



U.S. Fish & Wildlife Service

NATIONAL WILDLIFE REFUGE VISITOR SURVEY

*2018 Results for
J.N. "Ding" Darling
National Wildlife Refuge*



THE OHIO STATE
UNIVERSITY



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Front cover: A group of roseate spoonbills wading in a pool at J.N. Ding Darling National Wildlife Refuge. Photo credit: Nicole Stagg.

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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 J.N. “Ding” Darling 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

J.N. Ding Darling National Wildlife Refuge is located on Sanibel Island along the Gulf Coast of Florida. The refuge was established in 1945 largely thanks to the efforts of Jay Norwood “Ding” Darling, a conservationist who urged President Truman to protect the island from development. The purpose of the wildlife refuge is to protect the unique habitat of Sanibel Island so it can continue to sustain endangered species and migratory birds. The 6,400 acres are part of the largest intact mangrove ecosystem in the United States. In addition to mangrove forests, this wildlife refuge contains submerged seagrass beds, cordgrass marshes, and West Indian hardwood hammocks. Almost half of the refuge is designated as a National Wilderness Area. The refuge provides habitat for 245 bird species, but is particularly well known for the “big five” bird species that draw in birders from around the world. These species include the American white pelican, the mangrove cuckoo, the reddish egret, the roseate spoonbill, and the yellow-crowned night-heron. Other charismatic species that call this wildlife refuge home include the endangered loggerhead sea



Visitors on the lookout for birds at J.N. Ding Darling National Wildlife Refuge. Photo credit: Nicole Stagg.

turtle, the endangered smalltooth sawfish, and the threatened manatee.

J.N. Ding Darling National Wildlife Refuge attracts over 927,900 visitors annually (U.S. Fish and Wildlife Service, 2018, written comm.). Visitors can engage in a wide variety of recreational activities on this wildlife refuge. The refuge has a large visitor and education center where visitors can learn about the habitats and wildlife of the refuge through interpretive exhibits and programs. The refuge has a wildlife drive that visitors can enjoy on their own or via a guided tram tour. Multiple hiking trails and observation decks support participation in wildlife observation and photography. Two small craft launch areas provide access for visitors to kayak or paddleboard. Saltwater fishing is another popular activity on this wildlife refuge.

SAMPLING

Refuge professionals at this wildlife refuge identified two separate 14-day sampling periods and one or more sampling locations that best reflected the primary uses of the refuge as well as the diversity of activities that occur (Fig. 2). For more details on methodology for the National Wildlife Refuge Visitor Survey, see Appendix A.

- During the two sampling periods, a total of 374 visitors agreed to participate in the survey by providing their names and addresses.
- In all, 250 visitors completed the survey online (48%) or by mail (52%) after their refuge visit, resulting in a 69% 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 J.N. Ding Darling National Wildlife Refuge. Visitors were contacted at the circled locations from 12/7/2018–12/20/2018 and 1/29/2019–2/12/2019.

Visitor Characteristics

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

AGE & GENDER

- 50% of visitors were female with an average age of 60 years (Fig. 3).
- 50% were male with an average age of 66 years.

EDUCATION

- 6% of visitors had a high school degree or less.
- 41% had at least some college.
- 53% had an advanced degree.

RACE & ETHNICITY

Most prevalent race or ethnicity (Fig. 4):

- White (96%).

INCOME

- Visitors had a mean income range of \$100,000-\$149,999 (Fig. 5).

OTHER TRIP CHARACTERISTICS

- Average group size of 3 people.
- 9% visited the refuge alone.
- 81% visited with at least one other adult.
- 11% visited with a combination of at least 1 adult and 1 child.

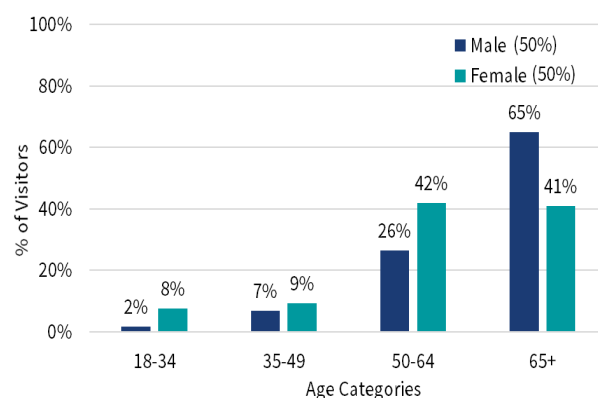


Fig. 3: Distribution of visitors to this refuge by gender and age group.

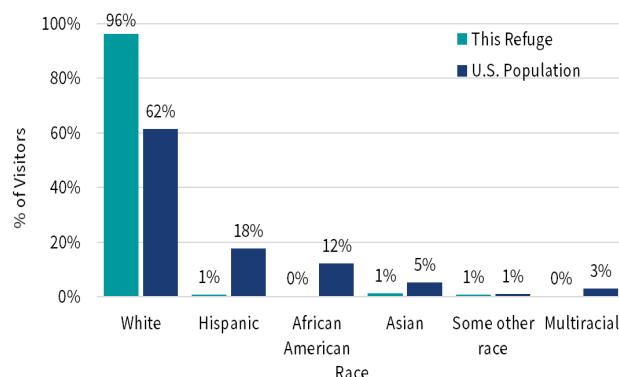


Fig. 4: Race and ethnicity of visitors to this refuge compared to the national average.

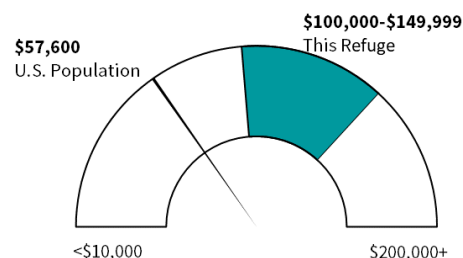


Fig. 5: Mean income range of visitors to this refuge compared to the national median income.

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 (18%) include:

- For locals, this refuge was the primary reason for their trip (68%) (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 (82%) include:

- For nonlocals, this refuge was one of many equally important reasons for their trip (64%) (Fig. 6).
- Nonlocal visitors traveled an average of 11 hours to arrive at this refuge (Fig. 8).
- Of the 93% of visitors who lived in the U.S., nonlocal visitors were most often from Florida (9%) and Massachusetts (9%).
- 7% of respondents were international visitors.

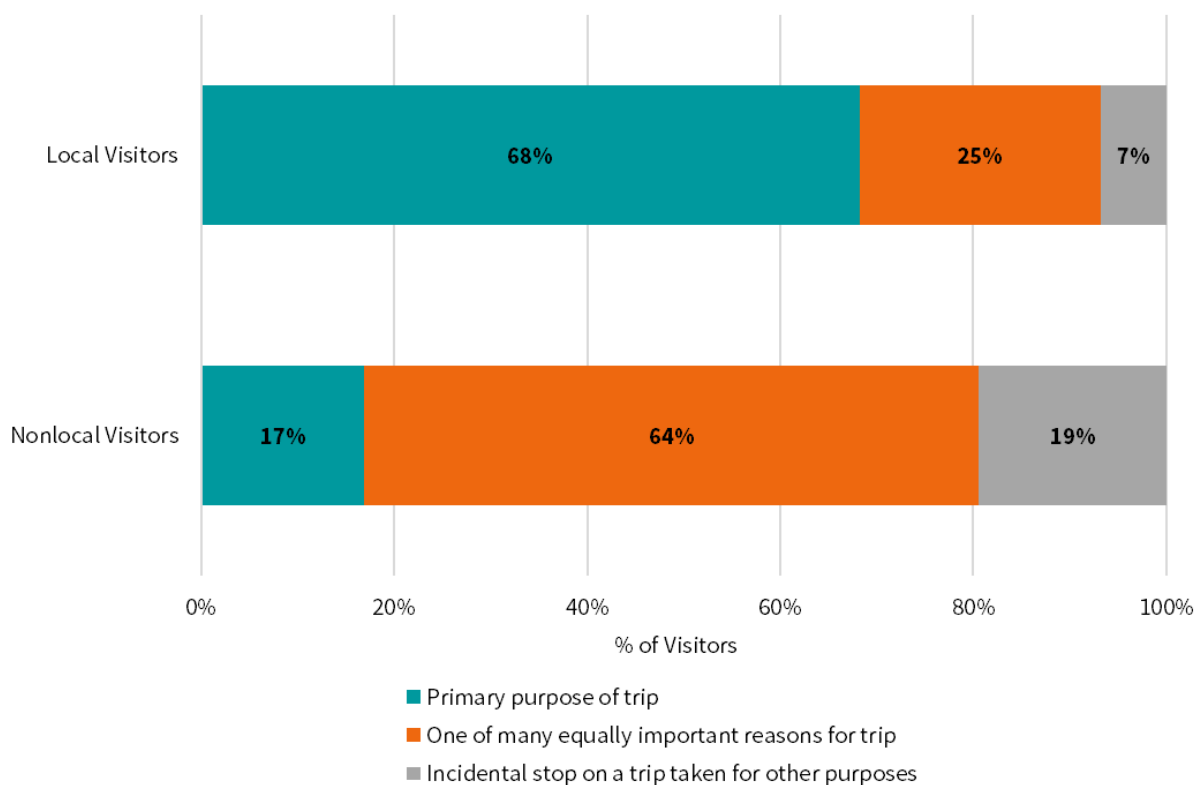


Fig. 6: Purpose of most recent refuge visit for local (living ≤ 50 miles from the refuge) and nonlocal (living > 50 miles from the refuge) visitors.

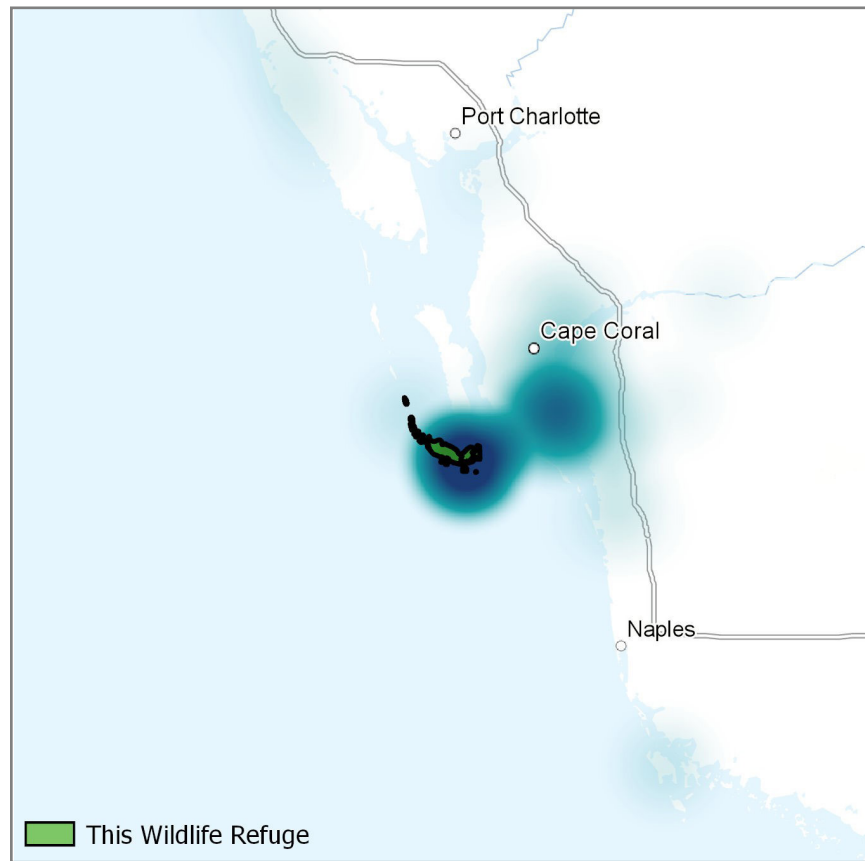


Fig. 7: Map showing residence of local visitors to this refuge. Darker shading represents relatively higher visitation from that area.

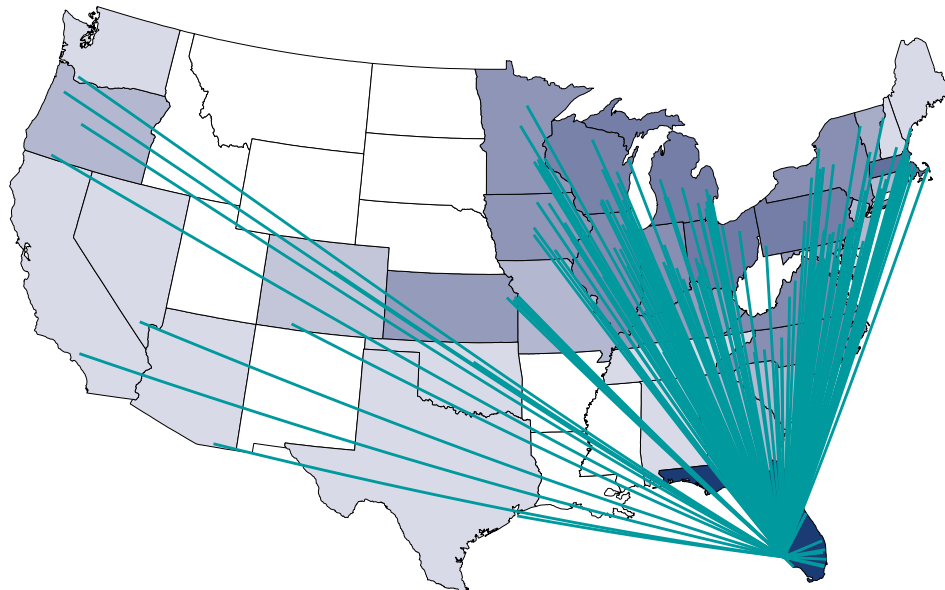


Fig. 8: Map showing residence of visitors to this refuge by zip code, with each line representing visitation from a different zip code. The convergence point of the lines is the geographical center of the refuge. Darker shading of the states represents higher visitation from that state.

OTHER TRIP CHARACTERISTICS

Other trip characteristics include:

- To get to this wildlife refuge, visitors primarily traveled by private vehicle without a trailer (80%) and by bicycle (27%) (Fig. 9).
- Once on the refuge, visitors primarily traveled by private vehicle without a trailer (55%) and by foot (39%) (Fig. 9).
- Visits occurred during winter (98%), spring (22%), summer (11%), and fall (17%).
- 80% of visitors made a single-day trip to this refuge, spending an average of 3 hours, while 20% of visitors were on a multi-day trip to this wildlife refuge that averaged 6 days.

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

- 55% were repeat visitors to this wildlife refuge, visiting an average of 14 times.
- 55% visited other national wildlife refuges, averaging 3 visits.
- 74% visited other public lands, averaging 8 visits.

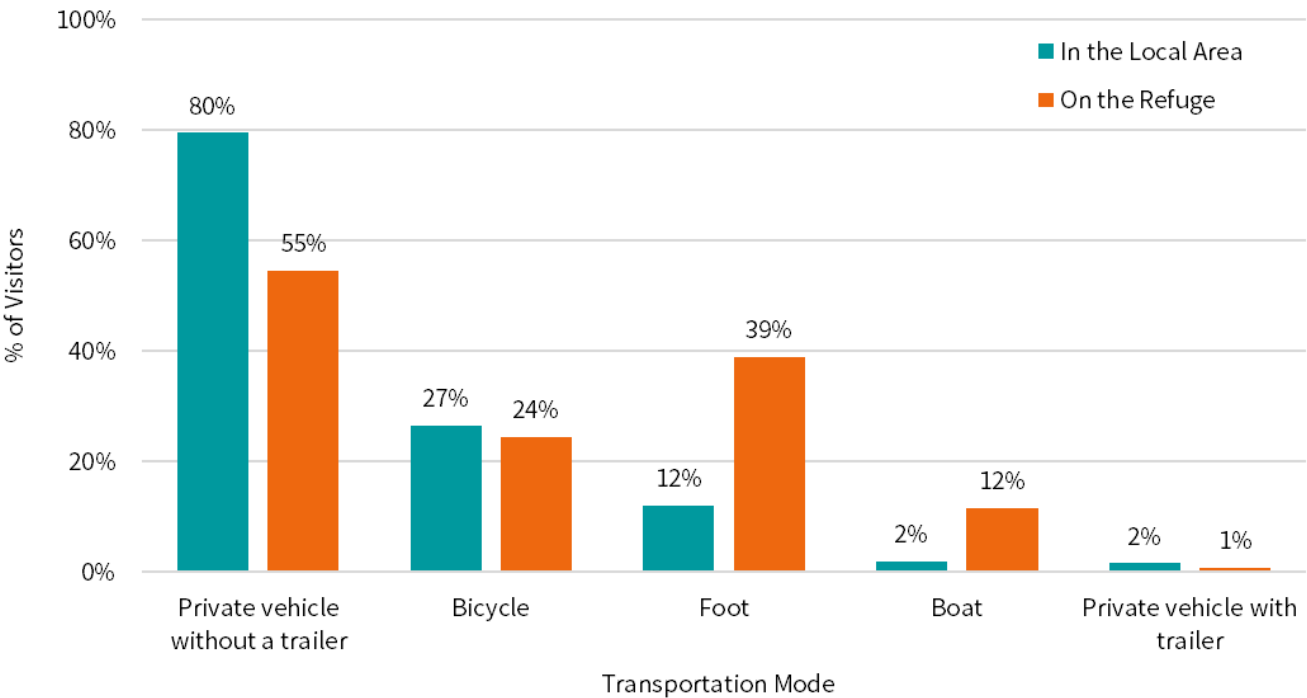


Fig. 9: Modes of transportation used by visitors to get from the local area to this refuge and within the boundaries of this refuge.

Information Sources Used for Trip Planning

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

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

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

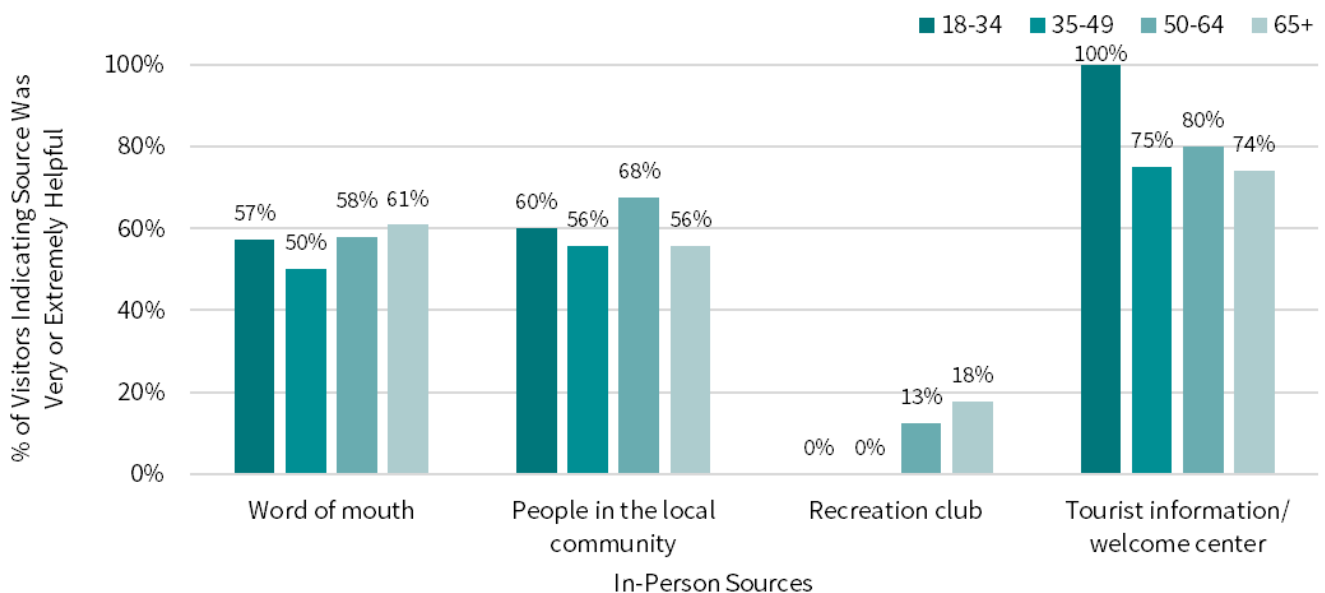


Fig. 10: Percent of visitors by age group who found in-person information sources very or extremely helpful in planning their trip.

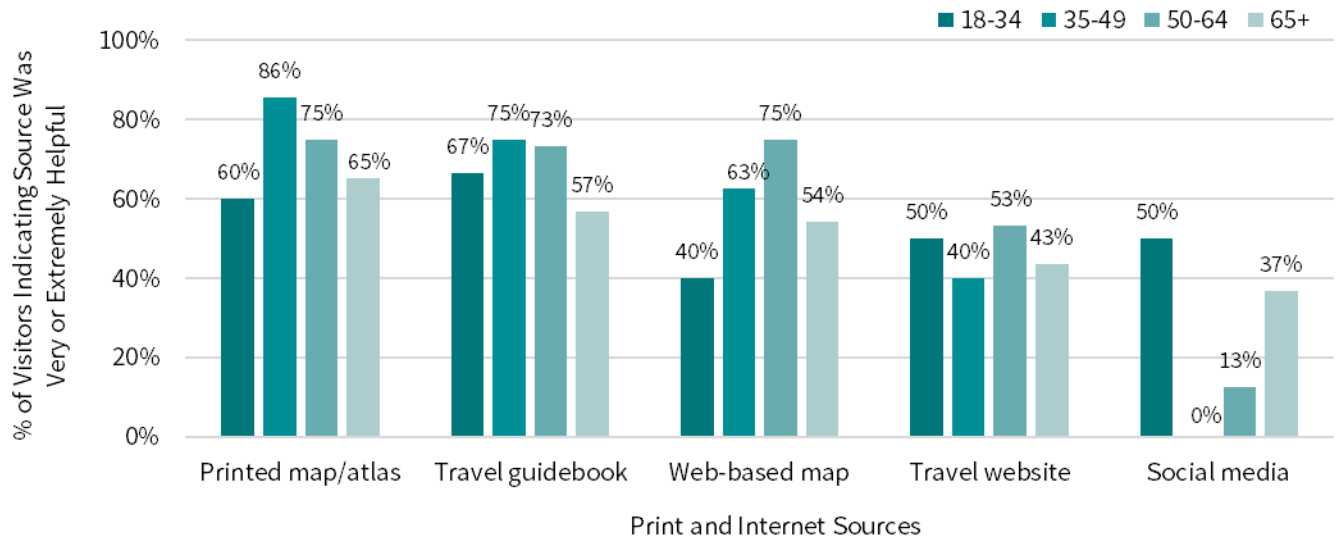


Fig. 11: Percent of visitors by age group who found print and internet information sources very or extremely helpful in planning their trip.

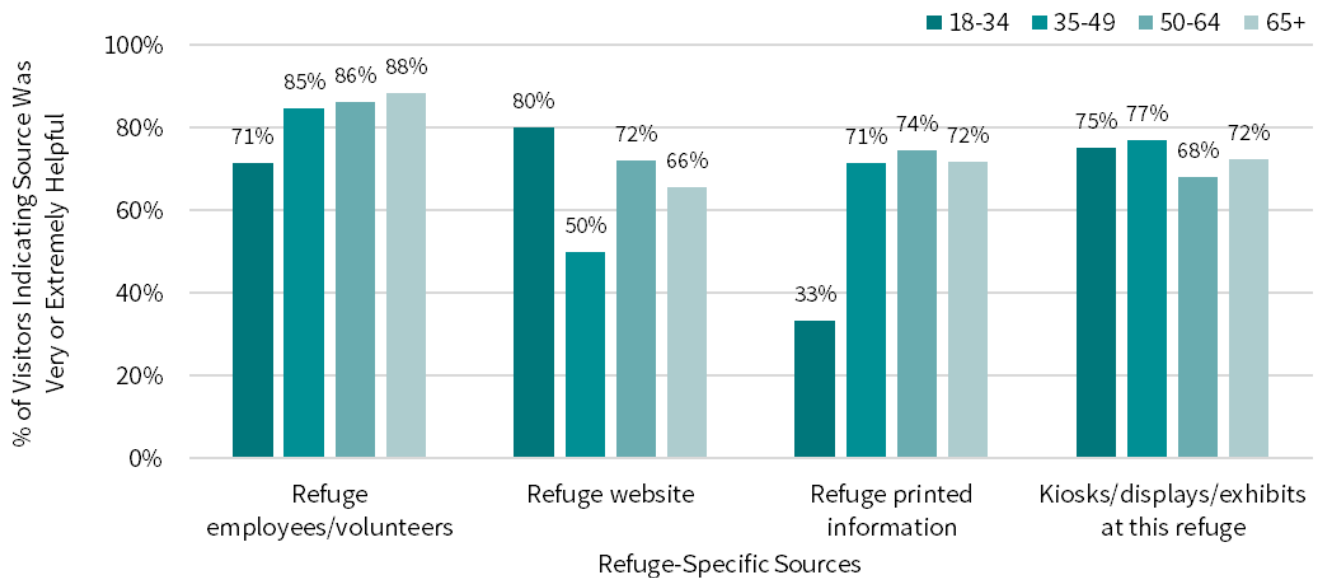


Fig. 12: Percent of visitors by age group who found refuge-specific information sources very or extremely helpful in planning their trip.

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 42% of visitors to share their experience on this refuge with others. Use of specific social media platforms varied by age group (Fig. 13):

- Visitors 18-34 years old preferred to use Facebook (25%) and Instagram (13%).
- Visitors 35-49 years old preferred to use Facebook (35%).
- Visitors 50-64 years old preferred to use Facebook (36%) and Instagram (18%).
- Visitors 65 or older preferred to use Facebook (31%).

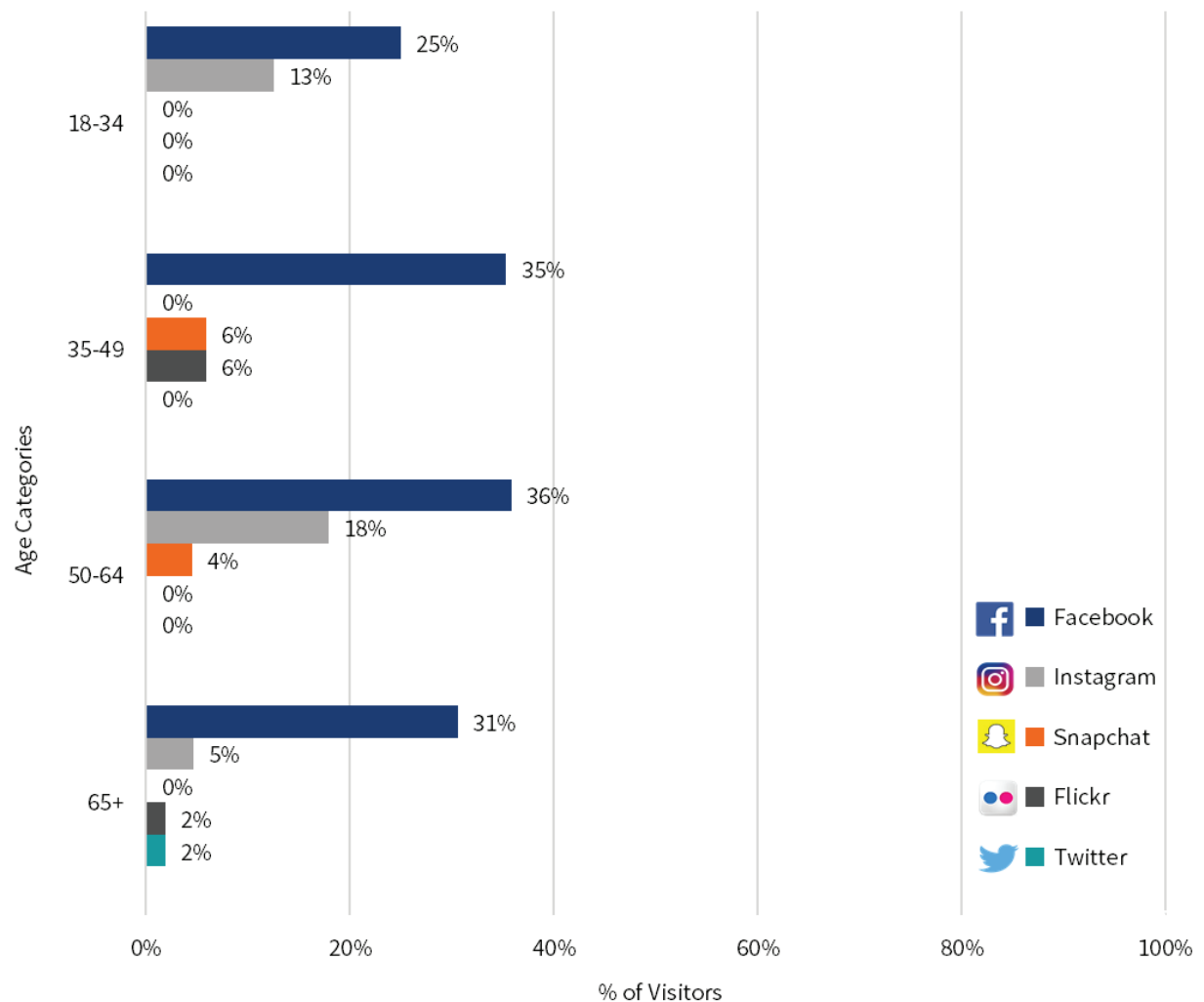


Fig. 13: Percent of visitors by age group who used various social media platforms to share their experience on this refuge with others.

Participation in Recreational Activities

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

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

- The top three activities in which visitors participated during the past 12 months were wildlife observation (89%), bird watching (77%), and photography (57%) (Fig. 14).
- The top three activities noted as their primary activity on the day visitors were contacted to participate in the survey were wildlife observation (26%), bird watching (26%), and nonmotorized boating (10%) (Fig. 14).
- Approximately 63% of visitors went to the visitor center, and they most often used the facilities (80%), viewed the exhibits (76%), and visited the gift shop or bookstore (70%) (Fig. 15).



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

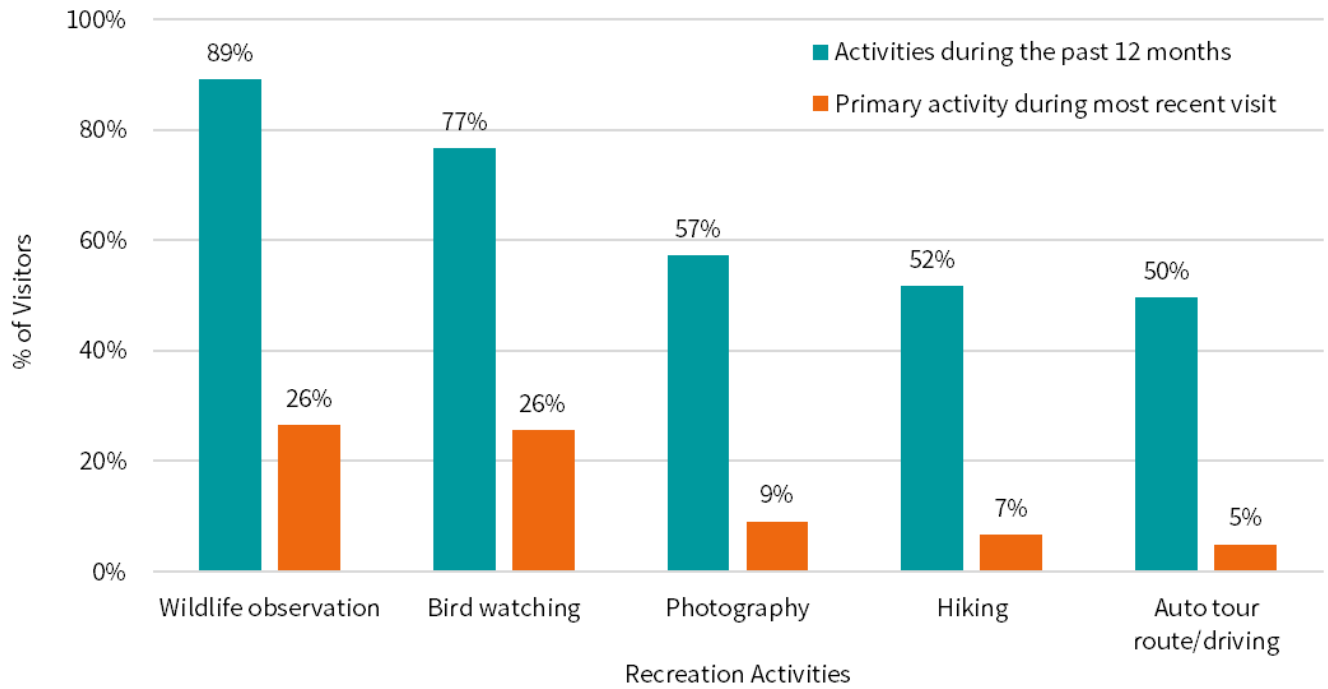


Fig. 14: Recreational activities visitors participated in during the past 12 months and their primary activity during their most recent visit to this refuge.

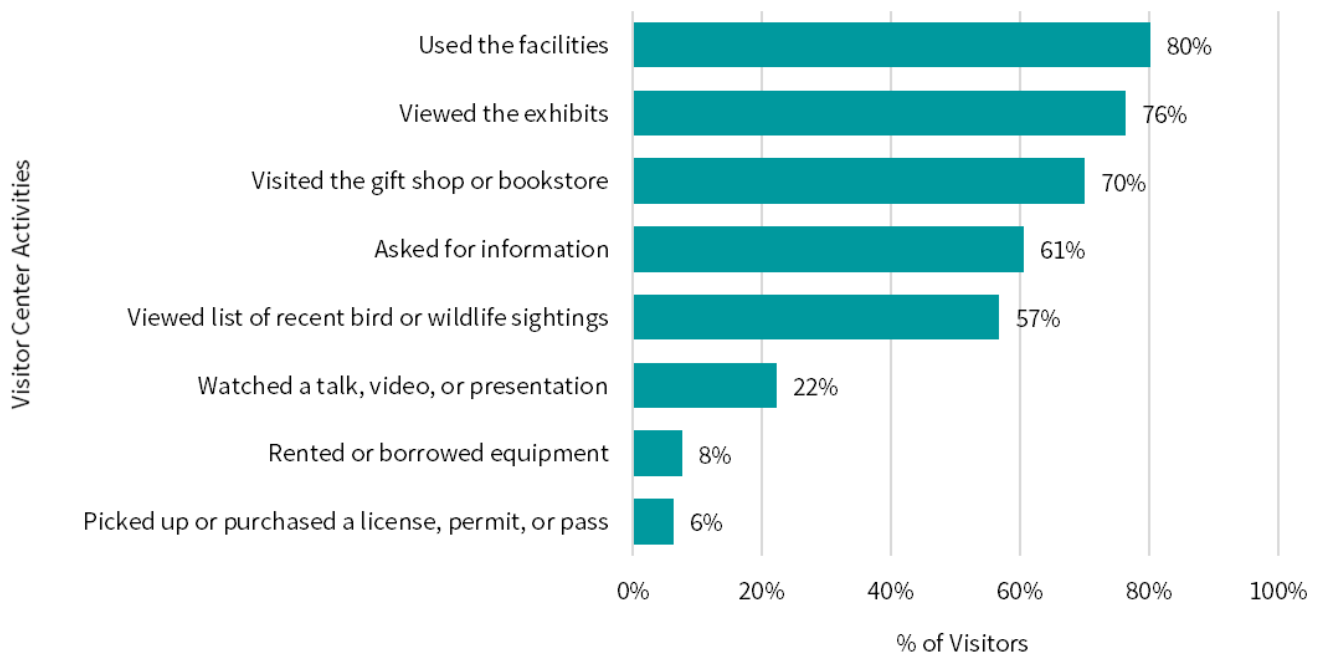


Fig. 15: Reasons visitors used the visitor center during their most recent visit to this refuge.

Comfort in Nature/Feeling Safe & Welcome

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

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

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

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

- 94% of visitors felt welcome during their refuge visit (Fig. 16).
- 99% of visitors felt safe during their refuge visit (Fig. 16).
- 97% of visitors reported that they feel comfortable being in nature, but 8% do not like being in nature alone (Fig. 17).

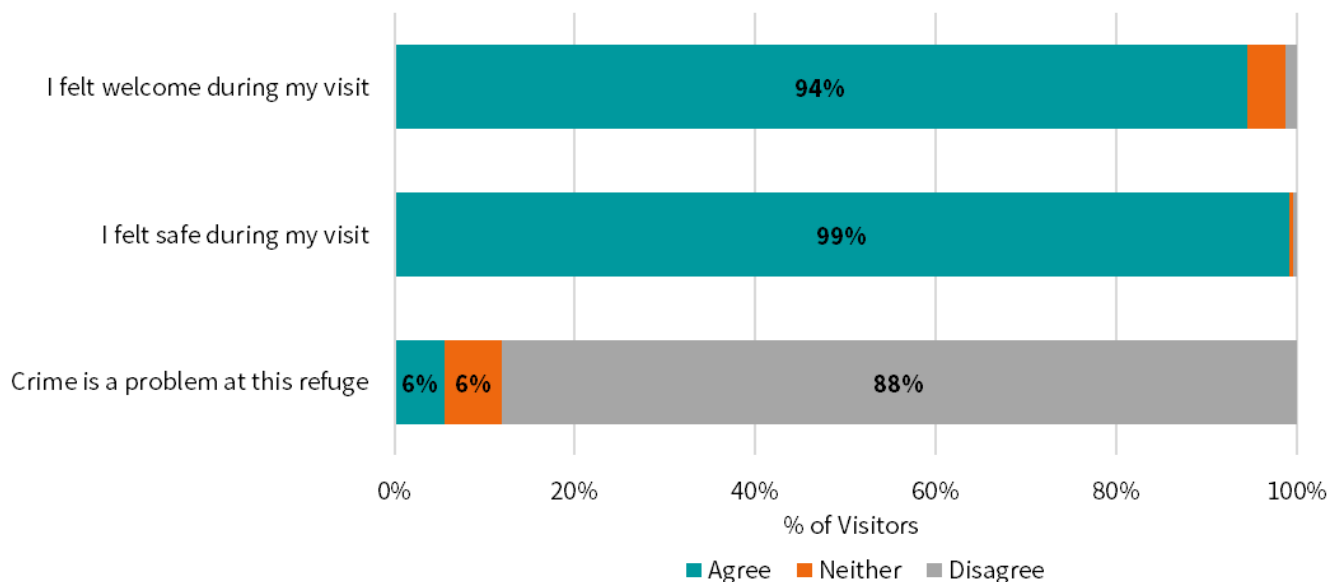


Fig. 16: Visitors' perceptions of safety and feeling welcome at this refuge during their visit.

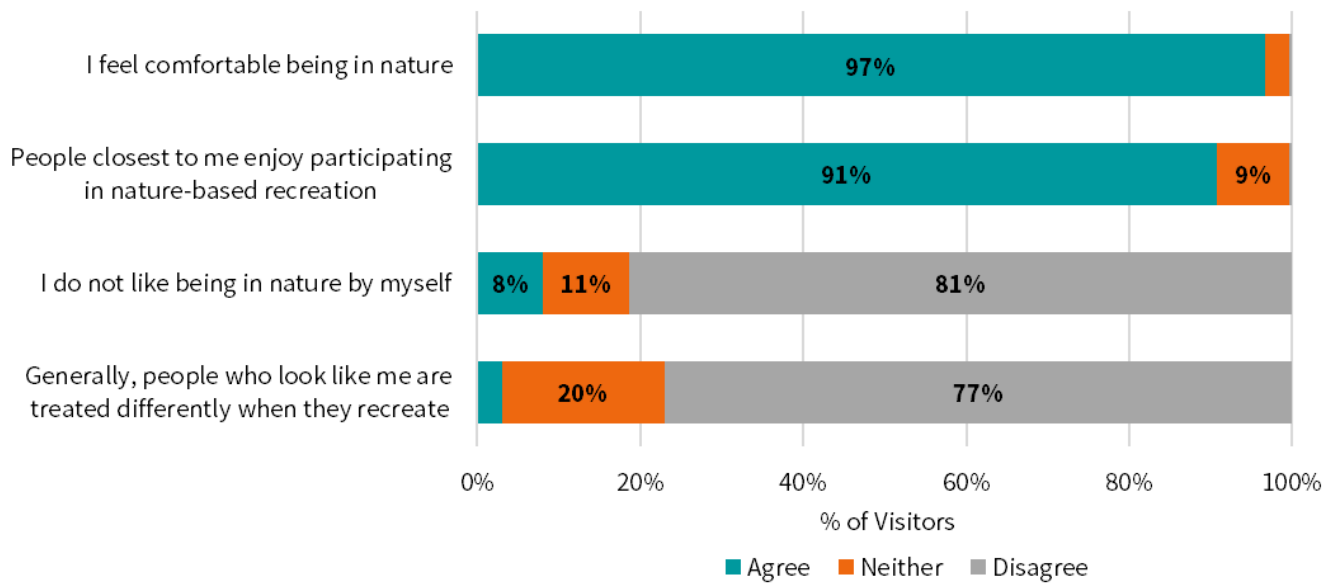


Fig. 17: Visitors' comfort with being in nature.



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

Satisfaction with Refuge Experiences

OVERALL SATISFACTION

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

- 94% of visitors were very or extremely satisfied with the overall experience at this wildlife refuge (Fig. 18).
- 93% of visitors were very or extremely satisfied with this wildlife refuge's job of conserving fish, wildlife, and their habitats (Fig. 18).

CUSTOMER SERVICE

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

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

- courteous and welcoming employees/volunteers (93%),
- visitor center (92%),
- restrooms (91%), and
- signage stating rules and regulations (91%).

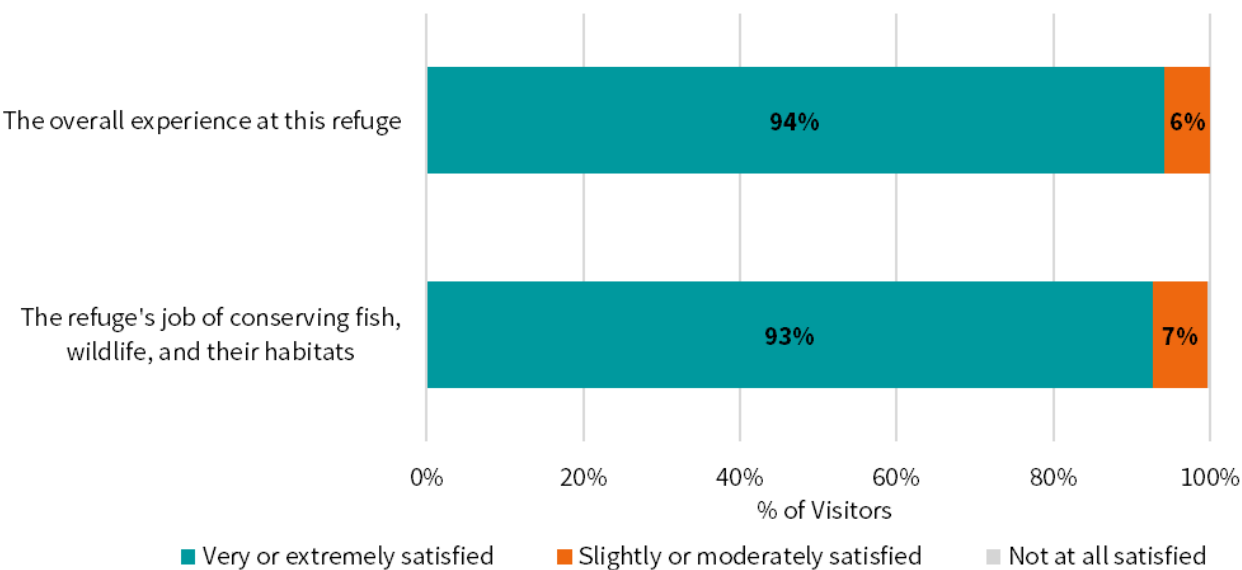


Fig. 18: Visitors' satisfaction with their experience at this refuge and with this refuge's job of conserving fish, wildlife, and habitats.

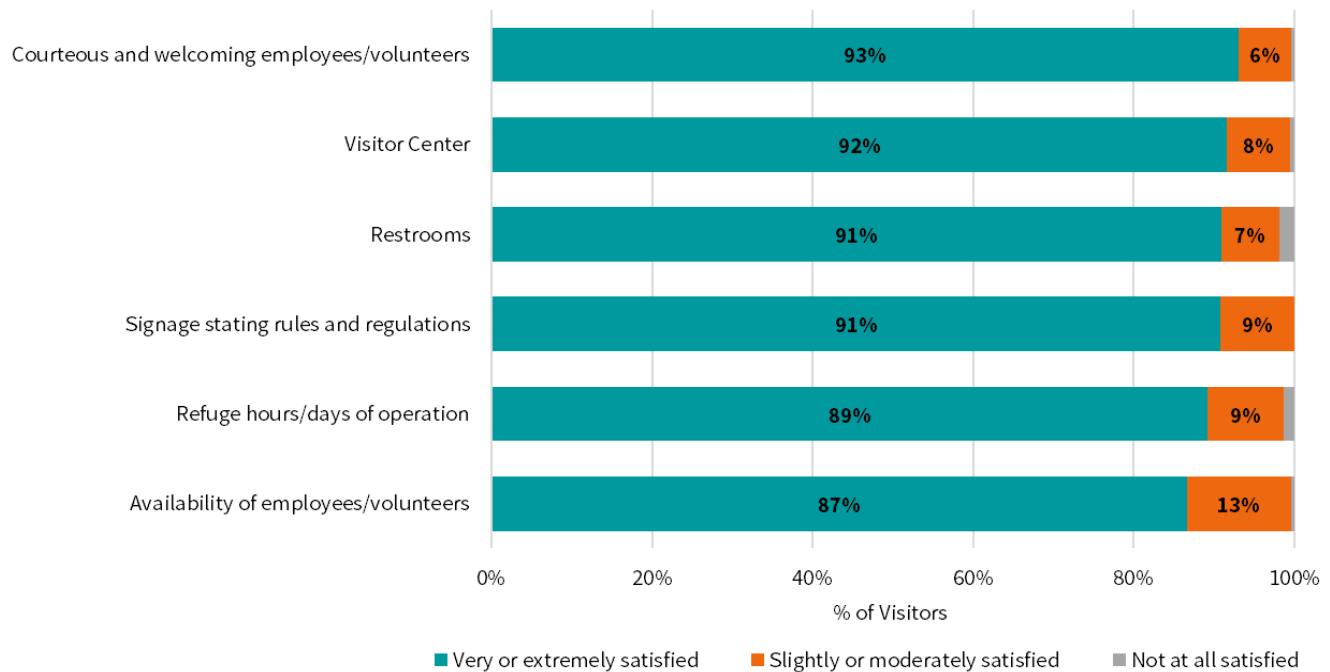


Fig. 19: Visitors' satisfaction with customer service and amenities at this refuge.

RECREATIONAL OPPORTUNITIES

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

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

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

- bicycling (97%),
- photography (94%), and
- bird watching (92%).

"I have been visiting this wildlife refuge since I was a child and it is nice to return as an adult...this wildlife refuge had a strong influence on my life and led to my love of nature and birdwatching. It is a place where children can be easily inspired by birds and wildlife." – Visitor to J.N. "Ding" Darling National Wildlife Refuge

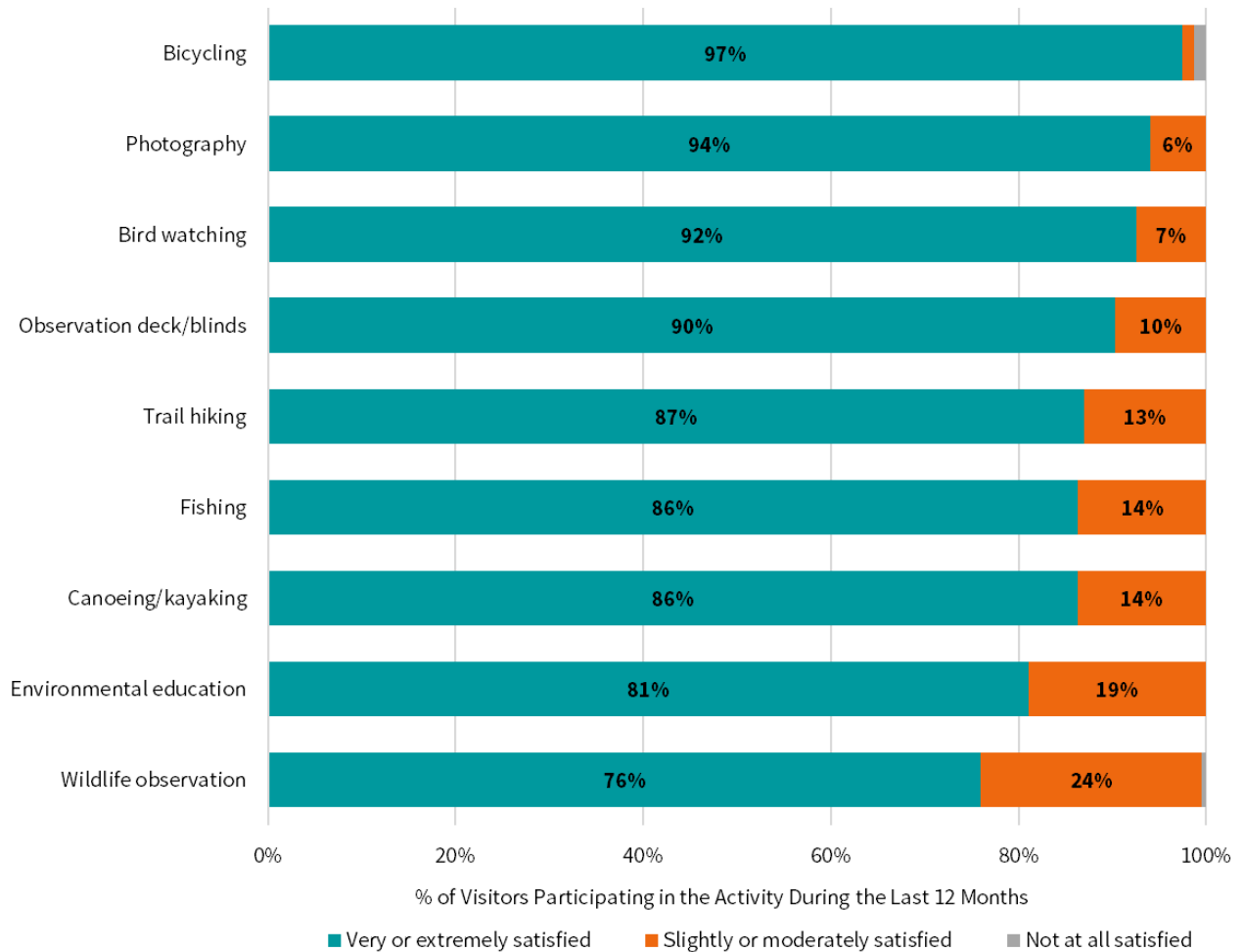


Fig. 20: Visitors' satisfaction with recreational opportunities at this refuge. Only visitors (10 or more) who participated in activities related to each opportunity at this refuge during the last 12 months were included.

TRANSPORTATION SAFETY & ACCESS

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

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

- Getting to this wildlife refuge, visitors were most satisfied with safety of refuge road entrances and exits (90%).
- Getting around this wildlife refuge, visitors were most satisfied with condition of bridges on roadways (95%), condition of refuge roads (93%), and number of places to pull over on refuge roads (92%).
- Accessing recreation on this wildlife refuge, visitors were most satisfied with condition of trails and boardwalks (92%), safety of roads or trails for nonmotorized use (85%), and condition of boat launches (82%).

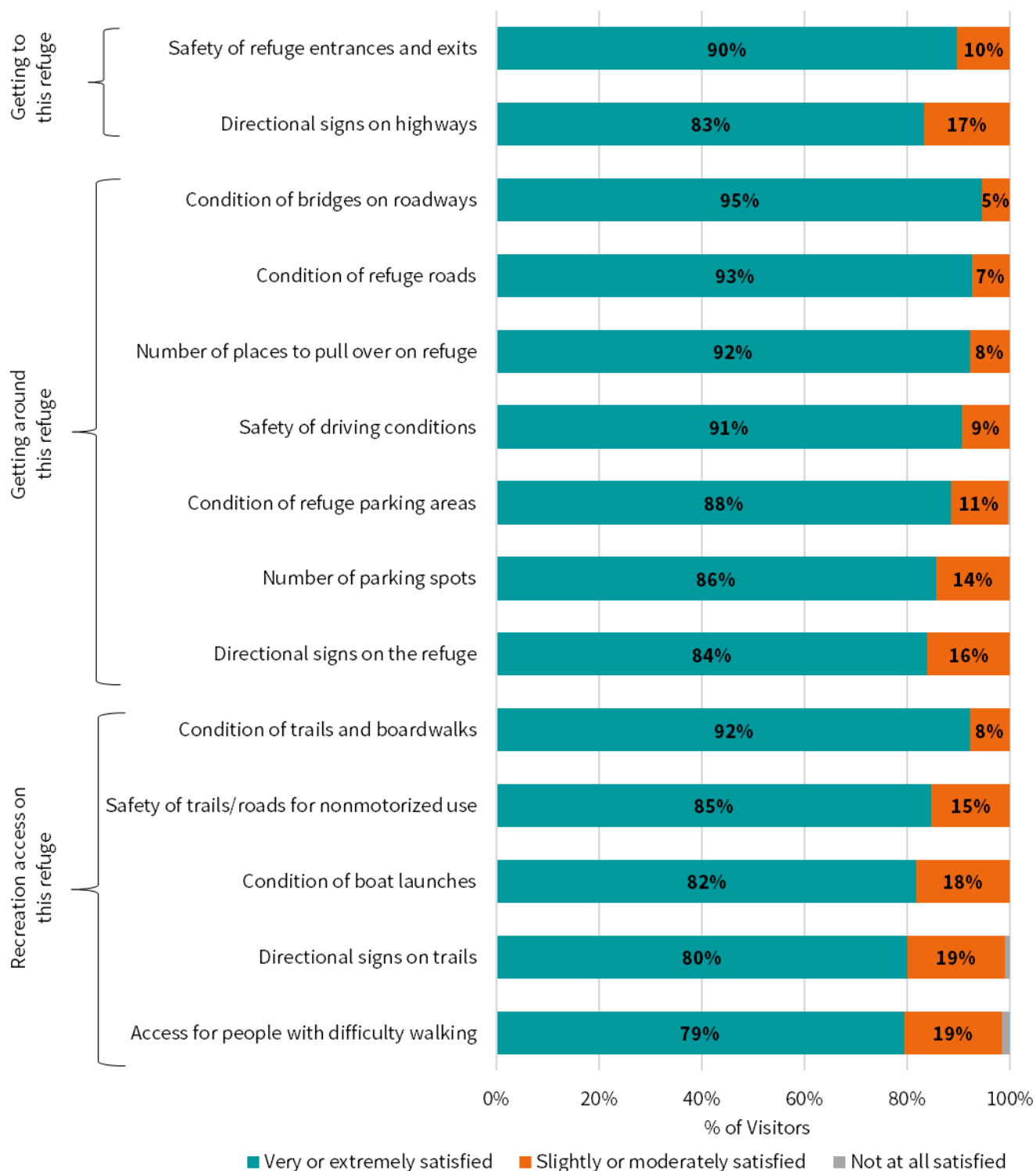


Fig. 21: Visitors' satisfaction with how the refuge is managing transportation-related features.

Economic Benefits to Local Communities & Visitors

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

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

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

- On average, local visitors accounted for 1% of expenditures.
- Top trip expenditures by locals were for food/drink and retail (Fig. 22).
- The average amount paid by locals to visit this wildlife refuge was \$79 per person per day (Fig. 22).
- Local visitors were personally willing to pay an additional \$49 per day on average to visit this wildlife refuge (Fig. 23).

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

- On average, nonlocals accounted for 99% of expenditures.
- Top trip expenditures by nonlocals were for lodging and food/drink (Fig. 22).
- The average amount paid by nonlocals to visit this wildlife refuge was \$211 per person per day (Fig. 22).
- Nonlocal visitors were personally willing to pay an additional \$183 per day on average to visit this wildlife refuge (Fig. 23).
- Nonlocal visitors spent an average of 14 days in the local community during this visit.





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

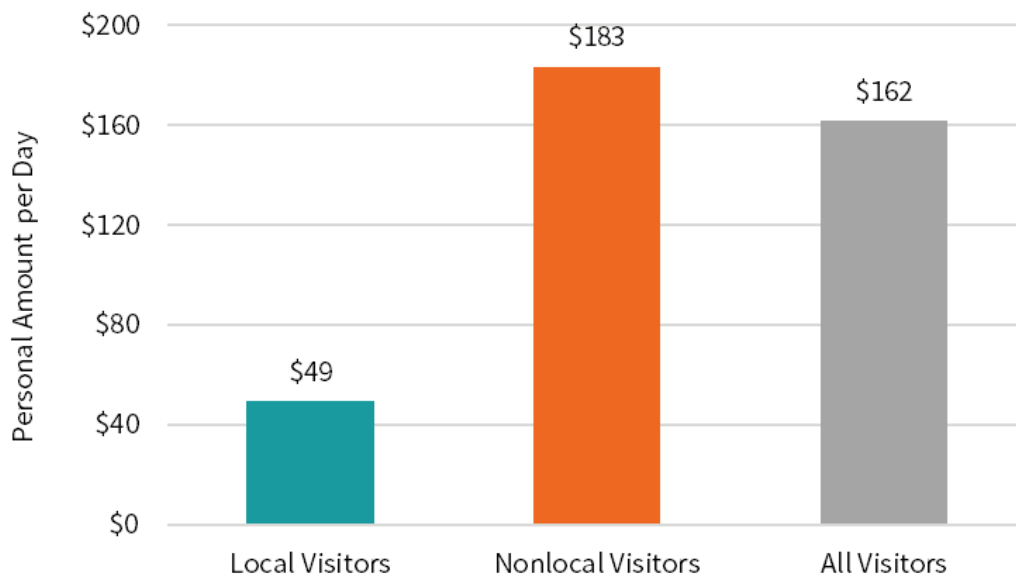


Fig. 23: Total personal willingness to pay per day above and beyond most recent trip expenses if costs were to increase for local, nonlocal, and all visitors. Due to the fixed-response question format, estimates of willingness to pay may underestimate the amount visitors would actually pay. Responses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

Encouraging Return Visits & Future Recreation Participation

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

PROGRAMS AND OTHER OFFERINGS

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

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

- Programs most likely to encourage visitors to return to this wildlife refuge included those focused on skill-building (50%), highlighting unique local culture (50%), and engaging families and multiple generations (41%) (Fig. 24).
- The top two factors likely to increase visitors' future participation in their primary recreation activity were more infrastructure (18%) and recreation equipment available for rent (12%) (Fig. 25).
- The top two factors likely to decrease visitors' future participation in their primary recreation activity were less regulations on hunting (39%) and less regulations on fishing (26%) (Fig. 25).

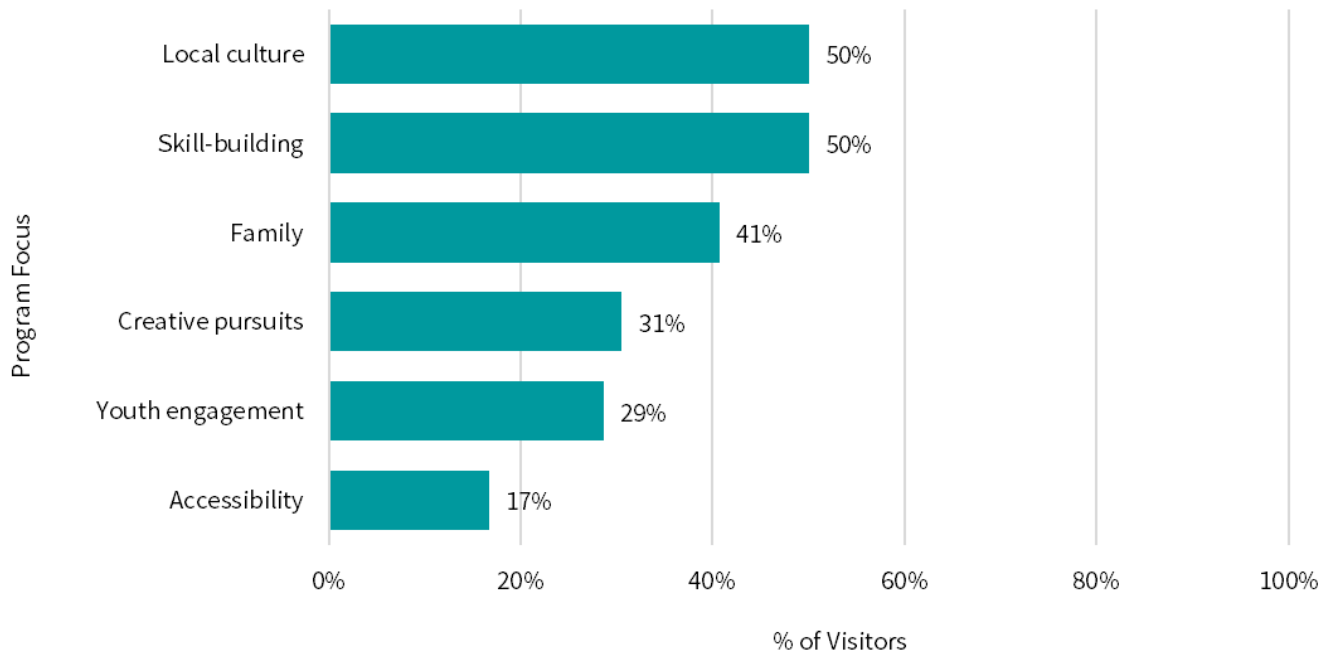


Fig. 24: Types of programs that would encourage visitors to return to this refuge.

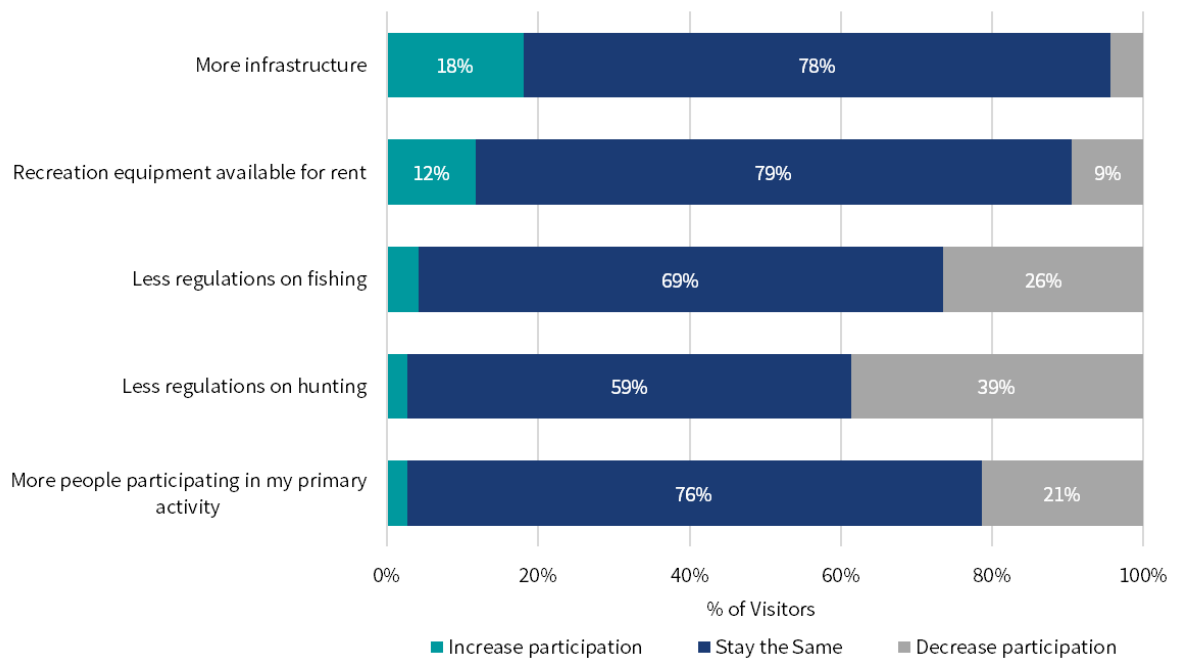


Fig. 25: Changes in visitors' participation in their primary activity if the listed recreation factors were to change.

ALTERNATIVE TRANSPORTATION

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

The top future alternative transportation options supported by visitors at this wildlife refuge included (Fig. 26):

- pedestrian paths (39%),
- a bike-share program (28%), and
- a bus/tram that provides a guided tour (20%).

ECOSYSTEM SERVICES

Natural processes associated with wildlife refuges can provide benefits to people, including provisioning services such as food

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

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

- The top two resource changes likely to increase visitors' future participation in their primary recreation activity were a greater diversity of species (64%) and an improvement in the quality of wildlife habitat other than wetlands (59%).
- The top two resource changes likely to decrease visitors' future participation in their primary recreation activity were less water available for recreation (42%) and more acreage open to hunting and fishing (40%).

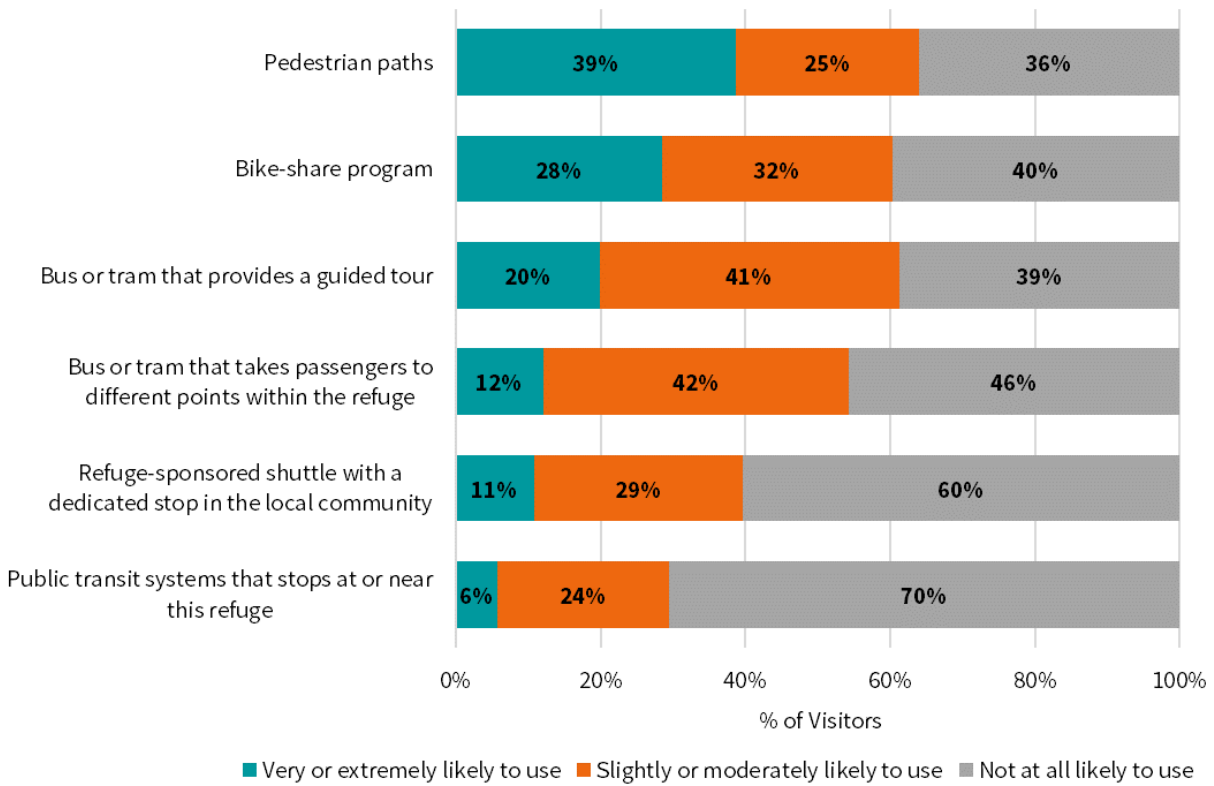


Fig. 26: Visitors' likelihood of using alternative transportation options if offered at this refuge.

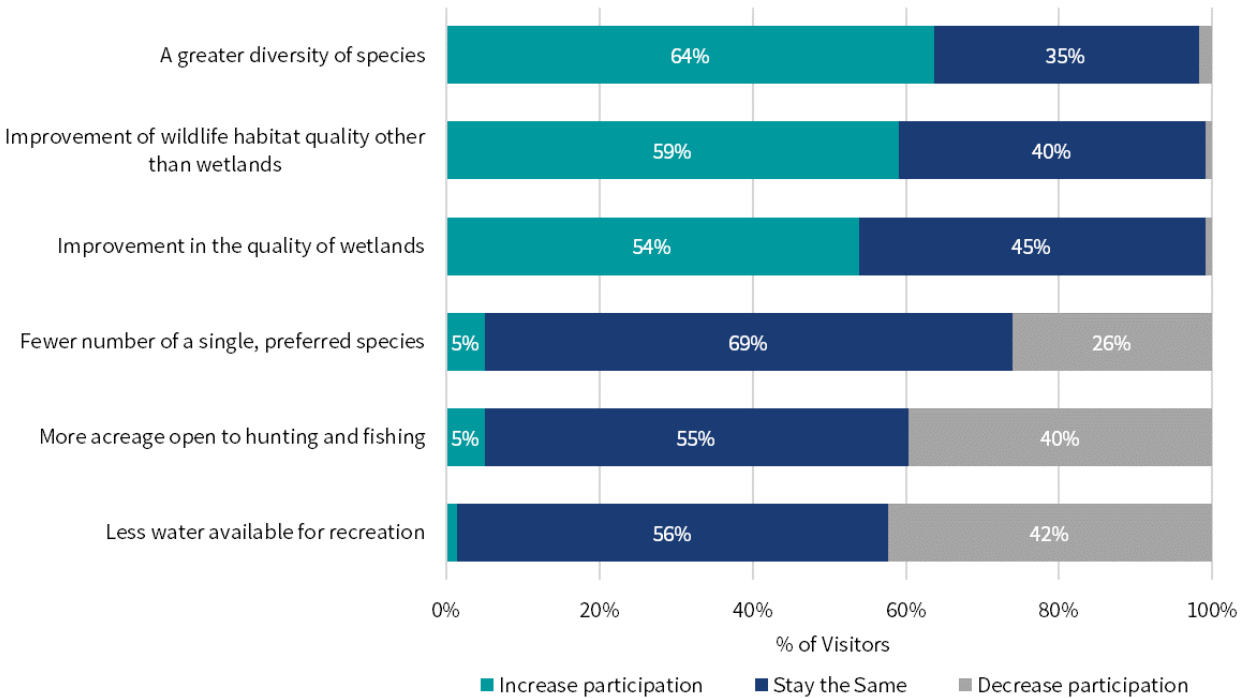


Fig. 27: Changes in visitors' participation in their primary activity if the listed resources were to change.

Conclusion

These individual refuge results provide a summary of trip characteristics and experiences of a sample of visitors to J.N. “Ding” Darling 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

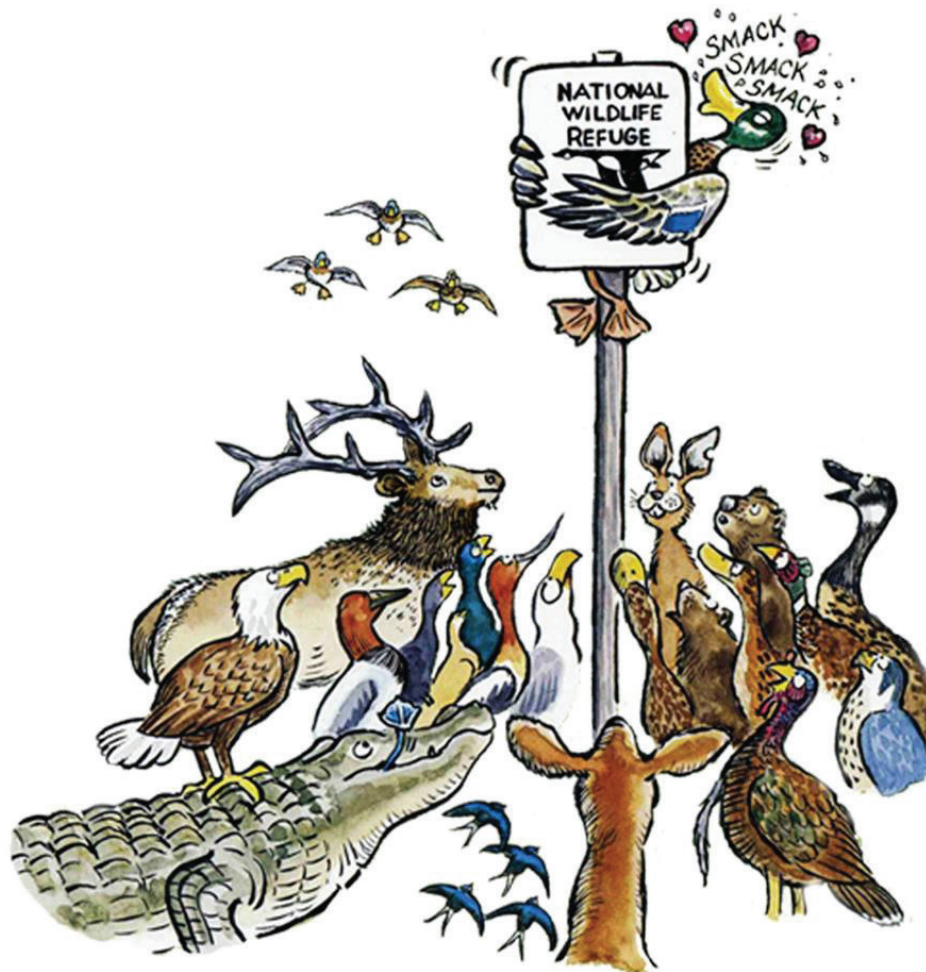
response distribution, meaning if respondents were given a dichotomous choice question, approximately 80% of respondents would select one choice and 20% would select the other (Salant & Dillman, 1994).

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"/> 89% Wildlife observation	<input type="checkbox"/> 52% Hiking/Walking	<input type="checkbox"/> 4% Volunteering
<input type="checkbox"/> 77% Bird watching	<input type="checkbox"/> 7% Jogging/Running/Exercising	<input type="checkbox"/> 9% Environmental education program (classroom visits, labs)
<input type="checkbox"/> 57% Photography	<input type="checkbox"/> 34% Bicycling	
<input type="checkbox"/> 0% Big game hunting	<input type="checkbox"/> 50% Auto tour route/Driving	<input type="checkbox"/> 13% Interpretative program (bird walks, staff/volunteer-led talks)
<input type="checkbox"/> 0% Upland/Small game hunting	<input type="checkbox"/> 5% Motorized boating	
<input type="checkbox"/> 0% Waterfowl/Migratory bird hunting	<input type="checkbox"/> 21% Nonmotorized boating (canoeing, kayaking)	<input type="checkbox"/> 6% Refuge special event (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 0% Freshwater fishing	<input type="checkbox"/> 0% Foraging (berries, nuts, other)	<input type="checkbox"/> 2% Other (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 8% Saltwater fishing	<input type="checkbox"/> 5% 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"/> 26% It was the primary purpose or sole destination of my trip.
<input type="checkbox"/> 57% It was one of many equally important reasons or destinations for my trip.
<input type="checkbox"/> 17% 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?

☐ 37% No / Not Applicable

☐ 63% Yes → If yes, what did you do there? (*Mark all that apply.*)

☐ 61% Asked information of employees/volunteers

☐ 57% Looked at list of recent bird/wildlife sightings

☐ 22% Attended a talk/video/presentation

☐ 80% Stopped to use the facilities (for example, got water, used restroom)

☐ 76% Viewed the exhibits

☐ 6% Picked up/purchased a license, permit, or pass

☐ 8% Rented/borrowed equipment (for example, binoculars, fishing rod, snowshoes)

☐ 70% Visited the gift shop or bookstore

☐ 6% Other (*specify*) See Appendix C

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

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

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

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

☐ 18% Yes

☐ 82% 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: 14 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: 23 minutes

If you travelled more than one hour, round to the nearest hour: 11 hours

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

☐ 22% Spring
(March-May)

☐ 11% Summer
(June-August)

☐ 17% Fall
(September-November)

☐ 98% Winter
(December-February)

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

...this refuge (including this visit?) 8 number of visits

...other national wildlife refuges? 3 number of visits

...other public lands (for example, national or state parks) to participate in the same primary activity as this visit? 8 number of visits

11. Which, if any, of the following social media outlets did you use to share your refuge experience with other people? (*Mark all that apply.*)

<input type="checkbox"/> 32% Facebook	<input type="checkbox"/> 2% Snapchat	<input type="checkbox"/> 2% Personal blog (for example, Tumblr, Wordpress)
<input type="checkbox"/> 1% Flickr	<input type="checkbox"/> 1% Twitter	<input type="checkbox"/> 3% Travel-related website (for example, Trip Advisor)
<input type="checkbox"/> 9% Instagram	<input type="checkbox"/> 0% Vimeo	<input type="checkbox"/> 0% Other (<i>specify</i>) <u>See Appendix C</u>
<input type="checkbox"/> 0% Pinterest	<input type="checkbox"/> 0% YouTube	<input type="checkbox"/> 58% I do not use social media

SECTION 2. Information about this refuge and its resources

1. How helpful was each of the following sources to get information about this refuge and its resources? (*Circle one number for each source, or mark the box if you did **not** use a source.*)

Information source	For those who used a source, the % who found it to be...					Did not use
	Not at all helpful	Slightly helpful	Moderately helpful	Very helpful	Extremely helpful	
Personal knowledge from previous visit(s)	<input type="checkbox"/> 0%	<input type="checkbox"/> 3%	<input type="checkbox"/> 7%	<input type="checkbox"/> 26%	<input type="checkbox"/> 65%	<input type="checkbox"/> 25%
Word of mouth (for example, a friend or relative)	<input type="checkbox"/> 3%	<input type="checkbox"/> 12%	<input type="checkbox"/> 24%	<input type="checkbox"/> 34%	<input type="checkbox"/> 26%	<input type="checkbox"/> 40%
People in the local community near the refuge	<input type="checkbox"/> 5%	<input type="checkbox"/> 12%	<input type="checkbox"/> 23%	<input type="checkbox"/> 39%	<input type="checkbox"/> 21%	<input type="checkbox"/> 53%
Refuge employees or volunteers	<input type="checkbox"/> 1%	<input type="checkbox"/> 3%	<input type="checkbox"/> 10%	<input type="checkbox"/> 38%	<input type="checkbox"/> 48%	<input type="checkbox"/> 22%
Printed map or atlas	<input type="checkbox"/> 1%	<input type="checkbox"/> 5%	<input type="checkbox"/> 24%	<input type="checkbox"/> 40%	<input type="checkbox"/> 29%	<input type="checkbox"/> 41%
Web-based map (for example, Google Maps, Waze)	<input type="checkbox"/> 7%	<input type="checkbox"/> 13%	<input type="checkbox"/> 20%	<input type="checkbox"/> 36%	<input type="checkbox"/> 25%	<input type="checkbox"/> 56%
Refuge website	<input type="checkbox"/> 2%	<input type="checkbox"/> 10%	<input type="checkbox"/> 20%	<input type="checkbox"/> 31%	<input type="checkbox"/> 36%	<input type="checkbox"/> 48%
Travel website (for example, TripAdvisor)	<input type="checkbox"/> 19%	<input type="checkbox"/> 17%	<input type="checkbox"/> 15%	<input type="checkbox"/> 36%	<input type="checkbox"/> 13%	<input type="checkbox"/> 78%
Other website (<i>specify</i>) <u>See Appendix C</u>	<input type="checkbox"/> 33%	<input type="checkbox"/> 11%	<input type="checkbox"/> 22%	<input type="checkbox"/> 11%	<input type="checkbox"/> 22%	<input type="checkbox"/> 95%
Social media (for example, Facebook, Instagram)	<input type="checkbox"/> 42%	<input type="checkbox"/> 3%	<input type="checkbox"/> 23%	<input type="checkbox"/> 13%	<input type="checkbox"/> 19%	<input type="checkbox"/> 87%
Recreation club or organization	<input type="checkbox"/> 50%	<input type="checkbox"/> 7%	<input type="checkbox"/> 25%	<input type="checkbox"/> 11%	<input type="checkbox"/> 7%	<input type="checkbox"/> 88%
Refuge printed information (for example, brochure)	<input type="checkbox"/> 3%	<input type="checkbox"/> 7%	<input type="checkbox"/> 20%	<input type="checkbox"/> 40%	<input type="checkbox"/> 29%	<input type="checkbox"/> 41%
Kiosks/displays/exhibits at the refuge	<input type="checkbox"/> 2%	<input type="checkbox"/> 6%	<input type="checkbox"/> 22%	<input type="checkbox"/> 38%	<input type="checkbox"/> 32%	<input type="checkbox"/> 34%
Travel guidebook or other book	<input type="checkbox"/> 10%	<input type="checkbox"/> 10%	<input type="checkbox"/> 19%	<input type="checkbox"/> 42%	<input type="checkbox"/> 19%	<input type="checkbox"/> 74%
Tourist information or welcome center	<input type="checkbox"/> 7%	<input type="checkbox"/> 3%	<input type="checkbox"/> 14%	<input type="checkbox"/> 29%	<input type="checkbox"/> 46%	<input type="checkbox"/> 60%
Other source (<i>specify</i>) <u>See Appendix C</u>	<input type="checkbox"/> 75%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 0%	<input type="checkbox"/> 25%	<input type="checkbox"/> 97%

SECTION 3. Transportation and access at this refuge

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

Importance <i>Circle one for each item.</i>					Transportation-Related Features	Satisfaction <i>Circle one for each item.</i>					
Not at all Important	Slightly Important	Moderately important	Very Important	Extremely Important		Not at all Satisfied	Slightly Satisfied	Moderately Satisfied	Very Satisfied	Extremely Satisfied	Not Applicable
7%	12%	39%	32%	10%	Surface conditions of refuge roads	0%	0%	7%	40%	53%	NA
14%	19%	41%	19%	7%	Surface conditions of parking areas	0%	0%	11%	43%	45%	NA
6%	11%	33%	36%	14%	Condition of bridges on roadways	0%	0%	5%	42%	53%	NA
2%	6%	28%	46%	18%	Condition of trails and boardwalks	0%	0%	7%	42%	51%	NA
47%	8%	17%	20%	7%	Condition of boat launches	0%	4%	14%	41%	41%	NA
8%	9%	33%	35%	15%	Number of places for parking	0%	2%	12%	42%	44%	NA
7%	4%	19%	44%	27%	Number of places to pull over on refuge roads	0%	2%	6%	45%	47%	NA
5%	5%	16%	47%	28%	Safety of driving conditions on refuge roads	0%	1%	8%	38%	52%	NA
6%	5%	18%	42%	28%	Safety of refuge road entrances/exits	0%	2%	8%	43%	47%	NA
6%	4%	15%	43%	32%	Safety of roads/trails for nonmotorized users (for example, bicyclists and hikers)	0%	2%	13%	44%	41%	NA
6%	10%	29%	34%	21%	Signs on highways directing you to this refuge	0%	3%	13%	39%	45%	NA
6%	9%	28%	34%	24%	Signs directing you around refuge roads	0%	2%	14%	39%	45%	NA
6%	5%	25%	36%	28%	Signs directing you on trails	1%	3%	16%	39%	41%	NA
21%	9%	20%	26%	25%	Access for people with physical disabilities or who have difficulty walking	2%	6%	13%	40%	39%	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	80%	55%
Private/rental vehicle with a trailer (for boat, camper, or other)	2%	1%
Recreational vehicle (RV)	0%	0%
Refuge shuttle bus/tram	1%	3%
Tour bus/van	0%	1%
Public transportation	0%	0%
Motorcycle	1%	1%
Bicycle	27%	24%
Foot (for example, walking/hiking)	12%	39%
Boat	2%	12%
Other (<i>specify</i>): <u>See Appendix C</u>	3%	3%
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)	46%	24%	18%	6%	6%
Bus or tram that provides a guided tour of the refuge with information about this refuge and its resources	39%	17%	24%	12%	8%
Refuge-sponsored shuttle with a dedicated stop in the local community for picking up people at set times	60%	16%	13%	7%	3%
Public transit system that stops at or near this refuge	70%	17%	7%	5%	1%
Bike-share program that offers bicycles for rent on or near this refuge	40%	14%	18%	17%	12%
Pedestrian paths for access to this refuge from the local community	36%	10%	15%	23%	16%

SECTION 4. Your expenses related to your refuge visit

- 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>	

- Including yourself, how many people in your group shared these trip expenses?

2 number of people sharing expenses

- 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"/> 5% \$0	<input type="checkbox"/> 7% \$30	<input type="checkbox"/> 17% \$100	<input type="checkbox"/> 5% \$250
<input type="checkbox"/> 3% \$5	<input type="checkbox"/> 3% \$45	<input type="checkbox"/> 0% \$125	<input type="checkbox"/> 2% \$350
<input type="checkbox"/> 7% \$10	<input type="checkbox"/> 2% \$60	<input type="checkbox"/> 3% \$150	<input type="checkbox"/> 11% \$500
<input type="checkbox"/> 6% \$20	<input type="checkbox"/> 0% \$75	<input type="checkbox"/> 12% \$200	<input type="checkbox"/> 13% \$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%	10%	46%	41%	Convenient hours/days of operation for this refuge	1%	1%	9%	47%	43%	NA
5%	12%	31%	36%	16%	Availability of employees or volunteers	0%	2%	11%	42%	45%	NA
4%	7%	26%	41%	22%	Courteous and welcoming employees or volunteers	0%	1%	6%	35%	59%	NA
2%	8%	26%	44%	21%	Signs with rules/regulations for this refuge	0%	0%	9%	48%	43%	NA
3%	8%	22%	38%	30%	Visitor center	0%	0%	7%	31%	60%	NA
0%	3%	12%	42%	43%	Well-maintained restrooms	2%	2%	5%	31%	60%	NA
1%	4%	23%	46%	26%	Recreational structures (decks, blinds, platforms)	0%	1%	9%	44%	45%	NA
3%	5%	12%	28%	52%	Bird-watching opportunities	0%	0%	9%	28%	62%	NA
0%	3%	12%	40%	45%	Opportunities to observe wildlife other than birds	0%	4%	19%	33%	43%	NA
1%	6%	17%	32%	44%	Opportunities to photograph wildlife and scenery	0%	1%	8%	40%	50%	NA
5%	11%	27%	34%	24%	Environmental education opportunities	1%	5%	18%	39%	37%	NA
89%	6%	1%	2%	2%	Hunting opportunities	50%	6%	12%	12%	21%	NA
62%	10%	10%	10%	7%	Fishing opportunities	16%	3%	15%	31%	35%	NA
6%	4%	20%	38%	32%	Trail hiking opportunities	1%	2%	13%	46%	37%	NA
16%	7%	15%	27%	35%	Bicycling opportunities	5%	3%	6%	33%	54%	NA
20%	11%	20%	27%	23%	Water trail opportunities for canoeing or kayaking	4%	3%	12%	39%	42%	NA
48%	12%	19%	11%	9%	Volunteer opportunities	14%	9%	14%	23%	41%	NA
21%	10%	27%	24%	19%	Wilderness experience opportunities	4%	6%	17%	36%	37%	NA

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

See Appendix C

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

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
I felt welcome during my visit to this refuge.	0%	1%	4%	28%	66%
I felt safe during my visit to this refuge.	0%	0%	0%	27%	72%
Crime <u>is</u> a problem at this refuge.	72%	16%	6%	2%	3%
I feel comfortable being in nature.	0%	0%	3%	27%	69%
I do <u>not</u> like being in nature by myself.	65%	17%	11%	7%	1%
People closest to me enjoy participating in nature-based recreation.	0%	0%	9%	39%	51%
Generally, people who look like me are treated differently when they participate in nature-based recreation.	65%	13%	20%	1%	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.	0%	0%	6%	42%	51%
The quality of the overall experience when visiting this refuge.	0%	0%	6%	36%	58%

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	42%	56%	1%
More acreage open to hunting and fishing	40%	55%	5%
More infrastructure (for example, bathrooms, observation decks)	4%	78%	18%
Recreation equipment available for rent (for example, fishing rods, binoculars, snowshoes)	9%	79%	12%
Less regulations on fishing	26%	69%	4%
Less regulations on hunting	39%	59%	3%
A greater diversity of species	2%	35%	64%
Fewer numbers of a single, preferred species	26%	69%	5%
More people participating in my primary activity	21%	76%	3%
An improvement in the quality of wetlands	1%	45%	54%
An improvement in the quality of wildlife habitat other than wetlands	1%	40%	59%

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

59% Yes 14% No 27% Not sure

3. Which of the following types of programs, if offered, would encourage you to return to this refuge in the future? (*Mark all that apply.*)

49% I do not typically participate in refuge programs

For those that do participate in refuge programs, the % that would be encouraged to return if the following programs were offered:

29% Programs that engage youth

31% Programs that focus on creative pursuits (for example, art, writing, meditation)

41% Programs that focus on family/multiple-generations

17% Programs that support people with accessibility concerns (for example, difficulty walking, in a wheelchair)

50% Programs that teach skills to visitors

5% Other (*specify*) See Appendix C

50% 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? ☐ Male ☐ Female

2. In what year were you born? 1955 (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"/> 6%				<input type="checkbox"/> 41%				<input type="checkbox"/> 53%			

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

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

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

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

<input type="checkbox"/> 1% Less than \$10,000	<input type="checkbox"/> 4% \$35,000 - \$49,999	<input type="checkbox"/> 27% \$100,000 - \$149,999
<input type="checkbox"/> 1% \$10,000 - \$24,999	<input type="checkbox"/> 17% \$50,000 - \$74,999	<input type="checkbox"/> 17% \$150,000 - \$199,999
<input type="checkbox"/> 2% \$25,000 - \$34,999	<input type="checkbox"/> 14% \$75,000 - \$99,999	<input type="checkbox"/> 21% \$200,000 or more

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

<input type="checkbox"/> 22% Employed full-time	<input type="checkbox"/> 0% Unemployed	<input type="checkbox"/> 58% Retired
<input type="checkbox"/> 9% Employed part-time	<input type="checkbox"/> 3% Homemaker/caregiver	<input type="checkbox"/> 0% Disabled/unable to work
<input type="checkbox"/> 6% Self-employed	<input type="checkbox"/> 0% Student	<input type="checkbox"/> 1% Other (specify): <u>See Appendix C</u>

Thank you for completing the survey.

There is space on the next page for any additional comments you may have regarding your visit to this refuge.

Comments?

See Appendix C

PAPERWORK REDUCTION ACT STATEMENT: The Paperwork Reduction Act requires us to tell you why we are collecting this information, how we will use it, and whether or not you have to respond. The information that we collect in this survey will help us understand visitor satisfaction with and use of national wildlife refuges and to inform management and policy decisions. Your response is voluntary. An agency may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a valid OMB Control Number. We estimate it will take an average of 25 minutes to complete this survey. You may send comments concerning the burden estimate or any aspect of the survey to the Information Collection Clearance Officer, Fish and Wildlife Service, 4401 North Fairfax Drive, MS 222-ARLSQ, Arlington, VA 22203. OMB CONTROL # 0596-0236 EXPIRATION DATE 11/30/2020

Appendix C: Open-Ended Survey Responses by Question

Survey Section 1

Question 1: “Including your most recent visit, which activities did you participate in during the past 12 months at this refuge?”

Special Event	Frequency
Ding Darling Days	1
Film in wildlife	1
Go Wild for Ding	1
History of Ding Darling People	1
Mangrove kayak tour	1
Opening exhibit	1
Plastic ocean movie day at Ding Darling	1
Speaker	5
Speaker-birds	2

Other Activity	Frequency
Gift shop	1
Nature and Sea Life cruise	1
Talked with staff at interpretive center	1
Tarpon Bay Sunset cruise	1
Visitor center	2

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

Primary Activity	Frequency
Activity with dog(s)	1
Auto tour route/driving	12
Bicycling	19
Bird watching	62
Environmental education	1
Fishing	10
Hiking	16
Interpretation	5
Nonmotorized boating	24
Photography	22
Running	1
Sightseeing	1
Special event	1
Use facilities	2
Wildlife observation	63

Question 3: “Did you go to a visitor center at this refuge during your most recent visit?”; If Yes, “What did you do there?”

Other Visitor Center Activity	Frequency
Collected brochures	1
Duck stamps	1
Junior ranger program	1
Kayak	1
Photo op at entrance for our foursome	1
Picked up bird checklist	1
Stamped passport	1
Volunteered at the education center	1
Watched eagle out of bird observation window	1

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

Other Social Media Outlets	Frequency
eBird	1
WhatsApp	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
Bird photography blogs	1
Dingdarlingsociety.org	1
eBird	1
FWS.gov	1
Sanibel Captiva Conservation Foundation	1
YouTube	1

Other Information Sources	Frequency
Condo rental information	1
Refuge signs	2
Weekly email from refuge	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
Entrance fee	1
Farmers market	1
Fishing tour	1
Parking fees	4
Pet grooming, crafts at fairs	1
Stayed with friend, gave them gift card	1
Toll	2

Survey Section 6

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

Other Programs	Frequency
Biking-related activities	1
Bird-related programs	2
General environmental education	1
Other	1
Water-based activities	1

Survey Section 7

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

Other Employment	Frequency
Retired, but fulltime caregiver	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=41)

A receptacle for dog waste would be a nice addition to encourage people to pick up and dispose of properly.

Easy to get to by bike.

Entrance can be congested during peak times. A walking trail and bikes and cars intersect at the entrance.

Excellent tour guide. Very knowledgeable!

Getting to and from the refuge on Sanibel island is not easy. Too much traffic.

I bike through the Ding Darling Bird Sanctuary every day it is open (6 days a week). The cars are usually careful of bikes, and hikers. I think parking is ok but since I never drive a can't comment. I also go to the Bailey Tract on Fridays when the sanctuary is closed. It is one of the main reasons I vacation on Sanibel, FL.

I like that there is a day off from drivers for the animals.

I like the tram tour offer. Good and informed way to visit the refuge.

I wish I could have spent more time on the lovely trail, but my knee was not cooperating.

Indigo trail needs to be more bicycle friendly.

It's a very busy refuge on the weekend with traffic on wildlife drive. But it didn't distract from viewing wildlife.

Like that it is a one-way and that the sides of the road allow for parking and most people are very nice about the parking.

Love Ding Darling!

Need recycle cans - easier ramps for difficulty walking.

No cars at Bailey Tract. Answers on transportation relate to main refuge.

One-way drive made it much easier and safer than a two-way road would have been.

Please do not allow future use of Segway's and or motorized scooters. This will take away from the experience.

Right before the vehicle entrance kiosk, a foot/ bicycle trail crosses the roadway. Despite a speed bump and extensive signage and pavement markings, drivers and cyclists are focused on their own progress and often don't notice one another. Low speed collisions seem likely. The intersection should be studied and upgraded for better safety.

Roads are in good shape.

Shrubby around entrances and at bicycle path crossings obstructs the view of automobile drivers.

Since there is only one road and it is one way, a lot of signs are not necessary, and I appreciate that in areas of natural beauty.

Some risk with other cars pulling in and out, but mostly everyone watches carefully and drives slowly.

Speed limit is too low, especially the second half of wildlife drive, where there is little to see.

The fact that the refuge road is one-way traffic is perfect and much safer for visitors.

The parking lot at Bailey Tract is in terrible condition! Huge potholes and ruts for months now. Unacceptable!

The refuge is very well laid out. For initial visitors, signage is excellent. The visitors center is very informative. Volunteers and staff are very helpful in guiding visitors to what is available. The volunteer "INFO" people on the drive are great in helping novices understand the kind of birds they are viewing. Overall, an exceptional place which is why we choose to walk the refuge most days.

The refuge over the years is getting much more popular and much more car traffic.

The refuge road was closed on both visits - 1) Friday 2) government shutdown.

The road condition was extremely good, good paved road. There was plenty of parking spots and enough road side pulling space. The curves were broad and over all good road condition.

This refuge has two locations- the main facility and the Bailey Tract. The parking area at the Bailey Tract is horrible. It is a dirt parking lot that is mostly deep holes. Given that the tract was closed for a construction project for four months this summer, it would have made sense for them to fix the parking lot by grading it with the equipment they used for the project.

Too many tourist trams.

Walked area did not use car.

We had no problem at this refuge.

We kayak then rode our bicycles on the wilderness drive at Ding Darling refuge. Way too much car traffic with cars stopping to view wildlife abruptly and passing the refuge shuttle bus. Would be great to only have cars in one lane and bikes in another lane.

We rode bikes to the location, area had appropriate accommodations.

We tried the narrated tram tour this year, and it was really well done.

We used the tram, which was very nice in December 2018, it was my first use. The tram guide was very knowledgeable.

We were there in December 2018. It is no doubt unpleasantly busy in high season.

We were very satisfied by all aspects of this experience.

We were with a local person and drove.

While we did not use the tram, its availability cuts down number of vehicles on refuge roads, makes the refuge more accessible, and provides useful information to visitors.

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=68)

Again, the facility was closed the day we went and could not do anything than visit the visitor center. Very disappointing.

Always well-maintained and staffed.

At this refuge, perhaps one-bathroom facility would be nice.

Bailey Tract at Ding Darling is beautiful and diverse; trails are not well marked.

Clean restrooms are vital to a good experience! We also loved the personal interaction with volunteers who told us about a rare bird sighting and where to find it.

Close park on Mondays not Fridays!

Ding Darling educational center is awesome. We spend 4 weeks on Sanibel each Feb. and bicycle to all the refuge sites on many occasions.

Ding Darling is a fabulous refuge.

Ding Darling is a wonderful resource. Keep up the good work. One thing: do bring back the \$10 senior pass, probably the best \$10 I've ever spent. The 8x price increase is absurd.

Dirty pit toilet facilities with so many flies I was nervous to use the facilities.

Employee and volunteer questions should be split. One for volunteers and one for employees. The cuts in funding to the refuge are unspeakably sad. Cut by 50% in the last 2 years. Restore federal funding should be top priority! Too many volunteers and not enough employment opportunities for young biologists. This refuge and all others should not depend on donation or fees to operate.

Excellent facilities, including Ding Darling refuge visitor center and Tarpon Bay facility. Opportunity to paddle, bike, fish were excellent. We visited the facilities three times and would have a fourth, but the visitor center closed due to government shutdown during our visit which we discovered when we arrived.

I always forget that the refuge is closed on Fridays.

I appreciate the opportunity to learn and volunteer services at this refuge and feel part of the community of people that love and support the mission of a wildlife refuge, which is to protect and conserve wildlife and their habitat. I wish fishing were not allowed.

I have been to Ding Darling several years ago. Opportunity with a local person to view was a plus.

I have visited the Ding Darling Wildlife Refuge perhaps 7 times in the last twenty years. I was shocked by the decrease in numbers of birds, manatees, dolphins, turtles, shells, not only on the refuge, but all over the island. I assume it is due to recent storms and the red-tide. I sure hope efforts will continue to establish balance and recovery.

I suppose it would be nice to have Friday open. But understand there may be a need to close for one day per week.

I wish there were viewing areas further out in large lakes.

I would have rated section 5 much higher; however, Ding was closed as of going 1/2 the time we allotted.

It would be nice for photographers to be able to photograph longer hours in the morning and evening.

Kayaking at Ding Darling at lower tide levels was somewhat of a problem for us. We were using an inflatable kayak (not a cheap one) but had to get out and forage for a bit.

Kayaking at Tarpon Bay is one of our favorite family activities when we come to Sanibel!

Lectures are excellent on Fridays.

Like visiting Ding Darling very much, for birding and opportunities to learn about ecosystem, plants and other wildlife.

Loved our experience! Thank you for the opportunity to experience nature and all the great people that volunteer etc. Thank you thank you!

More options/areas for kayaking.

Most of the facilities are very well maintained. The boat launches for canoes/kayaks are somewhat dangerous with steep or uneven steps or loose gravel on steep slopes. Difficult for us older people.

Need more seating space in presentation room. I tried to attend two speaking seminars and was turned away due to lack of space.

Needs better signs on trails-got lost! Condition of trail-sometimes holes and ruts.

Nice experience.

Not open on Fridays for the drive. We always forget and go on Fri when closed.

One of the nicest visitor's center in a national wildlife refuge, maybe only topped by Ashe Meadows NWR.

Our "visit" to the refuge is daily visits over a 4-month period, not a single day which the survey seems to assume.

Park is not bicycle friendly.

Saw a lot of wildlife - love to preservation/conservation w/nature wildlife. I also felt safe even knowing there were alligators.

Staff very friendly, restrooms outstanding! Perhaps slightly overbuilt? But I know it's not wildlife.

Thank you!

The bathrooms, visitor center and gift shop are excellent.

The educational talks and speakers are top notch. The seating cannot accommodate those who wish to attend. By the end I was angry about it. This program is generously sponsored by a local business. I wonder if they are aware about the negative feelings of so many who could be accommodated. They need to find a way to improve this situation even if it means hosting these programs in a community building. This issue is extremely important to me.

The foliage along the wildlife trails needs to be cut back in order to see birds. It is very overgrown. Unless you have a 600 mm lens, for the birds that are way out, you cannot photograph them. We have been coming for 20 years and the overgrowth is just awful.

The main restrooms were latrine type and were full. A safety hazard.

The refuge is always a joy to visit.

The refuges on Sanibel bring me so much joy.

The road through Ding Darling was closed on Fridays which we did not know, however the staff explained why it was closed. They explained areas we could use to walk through the area.

The volunteers on the road with telescopes and information are great. I would like to see more of them.

There needs to be a water bottle refill station on the wildlife drive. I think I may have called it wilderness drive in a previous comment.

There should be water (drinking) available no one told us there is none.

This is a very nice and relaxing place.

Tram tour should offer a restroom stop.

Very nice facilities and enjoyed bike riding all for 1 dollar. I would have paid 10 dollars.

Very nice refuge. Very pleased with our visit there.

Very satisfied.

Visitor center clean and well laid out. More info on wildlife, trails, and maps.

Volunteer birding experts with spotting scopes are friendly and educational. I think they add tremendous value for the majority of visitors.

Volunteers are great. Seems that every time I pulled my car over, a volunteer showed up with scope, tripod and great info.

Volunteers in the field are very knowledgeable and friendly. Continue this every day of week.

We came from the United Kingdom and found the refuge through local based literature. We were very pleased with our visit, there were zero complaints, and everything was great value for money.

We did not use or visit the visitor's/education center because it was closed due to the government shutdown. We greatly appreciated the workers who showed up without pay.

We had a great experience.

We love Ding Darling on Sanibel. We love to hike and bird and visit the center. We love that Ding's legacy of conservation continues.

We love Ding Darling, and come several times each vacation, at different tides, times of day, and always see something different.

We love it here. Will be back again.

We were not able to go on several of the trails because of low tide - yet paid the full amount. Had we been told of that risk we would have booked another day.

We were very pleased w/ the exhibits, bathrooms, were spectacular, loved the entire experience. Will return here if in the area again and maybe try kayaking or canoe.

Well run facility. But confusing that tour bus through park begins and ends down the road from the visitor center. Porta potty was only bathroom at bus start point.

Wish the bicycling was on its own trail. We were walking.

With the increased number of visitors, there might be more obvious parking areas.

You need another bathroom at the far end of the loop road.

End of Survey

General Comments (n=49)

A restroom might be a good idea for the Baily Tract. We have visited Sanibel Island and Ding Darling for many years. It is a wonderful natural preserve. Thank you.

Ding Darling has a wonderful friends group. They are very active and have extraordinary fundraising - this contributes to the condition of the facilities. After visiting multiple refuges, I have found that refuges with "friends groups" have facilities in much better condition and often many more programs - it is clear that refuges in general are not able to operate without help from these groups. The government funding is not adequate. My husband and I both love the NWR - they are jewels in the U.S.

Ding Darling is a gem for many reasons: 1) its size supports many kinds of activities and many locations for them without crowding; 2) it supports a rich diversity of exotic wildlife that is very easily seen; 3) it is adjacent to a major vacation spot that draws people from many places; 4) because nature is always changing, the refuge rewards repeated visits.

Discharge of highly polluted fresh water into the Gulf of Mexico near Ding Darling Refuge is destroying the fishing in adjacent bayous and from area beaches.

Employees made us feel welcome.

Great place to visit, as are the refuges near us in New Hampshire.

Great place!

I am an educator and I left the refuge with information to share with my students. Thank you.

I and my husband along with my brother visited the refugee to photograph bird. It has been a good experience overall. However, the tolls that you pay to come to the island is a bit too much. I wish there was some system of paying the toll for a day (every time we have to pay the tolls which made our number of visits less than what we have decided). We enjoyed our drive and were happy to see the birds.

I attended the boat tour. Tour guide was great, and I learned a great deal without feeling like I was at a lecture.

I have been visiting this refuge since I was a child and it is nice to return as an adult and bring my parents back as well as my children. This refuge had a strong influence on my life and led to my love of nature and birdwatching. It is a place where children can be easily inspired by birds and wildlife.

I love wildlife refuges, including Ding Darling, but they tend to be overbuilt and have too much infrastructure. I recognize it's a difficult balance to accommodate visitors and protect wildlife... I strongly approve hunting in wildlife refuges that I recognize as a revenue stream. I'd be interested in seeing your survey results and your study. I assume it's in part to establish that refuges contribute to local economies.

I really love Ding Darling and hope that the water quality issues facing SWFL can be resolved or at least reduced in the future. This is indeed a very special place and we always look forward to a visit here.

I was shocked by the decrease number of migratory birds, manatees, dolphins, and shells in the Ding Darling Wildlife Refuge, in fact, all over the island of Sanibel. Environmental issues (red tide/hurricanes) have greatly upset the balance!!! I came to observe, enjoy, and photograph birds and was saddened to see so few. Hopefully, over time the balance can be re-established.

Incredible resource for community and country. We need to treasure and fund it more.

It is probably important to note that we were on holiday from the UK and had spent 3 days in Miami prior to driving to Captiva Island. At the start of our stay the weather was very bad, and we looked for things to do and found the J.N. Ding Refuge which we thoroughly enjoyed, thought was excellent value for money and would definitely visit again if we ever find ourselves in this part of Florida again.

It was my husbands' and my first time visiting the refuge. We had a wonderful time.

J.N. Ding Darling National Wildlife Refuge is my favorite place on Sanibel. In December I saw a great diversity of species.

Just that I love J.N. Ding Darling. It has become an essential part of our annual Florida experience. I admire and applaud the people of Sanibel who are increasing public land at a time when over development is a problem.

Love this refuge and the kayaking opportunities, wish I had more time to view. The Mangrove trail is beautiful and plentiful with birds on our day of viewing. Will definitely visit again and have already shared my time with others that frequent the area but have not taken advantage of this great area/resource.

Loved it! Nice job, so glad Ding Darling had the foresight to preserve the area.

Magnificent venue. Thank you.

My respect for this refuge (Ding Darling NWR) fell sharply last year when the refuge management chose to degrade a longstanding habitat for resident birds. That habitat was an important nesting site for black-necked stilts, and it also provided a safe haven for species such as Wilson's snipe. Based on some novel reasoning about a local population of rats (specifically, the so-called Sanibel rice rat, which might or might not be a distinct subspecies of the common rice rat and which might or might not benefit from the conversion of the pre-existing pond and island into a small amount of additional cordgrass marshland), the refuge destroyed much of the pond and all of the island, added at least seven concrete culverts, removed a small wooden pedestrian bridge, and closed one path. They did all this without inviting any significant public input until they had already committed to going ahead with the habitat destruction. It was a very frustrating and disappointing episode for many of us in the local community.

Not sure there is a place for it, but we love the long boardwalk at the Audubon cypress swamp sanctuary, which makes it possible for me to wheel my husband's wheel chair through wetlands. Ding's Caloosa trail is great, but less interesting for wildlife.

On our trip to the Ding Darling we arrived late in the day so were unable to stay and explore the refuge, but I do plan on returning and will explore the trails and possibly kayak and bike if rentals available. I enjoyed our short time at visitor center and refuge.

Sanibel runs Ding Darling so well I have remorse for judging a little harshly because they were closed Friday - 1 of only 2 days we had to visit. Why not shut down on Sunday or Tues/Wed. It seems to me Friday would be a big tourist day.

Sec 1 #5 visitor center closed due to gov't shutdown but enjoyed new bathroom decor. Sec 3 #4 because I live close, I will only use my car, but I think the other suggestions are excellent. This site has a pay tram. Sec 5 #4 don't know for first question. Second answer is what to expect, I don't know if it could be better. Sec 6 #1 mostly irrelevant to bird watching. This year, many fewer birds due to red tide. I will still visit to see what is there sec 6 #3 there are good programs. I would attend even more. I live close to ding darling in the winter months and enjoy it for myself and all my visitors. I have had a golden eagle pass for 20 years. I would like my husband to be able to get one for less than \$80.00 [name]

Second time here and it is a wonderful place to see birds that I don't see in MN.

Thank you for your work!

The Ding Darling facility is very enjoyable to visit. We have a second home in Florida and when we visit there, we always go to Ding Darling at least once during the visit and bring our guests with us. We have been very satisfied.

The federal refuge system in our country and culture adds value at many levels for people and wildlife. The inadequate funding level for wildlife refuges and the USFWS is unspeakably sad. I hope that their funding is restored to previous levels and beyond. No refuge or natural resource agency should depend on an NGO to provide financial resources. The position occupied by some volunteers should become entry level positions for young people who desire to have a professional life in natural resources.

The refuge was an interesting stop on our way to our resort. We've never stopped in the past and we're glad we did this time.

This is one of many pristine refuges in the USA. We need to keep, preserve and grow these last bastions of nature to preserve our natural heritage and the animals who occupy them.

Water quality is a huge challenge for the Ding Darling with the red tides increasing and the run off from Okeechobee Lake is increasing the algae significantly. These factors have the potential to impact the birds and other wildlife in the sanctuary. There doesn't seem to be the political will to tackle these problems. This as well as the increased severity and number of hurricanes (driving insurance up) have the potential to decimate the economy of this barrier island. My sister and I owned a house on Sanibel for over 15 years. We sold it last year because of the uncertainty around the climate changes. Thank you for doing this research and good luck.

We have been to Sanibel every year for the past 35 years and we will continue to go as long as we can. We have volunteered at crow for many years; we rescue any wildlife we find in need on the beach. We love all this wildlife and how Sanibel/Captiva makes wildlife a priority. The island is a special place and we hope it will always be preserved.

We have tried to visit D. Darling at least once a year for the past 16 years. On a number of occasions, we visited more than once a year. During our typical 5-6 days visit we usually do multiple trips through the refuge each day for the purpose of photography.

We really enjoyed our visit. When we stay at Cape Coral again next year we will visit.

We saw 3 turtles.

We saw a green iguana in Ding Darling NWR, an invasive species. Why are invasive species tolerated on federal land?

We stay in Sanibel every year for a couple of weeks and enjoy going to ding darling once or twice a visit. I am a volunteer at a National Heritage Site and can say they are doing a very good job at Ding Darling.

We stayed with friends who live near the refuge, which is why we had no hotel expenses. And I love NWRs! Ding Darling is one of the more "upscale" NWR I have visited or explored, meaning it had more and newer services and facilities than most NWR.

We stumbled upon this refuge due to highway signage. Loved it so much that we hiked at the bailey tract every day of our 2-week visit. Thank you for your often-thankless work. Good luck with your research.

We thoroughly enjoyed the visits to Ding Darling and Tarpon Bay during our 6-day visit. We were excited to participate in any activity that was available and would have returned had we been in the area for more time. We plan to return to Sanibel Island in the future because of the reserve and the land stewardship on the island. We will definitely return to the refuge!

We travel from Kansas for a week at Sanibel every year. Ding Darling bird watching, biking thru the preserve etc. is an important part of our vacation. Thank you.

We visit Sanibel every year and love Bailey Tract and Ding Darling and Cove Apple etc. Thank you for keeping it clean, inviting and affordable.

We went on a low tide kayak tour with Tarpon Bay explorers, then continued on our own in the bay before going down the commodore creek trail (as far as we could, as water was still too low to complete the trail). Loved these hours we spent. Saw a bald eagle descend upon a flock and capture breakfast!! Are there any guided hikes or ranger/volunteers with expertise at the observation towers at specific times to help locate and identify birds? If not, that would be nice. (This ties into my answer to sec. 6 item 3: programs that teach skills to visitors).

We've been visiting Ding Darling yearly since 1974. We know the area well.

Wonderful resource. Enjoyable for humans to visit. But priority should be to continue to make it a safe place for wildlife to thrive.

You need to supply drinking water!