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Estimation of National Forest Visitor Spending Averages From National Visitor Use Monitoring: Round 2

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Abstract

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The economic linkages between national forests and surrounding communities have become increasingly important in recent years. One way national forests contribute to the economies of surrounding communities is by attracting recreation visitors who, as part of their trip, spend money in communities on the periphery of the national forest. We use survey data collected from visitors to all units in the National Forest System to estimate the average spending per trip of national forest recreation visitors engaged in various types of recreation trips and activities. Average spending of national forest visitors ranges from about $33 per party per trip for local residents on day trips to more than $983 per party per trip for visitors downhill skiing on national forest land and staying overnight in the local national forest area. We report key parameters to complete economic contribution analysis for individual national forests and for the entire National Forest System.

Keywords: Visitor spending, economic impact, National Visitor Use Monitoring.

Contents

Introduction

This report updates previous figures on national forest recreation visitor spending (Stynes and White 2005a, 2005b) using data collected in all 5 years of Round 2 of National Visitor Use Monitoring (NVUM), starting in fiscal year 2005 through 2009 (October 2004 through September 2009). Survey data used in this update come from the 123 administrative forest units that were sampled. We provide updated estimates of recreation visitor spending, the share of recreation visits associated with a number of trip types, average people per party, and other visit characteristics to assist in economic analyses.

We discuss the analytical considerations in developing the spending profiles, present the national-level segment shares, and report the average, high, and low spending averages for seven trip-type segments (referred to as the "Basic 7" in the Round 1 NVUM). In addition, we present spending averages for downhill skiers and report on the use of lodging information to segment recreation visitors and describe their spending.

In appendix 1, we provide guidance on how to apply the spending profiles for economic impact or contribution analysis and complete an example application for the Hiawatha National Forest. Appendix 2 contains additional tables at the forest and national levels that can serve as inputs for economic analyses at the forest and national levels. In appendix 3, we report on the recreation behavior and spending patterns of wildlife-related visitors for application in programmatic analyses.

Background on NVUM Surveys

The objective of the U.S. Department of Agriculture, Forest Service NVUM program is to estimate the number of recreation visits to national forests (Zarnoch et al. 2011). To achieve this objective, a subset of national forests in each region is sampled yearly with each administrative forest in the National Forest System (NFS) being sampled once every 5 years. The NVUM sampling approach involves the surveying of a sample of recreation visits to the national forest. A national forest visit is defined as one person recreating on national forest land for an indeterminate period of time and ending when the individual spends a night off national forest land. In addition to data necessary to estimate visitation, the NVUM survey gathers other visitor and trip characteristics. A separate economics survey administered to roughly a third of those sampled gathered spending information that provides the basis for development of the spending profiles reported here.

Pertinent Survey Questions

The results reported here are drawn from a subset of the questions on the NVUM survey instrument. To classify visitors into groups for economic analysis, we rely on questions related to the distance traveled to the site; whether nights away from home were spent in the local area; the different types, if any, of lodging used; and the primary purpose for the trip away from home. Wording of survey questions and directions to surveyors for administration of the survey are available in the 2007 National Visitor Use Handbook (USDA FS 2007, p. 37). The wording of many of those questions has been improved to gather more precise information, and the lodging questions have been added between the initial application of NVUM across the NFS in 2000 and the present implementation reported here. Additionally, the questions relating to nights spent in the local area and the purpose of the trip were moved from the economic survey to the basic survey—increasing the number of NVUM respondents who were asked those questions.

Reported spending is collected in 10 expenditure categories related to outdoor recreation.

For visitor spending, NVUM respondents are asked to report the spending of their travel party (generally those they travelled with in the same vehicle) within 50 mi of the interview site. Reported spending is collected in 10 expenditure categories related to outdoor recreation (e.g., money spent in restaurants/bars, for gas and oil, for souvenirs, and for motels/hotels). Respondents are asked only to report spending in the local area of the recreation site related to the current trip—both expenses already made and those anticipated. Visitors are allowed to select a response that "they do not know or choose not to report their expenses." Those respondents are excluded when calculating average trip spending. Since the initial implementation in 2000, the spending question was changed to explicitly request spending for the entire travel party (rather than only the individual interviewed), and the spending categories were slightly revised to improve clarity.

NVUM Sample

National forest visitors were sampled at both designated recreation sites (e.g., picnic areas, campgrounds, visitor centers on national forest land) and in the general forest area (GFA) of individual national forests. A stratified sampling scheme was employed based upon the expected visitation (very high, high, medium, or low last-exiting recreation traffic) for a given location on a given day (termed a "site day"). Individual dates and locations selected for recreation sampling were termed "sample days." On sample days, individuals leaving the recreation site selected for sampling who voluntarily stopped at the interview point and who stated they were recreating on the national forest and leaving the site (or leaving the national forest at GFA sites) that day completed an NVUM survey. Approximately 25 forests were

surveyed each year in the 5 years of Round 2 (table 1). More than 105,000 individuals sampled on those forests were deemed eligible and completed a basic survey,[1] and 33,713 completed the economic supplemental survey.

Spending Profile Estimation

Analysis Considerations

The spending analysis involved several decisions related to (1) identifying local visitors, (2) identifying outlier observations, (3) identifying visitors whose primary trip purpose was something other than recreating on the national forest, (4) determining the appropriate weights to place on individual observations, and (5) determining how to treat recreation visits with the primary purpose of downhill skiing.

Local visitors—
Locals were defined as those claiming to have traveled 60 mi or less from home to the recreation interview location. In Round 1, visitors were classified as "locals" if the centroid of their reported home ZIP code was within 30 straight-line miles of the boundary of the visited national forest. In year 4 of Round 1, a travel distance question was added to the basic survey, and analysis indicated that a travel distance to the site of 50 to 60 mi approximated a ZIP code proximity to the national forest boundary of 30 straight-line miles (Stynes and White 2005a).

Outliers and contaminants—
The criteria adopted here to identify outliers are meant to reduce the likelihood of including both contaminant observations and true outliers when estimating spending averages. Contaminants are observations that do not belong to the population or are erroneous observations. Recreation visitors completing an NVUM survey were asked to report only expenses that occurred within 50 mi of the interview site and that were related to the current recreation trip. A survey observation that included spending that actually occurred outside the 50-mi radius around the recreation site or spending from another recreation trip would be a contaminant. Likewise, an observation that had a misplaced decimal point in a reported expense (i.e., 1,000.00 dollars versus 10.00) would be considered a contaminant.

An outlier is an observation that does belong to the population under study but has undue influence on the estimation of the sample mean given the size of the sample. For example, some day visitors may spend $800 during a recreation trip to the national forest, but such spending is uncommon, and the vast majority of

[1] This figure excludes those who stated they were **not** recreating on the forest but did choose their travel route to view the forest. These individuals count as recreation visits but were ineligible to complete a basic survey.

Table 1—National forests sampled and number of respondents in the 5 years of Round 2 of National Visitor Use Monitoring

	2005	2006	2007	2008	2009	Total
			Number			
National forests sampled	24[a]	23	24	27	25	123
Basic survey respondents	24,695	20,001	22,904	17,925	19,991	105,516
Economic survey respondents	7,932	6,405	7,257	5,777	6,342	33,713

[a] Spring Mountain National Recreation Area on the Humboldt-Toiyabe National Forest was sampled in calendar year 2005 while the remainder of the Humboldt-Toiyabe National Forest was sampled in fiscal year 2006.

visitors spend substantially less or nothing at all (Stynes and White 2006). When sample sizes are small, outlier observations can significantly influence the estimate of the sample mean. See Stynes and White (2006) for additional discussion of outliers and contaminants in the context of measuring recreation visitor spending.

Three rules, related to length of stay, party size, and total spending, were developed to remove likely outliers and contaminants. Collectively, these rules exclude 1,801 cases from the analysis (table 2). Respondents stating that they stayed overnight away from home in the local forest area for more than 30 nights were excluded. Individuals on long trips have greater difficulty in accurately recalling trip spending, and some appear to have reported expenses beyond 50 mi of the recreation site (e.g., Rylander et al. 1995). Respondents recreating in parties of eight or more individuals were excluded owing to likely problems in estimating expenses for everyone in the party.

Respondents reporting spending of $500 or more per night or a total of $500 or more in sporting goods expenditures in the local forest area were also excluded. Some of these respondents are likely contaminants with misplaced decimal points, and others are true outliers that would influence the estimates of sample means. Omitting cases with high reported expenditures on sporting goods was designed to omit purchases of durable goods. The rule adopted for excluding visitors with reported high spending differs from that used in Round 1. The Round 2 data allow us to place individual spending on a per-day/night basis. Using per-day/night spending to identify spending outliers is an improvement over the approach used in Round 1 because those groups with high spending only as a result of a longer trip now remain in the sample. See appendix D of White and Stynes 2010a for additional analysis on the criteria used in defining all outliers.

A fourth rule removed 82 cases that did not include a reported travel distance (used to classify respondents as locals or nonlocals). Some foreign visitors did not report a distance traveled but were included in the analysis and were classified as nonlocals. Additionally, visitors who failed to report a travel distance but were classified as “nonprimary” visitors (see below) were included in the analysis.

Table 2—Economic cases excluded from analysis

Factor	2005	2006	2007	2008	2009	Total
			Number			
Outliers and contaminants:						
Nights in the local area > 30	58	23	62	24	37	204
People per vehicle ≥ 8	143	93	109	85	83	513
Spending per night ≥ $500 or sporting good expenditures ≥ $500	291	155	204	255	179	1,084
Total	492	271	375	364	299	1,801
Missing distance traveled[a]	22	11	10	24	15	82
Total	514	282	385	388	314	1,883

[a] In total, 100 cases had missing travel distances. Of these, 10 were removed from analysis as outliers and appear in those totals. Of the remaining 90 cases, 8 were classified in the nonprimary visitor segment—a segment not requiring differentiation into local and nonlocal visitors. Those eight cases were included in the analysis. The final 82 cases missing a travel distance were excluded from analyses involving the trip segments.

Trip purpose—

Only those claiming to be traveling away from home primarily for the purpose of recreating on the national forest are classified as "primary purpose" visitors and are distributed to the six primary purpose visitor segments (i.e., nonlocal day trip, local overnight national forest, etc.). Visitors stating that their primary reason for being away from home was to recreate somewhere other than the national forest, visit family/friends, complete business, or for some other reason are classified in the "nonprimary" trip segment. The spending of individuals in the "nonprimary" trip segment would generally be excluded from economic contribution and impact analyses (Crompton et al. 2001). In Round 1, the question employed to gauge trip purpose was phrased in a manner that did not allow for identification of all individuals whose purpose for being away from home was something other than visiting the national forest, although that was the intent. In year 4 of Round 1, analysis of the revised trip purpose question indicated that approximately 5 percent of the Round 1 respondents were not appropriately classified as "nonprimary" under the original question (Stynes and White 2005a).

Weighting scheme—

Survey data collected from a random sample of people are often weighted to ensure that the sample is representative of the group of people covered by the sample. For NVUM, there are two weighting schemes used in analyses. The first, exposure weighting, is used to correct the collected sample for overrepresentation of those who recreate at multiple sites during the visit. Sampling under NVUM occurs at specific sites selected randomly on any given day. To have the opportunity to be sampled on any given day, a recreationist must "correctly choose" to recreate at

the specific site undergoing NVUM sampling. Most national forest visitors recreate at just one site on their visit—meaning those visitors have only one chance to "correctly choose" a site undergoing NVUM sampling. Visitors who recreate at more than one site have more than one chance at "correctly" selecting an NVUM sampling site to recreate. As a consequence, those who visit more recreation sites during their visit are overrepresented in an unweighted sample. Exposure weighting is important because those who recreate at multiple sites have different recreation behavior than visitors who recreate at just one site.

The second weighting scheme used in NVUM is national visit expansion weighting (or referred to here simply as case weights). Under NVUM, the sites and areas of the national forest are classified into strata for sampling. In most cases, each stratum receives roughly the same number of opportunities for NVUM sampling. However, the strata differ in the amount of recreation use they experience. That differing recreation use means that the ratio of individuals sampled to the amount of recreation use differs across the strata. In a simplified example, stratum A may have yielded five visitor interviews and have recreation use of 1,000 visits. Stratum B may have yielded 10 visitor interviews and have recreation use of 5,000 visits. Stratum B has five times the recreation use of Stratum A, but only twice the number of recreation interviews. The resulting visitor samples from strata A and B do not reflect the pattern of use across the strata. The case weight applied to respondents in each stratum adjusts the sample to be representative of the amount of use in each stratum. In this simplified example, the case weights applied to each respondent in stratum A would be 200 (1,000 visits/five interviews). The case weight assigned to each respondent sampled in stratum B would be 500 (5,000 visits/10 interviews). Although not shown in this simplified example, the case weights also incorporate the expansion weights described above.

Downhill skiers—
Recreation visits by individuals whose primary recreation activity is downhill skiing account for about 16 percent of all national forest visits (see table 30 in app. 2). Generally, downhill skiers spend more than individuals engaged in other recreation activities. In Round 1, downhill skiers were included in the sample when developing the general trip spending averages (distinct spending profiles applicable only to downhill skiers were also estimated in Round 1). The Round 2 economic sample includes a much higher percentage of downhill skiers than in Round 1. If left in the sample, the downhill skiers inflate the general trip spending estimates. In particular, spending in the "entry fees" category is very sensitive to the inclusion of downhill skiers. Given their influence on spending averages, we have excluded downhill skiers when estimating the general spending averages and instead

developed separate spending profiles for downhill skiers. The skier profiles can be used when conducting economic analyses related to downhill ski facilities and downhill ski recreation. The general profiles, omitting downhill skiers, will better apply to applications unrelated to downhill skiing or those facilities.

Over 7,600 NVUM respondents claimed downhill skiing was their primary recreation activity (table 3). Approximately 2,400 downhill skiers completed an economic survey. About 10 percent of those skiers were excluded as outliers or contaminants, the majority because of reported high spending. Skier spending outliers are most frequently in the nonlocal overnight segment. The rate of outlier exclusion in the downhill skier cases was higher than that found for the economic sample in general. Relaxing the outlier criteria for downhill skiers would increase the estimates of downhill skier spending.

Visitor Segments

A primary objective of the spending analysis is to estimate spending profiles for a set of meaningful segments of recreation visitors to the national forest. To be useful, the segments must (1) be identifiable from the NVUM survey variables, (2) help to explain differences in spending across different applications, (3) be large enough to obtain adequate sample sizes in the survey, and (4) be meaningful to anticipated national forest management and policy applications. The segment shares reported here are estimated from all respondents who completed an NVUM basic survey. In Round 1, the segment shares were estimated largely from the economic subsample because the necessary questions were not included on the basic survey.

Seven trip-type segments were identified in the analysis of Round 1 NVUM data, and we use these seven (also referred to as the "Basic 7") in this section:

1. **Nonlocal day trips**: nonlocal residents on day trips to the national forest
2. **Nonlocal OVN-NF**: nonlocal residents staying overnight on the national forest
3. **Nonlocal OVN**: nonlocal residents staying overnight off the national forest in the local area
4. **Local day trips**: local residents on day trips to the national forest
5. **Local OVN-NF**: local residents staying overnight on the national forest
6. **Local OVN**: local residents staying overnight off the national forest in the local area
7. **Nonprimary**: visits where recreating on the national forest is not the primary trip purpose

Local visitors are those who have traveled 60 mi or less from home to reach the recreation site. Day visitors are those who did not report a night spent in the local forest area. Visitors in this segment include those who did not spend a night away

Table 3—Downhill skiing respondents to the basic and economic surveys

Respondents and missing distance traveled	
	Number
All downhill skiing respondents	7,667
Downhill skiing respondents completing the economic survey	2,467
Respondents excluded as outliers and contaminants:	
Nights in the local area > 30	13
People per vehicle ≥ 8	56
Spending per night ≥ $500 or sporting good expenditures ≥ $500	170
Total	239
Missing distance traveled	9
Total	248

from home as well as those passing through the forest area and spending a night away from home outside the local forest area.

Overnight national forest visitors are those who spent a night away from home and reported using a cabin, developed campground, or primitive area on the national forest (or some combination of those three) for lodging. This definition of OVN-NF differs from that used in Round 1 where only those claiming to have spent "last night on the national forest" were classified into the OVN-NF segment. The question used in Round 1 likely erroneously included some individuals who actually stayed overnight off the forest in private accommodations because the respondent was unable to differentiate between spending the night **on** national forest land and **in the area** of the national forest. The revised question on lodging types in Round 2 appears to lead to a more correct classification. Visitors in the overnight off-forest (OVN) category are those who spent a night away from home in the local forest area and reported using any lodging **off** the national forest or some combination of lodging on and off the national forest. The OVN segment also includes a few respondents, otherwise classified as on day trips, who reported lodging expenses.

These seven trip-type visitor segments explain about 27 percent of the variation in trip spending by travel parties (White and Stynes 2008). The average spending estimated for these trip segments is statistically different between segments, with the exception of the local OVN-NF and local OVN combination. These trip segments have proven useful in USDA FS economic analyses and appear to now be intuitive to agency economists and analysts.

National-Level Segment Shares

The national-level visitor segment shares are estimated from all cases, not just those visitors completing the economic survey. Day trips by individuals who live in the

local forest area are the most common type of national forest visit (49 percent of all forest visits) (fig. 1). Local visits collectively account for more than half of all visits to the national forest. Visits by nonlocals are most frequently overnight trips away from home with nights off the national forest. Finally, approximately one of every eight national forest visits is a trip where recreation on the national forest is secondary to some other reason for being away from home. Approximately 81 percent of nonprimary visits are associated with individuals who live outside the local forest area.

Local visits collectively account for more than half of all visits to the national forest.

The percentage of visits that are classified into each trip segment (the "segment shares") differs depending on which weighting scheme is applied to the visitor survey data (table 4). Local day trip segment shares are most responsive to the chosen weighting scheme, increasing from a 37 percent share of visits unweighted to a 49 percent share under the case weights. The exposure weight corrects the sample for overrepresentation of those visits involving recreation at multiple sites and thus having a greater opportunity to be sampled. As such, exposure weighting reduces the share of nonlocal overnight trips (those most likely to visit multiple sites) and increases the share of local day trips (those less likely to visit multiple sites). The case weights (which include the exposure weights) adjust the sample to be representative of the number of visits to the forest. Case weighting further increases the percentage of local day visits (those visits most likely to occur in the GFA) and reduces the percentage of nonlocal OVN-NF visits.

The trip segment shares are fairly stable across all years of Round 2 (table 5). The nonlocal OVN and nonprimary segment shares differed the most from year to year, which is reasonable given that the extent of off-forest accommodations (both

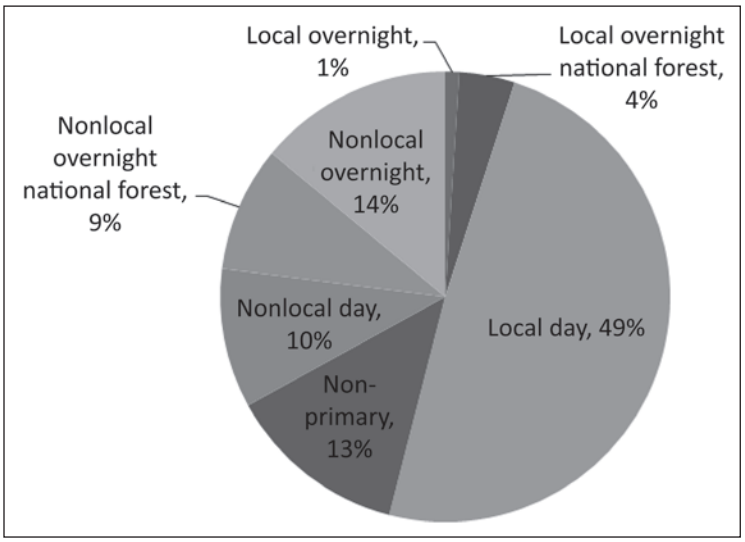

Figure 1—Trip-type segment distribution, all 5 years of National Visitor Use Monitoring Round 2.

Table 4—National forests visitor segment distribution, all 5 years of Round 2

Trip segment[a]	Number of cases	Unweighted	Exposure weighted	Case weights
		Percent		
NL day	11,042	10	11	10
NL OVN-NF	16,425	15	12	9
NL-OVN	13,189	12	11	14
Local day	38,481	37	42	49
Local OVN-NF	6,734	6	6	4
Local OVN	1,324	1	1	1
Nonprimary	19,466	19	17	13
Total	106,661	100	100	100

[a] NL = nonlocal, OVN = overnight, NF = national forest.

Table 5—Trip segment shares, all years of Round 2[a]

Trip segment[b]	2005	2006	2007	2008	2009	Five years
			Percent			
NL day	12	10	10	7	11	10
NL OVN-NF	8	10	10	9	9	9
NL-OVN	18	11	20	9	9	14
Local day	42	47	43	58	55	49
Local OVN-NF	3	3	4	5	5	4
Local OVN	1	1	2	1	1	1
Nonprimary	16	18	11	11	10	13
Total	100	100	100	100	100	100

[a] Estimated from the full sample using the case weights.
[b] NL = nonlocal, OVN = overnight, NF = national forest.

privately owned businesses and the private homes of friends and relatives) and other attractions around the national forest are variable across the individual forests sampled from year to year. The local day segment shares also differed year to year and are likely responsive to changes in size of populations proximate to the national forest sampled each year.

The inclusion or exclusion of downhill skiing visits yields differing segment shares (table 6). Excluding visits where the primary activity is downhill skiing yields a segment share mix that has fewer visits in the nonlocal OVN segment and more visits in the local day segment compared to the general segment share mix. The segment shares excluding downhill skiers are most appropriate for spending analyses that do not involve downhill skier visits. For analyses aimed specifically

Table 6—Segment shares estimated for all visits, nonskiers, and skiers only[a]

	Nonlocal			Local				
Visits	**Day**	**OVN-NF**	**OVN**	**Day**	**OVN-NF**	**OVN**	**Nonprimary**	**Total**
				Percent				
All visits (including skiers)	10	9	14	49	4	1	13	100
Nondownhill skiing visits	9	10	9	51	5	1	15	100
Downhill skiing visits	16	*b*	41	35	*b*	2	6	100

[a] Estimated from the full sample using case weights. OVN = overnight, NF = national forest.
[b] For skiers, the OVN-NF visits are included in the OVN segments.

at downhill skier visits, analysts should use the downhill ski visit segment shares. Compared to general segment shares, skier visits are more likely to be nonlocal visits and are most likely to be overnight trips. Conversely, fewer skier visits are associated with locals, compared to the national shares. Nonprimary visits comprise a smaller share of skier visits than other activities on national forests. Forest-level segment shares are included in appendix 2.

Nights Away From Home

Revised questions on the Round 2 survey allowed us to estimate both the average nights away from home and the average nights in the local forest area. Like the segment shares, we compute average nights for visits not involving downhill skiing and for only downhill skiing visits (table 7). For those visits where the primary activity was not downhill skiing, individuals on overnight trips away from home spend on average 2.3 nights away from home, 1.3 of which are spent within 50 mi of the national forest (table 7). Those on nonlocal OVN trips spend the greatest number of nights away from home (6.1) and within the local area (4.4) while those on local OVN-NF trips spend the least number of nights away from home (2.4). Those on nonprimary trips have the greatest disparity between the nights spent away from home and the nights spent in the local forest area—reflecting the lesser importance of the national forest in these trips. Within trip type, locals spend fewer nights away from home than nonlocals, as expected.

On average, downhill skiers on overnight trips spend about 2.6 nights away from home, 2.3 of which are within 50 mi of the forest (table 7). Nonlocals spend the greatest number of nights in the local area during their visit (4.9). Downhill skiers have a slightly longer average number of nights in the local area compared to other national forest visitors. This is intuitive given the nature of the downhill skiing trip and the expenditures required for travel and access to the ski area (e.g., airfare, lift tickets, etc.).

Table 7—Average number of nights away from home and in the local forest area for national forest visitors[a]

	Nonlocal		Local			
	OVN-NF	OVN	OVN-NF	OVN	Nonprimary	All visits
			Number of nights			
Nondownhill skiing visits:						
Nights away from home	3.9	6.1	2.4	4.0	7.9	2.3
Nights in the local area	3.2	4.4	2.4	3.7	2.9	1.3
Only downhill skiing visits:						
Nights away from home	[b]	5.3	[b]	4.4	5.5	2.6
Nights in the local area	[b]	4.9	[b]	4.4	3.9	2.3

[a] Estimated from the full sample using case weights. The average nights for all visits including skiers did not differ appreciably from the nondownhill skiing visits averages and are not shown here. OVN = overnight, NF = national forest.
[b] For skiers, the OVN-NF visits are included in the OVN segments.

Average expenditures for national forest visitors ranges from $33 for local visitors on day trips to $514 for nonlocal visitors on OVN trips.

Spending Profiles

Spending profiles describe the average amount spent within a set of spending categories for a particular subgroup of visitors. The unit of analysis for the spending profiles presented here is the party and covers all expenses by the travel party within 50 mi of the interview site during the trip to the local forest area. Spending reported in the observations for each NVUM sample year were price adjusted to 2009 using a distinct Bureau of Labor Statistics price index for each spending category. Downhill skiers have distinct spending patterns and those visitors are excluded in the calculation of the initial spending profiles. Average spending of downhill skiers is reported in separate spending profiles.

Basic 7 Trip Spending

The average expenditures per party per trip for national forest visitors in 2009 ranges from $33 for local visitors on day trips to $514 for nonlocal visitors on OVN trips (table 8). The confidence intervals around our estimates (at the 95 percent level) range from 3 percent to 15 percent across the seven segments. For day trips, spending on gas and oil is the greatest single expense followed by spending on food in either restaurants or grocery stores depending on whether the visitor is a local. Lodging expenses are the greatest single expenditure for nonlocal visitors on OVN trips, followed by spending in restaurants and for gas and oil. Spending in grocery stores and for gas and oil are the greatest expenditures for local visitors on OVN trips. The greatest expenditure for nonlocals staying overnight on the national forest is groceries, followed by gasoline and oil. The opposite pattern is found for locals staying on the national forest. The spending of nonprimary visitors is similar to that of nonlocal OVN visitors.

Table 8—National forest visitor spending profiles by trip-type segment and spending category, dollars per party per trip[a]

Spending categories	Nonlocal			Local			Non-primary	All visits[b]
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Dollars				
Motel	0.00	33.54	151.77	0.00	5.36	33.84	114.86	39.75
Camping	0.00	26.81	18.85	0.00	23.63	17.11	11.95	7.72
Restaurant	15.30	26.31	111.34	5.19	6.78	33.99	88.62	34.16
Groceries	8.63	55.65	68.29	6.31	67.30	54.54	43.36	27.40
Gas and oil	23.16	52.67	71.17	12.83	37.57	40.18	48.40	31.50
Other transportation	0.58	1.83	3.98	0.13	0.49	1.09	3.26	1.30
Entry fees	4.56	8.93	18.39	2.17	3.76	6.86	11.11	6.56
Recreation and entertainment	4.34	7.70	27.13	1.50	3.50	5.67	16.71	8.03
Sporting goods	2.94	12.19	15.18	4.16	11.23	12.85	6.44	6.97
Souvenirs and other expenses	3.15	7.80	28.10	0.72	2.85	6.87	25.83	8.84
Total	62.65	233.44	514.20	33.02	162.48	212.99	370.54	172.24
Sample size (unweighted)	2,224	4,276	3,062	9,832	1,809	445	4,737	26,385
Standard deviation of total	71	364	646	49	184	335	605	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages exclude visitors who claimed their primary activity was downhill skiing. When completing analyses involving skiers, refer to subsequent tables on average skier spending. OVN = overnight, NF = national forest.

[b] The all-visit averages are computed as a weighted average of the columns using the national trip segment shares as weights.

Average lodging expenses for OVN and OVN-NF visitors may appear low. However, visitors in both of those segments use a variety of lodging types that have a range of costs. Some lodging (e.g., homes of friends/relative, owned seasonal homes, and national forest roadsides) will be used free. The shown averages reflect this mix of costs. In a later section, we report spending profiles for visitors engaged in a variety of lodging types. In those profiles, average expenditure for motels and camping are more consistent with average room rates and camping fees.

Dividing the spending averages for trips involving overnight stays shown in table 8 by the average number of nights in the local area for each segment (table 7) gives average party spending on a per-day/night basis (table 9). For nonlocal OVN visitors, average spending is a little less than $117 per night. Local OVN visitors spend about $58 per night, on average. On a per-day/night basis, the spending of nonlocal day, local OVN, local OVN-NF, and nonlocal OVN-NF visitors is similar, although there are differences in spending patterns within specific expenditure categories. On a per-day/night basis, the spending of nonprimary visitors is the greatest of all the segments—reflecting the general tourism spending patterns of these visitors.

Table 9—National forest visitor spending profiles by trip-type segment and spending category, dollars per party per day/night[a]

Spending categories	Nonlocal			Local			Non-primary	All visits[b]
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
	Dollars							
Motel	0.00	10.48	34.49	0.00	2.23	9.15	39.61	11.10
Camping	0.00	8.38	4.28	0.00	9.85	4.62	4.12	2.33
Restaurant	15.30	8.22	25.30	5.19	2.83	9.19	30.56	12.53
Groceries	8.63	17.39	15.52	6.31	28.04	14.74	14.95	10.91
Gas and oil	23.16	16.46	16.18	12.83	15.65	10.86	16.69	15.25
Other transportation	0.58	0.57	0.90	0.13	0.20	0.29	1.12	0.46
Entry fees	4.56	2.79	4.18	2.17	1.57	1.85	3.83	2.93
Recreation and entertainment	4.34	2.41	6.17	1.50	1.46	1.53	5.76	3.07
Sporting goods	2.94	3.81	3.45	4.16	4.68	3.47	2.22	3.67
Souvenirs and other expenses	3.15	2.44	6.39	0.72	1.19	1.86	8.91	3.01
Total	62.65	72.95	116.86	33.02	67.70	57.56	127.77	65.27
Sample size (unweighted)	2,224	4,276	3,062	9,832	1,809	445	4,737	26,385

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages exclude visitors who claimed their primary activity was downhill skiing. When completing analyses involving skiers, refer to subsequent tables on average skier spending. OVN = overnight, NF = national forest.

[b] The all-visit averages are computed as a weighted average of the columns using the national trip segment shares as weights.

High and Low Spending Averages

As in Round 1, sample sizes at the forest level are generally too small to reliably estimate spending averages for all seven visitor segments for individual national forests. For many forests, the national-level spending profiles presented in the previous section are applicable and can be combined with segment share estimates for the specific forest under consideration (table 23) to estimate total visitor spending for the forest (see app. 1 for a detailed example of the steps to estimating total spending). However, visitor spending can differ from place to place owing to the extent of local spending opportunities and local prices, and to accommodate these differences, we developed spending profiles for areas with above-average and below-average spending.

Following the same approach used in Round 1, we grouped observations from forests with above- or below-average spending (table 22) to develop "high" and "low" spending profiles. Forests with above- or below-average spending were identified by comparing spending averages for each forest with the national averages.[2]

[2] Here we construct a 95 percent confidence interval around forest estimates to test for statistical differences. In Round 1, we used an 80 percent confidence interval consistent with other NVUM research at the time.

Day and overnight visitor spending averages (excluding nonprimary visitors and downhill skiers) were estimated based on the sample of visitors on each forest. To control for differences in the visitor mix across forests, a standardized overall average was computed for each forest, assuming a fixed mix of 60 percent day trips and 40 percent overnight trips. The standardized spending average for each forest was compared to the national standardized spending average (see Stynes et al. 2002 for additional discussion of this analysis). Of the 123 forests sampled in the 5 years of Round 2, 67 have spending that was not found to be statistically different from the national average. Of those national forests where spending did differ from the national average, 16 forests were classified as "above-average spending" and 40 forests as "below-average spending."

On average, the high and low spending profiles are approximately 40 percent higher/lower than the average spending profile (tables 10 through 14). The spending of local day visitors does not follow this pattern and is lower at "high" spending forests than "low" spending forests. In many cases, a forest identified as a high spending area (table 22) should use the profiles in table 10 or table 13 instead of the national averages in tables 8 and 9. Similarly, forests identified as low spending areas (table 22) should use the averages in table 11 or table 14 for many analyses. The high and low spending profiles also can be used for economic analysis aimed at specific geographic areas around a national forest with higher or lower than average spending opportunities or prices. Areas near major tourist destinations or in proximity or easy access to commercial areas and spending opportunities can generally expect above-average visitor spending, while sites in more remote, rural areas will likely experience below-average spending. On many national forests there will be both "high" and "low" spending areas. An assessment of nearby spending opportunities and prices can help in deciding between the average, high, or low spending profiles for a particular application.

On average, visitors to high spending forests spend a greater number of nights away from home than those visiting low spending forests (table 12). This is reasonable given the likely greater number of spending opportunities and recreation activities around high spending forests. As with the national spending profile, those on nonlocal trips spend a greater number of nights away from home than those on local trips. Visitors on nonprimary trips spend the greatest number of nights away from home.

Downhill Skier Visitor Spending

The trip spending of downhill skiers on day trips is about double that of day visitors on other national forest recreation trips (table 15). Similarly, nonlocal overnight

Table 10—High spending profiles by trip-type segment and spending category, dollars per party per trip[a]

Spending categories	Nonlocal			Local			Non-primary	All visits[b]
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Dollars				
Motel	0.00	74.20	243.61	0.00	13.50	77.02	176.17	65.00
Camping	0.00	27.20	17.95	0.00	18.82	6.16	9.45	7.00
Restaurant	25.58	50.03	184.51	5.29	5.01	83.70	137.75	54.43
Groceries	8.60	68.47	81.76	4.22	79.69	87.82	50.67	31.19
Gas and oil	28.32	76.57	92.15	10.31	38.21	40.43	55.95	36.88
Other transportation	0.17	1.84	2.79	0.38	3.41	5.39	5.74	1.70
Entry fees	5.93	12.63	32.60	1.79	0.75	11.26	23.30	10.34
Recreation and entertainment	6.88	9.24	47.38	1.10	2.99	6.16	27.79	12.49
Sporting goods	2.94	18.02	21.35	3.92	17.21	17.41	10.21	9.02
Souvenirs and other expenses	9.61	14.17	57.85	0.79	2.06	12.38	45.01	16.78
Total	88.02	352.37	781.95	27.81	181.65	347.74	542.04	244.82
Sample size (unweighted)	213	471	777	1,469	152	46	1,048	4,176
Standard deviation of total	92	525	788	50	190	617	671	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages exclude visitors who claimed their primary activity was downhill skiing. When completing analyses involving skiers, refer to subsequent tables on average skier spending. OVN = overnight, NF = national forest.

[b] The all-visit averages are computed as a weighted average of the columns using the national trip segment shares as weights.

Table 11—Low spending profiles by trip-type segment and spending category, dollars per party per trip[a]

Spending categories	Nonlocal			Local			Non-primary	All visits[b]
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Dollars				
Motel	0.00	6.82	77.42	0.00	3.02	10.46	64.59	20.07
Camping	0.00	23.26	22.31	0.00	26.28	27.31	10.75	7.94
Restaurant	11.95	14.45	52.15	4.21	5.63	15.49	44.53	18.03
Groceries	8.29	47.62	48.48	6.41	66.02	50.01	26.63	21.65
Gas and oil	21.40	45.87	56.89	13.02	35.72	37.24	39.39	27.53
Other transportation	0.81	0.28	0.92	0.00	0.21	0.00	0.46	0.30
Entry fees	4.42	5.71	7.22	2.19	3.13	3.41	5.18	3.87
Recreation and entertainment	4.62	5.50	11.78	1.72	4.32	4.43	5.47	4.38
Sporting goods	2.72	7.92	9.03	4.26	11.97	14.78	2.76	5.32
Souvenirs and other expenses	2.04	4.33	12.13	0.51	3.28	4.46	12.33	4.32
Total	56.24	161.75	298.34	32.33	159.58	167.57	212.08	113.42
Sample size (unweighted)	896	1,476	699	3,704	803	169	1,128	8,875
Standard deviation of total	62	184	355	45	177	198	443	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages exclude visitors who claimed their primary activity was downhill skiing. When completing analyses involving skiers refer to subsequent tables on average skier spending. OVN = overnight, NF = national forest.

[b] The all-visit averages are computed as a weighted average of the columns using the national trip segment shares as weights.

Table 12—Average number of nights away from home and in the local forest area for national forest visitors to high- and low-spending forests[a]

Spending	Nonlocal		Local		Non-primary	All visits
	OVN-NF	OVN	OVN-NF	OVN		
High spending:						
Nights away from home	5.2	7.6	2.2	5.0	9.7	4.0
Nights in the local area	3.7	4.9	2.1	4.3	3.6	2.0
Low spending:						
Nights away from home	3.0	5.6	2.5	3.7	7.3	1.5
Nights in the local area	2.7	4.0	2.4	3.5	2.3	0.9

[a] Estimated from the full sample using case weights and excluding downhill skiers. OVN = overnight, NF = national forest.

Table 13—High spending profiles by trip-type segment and spending category, dollars per party per day/night[a]

Spending categories	Nonlocal			Local			Non-primary	All visits[b]
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Dollars				
Motel	0	20.05	49.72	0	6.43	17.91	48.94	15.56
Camping	0	7.35	3.66	0	8.96	1.43	2.62	1.89
Restaurant	25.58	13.52	37.66	5.29	2.38	19.47	38.26	16.90
Groceries	8.60	18.51	16.69	4.22	37.95	20.42	14.07	10.48
Gas and oil	28.32	20.69	18.81	10.31	18.19	9.40	15.54	15.22
Other transportation	0.17	0.50	0.57	0.38	1.62	1.25	1.60	0.61
Entry fees	5.93	3.41	6.65	1.79	0.36	2.62	6.47	3.59
Recreation and entertainment	6.88	2.50	9.67	1.10	1.42	1.43	7.72	3.88
Sporting goods	2.94	4.87	4.36	3.92	8.20	4.05	2.84	4.00
Souvenirs and other expenses	9.61	3.83	11.81	0.79	0.98	2.88	12.50	5.04
Total	88.02	95.24	159.58	27.81	86.50	80.87	150.57	77.18
Sample size (unweighted)	213	471	777	1,469	152	46	1,048	4,176

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages exclude visitors who claimed their primary activity was downhill skiing. When completing analyses involving skiers, refer to subsequent tables on average skier spending. OVN = overnight, NF = national forest.

[b] The all-visit averages are computed as a weighted average of the columns using the national trip segment shares as weights.

Table 14—Low spending profiles by trip-type segment and spending category, dollars per party per day/night[a]

Spending categories	Nonlocal			Local			Non-primary	All visits[b]
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Dollars				
Motel	0	2.53	19.36	0	1.26	2.99	28.08	6.67
Camping	0	8.62	5.58	0	10.95	7.80	4.67	2.68
Restaurant	11.95	5.35	13.04	4.21	2.35	4.43	19.36	8.22
Groceries	8.29	17.64	12.12	6.41	27.51	14.29	11.58	10.00
Gas and oil	21.40	16.99	14.22	13.02	14.88	10.64	17.13	14.97
Other transportation	0.81	0.10	0.23	0	0.09	0	0.20	0.15
Entry fees	4.42	2.11	1.81	2.19	1.30	0.97	2.25	2.31
Recreation and entertainment	4.62	2.04	2.94	1.72	1.80	1.26	2.38	2.29
Sporting goods	2.72	2.93	2.26	4.26	4.99	4.22	1.20	3.34
Souvenirs and other expenses	2.04	1.60	3.03	0.51	1.37	1.27	5.36	1.79
Total	56.24	59.91	74.59	32.33	66.49	47.88	92.21	52.43
Sample size (unweighted)	896	1,476	699	3,704	803	169	1,128	8,875

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages exclude visitors who claimed their primary activity was downhill skiing. When completing analyses involving skiers, refer to subsequent tables on average skier spending. OVN = overnight, NF = national forest.
[b] The all-visit averages are computed as a weighted average of the columns using the national-trip segment shares as weights.

Table 15—Per-trip spending profiles of downhill skiers, dollars per party[a]

Spending category	Nonlocal segments		Local segments		Non-primary	All visits[c]
	Day	OVN	Day	OVN[b]		
			Dollars			
Motel	0	237.37	0	36.34	145.58	106.78
Camping	0	0.62	0	18.37	0.10	0.63
Restaurant	22.52	158.95	13.57	31.47	136.24	82.33
Groceries	4.60	75.86	3.49	51.01	52.59	37.24
Gas and oil	20.73	50.38	9.99	47.45	42.23	30.95
Other transportation	0	3.10	0.01	1.12	2.51	1.45
Entry fees	45.98	145.32	20.82	6.56	68.10	78.44
Recreation and entertainment	31.00	84.33	13.13	5.40	67.94	48.32
Sporting goods	5.32	22.04	3.13	12.62	12.06	11.96
Souvenirs and other expenses	1.85	20.75	0.77	6.81	16.99	10.23
Total	132.00	798.72	64.91	217.14	544.34	408.31
Sample size (unweighted)	459	516	907	445	130	2,048
Standard deviation of total	103	822	82	338	623	552

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages are based on visitors sampled at ski areas, and analyses involving nonskier visits should refer to previous tables on national forest visitor average spending. For downhill skiers, we have combined the overnight (OVN) national forest and OVN segments into a single OVN segment.
[b] The sample size for local overnight visitors sampled at ski areas was insufficient and here we substitute the local OVN averages from the national spending profile.
[c] The all-visit averages are computed as a weighted average of the columns using the skier segment shares as weights.

visitors who are downhill skiing spend about 50 percent more than nonlocal overnight visitors doing other activities on national forest trips. The additional spending by downhill skiers can primarily be traced to greater spending on entry fees, recreation and entertainment, and restaurants. In addition, downhill skiers on nonlocal overnight trips spend more on lodging than other nonlocal overnight visitors. Across all trip types, downhill skiers tend to spend less than other visitors on groceries and gas and oil. Note that expenses for season passes likely are not represented in these trip-specific spending averages. Similarly, lift tickets sold as part of a package deal may not have been reported separately by the respondent. Economic analyses that incorporate analyses of downhill skier spending should use tables 15 or 16 or reliable visitor spending figures available from other sources applicable to the study area.

Additional spending by downhill skiers can primarily be traced to entry fees, recreation and entertainment, and restaurants.

On a per-day/night basis, downhill skiers on overnight trips spend more money on lodging, more on groceries, and less on entry fees compared to downhill skiers on day trips (table 16). The greater expense of day visitors on entry fees may reflect overnight visitors purchasing package deals where lift tickets are not explicitly priced. Recall that the overnight segments include a mix of visitors using different

Table 16—Per-day/night spending profiles of downhill skiers, dollars per party[a]

Spending category	Nonlocal segments		Local segments		Non-primary	All visits[c]
	Day	OVN	Day	OVN[b]		
			Dollars			
Motel	0.00	48.44	0.00	8.26	37.33	22.27
Camping	0.00	0.13	0.00	4.18	0.03	0.14
Restaurant	22.52	32.44	13.57	7.15	34.93	23.89
Groceries	4.60	15.48	3.49	11.59	13.48	9.34
Gas and oil	20.73	10.28	9.99	10.78	10.83	11.89
Other transportation	0.00	0.63	0.01	0.25	0.64	0.31
Entry fees	45.98	29.66	20.82	1.49	17.46	27.88
Recreation and entertainment	31.00	17.21	13.13	1.23	17.42	17.68
Sporting goods	5.32	4.50	3.13	2.87	3.09	4.03
Souvenirs and other expenses	1.85	4.24	0.77	1.55	4.36	2.60
Total	132.00	163.00	64.91	49.35	139.57	120.03
Sample size (unweighted)	459	516	907	445	130	2,048

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages are based on visitors sampled at ski areas and analyses involving nonskier visits should refer to previous tables on national forest visitor average spending. For downhill skiers, we have combined the overnight (OVN) national forest and OVN segments into a single OVN segment.

[b] The sample size for local overnight visitors sampled at ski areas was insufficient, and here we substitute the local overnight averages from the national-spending profile.

[c] The all-visit averages are computed as a weighted average of the columns using the skier segment shares as weights.

lodging types, some requiring lodging expenditures and others not, so the average lodging expenditure here may not be consistent with typical room rates in the area.

Lodging-Based Segmentation

The OVN and, to a lesser extent, the OVN-NF segments of the Basic 7 trip segments contain a mix of visitors using a variety of overnight lodging. A question regarding the type of lodging used during the trip included on the Round 2 survey allows us to further classify and better estimate spending for overnight visitors using different types of lodging. When respondents reported using multiple lodging types, they were placed in the most expensive lodging segment. For example, a number of respondents reported camping and use of a hotel/motel. Those respondents were classified in the "motel" segment. The lodging-based segments provide an alternative to the Basic 7 trip segments and will prove most useful when the economic analysis has a strong focus on overnight trips. Using the responses to the lodging question and extending from the Basic 7 trip segments yields 10 lodging-based segments:

1. **Nonlocal day trips**: nonlocal residents on day trips to the local forest area
2. **Local day trips**: local residents on day trips to the local forest area
3. **National forest undeveloped**: visitors lodging in the undeveloped area on the national forest
4. **National forest developed**: visitors lodging in a developed campground on the national forest
5. **National forest cabin**: visitors lodging in a cabin on the national forest
6. **Motel**: visitors staying in a rented hotel, cabin, condo, home, etc. off the national forest
7. **Off-forest camp**: visitors lodging in a campground off the national forest
8. **Private home**: visitors staying at a private home of a friend or relative or an owned second home
9. **Other/multiple**: visits with undesignated, missing, or multiple lodging types
10. **Nonprimary**: visits where recreating on the national forest is not the primary trip purpose

The day trip and nonprimary segment shares for the lodging-based segments are unchanged from that found for the Basic 7 segments (table 17). Of the overnight visits, motel stays (including B&Bs, rented condos, etc.) are the most frequent lodging choice (8 percent of all visits) followed by developed campgrounds on the national forest (7 percent of visits) and private homes (6 percent of visits). The least common overnight lodging types for national forest visits are private campgrounds located off the national forest and national forest cabins. Excluding downhill skiers from the segment share estimation reduces the percentage of visits staying in motels and private homes and increases the percentage of visits staying on the national forest. Considering only downhill skiers, 27 percent of visits involve a stay in a motel with another 13 percent involving a stay in a private home.

Lodging-Based Segment Spending Averages

The day and nonprimary trip spending averages (table 18) are unchanged from that shown in table 8. Trip spending in the overnight segments ranges from $151 for those camping in the undeveloped portions of the forest to $700 for those staying overnight off-forest in motels. Those staying in private homes and camping off-forest spend about half that of individuals staying in motels off-forest. In the lodging-based segments, local visitors on overnight trips are not separated from

Table 17—Segment shares for lodging-based segments[a]

Segment	All visits (including skiers)	Nondownhill-skiing visits	Downhill skiing visits
		Percent	
Nonlocal day	10	9	16
Local day	48	51	34
National forest undeveloped camping	4	5	[b]
National forest developed camping	7	8	[b]
National forest cabin	1	2	1
Motel	8	4	27
Private campground	1	1	b
Private home	6	4	13
Other/multiple	2	2	2
Nonprimary	13	14	7
Total	100	100	100

[a] Estimated using case weights and the full sample.

[b] Lodging types on the national forest are combined into a single segment, national forest cabin. No visits occurred in the off-forest camp segment.

Table 18—Per-trip national forest visitor spending profiles by lodging type segment and spending category, dollars per party[a]

Spending category	Nonlocal day	Local day	National forest			Motel	Private campground	Private home	Other/ multiple	Non-primary	All visits[b]
			Undeveloped	Developed	Cabin						
					Dollars						
Motel	0.00	0.00	3.46	3.14	220.10	312.30	29.49	32.20	73.11	114.86	46.16
Camping	0.00	0.00	9.79	35.70	3.11	0.80	79.79	1.06	41.64	11.95	6.23
Restaurant	15.30	5.19	14.12	13.81	74.00	153.41	55.55	101.66	59.32	88.62	37.93
Groceries	8.63	6.31	47.25	63.25	68.13	53.77	74.81	86.68	68.57	43.36	28.15
Gas and oil	23.16	12.83	46.24	45.80	61.66	69.56	83.64	67.29	61.29	48.40	32.10
Other transp.	0.58	0.13	2.00	0.41	5.32	4.42	2.44	3.87	4.30	3.26	1.40
Entry fees	4.56	2.17	5.58	7.29	7.86	24.23	16.43	14.79	14.10	11.11	7.03
Recreation and entertainment	4.34	1.50	4.19	6.43	11.09	35.94	9.24	23.12	17.02	16.71	8.75
Sporting goods	2.94	4.16	15.12	10.14	14.10	12.68	22.17	16.50	14.26	6.44	7.09
Souvenirs and other expenses	3.15	0.72	3.11	5.61	17.63	33.00	23.30	26.97	15.53	25.83	9.51
Total	62.65	33.02	150.85	191.59	483.00	700.11	396.87	374.15	369.12	370.54	184.37
Sample size unweighted	2,224	9,832	1,329	4,031	629	1,257	413	887	659	4,737	25,998
Standard deviation of total	71	49	242	245	590	717	429	543	623	605	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages exclude visitors who claimed their primary activity was downhill skiing. When completing analyses involving skiers, refer to subsequent tables on average skier spending. NF = national forest.

[b] The all-visit averages are computed as a weighted average of the columns using the lodging-based segment shares as weights.

nonlocal visitors. Operationally, sample sizes were not large enough to estimate lodging-based spending profiles separately for locals and nonlocals.

Placing overnight segment spending on a per-day/night basis and using the lodging-based segments provides an opportunity to gauge the face validity of the spending averages. On a per-day/night basis, the spending of the overnight visitors ranges from $50 for those camping in undeveloped portions of the forest to $171 for those staying off-forest in motels (table 19). Those staying in motels average $76 on lodging expenses, $37 on restaurants, and $17 on gas and oil, per night. Those staying in national forest campgrounds pay approximately $13 on lodging/campground fees, $23 on groceries, and $16 on gas and oil, per night.

The spending of overnight visitors ranges from $50 for those camping in undeveloped portions of the forest to $171 for those staying off-forest in motels.

The trip spending of those engaged in downhill skiing in the lodging-based segments ranges from $65 for those on local day trips to $983 for those staying in motels/hotels/B&Bs in the local forest area (table 20). Those staying in motels, hotels, or B&Bs average approximately $391 per trip on lodging expenditures while those staying in private homes average $26 in lodging expenses.

Those engaged in downhill skiing have an average length of stay that is slightly greater than other visitors—2 nights compared to 1.2 nights for other visitors (table 21). Those staying overnight in motels/hotels/B&Bs average 4.6 nights in the local area. On a per-day/night basis, those staying in motels/hotels/B&Bs spent $214 while those staying in private homes spent $97 (table 21). Increased spending on entry fees and recreation and entertainment are the distinguishing features of the downhill skier spending averages compared to the spending of nonskiers. Downhill skiers tend to spend slightly less than other visitors on gas and oil in the local area. With the exception of the previously mentioned spending, on a per-day/night basis the spending of downhill skiers is similar to that of nonskiers. Much of the difference in trip spending between downhill skiers and other visitors can be traced to a longer length of stay of those skiing.

Table 19—Per-day/night national forest visitor spending profiles by lodging type segment and spending category, dollars per party[a]

Spending category	Nonlocal day	Local day	National forest			Motel	Private campground	Private home	Other/ multiple	Non-primary	All visits[b]
			Undeveloped	Developed	Cabin						
					Dollars						
Motel	0	0	1.15	1.12	68.78	76.17	6.41	6.85	16.62	39.61	22.53
Camping	0	0	3.26	12.75	0.97	0.20	17.35	0.23	9.46	4.12	3.04
Restaurant	15.30	5.19	4.71	4.93	23.13	37.42	12.08	21.63	13.48	30.56	18.51
Groceries	8.63	6.31	15.75	22.59	21.29	13.11	16.26	18.44	15.58	14.95	13.74
Gas and oil	23.16	12.83	15.41	16.36	19.27	16.97	18.18	14.32	13.93	16.69	15.67
Other transp.	0.58	0.13	0.67	0.15	1.66	1.08	0.53	0.82	0.98	1.12	0.68
Entry fees	4.56	2.17	1.86	2.60	2.46	5.91	3.57	3.15	3.20	3.83	3.43
Recreation and entertainment	4.34	1.50	1.40	2.30	3.47	8.77	2.01	4.92	3.87	5.76	4.27
Sporting goods	2.94	4.16	5.04	3.62	4.41	3.09	4.82	3.51	3.24	2.22	3.46
Souvenirs and other expenses	3.15	0.72	1.04	2.00	5.51	8.05	5.07	5.74	3.53	8.91	4.64
Total	62.65	33.02	50.28	68.43	150.94	170.76	86.28	79.61	83.89	127.77	89.98
Sample size unweighted	2,224	9,832	1,329	4,031	629	1,257	413	887	659	4,737	25,998
Average days/ nights in the local area	1.0	1.0	3.0	2.8	3.2	4.1	4.6	4.7	4.4	2.9	2.0

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages exclude visitors who claimed their primary activity was downhill skiing. When completing analyses involving skiers refer to subsequent tables on average skier spending. NF = national forest.

[b] The all-visit averages are computed as a weighted average of the columns using the lodging-based segment shares computed without downhill skiers as weights and divided by the average number of nights in the local area.

Table 20—Per-trip national forest visitor spending profiles of downhill skiers by lodging-type segment and spending category, dollars per party[a]

Spending category	Nonlocal day	Local day	National forest[b]	Motel	Private home	Other/ multiple[c]	Non-primary	All visits[d]
				Dollars				
Motel	0	0	237.61	391.11	25.73	73.11	145.58	66.60
Camping	0	0	1.73	0	0	41.64	0.10	0.16
Restaurant	22.52	13.57	68.97	174.65	139.49	59.32	136.24	58.16
Groceries	4.60	3.49	63.67	63.79	88.67	68.57	52.59	24.77
Gas and oil	20.73	9.99	54.42	49.04	47.24	61.29	42.23	24.37
Other transportation	0	0.01	0	3.81	2.25	4.30	2.51	0.86
Entry fees	45.98	20.82	73.98	164.68	112.98	14.10	68.10	59.62
Recreation and entertainment	31.00	13.13	40.64	95.00	89.87	17.02	67.94	39.47
Sporting goods	5.32	3.13	11.46	20.58	24.83	14.26	12.06	8.85
Souvenirs and other expenses	1.85	0.77	4.77	20.71	21.68	15.53	16.99	6.94
Total	132.00	64.91	557.26	983.36	552.73	369.12	544.34	289.79
Sample size (unweighted)	459	907	53	264	203	659	130	2036
Standard deviation of total	103	82	553	858	746	623	623	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages are for visitors engaged in downhill skiing.

[b] Here we combine all lodging types on the national forest into a single segment. The analyst should be cautious in using this segment as it is not clear if visitors are able to differentiate between lodging on or off the national forest.

[c] There was an insufficient number of downhill skiing respondents in the other/multiple segment, and we substitute the spending averages shown for the general lodging-based segments here.

[d] The all-visit averages are computed as a weighted average of the columns using the lodging-based segment shares computed without downhill skiers as weights.

Table 21—Per-day/night national forest visitor spending profiles of downhill skiers by lodging-type segment and spending category, dollars per party[a]

Spending category	Nonlocal day	Local day	National forest[b]	Motel	Private home	Other/ multiple[c]	Non-primary	All visits[d]
				Dollars				
Motel	0	0	88.00	85.02	4.51	17.41	37.33	33.30
Camping	0	0	0.64	0	0	9.91	0.03	0.08
Restaurant	22.52	13.57	25.54	37.97	24.47	14.12	34.93	29.08
Groceries	4.60	3.49	23.58	13.87	15.56	16.33	13.48	12.39
Gas and oil	20.73	9.99	20.16	10.66	8.29	14.59	10.83	12.19
Other transportation	0	0.01	0	0.83	0.39	1.02	0.64	0.43
Entry fees	45.98	20.82	27.40	35.80	19.82	3.36	17.46	29.81
Recreation and entertainment	31.00	13.13	15.05	20.65	15.77	4.05	17.42	19.74
Sporting goods	5.32	3.13	4.24	4.47	4.36	3.40	3.09	4.43
Souvenirs and other expenses	1.85	0.77	1.77	4.50	3.80	3.70	4.36	3.47
Total	132.00	64.91	206.39	213.77	96.97	87.89	139.57	144.90
Sample size (unweighted)	459	907	53	264	203	659	130	2036
Average days/nights in the local area	1.0	1.0	2.7	4.6	5.7	4.2	3.9	2.0

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages are for visitors engaged in downhill skiing.

[b] Here we combine all lodging types on the national forest into a single segment. The analyst should be cautious in using this segment as it is not clear if visitors are able to differentiate between lodging on or off the national forest.

[c] There was an insufficient number of downhill skiing respondents in the other/multiple segment and we substitute the spending averages shown for the general lodging-based segments here.

[d] The all-visit averages are computed as a weighted average of the columns using the lodging-based segment shares computed without downhill skiers as weights and divided by the average number of nights in the local area.

Conclusions

We have presented spending averages and visit and trip characteristics for use in completing economic contribution and impact analysis for the NFS. In addition to using the Round 2 data to compute the spending averages, this report extends the previous analysis by reporting national forest visitor spending on a per-day/night basis and by using updated outlier rules. We also present spending averages for a lodging-based segmentation approach, which we first presented using the year 4, Round 1 NVUM data.

On average, visitors to national forests spend about $172 per party per trip. On a per-day/night basis, this spending translates into an average of about $67 per party. Visitors engaged in downhill skiing spend more than other visitors, as expected, about $408 per party per trip or $120 per day/night. Much of the additional spending by downhill skiers can be traced to spending on entry fees, recreation and entertainment, restaurants, and lodging. Downhill skiers tend to spend a bit less than other visitors on gas and oil. The lodging-based segments we present are useful for estimating average spending for visitors using specific lodging types. Overnight visitors staying in motels/hotels/B&Bs spend the most ($700 per party per trip) while those staying in the undeveloped area of the forest spend the least ($151 per party per trip). On a per-day/night basis, those staying overnight in motels/hotels/B&Bs spend about $175 per party; spending about $78 per night on lodging.

For most applications, the Basic 7 trip segments and the associated spending averages will be appropriate. In situations where downhill skiing visits are an important component of the analysis, the downhill skiing profiles and estimated characteristics should be incorporated in the analysis for that portion of use. In instances where overnight trips are particularly important to the analysis, the lodging-based segments should prove useful. The wildlife-related spending figures reported in appendix 3 can be applied for wildlife programmatic analysis. Finally, activity-specific spending profiles, which are contained in other reports (White and Stynes 2010b) and electronic files, can be used for analyses aimed at specific activities, such as travel management planning.

As data in future NVUM rounds become available, it will be possible to examine the potential for pooling data across rounds to develop forest-specific spending profiles and to update spending profiles for particular activities. Pooled data could also be used to improve the classification of forests into high, medium, and low spending areas. The lodging-based segments capture important variations in spending, but the NVUM samples at the forest level are often not adequate to reliably estimate the lodging segment shares. Another round of NVUM data would

improve estimates of lodging shares for individual forests. Lodging segment shares could also be based on inventories of lodging opportunities around each forest.

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Metric Equivalents

When you know:	Multiply by:	To get:
Miles (mi)	1.609	Kilometers

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Appendix 1: Applying the National Spending Profiles

This section provides guidance on applying the spending profiles for economic analysis and has been adapted from Stynes et al. (2002). A number of distinct spending profiles have been generated from the National Visitor Use Monitoring (NVUM) survey data. These include:

- National average spending profiles by trip segments (tables 8 and 9)
- High and low spending profiles by trip segments (tables 10, 11, 13, and 14)
- Downhill skier spending profiles (tables 15 and 16)
- Spending profiles by lodging-based segment (tables 18 through 21)
- Spending profiles for select segment/activity combinations available in White and Stynes (2010b) and in upcoming reports.

These spending profiles can be used in national-, regional-, forest- and subforest-level planning. For economic impact or contribution analyses, the spending profiles must be combined with (1) estimates of total visits, (2) estimates of the percentage of visits within given trip or activity segments, and (3) appropriate local input-output (I-O) models or multipliers.

NVUM spending categories were developed to easily bridge to sectors in I-O models.

For national-, regional- and forest-level estimates, the number of visits and trip segment shares may be derived from the NVUM survey or other sources.[1] The NVUM estimates will be most reliable at the national level, with increasing potential errors at regional and forest levels. Other local sources may be more reliable in estimating the number of visits within particular activity subgroups or for subforest-level analysis. The Round 2 estimates of segment and activity shares should be more reliable than those reported for Round 1 owing to improved allocation of sampling effort across seasons and sites and the inclusion of all segment variables in the general survey.

The NVUM spending categories were developed to easily bridge to sectors in I-O models estimated with IMPLAN so the application of the spending data to I-O models is reasonably straightforward. For most applications, acquiring the estimates of visits and segment shares will be the greater problem.

[1] The NVUM segment shares on individual forests should be compared with other sources or local knowledge, as they may not adequately represent different types of visitors on particular forests. The NVUM sampling plan was not designed to necessarily represent particular types of visitors on a given forest—be they local, day trips, overnight trips, or particular activity groups. Estimates of the percentage of anglers, snowmobilers, or hikers from the NVUM survey may therefore be unreliable as they will be sensitive to the sites and time periods selected for sampling. Activities that tend to be concentrated at a few locations or during selected time periods can be completely missed or overrepresented in the NVUM sampling plan.

The general steps for making spending and economic impact/contribution estimates with the NVUM spending profiles are:

1. Choose a set of visitor segments—When analyzing spending by all visitors to a particular forest, we recommend using the Basic 7 trip segments. When conducting more targeted analyses, one or more of the activity-based segments (White and Stynes 2010b) may be used. We suggest using the Basic 7 trip segments as defaults and developing more specific segments only for groups whose spending will differ from these and for which reliable use estimates can be made. For most analyses, a set of mutually exclusive visitor segments should be chosen for which both visit estimates and spending profiles can be generated.

2. Choose a spending profile for each segment—If using the NVUM trip segments, begin by selecting from the high, national average, or low profiles based on the characteristics of the particular application. Note that even though a forest may be classified (table 22) as an above-average spending area, if the application relates to more remote areas of the forest, the low spending profiles may be more appropriate, as spending within trip segments is largely a function of the number and kinds of nearby spending opportunities. The NVUM spending profiles may be adjusted to suit the local situation/application, as needed. See text later in this appendix for guidance on adjusting spending averages for local applications and for how to use an engineering approach to estimate spending profiles when survey data are not available or of limited applicability. When the analysis involves downhill skier visits, the downhill skier spending profiles should be incorporated in the analysis and both the downhill skier spending profiles (e.g., table 15) and the "general" spending profiles (e.g., table 8) may need to be used in the analysis.

3. Estimate the number of visits by each segment—At the national or forest level, one may multiply the NVUM estimated number of national forest visits by the estimates of trip segment shares (table 23) to distribute total visits across the trip segments.[2] If the economic analysis being completed treats downhill skier visits and other visits separately, then the analyst should consider using the segment shares computed for downhill skier visits (table 24) for that portion of recreation use associated with downhill skiing.

[2] Another complication for some applications is potential double counting of spending by visitors staying overnight off the forest and making multiple visits during their stay in the area. Spending averages are on a trip basis (to the area). If the incidence of multiple national forest visits per trip is known, national forest visits should be converted to distinct trips to the area by dividing by an estimate of visits per trip.

Table 22—Classification of national forests as above, below, or average spending

Above-average spending:
- Black Hills
- Bridger-Teton
- Carson
- Chippewa
- Chugach
- Cibola
- Coconino
- Gallatin
- Hiawatha
- Inyo
- Nebraska
- Rio Grande
- San Juan
- Tongass-Chatham
- White River

Average spending:
- Apache-Sitgreaves
- Arapaho-Roosevelt
- Ashley
- Beaverhead-Deerlodge
- Caribbean
- Caribou-Targhee
- Chattahoochee-Oconee
- Chequamegon-Nicolet
- Columbia River Gorge
- Colville
- Coronado
- Custer
- Dakota Prairie
- Deschutes
- Dixie
- Eldorado
- Fishlake
- Flathead
- Francis Marion-Sumter
- Grand Mesa-Uncompahgre-Gunnison
- Green Mountain and Finger Lakes
- Helena
- Humboldt-Toiyabe
- Huron-Manistee
- Kaibab
- Klamath
- Lake Tahoe Management Unit
- Land Between the Lakes
- Lassen
- Lewis & Clark
- Lincoln
- Lolo
- Medicine Bow
- Midewin Tallgrass Prairie
- Mount Baker-Snoqualmie
- Mount Hood
- National forests in Mississippi
- National forests in North Carolina
- Nez Perce
- Okanogan
- Olympic
- Ottawa
- Payette
- Pike-San Isabel
- Plumas
- Routt
- Salmon-Challis
- Santa Fe
- Sawtooth
- Sequoia
- Shasta Trinity
- Shoshone
- Sierra
- Siskiyou
- Six Rivers
- Stanislaus
- Superior
- Tahoe
- Tongass-Ketchikan
- Tongass-Stikine
- Tonto
- Uinta
- Umpqua
- Wallowa-Whitman
- White Mountain

Below-average spending:
- Allegheny
- Angeles
- Bitterroot
- Boise
- Cherokee
- Clearwater
- Cleveland
- Daniel Boone
- Fremont
- George Washington-Jefferson
- Gifford Pinchot
- Gila
- Hoosier
- Idaho Panhandle
- Kisatchie
- Kootenai
- Los Padres
- Malheur
- Manti-La Sal
- Mark Twain
- Mendocino
- Modoc
- Monongahela
- National forests in Alabama
- National forests in Florida
- National forests in Texas
- Ochoco
- Ouachita
- Ozark-St. Francis
- Prescott
- Rogue River
- San Bernardino
- Shawnee
- Siuslaw
- Umatilla
- Wasatch-Cache
- Wayne
- Wenatchee
- Willamette
- Winema

Table 23—Segment shares by forest[a]

National forest	Nonlocal			Local			Non-primary	Total
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
	Percent							
Allegheny	10	13	10	50	6	3	8	100
Angeles	12	1	1	73	3	1	9	100
Apache-Sitgreaves	8	27	12	38	2	1	12	100
Arapaho-Roosevelt	21	5	21	39	4	1	9	100
Ashley	10	33	2	37	9	0	9	100
Beaverhead-Deerlodge	13	13	9	46	6	0	13	100
Bighorn	18	21	6	25	10	0	20	100
Bitterroot	4	3	4	80	7	0	2	100
Black Hills	6	4	28	50	2	1	9	100
Boise	12	20	2	54	8	0	4	100
Bridger-Teton	5	9	21	51	1	1	12	100
Caribbean	7	0	17	24	1	1	50	100
Caribou-Targhee	13	6	16	42	4	1	18	100
Carson	11	7	25	39	2	1	15	100
Chattahoochee-Oconee	11	4	8	55	4	1	17	100
Chequamegon-Nicolet	3	6	23	25	4	2	37	100
Cherokee	12	5	13	50	4	2	14	100
Chippewa	9	14	8	48	2	1	18	100
Chugach	9	12	9	21	3	2	44	100
Cibola	6	1	11	49	0	1	32	100
Clearwater	22	14	7	33	5	3	16	100
Cleveland	4	3	1	77	9	1	5	100
Coconino	11	6	25	33	2	0	23	100
Columbia River Gorge	8	2	5	56	1	1	27	100
Colville	19	7	5	48	8	2	11	100
Coronado	5	4	4	65	4	1	17	100
Custer	19	8	14	39	2	2	16	100
Dakota Prairie	7	9	7	50	13	2	12	100
Daniel Boone	10	15	6	52	6	2	9	100
Deschutes	6	11	15	48	7	2	11	100
Dixie	11	10	23	25	7	1	23	100
Eldorado	16	10	12	36	2	2	22	100
Fishlake	7	30	14	30	5	2	12	100
Flathead	7	3	12	61	4	1	12	100
Francis Marion-Sumter	11	1	3	69	4	2	10	100
Fremont	15	8	6	53	9	0	9	100
Gallatin	4	3	14	66	3	1	9	100
George Washington-Jefferson	4	6	4	69	6	2	9	100
Gifford Pinchot	24	11	10	26	4	0	25	100
Gila	21	17	11	25	4	1	21	100
Grand Mesa-Uncompahgre-Gunnison	7	8	17	53	3	2	10	100

Table 23—Segment shares by forest[a] (continued)

National forest	Nonlocal			Local			Non-primary	Total
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
	Percent							
Green Mountain and Finger Lakes	11	1	20	60	0	2	6	100
Helena	9	2	7	66	5	2	9	100
Hiawatha	3	4	25	39	4	1	24	100
Hoosier	5	8	2	55	19	1	10	100
Humboldt-Toiyabe	3	4	8	65	3	3	14	100
Huron Manistee	12	13	24	36	1	4	10	100
Idaho Panhandle	9	9	4	64	7	1	6	100
Inyo	3	23	39	20	1	1	13	100
Kaibab	11	17	11	11	1	1	48	100
Kisatchie	13	5	2	71	7	0	2	100
Klamath	6	24	7	45	5	2	11	100
Kootenai	17	3	4	59	3	1	13	100
Lake Tahoe Management Unit	3	4	28	27	0	0	38	100
Land Between the Lakes	9	24	7	31	14	0	15	100
Lassen	14	13	5	49	5	2	12	100
Lewis and Clark	27	14	13	22	5	2	17	100
Lincoln	15	16	13	40	2	0	14	100
Lolo	5	4	6	65	3	2	15	100
Los Padres	10	12	4	50	5	1	18	100
Malheur	5	46	5	29	4	0	11	100
Manti-La Sal	16	14	6	43	5	4	12	100
Mark Twain	8	13	3	57	7	1	11	100
Medicine Bow	15	14	10	44	4	1	12	100
Mendocino	11	25	1	50	4	1	8	100
Midewin Tallgrass Prairie	3	0	1	85	0	0	11	100
Modoc	5	18	2	66	2	1	6	100
Monongahela	8	29	24	8	1	2	28	100
Mount Baker-Snoqualmie	14	6	2	62	8	0	8	100
Mount Hood	34	7	4	42	5	0	8	100
National forests in Alabama	18	2	1	60	11	3	5	100
National forests in Florida	12	9	4	61	8	3	3	100
National forests in Mississippi	8	3	1	81	2	1	4	100
National forests in North Carolina	5	5	10	62	4	2	12	100
National forests in Texas	7	4	3	74	6	1	5	100
Nebraska	7	9	3	64	0	0	17	100
Nez Perce	11	19	15	27	12	1	15	100
Ochoco	8	16	5	53	6	1	11	100
Okanogan	12	11	16	46	1	0	14	100
Olympic	18	8	4	44	7	1	18	100
Ottawa	8	4	21	17	1	1	48	100

Table 23—Segment shares by forest[a] (continued)

National forest	Nonlocal			Local			Non-primary	Total
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
	Percent							
Ouachita	8	18	13	49	4	3	5	100
Ozark-St. Francis	3	7	6	61	4	5	14	100
Payette	29	18	15	22	4	0	12	100
Pike-San Isabel	12	9	8	47	3	1	20	100
Plumas	11	7	12	45	8	3	14	100
Prescott	6	10	4	61	4	0	15	100
Rio Grande	9	11	31	35	3	1	10	100
Rogue River	8	7	2	54	10	1	18	100
Routt	4	4	44	35	1	2	10	100
Salmon-Challis	19	20	25	21	2	1	12	100
San Bernardino	20	14	7	46	5	1	7	100
San Juan	5	6	18	49	3	1	18	100
Santa Fe	13	6	7	61	1	2	10	100
Sawtooth	6	12	28	36	3	1	14	100
Sequoia	14	31	13	17	4	1	20	100
Shasta Trinity	7	19	8	46	7	1	12	100
Sierra	22	16	9	38	2	6	7	100
Siskiyou	11	4	8	48	6	0	23	100
Shawnee	11	6	16	48	2	3	14	100
Shoshone	15	5	15	44	4	3	14	100
Siuslaw	10	17	9	33	4	0	27	100
Six Rivers	4	9	5	43	6	1	32	100
Stanislaus	28	33	9	18	5	1	6	100
Superior	6	21	18	19	1	0	35	100
Tahoe	14	6	25	48	2	1	4	100
Tongass-Chatham	1	0	3	44	1	0	51	100
Tongass-Ketchikan	12	6	22	48	6	0	6	100
Tongass-Stikine	1	2	6	72	6	2	11	100
Tonto	6	8	2	67	7	1	9	100
Uinta	11	19	1	45	17	0	7	100
Umatilla	15	13	2	55	6	2	7	100
Umpqua	14	27	2	39	5	0	13	100
Wallowa-Whitman	14	20	15	13	3	3	32	100
Wasatch-Cache	2	3	6	80	4	0	5	100
Wayne	13	6	6	63	5	3	4	100
Wenatchee	20	26	3	38	3	1	9	100
White Mountain	17	8	30	27	1	1	16	100
White River	11	2	51	23	1	3	9	100
Willamette	22	16	5	34	7	2	14	100
Winema	5	20	1	31	29	2	12	100
National average	10	9	14	49	4	1	13	100

[a] Estimated using the full sample and case weights. OVN = overnight, NF = national forest.

Table 24—Segment shares by forest for downhill skiing visits[a]

National forest	Nonlocal		Local		Non-primary	Total	Sample size
	Day	OVN	Day	OVN			
				Percent			
Angeles	42	1	49	2	6	100	59
Arapaho-Roosevelt	30	41	25	1	3	100	396
Beaverhead-Deerlodge	27	13	54	1	5	100	152
Bighorn	65	30	5	0	0	100	132
Bitterroot	0	0	77	23	0	100	114
Boise	0	2	93	3	2	100	56
Bridger-Teton	3	36	46	1	14	100	229
Caribou-Targhee	40	23	29	4	4	100	82
Carson	13	45	35	0	7	100	132
Coconino	31	37	24	1	7	100	366
Colville	28	7	61	2	2	100	88
Custer	20	21	46	5	8	100	107
Deschutes	5	50	28	2	15	100	90
Dixie	30	50	14	0	6	100	104
Eldorado	14	19	38	4	25	100	120
Flathead	5	28	61	2	4	100	147
Gallatin	8	14	75	2	1	100	173
Grand Mesa-Uncompahgre-Gunnison	6	27	61	1	5	100	189
Green Mountain and Finger Lakes	21	36	39	4	0	100	114
Humboldt-Toiyabe	3	17	56	2	22	100	236
Idaho Panhandle	56	10	29	1	4	100	136
Inyo	2	75	17	1	5	100	115
Kaibab	29	51	7	0	13	100	39
Kootenai	6	9	81	3	1	100	116
Lake Tahoe Management Unit	4	42	9	1	44	100	161
Lewis and Clark	59	11	28	0	2	100	95
Lincoln	13	23	62	0	2	100	31
Lolo	1	4	81	2	12	100	316
Medicine Bow	41	12	34	0	13	100	31
Mount Baker-Snoqualmie	10	0	82	8	0	100	39
Mount Hood	51	6	38	2	3	100	256
Payette	29	34	33	0	4	100	78
Pike-San Isabel	17	24	38	2	19	100	167

Table 24—Segment shares by forest for downhill skiing visits[a] (continued)

National forest	Nonlocal		Local		Non-primary	Total	Sample size
	Day	OVN	Day	OVN			
				Percent			
Rio Grande	2	70	22	1	5	100	152
Rogue River	5	5	80	10	0	100	184
Routt	3	62	31	0	4	100	146
San Bernardino	51	15	32	2	0	100	132
San Juan	6	43	39	1	11	100	125
Santa Fe	11	24	60	1	4	100	214
Sawtooth	5	56	33	1	5	100	178
Sierra	43	21	31	4	1	100	119
Stanislaus	45	42	13	0	0	100	271
Tahoe	26	49	22	0	3	100	237
Umatilla	62	2	31	1	4	100	191
Wasatch-Cache	4	10	83	1	2	100	155
White Mountain	23	35	36	1	5	100	183
White River	13	64	17	4	2	100	241
Willamette	59	11	24	2	4	100	120
National average	16	41	35	2	6	100	7,627

[a] Estimated using the full sample and case weights. Only forests with more than 30 respondents stating their primary activity was downhill skiing are shown. OVN = overnight.

4. Convert the estimate of visits to party visits or party visit days/nights—One must be careful to put visits and spending into common units. Recreation visits are on a per-person basis, while the spending averages reported in the above tables is on a per-party basis. One must either divide the spending averages by the average party size to put spending on a per-person basis or convert visits to parties by dividing visits by an average party size.[3] The NVUM estimates of average party sizes by segment for each forest are reported in table 25. If one elects to use the spending profiles estimated on a day/night basis (e.g., table 9), then it is also necessary to place the party visits on a day/night basis by multiplying party visits by the average numbers of nights in the local area (treating day trips as involving 1 day/night). The NVUM estimates of the average numbers of nights in the local area for each forest are in table 26.

5. Estimate total spending—The estimate of total spending is calculated by multiplying the number of visits (i.e., party visits or party day/night visits) of each trip type (segment) by the appropriate per-trip or per-day/night spending averages for that segment and summing across segments.

[3] The NVUM averages for people per vehicle are used to estimate party sizes. It must be assumed that in most cases, all people traveling in the same vehicle is the spending unit.

Table 25—People per vehicle by segment by forest[a]

National forest	Nonlocal			Local			Non-primary	Total
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Number				
Allegheny	2.4	2.5	2.2	2.0	3.2		2.5	2.2
Angeles	2.6	3.0		2.1	2.8		2.4	2.2
Apache-Sitgreaves	2.5	3.4	2.9	1.8			2.6	2.5
Arapaho-Roosevelt	2.4	2.4	2.8	2.1	2.4	2.1	2.8	2.4
Ashley	3.1	2.8	3.0	2.7	3.1		2.4	2.8
Beaverhead-Deerlodge	2.1	2.4	2.5	2.0	2.7		2.1	2.2
Bighorn	3.0	2.7	2.7	2.6	2.3		2.5	2.7
Bitterroot	1.9	2.3	2.2	2.1	2.2		2.6	2.1
Black Hills	2.7	2.7	2.6	2.2	3.2		2.6	2.4
Boise	1.9	2.2	2.6	2.0	2.4		2.2	2.1
Bridger-Teton	2.5	2.8	2.8	1.9	2.2		2.6	2.2
Caribbean	3.6		2.7	3.2			3.1	3.1
Caribou-Targhee	2.7	2.7	2.6	2.0	3.3		2.8	2.4
Carson	1.9	2.5	2.6	2.4	2.0		2.9	2.4
Chattahoochee-Oconee	2.3	2.5	2.6	2.1	2.7		2.7	2.3
Chequamegon-Nicolet	2.1	2.6	2.0	1.8	2.4		2.0	2.0
Cherokee	2.8	2.6	3.3	2.2	2.8	2.1	2.9	2.5
Chippewa	2.6	2.6	1.8	1.8	2.3		2.3	2.1
Chugach	2.5	3.2	2.7	2.0	2.8		2.9	2.7
Cibola	2.5	3.0	2.5	2.5			2.9	2.6
Clearwater	2.0	2.5	2.0	2.0	1.8		2.2	2.1
Cleveland	2.8	2.7		2.2	2.5		2.2	2.3
Coconino	2.8	2.8	2.6	2.0	2.2		2.5	2.4
Columbia River Gorge	2.6	2.6	2.9	2.3	2.9		2.6	2.4
Colville	2.6	2.4	2.3	2.2	2.1		2.1	2.3
Coronado	2.3	2.4	2.4	2.0	2.4	3.0	2.5	2.2
Custer	2.4	2.9	2.5	2.1	2.6		2.7	2.4
Dakota Prairie	2.0	2.3	2.3	2.5	2.4		3.1	2.4
Daniel Boone	3.0	2.4	3.1	2.2	3.1	1.5	2.3	2.5
Deschutes	3.1	2.7	2.8	2.0	2.3	2.8	2.5	2.3
Dixie	2.5	3.1	2.8	2.6	3.0		2.5	2.7
Eldorado	2.4	2.6	2.5	2.4	2.7		2.8	2.5
Fishlake	2.3	2.9	2.7	2.5	2.8		2.6	2.6
Flathead	2.2	2.5	2.7	1.9	2.9		2.6	2.1
Francis Marion-Sumter	2.3	1.9	2.6	2.2	1.7		2.9	2.3
Fremont	1.6	2.4		2.7			2.8	2.4
Gallatin	2.4	2.8	2.9	2.0	3.0		2.6	2.3
George Washington-Jefferson	2.0	2.6	1.7	2.0	3.0	1.5	2.4	2.1
Gifford Pinchot	2.7	2.3	2.7	2.3	2.3		2.6	2.5
Gila	2.7	2.3	2.5	2.3			2.4	2.4
Grand Mesa-Uncompahgre-Gunnison	2.4	2.6	2.4	2.3	1.9	2.4	2.8	2.4

Table 25—People per vehicle by segment by forest[a] (continued)

National forest	Nonlocal			Local			Non-primary	Total
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Number				
Green Mountain and Finger Lakes	2.0	2.1	2.2	1.7	3.2		2.2	1.8
Helena	2.9	2.9	2.8	2.1	2.4		3.6	2.3
Hiawatha	2.4	2.4	2.7	1.9	2.5		2.5	2.3
Hoosier	2.4	2.3	2.3	2.1	2.5		2.9	2.3
Humboldt-Toiyabe	2.3	2.7	2.9	2.2	2.9	2.9	2.5	2.3
Huron Manistee	2.2	2.2	2.1	2.1	1.9	2.3	2.2	2.1
Idaho Panhandle	2.5	2.3	2.4	1.8	2.4	2.6	2.7	2.0
Inyo	1.7	2.6	2.7	1.5			2.4	2.3
Kaibab	2.7	2.2	3.1	2.4			2.7	2.6
Kisatchie	2.6	2.4	3.3	2.2	3.1		2.1	2.3
Klamath		2.0	2.3	2.2	2.2		2.5	2.2
Kootenai	2.4	2.6	2.4	2.0	2.7		2.8	2.2
Lake Tahoe Management Unit	3.7	2.6	2.7	2.1	2.2		2.5	2.4
Land Between the Lakes	1.9	2.0	2.5	1.9	1.9		2.1	2.0
Lassen	3.3	2.3	2.2	2.2	3.2		1.8	2.4
Lewis and Clark	2.6	2.4	1.9	2.7			2.3	2.5
Lincoln	2.9	2.7	2.6	2.2	3.1		2.8	2.6
Lolo	2.3	2.8	2.0	1.8	2.5	1.9	2.5	2.0
Los Padres	2.7	3.0	2.0	2.2	2.4		2.3	2.4
Malheur	2.0	2.5	2.1	2.6			2.3	2.4
Manti-La Sal	2.9	2.8	2.8	2.4	3.3		2.6	2.7
Mark Twain	2.4	2.8	4.0	2.1	2.2		2.6	2.3
Medicine Bow	2.3	2.4	3.5	2.2	3.0		2.3	2.4
Mendocino	2.3	2.4		1.6	2.7		1.7	1.9
Midewin Tallgrass Prairie				1.6				1.6
Modoc	2.5	2.1	2.6	2.5	2.2		2.4	2.4
Monongahela	2.3	3.0	2.5	2.0	3.0		2.6	2.6
Mendocino	2.3	2.4		1.6	2.7		1.7	1.9
Mount Baker-Snoqualmie	2.6	2.8	2.2	2.4	2.8		2.7	2.5
Mount Hood	2.5	3.4	2.9	2.2	2.5		3.0	2.5
National forests in Alabama	3.1			2.2	3.1		2.8	2.6
National forests in Florida	2.3	2.9	3.1	2.1	2.6	2.3	2.1	2.3
National forests in Mississippi	1.8			1.7	3.4			1.8
National forests in North Carolina	2.7	2.3	2.8	1.7	1.5	3.0	2.4	2.0
National forests in Texas	2.2	2.3	2.3	2.2	3.3		2.1	2.2
Nebraska		3.5	3.5	2.3			2.9	2.6
Nez Perce	2.9	2.3	2.7	2.3	3.0		2.7	2.6
Ochoco	3.6	2.3	1.6	2.6	2.9		2.5	2.6
Okanogan	1.8	2.2	2.4	1.5			2.2	1.9
Olympic	2.3	2.3	2.2	2.1	3.0	2.4	2.1	2.2
Ottawa	2.3	2.6	2.6	2.0	3.4		2.9	2.6

Table 25—People per vehicle by segment by forest[a] (continued)

National forest	Nonlocal			Local			Non-primary	Total
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Number				
Ouachita	2.6	2.5	3.1	1.9	2.4		2.3	2.3
Ozark-St. Francis	2.0	2.0	1.4	2.3	2.2	2.1	2.7	2.3
Payette	3.0	2.8	2.4	2.4			2.5	2.7
Pike-San Isabel	1.9	2.0	2.4	1.9	2.5		2.5	2.1
Plumas	2.2	2.4	2.7	2.6	2.6	2.9	2.6	2.6
Prescott	2.6	2.7	2.2	1.7	2.4		2.5	2.0
Rio Grande	1.7	2.2	3.0	2.2	2.7		2.4	2.4
Rogue River	3.1	2.5	2.2	2.6	2.1		2.9	2.7
Routt	1.6	2.4	2.9	1.7	3.4		2.6	2.2
Salmon-Challis	2.6	3.0	2.5	2.5			2.7	2.6
San Bernardino	2.8	2.6	2.9	2.2	2.0	3.3	3.0	2.4
San Juan	2.2	2.9	2.5	2.0	2.2		2.6	2.3
Santa Fe	2.2	2.6	2.5	1.8	2.6	2.0	2.4	2.0
Sawtooth	2.7	2.6	2.6	2.0	2.5		2.5	2.4
Sequoia	2.1	3.3	3.1	2.3	2.2		2.9	2.8
Shasta Trinity	2.6	2.6	2.8	2.0	1.9		2.3	2.2
Shawnee	2.9	2.2	2.5	2.2	2.7	2.3	2.2	2.4
Shoshone	2.6	2.7	2.4	2.0	1.7		2.6	2.3
Sierra	3.6	3.1	3.7	3.5	2.8	2.8	2.7	3.3
Siskiyou		2.3	2.2	2.5	2.5		2.2	2.4
Siuslaw	2.3	2.4	2.5	2.0	2.0		2.1	2.2
Six Rivers	3.3	2.7	2.5	2.4	3.1		2.7	2.6
Stanislaus	3.1	2.9	3.0	2.3	2.1		2.5	2.8
Superior		2.9	2.0	2.0			2.0	2.2
Tahoe	2.3	2.6	2.4	1.9	2.3	2.3	2.5	2.1
Tongass-Chatham		2.5	3.4	2.0	3.4	6.0	2.9	2.3
Tongass-Ketchikan	2.8	2.4	2.6	1.9	3.2		2.4	2.3
Tongass-Stikine			2.4	2.2	3.5		2.9	2.4
Tonto	2.6	3.1	2.2	2.2	2.2		2.5	2.3
Uinta	2.7	3.5	2.4	2.5	4.2		2.3	3.0
Umatilla	2.1	2.6		2.4	3.0		2.7	2.4
Umpqua	2.9	2.9		2.5	2.1		2.5	2.6
Wallowa-Whitman	2.9	2.2	2.9	2.7	3.4		2.3	2.6
Wasatch-Cache	2.6	3.3	2.7	2.2	3.2		2.8	2.3
Wayne	2.1	3.3	2.3	2.0	2.1		2.1	2.1
Wenatchee	2.2	2.2	2.2	2.5	2.2		2.4	2.3
White Mountain	2.2	2.4	2.8	2.0	2.1		3.3	2.6
White River	2.3	2.7	2.6	1.9	2.3		2.6	2.3
Willamette	2.5	2.3	2.5	2.1	2.5	2.7	2.8	2.4
Winema	2.5	2.7		2.5	2.4		2.5	2.5
National average	2.5	2.6	2.6	2.1	2.6	2.4	2.5	2.3

[a] Estimated from the full sample using the case weights. If a forest has less than 15 cases in a segment, the value is left blank. In these instances the national average may be used. OVN = overnight, NF = national forest.

Table 26—Average number of nights spent in the local area by segment by forest[a]

National forest	Nonlocal		Local		Non-primary
	OVN-NF	OVN	OVN-NF	OVN	
	Number of nights				
Allegheny	2.6	2.9	2.1		1.3
Angeles	1.7		1.9		4.3
Apache-Sitgreaves	2.9	4.0			5.2
Arapaho-Roosevelt	3.1	4.0	2.1	2.7	2.0
Ashley	4.9	2.8	1.6		1.6
Beaverhead-Deerlodge	5.1	9.7	2.7		3.8
Bighorn	3.9	4.8	2.4		1.2
Bitterroot	2.7	4.1	1.8		3.5
Black Hills	3.5	4.2	2.1		4.0
Boise	2.6	8.0	2.6		1.2
Bridger-Teton	4.0	5.7	3.2		3.4
Caribbean		6.8			4.6
Caribou-Targhee	4.7	4.9	1.9		3.5
Carson	2.9	4.5	3.9		3.8
Chattahoochee-Oconee	2.2	4.7	1.9		3.5
Chequamegon-Nicolet	3.2	2.7	3.0		2.3
Cherokee	2.2	3.1	2.7	2.2	3.7
Chippewa	3.6	2.5	3.2		1.2
Chugach	3.4	5.0	1.9		3.3
Cibola	3.5	5.8			3.8
Clearwater	3.6	4.4	4.0		1.7
Cleveland	1.9		1.6		0.8
Coconino	2.9	4.9	1.3		3.2
Columbia River Gorge	4.5	3.2	1.9		2.6
Colville	2.9	2.6	2.6		2.3
Coronado	2.7	5.6	1.6	4.4	5.3
Custer	3.2	4.1	1.9		1.8
Dakota Prairie	2.9	2.4	2.1		0.9
Daniel Boone	2.4	3.6	2.7	4.0	1.0
Deschutes	3.4	3.6	3.2	3.3	3.8
Dixie	2.9	3.5	1.3		3.9
Eldorado	2.9	2.7	2.2		2.3
Fishlake	3.6	5.9	2.5		3.0
Flathead	4.5	4.3	1.7		4.1
Francis Marion-Sumter	2.8	2.4	2.0		3.8
Fremont	7.8				2.4
Gallatin	3.8	6.0	2.3		4.2
George Washington-Jefferson	4.0	5.2	2.4	3.0	1.5
Gifford Pinchot	3.9	2.9	2.3		1.7

Table 26—Average number of nights spent in the local area by segment by forest[a] (continued)

National forest	Nonlocal		Local		Non-primary
	OVN-NF	OVN	OVN-NF	OVN	
	Number of nights				
Gila	3.4	4.3			1.9
Grand Mesa-Uncompahgre-Gunnison	4.0	3.8	2.2	2.3	3.7
Green Mountain and Finger Lakes	2.9	3.2	1.6		3.1
Helena	3.9	5.0	2.6		3.4
Hiawatha	4.3	4.8	2.7		3.3
Hoosier	2.1	2.2	1.9		2.2
Humboldt-Toiyabe	3.5	4.9	1.8	6.6	3.6
Huron-Manistee	3.5	3.4	4.5	5.1	1.8
Idaho Panhandle	3.1	4.4	2.2	1.5	2.3
Inyo	4.0	3.8			3.2
Kaibab	4.1	2.2			1.9
Kisatchie	2.1	0.7	2.5		0.4
Klamath	5.0	3.9	1.3		5.5
Kootenai	4.5	6.9	2.6		2.2
Lake Tahoe Management Unit	4.6	4.3	2.5		3.0
Land Between the Lakes	6.4	4.6	6.0		2.9
Lassen	5.1	2.7	3.8		1.3
Lewis and Clark	3.3	6.1			1.9
Lincoln	3.2	4.6	2.4		2.3
Lolo	3.5	3.4	3.9	2.7	2.0
Los Padres	2.3	3.0	2.2		2.0
Malheur	5.5	11.0			1.0
Manti-La Sal	2.5	2.8	2.1		2.9
Mark Twain	2.8	3.6	2.5		1.0
Medicine Bow	4.0	4.5	2.6		2.8
Mendocino	2.3		2.2		1.8
Midewin Tallgrass Prairie					
Modoc	4.2	4.2	3.8		1.4
Monongahela	2.7	2.7	1.0		3.1
Mount Baker-Snoqualmie	2.2	6.7	1.8		1.0
Mount Hood	2.3	4.3	1.7		1.5
National forests in Alabama			2.0		1.5
National forests in Florida	2.5	2.9	2.5	2.8	1.6
National forests in Mississippi			1.8		
National forests in North Carolina	2.1	3.7	3.7	3.6	2.5
National forests in Texas	3.3	4.1	3.3		2.0
Nebraska	1.9	5.0			2.0
Nez Perce	3.9	3.5	1.5		3.3

Table 26—Average number of nights spent in the local area by segment by forest[a] (continued)

National forest	Nonlocal		Local		Non-primary
	OVN-NF	OVN	OVN-NF	OVN	
	Number of nights				
Ochoco	6.3	2.3	5.6		1.0
Okanogan	3.2	4.0			3.7
Olympic	2.1	3.5	1.8	5.1	1.1
Ottawa	5.6	4.0	2.9		3.0
Ouachita	2.6	2.1	2.3		1.4
Ozark-St. Francis	1.8	2.0	2.3	1.1	0.4
Payette	2.6	3.4			1.4
Pike-San Isabel	2.9	5.6	1.9		2.0
Plumas	2.5	4.2	2.2	2.4	3.6
Prescott	2.1	3.6	2.9		2.7
Rio Grande	3.0	4.3	2.5		3.3
Rogue River	1.9	2.6	3.8		1.2
Routt	3.6	5.1	1.9		4.5
Salmon-Challis	3.1	3.1			1.6
San Bernardino	1.9	2.9	1.8	3.5	2.1
San Juan	4.8	5.3	2.0		3.5
Santa Fe	2.4	4.8	2.1	4.4	4.4
Sawtooth	2.8	6.0	2.6		2.8
Sequoia	3.1	3.4	2.0		2.8
Shasta Trinity	3.2	3.5	2.2		3.1
Shawnee	2.7	3.5	2.6	2.0	2.3
Shoshone	2.9	4.6	1.5		4.0
Sierra	2.6	3.1	2.8	2.1	3.2
Siskiyou	4.0	9.0	2.0		2.1
Siuslaw	2.6	3.6	1.9		2.6
Six Rivers	2.9	4.4	1.9		1.4
Stanislaus	2.9	3.3	4.0		2.8
Superior	4.0	5.2			3.5
Tahoe	3.1	3.5	2.7	2.7	2.6
Tongass-Chatham	4.7	7.4	2.7	1.0	1.5
Tongass-Ketchikan	5.4	2.6	3.1		3.5
Tongass-Stikine		4.6	2.5		6.0
Tonto	2.0	3.8	1.4		3.4
Uinta	2.3	5.9	2.2		2.6
Umatilla	3.7		1.6		1.5
Umpqua	3.0		2.1		1.9
Wallowa Whitman	3.0	3.4	1.7		2.0

Table 26—Average number of nights spent in the local area by segment by forest[a] (continued)

National forest	Nonlocal		Local		Non-primary
	OVN-NF	OVN	OVN-NF	OVN	
	Number of nights				
Wasatch-Cache	3.0	9.2	2.3		4.1
Wayne	2.3	2.6	2.0		0.4
Wenatchee	2.1	1.5	1.8		1.5
White Mountain	2.5	4.0	1.7		3.4
White River	3.2	6.3	1.6		5.5
Willamette	3.4	3.2	2.3	2.6	1.9
Winema	4.3		2.9		1.1
National average	3.2	4.4	2.4	3.7	2.9

[a] Estimated using the full data set and the case weights. If a forest has less than 15 cases in a segment, the value is left blank. In these instances, the national average may be used. OVN = overnight, NF = national forest.

When making spending and contribution/ economic impact estimates, some decisions must be made regarding which visits or spending should be counted.

6. Apply total spending within spending categories as final demand changes to an I-O model for the local region—The total spending estimated within each spending category can be applied to an I-O model for the local region using appropriate bridge tables to match the NVUM spending categories to IMpact Analysis for PLANning (IMPLAN) sectors. The spending profiles represent spending within a 50-mi radius of the forest.

7. Attribution issues—When making spending and contribution/economic impact estimates, some decisions must be made regarding which visits or spending should be counted. There are several alternatives. At one extreme is to count all spending within 50 mi of the forest by anyone who visits the national forest during a trip to the area. Adopting this extreme, all of the spending of anyone (including locals and nonprimary visitors) who visits the forest would be counted. This approach would include spending from incidental visits and quite a bit of spending not directly related to recreating on the national forest. At the other extreme is to make a "with vs. without" impact estimate and count only trips and spending that would not have been made in the absence of the forest recreation opportunities. Most situations, however, call for something in between.

Whether to include spending by local residents is a common question. Some argue that local residents would spend the money locally regardless of the recreation opportunities on the national forest and that it doesn't represent "new" money to the region. Others are interested in capturing all spending associated with forest recreation trips, which includes local resident spending. Taking a "with vs. without" approach, the question is whether this spending would remain in the region

or go outside in the absence of forest recreation opportunities. If locals would go outside the region for recreation in the absence of national forest opportunities, their trip spending would represent a loss to the region's economy. A loss of $100 in local resident's trip spending has the same effects as the loss from not attracting a nonresident trip. It therefore should be included in a "with vs. without" economic impact assessment. In most cases, some local substitution would occur and some additional trips would go outside the region in the absence of national forest recreation opportunities, so there isn't a simple yes or no answer to the question of whether spending by local residents should be included. We recommend including spending by local residents to capture the economic contribution of forest recreation opportunities to the region, but excluding some or all of the local spending when estimating impacts.

More problematic are trips to the region that are not generated by the national forest, but are made for some other purpose. The "nonprimary" purpose trip segment is included in our analysis so that these trips and associated spending may be treated separately. We recommend using the local day trip spending profile for nonprimary purpose trips when estimating the contribution of the forest to the local economy. The rationale is that the local day trip profile covers the additional spending of a recreation visit to the national forest for visitors who are already in the area for some other reason. It possibly excludes several nights of lodging and other expenses that are evident in the nonprimary trip spending profile, on the basis that this spending was not associated with the national forest visit. Only the additional spending for the national forest visit is assumed to be lost to the local economy in the absence of national forest recreation opportunities. This procedure will omit some lodging and related expenses associated with extending a stay in the area to visit the national forest.

Some visitors would likely substitute other nearby recreation opportunities in the absence of those provided on the national forest. The extent of substitutions will depend on the local supply of recreation opportunities. In a pure "with vs. without" analysis, trips and associated spending that would not be lost to the region would also be excluded. Further study of substitution patterns would be required to fully address the substitution issue. More generally, many trips involving visits to the national forest will involve multiple purposes and activities, making it difficult in some cases to isolate which "caused" the trip to be made.

8. High spending recreation parties—Nationally, a majority of those on recreation visits to the National Forest System are associated with those who spend less than $50 during the trip. However, a limited number of visits involve high spending and, because of the fairly conservative spending outlier rule we adopt in estimating

spending profiles, our standard spending profiles may not fully represent spending by these high spending groups. One such group, downhill skiers, do have high spending patterns, and we have identified a spending profile applicable to economic analyses involving downhill skiers. Another group with potentially high spending that **is** not represented in our standard spending profiles is visitors using guides and outfitters. If it was possible, we would have identified visits involving the use of guides and outfitters and constructed a spending profile for that group. However, in the current NVUM survey instrument, no question clearly identifies those respondents using guides and outfitters. Even if such a question existed, it is possible that the resulting sample size of respondents using guides and outfitters would be inadequate (because these visits are such a small component of total recreation use and these visitors may be using nontraditional entry and exit points, not identified in NVUM, between private lands and the national forest) to reliably estimate the spending patterns of those using guides and outfitters. One of the spending categories (recreation and entertainment) does include reference to recreation guide fees, but the generality of the spending category makes it impossible to definitively identify those reporting guide expenses.

In cases where the spending by visitors using guides and outfitters, or other analyses involving high spenders, is an important component of the economic analysis and that spending is not adequately represented by the existing spending profiles, the forest could opt to (1) use one of the high spending profiles (or the downhill skier profile) we have reported here for the component of recreation use associated with guides and outfitters, (2) use the results of other studies that have reported reliable estimates of average or total spending of visits associated with guides and outfitters, or (3) use an engineering approach to construct a guide and outfitter spending profile applicable to the specific application. For the last option, the analyst can use an existing profile (e.g., the national-level average spending profile) and modify the average spending values in the appropriate categories (e.g., recreation and entertainment and lodging) to reflect the average costs in the local area associated with guide and outfitter use.

In a previous analysis for a national forest in U.S. Department of Agriculture, Forest Service Eastern Region, an engineering approach to estimate the average spending of visitors using horseback riding guides and outfitters was used. We describe that process here as an example of how to use an engineering approach to modify existing spending profiles. In that application, horse users who were recreating on the forest and using guides and outfitters were divided into day visits (those hauling horses to the outfitter and then recreating on the forest) and overnight visits (those hauling horses, staying overnight on the outfitter property,

and taking day trips onto the forest). For the day-trip visits, we first determined the average spending in each expenditure category for local and nonlocal day trips using the national-level spending profile applicable to the forest. Next, we identified those expenditure categories that day horse users could reasonably be expected to have greater spending than other day users. Day horse users could reasonably be expected to pay more in gas and oil (as a result of hauling horse trailers) and could reasonably be expected to pay more in entry fees (to pay for parking at private horse outfitters that provide entry from their property to the forest). To account for this expected greater than average spending, we increased the total spending in the gas and oil expenditure category by $5 and increased the total spending in the entry fees category by $4 based on the published local prices at the time.

For overnight visits, we identified an appropriate overnight spending profile as a base from which to begin. To accommodate the needs of the specific application, we converted that per-trip spending profile to a per-night basis assuming an average of two nights per trip. Based on local knowledge and published rates, we determined that overnight horseback visitors could be expected to spend more for lodging and in restaurants and bars than other overnight visitors. After examining published local outfitter prices at the time, we determined that overnight horse visitor parties could reasonably be expected to pay $35 in lodging for campsites and cabins and $25 in restaurants, all located on the outfitters and guides' properties. We substituted these engineered expenditures estimated from local information into the appropriate spending categories in the per-night spending profile. Examination of local rates at the time indicated that parking fees on outfitter properties were waived for overnight visitors so we did not include additional expenditures in the entry fees expenditure category.

An Example: Estimating Total Spending for the Hiawatha National Forest

The above steps for applying the spending profiles are illustrated for the Hiawatha National Forest in Michigan's Upper Peninsula. Here we assume no visits by downhill skiers on the Hiawatha National Forest. Had there been downhill skier visits, we would have removed those visits from the estimate of total visits to the forest and duplicated the process detailed below for just the skier visits using the downhill skier spending profile (table 15). The number of recreation visits to the Hiawatha National Forest in 2007 was 546,000 based on the NVUM report (USDA FS 2007).

Computation of total visitor spending is shown in table 27. In Round 2, we are now able to estimate spending profiles on a per-trip basis and a per-day/night basis, whereas the Round 1 spending profiles could only be estimated on a per-trip basis.

Table 27—Visitor spending for Hiawatha National Forest using National Visitor Use Monitoring (NVUM) data[a]

	Nonlocal			Local			Non-	
	Day	OVN-NF	OVN	Day	OVN-NF	OVN	primary	Total[b]
Total recreation	–	–	–	–	–	–	–	546,000
Segment shares (percent)	3	4	25	39	4	1	24	100
Visits by segment[b]	16,380	21,840	136,500	212,940	21,840	5,460	131,040	546,000
Party size	2.4	2.4	2.7	1.9	2.5	2.4	2.5	
Avg. number of days/nights	1	4.3	4.8	1	2.7	3.7	3.3	
Party visits[b]	6,825	9,100	50,556	112,074	8,736	2,275	52,416	241,981
Visits (number of days and nights)[b]	6,825	39,130	242,667	112,074	23,587	8,418	52,416	485,116
Average spending ($) (party trip)	88.02	352.37	781.95	27.81	181.65	347.74	27.81[c]	
Average spending ($) (party day and night)	88.02	95.24	159.58	27.81	86.50	80.87	27.81[d]	
Spending total[b] ($)	601	3,207	39,532	3,117	1,587	791	1,458	50,292
Spending total (day and night)[b]	601	3,727	38,725	3,117	2,040	681	1,458	50,348

– = not applicable.

[a] Recreation visit estimate from Hiawatha National Forest NVUM report, segments shares from table 23, party sizes from table 25, average nights from table 26, and spending averages from tables 6 and 9. All figures expressed in 2009 dollars. OVN = overnight, NF = national forest.

[b] Calculated rows are visits by segment = total recreation visits x segment share, party visits = visits by segment party size, party visits on a days/nights basis = party visits x average number of days/nights, spending total = spending ($/party/trip) x party visits, spending total (using day/night profile) = spending ($/party/day and night) x party visits on a day/night basis.

[c] The spending average for local day trips is used for nonprimary purpose trips to capture only the marginal change in spending owing to the national forest visit.

[d] Here we assume that only 1 day of expenditures is associated with the visit to the national forest for nonprimary trips.

The approach to use the per-day/night spending profiles requires an additional calculation compared to the approach using the per-trip spending profiles. For most applications, we recommend using the per-day/night spending profiles because they better accommodate the different patterns of overnight length of stay across forests, whereas the per-trip spending profiles implicitly assume the same length of stay across forests. We detail both the per-trip and the per-day/night spending profile approaches below. We draw on several forest-specific figures from tables in appendixes 1 and 2. At some points in the calculation, because of small sample sizes, forest-specific parameters are not available, and we substitute national-level parameters.

Recreation visits are first allocated to trip segments using the Hiawatha segment share estimates from table 23. Next visits are converted to party-visit basis by dividing by party size from table 25. If using the per-day/night spending profile, these party visits must be converted to party visits on a day/night basis by multiplying by the average number of days/nights on the trip (table 26). Party visits (or party

visits on a per-day/night basis) are then multiplied by the per-party trip spending averages (or per-party day/night spending averages) to obtain total spending. The national high spending profiles are used in this example (tables 10 and 13) because the Hiawatha National Forest visitor spending patterns were deemed above the national average. Local visitors are included in this example, and the local day-trip spending average ($27.81) is applied to nonprimary purpose trips.

Based on these calculations, recreation visitors to the Hiawatha National Forest spent approximately $50 million ($2009) in the local region in 2007. Local day trips accounted for 39 percent of visits and 6 percent of spending. Nonlocals on overnight trips staying off the forest account for 79 percent of the spending in the local area. The forest attracts a large number of visits from the nonprimary segment (24 percent). Counting only the equivalent of local day trip spending (and just 1 day of expenditures when using the per-day/night spending profiles), the nonprimary segment accounts for $1.4 million in spending around the forest. Counting all spending by visitors whose primary purpose was not to recreate on the forest would increase spending attributed to the forest by $27 million. On the other hand, excluding all spending by local visitors would reduce the estimate by $5.5 million.

To obtain spending in detailed categories (tables 28 and 29), simply multiply party visits (or party visits on a day/night basis) for each segment by the complete spending profile for that segment (e.g., table 10 or table 13). This itemizes spending within specific categories/sectors. The greatest spending for Hiawatha National Forest visitors is for lodging (about $13.3 million), restaurant meals (approximately $11.1 million), gas and oil ($7.7 million), and groceries ($6.4 million).

As new recreation visit estimates become available, spending estimates may be updated by simply replacing the total visit estimate. Segment shares, party sizes, and spending averages based on the NVUM survey may also be modified as suggested by other local information sources or to simulate and evaluate future scenarios. In any event, the estimate of total spending for a given application should be based on the best estimates of each of the different inputs in the spending model.

Table 28—Total spending of Hiawatha National Forest recreation visitors using per-party/trip spending profiles[a]

Spending category	Nonlocal			Local			Non-primary	Total
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Dollars				
Motel	0	675	12,316	0	118	175	0	13,284
Camping	0	248	907	0	164	14	0	1,333
Restaurant	175	455	9,328	593	44	190	277	11,062
Groceries	59	623	4,133	473	696	200	221	6,405
Gas and oil	193	697	4,659	1,155	334	92	540	7,670
Other transportation	1	17	141	43	30	12	20	264
Entry fees	40	115	1,648	201	7	26	94	2,130
Recreation and entertainment	47	84	2,395	123	26	14	58	2,747
Sporting goods	20	164	1,079	439	150	40	205	2,098
Souvenirs and other expenses	66	129	2,925	89	18	28	41	3,295
Total	601	3,207	39,532	3,116	1,587	791	1,457	50,290

[a] All figures expressed in 2009 dollars. OVN = overnight, NF = national forest.

Table 29—Total spending of Hiawatha National Forest recreation visitors using the per-party per-day/night profiles[a]

Spending category	Nonlocal			Local			Non-primary	Total
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Dollars				
Motel	0	785	12,065	0	152	151	0	13,152
Camping	0	288	888	0	211	12	0	1,399
Restaurant	175	529	9,139	593	56	164	277	10,933
Groceries	59	724	4,050	473	895	172	221	6,594
Gas and oil	193	810	4,565	1,155	429	79	540	7,772
Other transportation	1	20	138	43	38	11	20	270
Entry fees	40	133	1,614	201	8	22	94	2,113
Recreation and entertainment	47	98	2,347	123	33	12	58	2,718
Sporting goods	20	191	1,058	439	193	34	205	2,141
Souvenirs and other expenses	66	150	2,866	89	23	24	41	3,259
Total	601	3,726	38,730	3,116	2,040	681	1,457	50,350

[a] All figures expressed in 2009 dollars. OVN = overnight, NF = national forest.

Appendix 2: Supplemental Tables for Completing Economic Analyses

Estimating the total spending, for the purposes of completing economic contribution analysis, of visitors to a recreation area is one use of the spending averages developed in this report. A variety of intermediate parameters and inputs are needed to estimate total spending. In this appendix, we provide the necessary parameters to estimate total spending of visitors to specific national forests or to all national forests collectively. In tables 30 and 31, we report results on recreation activities for all forests nationally.

Table 30—Participation in recreation activities and reported primary activity on the trip for all forests nationally

Recreation activity	Participating[a]	Primary activity[a]	All cases	Economic subsample
		Percent		
Biking	4	2	2,041	681
Boating[b]	6	3	3,846	1,263
Cross-country skiing	4	3	1,988	619
Developed camping	8	3	6,203	1,991
Downhill skiing	15	16	7,657	2,467
Driving	23	4	4,349	1,402
Fishing	13	8	8,892	2,911
General/relaxing	36	6	9,757	3,061
Hiking	41	19	22,767	7,224
Horseback riding	1	<1	1,091	380
Hunting	8	7	3,682	1,209
Nature related[b]	51	7	10,946	3,432
OHV use[b]	6	3	2,543	834
Other activity[b]	16	5	5,598	1,774
Other nonmotorized	6	2	4,154	1,295
Picnic	10	2	2,882	953
Primitive camping/backpacking	5	1	2,157	690
Resort	2	<1	451	150
Snowmobile	3	3	1,910	619
Multiple primary activities	0	1	1,704	591
No primary activity	0	<1	808	264
Total	0	100	105,516	33,810

[a] Estimated using case weights on full sample. Percentage of participating sums to more than 100 percent because respondents could check multiple activities.

[b] "Nature-related" activities include viewing wildlife, viewing natural features, nature study, or visiting a nature center. Off-highway vehicle ("OHV use") also includes other motorized activity and using motorized trails. "Boating" combines motorized and nonmotorized boating. The "Other activity" category includes gathering and visiting historical sites.

Table 31—Trip segment distribution by primary activity[a]

	Nonlocal			Local				
Primary activity	**Day**	**OVN-NF**	**OVN**	**Day**	**OVN-NF**	**OVN**	**Non-primary**	**Total**
				Percent				
Biking[b]	5	4	7	71	1	1	11	100
Boating[b]	12	15	13	43	4	1	12	100
Cross-country skiing	7	2	13	69	1	1	7	100
Developed camping	3	43	4	2	36	2	10	100
Downhill skiing	16	2	39	35	0	2	6	100
Driving	10	1	7	51	1	1	29	100
Fishing	13	13	9	55	3	1	6	100
General/relaxing	6	22	11	32	11	1	17	100
Hiking	8	4	9	62	1	1	15	100
Horseback riding	12	14	4	56	7	1	6	100
Hunting	10	15	10	55	5	2	3	100
Nature related[b]	10	4	12	34	1	1	38	100
OHV use[b]	10	11	8	58	4	1	8	100
Other activity[b]	9	6	7	60	2	1	15	100
Other nonmotorized	9	5	9	61	2	1	13	100
Picnic	12	8	8	54	3	1	14	100
Primitive camping/ backpacking	5	48	4	3	28	3	9	100
Resort	2	33	9	23	19	2	12	100
Snowmobile	16	3	18	50	1	1	11	100
Multiple activities	9	12	13	44	6	1	15	100
No primary activity	35	6	3	41	3	1	11	100
National average	10	9	14	49	4	1	13	100

[a] Estimated from the full sample using case weights. OVN = overnight, NF = national forest.

[b] "Nature-related" activities include viewing wildlife, viewing natural features, nature study, or visiting a nature center. Off-highway vehicle (OHV) use also includes other motorized activity and using motorized trails. "Boating" combines motorized and non-motorized boating. The "Other activity" category includes gathering and visiting historical sites.

Appendix 3: Wildlife-Related Visit Characteristics and Spending Averages

This appendix presents two sets of spending profiles for national forest visitors. One set is for visitors whose primary activity on the forest was wildlife related; the other is for visitors whose primary activity was one of 22 other general recreation activities (nonwildlife related). The wildlife-related activity spending profiles can be used to evaluate the economic contribution of wildlife-related recreation activity on national forests. Estimates are based on the National Visitor Use Monitoring (NVUM) data for the 5 years of the NVUM Round 2 (fiscal year 2005 through fiscal year 2009).

Wildlife-related respondents were identified by their answers to two questions on the NVUM survey: "What activities have you participated in while on this visit?" and "Of these, which was your primary recreation activity?" Respondents who selected "viewing wildlife," "hunting," or "fishing" as their primary recreation activity were considered wildlife-related visitors.

Fifty-two percent of national forest visits involved participation in a wildlife-related activity during the visit (table 32). Thirty-nine percent involved wildlife viewing, 14 percent involved fishing, and 8 percent involved hunting. For 18 percent of national forest visits, the primary recreation activity was wildlife related. Two percent of visits were related to viewing wildlife as the primary activity, 8 percent involved fishing, and 8 percent involved hunting as the primary activity. Only respondents to the economic portion of the survey who stated that their primary recreation activity was wildlife related are used in the subsequent analysis to estimate spending profiles for wildlife-related recreation.

Spending Profiles by Trip Segments

For some types of trips, the average spending of wildlife-related visitors is greater than that of other visitors (table 33). Wildlife-related visitors spent more per trip than nonwildlife visitors when on local day trips or nonlocal overnight national forest trips. Relative to the types of trips taken, wildlife-related visits are slightly more likely to be local day trips and nonlocal OVN-NF trips and less likely to be nonprimary trips than nonwildlife related visits. That pattern is explained in part because anglers and hunters are disproportionately likely to be on local day trips and nonlocal OVN-NF trips.

Tables 34 and 35 provide the detailed spending profiles for wildlife-related and nonwildlife related visitors, respectively. The spending profiles for nonwildlife-related visitors are similar to the overall national averages, because the majority of

Table 32—Participation in wildlife-related activity[a]

	All cases	Any wildlife-related	Viewing wildlife	Fishing	Hunting
General survey:					
Participated (No.)	105,516	61,511	50,512	18,636	4,611
Raw (percent)	100	58	48	18	4
Weighted (percent)[b]		52	39	14	8
Primary activity (No.)	105,179	15,163	2,258	9,047	3,858
Raw (percent)	100	14	2	9	4
Weighted (percent)[b]		18	2	8	8
Economic subsample:					
Primary activity (No.)	32,955	4,808	688	2,911	1,209
Raw (percent)	100	15	2	9	4
Weighted (percent)[b]		19	2	9	8

[a] Respondents identifying multiple primary activities or failing to provide a primary activity are excluded from primary activity figures.
[b] Weighted figures adjust the sample for sampling exposure and disproportionate sampling across National Visitor Use Monitoring (NVUM) strata using NVUM case weights.

Table 33—Comparison of wildlife-related and nonwildlife-related visitor spending[a]

	Nonlocal			Local			Non-primary	Total[b]
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
				Dollars				
Spending per party per trip:								
Wildlife related	$59	$281[d]	$450	$39[d]	$188	$180	$361	$141
Nonwildlife related	$63	$222[d]	$527	$32[d]	$158	$221	$371	$182
				Percent				
Segment shares:[c]								
Wildlife related	11	13	9	54	4	2	7	100
Nonwildlife related	10	8	15	47	4	1	15	100

[a] All dollar figures expressed in 2009 dollars.
[b] Spending averages are computed as a weighted average of the columns using the full information segment shares.
[c] Estimated from the full data using the case weights.
[d] Means that differ based on comparison of 95 percent confidence intervals. OVN = overnight, NF = national forest.

Table 34—Wildlife-related visitor spending by trip-type segment and spending category, dollars per party per trip[a]

Spending categories	Nonlocal			Local			Non-primary	All visits[b]
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
	Dollars							
Motel	0.00	33.10	101.29	0.00	9.92	13.75	107.02	21.58
Camping	0.00	25.15	24.13	0.00	22.31	26.88	16.33	8.01
Restaurant	7.75	28.75	80.11	3.04	7.04	14.76	78.39	19.51
Groceries	10.06	66.00	76.16	6.54	66.39	46.77	49.27	27.11
Gas and oil	26.62	70.11	82.87	16.57	45.73	38.02	51.11	34.61
Other transportation	0.02	2.20	1.57	0.31	2.49	1.52	4.65	1.05
Entry fees	1.36	13.07	21.16	1.52	1.67	4.00	9.56	5.39
Recreation and entertainment	2.97	8.26	20.79	1.35	3.36	4.25	11.71	5.04
Sporting goods	8.15	27.21	26.92	9.68	26.35	22.12	12.42	14.45
Souvenirs and other expenses	1.77	7.56	14.95	0.41	3.06	8.21	20.46	4.46
Total	58.69	281.42	449.94	39.42	188.32	180.29	360.93	141.22
Sample size (unweighted)	375	798	452	1,719	252	78	390	4,064
Standard deviation (total)	68	406	622	54	178	181	592	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. OVN = overnight, NF = national forest.

[b] The all-visit averages are computed as a weighted average of the columns using the wildlife-related segment shares as weights.

Table 35—Nonwildlife-related visitor spending by trip-type segment and spending category, dollars per party per trip[a]

Spending categories	Nonlocal			Local			Non-primary	All visits[b]
	Day	OVN-NF	OVN	Day	OVN-NF	OVN		
	Dollars							
Motel	0.00	33.65	161.56	0.00	4.66	38.48	115.57	44.83
Camping	0.00	27.22	17.83	0.00	23.83	14.84	11.55	7.69
Restaurant	16.89	25.71	117.40	5.65	6.74	38.44	89.55	38.10
Groceries	8.33	53.09	66.77	6.26	67.45	56.34	42.83	27.72
Gas and oil	22.43	48.36	68.90	12.02	36.30	40.69	48.15	31.18
Other transportation	0.70	1.73	4.45	0.09	0.18	0.99	3.14	1.41
Entry fees	5.24	7.90	17.85	2.32	4.08	7.52	11.25	6.85
Recreation and entertainment	4.62	7.56	28.36	1.53	3.52	5.99	17.17	8.82
Sporting goods	1.84	8.49	12.90	2.97	8.89	10.71	5.89	5.54
Souvenirs and other expenses	3.44	7.86	30.65	0.79	2.81	6.55	26.31	10.07
Total	63.49	221.59	526.66	31.63	158.47	220.56	371.41	182.20
Sample size (unweighted)	1,849	3,478	2,610	8,113	1,557	367	4,347	22,321
Standard deviation (total)	72	352	649	48	185	359	606	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. These averages exclude visitors who claimed their primary activity was downhill skiing. OVN = overnight, NF = national forest.

[b] The all-visit averages are computed as a weighted average of the columns using the nonwildlife-related segment shares as weights.

visitors fall into this group. The higher spending by wildlife-related visitors in some trip segments results primarily from higher spending on sporting goods and gas and oil.

High and Low Spending Averages

Table 36 provides a high spending profile similar to table 10, but for visitors who specified their primary activity was wildlife related. In many cases, when completing analyses for wildlife-related recreation, a forest identified as a high spending area (table 22) should use the profile in table 36 instead of the national average in table 34. Similarly, forests identified as low spending areas (table 22) should use the averages in table 37 for many wildlife-related analyses. The high and low spending profiles also can be used for wildlife-related visitor economic analysis aimed at specific geographical areas around a national forest with higher or lower than average spending opportunities or prices.

Table 36—High spending profiles for wildlife-related visitors by trip-type segment and spending category, dollars per party per trip[a]

	Nonlocal		Local			
Spending category	Day	Over-night	Day	Over-night	Non-primary	All visits[b]
			Dollars			
Motel	0.00	149.79	0.00	35.43	247.14	52.38
Camping	0.00	23.32	0.00	22.65	8.80	7.11
Restaurant	7.12	98.03	4.50	10.42	169.53	37.27
Groceries	6.36	93.19	5.81	90.69	76.57	35.14
Gas and oil	26.44	97.29	15.58	37.16	82.02	40.70
Other transportation	0.22	5.25	1.98	19.53	7.66	3.96
Entry fees	4.17	38.07	1.76	1.15	28.92	11.88
Recreation and entertainment	4.76	15.32	1.02	5.43	18.70	6.08
Sporting goods	11.31	40.46	12.21	53.07	20.69	21.37
Souvenirs and other expenses	7.05	28.97	0.19	4.36	55.37	11.39
Total	67.42	589.70	43.05	279.90	715.40	227.27
Sample size (unweighted)	29	184	194	28	74	509
Standard deviation (total)	67	800	66	256	780	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. We have combined the overnight national forest and overnight (OVN-NF and OVN) segments into a single overnight segment.

[b] The all-visit averages are computed as a weighted average of the columns using the wildlife-related segment shares as weights.

Table 37—Low spending profiles for wildlife-related visitors by trip-type segment and spending category, dollars per party per trip[a]

	Nonlocal		Local			
Spending category	**Day**	**Over-night**	**Day**	**Over-night**	**Non-primary**	**All visits[b]**
			Dollars			
Motel	0	26.17	0	3.84	58.22	10.06
Camping	0	17.22	0	22.82	6.99	5.65
Restaurant	7.53	26.95	2.23	6.19	37.86	10.98
Groceries	10.02	53.80	5.47	54.01	24.53	20.85
Gas and oil	25.95	69.20	15.85	39.41	37.64	31.64
Other transportation	0	0.62	0	0.38	0	0.16
Entry fees	0.54	2.83	0.96	2.04	3.20	1.55
Recreation and entertainment	2.00	6.53	1.17	1.76	3.25	2.62
Sporting goods	8.00	19.34	8.49	27.42	6.26	11.80
Souvenirs and other expenses	1.98	4.48	0.40	4.63	6.64	2.16
Total	56.02	227.14	34.57	162.50	184.58	97.47
Sample size (unweighted)	144	359	751	146	113	1,513
Standard deviation (total)	70	303	44	147	328	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. We have combined the overnight national forest and overnight (OVN-NF and OVN) segments into a single overnight segment.

[b] The all-visit averages are computed as a weighted average of the columns using the wildlife-related segment shares as weights.

Tables 38 and 39 also provide high and low spending profiles, respectively, but these profiles **exclude** visitors who stated their primary activity was wildlife related. These tables can be used for economic analysis aimed at specific geographical areas around a national forest with higher or lower than average spending opportunities or prices, where it is desired to exclude wildlife-related visitation from the analysis. These tables are likely applicable only for those completing a strict programmatic analysis aimed at wildlife-related recreation.

Visitors whose primary activity was wildlife-related typically were recreating in smaller travel parties.

Wildlife-Related Visitor Trip and Party Characteristics

Visitors whose primary activity was wildlife-related typically were recreating in smaller travel parties (table 40). For wildlife-related visitors, nonprimary trips involved the largest travel parties. On average, the number of nights in the local area is similar for wildlife and nonwildlife groups. However, wildlife-related visitors staying overnight on the national forest had longer lengths of stay compared to nonwildlife-related visitors. Those wildlife-related visitors were likely hunters and anglers who are in the area for an extended trip.

Wildlife-Related Visits

The percentage of visits where the primary activity was wildlife-related differs across forests (table 41). For some forests, the percentage of visits that are wildlife-related is sensitive to the choice of weights—although this sensitivity is less than was found in Round 1. For example, for Land Between the Lakes National Recreation Area, the percentage of wildlife-related visits is 31 percent unweighted but increases to 49 percent when case weights are applied. Conversely, 40 percent of the visits on the Modoc National Forest were wildlife-related visits unweighted, but after applying the case weights, the share of wildlife-related visits decreases to 19 percent. Figures in table 41 should be used cautiously if the weighted and unweighted estimates are very different. The percentage of the NVUM visits classified as wildlife related on each forest depends somewhat on the relative proportion of site days assigned to distinct locations and seasons, as these may differentially attract wildlife-related visitors.

Table 38—High spending profiles for nonwildlife-related visitors by trip-type segment and spending category, dollars per party per trip[a]

	Nonlocal		Local			
Spending category	**Day**	**Over-night**	**Day**	**Over-night**	**Non-primary**	**All visits[b]**
			Dollars			
Motel	0.00	191.80	0.00	27.80	171.06	71.16
Camping	0.00	20.74	0.00	14.71	9.50	6.93
Restaurant	28.21	145.33	5.41	26.05	135.46	60.41
Groceries	8.92	74.66	3.98	80.27	48.80	31.27
Gas and oil	28.58	85.16	9.52	38.99	54.08	36.98
Other transportation	0.16	2.02	0.13	1.50	5.60	1.46
Entry fees	6.18	23.82	1.80	3.61	22.89	10.55
Recreation and entertainment	7.18	37.49	1.12	3.50	28.44	14.31
Sporting goods	1.75	16.94	2.66	11.79	9.46	7.33
Souvenirs and other expenses	9.97	45.25	0.88	4.58	44.27	18.69
Total	90.96	643.20	25.50	212.80	529.57	259.09
Sample size (unweighted)	184	1,064	1,275	170	974	3,667
Standard deviation (total)	95	718	47	357	660	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. We have combined the overnight national forest and overnight (OVN-NF and OVN) segments into a single overnight segment. These averages exclude visitors who claimed their primary activity was downhill skiing.

[b] The all-visit averages are computed as a weighted average of the columns using the nonwildlife-related segment shares as weights.

Table 39—Low spending profiles for nonwildlife-related visitors by trip-type segment and spending category, dollars per party per trip[a]

	Nonlocal		Local			
Spending category	Day	Over-night	Day	Over-night	Non-primary	All visits[b]
			Dollars			
Motel	0.00	31.43	0.00	4.46	65.31	17.25
Camping	0.00	24.17	0.00	27.09	11.18	8.59
Restaurant	12.84	27.13	4.72	7.62	45.29	16.92
Groceries	7.94	46.64	6.66	64.66	26.87	21.91
Gas and oil	20.48	45.35	12.29	35.42	39.59	25.96
Other transportation	0.97	0.47	0.01	0.14	0.51	0.29
Entry fees	5.21	6.94	2.51	3.37	5.41	4.28
Recreation and entertainment	5.15	7.83	1.87	4.78	5.73	4.29
Sporting goods	1.65	5.92	3.16	9.95	2.36	3.86
Souvenirs and other expenses	2.05	7.47	0.54	3.30	12.98	4.29
Total	56.28	203.35	31.75	160.78	215.23	107.64
Sample size (unweighted)	752	1,816	2,953	826	1,015	7,362
Standard deviation (total)	61	253	45	186	454	n/a

n/a = not applicable.

[a] Outliers are excluded and exposure weights are applied in estimating spending averages. All figures expressed in 2009 dollars. We have combined the overnight national forest and overnight (OVN-NF and OVN) segments into a single overnight segment. These averages exclude visitors who claimed their primary activity was downhill skiing.

[b] The all-visit averages are computed as a weighted average of the columns using the nonwildlife-related segment shares as weights.

Table 40—Wildlife-related and nonwildlife-related visitor characteristics[a]

		Nonlocal			Local				
Characteristic	Wildlife related	Day	OVN-NF	OVN	DAY	OVN-NF	OVN	Non-primary	Total
					Number				
People per vehicle	Yes	2.1	2.2	2.2	1.9	2.2	2.0	2.3	2.0
	No	2.6	2.8	2.7	2.1	2.7	2.6	2.6	2.4
Nights in the local area	Yes		4.0	4.3		2.9	4.4	2.5	1.3
	No		2.9	4.4		2.3	3.4	2.9	1.3

[a] Estimated from the full sample using the case weights. OVN = overnight, NF = national forest.

Table 41—Percentage of wildlife-related visits by forest[a]

National forest	No weights	Exposure weights	Case weights
		Percent	
Allegheny	19	21	43
Angeles	7	8	7
Apache-Sitgreaves	27	27	25
Arapaho-Roosevelt	15	15	18
Ashley	26	26	41
Beaverhead-Deerlodge	35	36	42
Bighorn	11	11	22
Bitterroot	16	16	16
Black Hills	22	25	18
Boise	20	19	24
Bridger-Teton	16	14	15
Caribbean	8	7	7
Caribou-Targhee	9	8	20
Carson	9	8	12
Chattahoochee-Oconee	21	21	22
Chequamegon-Nicolet	12	12	20
Cherokee	10	10	18
Chippewa	46	46	49
Chugach	26	22	22
Cibola	9	9	12
Clearwater	24	24	29
Cleveland	4	3	3
Coconino	3	4	7
Columbia River Gorge	2	2	2
Colville	12	12	7
Coronado	7	6	11
Custer	16	14	13
Dakota Prairie	40	41	38
Daniel Boone	9	11	23
Deschutes	15	15	15
Dixie	21	22	24
Eldorado	9	9	10
Fishlake	43	39	49
Flathead	19	20	30
Francis Marion-Sumter	29	28	32
Fremont	41	41	66
Gallatin	10	8	8
George Washington-Jefferson	25	24	31
Gifford Pinchot	12	15	18
Gila	32	38	30
Grand Mesa-Uncompahgre-Gunnison	17	15	10

Table 41—Percentage of wildlife-related visits by forest[a] (continued)

National forest	No weights	Exposure weights	Case weights
		Percent	
Green Mountain and Finger Lakes	8	9	14
Helena	20	20	24
Hiawatha	8	8	18
Hoosier	20	20	21
Humboldt-Toiyabe	7	6	7
Huron-Manistee	31	31	49
Idaho Panhandle	15	15	26
Inyo	14	12	10
Kaibab	5	4	12
Kisatchie	23	23	30
Klamath	11	11	21
Kootenai	20	23	37
Lake Tahoe Management Unit	2	3	3
Land Between the Lakes	31	35	49
Lassen	33	35	31
Lewis and Clark	16	16	30
Lincoln	5	5	5
Lolo	9	8	10
Los Padres	9	8	8
Malheur	30	28	48
Manti-La Sal	25	24	24
Mark Twain	23	22	26
Medicine Bow	20	20	23
Mendocino	5	4	5
Midewin Tallgrass Prairie	45	43	46
Modoc	40	38	19
Monongahela	19	17	8
Mount Baker-Snoqualmie	1	1	1
Mount Hood	5	5	6
National forests in Alabama	6	6	13
National forests in Florida	16	16	40
National forests in Mississippi	43	42	50
National forests in North Carolina	11	10	16
National forests in Texas	43	43	59
Nebraska	21	21	41
Nez Perce	14	14	17
Ochoco	23	24	22
Okanogan	10	10	14
Olympic	7	8	27
Ottawa	18	19	16
Ouachita	17	18	40

Table 41—Percentage of wildlife-related visits by forest[a] (continued)

National forest	No weights	Exposure weights	Case weights
		Percent	
Ozark-St. Francis	12	13	41
Payette	21	20	29
Pike-San Isabel	10	10	27
Plumas	28	30	29
Prescott	10	10	7
Rio Grande	14	12	13
Rogue River	10	9	12
Routt	9	9	5
Salmon-Challis	44	49	45
San Bernardino	8	8	4
San Juan	9	9	9
Santa Fe	13	10	7
Sawtooth	8	8	9
Sequoia	11	15	18
Shasta Trinity	17	17	22
Shawnee	10	11	18
Shoshone	14	12	16
Sierra	6	4	6
Siskiyou	13	13	24
Siuslaw	15	16	12
Six Rivers	10	9	19
Stanislaus	12	11	24
Superior	22	21	21
Tahoe	13	12	14
Tongass	14	11	15
Tonto	15	14	15
Uinta	15	15	11
Umatilla	20	18	20
Umpqua	23	27	37
Wallowa-Whitman	20	21	25
Wasatch-Cache	6	5	3
Wayne	12	11	21
Wenatchee	13	15	28
White Mountain	2	2	1
White River	6	6	2
Willamette	19	19	20
Winema	28	28	24
National average	14	14	18

[a] Wildlife-related percentages are estimated using the full sample. Respondents reporting multiple primary activities or failing to provide a primary activity are excluded.

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