



Cabeza Prieta National Wildlife Refuge: A Survey of Visitor Experiences: Report to Respondents

By Phadrea D. Ponds, Nina Burkardt, and Lynne Koontz, U.S. Geological Survey

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Executive Summary

In the fall of 2000, researchers from the Policy Analysis and Science Assistance Program (PASA) of the Fort Collins Science Center (FORT) in the U.S. Geological Survey (USGS) met with the staff of the Cabeza Prieta National Wildlife Refuge (CPNWR) to discuss the issues related to social, economic, and human dimensions of natural resource management as it related to the Comprehensive Conservation Plan (CCP) planning process. As a result of the meeting a research study was designed to better understand how visitors are affected by environmental management decisions and provide information to assist the refuge managers in making decisions regarding public use and recreational management related to the goals of the proposed CCP. More specifically, information was collected to document the type and frequency of visitor use; assess the importance of recreational activities; and to determine visitor attitudes about recreation management decisions within the refuge. To this end, we designed a study to assess the effects of the no-action and alternative management plans for the Refuge visitors' perceptions and likely visitation patterns.

In fall of 2002 a questionnaire was developed in collaboration with the U.S. Fish and Wildlife Service (FWS) and the CCP planning team and mailed to 1090 people who visited the refuge between June 2001 and June 2002. We used standard research methods in designing and administering the questionnaire. Six hundred and eighty-five (685) completed questionnaires (74%) were considered usable. We developed the questionnaire (OMB Control Number 1040-00) to answer the following questions:

- What are the important differences in visitors' attitudes and perception regarding recreation and visitor use at CPNWR?
- What are the factors that explain the differences in visitor attitudes and perception regarding recreation and visitor use at CPNWR?
- What are the regional economic impacts of visitor spending?

In general the respondents indicated support for current management practices of CPNWR. We found that people came to the Refuge to experience a connection with the resource and the environment. More than half of the respondents said that viewing the desert scenery, seeking wilderness solitude and viewing wildlife were the most important reasons for making the visit to the refuge.

Introduction and Overview

The U.S. Fish and Wildlife Service (FWS) is required by law to develop a Comprehensive Conservation Plan (CCP) for each unit of the National refuge system. The CCP for each refuge must contain an analysis of social and economic conditions and evaluate social and economic results from likely management scenarios. The refuge manager and regional planning staff of the FWS are responsible for including social and economic assessments in the CCP in such a way that understanding these factors aids planning decisions and helps guide management actions. Information about the uses, experiences, and benefits obtained by recreational users of the refuge are to be collected to help construct this plan. The primary objective of this report is to provide information about refuge

visitors. This information will provide the required social science research necessary to document information about visitor use knowledge, perception, and values of the Refuge. This report presents the findings from the 2002 Cabeza Prieta Visitor Use Survey.

At 860,010 acres, Cabeza Prieta National Wildlife Refuge (CPNWR) is the third largest national wildlife refuge in the lower 48 states. The refuge was created on August 25, 1939 by Executive Order 8038. This executive order allowed for the conservation and development of natural wildlife resources, as well as the protection and improvement of public grazing lands and natural wildlife habitat. The 1990 Arizona Desert Wilderness Act (P.L. 101-628) designated 93% percent of the refuge as wilderness. In order to maintain the wilderness character of CPNWR, no vehicle traffic is allowed except on designated public use roads. Vehicles may be parked up to 50 feet from the center of the roads in areas previously used by other vehicles. All other off-road motorized travel is prohibited.

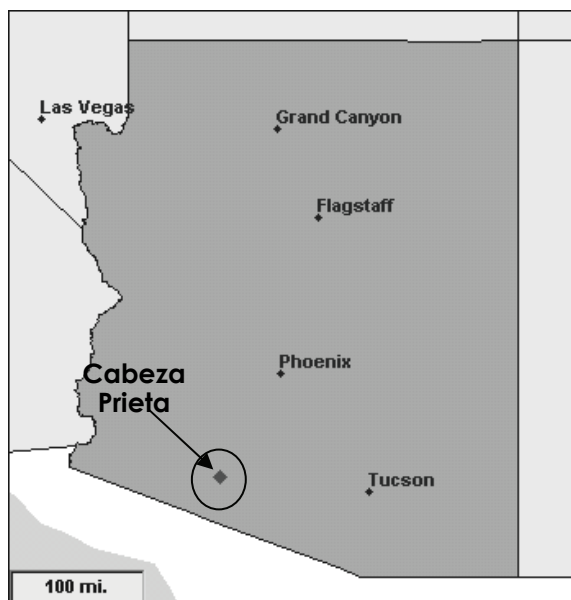


Figure 1. Map of area (source http://www.llbean.com/parksearch/parks/map_html/15301gd.htm. Date retrieved 3/30/04).

The refuge is located in an extremely arid environment, 10 miles northwest of the town of Why and 42 miles south of Gila Bend, Arizona sharing a 56-mile international boundary with Mexico. Despite being a part of the most arid region on the North American continent, the refuge is the home to over 450 species of plants, 212 species of birds, 48 species of reptiles and amphibians, and 42 species of mammals, including desert bighorn sheep (*Ovis canadensis mexicana*), the endangered Sonoran pronghorn (*Antilocarpa americana*), and lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*). Nearly all of the refuge's airspace lies within the Barry M. Goldwater Air Force Range. Though no military ground activities occur on the refuge, it is subject to frequent low-level aircraft over-flights. Management challenges include exotic species management, endangered species recovery, and conflicting land uses on and around the refuge.

Although visitation at the refuge is limited and follows seasonal patterns, visitors commonly travel through the refuge along El Camino del Diablo (the Devils' Highway). This historic route traces the route of early Spanish exploration of the Southwest to California and was also traveled by early missionaries, explorers, and prospectors. The road was given its name as a reflection of the fate of many travelers who died en route to the California gold fields. Visitor traffic is complicated by motorized vehicles use in the refuge wilderness areas; Border Patrol activities to control the presence of undocumented aliens seeking entry into the United States through the refuge; the use of the refuge for traditional and religious purposes; hunting Bighorn Sheep, and cross-boundary management of endangered Pronghorns.

The Survey

There are generally five reasons people visit a destination: accessibility to area, physical and cultural amenities, social setting, prestige of the area, and personal attractions (Tiefenbacher and others, 2000). A mail out survey was designed to find out why people visit Cabeza Prieta National Wildlife Refuge.

In the fall of 2002 we sent a questionnaire to 1090 people who visited the refuge between June 2001 and June 2002.¹ All visitors to the refuge are required to obtain a permit before driving on refuge roads. For the purposes of administering the survey we followed standard survey techniques recommended by Dillman (2000). A total of 685 visitors completed and returned the survey for a response rate of 74% (Table 1). According to Dillman (2000) a response rate of 50% or better is very good for a mail out survey.

Table 1. Response rate for Cabeza Prieta NWR visitor survey.

Total addresses	1,090
Undeliverable addresses	162
Refusals	8
Respondents	685
Respondent rate	74%

A non-response bias test was conducted to determine if non-respondents differed from respondents. We anticipated an 18% undeliverable/bad address rate due to death, relocation, etc. One hundred and sixty-two postcards were returned as bad/or insufficient addresses (15%). Nine hundred and twenty-eight surveys were mailed to “usable” addresses. Of those addresses 8 (2%) residents returned their surveys and declined to take part of the study. Of the remaining 920 residents, 685 (74%) completed and returned surveys. We used telephone follow-up calls to contact 10% of the non-respondents who did not return the survey after three mailings. Over a course of 5 days we made three attempts to establish contact with the non-respondents. We were unable to establish contact with 14 of the non-respondents and the other 9 agreed to take part in the telephone survey.

Respondents and non-respondents were compared on two items: geographic location of permanent residence and the importance of recreational activities participated in during their most recent visit to the refuge (e.g. watching wildlife, viewing the scenery and driving for pleasure, non-motorized travel (hiking, biking), hunting and overnight camping.) Chi square tests were used to compare the groups for each of the items. There were no significant differences found between the respondents and non-respondents on activities they participated in during the most recent visit. Respondents were slightly more likely to have participated in watching wildlife, viewing the scenery and than non-respondents. For activities where participation levels differed between respondents and non-respondents the differences in percentages were all less than 20%. Respondents and non-respondents did not differ significantly in terms of geographic locations of residency. We did not find any significant differences between the respondents and non-respondents. No adjustments to the data were made.

The questionnaire contained six sections. The first section asked about activities in which respondents participated while visiting the refuge, purposes of the trip, travel time, group size, and—for hunters—hunting behaviors and style. The survey also contained a question about the distance to the next best hunt area, if hunting at Cabeza Prieta was not an option. Section two asked visitors to rate the importance of various recreational activities in terms of their decision to take trips to Cabeza Prieta NWR. The third section focused on trip expenditures and included gas, lodging, food, airline/rental cars, hunting and related expenditures, and other travel expenses. Data from this section will help quantify the local and regional economic effects of refuge visitation. Section four queried respondents about the importance of and level of satisfaction with various natural resource related activities and conditions at Cabeza Prieta. Respondents were also asked to state what would enhance their experience at the refuge, and what experience would bring them back. Section five asked about the nature and intensity of respondents’ civic participation over the past year. And finally, section six solicited responses to several demographic and socioeconomic questions. A complete presentation of frequency distributions for every survey question is included in Appendix A.

¹ Approval to conduct the survey was obtained through the formal OMB approval process (OMB Control Number 1040-00).

Summary of Key Findings

Demographic Profile

Of the 685 respondents who answered the survey, 66% were male, 31% were female and 3% did not respond to the question. The average age of the respondents was 54.5. Almost 67% of the respondents were over the age of 45, and 47% were over the age of 55.

Forty-six percent of the respondents had two or more years of college or formal education above high school. Another 38% indicated that they had attended graduate or professional school. The average, self reported income, before taxes was between \$40–60,000 (Table 2). Forty percent of the respondents indicated that they were retired from their professions. Household size for respondents was reported as one person by 21% and two people by 58%. Only about 14% indicated a household size of 3 or 4 people.

Table 2. Demographic profile of respondents.

Median Age	55
	%
Age groups	
Below 35	13
35–49	23
50 and above	64
Income levels	
Below \$35,000	22
\$35,000–\$75,000	38
\$75,000 and above	29
No answer	12
Locals (Pima County residents)	24
Non-locals (outside Pima County, AZ)	76
Gender	
Male	66
Female	31
Employment status	
Not retired	3
Retired	40
Educational status	
Two or more years of college	46
Post – graduate degree	38
Number in household	
1 person	21
2 people	58
3 people or more	14

Travel Information

This section of the questionnaire asked the respondents about where they lived and if the Cabeza/Ajo area was the only stop on this trip. Information about the number of days in the Cabeza/Ajo area as well as the number traveling in the immediate group was collected. The list of respondents' zip codes was divided into three categories: local (people living in Pima County including Tucson, Why, Sells, and Ajo), in state (all other Arizona residents), and out of state (all other states from which most people would have driven more than two days or flown). A majority 324 (51%) of the respondents came from out of the state. Of the 632 respondents who indicated their zip codes almost half 308 (49%) were from the state of Arizona, and more than half of those respondents 172 (27%) were from Pima County (Table 3).

Table 3. Regional distribution of survey respondents.

Pima County, AZ		In-state	Out-of-state	Total
Tucson and surrounding communities in Pima County	Ajo and surrounding communities (within 85321 zip code)	Areas outside Pima County	Areas outside Arizona	
91 (14%)	81 (13%)	136 (22%)	324 (51%)	632

The next section of the survey asked respondents how far they traveled to get to CPNWR and if this was the only stop on this trip or if it was one in a series of stops along the way to someplace else. Information on the number of days spent in the Cabeza Prieta area as well as the number traveling in the immediate group was also collected. The mean number of miles traveled to reach CPNWR was 523. Fourteen percent of the respondents reported that they traveled up to 30 miles (or less than 1 hour), and 37% traveled about 100+ miles (up to 2 hours) to reach the refuge (Table 4). Approximately 57% of all respondents stated that visiting CPNWR was the primary purpose of their trip; 33% replied that it was one of other equally important reasons for making the trip, and 9% indicated that it was an incidental or spur of the moment stop (Table 4).

Table 4. Recreation patterns and travel distance. Responses from all respondents.

Mean travel distance – in miles (n = 425)	523.015
Mean number in group (n = 612)	5.63
Mean number of days spent on most recent visit (n = 411)	3.591
Mean number of visits in the past 15 months (n =)	2.48
Primacy of visit (n = 629)	
Sole purpose	57%
One of many and equally important reasons	34%
Spur of the moment	9%

Personal Experiences and Expectations

In section 2 of the survey, we asked the respondents to indicate the importance of a list of activities were in terms of their decision to take recreation trips to Cabeza Prieta NWR. They were asked; *“Please tell us how important the following activities were in terms of your decision to take recreation trips to Cabeza Prieta NWR this year.”* Respondents answered by selecting from a frequency scale. (See appendix for the complete set of survey responses.)

The activities addressed five of the six wildlife dependent activities designated by the USFWS (hunting, wildlife observation, photography, interpretation and environmental education). Fishing was omitted as an activity because it is not offered at CPNWR. A majority of the respondents said that viewing the scenery (90%), seeking wilderness solitude (74%), viewing desert wildlife (68%), viewing night skies (62%), and hiking in the backcountry (60%) were the most important activities when visiting the refuge. When rating the least important activity associated with their most recent visit to the refuge two thirds of the respondents reported that horseback riding (69%), hunting bighorn sheep (66%), and mountain bike riding (65%) (Table 6).

Table 5. Recreation patterns and travel distance based on the regional distribution of respondents.

	Pima County, AZ		In-state (all other counties in AZ)	Out-of- state	Total
	Tucson and surrounding towns in Pima County	Ajo and surrounding towns (within 85321 zip code)	Areas outside Pima County		
Number in group (n = 612)					
1–2	43	29	57	145	274
3–5	24	23	27	72	146
6–8	4	18	24	38	84
9–12	8	4	10	21	43
13–20	5	2	13	31	51
More than 20	4	1	2	7	14
Travel distance in miles (n = 425)					
1–20	0	38	2	21	61
25–50	0	10	0	7	17
51–100	1	3	2	2	8
101–250	50	6	79	22	157
251–500	6	0	10	29	45
501–1000	0	0	0	61	61
More than 1000	0	0	0	76	76
Amount of time spent at CPNWR during most recent trip (n = 411)					
1–2 days	28	15	34	78	155
3–5 days	43	16	63	98	220
6–14 days	6	3	2	18	29
More than 14 days	0	0	2	5	7
Primacy of visit (n = 629)					
Sole purpose	75	62	101	119	357
One of equally important	13	13	28	159	213
Spur of the moment stop	2	5	7	45	59
Overnight accommodations (n = 610)					
Did not stay over night	13	15	26	12	66
Public campground	15	5	27	83	130
Private home	1	23	6	38	68
Private RV/tent	25	5	34	86	150
Hotel/motel	6	1	14	46	67
Bed and breakfast	0	0	2	3	5
Other	28	23	24	49	124

Table 6. Importance of recreation activity during most recent visit to CPNWR (n = 685).

Activity	Not important (%)	Important (%)	Does not apply or No answer (%)
Viewing the scenery	5	90	8
Seeking wilderness solitude	16	74	10
Viewing desert wildlife	25	68	8
Viewing the night skies	24	62	14
Hiking in the backcountry	26	60	14
Horseback riding	69	3	28
Hunting big horn sheep	66	5	29
Mountain biking	65	9	26

Wildlife refuges serve a number of biological, ecological, and social functions. Biological and ecological functions include maintaining habitat and wildlife protection. Social functions include providing trail information, access for people with disabilities, and environmental education materials and programs. The respondents were asked to review a list of 12 biological, ecological, and social functions offered by the refuge, and to rate how important they thought each function was (Table 7). The most important functions were ensuring the presence and protection of wildlife (86% and 83% respectively), followed by the availability of maps (75%).

Table 7. Importance of management.

Activity	Important (%)	Not important (%)	Does not apply or No answer (%)
Presence of wildlife	86	12	2
Protection of wildlife	83	7	10
Availability of maps	75	15	10

Question 14 of the survey was one of two open ended questions that asked the respondents to state in their own words “What would enhance your experience at Cabeza Prieta National Wildlife Refuge?” We received 474 responses to this question. We categorized the responses into seven categories. Table 8 shows the responses for each category.

Table 8. Frequency distribution of the conditions that would enhance visitation to the refuge (n = 531).

	n	%
A reduction in observable border issues	84	18
More road access (too many closed roads)	150	32
A reduction in military activities	27	6
Increased Refuge staff and management presence	50	11
More opportunities to view wildlife	29	6
Increased availability of educational material	52	11
Issues with designated campgrounds	16	3

The response “Border issues” includes statements about the perceived negative effects of border patrol activities, visitor concern about refuge safety, and the perceived resource damage as a result of both undocumented alien and border patrol presence. The category “roads and access” included comments both about poor road conditions and about limited refuge access because of seasonal road closures or lack of roads. Some visitors indicated that having only four-wheel drive access was a problem, while others praised the refuge for allowing only four-wheel drive vehicles and limiting access. With 150 responses in this category, it was the area most mentioned by respondents. Twenty-seven respondents indicated that some change in military activities would enhance their experience at the refuge. Almost all of these respondents mentioned a negative perception about military over-flights

while visiting the refuge. One respondent indicated that they found the military activities unpleasant but recognized the need for them. Fifty respondents noted that some change in refuge management policy would enhance their experience. Some of the comments concerned hunting, with some stating the opinion that hunting should not be allowed on the refuge and others state that more hunting would be preferable. Other refuge management policy issues included allowing specific activities on the refuge, limiting development, and controlling cattle entering the refuge from Mexico.

More than three hundred visitors responded that the wilderness qualities of the refuge, the solitude, or the scenic beauty are the main experiences that would draw them back to the refuge for additional visits. Eighty-one mentioned the pursuit of a specific activity, such as camping, biking, hunting, or research. Thirty-nine noted that wildlife viewing opportunities would motivate them to return to the refuge. Smaller numbers indicated that cultural or historical features or services provided by refuge staff would be a reason to return (Table 9).

Table 9. Frequency distribution of the experiences that would promote repeat visitation (n = 531).

Reasons for returning	n	%
Presence of wildlife	39	7
Wilderness and solitude	310	58
Natural or cultural features or services	20	4
Pursuit of a specific recreational activity	81	15
Services provided by the refuge staff	8	2
Miscellaneous	20	4

Visitor Spending and Economic Impact

Table 10 illustrates the average amount spent locally in Ajo and Yuma by **non-local** visitors and total spent within the State of Arizona by **non-resident** visitors. Amounts of local spending in Ajo and Yuma are the average expenditures non-local visitors (living outside of Ajo and Yuma) reported spending in the local communities near the Refuge. Because the Refuge has entrances near Ajo and Yuma, the survey asked visitors to specify in which town local purchases were primarily made. Results show that 84% of local purchases were made in Ajo, and 16% were made in Yuma. The amounts of spending in the state of Arizona are the summed expenditures that non-resident visitors reported spending in the local area near the Refuge and the amount spent in rest of Arizona en route to the Refuge.

Not every group had expenditures in every category, so the numbers reported in Table 10 represent an average across all visitors, including some who had no expenditures in that category. The average expenditures reported in each category were divided by the average number of persons in each group sharing the expenses (3.38 persons) and then divided by the average number of days (2.64) spent in the local area to determine the average spending per person per day. Table 10 shows that on average, non local visitors spent the most in grocery stores, gas stations, and restaurants in the local area near the Refuge. Nonresident visitors spend the most on gasoline, grocery store purchases, camping, and restaurants while in the state of Arizona.

Spending by Refuge Hunters

The Refuge offers a very limited number of hunting permits for bighorn sheep. Nine respondents to the visitor survey indicated that their visit to the Refuge was for hunting bighorn sheep. Table 11 illustrates the average amount spent locally in Ajo and Yuma by Refuge hunters. The average expenditures reported in each category were divided by the average number of persons in each group sharing the expenses (2.33 persons) and then divided by the average number of days (11 days) spent in the local area to determine the average spending per hunter per day. As for the town in which purchases are primarily made, two of the nine hunters indicated Ajo was where they made purchases, two made purchases in Yuma, two made purchases in Tanca, and one primarily made purchases in Gila Bend. Because there are so few hunters (average 8 permits per year) and only two indicated spending money in Ajo, the total amount of spending by hunters in Ajo totals approximately \$1,035 per year.

Table 10. Average visitor spending.

	Visitor spending	
Non-local spending in Ajo and Yuma	\$ per group per trip	\$ per person per day
Gasoline/related automobile costs	50.55	5.67
Hotels	24.69	2.77
Camping	29.12	3.27
Restaurants	39.68	4.45
Grocery stores	52.61	5.90
Supplies and souvenirs	15.05	1.69
Other expenses	21.16	2.37
Total spending	232.86	26.11
Nonresident spending in Arizona		
Gasoline/related automobile costs	120.71	13.54
Hotels	55.64	6.24
Camping	84.60	9.49
Restaurants	78.72	8.83
Grocery stores	116.95	13.11
Supplies and souvenirs	43.01	4.82
Rental car	41.30	4.63
Other expenses	50.30	5.64
Total spending	591.23	66.30

Table 11. Hunter spending.

	Hunter spending	
Non-local spending in Ajo and Yuma	\$ per group per trip	\$ per person per day
Gasoline/related automobile costs	210.56	8.22
Hotels	22.24	0.87
Camping	1.21	0.04
Restaurants	31.01	1.21
Grocery stores	106.13	4.14
Supplies	0.00	0.00
Hunting license	30.56	1.19
Taxidermy	111.11	4.34
Game processing	22.02	0.87
Other expenses	278.78	2.37
Total spending	813.62	23.25

Conclusions and Implications

The remote and rugged terrain of Cabeza Prieta National Wildlife Refuge holds the key to its appeal. Some refuge visitors experience the refuge from their cars, while others take the opportunity to explore on foot and camp for extended periods. In most cases, the wildness and solitude of the experience is what most engages those who

spend time in the refuge. The clear majority of visitors spend time in the refuge to experience wilderness solitude, and to view desert scenery and wildlife. Some visitors report concerns about safety because of the remoteness of the refuge, and their awareness of border activities. Of these, some accept the concerns as part of the experience of the refuge while others feel that refuge management or border policies should change to make the refuge feel safer.

Many of the open-ended comments provided by survey respondents demonstrated a passionate concern for the refuge and its resources. Although we asked visitors to tell us about their most recent visit, some indicated in the comments section that they were repeat visitors to the area and that they found the refuge to be like no other place on Earth. The refuge has a loyal set of supporters that focuses on the intense nature of the experiences that can be found at Cabeza Prieta NWR. Another group of visitors makes use of the interpretative exhibits at the visitors' center and takes a sightseeing drive on the road, but because high-clearance vehicles are required not all who visit are able to explore by car.

As the refuge continues to plan for the future, choices will be made about whether to provide services that encourage the adventurer or whether to facilitate access to more of the refuge. Making changes could result in different levels of visitation and could alter the demographic profile and spending patterns of visitors. Because most of the refuge is designated as wilderness, further development of roads and facilities is limited to specific refuge areas. Refuge visitors are not of one mind about the future of the refuge, and this will continue to present challenges to refuge managers.

Appendix A

Frequency Distribution of Survey Responses

When considering recreational and visitor experiences at the Cabeza Prieta National wildlife refuge it is useful for managers to understand what the visitors know and value about the area and the resources. The following is a summary of the statistics for each question that appeared in the survey. Please note that frequencies may range from 99%–101% due to rounding.

Section 1. Visitor Activities

Please tell us about your visit to Cabeza Prieta National Wildlife Refuge

1. Please check the activities you participated in during you **most recent trip** to Cabeza Prieta National Wildlife Refuge. (Check all that apply.)

Various recreational activities	Yes (%)	No (%)	No answer (%)
Wildlife observation and photography			
Wildlife viewing	63.5	34.9	1.6
Bird watching	33.4	65.0	1.6
Photography	55.6	42.8	1.6
Wildlife education and interpretation			
Environmental education	22.5	75.9	1.6
Data collection and research	1.9		
Education/Interpretation	2.6		
Hunting			
Bighorn sheep hunting	3.4	95.0	1.6
Hunting	1.2		
Other activities			
Sightseeing	66.9	31.5	1.6
Hiking near public roads	38.0	60.4	1.6
Backcountry hiking	37.1	61.3	1.6
Horseback riding	0.6	97.8	1.6
Driving for pleasure	40.4	58.0	1.6
Picnicking	27.0	71.4	1.6
Vehicle camping	42.3	56.1	1.6
Seeking wilderness solitude	53.0	45.4	1.6
Backcountry camping	19	79.4	1.6
Bicycling/Mountain biking	3.1	95.2	1.8

1a. Of the activities that you checked above, which was the most important reason for your visit?

Most important activity on recent trip	%
Seeking wilderness solitude	22.5
Sightseeing	15.2
Backcountry hiking	8.6
Wildlife viewing	5.8
Photography	5.3
Pleasure driving	5.0
Environmental education	4.5
Hiking near public roads	3.8
Backcountry camping	3.5
Vehicle camping	2.9
Bighorn sheep hunting	1.5
Bird watching	.7
Picnicking	.4
Bicycling/Mountain biking	.4
No answer	7.0
Other	12.8

2. When you visited Cabeza Prieta National Wildlife Refuge was it (**check one**):

Primary purpose or sole destination	56.2%
One of many equally important reasons	32.7%
Incidental or spur of the moment stop	9.1%
No answer	2.0%

3. What was your one-way **travel time** and **travel distance** from home to Cabeza Prieta National Wildlife Refuge on this most recent trip?

0–4 hours 33%	5–8 hours 16%	9–12 hours 7%	More than 12 hours 11%	No answer 33%
0 to 99 miles 16%	100 to 300 miles 27%	301 to 500 miles 3%	More than 500 miles 20%	No answer 33%

4. What was the amount of time you spent at Cabeza Prieta National Wildlife Refuge on this most recent trip?

1 day or less 7%	1–5 days 51%	6–10 days 2%	More than 10 days 2%	No answer 38%
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5. During this visit, were you (**check one**):

With family or friends	70.9%
Alone	9.5%
With a tour group	6.9%
Other (work or research, class trip, club or organization, etc.)	10.1%
No answer	2.6%

Group Size

1–5 people	6–10 people	11–20 people	More than 20 people	No answer
61%%	21.3%	10.5%	2.5%	5%

6. How many times have you visited Cabeza Prieta National Wildlife Refuge in the past 15 months?

1–5 trips	6–10 trips	11–20 trips	More than 20 trips	No answer
88%	9%	2%	1%	5%

- If hunting was the primary purpose of your trip, please answer the following questions. Otherwise skip to Section 2.

7. How many trips for the primary purpose of scouting or hunting did you take to Cabeza Prieta National Wildlife Refuge during the hunting season?

Number of scouting trips (n = 29)	
0	55.2%
1	20.7%
2	17.2%
4	3.4%
6	3.4%

Number of hunting trips (n = 26)	
0	61.5%
1	19.2%
2	7.7%
5	7.7%
3	3.8%

7b. What is the distance from your home to the next best hunt area outside of Cabeza Prieta National Wildlife Refuge you would go to if you did not hunt at Cabeza Prieta National Wildlife Refuge?

Distance from home to next best hunt area (n = 12)

Less than 10 miles	50–100 miles	More than 100 miles
25%	25%	50%

8. What was the primary type of weapon you used on this *most recent trip*? (Check one.)

100%	Fire arm*
0%	Archery
0%	Muzzle loader
	*(n = 19)

Section 2. Visitor Experiences

Importance of different experiences to your recreation trips to Cabeza Prieta National Wildlife Refuge.

9. Please tell us how important the following activities are in terms of your decision to take recreation trips to Cabeza Prieta National Wildlife Refuge during the year. **(Circle one number for each item.)**

Activity	Not important (%)	Somewhat important (%)	Important (%)	Very important (%)	No opinion (%)	No answer (%)
Hunting bighorn sheep	63.9	1.6	1.3	3.9	15.0	14.2
Bird watching	12.0	33.9	25.7	17.8	3.1	7.6
Viewing rare desert wildlife	3.2	21.6	32.3	35.0	1.9	6.0
Viewing other wildlife	2.3	22.6	41.0	27.3	1.2	5.5
Viewing scenery	0.4	4.4	32.1	58.2	0.4	4.4
Viewing night skies	9.5	14.7	25.5	35.9	5.5	8.8
Seeking wilderness solitude	4.8	11.1	20.9	52.8	2.6	7.7
Hiking within one-half mile of public roads	23.1	21.2	27.3	14.3	5.0	9.2
Hiking in the backcountry	14.0	12.4	24.2	35.8	6.1	7.4
Vehicle camping along public roads	22.6	13.3	21.8	25.5	7.2	9.6
Camping in the backcountry	22.3	12.0	20.3	27.4	9.2	8.8
Horseback riding	64.1	5.0	1.5	1.8	15.9	11.8
Biking/mountain biking	54.7	10.5	4.8	4.1	14.0	11.8
Viewing Historic and Heritage Sites	9.8	22.6	30.1	27.4	3.1	7.0
Environmental education opportunities	21.5	23.1	21.9	17.8	6.9	8.9
Interpretation Programs and Opportunities	25.8	25.0	20.1	9.8	9.6	9.6
Wildlife photography opportunities	11.4	24.7	27.6	23.9	4.1	8.3
Other activities*	0.3	0.7	2.0	14.9	1.0	81.0

*Other Activities

Pleasure and 4 wheel driving	Work, research and data collection
Botany	Border impacts
Archeology, history and geology	Scenery, solitude and nature
General photography and arts	Miscellaneous
Exploring and backpacking	

Section 3. Trip Expenditures

10. If you made local purchases as part of your visit to Cabeza Prieta National Wildlife Refuge, were these purchases primarily made in?

Ajo	71.5%
Yuma	10.4%
Both Ajo and Yuma	3.5%
No Answer	14.2%
Other	0.4%
Gila Bend	0.1%

*The response to question 11 includes all survey respondents, including local residents. For the purpose of the economic impacts analysis, only non-local visitors were included.

11. Please indicate the amount you and members of your group with whom you shared expenses (e.g., other family members, traveling companions) spent on your most recent visit to Cabeza Prieta National Wildlife Refuge. **(Enter the amount for each category.)**

	Average visitor spending	
	\$ per group per trip	\$ per person per day
Non-local spending in Ajo and Yuma		
Gasoline/related automobile costs	50.55	5.67
Hotels	24.69	2.77
Camping	29.12	3.27
Restaurants	39.68	4.45
Grocery stores	52.61	5.90
Supplies and souvenirs	15.05	1.69
Other expenses	21.16	2.37
Total spending	232.86	26.11
Nonresident spending in Arizona		
Gasoline/related automobile costs	120.71	13.54
Hotels	55.64	6.24
Camping	84.60	9.49
Restaurants	78.72	8.83
Grocery stores	116.95	13.11
Supplies and souvenirs	43.01	4.82
Rental car	41.30	4.63
Other expenses	50.30	5.64
Total spending	591.23	66.30

12. Including yourself, how many people in your group shared these expenses on this most recent trip?

0 to 2 people	3 to 5 people	6 to 10 people	More than 10 people	No answer
58.7%	15.2%	6.9%	5.3%	14.0%

13. What type of overnight accommodations did you use while in or near this area? **(Check all that apply.)**

Did not stay overnight	10.7%
Public campgrounds	19.7%
Private home	11.4%
Private RV/tent	22.8%
Hotel/motel	9.9%
Bed and Breakfast	.7%
No answer	5.1%
Other*	19.7%

*Other overnight accommodations include:

Own a house in area, apartment, backcountry camping, vehicle camping,
BLM or Refuge camping, RV park or RV, tent.

14. If you stayed overnight, how many nights did you stay?

0 to 2 nights	3 to 5 nights	6 to 8 nights	9 to 11 nights	12 to 20 nights	21 to 45 nights	46 to 99 nights	More than 100 nights	No Answer
39.7%	24.1%	7.4%	2.2%	3.2%	1.9%	2.3%	1.5%	17.7%

Section 4. Visitor Satisfaction

We would like to know the types of experiences you seek to have when visiting Cabeza Prieta National Wildlife Refuge.

15a. This question has two parts. **First** rate how important the item is in contributing to your recreation satisfaction while at Cabeza Prieta National Wildlife Refuge. **(Circle your answers in each row.)**

Importance	Not important (%)	Somewhat important (%)	Important (%)	Very important (%)	Does not apply (%)	No answer (%)
Access for people with disabilities	34.6	11.2	8.5	4.4	34.9	6.4
Trail information	9.1	16.4	30.1	32.8	5.0	6.7
Trailhead parking areas	13.6	20.3	28.8	19.0	9.1	9.3
Environmental education materials and programs	15.8	19.7	26.3	22.2	7.3	8.8
Presence of wildlife	1.6	9.9	27.3	53.1	1.8	6.3
Protection of wildlife	1.9	5.4	20.3	62.6	2.8	7.0
Availability of maps	5.0	9.9	31.7	43.6	2.8	7.0
Limits on total number of visitors	13.7	15.3	24.8	27.2	9.5	9.5
Limits on types of visitor uses	8.2	13.3	24.7	36.9	7.3	9.6
Road conditions	15.3	28.9	30.1	18.7	1.3	5.7
Border impacts	11.1	13.6	19.9	32.3	10.9	12.3
Permit system	9.6	18.5	33.3	25.8	4.2	8.5
Other items*	0	0.1	0.4	9.3	0.3	

15b. How satisfied are you with the management of the refuge in providing each item?

Satisfaction with conditions	Poor (%)	Adequate (%)	Average (%)	Good (%)	Outstanding (%)	Does not apply (%)	No answer (%)
Access for people with disabilities	2.9	6.9	6.3	8.6	2.8	52.8	19.7
Trail information	8.3	11.5	17.7	32.8	6.6	9.2	13.9
Trailhead parking areas	3.8	14.3	15.8	29.6	5.0	14.7	16.8
Environmental education materials and programs	3.6	10.1	16.9	29.5	11.1	13.4	15.3
Presence of wildlife	10.1	9.9	20.4	30.7	10.7	4.5	13.7
Protection of wildlife	4.5	7.0	14.2	34.0	17.2	5.8	17.2
Availability of maps	8.2	11.4	17.4	32.6	11.7	5.7	13.1
Limits on total number of visitors	2.9	7.7	14.3	30.4	9.5	16.9	18.2
Limits on types of visitor uses	6.7	9.9	15.8	29.3	7.6	11.4	19.3
Road conditions	12.1	20.4	18.2	26.7	8.2	4.4	9.9
Border impacts	22.5	12.4	14.0	12.7	2.6	16.4	19.4
Permit system	4.5	11.7	13.4	34.9	16.9	5.7	12.8
Other items*	6.1	0.3	0.4	1.0	1.8	0.3	—
4-wheel driving and access, camping, preservation/protection, Military and other agencies, information, permits, natural state/solitude, miscellaneous							

16. Please indicate the extent to which each statement below describes your general feelings about Cabeza Prieta National Wildlife Refuge. **(Circle the number that best describes how you feel about each statement.)**

Opinions about CPNWR	Strongly agree (%)	Agree (%)	Not sure (%)	Disagree (%)	Strongly disagree (%)	No answer (%)
The value of the recreation opportunities and services I experienced here was what I expected it to be	29	53	7	4	1	6
The value of the wilderness opportunities and character I experienced here was what I expected it to be	32	51	6	4	1	6
Because of my experiences at this refuge I will definitely come back	51	28	13	2	1	6
I would consider paying a fee to visit this refuge	19	28	20	15	14	5
I get more satisfaction out of visiting this refuge than from visiting any other refuge	10	14	41	23	4	8
I would make personal sacrifices to protect this place	23	34	25	6	3	8
Border impacts and activities adversely affected my visit to the refuge	22	17	17	28	11	6
I should not have to pay a fee to visit this or any wildlife refuge	23	16	20	24	13	5

17. What would enhance your experience at Cabeza Prieta National Wildlife Refuge (n = 474).

	n	%
A reduction in observable border issues <ul style="list-style-type: none"> • Perceived negative effects of border patrol activities, • Concerned about refuge safety, and the • Perceived resource damage as a result of both undocumented alien and border patrol presence 	84	18
More road access (too many closed roads) <ul style="list-style-type: none"> • Poor road conditions • Limited refuge access because of seasonal road closures • Road closures • Having only four-wheel drive access was a problem 	150	32
A reduction in military activities <ul style="list-style-type: none"> • A negative perception about military over-flights • Unpleasant but recognized the need for them • Reduce overall presence 	27	6
Increased Refuge staff and management presence <ul style="list-style-type: none"> • Issues with current permitting system • Issues with hunting • Issues with staff availability during visits • Controlling cattle entering the refuge from Mexico 	48	11
More opportunities to view wildlife <ul style="list-style-type: none"> • Issues with information concerning wildlife viewing areas 	29	6
Increased availability of educational materials <ul style="list-style-type: none"> • Updated maps • Increased signage • Information about the refuge 	52	11
Issues with designated campgrounds	16	3

18. Responses to the questions “What experience did you have at this refuge that would bring you back?” by category (n = 531).

	n	%
Presence of wildlife	39	7
Wilderness/solitude/desert beauty	310	58
Natural or cultural history	20	4
Specific recreational activities	81	15
Specific services provided by the refuge staff	8	2
Miscellaneous	20	4

Section 5. Citizen Participation

19a. We are interested in the kinds of activities that visitors to wildlife refuges participate in. Please indicate which of these activities, if any, you have participated in within the past 12 months and how often. **(Circle the appropriate response.)**

Activities	Yes (%)	No (%)	No answer (%)
Attended a public hearing	35	56	9
Wrote a State or Federal agency	39	51	10
Wrote a Congressman	32	59	10
Wrote a letter to the Editor	13	77	10
Joined a citizen advisory group	14	76	10
Helped in maintenance at the refuge	20	70	10
Signed a petition concerning the environment	43	48	10
Attended a workshop to improve own understanding	38	53	9
Volunteered time to an organization	34	56	10
Joined an environmental group	34	55	11

19b. If your response is "Yes." Please indicate approximately how many times in the past 12 months you have participated in that activity

Number of times participated in the past 12 months	0 to 2 times (%)	3 to 5 times (%)	6 to 8 times (%)	9 to 11 times (%)	12 or more times (%)	No answer (%)
Attended a public hearing	74.5	8.3	1.6	0.9	1.3	13.4
Wrote a State or Federal agency	69.3	8.8	2.6	2.0	1.6	15.6
Wrote a Congressman	73.4	7.7	1.3	0.9	1.9	14.7
Wrote a letter to the Editor	84.5	1.3	0.4	0.3	0.0	13.4
Joined a citizen advisory group	85.0	0.6	0.1	0.0	0.4	13.9
Helped in maintenance at the refuge	79.6	2.2	0.7	0.3	1.2	16.1
Signed a petition concerning the environment	70.4	6.3	1.5	0.6	0.4	20.9
Attended a workshop to improve own understanding	68.9	9.2	1.5	0.4	0.6	19.4
Volunteered time to an organization	69.2	4.8	1.2	1.2	2.6	21.0
Joined an environmental group	69.3	3.5	1.0	0.3	0.6	25.3
List of environmental groups						
Archeological and Historic Societies, Sierra Club, Nature Conservancy, Audubon Society, Outdoor/Recreation Groups or Clubs, Sport or Hunting Groups, Wildlife Societies, Plant Societies, Green Peace, National Rifle Association, Sky Island Alliance, Sonoran Desert Group, Wilderness Societies, Natural Resource Defense Council, Miscellaneous.						

20. Where have you learned the most about Cabeza Prieta National Wildlife Refuge? (Check all that apply.)

Source of Information	Yes (%)	No (%)
Information kiosks	11.4	88.6
Previous visits	36.2	63.8
Friends/neighbors/relatives	43.8	56.2
Organizational meetings	6.6	93.4
Road signs	6.7	93.3
Newspapers	8.8	91.2
WWW or Internet	15.5	84.5
Government/Refuge brochure	46.6	53.4
Other Government agency	4.5	95.5
Books and articles	29.5	70.5
Local Chamber of Commerce	5.1	94.9
Radio	0.1	99.9
Television	1.3	98.7
Other	14.5	85.5
Other sources of information		
Live or work in the area, clubs or associations, personal experience, Visitor Center or Headquarters, employees or local residents, maps, programs or educational purposes, campgrounds or RV parks, tours or articles, miscellaneous.		

20b. If you answered yes to the newspaper source above, please list the single source you used the most:

Local	Regional	State
66.1	27.1	6.8

20c. If you answered yes to the WWW or Internet source above, please list the single website source you used the most:

	%
U.S. Fish and Wildlife Service	40.2
Other Federal Government sites	9.2
GORP	5.7
Other Recreational and club sites	6.9
Miscellaneous	11.5
Could not recall	26.4

Due to rounding, total is not exactly 100.

Section 6. Visitor Demographics

Please tell us something about yourself. These last few questions will help us in evaluating how well our sample represents visitors to the area and will only be used for the analysis of this study.

21. Gender

66.4% **Male** 30.5 % **Female** 3.1% **No Answer**

22. Your age

53 (mean)
55 (median)

23. Are you employed?

Yes	55.5%
Full-time (42.2)	
Part-time (11.5)	
No	35.8%
No answer	8.8%

Retired

Yes	40.1
No	3.4

24. What is your zip code?

- A listing of national zip codes were used to assign respondents to the local (Pima county only), or Non-Local (outside Pima County or state) category.

Locals (Pima County residents)	24%
Non-Locals (outside Pima County, AZ)	76%

25. What is your highest level of formal education?

No formal education	0.1%
Elementary School	0.1%
Junior or middle school	0.1%
High School	13.3%
College or technical school	45.7%
Graduate or professional school	38.0%
No Answer	2.6%

26. Do you take time off from work to participate in outdoor recreation?

57.2%	Yes
22.0%	No
20.7%	No answer

27. How many weeks of paid vacation do you receive each year?

0 weeks*	16.1%
1 to 2 weeks	9.6%
3 to 4 weeks	16.5%
5 to 6 weeks	6.7%
7 to 10 weeks	2.2%
11 to 25 weeks	1.0%
26 or more weeks*	4.2%

*Mainly retired individuals

28. How many members are in your household?

1 person	21.2%
2 people	58.8%
3 people	6.6%
4 people	5.5%
5 people	1.9%
6 people	0.1%
No Answer	5.5%

29. Including these people, what was your approximate household income from all sources (before taxes) last year?

< 10,000	2.2%
10,000 to 14,999	2.8%
15,000 to 24,999	6.6%
25,000 to 34,999	10.7%
35,000 to 49,999	16.8%
50,000 to 74,999	20.7%
75,000 to 99,999	13.7%
100,000 to 149,999	9.6%
>150,000	5.1%
No answer	11.8%

Appendix B

Additional Comments

The final page of the survey included a space for optional additional comments. The comments received in this section were many, and varied. See Figure 2, below, for a depiction of types of comments received.

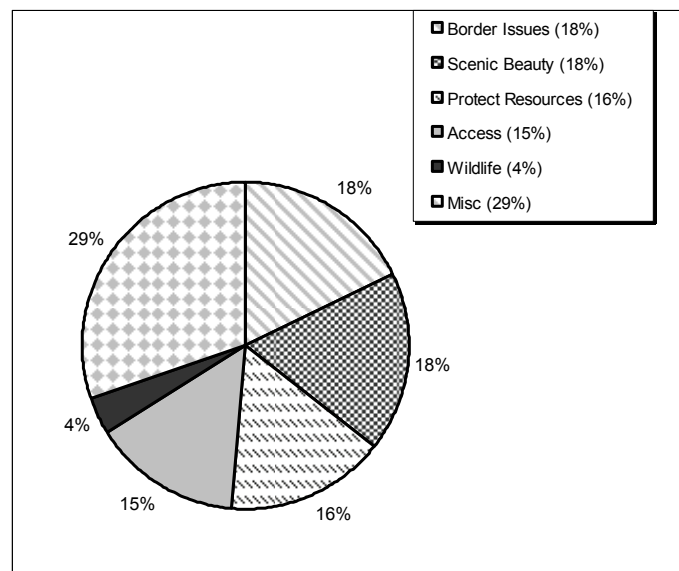


Figure 2. Open ended comments by category.

Comments regarding border issues were primarily negative. Of greatest concern were fears for personal safety and resource damage due to both illegal traffic and border patrol activities. Several respondents noted that they did not blame the refuge or the border patrol for these problems. A comment that encompasses concerns voiced by a number of respondents follows:

“Border impact issues as well as off road damage are important. I had the misfortune of almost making contact with a smuggling operator near Papago well about 2 years ago. I understand it is a very complicated issue and that the desert suffers impact primarily from illegal activity as well from law enforcement. I would be concerned for my safety, but there is the pervasive feeling that the desert is less pristine because of these activities. I know that over time these activities will be woven into the tapestry of human history of the region which the refuge is part.”

The category “scenic beauty” included an equal number of comments as the category “border issues” (63). Most of these comments referred to the importance that visitors placed on the natural beauty and solitude of the refuge. A typical comment follows:

“This place offers endless opportunities to explore and enjoy the scenic beauty of a landscape so different and unique in this country and world. I feel that the character of the Cabeza is, in many ways, what draws me back time after time. Its environment, history, and rugged remoteness all add to that character.”

The category “protect” included 55 comments. These statements were geared toward encouraging refuge managers to protect and preserve Cabeza Prieta. One respondent stated:

“This is a wonderful place. Please keep it primitive. The visitors who truly appreciate wildlife won't mind the primitive nature. There are few places left where people can go to get away from stresses of urban life. The solitude, quiet, and biological value make this place worth preserving and never developing more. Keep roads gravel to discourage more disruptive uses. Thank you for your stewardship. “

Another visitor commented that:

“Keep it as remote, isolated, least-visited and un-diminished as possible. Limited use, limited number of people and vehicles; even that is too much. The harshness, the beauty, the whole region; of these qualities are already too much endangered. Perhaps one can only dream? “

When respondents mentioned access as an issue, the comments were usually negative and focused on impediments to traveling on the refuge due to road closures for various reasons. A typical comment is:

“Keep the roads rough – it keeps the numbers down. But let us drive where we want (on the road). I had wanted to drive the loop to Organ Pipe but they said the road was too rough – bah!! You let me decide, and if I blow it I'll walk out. It was winter, after all, no one would have died of heat stroke out there.”

Another comment was:

“First and foremost the access to the Cabeza Prieta by automobile needs to be expanded, as it is not accessible for most people otherwise. Much of the refuge may be off limits to automobiles but from Ajo only the road to Charlie Bell Ranch is open. I am willing to hike and I leave no trace while camping but I want to get into more of the refuge.”

Some more specifically mentioned road closures:

“Parts of this survey are blank because I did not make a trip to the NWR. I was planning on going but the time period I wanted to travel on large areas of the NWR were shut down, by virtue of road closures. The map I was sent mentioned the closures were for antelope protection. I have indicated on this survey that wildlife presence/protection is important, but I'm disappointed that the route I wanted to take was shut down. Are antelope really that sensitive to traffic on a remote road?”

The next category of comments, wildlife, included 13 statements. Some were general statements (“Please protect wildlife”) and others concerned hunting on the refuge. Some of the hunting comments were positive and others were negative.

Miscellaneous comments were more numerous than any other type. These comments were quite varied. Some mentioned the survey itself; others gave some context for the refuge visit; and many said things like, ***“Thanks for the good work. We enjoyed the refuge.”***

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