

Recreation on Federal Lands in Central and Northern California: A Comparison of Forest-Proximate and Distant Residents

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Keywords

Outdoor recreation, federal lands, visitation, spending, facilities, information

Introduction

A common notion among resource managers is that local residents use nearby public recreation resources more frequently and desire different levels and types of services than do visitors from distant locations. This is an important issue to resource managers and to tourist businesses when they develop management and marketing plans. However, little research on this question has been published in the literature. Baker, Absher, Knopf and Virden (2000) investigated users of the Coconino National Forest near Sedona, AZ about their interests, use, fee preferences, and desired facility/service characteristics. They made limited, but interesting, comparisons between local residents and tourists. Similarly, Graefe, Absher, Thapa and Confer (2003) showed that local, adjacent homeowners used an area in the Allegheny National Forest differently from campers or day hikers. Also, Nyaupane, Graefe, and Burns (2003) showed that distance traveled can be used to better understand recreation use. Such comparisons between user segments may be important to management. Although there is a lack of empirical evidence, resource managers hold strong feelings about differences in the use of public lands and facility preferences between distant and local visitors. Thus, this study's objectives are to compare interest, use, satisfaction, expenditures, and desired characteristics of outdoor recreation on federal lands in the central and northern California region (CNCR), between residents living proximate and more distant from outdoor recreation resources.

Method

Adult respondents from the CNCR were randomly sampled from all listed telephone numbers in the region and formed the Central/Northern California database (CNC). The Forest Proximate (FP) sample was randomly drawn from working residential phone numbers in mostly smaller rural communities within 20 miles of national forests in the central Sierra Nevada Mountains region.

Data was gathered for all samples via a telephone interview questionnaire. The CNC sample was a random selection of all working residential phone numbers in the region consisting of San Luis Obispo, Kern and Inyo Counties on the south, and all counties north of these within the state of California. This sample was created so that it would be representative of the entire population of central and northern California.

The FP sample was randomly drawn from working residential phone numbers in smaller rural communities that are in close proximity to national forests in the central Sierra region. These communities included: Fresno, South Lake Tahoe, Sonora, Bishop, Mammoth Lakes, Markleyville, Placerville, Bakersfield, Truckee and Bridgeport. This sample provides a perspective of residents from rural, forest proximate communities, in contrast to the CNC sample, which is dominated by residents of the large metropolitan areas.

The telephone survey questions were based on previous surveys done in the Pacific Northwest and northern Arizona (Baker, Absher, Knopf & Virden, 2000; Burchfield, Borrie & Miller, 2000), so that data are comparable with the other regions. Information gathered in the survey included interest, participation and actual visitation to outdoor recreation sites like national forest and park areas. It also identified desired characteristics of an outdoor recreation experience and the importance of these. This included items like knowledgeable staff, scenic views and well-maintained bathrooms. Data was also gathered on the outcomes and satisfaction from their most recent outdoor recreation experience, for respondents who visited a National Forest or Park area within the last year. The final type of data gathered were demographic items, such as age, income, ethnicity, and family characteristics.

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All telephone surveys were conducted by an experienced survey research firm located in San Francisco utilizing a computer-based telephone survey system and standard phone survey protocols. Respondents were screened so that only adults 18 years and older were included, and employees of the Forest Service or BLM and their families were excluded. The survey was administered between early October and early December, 2001.

Data were analyzed using SPSS software with basic statistical tests, including frequency distribution, cross-tabulations and means. Comparisons of interest and participation in outdoor recreation and visitation of federal lands for recreation between FP and CNC samples utilized chi-square tests. T-tests were employed to ascertain differences in expenditures, information sources used and desired federal land characteristics. Additional detail can be found in the technical report done for this project (Tierney, Rosegard & Absher, 2002).

Results

A total of 727 surveys were completed, 617 from the CNC sample and 110 from the FP communities. Respondents were more likely to be female (56.3%), between the ages of 41-50 years (24.1%), a past/current college student or graduate (62.4%), with a household income of less than \$50,000 (44.4%), white non-Hispanic (81.6%) and with no children under six years living at home (86.3%). FP respondents were significantly more likely to be white non-Hispanic (84.5%) than were CNC respondents (80.4%). There were no other significant differences in socio-demographic variables between CNC and FP respondents.

Over 81% of CNC respondents had at least some interest in outdoor recreation. This is not significantly greater than FP respondents (79.7%). A greater percentage of FP respondents were very interested in outdoor recreation (60.9%) compared to CNC respondents (49.3%), as shown in Table 1.

Table 1 - Interest in Outdoor Recreation Activities (Percent)

Interest Level	CNC	FP
At Least Somewhat	81.9	79.7
Very	60.1	76.4
Somewhat	39.9	23.6
Not at All	18.1	20.3

Number of completed surveys: CNC= 617; FP=110; Total=727.

Number of additional "not interested in ORC" surveys: CNC=136; FP=28.

CNC-Central and Northern California database

FP- Forest Proximate database

Chi-square significance p= 0.001

Significantly more FP respondents (97.3%) than CNC respondents (87.7%) who had at least some interest in outdoor recreation had actually participated in outdoor recreation in the last year. Table 2 also illustrates that 77.5% of all FP respondents contacted in the survey had participated, compared to 71.8% of CNC respondents.

Table 2 - Participation in Outdoor Recreation in Past Year (Percent).

Participation Outdoor Rec.	CNC	FP
Participated in ORC	87.7 ¹ (71.8) ²	97.3 ¹ (77.5) ²
No Participation	12.3 ¹ (28.2) ²	2.7 ¹ (22.5) ²

¹ Percent of respondents who had at least some interest in ORC.

² Percent of total persons contacted in survey.

CNC-Central and Northern California database. Base- All qualified persons.

NENW- Northeastern California and Northwest Washoe County, Nevada

FP- Forest Proximate database

ORC- Outdoor Recreation

Chi-square significance p= 0.001

Recreationists were asked if they had visited federal outdoor recreation lands, such as a national forest, BLM area, wildlife refuge or national park, in the past year. Visitation to the region by respondents who had participated in outdoor recreation in the last year ranged from 91.6% of the FP sample to 82.4% for CNC residents. Over 40% of all CNC respondents had not participated on federal land in the last year, as shown in Table 3.

Table 3 - Participation in Outdoor Recreation on Federal Land in Past Year (Percent).

Participation on Federal Land	CNC	FP
Yes	82.4 ¹ (59.2) ²	91.6 ¹ (77.5) ²
No	17.6 ¹ (40.8) ²	8.4 ¹ (22.5) ²

¹ Percent of respondents who participated in ORC in last year.

² Percent of total persons contacted in survey.

Part 1 Chi-square significance p= 0.018

Table 4 shows that FP respondents who had visited federal lands in the last year were significantly (Chi-square significance less than 0.001) more likely to visit federal lands in central and northern California, and were also twice as likely to visit 10 or more times, versus the CNC respondents. However, when comparing all study respondents there was little difference in visiting for CNC (49.9%) and FP users (51.4%).

Table 4 - Visited Federal Outdoor Recreation Lands in Central and Northern California Region, and Number of Visits (Percent).

Visits To CNC	CNC	FP
No Visits	14.6 ¹ (49.9) ²	31.6 ¹ (51.4) ²
At Least 1 Visit	85.4 ¹ (50.1) ²	68.4 ¹ (48.6) ²
<i>One Time</i>	17.0	10.2
<i>2-4 Times</i>	38.6	20.4
<i>5-10 Times</i>	15.5	9.2
<i>Over 10 Times</i>	14.3	28.6

¹ Percent of recreationists who visited fed lands in last year.

² Percent of total persons contacted in survey.

Expanded table Chi-square significance p is less than 0.000

Table 5 illustrates that trip satisfaction levels were highest among CNC respondents and lowest for the FP sample, but these differences were not significant. Over 46% of CNC respondents were extremely satisfied, compared to 39% from the FP sample.

The ten most popular outdoor recreation activities while visiting federal lands are shown in Table 6. Day hiking, camping, fishing and driving/site seeing and picnicking were most popular in both respondent groups. When asked which activities were the primary reason for visiting federal land, respondent selections were: Camping (30.7%), day hiking (16.9%), fishing (14.3%), motor boating/water skiing (5.1%) and driving/site seeing (3.1%) and backpacking (3.1%). Primary reasons to visit more likely to be cited by FP respondents compared to CNC were fishing, horseback riding and rock climbing. CNC respondents were more likely to cite motor boating/water skiing.

Table 5 - Satisfaction with Most Recent Visit to Federal Outdoor Recreation Lands in Central and Northern California Region (Percent).

Satisfaction	CNC	FP
Extremely Satisfied	46.9	38.8
Very Satisfied	28.7	32.8
Somewhat Satisfied	16.6	25.4
Neither	4.5	0.0
Somewhat Dissatisfied	2.0	1.5
Very Dissatisfied	0.8	0.0
Extremely Dissatisfied	0.6	1.5

Base- Recreated on federal lands in CNC in last year.
Chi-square significance p= 0.601.

Table 6 - Ten Most Popular Recreation Activities Undertaken on Federal Land in Central and Northern California Region During Past Year (Percent).

Activity	CNC	FP
Day Hiking	87.9	85.1
Camping	55.6	62.9
Fishing	24.4	26.9
Driving / Site Seeing	21.1	22.4
Picnicking	19.4	28.4
Backpacking	12.9	11.9
Swimming	11.8	7.5
Viewing Wildlife	11.0	19.4
Nature Photography	9.6	14.9
Motor Boating/Water Ski/Sail	9.6	1.5

Base- Recreated on federal lands in last year.

FP respondents were more likely to take a ½ day or 1 day trip than were CNC members, as shown in Table 7. CNC respondents spent on average a total of \$503.19 and \$98.67 per group per day compared to FP members at \$361.31 and \$78.54, respectively. These values were not significantly different (t-test).

Table 8 describes the average expenditures during respondents most recent trip to federal lands in central and northern California. There were significant differences in spending on tourists services and gifts between CNC and FP groups. Total expenditures for CNC respondents were \$503.19 and \$16.44 per day per person in the travel group. This compares with \$361.31 and \$16.03 for FP respondents. Respondents reported the five most frequently used sources in planning their most recent trip to federal lands were: roadside display/sign, friends and relatives, internet website, agency flyer/brochure and agency staff/volunteers. Table 9 shows a few differences between FP and CNC respondents. Sources of information more likely to be used by CNC respondents were: Internet/web, tourist brochure, travel agents and magazine/newspaper.

Table 7 - Number of Days Away from Home, Most Recent Trip to Federal Lands, Central and Northern California Region (Percent).
Base- Visited federal lands in CNC in last year. N=624.

Days Away	CNC	FP
Mean Average	5.1	4.6
Median Average	3	3
1/2 Day Or Less ¹	3.4	7.5
1 Day ²	19.2	22.4
2-3 Days	30.4	22.4
4-7 Days	34.4	23.9
8-14 Days	7.6	7.5
15+ Days	5.0	4.5

¹ Refers to a trip lasting less than 5 hours

² Trip of 5-24 hours

Chi-square mean differences in days away from home were not significant

Table 8 - Average Expenditure by Type on Most Recent Trip to Federal Lands, Central and Northern California Region (Mean).

Average Expenditure	CNC	FP
Gas/Transportation	\$128.99	\$97.79
Lodging and Camping	\$115.08	\$83.90
Food and Drink	\$150.46	\$134.13
Tourist Services, Guides, Entrance Fees, Rentals	\$53.77	\$18.19*
Gifts, Souvenirs, Clothes	\$54.90	\$27.30*
Total Expenditures	\$503.19	\$361.31
Average Expenditure Per Group Per Day	\$98.67	\$78.54
Average Expenditure Per Person Per Day	\$16.44	\$16.03

Base- Visited federal lands in CNC in last year.

* t-test significance p=.05 or less.

Table 9 - Information Sources Used on Most Recent ORC Trip on Federal Lands in Central and Northern California.

Information Source / Helpfulness	CNC	FP
Roadside Display or Sign	46.6	42.4
Friends or Relatives	43.5	43.5
Internet or Website	32.6	19.6*
Brochure/Flyer from Agency	30.4	28.3
Talked with Federal Employee/Volunteer	30.7	18.5
Local Business People	26.7	26.1
Guidebook	26.9	20.5
Tourist Brochure	26.6	13.0*
Chamber of Commerce/Tourism Board	10.1	8.7
Magazine or Newspaper	12.1	4.3*
Radio or TV	8.2	8.7
Travel Agents	2.2	0.0*

Base for Info Source Use= Visited fed lands in CNC

Base for Helpfulness= Used that source.¹

*CNC and FP groups are (Chi-square) significantly different, $p=0.05$ or less.

The twelve most highly desired characteristics of federal outdoor recreation lands are shown in Table 10. The top were: Visitors who respect the environment, employees who are courteous, very well maintained facilities, wide variety of scenic views and visitors who are courteous.

Table 10 - Twelve Most Desired Characteristics for Federal ORC Lands (Mean).

Characteristics For Fed ORC Lands	CNC	FP
Visitors Who Respect Environment	6.4	6.4
Employees and Staff Who are Courteous	6.2	6.1
Very Well Maintained Facilities	6.1	6.1
A Wide Variety of Scenic Views	6.1	6.1
Visitors Who are Courteous	6.1	6.0
Feeling Safe and Secure	6.0	6.1
Non-Crowded Areas	6.0	6.0
Very Well Maintained Bathrooms	6.1	5.9*
Employees Who Make You Feel Welcome	6.1	5.9
Clear and Informative Signs	5.9	6.0
Rules/Regulations That are Clearly Posted	5.8	5.9
Variety of Recreational Opportunities	5.7	5.9*

Base- All respondents

Desirability scale: 7= Extremely Desirable to 1= Not At All Desirable.

*CNC and FP groups are (t-test) significantly different, $p=0.05$ or less.

Table 11 reveals that CNC respondents, compared to those from the FP, were significantly more likely to desire the following: Emergency services, ranger-led tours, well-maintained bathrooms and sites that can be reserved in advance. FP respondents were significantly more likely to desire; a wide variety of recreational opportunities, off-highway vehicle trails, opportunities for fishing, undeveloped campsites and opportunities for hunting.

Table 11 - Desired Characteristics of Federal Outdoor Recreation Lands with Significant Differences between CNC and FP Respondents

Characteristics For Fed ORC Lands	CNC	FP
Very Well Maintained Bathrooms	6.1	5.9*
Variety of Recreational Opportunities	5.7	5.9*
Sufficient Number of Non-Motorized Trails	5.9	5.7*
Off-Highway Vehicle Trails and Areas	4.0	4.6**
Ranger Led Tours	4.6	4.3**
Opportunities for Fishing	5.0	5.4**
Sites That Can Reserved in Advance	5.6	5.4*
Undeveloped Remote Campsites with Dirt Road Access, Without Water or Restrooms	4.2	4.7**
Opportunities for Hunting	2.9	3.7**

Base- All respondents

Desirability scale: 7= Extremely Desirable to 1= Not At All Desirable.

**CNC and FP groups are (t-test) significantly different, p=0.05 level or less.

* CNC and FP groups are (t-test) significantly different, p=0.10-0.06

Conclusions

Findings suggest there are a number of significant differences between residents of forest- proximate communities and distant urban centers in their interest in outdoor recreation and recreational use of federal lands in central and northern California. A number of these differences appear counter to or do not seem to be related to the obvious closer distance to federal outdoor recreation sites in the Sierra Nevada Mountains of California. There was a significant difference in overall interest in outdoor recreation with more CNC respondents having at least some interested in outdoor recreation, compared to FP respondents. About one in four FP respondents were not at all interested in outdoor recreation. However, there are significantly more FP respondents who have participated in outdoor recreation and are very interested in outdoor recreation, compared to CNC users. This strong interest in outdoor recreation is also shown by FP residents being twice as likely to be “heavy users” of federal lands, with over a quarter making ten or more visits in the last year. In contrast to the high percentage of heavy users, about twice the percentage of recreationists from FP communities had not visited any federal recreation lands in the last year, compared to CNC respondents. These results suggest that both heavy users and non-users of federal recreation lands are more likely to be found in FP communities compared to in the CNC. Resource managers will need to work with these interest level margins in FP communities and this will affect support for proposed actions.

There were no significant differences between CNC and FP respondents in satisfaction with their most recent trip to federal outdoor recreation lands in central and northern California. The number of days away from home was also not significantly different and the expected large number of shorter trips by FP residents was not shown in the data. However, trip expenditures on their most recent trip were much higher from CNC versus FP respondents. This disparity is expected, and came mostly from significantly higher expenditures for tourist services and gifts by CNC respondents, compared to those from FP communities. Average daily per person expenditure was \$16 for both study groups.

Large differences in outdoor recreation activity participation were found among those who recreated on federal lands, with FP respondents more likely to engage in activities that can be done near their homes, like fishing, horseback riding and rock climbing. FP respondents were also more likely to camp and the types of desired camping facilities were different from CNC respondents. CNC respondents were more likely to participate in swimming and motor boating/water skiing compared to FP respondents. These findings suggest that resource managers may have to plan for different activities for FP versus more distant city residents.

Information sources used to help plan the most recent trip to federal lands were significantly different between CNC and FP groups. CNC respondents were significantly more likely to use the internet, brochures, newspapers and travel

agents than were FP respondents. Differences in use of other information sources, such as flyers from an agency, talking with agency employees/volunteers and guide books, were not significant. These findings suggest that resource managers will need to employ different communications strategies, especially in use of the internet, to best inform forest-proximate and distant visitors.

When asked about desired characteristics of federal outdoor recreation lands findings showed a great deal of commonality in the general order of ratings between the two groups. However, some significant differences were found, with CNC respondents wanting more comfortable facilities, hiking trails, educational and convenient services. FP respondents were significantly more likely to want undeveloped campsites without services and the traditional recreational activities of fishing and hunting, compared to CNC residents. Off-highway vehicle trails, that often provide access to undeveloped campsites and hunting locations, were in much greater demand by FP respondents than by CNC respondents. Data on desired characteristics of federal lands clearly illustrates there are significant differences in facility and services preferences between visitors from proximate and distant residences. This research suggests that land managers must design facilities, communicate and manage lands differently to maximize benefits to both forest proximate and residents from more distant urban centers.

In summary, use levels and activity profiles were, at times, strikingly different between forest proximate and urban residents. Use of information sources also varied. However, preferences for experience or site characteristics were generally similar, varying mostly in amount rather than kind or importance. Two strong exceptions to experience similarities were off-highway vehicle use and hunting, which were much more highly demanded by forest-proximate respondents. Study results offer evidence that separate forest-proximate and distant outdoor recreation market segments exist. Findings also suggest that communications from managers might need to be tailored for each group.

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