

# **The 2013 Supporting Statement Part B for OMB 0596-0110** **NATIONAL VISITOR USE MONITORING**

**Note:** This request is for the revision and extension the National Visitor Use Monitoring (NVUM) survey and the continued use of NVUM by Department of Interior agencies.

## **B. Collections of Information Employing Statistical Methods**

- 1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.**

### Respondent universe:

Approximately 200 million separate recreation site visits occur on National Forests annually. The exact number is not known. Obtaining credible estimates of visitation is one of the primary reasons for this collection. These recreation site visits constitute the primary sampling universe. In reporting visitation for GRPA and other purposes, the National Forest visit has been chosen as the most appropriate unit. Visits best describe the principal focus for current Forest Service management for recreation, i.e., the National Forest visitor as the customer, and the trips to National Forests for recreation. Visits represent a body of discrete units which can be easily defined both spatially and temporally. Visits are also closely analogous to recreation trips, which is a complete unit of consumption as viewed from the perspective of the visitor. The recreation trip is the most widely used and theoretically correct unit for measuring recreation demand and value.

The most current estimates are for FY2011. The visit estimates from 2011 by type of site are:

Day Use Sites:	70 million
Overnight Sites:	18 million
General Forest Areas:	105 million
<u>Wilderness:</u>	<u>8 million</u>
Total:	201 million

### Sampling:

Sampling of respondents is a multi-stage process. The first stage reflects a site/day combination. This stage places the interviewer in space and time. The sites are most often portals where visitors enter and exit the forest landscape; they are generally located at the border of the forest. Some sites are at exits of developed sites such as picnic areas, campgrounds, or downhill ski areas. These portals represent the full set of locations that visitors could use to exit the forest after completing a recreation visit to some place within the forest. That is, these sites jointly account for all of the exits used by recreation visitors. For each

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location, every day of the year for field data collection is categorized into one of 5 expected exiting volume levels. The combination of location and exit volume level determine the sampling stratum.

In the second stage, interviewers are randomly assigned one of two 6-hour windows in the day, to count exiting traffic and sample all possible exiting visitor parties within the identified sampling period. Two different 6-hour periods are used, which jointly cover the daylight hours in which visitors would be exiting the recreation site. This method is unbiased, because the first party exiting through the checkpoint is selected, and upon completion of the interview, the next available exiting party is selected. The number of visitor parties exiting during an interview is not systematic. Impartiality in selection for interviewing is stressed in interviewer training. All parties exiting are counted, and the number of intervening unsampled parties is obtainable. In the third stage, once the party is stopped, interviewers choose a particular respondent from within the party through random selection among persons age 16 or older. These sampling procedures apply to all site types, including viewing corridors.

## Expected Response Rates:

The primary contact for all modules in this collection is an on-site visitor survey. Previous experience with this collection shows a response rate of about 85 percent of those contacted, and that response rate is expected in the future.

## **2. Describe the procedures for the collection of information including:**

- **Statistical methodology for stratification and sample selection,**
- **Estimation procedure,**
- **Degree of accuracy needed for the purpose described in the justification,**
- **Unusual problems requiring specialized sampling procedures, and**
- **Any use of periodic (less frequent than annual) data collection cycles to reduce burden.**

### **STATISTICAL METHODOLOGY**

In NVUM applications, categorizing recreation sites and areas is done with five strata of locations:

- o Day Use Developed Sites (DUDS) includes sites with facilities that meet the Forest Service definition for development scales of Moderate, Heavily, or High degree of modification. Generally the facilities provided include visitor comfort, convenience, and education opportunities. Site with facilities provided for health and safety only are not generally considered developed sites. These sites are intended for day (as opposed to overnight) use. This includes boating, picnic sites, fish viewing sites, fishing sites, information sites, interpretive sites, shooting ranges, observation sites, playground-park sports site, ski areas both alpine and Nordic, wildlife viewing sites, caves, visitor centers, museums, swimming areas, and other winter sport sites.

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- o Overnight Use Developed Sites (OUDS) meet the definition for development scales of Moderate, Heavily, or High degree of modification. These sites include campgrounds (family & group), fire lookout & cabins, hotels, lodges, resorts, horse camps, organization sites (both publicly and private owned), and any other overnight developed sites on agency lands whether managed by the government or by concession.
- o Wilderness Areas (WA) include agency lands and waters that are part of the National Wilderness Preservation System. Wilderness Study areas, Research Natural Areas, or other roadless areas may be included in this stratum for NVUM applications on BLM lands.
- o General Forest Area (GFA) includes all of the residual part of the agency's lands not included in any of the above categories. On BLM lands, this category is termed General Public Lands (GPL), although the operational definition is the same. The sample points will generally be either on roads with speeds of 40 mph or less or at trailheads. Most dispersed types of use such as hiking, hunting, and dispersed camping will be captured here. These sites represent the set of portals through which the public can access and exit from the full range of undeveloped portions of the land base (not including Wilderness Areas). Most often, these sites are located at the border of the forests, where visitors are exiting NFS lands. This approach reduces the need to identify, categorize, and survey at every location within the forest that is suitable for some form of recreation. These sites capture nearly all exiting recreation traffic, regardless of activity or specific location visited. As such, they contain the potential to include all types of visitors, regardless of activity participation or area visited in the sampled population of visits.
- o Viewing Corridors: This is a fifth type of site that is not on the agency's lands. This type of site is a sightseeing corridor, which includes travel corridors that permit travel through or adjacent to the agency's lands. These corridors provide visitors the opportunity to view the natural scenery on agency-managed lands, but the viewing locations are not usually on the agency's lands. Because this category potentially includes a very large volume of recreational activity, it is included in this study. Use of cruise ships that travel waters off the coast of Alaska is included in the definition of a viewing corridor activity. For most locations, the viewing corridor interview form collects the information needed to obtain an estimate of the magnitude of this sort of use. Due to the nature of cruise ship activity and visitor patterns in Alaska, a sampling form specific to that type of viewing corridor activity has been developed. For visitors to be included in this strata they must meet the following definition:
  - The use of highways or roads on or through the agency's lands should be reported only when the primary purpose of the trip is recreational. Do not count commuter, commercial or other incidental non-recreation traffic. Stops at other developed sites, or time spent in more specific types of activities should be reported for the site or area on which they occur. Do not count use for

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commercial planes, trains, buses, boats, etc unless these are scheduled as scenic tours with informational services.

Defining Site-days. Some sites are open and available for public recreation use every day of the year; others are open only part of the year. Any day that a site is open defines a spatial and temporal combination within which the amount of recreation use can be measured. In this study, the combination of a site open for a calendar day is called, quite simply, a `site-day'. Site-days form the primary sampling unit for the first stage of the study design.

A second level of stratification is based on the expected volume of exiting recreation traffic for the site-day. The stratification is developed in comparison with all site-days on the forest in that site type. Five stratification levels are used: Very High, High, Medium, Low, and No Use. The 'No Use' category includes site-days outside of the managed use season, as well as site-days that may be technically open for public to use or exit from the area, but there is zero expected exiting visitation.

At some sites, the agency obtains a count of some measure that is directly related to recreation visitation, such as fees, mandatory permits, reservations, permanent traffic counts, or site usage reports from concessionaires. At these sites, the type of site and type of visitation proxy information define the sampling stratum.

## **ESTIMATION PROCEDURES**

For NVUM applications, the following table describes the information needs and statistical procedures used to estimate them:

<b>Information needed</b>	<b>Technical Procedures</b>	<b>Statistical Procedures</b>
Profiles and characteristics of visits and visitors	Descriptive arrays, frequencies, weighted means	Means, medians, modes, cross-tabulations, confidence intervals
Demand models and Economic Values	Travel cost models	Count data regressions
Economic Impacts	Input/Output analysis	Weighted Means, ANOVA

The NVUM module uses standard statistical procedures for its stratified random sample to develop estimates of total recreation visits per Forest, and estimate associated confidence intervals. The sampling design for the site visit estimate is based on a stratified random sampling design. Thus, the estimator is calculated using the typical equations in Cochran for a stratified random sample and we do not need to use probabilities of selection. We do not do any adjusting for frame error, sampling error, nonresponse bias (unit and item) or measurement error and, therefore, no calibration or adjusting weights are used. We derive the probabilities of selection for each sampled item from the stratified random sampling equations (which are simply  $n_h/N_h$  for items in

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stratum h). Then we use weights that are the inverse of the probabilities of selection to compute the estimates.

### **DEGREE OF ACCURACY**

The NVUM project has a statistical goal of providing estimates of National Forest visits, at the national, regional and forest levels that are sufficiently precise so that the upper and lower bounds of the 90% confidence interval are within 20% of the point estimate of visitation. No degrees of accuracy have been set for any of the visit characteristics, satisfaction, economics, or other results.

### **UNUSUAL PROBLEMS**

The Alaska region and some other undeveloped Forest Service areas contain a number of remote recreation cabins in or near Wilderness areas that are only accessible by float plane or long hikes. In order to reduce staff time and travel costs in sampling usage at these areas, phone interviews are conducted after the visit has ended. All of these cabins require the user to make a prior reservation by phone or e-mail. The phone number listed on the visitors cabin reservation is used to call them. In these cases, the same interview is conducted, but the method of contact is different. Phone numbers are not retained as part of the NVUM data.

### **PERIODIC DATA COLLECTION**

NVUM has a five-year period for a sampling cycle that covers all national forest units, rather than attempting to monitor recreation use on each Forest each year. This level of frequency is considered sufficient to capture emerging recreation trends, and places recreation monitoring on a frequency equal to that of other forest resource outputs, and matches the forest planning cycles. Less frequent data collection would compromise the agency's ability to track trends, to employ recent recreation data in forest planning documents, and meet reporting standards.

### **3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.**

Experience has shown that non-responses most often occur from language barriers with non-English speaking visitors. Discussions with interviewers have shown that the most common language for non-English speakers is Spanish. In applications in the South and West, interviewers are sought who are fluent in both English and Spanish. The NVUM is available nationwide in a Spanish version as well as English version, to reduce this source of non-response.

Interviewers are well-trained, wear official hats, vests, and/or name tags to identify themselves, and characteristically proceed with the interview process courteously and quickly. Interviewers are trained to elicit responses from traffic exiting the site or area. To further facilitate a high response rate the interviewer provides the respondent with information about the survey, its uses,

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and its importance. Since the overall response rate during the last 3 years has been 85 percent, bias resulting from non-response is not expected.

**4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of tests may be submitted for approval separately or in combination with the main collection of information.**

During this collection approval period three types of method testing will occur.

- o The use of Electronic field data recorders (EDRs) will be tested. EDRs have several potential advantages over paper interview forms. For example, EDRs can increase accuracy in field data collection, and reduce costs for shipping forms to field locations and to NVUM's data entry site. However, it is not known how often the EDRs will fail or get lost or stolen. Nor is it known whether field interviewers find them easier to use than paper forms. During this collection approval period, we will test one or two data entry applications and EDR devices.
- o A key part of the visitation estimation protocol involves the use of mechanical traffic counters. An alternative to pneumatic tube counters will be tested in roadside counting applications. Tests will compare the reliability of the counters, failure rates, and frequency of set-up errors by field interviewers.
- o The NVUM program is still relatively new. During this collection approval we will complete the third iteration of data collection across the country. As part of the preparation for beginning the fourth iteration (starting in FY2015), we will undertake a statistical review to evaluate the possible effects of a 10% or 20% reduction in overall sampling effort. One goal is to assess whether reallocating days of sampling effort can compensate for reduced effort, both in the standard error of the visitation estimate, and in the representativeness of the sample of recreation visits.

**5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.**

Principal design and analysis consultants include:

- o Dr. Stanley J. Zarnoch:(828) - 529 - 0515; USDA Forest Service, Southern Research Station
- o Dr. J.M. Bowker: (706) - 559 - 4271; USDA Forest Service, Southern Research Station
- o Dr. Eric White: (541) -750-7422 ; Oregon State University
- o Dr. Robert Burns: 304-293-6781; West Virginia University
- o Keith Brown: 303-236-5396; USDOl Bureau of Land Management

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The principal scientist in charge of sample design, data collection, analysis, and reporting is:

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