

Supporting Statement for OMB 0596-NEW
Aldo Leopold Wilderness Research Institute Visitor Study
2011

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.**

Geographic Scope

Overnight (camping) visitation that occurs anywhere within the boundaries of the wilderness within Sequoia & Kings Canyon National Parks.

Study Period: Summer visitation, sampling to begin about May 1 and extend through the end of September, 2011, or extended to 2012 in case of sample size needs or natural disturbance-related delays such as fires or flooding, etc.

Population Representation:

The study will describe local and non-local overnight (at least one night) recreation visitation across the primary use season based on a survey method. The pool of recreation visitor names will be obtained from overnight permit records during the study season. Assuming an 80 percent response rate (reported in the 1990 study at this location, using the same methods) to the mail back or electronic survey, and at least 625 systematically drawn contacts during the sample period (from an estimated 8500 issued each year), at least 500 questionnaires would be returned from visitors. Assuming that the response is not biased, a systematically drawn sample of 500 returned questionnaires is sufficient to obtain good representation of the population and to draw significant statistical conclusions and comparisons across types of use. If a systematic sample of 500 were selected from a large population, statistics for continuous variables could be estimated with a confidence interval of +/- 5 percent or less at a confidence level of 95 percent. This confidence interval and level is generally accepted as sufficient in peer-reviewed social science quantitative study findings. In psychometric methodologies, many 4 or 5 point scales with equal appearing intervals are treated as interval scales, and after checking for normality across this size sample and transforming if necessary, are commonly combined into summative scales across several items. These summative scales are then commonly used in more complex comparative analyses. While these are the primary concerns for accuracy and confidence, there are some nominal and ordinal scale measurements in the survey, also, but this sample size is believed to be adequate for assuring non-zero cells in most simple descriptive

analysis. Assuming the sampling method is not biased, the results will be accurate. Statistical tests of significance conducted assuming random sampling from a small population will be conservative for this sample, so significant findings will be at least as reliable as calculated.

Additional Information

In 1990, 389 Sequoia & Kings Canyon overnight visitors (age 16 or older) responded to a visitor study (OMB #0596-0111) conducted by this applying scientist. Contacts were made by mailing surveys to overnight permit holders and requesting from the overnight permit holder contact information about up to two party members. An 80 percent response rate was achieved.

The target population for the proposed study will include overnight recreation visitors (age 16 or older) from the first of May to the end of September.

Most visits to the Wilderness of Sequoia & Kings Canyon National Parks occur during the late summer season (July, and August). Backcountry visitor numbers are estimated at approximately 33,000 visitors each summer use season, with 8500 overnight camping permits issued in 2009.

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.**

All responses will be voluntary and kept in a secure environment. Each respondent will receive a postal letter with a copy of a cover letter and mailback survey form and also containing information to allow initiation of electronic response, if preferred.

Along with the mail-back survey will also be a pre-paid, addressed envelope to use for returning the questionnaire. All mailings will come from a local (California) university contractor, where all databases will be developed. Names and addresses of visitors will be destroyed upon completion of their returned survey. These items will not be held indefinitely nor associated with any respondent's answers.

Data collection will follow proven successful methods. There is an abundance of literature leading to the very successful collection of this type of information from recreation visitors. Typically, response rates are high (75 to 95 percent), and response to burden is relatively low.

Variation in sampling procedures has been necessary across study sites and study purposes. Where permits are required, as they are at Sequoia & Kings Canyon National Parks, systematic samples (from random starts) have been

possible to contact a sample of permit recipients. These methods do not allow personal contact with the visitor on-site, however, which commonly increases response rates slightly. In order to make personal contact with visitors on-site, we have used accepted methods of contacting visitors at trailheads and permit distribution centers. During these visitor contacts, interviewers have obtained site-visit information and mailing addresses to send questionnaires to visitors at their homes.

Response rates for on-site recreation contacts are normally slightly better, approaching 100 percent. As long as we do not take too much of the visitor's time, cooperation is excellent. Having on-site contact increases mail-back response rates, due to the personal commitment to participate obtained by the interviewer, though if relevant information can be extracted from existing permit application procedures, burden on the public is considered lower if fact-to-face, on-site interviews can be avoided. Mail-back questionnaires minimize the on-site burden for the visitor, causing a minimum of intrusion into the visitor's recreation experience.

Another advantage of the mail-back questionnaire is the opportunity to reflect on responses, and perhaps provide more thoughtful, accurate responses than one would expect to receive in a personal interview. Some types of questions are most appropriately answered after a trip (e.g. social conditions encountered at various locations, where the visitor traveled within the area, overall evaluations of the trip, etc.) and some questions are not about a specific trip (e.g., demographics, attitude towards policy changes, etc.).

The mail-back and electronic surveys will contain the following important OMB information: the OMB clearance number clearly visible on the first page of text; information regarding the burden hours associated with responding to this information collection and the USDA nondiscrimination statement; a clear explanation that all responses are voluntary and that names and addresses will not be able to be connected to any information they provide in response to the survey.

Measurement Instrument

A survey questionnaire will be used to collect the quantitative data for this study (Appendix E). The questionnaire will include both hard-copy mail-back and electronic web-based formats designed to produce comparable results regardless of response method. The survey has five general sections. **Section 1** measures trip characteristics (locations visited, method of travel, activities, fuel use and food storage techniques, technology use); **Section 2** measures the impact of potential influences on visitor experiences (perceptions of technology, social conditions encountered, administrative and user support facilities encountered, restoration and climate change interventions, wilderness character and place attributes); **Section 3** assesses perceived conflicts and problems that need to be addressed by managers (visitor behaviors, resource impact problems, overuse problems, management activities, etc.); and **Section 4** obtains experience use history and demographic characteristics (education level, income category, age, gender, race/ethnicity, urban/rural residence).

Recent literature has provided guidelines for administering surveys over the Internet and in recent studies many visitors have requested electronic-response format. This burden-reducing technique has previously been used in some visitor studies when possible, though the emphasis on methods for this study is to replicate, as nearly as possible, those of previous studies at this site, suggesting a need for continued mailback options are important, too.

Question Justification Matrix (Survey)

The following description provides the link between study objectives and survey sections and questions.

Specific Objectives:

- (1) Describe visitor demographics (**Section 4**) and trip characteristics (**Section 1**) at the Parks:
 - a. individual visitor demographics, frequency of visits, and residence community;
 - b. trip characteristics, such as activity, use of technology, length of trip, size of group, guided or unguided, type of fuel used and method of deterring negative bear-human interaction;
- (2) Evaluate the importance of various hypothesized influences (**Sections 2 and 3**) on the overall quality of visitors' trips. Determine the extent to which user support, administrative support and research support facilities influence perceptions of wilderness and level of support for management intent to increase, hold steady or decrease the presence of these types of installations in the Wilderness. Develop understanding of attributes of the wilderness or place that overnight visitors think are most important for managers to protect, monitor or restore.

Data Management

All data will be collected in cooperation with university collaborators, but stored in multiple copies, and archived according to established data management procedures at the Leopold Institute. The project manager will verify the quality of questionnaire electronic data entry. Visitor contact information will be kept secure, will not be shared or used for any purpose other than to mail questionnaires and requested study results, will not be released to anyone outside of the Leopold Institute, and will be destroyed at the end of the study. Upon study completion, the data collected from the questionnaires will be available from the Leopold Institute in a suitable electronic format along with proper documentation.

Analysis of Study Results

The quantitative data collected with the survey questionnaire will be analyzed for interpretation using the procedures described in this section of the study plan. The analysis of the data will be guided by the overall study goal and two specific objectives listed above.

Study Goal

As part of a more holistic understanding of the visitors called for in the study goal, basic descriptive statistics will be provided for all variables included in the questionnaire. Means and other measures of central tendencies, along with distributions will be included in the description. Confidence intervals will be calculated for all descriptive statistics. Written comments will be encouraged in some questionnaire responses and these will be arranged by topic and presented in an appendix to the results report. These comments lend further insight and understanding of the visitors and interpretation of the study quantitative results.

Objective 1

Basic descriptive statistics will be used first of all to address the first study objective to understand who overnight visitors are and obtain accurate descriptions of their trips (Sections 1 and 4). There are also many items that are repeat items intended to provide opportunities for comparison across the two studies conducted at this location. Type of measurement will determine type of comparison. Simple t-tests and chi-square comparisons will be used after issues of normality and empty cells are considered.

Objective 2

Objective 2 is aimed at understanding things that influence visitor trip quality or potential changes that could influence visits. Central tendencies and measurement of dispersion are of first interest, with interest, also, in normality of response for equal-interval appearing (e.g., item 21). Cluster analysis will be used to develop meaningful descriptions of visitor groups, using output from Q21 and other descriptive variables. As a validation of the meaningfulness of the clustering process, clusters will then be compared on evaluations of conditions encountered expressed in Q19.

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.

Expectations are that response to the survey will be very high. It is common for 80-90 percent of a sample of visitors contacted through wilderness permits to agree to participate in a study. However, some will not return the questionnaire (either mail-back or e-mail). It is believed that the primary reason that some do not mail the questionnaire back is due to a belief that since visitors may not participate in recreation very often at that particular place, their opinions may not be very important. Follow-up mailings are used to convince them otherwise. Past response rate examples for surveys conducted by the Leopold Institute include the Boundary Waters Canoe Area Wilderness (74 percent response), Shining Rock Wilderness (75 percent response), Desolation Wilderness (83 percent response), and Gates of the Arctic National Park and Preserve (95

percent response). In the previous study at Sequoia & Kings Canyon National Parks Wilderness in 1990, an 80% response rate was achieved.

Don A. Dillman, of Washington State University, published a book entitled *Mail and Internet Surveys: The Tailored Design Method in 2000*, which precisely documents the appropriate ways to assure high response rates in mail-back and e-mail surveys in social research. Dillman's methods have been used in many dispersed recreation visitor studies and have produced consistently high response rates. Dillman provided guidelines for writing initial and subsequent cover letters in which a justification of the information collection effort appears along with an appeal for response based upon the importance of each individual sampled to respond for a larger population of people represented. Following this approach, there would typically be an initial mailing of information, a postcard reminder, and two follow-up mailings of the questionnaire and appropriate cover letter.

Whether or not this minimum response rate of 70 percent is obtained using these methods, permit data for respondents and non-respondents will be compared, also. Enough basic information is being collected from all people to help us understand whether the respondents and non-respondents differ to a significant degree on basic visit factors and area visitation patterns.

The chief statistical consultant for this study will be Dr Steve Martin, Humboldt University.

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.

While a small portion of the test instrument is intended to replicate the survey used in 1990, the format and items for the larger portion comes from previous, recent surveys at other areas, including Yosemite National Park. Some changes were made due to review suggestions made by managers and peer reviewers. There have also been some items added to capture issues unique to the purpose of this study or the Sequoia & Kings Canyon National Parks and of interest to managers there.

Additionally a pilot test was conducted in late September of 2010 with 6 randomly selected recent visitors to the wilderness of Sequoia & Kings Canyon Wilderness. Interest was in getting a mixture of hiking and stock use visitors, larger groups and smaller groups, party leaders both male and female (they were not asked to identify additional party members for the pilot test), and east and west sides of the Sierra.

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.

Dr. Alan Watson (Agency person responsible for data collection, analysis and reporting)

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