

# **The Supporting Statement for OMB 0596-0110** **NATIONAL VISITOR USE MONITORING** 2010

**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 204 million separate recreation site visits occur on National Forests annually. The exact number is not known. The numbers of visits to Bureau of Land Management lands and to DOI lands in Southern Nevada are not reliably 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 2008. The results from fieldwork that occurred in FY2009 will not be completed until at least the middle of April 2010. The visit estimates from 2008 by type of site are:

Day Use Sites:	66 million
Overnight Sites:	15 million
General Forest Areas:	114 million
<u>Wilderness:</u>	<u>6 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. In the second stage, interviewers sample all possible exiting visitor parties within the identified sampling period, which typically covers 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 88 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 to lands managed by a Federal agency, categorizing recreation sites and areas is done with five strata:

- o Day Use Developed Sites (DUDS) includes sites with facilities that meet the Forest Service definition for development scale for 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, 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.
- 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, and resorts- both publicly and privately owned, 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 are typically included in this stratum for NVUM applications on Department of Interior (DOI) managed lands, but not Forest Service 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 DOI agency lands, this category is termed General Public Lands (GPL), although the operational definition is the same. The sample points will generally be on roads with speeds of 40 mph or less and some trailheads. Most dispersed types of use such as hiking, hunting, and dispersed camping will be captured here. These sites represent portals through which the public can access undeveloped portions of the land base (not including Wilderness Areas).
- 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, but without ever actually entering the agency's lands. Because this represents a potentially high level of off-site use, it is included in this study. Use of cruise ships that travel waters off the coast of Alaska is included in the definition of 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 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 Closed. The Closed category includes site-days outside of the managed use season, as well as site-days that may be technically open, but there is zero expected 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 was based on a stratified random sampling design. Thus, the estimator was calculated using the typical equations in Cochran for a stratified random sample and we did not need to use probabilities of selection. We did not do any adjusting for frame error, sampling error, nonresponse bias (unit and item) or measurement error and, therefore, no calibration or adjusting weights were used. We derived the probabilities of selection for each sampled item from the stratified random sampling equations (which were simply  $n_h/N_h$  for items in stratum  $h$ ). Then we used weights that were 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 other remote Forest Service areas contain a number of remote recreation cabins in or near Wilderness areas that are only accessible by float plane. 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.

### **PERIODIC DATA COLLECTION**

NVUM has adopted 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.

**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 in a Spanish version as well as English version, to reduce this source of non-response.

Interviewers are well-trained, wear official hats and 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. To further facilitate a high response rate the interviewer provides the respondent with information about the survey, its uses, and its importance. Since the overall response rate approaches 90 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 be continued from the last approval period.

- o The testing project for electronic field data recorders was not funded during the last collection approval period, so there are no electronic field data collection techniques requested in this approval request.
- o Alaska provides a number of unique challenges for sampling visitors to National Forests. Many visitors access the National Forests by boat or plane rather than by car. It is not clear that the best times, places, and methods for counting visiting vehicles and interviewing occupants to determine the proportion that are recreating have been completely identified. Cooperative research with scientists to evaluate sampling rates, response bias, and coverage of visitation for a series of options for conducting vehicle counts and interviews will be tested during this collection.
- o During the last approval period, observational testing of non-response bias was undertaken at a set of sites in the Southeastern US. Results indicated that individuals who repeatedly passed by survey locations were less likely to stop for interviews after having stopped one time. However, both recreation

and non-recreation visitors both exhibited this tendency. Consequently, there was no conclusive evidence that any bias in visitation estimates, either upward or downward, resulted.

**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. Dan McCollum: (970) - 498 - 1877; USDA Forest Service, Rocky Mountain Research Station
- o Dr. Daniel Stynes: (517) - 353 - 5190; Professor emeritus, Michigan State University
- o Dr. J.M. Bowker: (706) - 559 - 4271; USDA Forest Service, Southern Research Station
- o Dr. Eric White: (541) -750-7422 ; USDA Forest Service, Pacific Northwest Research Station
- o Dr. Robert Burns: 304-293-6781; West Virginia University

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

Dr. Donald B. K. English (202)-205-9595  
WO- RHVR  
USDA-Forest Service  
1400 Independence Ave., SW  
Mailstop 1125  
Washington, DC 20250