

# RECREATION PATTERNS AT LAVA LANDS RECREATION AREA, NEWBERRY NATIONAL VOLCANIC MONUMENT

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## Abstract

The purpose of the study was to examine recreationists' behavior and perceptions about their trip experience at the Newberry National Volcanic Monument (NNVM). The NNVM is a large volcanic area in central Oregon, less than 20 miles from the city of Bend. Three main research questions were answered. First, what were the visitors' trip characteristics? Second, what was the reason that the visitors came to NNVM. A battery of questions was asked of respondents to the NNVM recreation regarding their reasons for visiting the forest. These items fell under four domains: nature, challenge, efficacy, and social. The final area of inquiry focused on what the visitors actually did while they were at NNVM, and their level of visitor satisfaction with selected management issues.

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## 1.0 Introduction

The USDA Forest Service (FS) is the primary land management agency for millions of acres of land in Oregon and Washington. Together, these two states make up what is known as Region 6. The FS maintains 20 national forest (NF) units in Region 6, most of them located along the Cascades mountain range that runs north-south from California into Canada. Region 6 NFs also include coastal areas along the Oregon coast, vast expanses of high desert areas in eastern Oregon and smaller, biologically diverse areas that share a border with Canada in northeastern Washington. These NFs include volcanic viewing areas, sublime mountain and valley viewsheds, a range of lake recreation opportunities ranging from primitive to highly developed beaches, hot springs, and beautiful rivers. This diverse range of recreation settings, spread across two vast U.S.

states, provides not only many different recreation opportunities, but many challenges for managers attempting to meet the expectations of a relatively homogenous, but changing user base. USDA Forest Service officials from the Deschutes National Forest identified a need to better understand the customers who use the Lava Lands Recreation Area within the Newberry National Volcanic Monument (NNVM). Accordingly, a survey of visitors was conducted in the summer 2002 recreation season to identify visitor characteristics, use patterns, perceptions and preferences.

## 2.0 Methods

Data were collected through face-to-face interviews with visitors at the Newberry National Volcanic Monument. Onsite interviews were conducted with 372 visitors during approximately 30 sampling days during May through September 2002. The survey was designed to build on previous surveys in this and similar settings. The respondents were asked a series of questions about their trip characteristics, their satisfaction levels and their reasons for visiting the area.

## 3.0 Results

### 3.1 Trip Characteristics and Group Makeup

An examination of the trip characteristics showed that the visitors to Newberry National Volcanic Monument are, for the most part, typical of visitors seen at other "front-country" Central Oregon Forest Service recreation areas (Burns & Graefe 2004a; 2004b; Burns, Graefe, Ayres, & Robinson 2004a 2004b; Lee, Graefe, & Burns 2004; Burns, Graefe & Absher 2003; English, Kocis, & Zarnoch 2004), although some differences were noted (Table 1). One major difference noted is that the proportion of first time visitors was much higher than is typically seen at other front-country Forest Service recreation areas (Table 1). The vast majority of NNVM respondents (69.9%) were first-time visitors, which is nearly opposite of what is seen at several nearby Forest Service recreation areas. These include Diamond Lake (14% first time visitors), Santiam Pass (31.2% first-time visitors), Waldo Lake (25.4% first-time visitors), and only a small minority (8%) at the South Umpqua River

**Table 1.—Summary and comparison of differences in demographics and trip characteristics**

Demographics and Trip Characteristics	NNVM	Santiam Pass	Diamond Lake	South Umpqua	Waldo Lake
Non-Caucasian respondents	5%	4%	3%	11%	---
First-time visitors	70%	32%	14%	8%	25%
Recreate only at NNVM	32%	64%	63%	---	---
NNVM is primary destination	17%	61%	66%	---	---
Group composition					
Family	83%	31%	59%	39%	---
Other	17%	69%	1%	61%	---

recreation areas (Burns & Graefe, 2004; 2004; Burns, Graefe, Ayres, & Robinson, 2004; 2004; Lee, Graefe, & Burns, 2004). The NNVM respondents who were repeat visitors had been coming to the NNVM area for about 12 years, and visited the NNVM recreation areas on average about 3.4 times per year.

The Newberry National Volcanic Monument was not the sole destination for the typical visitor surveyed in this study. About one-third of the respondents (32.4%) indicated that they planned to recreate only at NNVM on this trip, while the remaining two-thirds of the visitors reported that they were visiting other places as well. Of those respondents who were visiting other areas, 17 percent indicated that NNVM was their primary destination on this trip. Again, compared to many of the other federally managed recreation areas in the area, the proportion of visitors reporting that the NNVM area was their primary destination was quite low. Sixty-six percent of the Diamond Lake visitors, 77.2 percent of the Santiam Pass visitors, and 98.6 percent of the Waldo Lake respondents reported that the recreation area they were visiting was their primary destination on the trip during which they were interviewed (Burns & Graefe 2004a, 2004b; Burns, Graefe, Ayres, & Robinson 2004a, 2004b; Lee, Graefe, & Burns 2004).

Newberry National Volcanic Monument visitors were similar in makeup to those seen at other federally-managed recreation areas in the region. The vast majority of the respondents (82.8%) were in family groups, a proportion typically seen at nearby recreation areas. Nearly all of the visitors interviewed were white (94.9%), similar to the proportion of visitors seen at other FS

recreation areas in that region. More than half (55.8%) of the respondents were male, and the mean age of the respondents was about 46 years old.

### 3.2 Reasons for Visiting

A series of questions on the survey focused on respondents' motivations for recreating at the NNVM recreation areas, as well as a question probing them as to the most important reason for visiting the recreation area. The selection of "most important" reason for visiting the NNVM recreation areas included to enjoy the place itself, because it is a good place to do my outdoor recreation activities, to spend time with my companions, and because it was close to home. The respondents at the NNVM recreation areas were more likely than those at other central Oregon recreation areas to indicate that they visited to enjoy the place itself (Table 2). At NNVM, 52 percent of the respondents said they visited because of the place itself, compared to just 38 percent of the Diamond Lake visitors, and 47 percent of the South Umpqua River respondents. The Santiam Pass visitors were more activity driven than the respondents at the other three areas, with 45 percent indicating that the most important reason for visiting was to participate in their chosen outdoor recreation activity.

When asked a more general question listing various possible motivations, or reasons for recreating at the NNVM recreation areas, the most highly rated motivations were to experience natural surroundings (mean=4.7), be outdoors (mean=4.5), and to get away from the regular routine (mean=4.5). The lowest rated motivations were for the challenge (mean=3.0) and to develop skills (mean=3.1). These findings are very typical

**Table 2.—Most important reason for this visit**

	NNVM	Santiam Pass	Diamond Lake	South Umpqua
	%	%	%	%
I went there because it's a good place to do the outdoor activities I enjoy	27	45	36	27
I went there because I enjoy the place itself	52	30	38	47
I went there because I wanted to spend more time with my companions	16	14	24	22
I went there because it was close to home	5	12	3	3

**Table 3.—Reasons for visiting**

Opinions of Recreationists <sup>a</sup>	NNVM	Santiam Pass	Diamond Lake	South Umpqua
To be outdoors	4.4	4.6	4.6	4.7
For relaxation	4.2	4.6	4.6	4.7
To get away from the regular routine	4.5	4.5	4.6	4.8
For the challenge or sport	3.0	4.5	3.1	3.2
For family recreation	4.3	4.0	4.3	4.5
For physical exercise	3.7	3.9	3.5	3.5
To be with my friends	3.9	3.9	3.8	4.2
To experience natural surroundings	4.7	3.7	4.5	4.5
To develop my skills	3.1	3.3	2.7	3.0

Response Code: 1 = "Not at all important" to 5="Extremely important"

of the reasons people recreate at other front-country recreation areas in the Central Oregon region (Table 3). For the most part, people want to get away from their regular routine by participating in outdoor recreation activities in a natural setting. Typically, the least important motivations for visiting Diamond Lake, Waldo Lake, South Umpqua River, and Santiam Pass were to develop skills, for challenge/sport, and for physical exercise.

### 3.3 Customer Satisfaction

Several customer satisfaction items were utilized in this study in an effort to understand visitors' satisfaction with various aspects of service quality and to develop a model of customer satisfaction for use by managers at the Newberry National Volcanic Monument. Visitors were asked how they would rate their satisfaction levels with a battery of 16 service quality attributes. All 16 of the quality items were rated above 4.0 on a 5-point

Likert scale (Table 4). The four quality items showing the highest ratings included: views are free from obstructions (mean= 4.96) information boards provide current information (mean=4.95), drinking water is available (mean=4.95), and uniformed Forest Service and concessionaire employees are friendly (mean=4.89). Two items showing slightly lower satisfaction scores were recreation sites are free of danger (mean=4.39, and roadside signs and directions make recreation sites easy to find (mean=4.43).

A second set of measures focused on the core dimensions of the Forest Service Meaningful Measures program. This shorter list of quality items included the visitors' perceptions of health and cleanliness, safety and security, condition of facilities, responsiveness of staff, and condition of the recreation setting (Table 5). Again, the respondents rated highly all of the quality items, with the responsiveness of staff receiving the highest

**Table 4.—Comparison of individual quality attributes**

Opinions of Recreationists <sup>a</sup>	NNVM	Santiam Pass	Diamond Lake	South Umpqua
Drinking water is available	4.9	3.6	4.1	1.4
Recreation use is compatible with the environment	4.7	3.5	4.2	4.3
Facilities are in good condition	4.7	3.7	3.8	4.1
Recreation sites are free of dangerous conditions	4.4	3.9	4.0	4.1
Developed facilities are accessible for persons with disabilities	4.7	3.3	3.9	3.4
Uniformed Forest Service and concessionaire employees are friendly	4.9	4.1	4.3	4.4
Views from recreation areas are free of obstruction by buildings or development	4.9	4.4	4.4	4.6
Roadside signs and directions make recreation sites easy to find	4.4	3.8	4.2	4.2
Restrooms/Toilets are clean and free of odor	4.8	3.6	3.7	3.1
Parking spaces are plentiful	4.6	3.7	3.8	3.7
I feel safe at the recreation areas	4.8	4.2	4.4	4.4
It is easy to find uniformed Forest Service employees	4.8	3.2	3.5	2.9
Information boards provide current information	4.9	3.6	3.9	4.0
Trails are in good repair	4.8	3.8	4.0	4.0
Rules and regulations are clearly posted and easy to understand	4.8	3.8	4.0	4.3
The area is free from litter	4.8	3.7	3.9	3.8

<sup>a</sup>Response Code: 1="Awful" to 5 = "Excellent"

rating (mean=4.90), followed by condition of recreation setting (mean=4.79). The lowest rated item, albeit still very highly rated, was safety and security (mean=4.55). Lastly, using a scale ranging from 1=not at all satisfied to 10=most satisfied, the visitors were asked to rate their overall experience at NNVM during this trip. The mean score was 9.11, showing a very high rating of their trip experience.

The NNVM quality levels were compared with those at other front-country Forest Service recreation areas (Tables 4 and 5). The individual quality items were compared across three similar front-country Forest Service settings: Diamond Lake, South Umpqua River, and Santiam Pass. The results of this cross-area analysis show that the NNVM satisfaction levels were higher in each instance, across all 16 items. This trend is noteworthy, as this level of congruity is not typically seen across an entire battery of items when compared to similar recreation sites.

When the five Meaningful Measures items were compared across the same three recreation areas, the NNVM satisfaction ratings were once again rated highest for each of the five categories. The examination of the overall quality of experience variable showed similar results across four separate recreation areas: Diamond Lake, South Umpqua River, Waldo Lake, and Santiam Pass. In this case, the NNVM overall satisfaction level of 9.1 was matched by the South Umpqua River recreation area, while the other two recreation sites were rated lower.

#### 4.0 Conclusions and Implications

The findings of this study show that the Newberry National Volcanic Monument visitors are typical of Central Oregon front-country visitors in one sense, yet quite different in others. With regards to the socio-demographic makeup of the visitors, NNVM visitors are very similar to other visitors. There is little difference

**Table 5.—Comparison of overall satisfaction ratings and overall trip experience**

Satisfaction Ratings	NNVM	Santiam Pass	Diamond Lake	South Umpqua	Waldo Lake
<sup>a</sup> Health and cleanliness	4.7	3.9	3.8	3.9	---
<sup>a</sup> Safety and security	4.6	3.9	4.1	3.9	---
<sup>a</sup> Condition of facilities	4.6	3.9	3.9	3.8	---
<sup>a</sup> Responsiveness of staff	4.9	3.9	4.2	4.1	---
<sup>a</sup> Recreation setting	4.8	4.5	4.6	4.4	---
<sup>b</sup> Overall satisfaction (10-point scale)	9.1	8.2	8.5	9.1	8.5

<sup>a</sup> Response Code: 1=“Awful” to 5 = “Excellent”

<sup>b</sup> Response Code: 1=“not at all satisfied” to 10 = “most satisfied”

in the group dynamics, the racial makeup of the group, and even the age ranges of the respondents. However, it is apparent that people tend to visit NNVM in association with another recreation trip, and that the NNVM is not, for the most part, a tourist destination. Few of the NNVM respondents indicated that this was their primary destination, while most were visiting other recreation areas in the region. This finding highlights the importance of understanding the makeup of the visitors to specific recreation areas, as well as understanding the role of NNVM in relation to other recreation opportunities in the central Oregon region. Having this understanding will allow managers to communicate more effectively with the visitors who do stop at NNVM, and opens the door for increasing the diversity of visitors by targeting potential users who may live in the Bend area.

A majority of the NNVM recreationists visit the recreation area for the purpose of experiencing the place itself. NNVM is a unique recreation area where people learn fascinating things about a (relatively) recent volcano. Visitors can walk on old lava beds and hike to the caldron. This is not an experience that one can replicate in many different places around the United States. This finding underscores the importance of understanding the users’ needs and how to meet their expectations. The NNVM recreation area is not a place where people come to participate in sporting activities, or to improve their skills—they visit to see the old volcano, which is situated in an outdoor setting. The NNVM generally meets that expectation, as seen in the ratings of customer satisfaction.

An extensive measure of visitors’ satisfaction ratings was undertaken to understand what people are satisfied with at NNVM. First, the service quality ratings were very high, typically higher than any seen at other Central Oregon Forest Service recreation areas. These favorable satisfaction ratings suggest that NNVM visitors get what they come for; they achieve their goal of getting away from the routine by recreating outdoors—but not physically exerting themselves too much. In its own unique setting, the NNVM meets the needs of the visitors. Three different sets of customer satisfaction ratings were included: a general set of five items based on the FS Meaningful Measures program, a second, more in-depth, set of 16 service quality ratings, and an overall trip experience measure. For both the 16-item scale and the 5-item scale, the NNVM quality ratings were higher than for other recreation areas in central Oregon. The overall trip experience rating was the same at NNVM and at the South Umpqua River recreation areas, once again showing some of the most satisfying trip experiences seen in the central Oregon recreation areas.

Overall, these findings indicate that area recreation resource managers are doing a superb job in providing a quality recreation experience at NNVM. Management should continue to focus on maintaining and improving the environmental and social qualities of the recreation area. Simultaneously, management should begin to focus on making NNVM a place that is user-friendly to non-traditional users, such as ethnic and racial minorities. With the high proportion of non-Whites living in the Central Oregon area, it is imperative that the needs of this potential user group be met as well.

Lastly, managers may want to consider benchmarking their successes with other Forest Service recreation areas in the central Oregon region. This will provide managers with a sense of how well they are performing with regards to customer satisfaction issues and attainable goals. Understanding the makeup of NNVM visitors in comparison to other recreation areas in the region will also assist managers in understanding the particular niche of NNVM in a larger context.

## 5.0 Citations

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