



U.S. Fish & Wildlife Service

NATIONAL WILDLIFE REFUGE VISITOR SURVEY

*2018 Results for
Steigerwald Lake
National Wildlife Refuge*



THE OHIO STATE
UNIVERSITY



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Front cover: Visitors stop to observe a great blue heron on a bridge at Steigerwald Lake 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 Steigerwald Lake National Wildlife Refuge, referred to as “this wildlife refuge” or “refuge” throughout this report. Percentages noted throughout the report were



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

rounded 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

Steigerwald Lake National Wildlife Refuge is located in southwest Washington on the Columbia River, about 25 miles outside of the city of Portland, Oregon. The refuge was established in 1987 in response to the construction of the second powerhouse at the Bonneville Dam. Because this construction project resulted in the loss of lowland habitat around the dam, Steigerwald Lake National Wildlife Refuge was established to create new habitat for migratory and resident wildlife. A mosaic of wetlands, grasslands, and woodlands make up the 1,049-acre site. The refuge is home to over 200 species of birds, including many birds of prey such as osprey and harriers. Another interesting bird that uses the refuge is the purple martin. In addition, this wildlife refuge contains a fish ladder to assist migratory fish such as coho salmon and steelhead in their journey towards spawning grounds.

Steigerwald Lake National Wildlife Refuge attracts over 124,002 visitors annually (U.S. Fish and Wildlife Service, 2018, written comm.). Visitors can enjoy birdwatching and wildlife photography from a number of overlooks on the refuge. A unique opportunity available to



Deer share the trail at Steigerwald Lake National Wildlife Refuge. Photo credit: Kylie Campbell.

visitors is the 2.75 mile art trail, which features wildlife centric works of art that allow visitors to experience this wildlife refuge from a new perspective. The Columbia River Dike Trail passes through a portion of the refuge and offers opportunities for biking, running, and horseback riding.

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 388 visitors agreed to participate in the survey by providing their names and addresses.
- In all, 250 visitors completed the survey online (58%) or by mail (41%) after their refuge visit, resulting in a 66% response rate.
- Results for this wildlife refuge have a $\pm 5\%$ margin of error at the 95% confidence level. For more details on limitations of results and survey methodology, see Appendix A.



Fig. 2: Map of Steigerwald Lake National Wildlife Refuge. Visitors were contacted at the circled locations from 5/31/2018–6/23/2018 and 9/20/2018–10/14/2018.

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

- 56% of visitors were female with an average age of 58 years (Fig. 3).
- 44% were male with an average age of 56 years.

EDUCATION

- 7% of visitors had a high school degree or less.
- 51% had at least some college.
- 43% had an advanced degree.

RACE & ETHNICITY

Most prevalent race or ethnicity (Fig. 4):

- White (90%).
- Hispanic (5%).

INCOME

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

OTHER TRIP CHARACTERISTICS

- Average group size of 3 people.
- 23% visited the refuge alone.
- 60% visited with at least one other adult.
- 17% visited with a combination of at least 1 adult and 1 child.

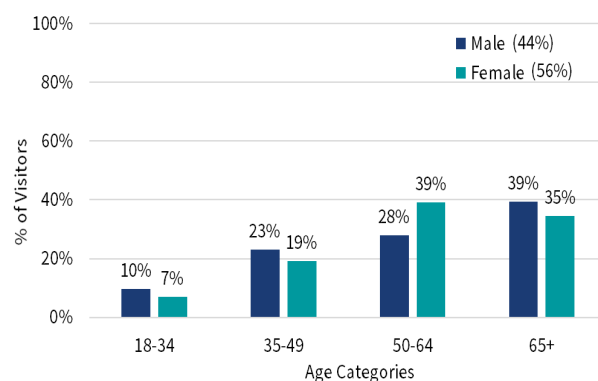


Fig. 3: Distribution of visitors to this refuge by gender and age group.

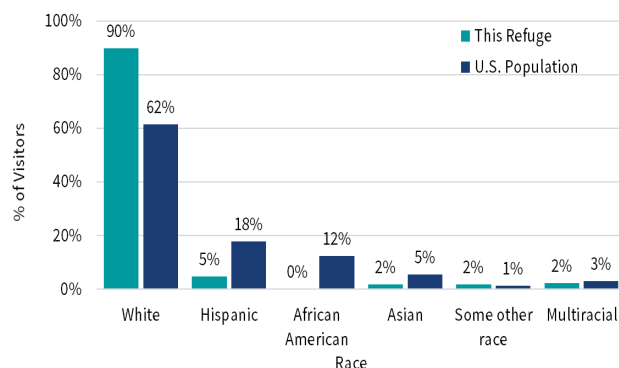


Fig. 4: Race and ethnicity of visitors to this refuge compared to the national average.

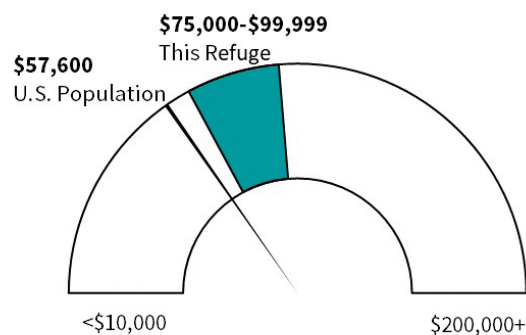


Fig. 5: Mean income range of visitors to this refuge compared to the national median income.

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 (86%) 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 (14%) include:

- For nonlocals, this refuge was an incidental stop as part of a trip taken for other purposes (44%) (Fig. 6).
- Nonlocal visitors traveled an average of 6 hours to arrive at this refuge (Fig. 8).
- Of the 99% of visitors who lived in the U.S., nonlocal visitors were most often from Washington (59%) and Oregon (34%).
- 1% of respondents were international visitors.

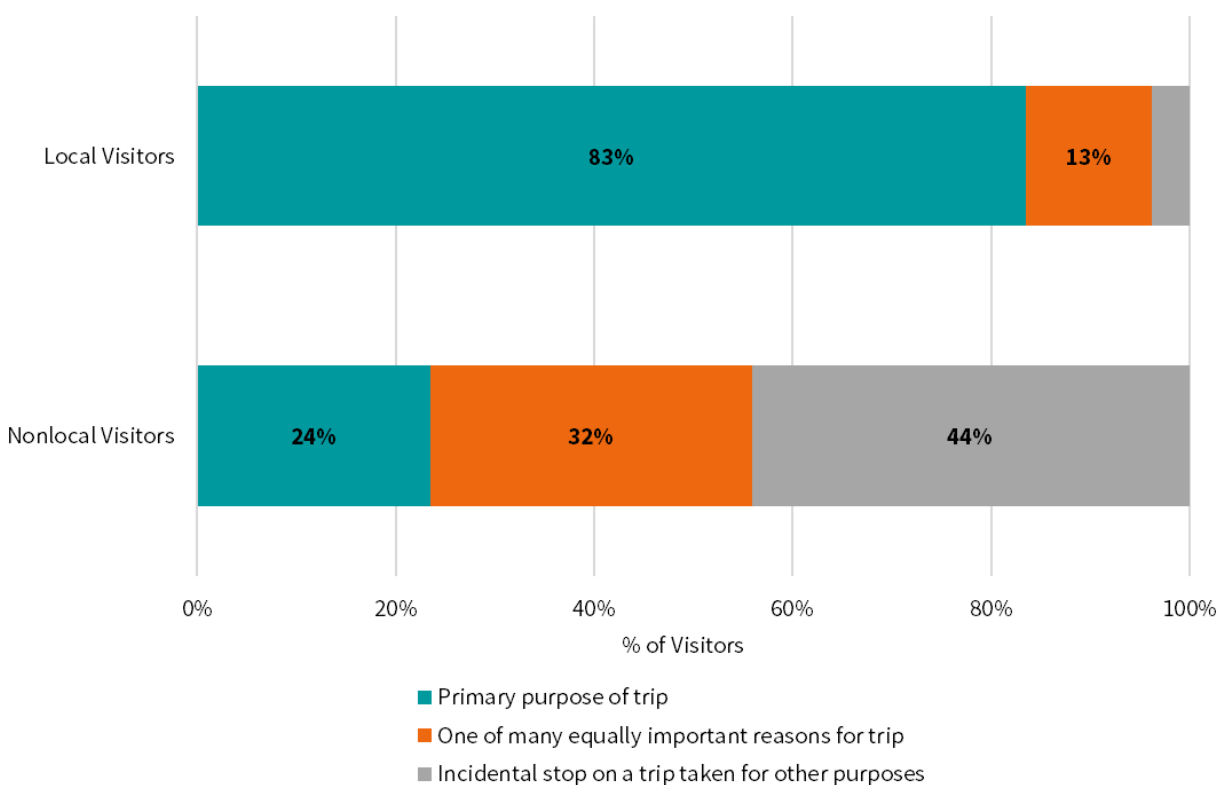


Fig. 6: Purpose of most recent refuge visit for local (living ≤ 50 miles from the refuge) and nonlocal (living > 50 miles from the refuge) visitors.

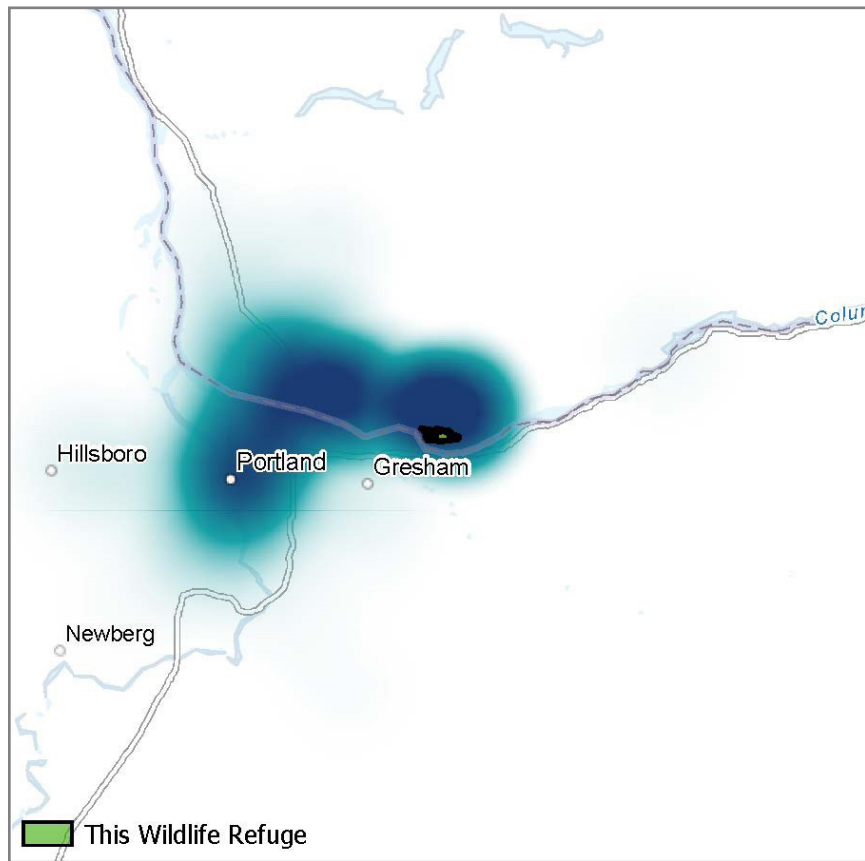


Fig. 7: Map showing residence of local visitors to this refuge. Darker shading represents relatively higher visitation from that area.

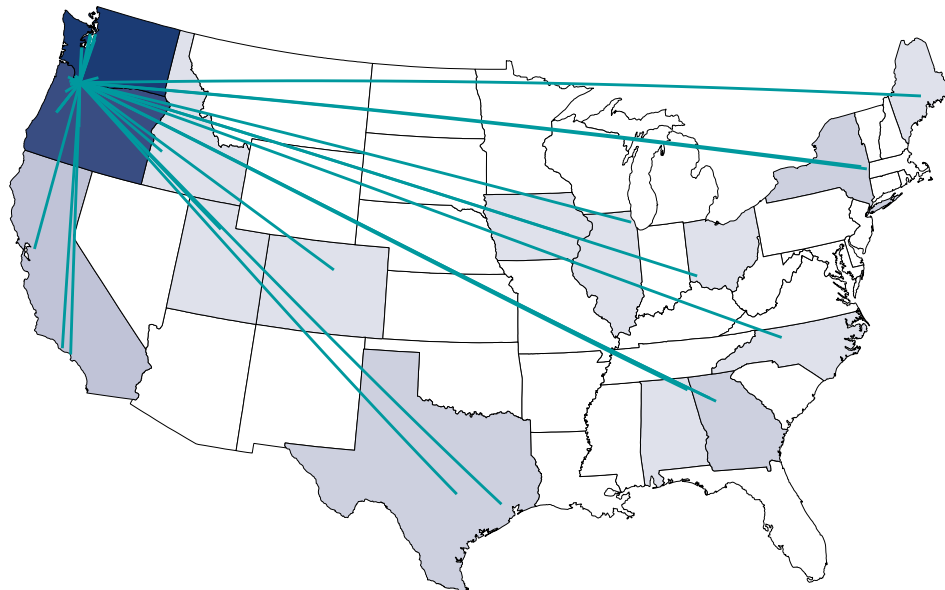


Fig. 8: Map showing residence of visitors to this refuge by zip code, with each line representing visitation from a different zip code. The convergence point of the lines is the geographical center of the refuge. Darker shading of the states represents higher visitation from that state.

OTHER TRIP CHARACTERISTICS

Other trip characteristics include:

- To get to this wildlife refuge, visitors primarily traveled by private vehicle without a trailer (92%) and by foot (10%) (Fig. 9).
- Once on the refuge, visitors primarily traveled by foot (56%) and by private vehicle without a trailer (14%) (Fig. 9).
- Visits occurred during winter (40%), spring (63%), summer (77%), and fall (73%).
- 99% of visitors made a single-day trip to this refuge, spending an average of 3 hours, while 1% of visitors were on a multi-day trip to this wildlife refuge that averaged 2 days.

During the 12 months prior to completing the survey, visitors also made multiple trips to this wildlife refuge, other wildlife refuges, and other public lands:

- 72% were repeat visitors to this wildlife refuge, visiting an average of 23 times.
- 76% visited other national wildlife refuges, averaging 6 visits.
- 86% visited other public lands, averaging 12 visits.

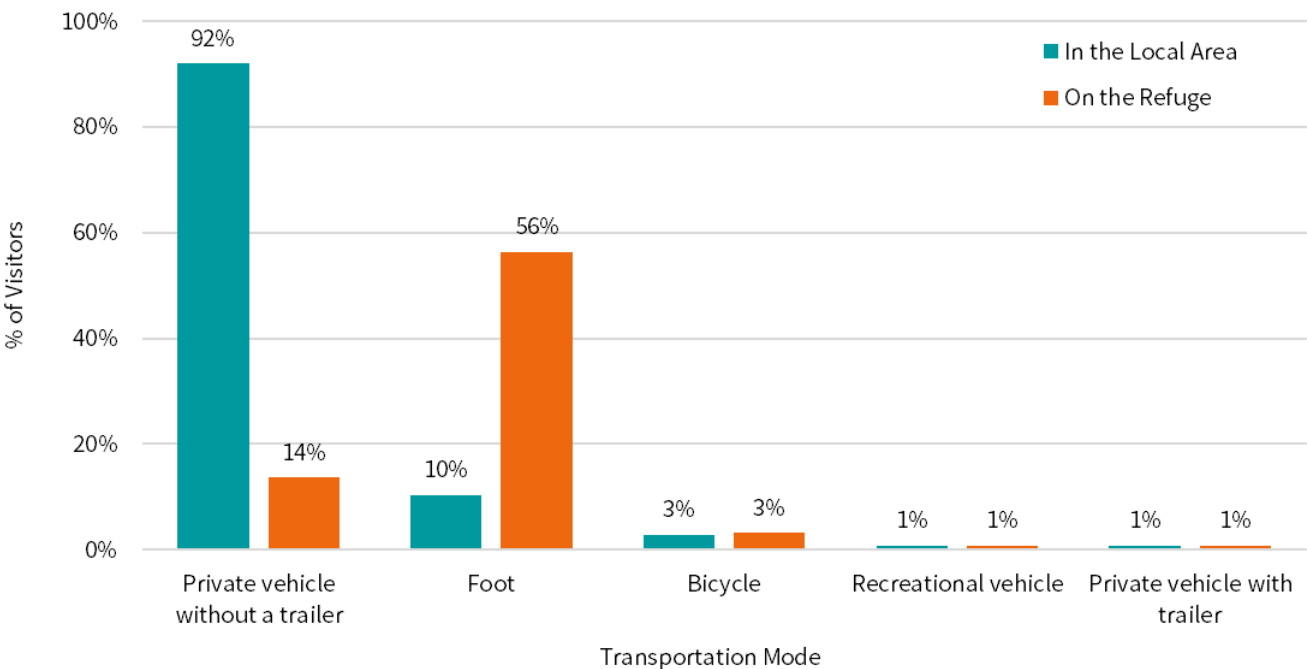


Fig. 9: Modes of transportation used by visitors to get from the local area to this refuge and within the boundaries of this refuge.

Information Sources Used for Trip Planning

Knowing more about which information sources visitors use (or do not use) to plan their trips can improve communication strategies and facilitate positive experiences on refuges. The Refuge System's success in reaching new and diverse audiences as well as current visitors also depends on its ability to keep pace with communication trends (U.S. Fish & Wildlife Service, 2016a).

Visitors to this wildlife refuge found a variety of in-person, print/internet, and refuge-specific information sources helpful when planning their trips. Details for information sources identified as very or extremely helpful include:

- In-person sources that were most helpful to visitors regardless of age included word of mouth and people in the local community.
- Print and internet sources that were most helpful to visitors regardless of age included web-based map and printed map/atlas.
- Refuge-specific sources that were most helpful to visitors regardless of age included kiosks/displays/exhibits at this refuge and refuge employees/volunteers.
- Use of information sources varied by age groups (see Figs. 10-12 for details).

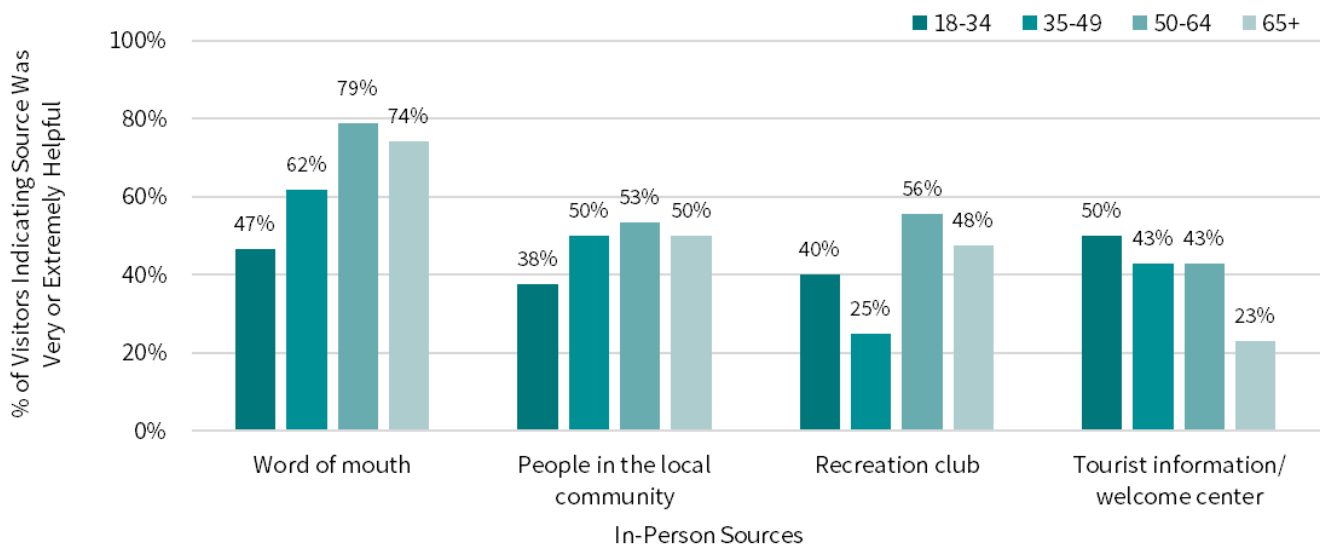


Fig. 10: Percent of visitors by age group who found in-person information sources very or extremely helpful in planning their trip.

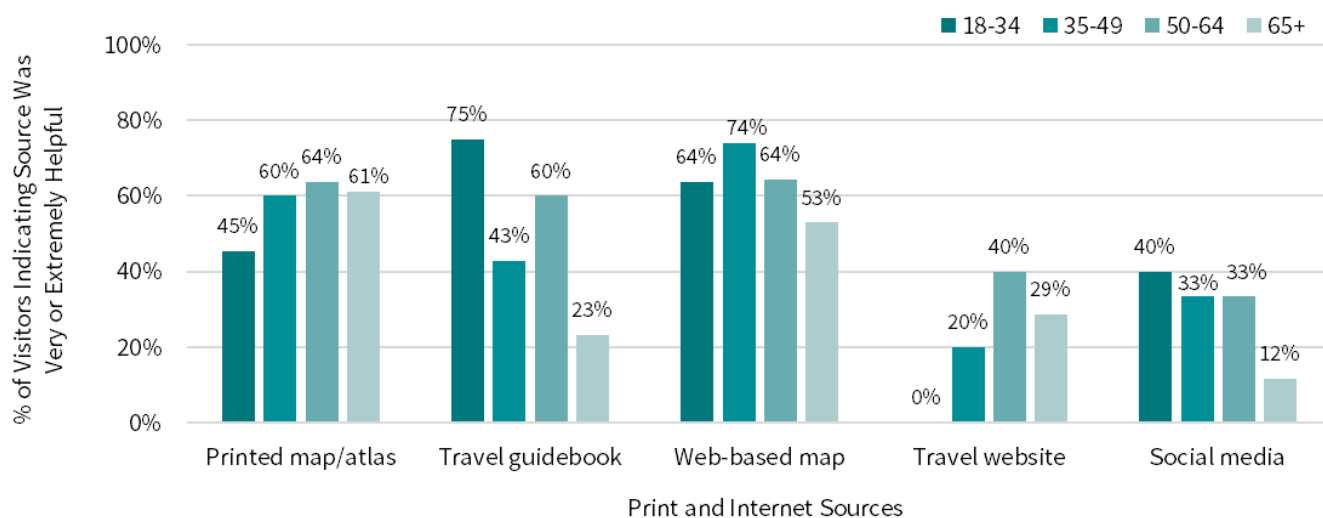


Fig. 11: Percent of visitors by age group who found print and internet information sources very or extremely helpful in planning their trip.

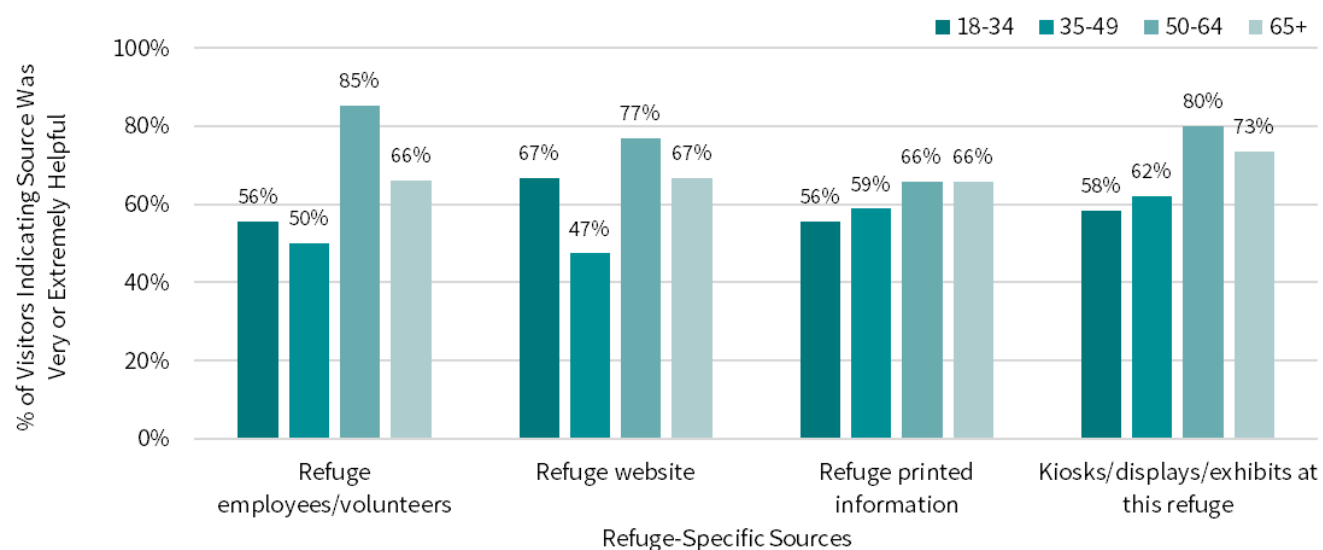


Fig. 12: Percent of visitors by age group who found refuge-specific information sources very or extremely helpful in planning their trip.

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 50% 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 Instagram (56%) and Facebook (31%).
- Visitors 35-49 years old preferred to use Facebook (49%) and Instagram (21%).
- Visitors 50-64 years old preferred to use Facebook (47%) and Instagram (13%).
- Visitors 65 or older preferred to use Facebook (35%).

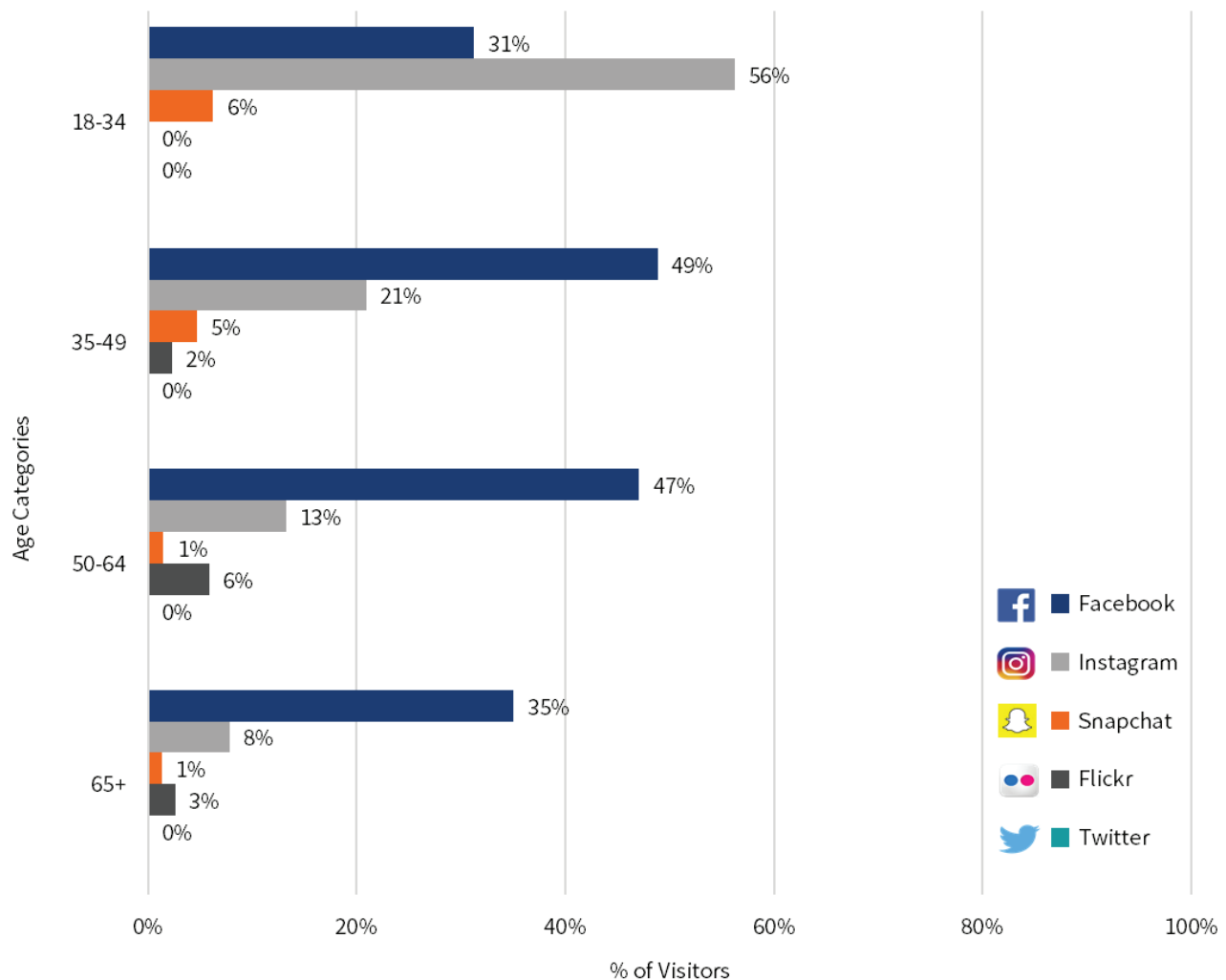


Fig. 13: Percent of visitors by age group who used various social media platforms to share their experience on this refuge with others.

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 hiking (91%), wildlife observation (83%), and bird watching (76%) (Fig. 14).
- The top three activities noted as their primary activity on the day visitors were contacted to participate in the survey were hiking (51%), bird watching (19%), and wildlife observation (14%) (Fig. 14).



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

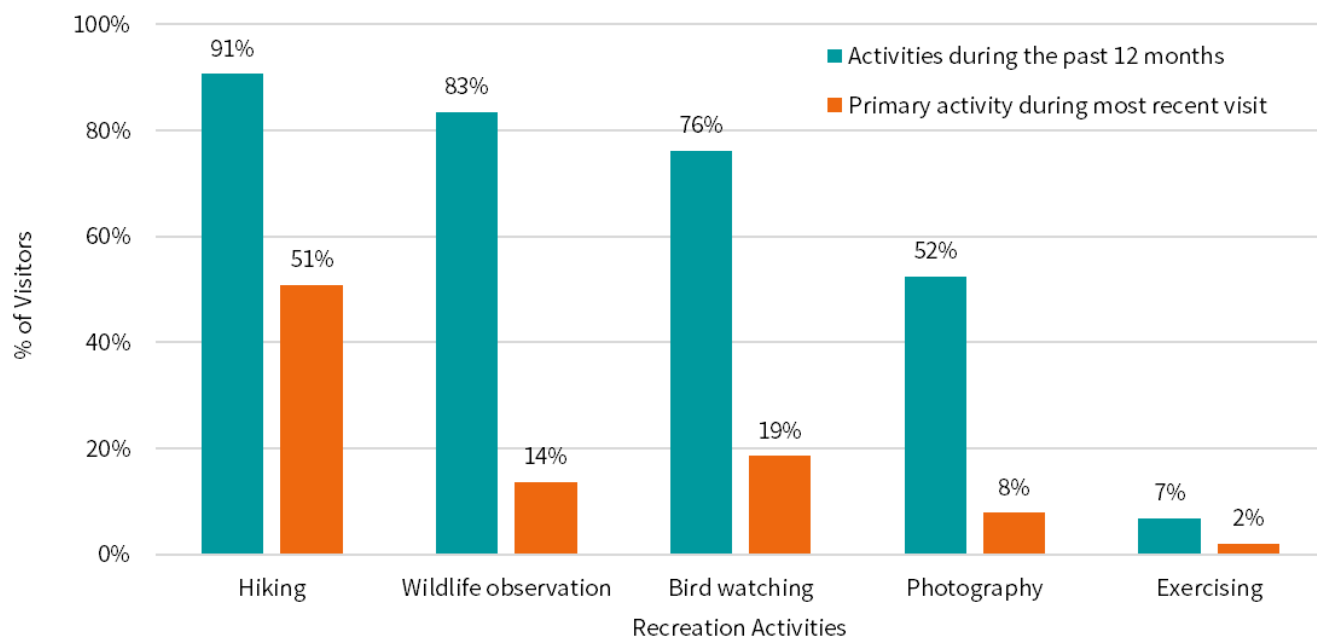


Fig. 14: Recreational activities visitors participated in during the past 12 months and their primary activity during their most recent visit to this refuge.



A clear day at Steigerwald Lake 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:

- 88% of visitors felt welcome during their refuge visit (Fig. 15).
- 98% of visitors felt safe during their refuge visit (Fig. 15).
- 100% of visitors felt comfortable in nature, but 12% did not like being in nature alone (Fig. 16).

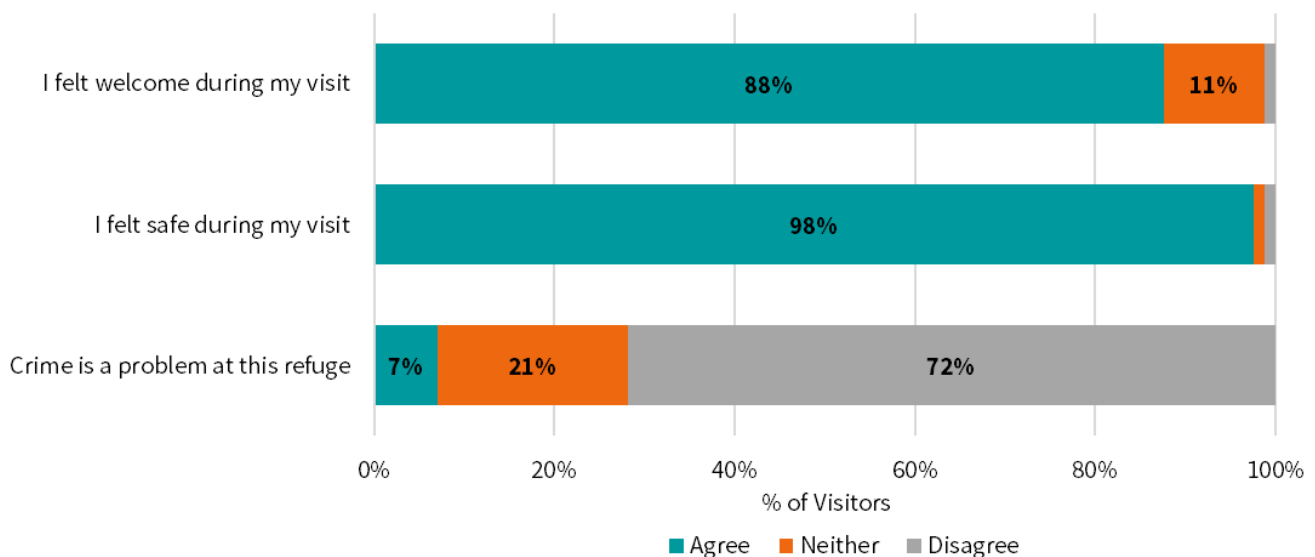


Fig. 15: Visitors' perceptions of safety and feeling welcome at this refuge during their visit.

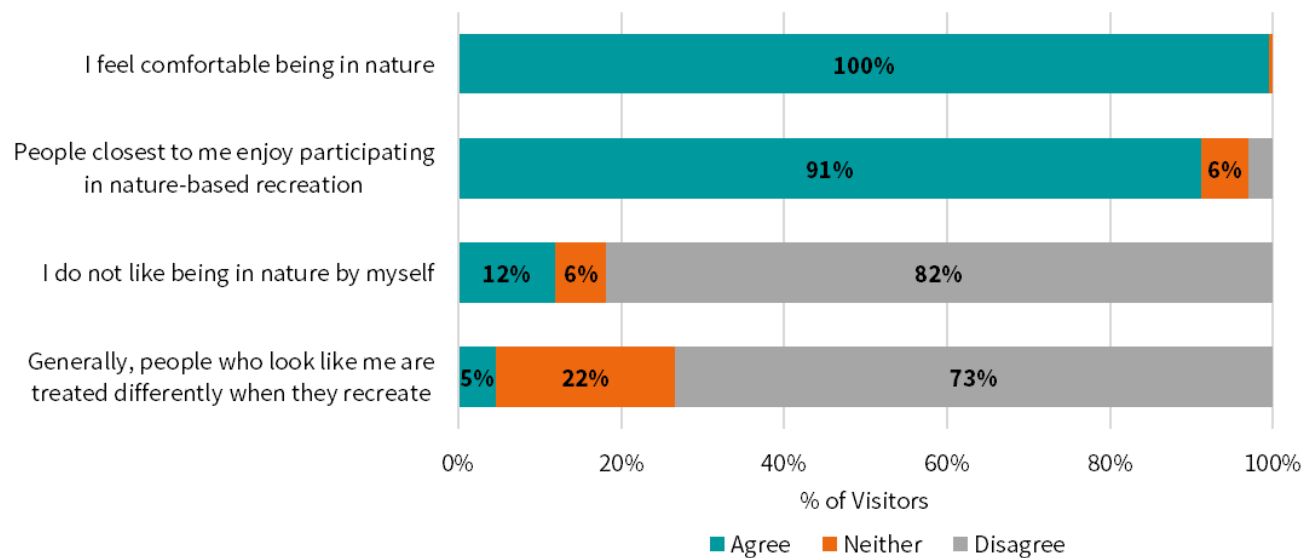


Fig. 16: Visitors’ comfort with being in nature.



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:

- 91% of visitors were very or extremely satisfied with the overall experience at this wildlife refuge (Fig. 17).
- 86% 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 (94%),
- signage stating rules and regulations (80%), and
- courteous and welcoming employees/volunteers (78%).

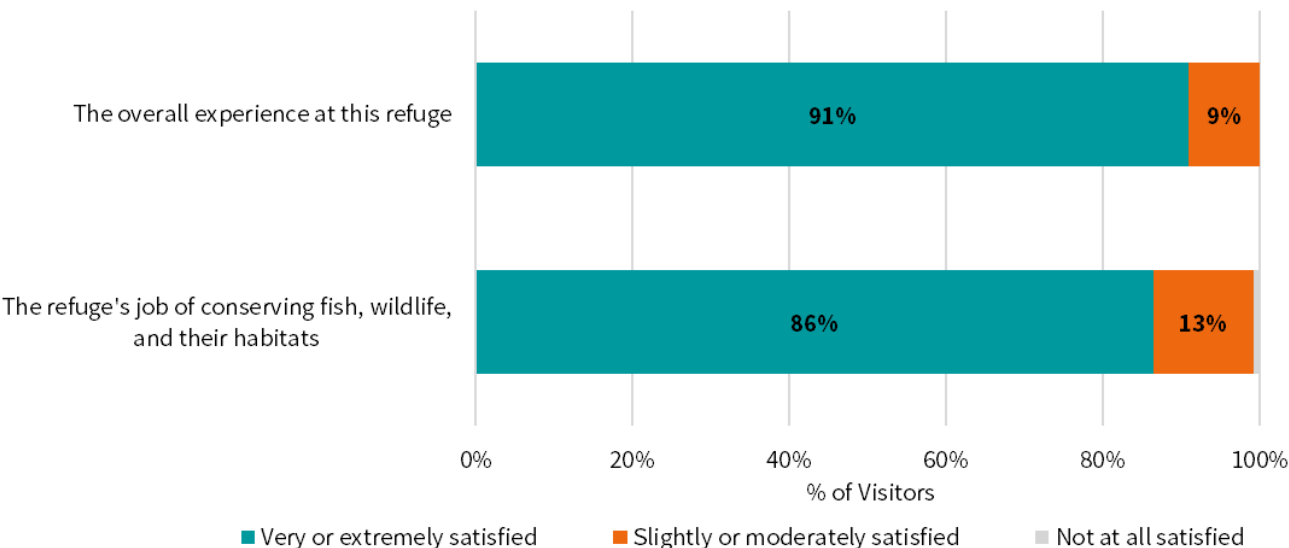


Fig. 17: Visitors' satisfaction with their experience at this refuge and with this refuge's job of conserving fish, wildlife, and habitats.

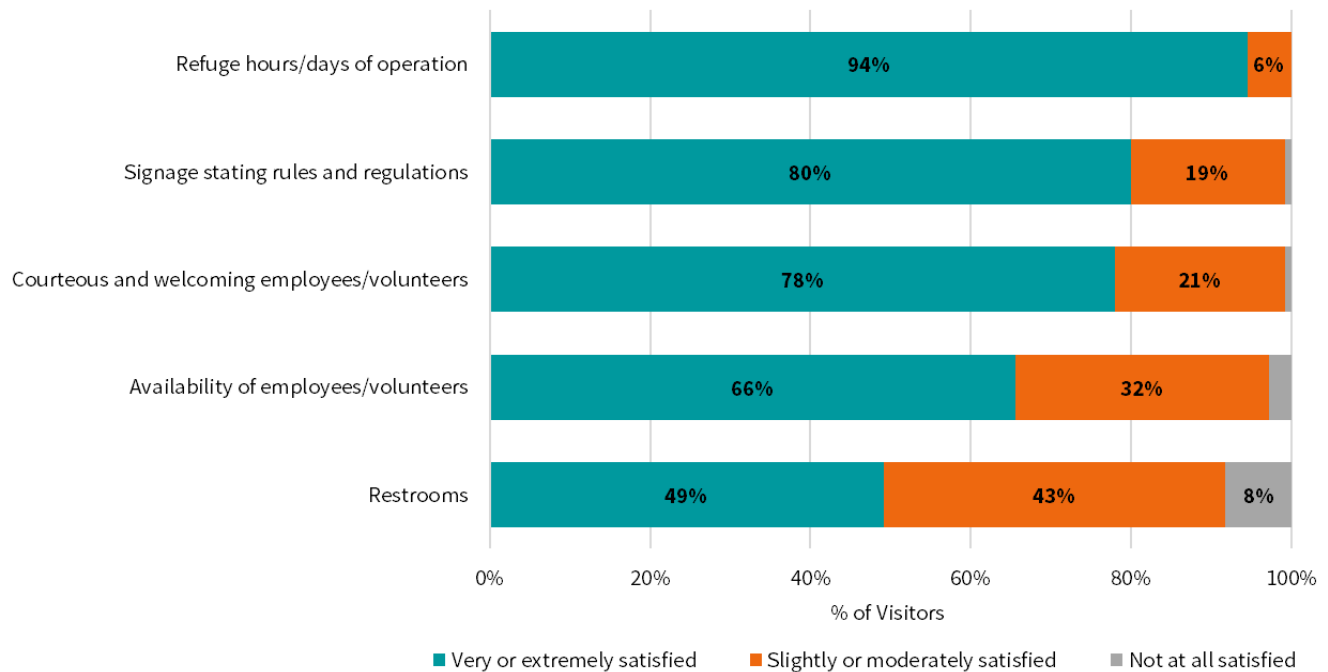


Fig. 18: Visitors’ satisfaction with customer service and amenities at this refuge.

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):

- bird watching (91%),
- trail hiking (90%). and
- photography (89%).

“Steigerwald Lake National Wildlife Refuge is a wonderful resource for birdwatchers and nature lovers in the Portland/Vancouver region. It’s one of my favorite nature places in the area. The free volunteer led birdwalks are a fantastic resource which I participate in as much as I can.” – Visitor to Steigerwald Lake National Wildlife Refuge

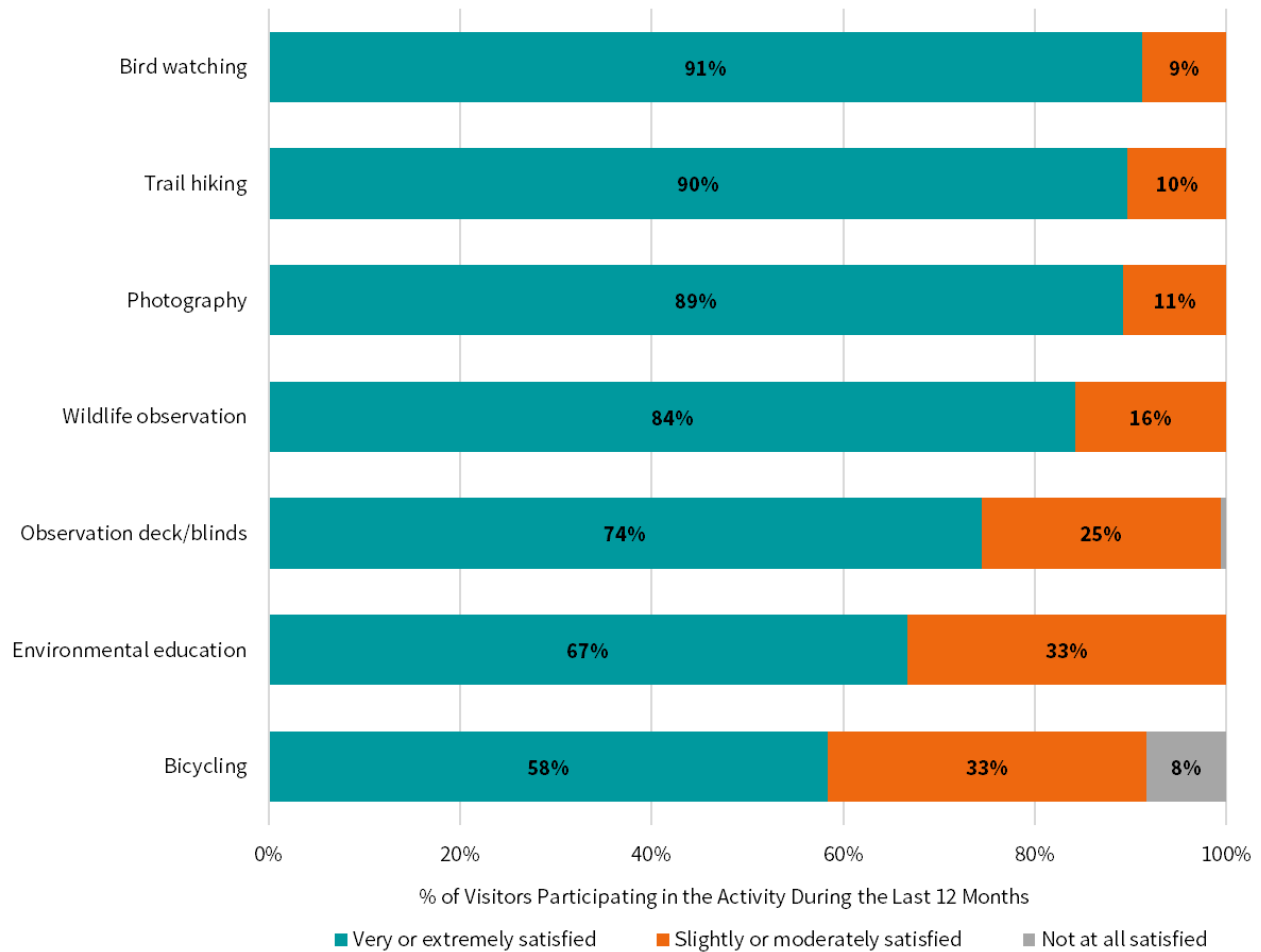


Fig. 19: Visitors' satisfaction with recreational opportunities at this refuge. Only visitors (10 or more) who participated in activities related to each opportunity at this refuge during the last 12 months were included.

TRANSPORTATION SAFETY & ACCESS

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

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

- Getting to this wildlife refuge, visitors were most satisfied with safety of refuge road entrances and exits (84%) and directional signs on highways (82%).
- Getting around this wildlife refuge, visitors were most satisfied with safety of driving conditions on refuge roads (89%), and condition of bridges on roadways (88%).
- Accessing recreation on this wildlife refuge, visitors were most satisfied with condition of trails and boardwalks (95%), and safety of roads or trails for nonmotorized use (91%).

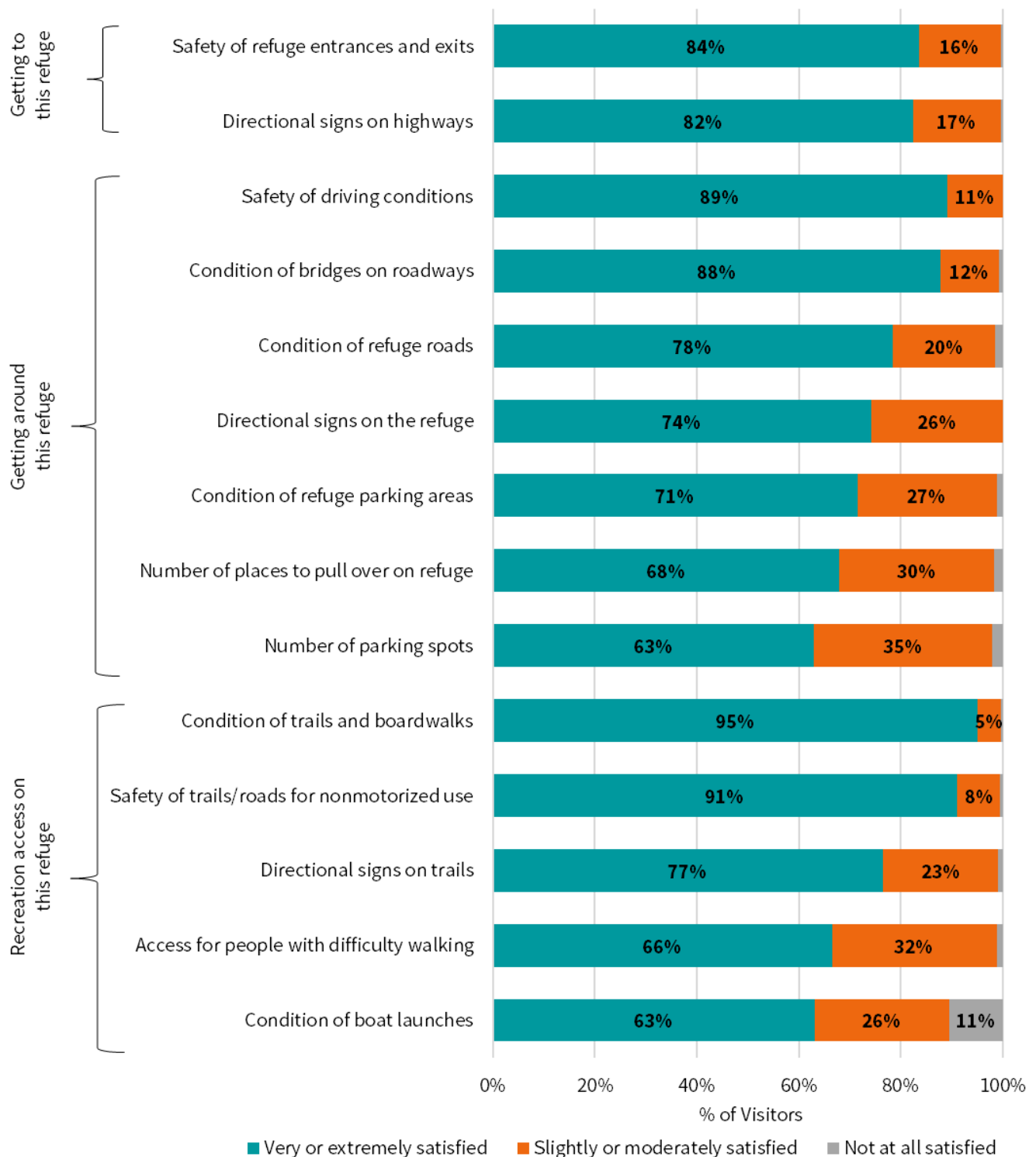


Fig. 20: Visitors' satisfaction with how the refuge is managing transportation-related features.

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; 86%) are as follows:

- On average, local visitors accounted for 58% of expenditures.
- Top trip expenditures by locals were for food/drink and retail (Fig. 21).
- The average amount paid by locals to visit this wildlife refuge was \$19 per person per day (Fig. 21).
- Local visitors were personally willing to pay an additional \$29 per day on average to visit this wildlife refuge (Fig. 22).

Results for nonlocal visitors (those living >50 miles from this wildlife refuge; 14%) are as follows:

- On average, nonlocals accounted for 42% 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 \$145 per person per day (Fig. 21).
- Nonlocal visitors were personally willing to pay an additional \$139 per day on average to visit this wildlife refuge (Fig. 22).
- Nonlocal visitors spent an average of 4 days in the local community during this visit.





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

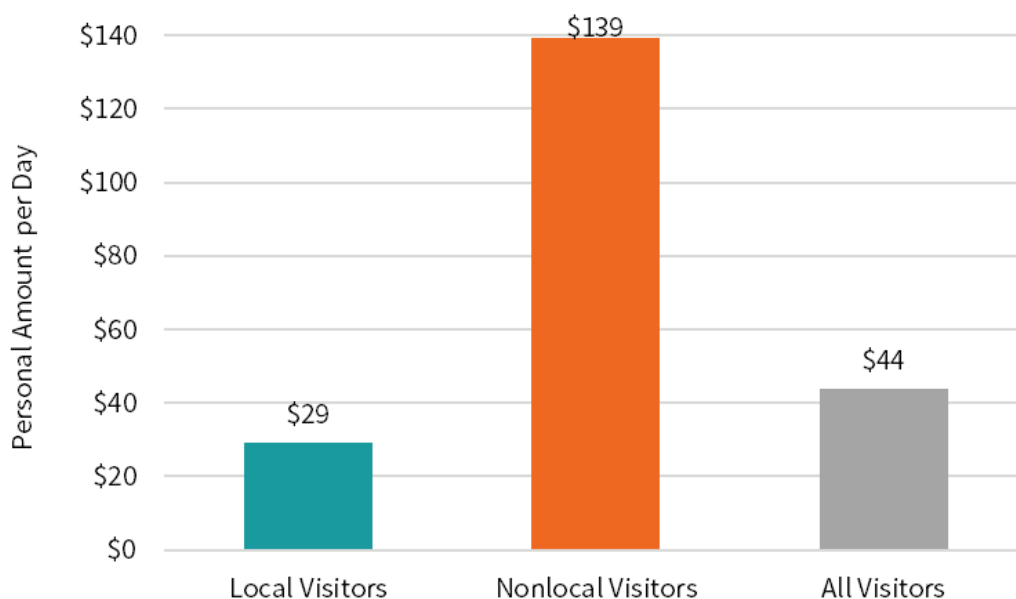


Fig. 22: Total personal willingness to pay per day above and beyond most recent trip expenses if costs were to increase for local, nonlocal, and all visitors. Due to the fixed-response question format, estimates of willingness to pay may underestimate the amount visitors would actually pay. Responses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

Encouraging Return Visits & Future Recreation Participation

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

PROGRAMS AND OTHER OFFERINGS

Programming and other offerings that are compatible with the purpose of a refuge and the Refuge System mission can encourage people to continue visiting the refuge. Additionally, changes to regulations and access for improving

resource availability may increase or decrease future participation, or have little effect at all.

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

- Programs most likely to encourage visitors to return to this wildlife refuge included those focused on skill-building (54%), and highlighting unique local culture (49%) (Fig. 23).
- The top two factors likely to increase visitors' future participation in their primary recreation activity were more infrastructure (33%) and recreation equipment available for rent (10%) (Fig. 24).
- The top two factors likely to decrease visitors' future participation in their primary recreation activity were less regulations on hunting (58%) and less regulations on fishing (39%) (Fig. 24).

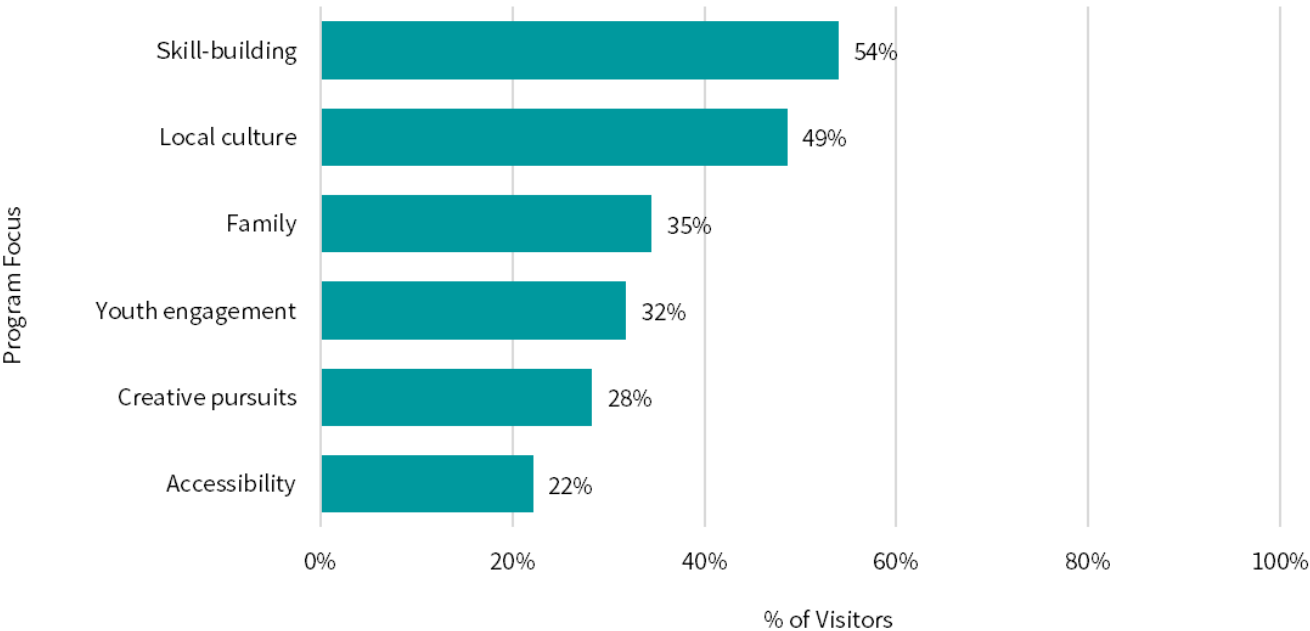


Fig. 23: Types of programs that would encourage visitors to return to this refuge.

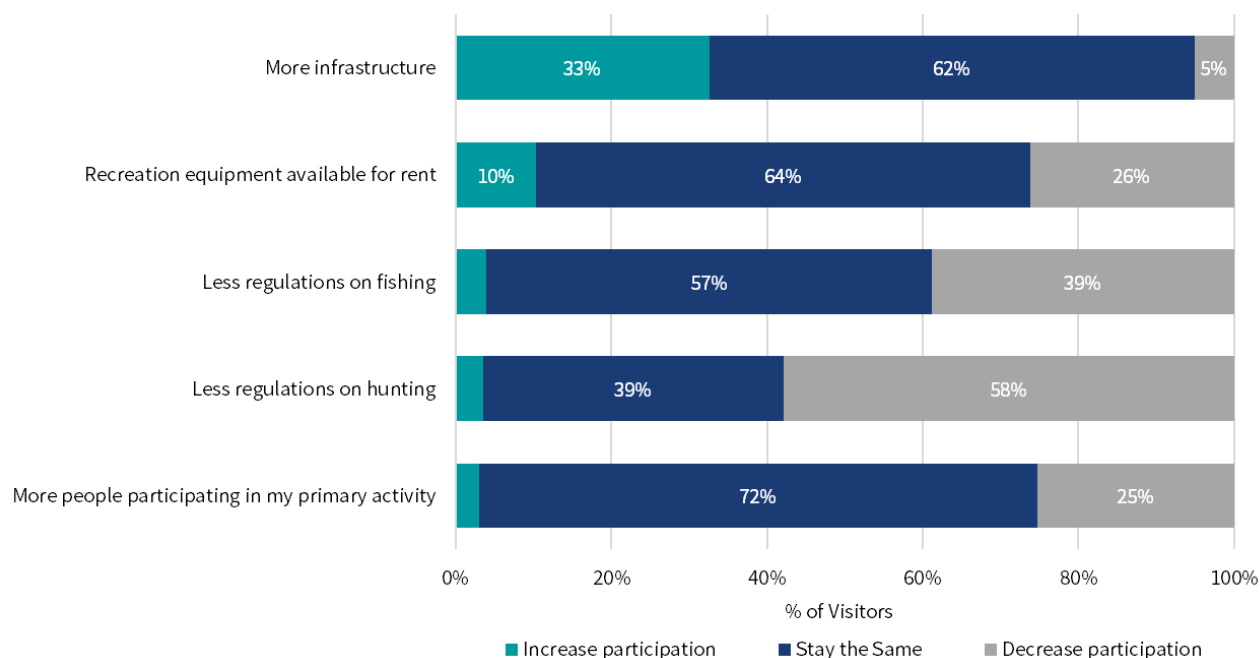


Fig. 24: Changes in visitors’ participation in their primary activity if the listed recreation factors were to change.

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 (37%),
- a bike-share program (11%), and
- bus/tram that provides a guided tour (9%).

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 resource changes likely to increase visitors’ future participation in their primary recreation activity were a greater diversity of species (76%), an improvement in the quality of wildlife habitat other than wetlands (69%), and an improvement in the quality of wetlands (67%).
- The top resource changes likely to decrease visitors’ future participation in their primary recreation activity were more acreage open to hunting and fishing (69%) and less water available for recreation (35%).

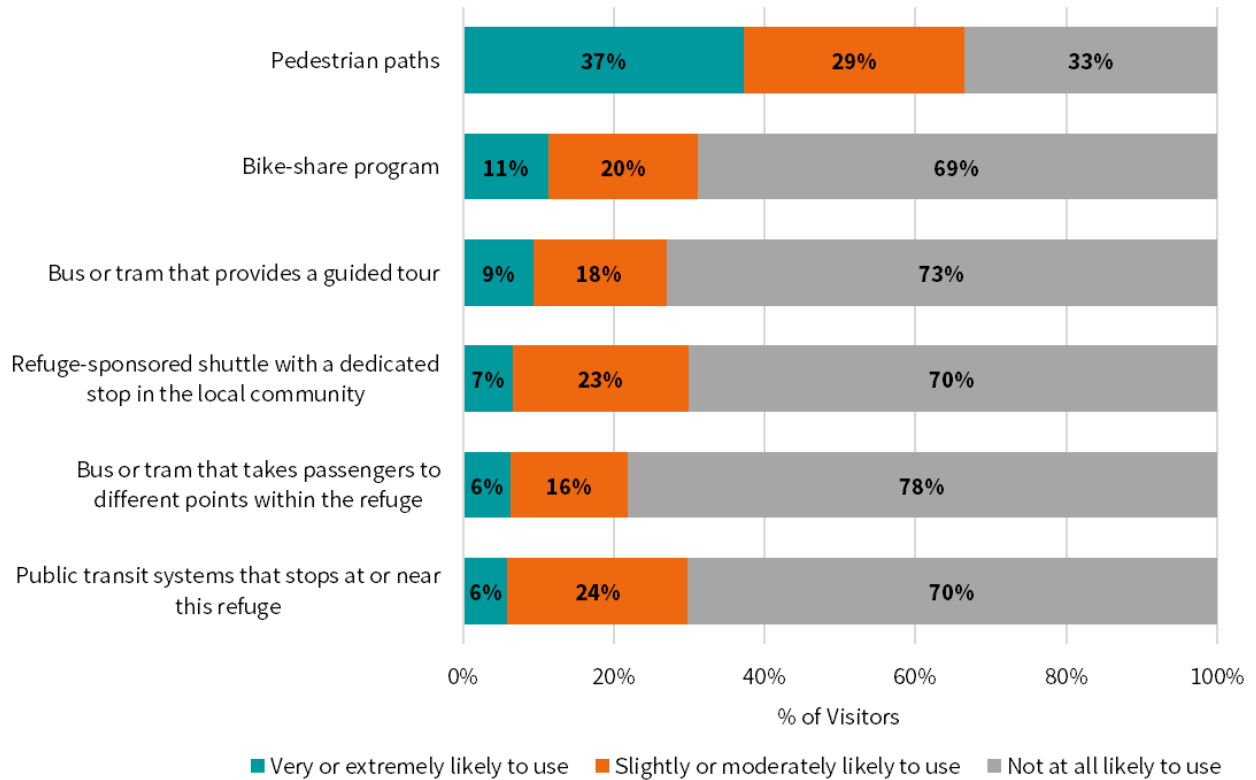


Fig. 25: Visitors' likelihood of using alternative transportation options if offered at this refuge.

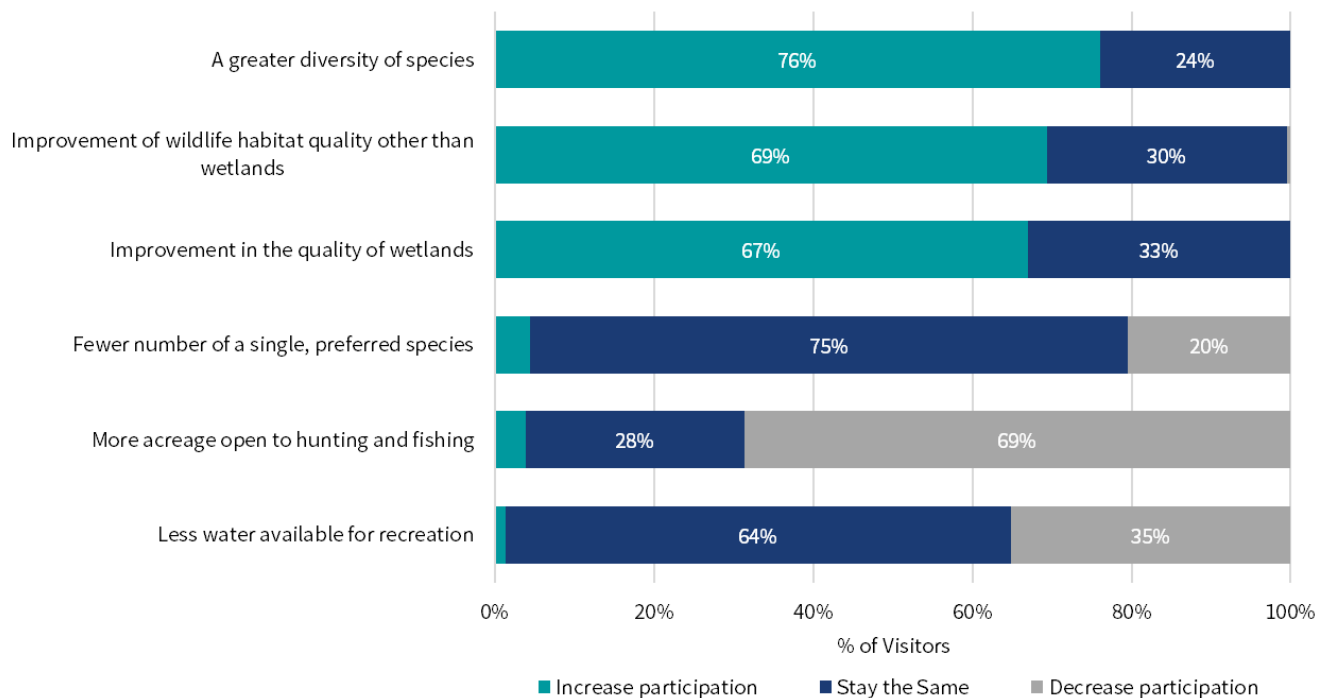


Fig. 26: Changes in visitors' participation in their primary activity if the listed resources were to change.

Conclusion

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

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



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

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Appendix A: Survey Methodology

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

SAMPLING SCHEDULE

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

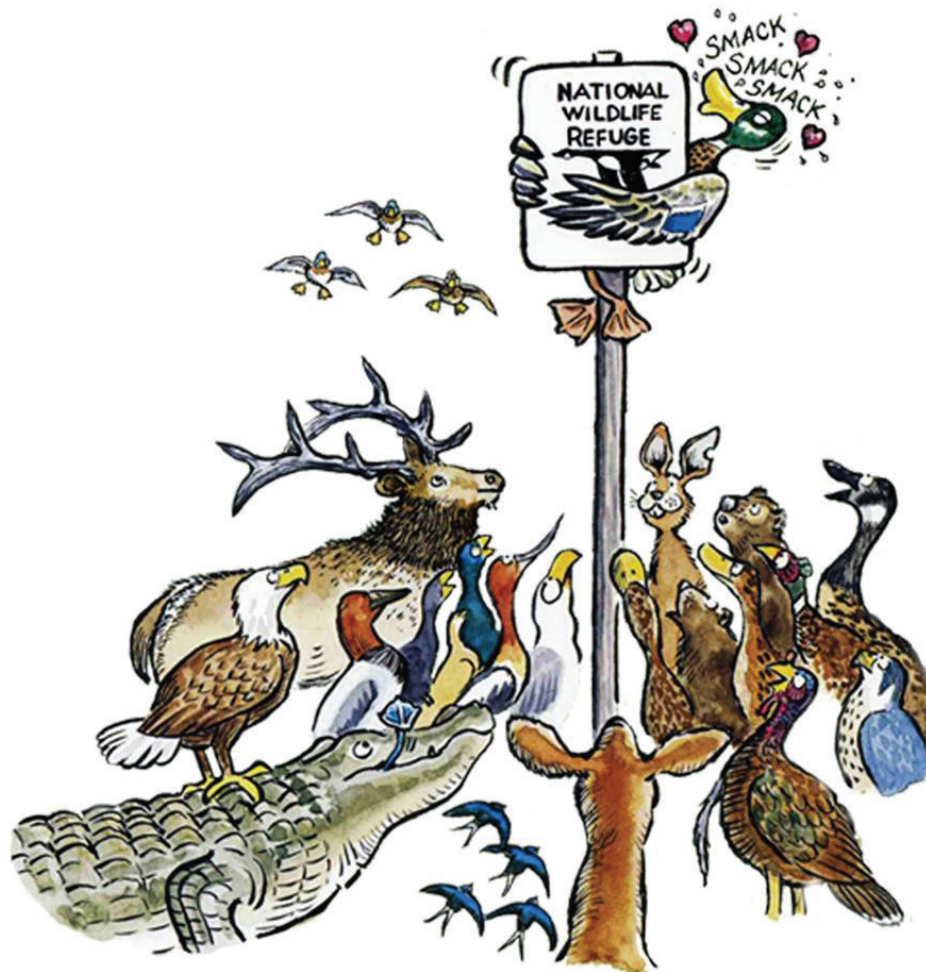
response distribution, meaning if respondents were given a dichotomous choice question, approximately 80% of respondents would select one choice and 20% would select the other (Salant & Dillman, 1994).

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.

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National Wildlife Refuge Visitor Survey



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

PLEASE READ THIS FIRST:

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

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

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"/> 83% Wildlife observation | <input type="checkbox"/> 91% Hiking/Walking | <input type="checkbox"/> 5% Volunteering |
| <input type="checkbox"/> 76% Bird watching | <input type="checkbox"/> 7% Jogging/Running/Exercising | <input type="checkbox"/> 3% Environmental education program (classroom visits, labs) |
| <input type="checkbox"/> 52% Photography | <input type="checkbox"/> 6% Bicycling | |
| <input type="checkbox"/> 0% Big game hunting | <input type="checkbox"/> 4% Auto tour route/Driving | <input type="checkbox"/> 7% Interpretative program (bird walks, staff/volunteer-led talks) |
| <input type="checkbox"/> 0% Upland/Small game hunting | <input type="checkbox"/> 0% Motorized boating | |
| <input type="checkbox"/> 0% Waterfowl/Migratory bird hunting | <input type="checkbox"/> 1% Nonmotorized boating (canoeing, kayaking) | <input type="checkbox"/> 3% Refuge special event (<i>specify</i>) <u>See Appendix C</u> |
| <input type="checkbox"/> 0% Freshwater fishing | <input type="checkbox"/> 3% Foraging (berries, nuts, other) | <input type="checkbox"/> 3% Other (<i>specify</i>) <u>See Appendix C</u> |
| <input type="checkbox"/> 0% Saltwater fishing | <input type="checkbox"/> 6% 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"/> 75% It was the primary purpose or sole destination of my trip. |
| <input type="checkbox"/> 15% It was one of many equally important reasons or destinations for my trip. |
| <input type="checkbox"/> 9% 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?

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

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

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

If you spent one day or more at this refuge, enter the number of days: 2 day(s)

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

☐ 86% Yes

☐ 14% No → How much time did you spend in **the local area** on this trip?

If you spent less than one day in the local area, enter the number of hours: 5 hour(s)

If you spent one day or more in the local area, enter the number of days: 4 day(s)

8. Approximately how many hours/minutes (one-way) did you travel from your home to this refuge?

If you travelled less than one hour, enter the number of minutes: 25 minutes

If you travelled more than one hour, round to the nearest hour: 4 hours

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

☐ 63% Spring
(March-May)

☐ 77% Summer
(June-August)

☐ 73% Fall
(September-November)

☐ 40% Winter
(December-February)

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

...this refuge (including this visit)? 17 number of visits

...other national wildlife refuges? 6 number of visits

...other public lands (for example, national or state parks) to participate
in the same primary activity as this visit? 12 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"/> 42% Facebook | <input type="checkbox"/> 3% Snapchat | <input type="checkbox"/> 1% Personal blog (for example, Tumblr, Wordpress) |
| <input type="checkbox"/> 3% Flickr | <input type="checkbox"/> 0% Twitter | <input type="checkbox"/> 0% Travel-related website (for example, Trip Advisor) |
| <input type="checkbox"/> 16% Instagram | <input type="checkbox"/> 0% Vimeo | <input type="checkbox"/> 4% Other (<i>specify</i>) <u>See Appendix C</u> |
| <input type="checkbox"/> 0% Pinterest | <input type="checkbox"/> 0% YouTube | <input type="checkbox"/> 50% 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"/> 2% | <input type="checkbox"/> 3% | <input type="checkbox"/> 5% | <input type="checkbox"/> 36% | <input type="checkbox"/> 54% | <input type="checkbox"/> 20% |
| Word of mouth (for example, a friend or relative) | <input type="checkbox"/> 5% | <input type="checkbox"/> 4% | <input type="checkbox"/> 21% | <input type="checkbox"/> 41% | <input type="checkbox"/> 29% | <input type="checkbox"/> 38% |
| People in the local community near the refuge | <input type="checkbox"/> 15% | <input type="checkbox"/> 15% | <input type="checkbox"/> 21% | <input type="checkbox"/> 21% | <input type="checkbox"/> 28% | <input type="checkbox"/> 60% |
| Refuge employees or volunteers | <input type="checkbox"/> 8% | <input type="checkbox"/> 8% | <input type="checkbox"/> 18% | <input type="checkbox"/> 32% | <input type="checkbox"/> 35% | <input type="checkbox"/> 50% |
| Printed map or atlas | <input type="checkbox"/> 7% | <input type="checkbox"/> 8% | <input type="checkbox"/> 26% | <input type="checkbox"/> 31% | <input type="checkbox"/> 27% | <input type="checkbox"/> 58% |
| Web-based map (for example, Google Maps, Waze) | <input type="checkbox"/> 7% | <input type="checkbox"/> 12% | <input type="checkbox"/> 19% | <input type="checkbox"/> 34% | <input type="checkbox"/> 29% | <input type="checkbox"/> 56% |
| Refuge website | <input type="checkbox"/> 7% | <input type="checkbox"/> 9% | <input type="checkbox"/> 20% | <input type="checkbox"/> 39% | <input type="checkbox"/> 25% | <input type="checkbox"/> 58% |
| Travel website (for example, TripAdvisor) | <input type="checkbox"/> 52% | <input type="checkbox"/> 7% | <input type="checkbox"/> 15% | <input type="checkbox"/> 19% | <input type="checkbox"/> 7% | <input type="checkbox"/> 88% |
| Other website (<i>specify</i>) <u>See Appendix C</u> | <input type="checkbox"/> 25% | <input type="checkbox"/> 0% | <input type="checkbox"/> 13% | <input type="checkbox"/> 19% | <input type="checkbox"/> 44% | <input type="checkbox"/> 91% |
| Social media (for example, Facebook, Instagram) | <input type="checkbox"/> 25% | <input type="checkbox"/> 20% | <input type="checkbox"/> 30% | <input type="checkbox"/> 8% | <input type="checkbox"/> 18% | <input type="checkbox"/> 82% |
| Recreation club or organization | <input type="checkbox"/> 31% | <input type="checkbox"/> 19% | <input type="checkbox"/> 5% | <input type="checkbox"/> 19% | <input type="checkbox"/> 26% | <input type="checkbox"/> 81% |
| Refuge printed information (for example, brochure) | <input type="checkbox"/> 8% | <input type="checkbox"/> 5% | <input type="checkbox"/> 25% | <input type="checkbox"/> 40% | <input type="checkbox"/> 23% | <input type="checkbox"/> 56% |
| Kiosks/displays/exhibits at the refuge | <input type="checkbox"/> 2% | <input type="checkbox"/> 6% | <input type="checkbox"/> 20% | <input type="checkbox"/> 42% | <input type="checkbox"/> 29% | <input type="checkbox"/> 27% |
| Travel guidebook or other book | <input type="checkbox"/> 41% | <input type="checkbox"/> 6% | <input type="checkbox"/> 16% | <input type="checkbox"/> 25% | <input type="checkbox"/> 13% | <input type="checkbox"/> 86% |
| Tourist information or welcome center | <input type="checkbox"/> 35% | <input type="checkbox"/> 6% | <input type="checkbox"/> 26% | <input type="checkbox"/> 23% | <input type="checkbox"/> 10% | <input type="checkbox"/> 86% |
| Other source (<i>specify</i>) <u>See Appendix C</u> | <input type="checkbox"/> 21% | <input type="checkbox"/> 7% | <input type="checkbox"/> 7% | <input type="checkbox"/> 14% | <input type="checkbox"/> 50% | <input type="checkbox"/> 91% |

SECTION 3. Transportation and access at this refuge

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

| Importance <i>Circle one for each item.</i> | | | | | Transportation-Related Features | Satisfaction <i>Circle one for each item.</i> | | | | | |
|--|--------------------|----------------------|----------------|---------------------|---|--|--------------------|----------------------|----------------|---------------------|----------------|
| Not at all Important | Slightly Important | Moderately important | Very Important | Extremely Important | | Not at all Satisfied | Slightly Satisfied | Moderately Satisfied | Very Satisfied | Extremely Satisfied | Not Applicable |
| 10% | 20% | 40% | 20% | 9% | Surface conditions of refuge roads | 1% | 3% | 17% | 52% | 26% | NA |
| 4% | 26% | 42% | 21% | 8% | Surface conditions of parking areas | 1% | 4% | 24% | 48% | 24% | NA |
| 7% | 14% | 35% | 31% | 13% | Condition of bridges on roadways | 1% | 2% | 10% | 46% | 42% | NA |
| 2% | 7% | 29% | 43% | 19% | Condition of trails and boardwalks | 0% | 0% | 4% | 46% | 49% | NA |
| 66% | 10% | 14% | 7% | 2% | Condition of boat launches | 11% | 5% | 21% | 37% | 26% | NA |
| 1% | 11% | 35% | 39% | 15% | Number of places for parking | 2% | 9% | 26% | 44% | 19% | NA |
| 27% | 17% | 27% | 21% | 7% | Number of places to pull over on refuge roads | 2% | 7% | 23% | 43% | 25% | NA |
| 15% | 7% | 31% | 33% | 14% | Safety of driving conditions on refuge roads | 0% | 0% | 11% | 52% | 37% | NA |
| 6% | 8% | 28% | 40% | 19% | Safety of refuge road entrances/exits | 0% | 2% | 14% | 51% | 33% | NA |
| 11% | 5% | 16% | 39% | 29% | Safety of roads/trails for nonmotorized users (for example, bicyclists and hikers) | 1% | 0% | 8% | 48% | 43% | NA |
| 4% | 9% | 26% | 41% | 20% | Signs on highways directing you to this refuge | 0% | 3% | 14% | 49% | 33% | NA |
| 13% | 13% | 24% | 36% | 15% | Signs directing you around refuge roads | 0% | 4% | 22% | 46% | 28% | NA |
| 4% | 8% | 23% | 40% | 26% | Signs directing you on trails | 1% | 5% | 17% | 46% | 30% | NA |
| 16% | 10% | 27% | 29% | 18% | Access for people with physical disabilities or who have difficulty walking | 1% | 5% | 27% | 45% | 21% | 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 | 92% | 14% |
| Private/rental vehicle with a trailer (for boat, camper, or other) | 1% | 1% |
| Recreational vehicle (RV) | 1% | 1% |
| Refuge shuttle bus/tram | 0% | 0% |
| Tour bus/van | 0% | 0% |
| Public transportation | 0% | 0% |
| Motorcycle | 0% | 0% |
| Bicycle | 3% | 3% |
| Foot (for example, walking/hiking) | 10% | 56% |
| Boat | 0% | 0% |
| 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) | 78% | 8% | 8% | 5% | 1% |
| Bus or tram that provides a guided tour of the refuge with information about this refuge and its resources | 73% | 10% | 8% | 8% | 1% |
| Refuge-sponsored shuttle with a dedicated stop in the local community for picking up people at set times | 70% | 10% | 14% | 5% | 1% |
| Public transit system that stops at or near this refuge | 70% | 14% | 10% | 5% | 1% |
| Bike-share program that offers bicycles for rent on or near this refuge | 69% | 11% | 9% | 9% | 2% |
| Pedestrian paths for access to this refuge from the local community | 33% | 10% | 19% | 18% | 19% |

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"/> 12% \$30 | <input type="checkbox"/> 7% \$100 | <input type="checkbox"/> 1% \$250 |
| <input type="checkbox"/> 16% \$5 | <input type="checkbox"/> 5% \$45 | <input type="checkbox"/> 0% \$125 | <input type="checkbox"/> 0% \$350 |
| <input type="checkbox"/> 21% \$10 | <input type="checkbox"/> 2% \$60 | <input type="checkbox"/> 0% \$150 | <input type="checkbox"/> 1% \$500 |
| <input type="checkbox"/> 17% \$20 | <input type="checkbox"/> 1% \$75 | <input type="checkbox"/> 2% \$200 | <input type="checkbox"/> 1% \$750 |

SECTION 5. Your experience at this refuge

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

| Importance <i>Circle one for each item.</i> | | | | | Refuge Services, Facilities, and Opportunities | Satisfaction <i>Circle one for each item.</i> | | | | | |
|--|--------------------|----------------------|----------------|---------------------|--|--|--------------------|----------------------|----------------|---------------------|----------------|
| Not at all Important | Slightly Important | Moderately important | Very Important | Extremely Important | | Not at all Satisfied | Slightly Satisfied | Moderately satisfied | Very Satisfied | Extremely Satisfied | Not Applicable |
| 1% | 1% | 12% | 46% | 40% | Convenient hours/days of operation for this refuge | 0% | 0% | 5% | 50% | 45% | NA |
| 28% | 31% | 28% | 9% | 3% | Availability of employees or volunteers | 3% | 8% | 23% | 41% | 25% | NA |
| 31% | 25% | 19% | 19% | 6% | Courteous and welcoming employees or volunteers | 1% | 5% | 17% | 41% | 37% | NA |
| 4% | 8% | 25% | 36% | 27% | Signs with rules/regulations for this refuge | 1% | 3% | 16% | 48% | 31% | NA |
| This refuge does not have a Visitor Center. | | | | | | | | | | | |
| 0% | 6% | 17% | 41% | 35% | Well-maintained restrooms | 8% | 10% | 33% | 34% | 15% | NA |
| 9% | 12% | 36% | 29% | 14% | Recreational structures (decks, blinds, platforms) | 1% | 5% | 19% | 46% | 30% | NA |
| 1% | 5% | 17% | 39% | 38% | Bird-watching opportunities | 0% | 1% | 10% | 42% | 47% | NA |
| 1% | 3% | 19% | 40% | 37% | Opportunities to observe wildlife other than birds | 0% | 4% | 14% | 43% | 39% | NA |
| 4% | 8% | 16% | 33% | 39% | Opportunities to photograph wildlife and scenery | 0% | 2% | 11% | 45% | 42% | NA |
| 9% | 16% | 41% | 22% | 12% | Environmental education opportunities | 2% | 8% | 35% | 37% | 17% | NA |
| 90% | 5% | 3% | 2% | 0% | Hunting opportunities | 44% | 0% | 11% | 28% | 17% | NA |
| 83% | 7% | 5% | 3% | 1% | Fishing opportunities | 37% | 5% | 11% | 32% | 16% | NA |
| 1% | 1% | 12% | 34% | 52% | Trail hiking opportunities | 0% | 3% | 8% | 44% | 45% | NA |
| 44% | 16% | 20% | 14% | 6% | Bicycling opportunities | 7% | 3% | 30% | 41% | 20% | NA |
| 42% | 14% | 21% | 13% | 10% | Water trail opportunities for canoeing or kayaking | 15% | 9% | 29% | 35% | 12% | NA |
| 29% | 20% | 29% | 15% | 6% | Volunteer opportunities | 1% | 6% | 37% | 36% | 20% | NA |
| 17% | 11% | 28% | 28% | 17% | Wilderness experience opportunities | 2% | 6% | 31% | 35% | 27% | 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% | 11% | 38% | 50% |
| I felt safe during my visit to this refuge. | 0% | 1% | 1% | 41% | 57% |
| Crime <u>is</u> a problem at this refuge. | 43% | 29% | 21% | 5% | 2% |
| I feel comfortable being in nature. | 0% | 0% | 0% | 28% | 71% |
| I do <u>not</u> like being in nature by myself. | 61% | 21% | 6% | 11% | 1% |
| People closest to me enjoy participating in nature-based recreation. | 1% | 2% | 6% | 38% | 54% |
| Generally, people who look like me are treated differently when they participate in nature-based recreation. | 53% | 20% | 22% | 3% | 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% | 11% | 51% | 36% |
| The quality of the overall experience when visiting this refuge. | 0% | 0% | 9% | 47% | 44% |

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 | 35% | 64% | 1% |
| More acreage open to hunting and fishing | 69% | 28% | 4% |
| More infrastructure (for example, bathrooms, observation decks) | 5% | 62% | 33% |
| Recreation equipment available for rent (for example, fishing rods, binoculars, snowshoes) | 26% | 64% | 10% |
| Less regulations on fishing | 39% | 57% | 4% |
| Less regulations on hunting | 58% | 39% | 3% |
| A greater diversity of species | 0% | 24% | 76% |
| Fewer numbers of a single, preferred species | 20% | 75% | 4% |
| More people participating in my primary activity | 25% | 72% | 3% |
| An improvement in the quality of wetlands | 0% | 33% | 67% |
| An improvement in the quality of wildlife habitat other than wetlands | 0% | 30% | 69% |

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

86% Yes 6% 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.*)

52% 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:

| | |
|--|---|
| 32% Programs that engage youth | 28% Programs that focus on creative pursuits (for example, art, writing, meditation) |
| 35% Programs that focus on family/multiple-generations | 22% Programs that support people with accessibility concerns (for example, difficulty walking, in a wheelchair) |
| 54% Programs that teach skills to visitors | 9% Other (<i>specify</i>) <u>See Appendix C</u> |
| 49% 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? ☐ 44% Male ☐ 56% Female

2. In what year were you born? 1961 (YYYY)

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

| | | | | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|--------------------------------|---|---|-----------------------------|----|----|----|-------------------------------|----|----|----|-----------------------------------|----|----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20+ |
| (elementary) | | | | | (junior high or middle school) | | | (high school) | | | | (college or technical school) | | | | (graduate or professional school) | | | |
| | | | | | <input type="checkbox"/> 0% | | | <input type="checkbox"/> 7% | | | | <input type="checkbox"/> 51% | | | | <input type="checkbox"/> 43% | | | |

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

| | |
|--|---|
| <input type="checkbox"/> 94% White | <input type="checkbox"/> 2% American Indian or Alaska Native |
| <input type="checkbox"/> 5% Hispanic, Latino, or Spanish | <input type="checkbox"/> 1% 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"/> 3% Asian | <input type="checkbox"/> 1% Some other race or ethnicity |

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

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

| | | |
|---|--|--|
| <input type="checkbox"/> 2% Less than \$10,000 | <input type="checkbox"/> 9% \$35,000 - \$49,999 | <input type="checkbox"/> 25% \$100,000 - \$149,999 |
| <input type="checkbox"/> 5% \$10,000 - \$24,999 | <input type="checkbox"/> 21% \$50,000 - \$74,999 | <input type="checkbox"/> 7% \$150,000 - \$199,999 |
| <input type="checkbox"/> 5% \$25,000 - \$34,999 | <input type="checkbox"/> 16% \$75,000 - \$99,999 | <input type="checkbox"/> 11% \$200,000 or more |

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

| | | |
|---|---|--|
| <input type="checkbox"/> 32% Employed full-time | <input type="checkbox"/> 4% Unemployed | <input type="checkbox"/> 43% Retired |
| <input type="checkbox"/> 5% Employed part-time | <input type="checkbox"/> 3% Homemaker/caregiver | <input type="checkbox"/> 0% Disabled/unable to work |
| <input type="checkbox"/> 7% Self-employed | <input type="checkbox"/> 3% Student | <input type="checkbox"/> 3% 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 |
|---------------------------------------|-----------|
| Eco-blitz | 2 |
| Olympus camera photo tour | 1 |
| Photography class | 1 |
| Puddle stompers | 1 |
| Tour of adjacent property acquisition | 1 |
| Volunteer training | 1 |

| Other Activity | Frequency |
|------------------------------------|-----------|
| Bird banding | 1 |
| Dog walking | 2 |
| Meditation | 1 |
| Outdoor time to connect with place | 1 |
| Pleasure of the outdoors | 1 |
| Viewing a beautiful natural area | 1 |

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

| Primary Activity | Frequency |
|----------------------|-----------|
| Activity with dog(s) | 3 |
| Bicycling | 4 |
| Bird watching | 45 |
| Exercising | 5 |
| Hiking | 123 |
| Interpretation | 5 |
| Nature observation | 1 |
| Photography | 19 |
| Running | 2 |
| Sightseeing | 1 |
| Volunteering | 1 |
| Wildlife observation | 33 |

Question 11: “Which, if any, of the following social media outlets did you use to share your refuge experience with other people?”

| Other Social Media Outlets | Frequency |
|----------------------------|-----------|
| eBird | 1 |
| iNaturalist | 1 |
| Meetup | 1 |
| Non-profit website | 1 |
| SmugMug | 1 |
| Strava | 1 |
| Virtualtourist | 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 |
|--|-----------|
| A gorge hiking site | 1 |
| AllTrails | 2 |
| Audubon | 1 |
| FWS.gov | 1 |
| Hiking website | 1 |
| Meetup event | 1 |
| Oregonhikers.org/field_guide/ steigerwald_national_wildlife_refuge_hike | 1 |
| Pro photo supply | 1 |
| Refugestewards.org | 1 |

| Other Information Sources | Frequency |
|---------------------------|-----------|
| Driving discovery | 1 |
| eBird | 1 |
| Field guide | 1 |
| Newspaper | 2 |
| Post-record (newspaper) | 1 |
| Refuge signs | 2 |
| Refuge support group | 1 |
| Son-in-law | 1 |
| Train in WA | 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 |
|----------------|-----------|
| Massage | 1 |

Survey Section 6

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

| Other Programs | Frequency |
|------------------------------------|-----------|
| Bird-related programs | 1 |
| Hunting/fishing-related activities | 1 |
| Nature-related programs | 3 |
| Photography-related programs | 1 |
| Volunteering | 1 |
| Wildlife-related programs | 3 |

Survey Section 7

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

| Other Employment | Frequency |
|---|-----------|
| Employed part-time self-employed other time | 1 |
| Semi-retired, heading back to work | 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=43)

A map with mileage/distance further in on the trail would be helpful for families to know how long the loop is and whether or not they would like to continue.

A second restroom located on the far side of the refuge (away from entrance) would be nice. I like to spend considerable time deep inside the refuge which usually results in a pit-stop in the bushes.

All good at Steigerwald.

Appreciate the signs warning people not to leave things in car -- we have been fortunate to not have car broken into but it's a problem in the area. Maybe cameras could help?

Better mile markers would be helpful.

Disability access not important to us, personally, but appeared to be well provided for those who need it. Other features seem appropriate for its fairly low-impact character.

Entrance/exit and parking lot need pavement; gravel does not work well. Trails would be much better if paved also. Gravel is very dusty and noisy for wildlife viewing.

Given the short distance of the access road and the small size of the parking area, could use paving. The parking lot can fill up easily on weekends, prompting people to park along the access road.

Gravel parking lot has many potholes.

Great place but limited to only one large pond/lake view.

I find that wild areas made accessible are often ruined to my tastes. I don't want to walk on asphalt or 3/4 minus gravel. I go into nature looking for just a dirt trail, and leave the rest behind. Maybe a shorter, separate area like they paved on the south, gorge side of Catherine Creek near Lyle.

Lots of nutria present.

Love the artwork on signs and gates - Steigerwald.

My wife and 9-year old son and I stopped here to enjoy a short walk on a nice evening while my 11-year old daughter was in dance at the local high school. It was recommended to us by some family friends. We enjoyed it very much and will certainly be back to explore some more.

National wildlife refuges are the all-important snacks between national park meals.

No refuge roads - park and walk.

Not enough parking at times but it all works out fine. I certainly don't advocate enlarging the parking lot.

Not much improvement can be done. Place is very well maintained. Impressively so.

Other than the gravel road can get rutted and at times, there is not enough parking, in general I think the refuge is well maintained and easy to use. I would say the same about the Ridgefield NWR, which I also visit multiple times a year. Love having these places available for my walking/photography activities.

Parking area road surface needs potholes filled in but otherwise we love that the refuge is as natural as it is this close to urban areas. The trails are great!

Parking is always a challenge at some of the wildlife refuges I visit.

Parking was limited, and it was very crowded on the day we went. Cars were even parked along the road leading to and from the park.

Please pave the parking lot. Love Steigerwald!

Refuge could use more parking spaces.

Refuge is a wonderful area to walk with well maintained trails and bridges.

Signage is visible at extremely close proximity to turn off on a busy state highway.

Signs are vital to out of the area visitors. Please continue to maintain and keep them up. Trails marking are vital, would be great if on-line resources about all refuges were easier/more user friendly.

Steigerwald refuge is a no dog, bike, or jogging refuge. I have seen all 3 at it. You must better sign with bigger signs & lettering right at the highway pull off & at the start of the main trail. Since it is very close to a major population area, most folks think it is a park & come to use it that way. Signage that explains its purpose would be helpful. Some enforcement would help.

Thank you.

The bushes need to be trimmed around the refuge sign.

The gravel road constantly needs maintenance - huge potholes never got completely filled.

The harder to find the better. It is a refuge for animals so the least humans who can find it the better :)

There are a fair amount of benches/places to sit but more would be helpful for people who need to sit and rest a lot.

There are no roads on this refuge except for the parking areas. The hiking trails are in excellent shape. I appreciate that they are not open for bike riding and jogging.

There are not too many parking spots at the refuge parking area. However, there are many parking spots at the city owned park (Captain William Clark Park) nearby with a trail between the two, so signs indicating people are able to park there would be useful. Traffic on Highway 14 is extremely heavy and fast at times, without a really good solution to make it safer, and thus I park at Captain William Clark Park.

There could be better signage from the highway to the refuge. It is getting a bit overgrown, the turn is a little hard to see.

There is not enough parking on weekends and holidays.

This is the first refuge I've been to where a discover pass was not required in Washington State (thank goodness for that) and that also had nice walking trails. There's a wildlife refuge near my parents' house south of Salem, Oregon that does not have any walking trails. I like that this has walking trails and informative signs.

This refuge could use a few more parking places.

We were able to safely ride a Ninja motorcycle on gravel road in parking lot. Thank you.

We would have stayed longer, but there was a large photography group there taking up all the parking.

Well-maintained hiking trail including seasonal trail. Ties into non-refuge dike trail near Columbia River.

You don't drive in this refuge, you walk.

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=62)

A little more effort in the maintenance of the restrooms would be greatly appreciated.

A treasure in our own backyard, thank you.

Bathrooms (pit toilets) need attention more frequently.

Beautiful but small refuge.

Delightful day viewing wildlife.

Enjoyed hiking trail - photo opportunities were great - saw 2 deer feeding in marsh, owl on tree and an osprey.

Facilities not extensive, but very nice for a low-impact observational visit.

Having just spent 2.5 hours there (for the 1st time) walking with a friend, I did not leave with the awareness that all these other options were available...biking, fishing, hunting, visiting visitor center, birding, etc. Either I was not looking for signs and missed them, or they did not show up on my path.

I don't know how we could get closer to birds w/o disturbing them, with so many people, and so little space. Also, wish there was better/more bird ID material.

I find the closure of part of the trail for several months of the year to be annoying and it does not appear to be serving the stated purpose. The trail needs to be longer and not closed during prime walking times.

I love the cover of the survey.

I love the refuge!! It's close to my house and there is always lots of wildlife to see, mostly birds but always a large variety!

I would like more trails closer to the wetland ponds in the open field areas.

I would really like to see kayak/canoe opportunities here.

Improved restrooms please.

It is perfectly fine that the refuge closes to protect birds during nesting season. We are extremely satisfied with the refuge hours even though there is closure for a good chunk of the year. The kiosk is fine too -- don't think you need a whole visitor center.

It would be great to have flush toilets at this location.

Love maintained trails. Thank you. Clean, easy to walk in and most importantly takes care of animals.

Maintain bathrooms on the busy weekend.

Make America green again.

May come up later, but we found some of the interpretive signs confusing. There are discs in the refuge listing a bird and insinuating that your supposed to do something and you can listen to their unique songs. There were no instructions and we could not figure out how to operate. Could use some signage around perimeter with mileage to various points. We weren't sure if we were getting off the track and could get back to our car from one area.

More and better trail signs would've been useful.

More blinds, more trails.

More trails.

Needs more sitting benches spaced along the way.

Not all dog owners leash their pets. No fun to have them chasing you when you're running!

Of the 2 restrooms, only one locks.

Place is one of the gems of the area.

Please don't enable bike riding, jogging, and other activities which conflict with what is now a peaceful, family oriented place.

Please keep in mind that this evaluation is only based on a 60 minute visit.

Restroom doors need attention. Restrooms could use more frequent cleaning during high use periods. Could use a few more benches and the benches could be better placed than they currently are.

Self-guided refuge - no volunteers - facilities are good. Could use a trash can.

Signage for no dogs, no bikes, no jogging are routinely ignored or not seen - too small, too off the edge of the trail and should be at the entrance and the parking area for better visibility. - just a thought - just an idea.

Staff is great! Concern about chemical spray weed control.

Steigerwald Lake is perfect the way it is, please do not change anything about it. Please do not allow hunting and fishing within the refuge as that would cancel out the purpose of a wildlife refuge! Many locals from Camas and Washougal enjoy walking and wildlife viewing at Steigerwald Lake and it is an invaluable resource to our community.

The "art" trail was disappointing, poor art and no information about it.

The bathroom has been missing toilet paper on more than one occasion.

The bathrooms at Steigerwald are abysmal.

The management staff does an excellent job maintaining Steigerwald NWR.

The only folks I saw or talked to were the folks asking if I'd completed the survey.

The parking lot had a lot of big potholes.

The refuge offers a good, level hiking trail with opportunities for viewing migratory birds and a few turtles. I don't think it needs to be improved as there is probably no way to increase the numbers or types of species that appear here.

The restrooms are appalling.

The restrooms are heavily used due to Highway 14. It would be good if the state of Washington and/or federal highway money could be dedicated to helping maintain what is essentially a rest stop on a busy highway, and which accumulates quite a lot of use unrelated to refuge visitors. The fact that they are pit toilets is particularly unfortunate with the large amount of non-refuge use going on. When I have run into refuge staff or volunteers, they have always been well informed and courteous, but there simply are not enough of them to deal with the number of visitors. There is no visitor's center here, though originally there were plans for one. It would be useful to have one.

The volunteers were helpful and courteous.

There was no running allowed however 3 military aircrafts flew over causing all the animals to hide.

This is a very small refuge that you walk through.

This is a wildlife sanctuary where north-to-south and east-to-west migratory paths intersect. It's a wonderful site to observe, learn and respect nature. I would hate to see the natural jewel overdeveloped, though indoor bathrooms would be nice. No hunting ever.

This is a wonderful refuge. There are not many volunteers, but it is easily self guided. It is a great place to take children to teach them about birds and other wildlife.

This refuge does not have a visitor center or staff or charge a fee and it does not need these things, though I would be willing to pay a fee to support the refuge. Restrooms, good trails/boardwalks/etc., and good signage are all this great place needs.

This refuge has defined entry and route opportunities with a tie-in to a less restrictive dike trail that allows dogs, horses and bicycles from a different entry point.

This refuge is undergoing significant changes in the next year or more due to land acquisition. A good part of the refuge will be closed. So some of these questions do not relate at this time to Steigerwald.

This refuge needs to be protected from the crazy amount of development that is going on in our community. The wildlife need space and protection.

This was an incredible refuge. I planned on spending 10-20 hours here over a 3 day period but ended up only getting about 2 hours sadly. The trails and wildlife were amazing here. This refuge was a highlight for me among other refuges I have seen. It really was a special place. The bird call signs did not work....so either get them working or take them out. When expensive signs like that don't work...it feels like wasted taxpayer dollars. Keep hunting and fishing out of these amazing places please! Thanks for providing them for the public and keeping them a safe haven for wildlife and those who enjoy them.

Very nice area w/lots of wildlife viewing opportunities. I use it year round. It would be nice if the trails were expanded to go to more areas.

We have been experiencing much vandalism and theft at our refuge. I am very concerned about this. Perhaps they could install some cameras to document the offenders.

We love our wildlife refuge!

We love Steigerwald. It is difficult to see what could be improved while still maintaining its fundamental role as a bird and wildlife area.

We love this refuge. It is quiet and peaceful, and you can see so many birds. Our kids love to bring their guidebooks and their binoculars and stay for hours. We see lots of other wildlife as well, which is also very cool.

We would not encourage expansive development. We like it as it is.

When driving, the entrance suddenly appears and twice I've nearly missed the exit. There is a good sign at the entrance, but it would help to have warning sign on the highway (e.g. Refuge off-ramp 500 feet).

Would like more trails open year-round.

End of Survey

General Comments (n=56)

A few concerns regarding Steigerwald: I've noticed a significant uptick in people walking dogs on the trails, large disruptive family groups including raucous and destructive children, and visitors walking or otherwise trespassing in areas clearly marked off-limits for purposes of wildlife and habitat conservation. I've also seen some indications of visitors riding bicycles on refuge trails (perhaps coming in from the dike trail). For whatever it's worth, I've also noticed a decrease in abundance and diversity of amphibians and insects in recent years, though this may be due to climate change, transient seasonal variations, etc. Park employees and volunteers have all been friendly and helpful when I've encountered them. The Gorge Refuge Stewards do a fantastic job maintaining and promoting this precious natural resource via their volunteer efforts and Facebook page. Thank you for all your hard work and for giving me the opportunity to participate in this survey.

Anytime lands are set aside for conservation, I'm a full supporter of it. We need to make sure our children have these places to experience nature in its natural state. Whether it be a marsh, high desert, or coastline. We need to preserve these lands.

Enjoyed visit at refuge. Staff very friendly, as were other visitors. Had opportunity to see a great variety of birds and wildlife. Pathways were easily managed and love the environment, trees, shrubs, and native plants, and love that so much time and effort were put into offering opportunities for community experiences. Thank you.

Great refuge...will be back soon!

Happy my taxes are used to preserve open spaces and conserve our environment.

Happy to help.

I am a retired refuge biologist and manager, including this complex, where I continue as a volunteer in the biological program with bird banding.

I am pleased with the proximity of this refuge to where I live. I enjoy any species of animals that I am lucky enough to observe, but my main focus is the raptors. I hope the habitat will never be compromised.

I find it appalling and contradictory that extremely toxic chemicals are sprayed in wildlife refuges, including the one this survey is about.

I hate that people hunt and fish animals, and I would like that not to be available in any refuge or any park, or anywhere at all.

I lead meditation hikes and would consider this for a future hike for the group. I would seek to find a quieter path, without as much foot traffic. Not sure if that is available there as I walked what seemed to be the only path...toward the water and along the dike.

I moved to California in July, therefore will not be returning. Thank you for the amazing photos and memories before I left.

I think wildlife refuges are very important and like to see my tax dollars used to support them. Keep them public, not private - they should be used to protect wildlife and for responsible recreation. Thank you!

I used a guidebook to find the trail. The art was what I came for. It was poor and uninformative. The mileage sign to other cities was the only interesting thing. I would not recommend or return.

I was from Texas visiting the Oregon/Washington area. Enjoyed my time at the refuge.

I was visiting from Europe and was impressed by the quality of this refuge which was near a big city. A lot of interesting birds. Keep up the good work!

I would like to see the barbed-wire fencing removed from within this refuge. It is left-over from an earlier use as farm land, and is dangerous to wildlife.

I would love to see the nutria and other invasive species taken care of. It would be really good to see long tailed weasels. They've been seen in nearby areas but I have not seen any at this refuge. It would be good to have signs explaining "why no dogs on the refuge" and "why no bikes on the refuge". The nearby metro (Portland) regional parks nature parks have developed some really good signs that could be used for this.

Invasive plants (reed canarygrass, Himalayan blackberry, Canada thistle, teasel in particular) are taking over much of the refuge. These invasives adversely affect the quality of the habitat. The FWS seems to be doing nothing to try to control these invasives. It would be nice to have better access to other parts of the refuge, particularly the wetlands/lake closer to Highway 14 with a viewing platform and photography blind that could be used in the winter.

It seems that once Steigerwald Lake trail was put in, the lake has had a major increase of algae and a decrease in variety of birds. This trail is also used for walking dogs and I would encourage that as a purpose of trail system... I am concerned that only the frontage road of dike allows dogs, no further trails, which disallows dogs. This is a consistent form of exercise for people with their dogs and far exceeds people who occasionally visit for birdwatching.

It was an extremely hot day with temps well into the 90s. I talked with a steward named Laurie. She was very nice and showed me some pictures of a doe and a fawn that she saw in the park. I traveled very slow and returned to my car once to eat lunch. I saw great views of harriers, great blue herons, and immature gadwalls. This park has a great view of Mount Hood with Mayhill Museum in the foreground. I marked two refuges and zero national/state parks. However, I have visited over 20 natural areas (city parks, wetlands and reserves) through the Backyard Birdshop, which sponsors guided bird walks. [name and number].

It would be nice if there was a box at the Steigerwald Refuge to pay to visit the refuge like there is at Nisqually \$5 and Ridgefield \$3. It's only a few dollars a visit and it could go to help pay for the upkeep of the refuge.

It would be nice if there were more benches for resting along the trail. The trail could be better maintained.

It's a beautiful place.

Looking forward to the changes at Steigerwald over the next few years to enhance habitat and wildlife. Good birding area.

Love having places to interact with nature - everywhere I go.

Love the park!

Loved Steigerwald Refuge. It was stunning! Keep it for the wildlife and not for the hunters or fisherman. They have plenty of other places to go. A refuge should be a place wildlife doesn't have to worry about getting shot by hunters. Thank you for making places like this for us to enjoy.

Make American green again.

More and larger signage at strategic locations explain that this is a wildlife refuge and not a park. No dogs, bikes or jogging!!! More enforcement and monitoring.

More trails.

My only comment is that I have seen a refuge turn into a place where you could only drive through. I was a volunteer photographer for there but way too many people!

Please do not loosen regulations on hunting and fishing within the refuge. Steigerwald Lake is a wildlife refuge and it is the only wildlife refuge in the area. Fishing is allowed on every other local body of water and there are plenty of opportunities for hunting nearby.

Please put up signs at the Steigerwald NWR specifically prohibiting drones! These signs are visible at other local NWR properties. Drones are an occasional problem at this refuge!

See photos. This is why we walk at Steigerwald!!

So glad to have found this National Wildlife Refuge. A friend posted photos on Instagram and Facebook, which is how I found out about it. It was lovely but would've been even better if there were a few more trail signs indicating which way to go when (and where the art walk was located). I would have also appreciated a few more informational signs / interpretive panels showing what local flora and fauna I'd likely see (text and photos).

Steigerwald is a critical wetlands area important for migrating birds and salmon. I hope that we can restore this important habitat for the health of wildlife, to save money for local industry that are flooded every year, and most importantly for the health of communities that live along the Columbia.

Steigerwald is a very enjoyable place to visit.

Steigerwald Lake is a wonderful resource for birdwatchers and nature lovers in the Portland/Vancouver region. It's one of my favorite nature places in the area. I especially like the art and interpretive signage and the connection through the dike trail to the adjacent Captain Clark Park/Cottonwood Beach. The free volunteer led bird walks are a fantastic resource which I participate in as much as I can. I appreciate that this is a free resource but I know our NWRs need support, especially under the current federal administration, I would be willing to pay a fee to visit this NWR.

Thank you for having a nature refuge. We need more of them.

Thank you for the opportunity to participate in the survey. Your student volunteers who conducted the survey were extremely courteous, friendly, and helpful. They added to the quality of the refuge experience.

Thank you for your research! Good luck!

Thanks for doing all that you do!

The refuge system along the Columbia seems to favor hunters - Sauvie Island, Ridgefield - and not wildlife or people. I guess this compromise, which limits access for non-hunters, is the best we can do with the wetland relics we have remaining. But I find it heart breaking that I can no longer walk quietly on the land, exploring and enjoying. I appreciate the work you are trying to do, but I need to move away from this over-crowded area - we cannot access the land at certain seasons, get out of our cars, etc. Thank you for doing what you can - I used to eat wild fowl + game, and understand the pressures of hunters, but they get to walk and shoot + kill where I can't just walk, crazy!

The survey takers were very pleasant and I was happy to hear about this program. Good use of public resources to ensure that you are meeting the needs of the public.

This is a great refuge which my wife and I visit about once a month. Please keep up the good work.

This is a marvelous refuge: great for birdwatching and easily accessible. Keep up the good work!

This is a wonderful refuge for both wildlife and us passing humans. Thank you for your work and we look forward to returning.

This refuge is a jewel! A wonderful resource!

This was a spur-of-the-moment side trip that we made while en route from Portland to a cabin near Mt. Rainier. It was pleasant and worth going a little out of our way.

We love hiking and bird and nature watching during all seasons at this refuge.

We love the Steigerwald Refuge and enjoy visiting whenever we are in the area.

We went to the refuge for a family walk and live nearby so many of the questions were too in depth. We drove from home, went for a walk in a new nature area and drove home.

We will visit this refuge several times next year. Great walk and wonderful wildlife, especially birds.

We would support development of additional natural refuge areas rather than significant development of any one area. Too many people a challenge for the wildlife.

When will you start selling "it's cool to care about fish and wildlife" t-shirts?