joke. The docks are minimal. Someone got the crazy idea to cut down all the trees. I hope that wasn't for the benefit of the pheasants which are not indigenous. We used to be able to hear the din of the nesting birds in town. Nothing now. I love the fishing in this lake when the lake level is up and still fish here when it's down. I have property in town and enjoy the people here. (I actually live in Wyoming. It's a family property thing.) I am not likely to stop coming here anytime soon but that doesn't mean that some of these deficiencies don't drive me nuts. Thank you for your efforts on the public's behalf.

My children and I greatly enjoyed the kids fishing clinic. I hope we can attend it again next summer. Thank you!

Please continue to keep this refuge for our future generations, to be able to see and enjoy the wildlife experiences. Thanks.

Public hunting and fishing areas in Kansas are limited. This area is not managed to enhance either activity. It seems that its use is discouraged due to elimination of camping and recreational boating as well as wildlife habitat. Most restroom facilities have been eliminated.

Summary - fishing trip to Kirwin reservoir. Factors other than the quality of the fishing were insignificant to our visit or our return.

Thank you.

The fishing was great, and the wife and I had a good time! The fish cleaning station was fantastic!

The limited draw of 40 archery permits helps to keep the hunt enjoyable, however the earn-a-buck (EAB) requirement is not warranted when the lake level is so high and has flooded so much key deer habitat, because the number of deer using the refuge is way down from 2015, as is evidenced by the decreased harvest since then. The EAB requirement should be annually evaluated and based on biological reasons, not just a set-in-stone sociological reason. It is more than bothersome as well, that the neighbors that complained about high deer numbers on the refuge and crop damage, which lead to the implementation of EAB, don't allow deer hunting (other than family) on their land. The refuge should follow a stated strategy of objective 1 of the visitor service goal in their CCP, which is to "increase the archery-only deer hunting unit to include the Solomon river bottom". Doing this would increase the quality of the deer hunt, as well as increase the harvest.

This refuge has removed all camping areas and water sports other than fishing and hunting are not allowed. There used to be camping areas and swimming, skiing, etc. Was allowed before. I and my children learned to water ski, ride tube, etc. at this lake. They have destroyed all the trees around the lake that the bald eagles used to nest and roost in. Now the eagles are no longer around. There are very little places to pull off to fish from the bank and there is now handicap access anywhere.

To whom it may concern, I have been going to this lake for more than 55 years. I totally disagree the way this refuge is run. I believe there were far more animals around this lake before it was a refuge. Mainly because of removal of trees, shelter belts etc. Also believe this lake was built for flood control, irrigation and recreation, not a refuge. I don't know how money is spent here, but it's too much!

We have owned a fishing house in Kirwin, KS for 18 years. There have been many changes in the refuge over those years and also in the communities surrounding the lake. In the refuge plan, it stated there would never be anything done at the refuge to affect the economy of the local communities, but that is not the case. When they made the lake a non-recreational boating lake was alright due to the fact it was primarily a fishing lake anyway, but when they stopped camping on the lake, they killed the revenue generation of the local small communities. Restaurants, gas stations, bait shops and grocery stores closed down. A sad situation for the communities and if it wasn't for the people like us that own fishing cabins and pay water and sewer etc. in the town it may not be able to survive. Just food for thought when making decisions in refuge management.

We like to fish for crappie and walleye and lately it seems like the population in this lake is dwindling.

Years ago when we first got married there where about four of our families that would go to Kirwin to camp for the weekend. We all really enjoyed this. My husband and I have missed camping there, and we know there are others that feel the same way. I know there is camping in the town. But every real camper knows camping on the lake with the sunset, sunrise, and late night lights on the water are the best. Please think about letting people camp on the lake again.

You should turn the refuge over to Kansas Fish and Game to manage, as they do a far better job than you do.