

# National Forest Visitor Use Monitoring Program—National Project Results – January 2000 through September 2003

## Introduction

The U. S. Department of Agriculture (USDA) Forest Service’s National Visitor Use Monitoring (NVUM) program provides managers with valuable information about the people they serve. By knowing how many people recreate on the forest, what activities they do, how long they stay, how much they spend, and how satisfied they are with the facilities and services provided, managers can make more informed strategic decisions. Managers also use information provided by the NVUM program in forest management plans, Congressional reporting, resource monitoring, and strategic planning analyses. This program uses best-available science methods in its data collection, analysis, and reporting. In addition to serving the needs of USDA Forest Service managers, NVUM results and data are used by external customers, including States, private industry, and academia.

This document provides national summary results of 4 years of sampling and on-site survey research from all National Forest Systems (NFS) lands, including both national forests and national grasslands. Over 155,000 interviews were conducted during 22,000 days of sampling. Detailed descriptive information about the national forest recreation visit was obtained on over 90,500 of these interviews.

## Sample Design

The first full cycle of the NVUM program occurred from January 2000 through September 2003. During each of these 4 years, 25 percent of the national forests were surveyed. Since October 2004, ongoing sampling now occurs on about 20 percent of national forests each year.

Because of its comprehensive sampling design, the visitation estimates provided by NVUM, except in the case of Viewing Corridors, are accompanied by measures of statistical precision. This is defined as the half width of the 80-percent confidence interval expressed as a percent of the estimate. Specifically, the 80-percent confidence interval is the lower and upper bounds around the estimate, such that one is 80 percent sure that it contains the true parameter. Estimates that have a higher level of precision (low variation) will have narrower confidence intervals.

## Definitions

The NVUM program reports visitation estimates using standard definitions of *national forest visits* and *national forest site visits* that provide comparable estimates of use.

*A national forest site visit* is the entry of one person upon a national forest site or area to participate in recreation activities for an unspecified period of time.

*A national forest visit* is the entry of one person upon a national forest to participate in recreation activities for an unspecified period of time. A national forest visit is composed of one or more national forest site visits. For a multiple-day visit to count as one national forest visit, time spent on the forest must be continuous. For example, one national forest visit could include hiking on one day, spending the night in a USDA Forest Service campground, and then going fishing on the second day. However, if the individual spent the night in a hotel in the local community, the two days of activity (hiking one day and fishing the next) would count as two national forest visits.

A *viewing corridor visit* is the entry of one person onto a travelway (such as a road, trail, railroad, or river) that is neither owned nor managed by the USDA Forest Service, for the purpose of viewing scenery on National Forest System lands that are adjacent to the travelway. These viewing corridor visits do not include any direct recreational use of National Forest System lands.

## Visitation Estimates

Many people use NFS lands, waters, and recreation sites for physical exercise, nature exploration, and as an important means of relaxation. Estimated annual visitation to NFS lands nationwide is 204.8 million national forest visits. The 80 percent confidence level width for national forest visits is plus or minus 4.3 million visits. Visitors averaged about 1.2 site visits for each national forest visit, or 245.9 million site visits. Included in the site visit total are 8.8 million site visits to designated wilderness. Table 1 summarizes the volume of national forest visits and site visits by USDA Forest Service region.

In addition, there are 174.5 million viewing corridor visits. These visits are important because of the agency's commitment to scenery management, and the contribution they make to the tourism industry in communities near NFS lands.

Of the nine USDA Forest Service regions, Regions 2, 8, and 5 received the most national forest visits. If downhill skiing is excluded from the visitation estimates, then the top three regions were Regions 8, 5, and 6, respectively. Region 2 hosted over 20 million skier visits per year (table 2). The White River National Forest in Colorado (Region 2) received the most national forest visits (9.7 million), of which 6.5 million were skier visits. Not including skier visits, the Arapaho Roosevelt (Region 2) and Tonto (Region 3) National Forests received the most visits (6.0 and 5.9 million, respectively). The Midewin National Tall Grass Prairie in Illinois (Region 9) received the fewest national forest visits (29,000).

The top five activities pursued on NFS lands are viewing natural features, general relaxation, hiking, viewing wildlife, and driving for pleasure. Downhill skiing is a very popular activity in some regions. There is often interest in comparing visitation estimates without including this activity. Table 2 presents the total site visits by region with and without the downhill skiing visits.



**Figure 1. A forest visitor is interviewed about his recreation experience on the Kisatchee National Forest**

**Table 1. National forest visit, site visit, wilderness areas visit, and viewing corridor visits estimates by the nine USDA Forest Service regions and national totals (in millions)<sup>1</sup>.**

	<b>National forest visits</b> (Millions)	<b>80-percent confidence interval</b> (Millions)	<b>Site visits</b> (Millions)	<b>80-percent confidence interval</b> (Millions)	<b>Wilderness area visits<sup>2</sup></b> (Millions)	<b>80-percent confidence interval</b> (Millions)	<b>Viewing corridors visits<sup>3</sup></b> (Millions)
Region 1	13.2	± 0.8	14.9	± 0.8	.5	± 0.1	2.8
Region 2	32.5	± 1.9	38.4	± 2.2	1.2	± 0.2	42.7
Region 3	20.5	± 1.1	23.8	± 1.2	1.9	± 0.4	23.7
Region 4	23.3	± 1.5	26.2	± 1.6	1.0	± 0.2	12.0
Region 5	30.7	± 1.4	38.7	± 1.7	1.0	± 0.1	27.0
Region 6	28.2	± 1.5	35.1	± 1.7	1.5	± 0.1	25.7
Region 8	31.0	± 1.6	38.6	± 2.1	.8	± 0.1	25.5
Region 9	22.5	± 1.7	26.9	± 1.9	.7	± 0.1	5.3
Region 10	2.9	± 0.4	3.4	± 0.5	.2	± 0.1	9.8
<b>NATIONAL TOTAL</b>	204.8	± 4.3	245.9	± 4.9	8.8	± 0.5	174.5

<sup>1</sup>. The total visits by region listed in this table may not match those in individual reports posted on the Web site. This is due to updated weighting procedures now applied to all data.

<sup>2</sup> Wilderness visits are a subset of total site visits

<sup>3</sup> The sample design for Viewing Corridors was not intended to provide estimates with statistical precision.

**Table 2. National forest visits with and without downhill skiing (in millions).**

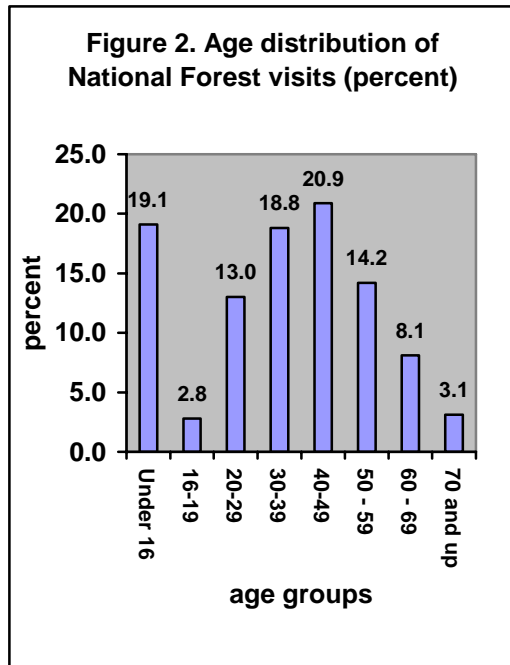
USDA Forest Service region	National forest visits with skiing	National forest visits without skiing
1 (Northern)	13.2	12.1
2 (Rocky Mountain)	32.5	12.0
3 (Southwest)	20.5	19.4
4 (Intermountain)	23.3	20.1
5 (Pacific Southwest)	30.7	24.5
6 (Pacific Northwest)	28.2	23.1
8 (Southern)	31.0	31.0
9 (Eastern)	22.5	20.9
10 (Alaska)	2.9	2.9
National Total	204.8	166.0

### **Visitor Demographics**

The NVUM program obtained descriptive information about national forest visitors. This information includes the person's age, race, activity participation, expenditures, length of stay, and satisfaction with USDA Forest Service recreation facilities and services.

Men made 71.6 percent of national forest visits. The majority of national forest visits are made by Whites (92.7 percent). The proportion of visits by other racial and ethnic groups include 3.6 percent by Hispanics, 1.4 by Asians, 1.0 percent by Native Americans, 0.7 percent by African-Americans, and 0.6 percent by Pacific Islanders.

As shown in figure 2, people between the ages 40-49 years old, 30-39 years old, and less than 16 years old make up the majority of national forest visitors. The numbers of visits made by people in the 20-29 and 50-59 age groups are about the same. Older Americans make a small proportion of visits.



Family groups make up a large proportion of national forest visits. Slightly over one-third of interviewed people who were in either the 30-39 or 40-49 age groups reported having children under 16 with them. That percentage was 15 percent in the 20-29 and 50-59 age groups.

Nationally, the average distance traveled by visitors to their national forest destination was about 275 miles. However, that average was greatly influenced by a relatively small number of visits by people who were quite far from home. Only about 17 percent of visits came from people who traveled distances greater than 275 miles. Slightly more than 25 percent of all national forest visits came from people who traveled not more than 20 miles. Another 25 percent of visits came from people who were between 20 and 56 miles from home. People from other countries accounted for about 1.5 percent of all national forest visits.

The NVUM methodology also measured the percent of national forest site visits that occurred at each of four types of sites: developed day-use sites, developed overnight sites, general undeveloped forest areas, and designated wilderness. In addition, visitors were categorized as either locals or nonlocals. Those that lived within 50 miles of the site at which they were interviewed were categorized as locals; those that lived over 50 miles away were categorized as nonlocals.

Out of all visits to developed recreation sites, most were made by nonlocals. Nonlocals accounted for almost 60 percent of visits to developed day-use sites, and about 71 percent of visits to developed overnight sites. However, the undeveloped portions of the NFS system were use much more heavily by local residents. Locals accounted for more than half of site visits to undeveloped general forest areas (53 percent) and designated wilderness (51 percent).

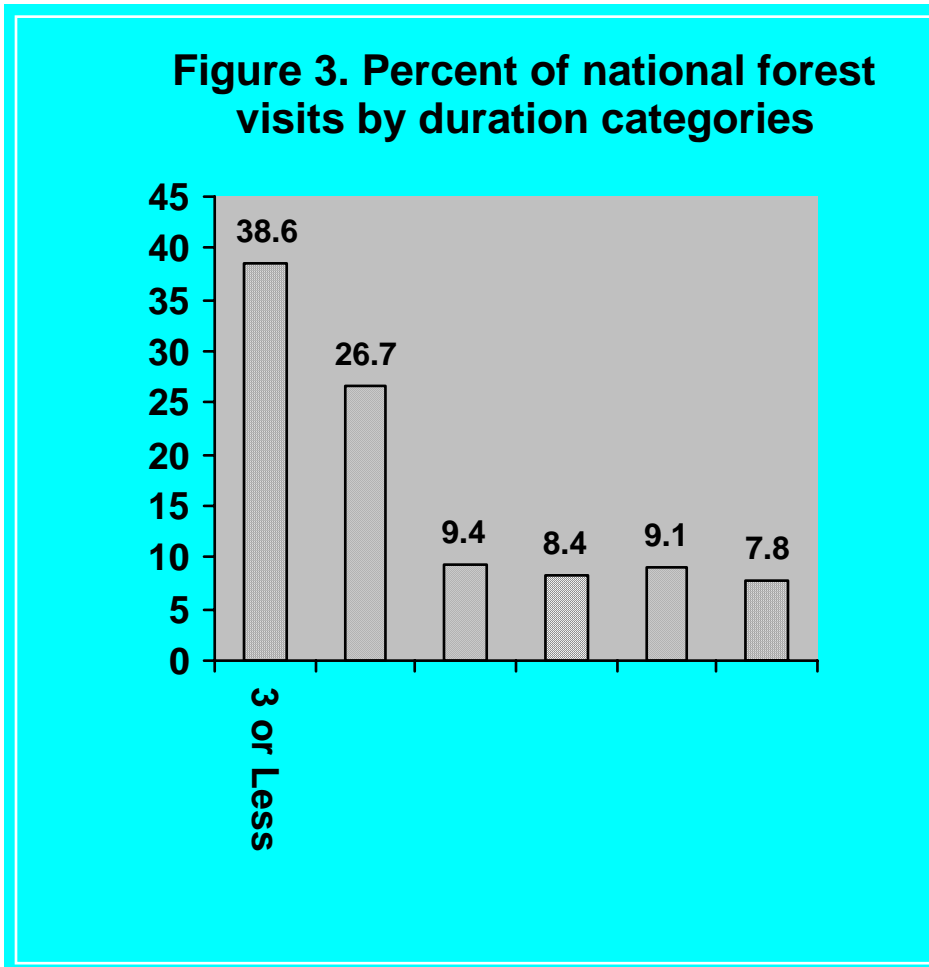
People who live in metropolitan areas accounted for about 61 percent of national forests visits. Slightly more than 66 percent of site visits to designated wilderness, developed overnight sites, and developed day-use sites were made by people from metropolitan areas. About 57 percent of site visits to the undeveloped general forest areas were made by people from metropolitan areas.

### Visit Characteristics

The average duration of a national forest visit was about 19 hours. This average was greatly influenced by a small number of people making very long visits. Only about 17 percent of these visits were longer than 36 hours. Over 60 percent of national forest visits last 6 hours or less (figure 3). Visits by local residents were generally of much shorter duration (11.9 hours on average) than for nonlocals (30.3 hours on average).

Over half (55 percent) of developed day-use site visits lasted 3 hours or less and another 34 percent lasted between 3 and 6 hours. Almost 60 percent of developed overnight-use site visits lasted over 24 hours, and nearly 20 percent lasted between 12 and 24 hours.

In undeveloped general forest areas and designated wilderness, short visits were common. In designated wilderness, 43 percent of visits lasted less than 3 hours, 25 percent lasted between 3 and 6 hours, and about 20 percent lasted more than 24 hours. The duration breakdown for undeveloped general forest area visits is similar; about 35 percent of visits lasted under 3 hours, 28.5 percent lasted between 3 and 6 hours, and 21.5 percent lasted more than 24 hours.



Most visitors came to NFS lands to enjoy the out-of-doors through their recreation activities (table 3). Nationally, the five most popular recreation activities were viewing natural features, relaxing, hiking/walking, viewing wildlife, and driving for pleasure. Most people engaged in several activities during a national forest visit but only one or two of those activities were the primary recreational pursuits for their visit. Of these, the ones most often chosen were hiking/walking, downhill skiing, hunting, fishing, and viewing natural features.

**Table 3. Total national activity participation of national forest visits**

<b>Activity</b>	<b>Percent of visits with participation</b>	<b>Percent of visits selecting as main activity</b>
Backpacking	4.0	1.5
Bicycling	5.0	2.8
Cross-country skiing	3.9	3.0
Developed camping	11.4	5.1
Downhill skiing	15.1	14.8
Driving for pleasure	23.7	4.8
Fishing	15.2	9.0
Gathering forest products	5.3	1.5
Hiking / walking	39.6	15.9
Horseback Riding	1.8	0.9
Hunting	10.2	9.1
Motorized water activities	3.7	1.2
Nature center activities	8.2	1.0
Nature study	6.6	0.3
Nonmotorized water activities	2.7	1.0
Off-highway vehicle use	6.6	3.0
Other motorized activities	0.5	0.2
Other nonmotorized activities	8.8	3.6
Picnicking	12.9	2.8
Primitive camping	5.8	1.5
Relaxing	40.3	8.7
Resort Use	3.6	0.8
Snowmobiling	2.6	2.1
Viewing natural features	53.5	8.7

Activity	Percent of visits with participation	Percent of visits selecting as main activity
Viewing wildlife	27.9	1.9
Visiting historic sites	7.5	0.9

### Visitor Satisfaction

Satisfaction ratings with USDA Forest Service facilities and services were generally quite high. Figure 4 shows the percent of site visits where the satisfaction ratings for facility condition, services, access, and safety were either good or very good. For visitors to day and overnight developed sites, over 92 percent rated their satisfaction with their feeling of safety as good or very good, and between 83 and 85 percent had that high a satisfaction rating for each of the other items. For undeveloped general forest areas and designated wilderness, satisfaction with safety was also over 90 percent, and the satisfaction with facility condition was about 80 percent. The aggregate satisfaction index score across all items (only those affected by USDA Forest Service management decisions) by site type was 84.7 percent for developed sites (includes day-use and overnight sites), 79.3 percent for undeveloped general forest areas, and 79.5 percent for designated wilderness.

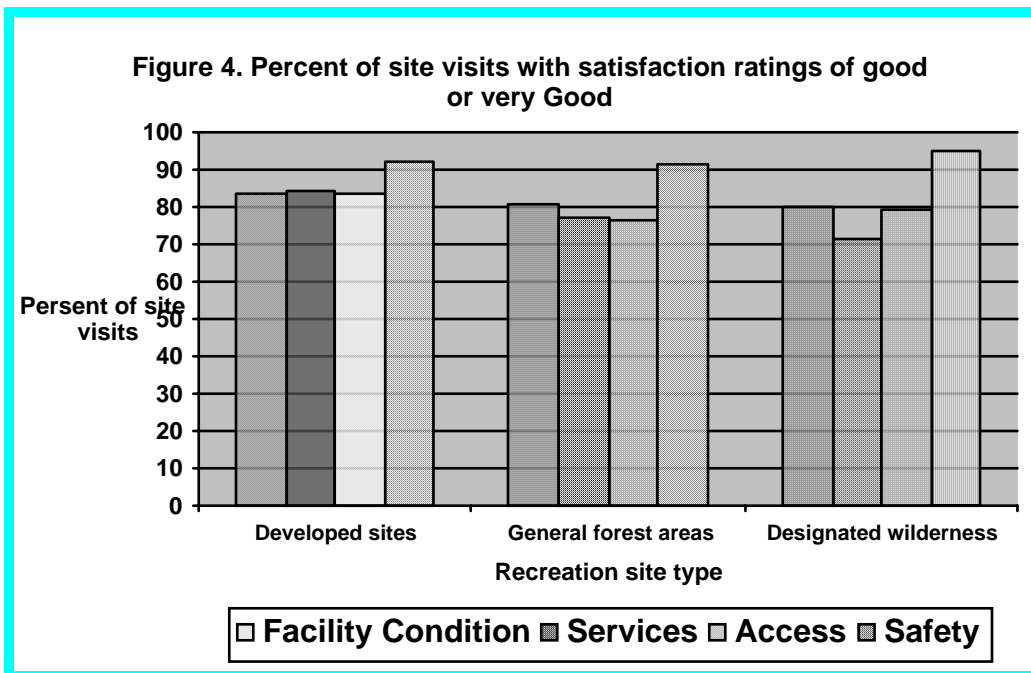


Table 4 shows the detailed breakdown of average national ratings for specific satisfaction items. The qualities of the scenery, condition of the natural environment, a feeling of safety, and value for fee paid have the highest ratings of importance to visitors. The same information is available at the national forest level. It is at this level the information is most useful to managers. Managers can see which items are most important to the quality of the visitors experience and which of those items are not meeting visitor expectations. They can then target limited dollars to the items most important to visitors that will have the most impact on improving visitor satisfaction.

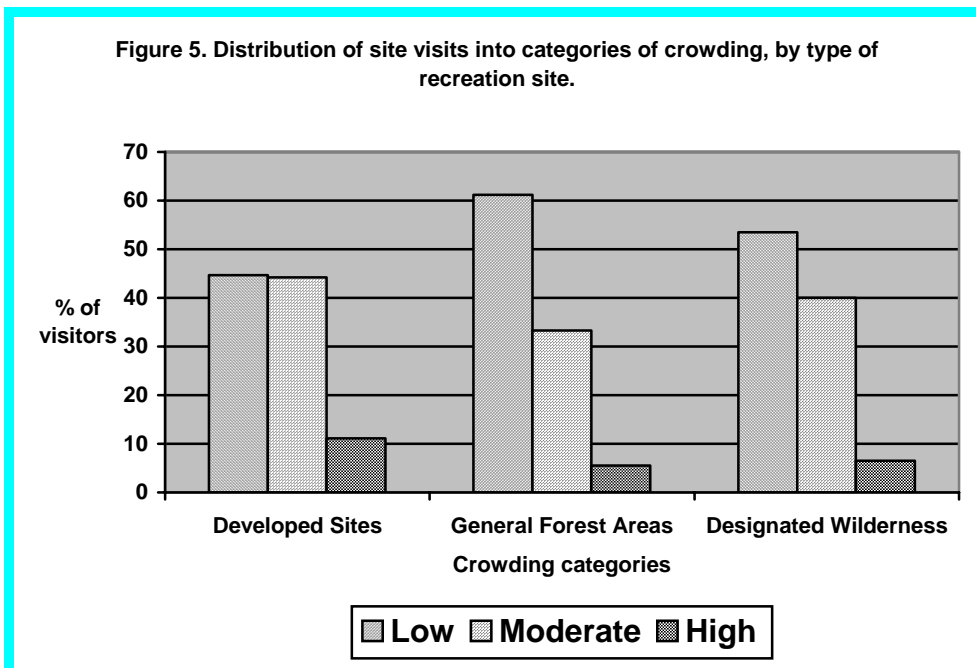


Feeling that an area is crowded often detracts from visitors' enjoyment of forest areas. Of the visits to developed recreation sites, 44.7 percent rated the site as having low levels of crowding (1 to 3 on a 10-point scale), and 11.2 percent gave a rating of high levels of crowding (at least 8 on a 10-point scale) rating. For visits to general forest areas, 61 percent had a low rating for crowding, and only 5.5 percent gave a very crowded rating. In designated wilderness, over half (53.5 percent) indicated low levels of crowding, and about 6.5 percent reported the places were very crowded.

Table 4. Satisfaction ratings of national forest visitors with recreation facilities and services (national average)

Satisfaction item	Percent rating satisfaction as:					Average rating*	Average importance	Percent Rating as not applicable
	Poor	Fair	Average	Good	Very good			
Restroom cleanliness	3.9	4.8	14.7	34.5	42.1	4.1	4.2	44.0
Developed facility condition	1.0	2.1	9.4	41.3	46.1	4.3	4.0	34.1
Condition of natural environment	1.1	1.8	5.9	32.5	58.7	4.5	4.6	0.9
Employee helpfulness	0.8	1.7	5.2	25.3	67.0	4.6	4.2	32.8
Interpretive displays	4.0	6.7	17.4	38.5	33.3	3.9	3.6	50.6
Parking availability	3.0	3.7	12.3	35.3	45.7	4.2	3.8	12.9
Parking lot condition	2.7	4.2	13.7	39.2	40.2	4.1	3.5	21.1
Availability of recreation information	4.6	6.6	14.8	37.7	36.3	3.9	3.9	27.6
Condition of forest roads	3.5	6.4	14.9	41.8	33.3	4.0	4.0	20.8
Feeling of safety	0.6	1.4	6.1	32.2	59.8	4.5	4.3	1.8
Scenery quality	0.3	1.0	3.1	19.6	76.0	4.7	4.6	0.3
Signage adequacy	4.1	5.3	13.9	40.5	36.1	4.0	4.0	5.8
Condition of trails	1.3	3.5	10.8	41.2	43.2	4.2	4.1	34.8
Value for fee paid	3.2	4.4	10.4	27.8	54.2	4.3	4.3	46.4

\* Scale is: Poor = 1, Fair = 2, Average = 3, Good = 4, Very good = 5



### Visitor Spending<sup>1</sup>

The money people spend while visiting NFS lands contributes to the economy of local communities. Several factors determine how much is typically spent in connection with a visit to the forest. The first is if the forest visit is the primary trip destination for the whole trip away from home, or whether the forest visit is a side trip (nonprimary trip), while visiting some other place. Spending amounts are also related to whether or not the person is a local resident and whether or not the visit includes an overnight stay in the area. For multiple-day visits, whether the person used lodging facilities on or off the NFS lands affects how much is spent.

Across all segments, visits to NFS lands generated over \$7.5 billion annually in direct spending in communities near those forests. Visits by people from outside the local area generated nearly 64 percent of that spending total. The bulk of that spending was for lodging, food, and gasoline. These tourist dollars can provide an important economic stimulus to towns located near NFS lands.

About 45 percent of all national forest recreation visits were short (one-day) visits made by locals for whom the forest was the primary destination (table 5). Overnight visits by locals staying on the forest accounted for about 6 percent of visits, and overnight visits by locals staying off the forest (not at their home), accounted for about 7 percent. Overnight visits by nonlocals, regardless of lodging location, accounted for another 26 percent of national forest visits. About 7 percent of visits were made by people for whom the forest was only a side trip.

Nonlocals visitors spending the night off of the forest have the highest per visit expenditures (\$90.83)<sup>1</sup>. Nonlocals staying overnight on the forest spend about \$26 per visit less than those who spend the night elsewhere. Day visitors spend relatively little per visit. Day visitors from the local area spend about \$15.65 per visit, and nonlocal day visitors spend slightly more than \$22.00 per visit.

<sup>1</sup> Visitor spending analysis was accomplished by Dr. Daniel Stynes ([stynes@msu.edu](mailto:stynes@msu.edu)) and Mr. Eric White at Michigan State University through Joint Venture Agreement #01-JV-11130149-203.

Table 5. National forest visitor spending segments

Segment <sup>a</sup>	Percent of all national forest visits	Average spending per person per visit (\$2003)	Direct spending within 50 miles of national forests (\$millions)
Nonlocal day	8	\$22.43	\$367.5
Nonlocal, staying overnight on forest	7	64.50	\$924.6
Nonlocal, staying overnight off-forest	19	90.83	\$3,534.3
Local day	46	15.65	\$1,474.3
Local, staying overnight on forest	6	49.80	\$611.9
Local, staying overnight off-forest	7	46.45	\$665.9
<u>Forest is not primary trip destination</u>	<u>7</u>	<u>0.00<sup>b</sup></u>	<u>0.00<sup>b</sup></u>
<b>Total</b>	<b>100</b>	<b>\$39.79</b>	<b>\$7,578.5</b>

<sup>a</sup>. For this analysis nonlocals were defined as living more than 35 straight-line miles from the national forest boundary.

<sup>b</sup> It is assumed that no direct spending effects are created by visits to a national forest, if the national forest visit is not the primary purpose of the trip to the area.

## Conclusion

The lands of the NFS support nearly 205 million recreation visits each year. These recreation visitors spend over 7.5 billion dollars in communities near the NFS land. In addition, there are about 175 million occasions of people viewing the forest landscape from travel corridors within the forests. Recreation on NFS lands provides a significant contribution to the physical and mental health and well-being of the American public, as well as significant economic contribution to many communities located near NFS lands. Balancing the variety of recreation demands is an important and challenging task for forest managers. The comprehensive and reliable data provided through the NVUM program helps managers to better understand the customers they serve, to identify the national forest recreation market niche, and to target limited resources where they will best serve both forest visitors and the American public as a whole.

NVUM results have challenged some common perceptions about recreation visitation patterns. On many NFS lands the bulk of the recreation budget is used to maintain overnight and developed facilities. Yet, nationally only 8 percent of visits include spending the night on NFS lands in developed campgrounds. Only about one-third of national forest site visits occur on developed day or overnight facilities, and nearly half of these are visits to ski areas. The majority of visitation is actually day use. Day users tend to come to the same forest many times each year and stay for short periods of time. Sixty-two percent of all national forest site visits occur in undeveloped areas of the forest and grasslands (4 percent in designated wilderness and 58 percent in undeveloped nonwilderness areas). Undeveloped, unconfined (unmanaged) recreation is one of the Chief's identified threats. Monitoring and managing the effects of recreation

visitors in these undeveloped areas, where a large number of people come for short duration visits, is time consuming and labor intensive for the agency because visitors are not concentrated in a few specific areas.

This report has summarized the first round of visitor monitoring. The second 'round' of monitoring began in October 2004. As re-sampling on each unit occurs, trends in recreation use and visitor characteristics will be estimated and reported. This information will help managers match recreation facilities and services to the changing demographics and needs of their customers.

For more information:

Separate reports for each national forest and grassland are available at <http://www.fs.fed.us/recreation/programs/nvum>. The full NVUM dataset is scheduled to be released in the fall of 2005 through the USDA Forest Service's Natural Resource Information System (NRIS) Human Dimensions module.