National Park Service
U.S. Department of the Interior

Social Science Program

OMB Control Number 1024-0224
Current Expiration Date: 8-31-2014

Programmatic Approval for NPS-Sponsored Public Surveys

1.	**Project Title:**	Soundscape Study Planning at Bandelier National Monument (BAND)	**Submission Date** 1-8-2012

2.	**Abstract:**	Bandelier National Monument has identified several key locations that should be identified as a part of their mission to provide quiet areas for the solemn appreciation and recognition of the history of the indigenous Pueblo culture. This research will investigate the impact and effects of noise on visitor experiences at the monument.

(not to exceed 150 words)

3. **Principal Investigator Contact Information**

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Project Information

5. **Park(s) For Which Research is to be Conducted:** Bandelier National Monument (BAND)

6. **Survey Dates:** May 15, 2013 – August 15, 2013

7. **Type of Information Collection Instrument (Check ALL that Apply)**

Mail-Back Questionnaire	☑ On-Site Questionnaire	Face-to-Face Interview	Telephone Survey	Focus Groups

Other (explain)

8. **Survey Justification: (Use as much space as needed; if necessary include additional explanation on a separate page.)**

Social science research in support of park planning and management is mandated in the NPS Management Policies 2006 (Section 8.11.1, "Social Science Studies"). The NPS pursues a policy that facilitates social science studies in support of the NPS mission to protect resources and enhance the enjoyment of present and future generations (National Park Service Act of 1916, 38 Stat 535, 16 USC 1, et seq.). NPS policy mandates that social science research will be used to provide an understanding of park visitors, the non-visiting public, gateway communities and regions, and human interactions with park resources. Such studies are needed to provide a scientific basis for park planning, development.

Natural soundscape research concerns the investigation of all natural sounds occurring in a specified location. The sounds include but are not limited to the physical capacity for transmitting natural sounds and the interrelationships among natural sounds of different frequencies and volumes. Natural sounds occur within and beyond the range of sounds that humans can perceive, and they can be transmitted through air, water, or solid materials. The National Park Service's mission is to:

> *"preserve, to the greatest extent possible, the natural soundscapes within parks. The Service will restore to the natural condition, wherever possible, those park soundscapes that have become degraded by unnatural sounds (noise), and will protect natural soundscapes from any unacceptable impacts"* (National Park Service Management Policies, 2006).

Although the NPS has measured natural, ambient, and human-caused sound levels in parks for more than 20 years, there are few studies that have evaluated visitors' perceptions of the diminishing noise-free intervals of natural sounds in national parks. To date, research suggests that visitors consider their experiences concerning natural sounds to be an important reason for protecting and visiting national parks, and many retreat to parks to experience the sounds of nature and natural quiet (Haas & Wakefield, 1998; Marin, Newman, Manning, Vaske, & Stack, 2011; Pilcher, Newman, & Manning, 2009).

Bandelier National Monument recently collected acoustic monitoring data but has yet to examine how the sounds of the monument – both natural and human-caused – are interpreted by the visitors. Because Bandelier is charged with providing visitor opportunities for quiet, solemn appreciation of the archaeological relics of past peoples, the managers are interested in implementing an experimental traditional cultural sounds treatment (e.g. singing, drumming, poetry and chants) to determine if the addition of these sounds will enhance the current visitor experience.

This proposed study will use a questionnaire to examine how sounds may affect visitor experiences. We will ask questions to determine what sounds visitors detect and how they feel about those sounds. The information from this research will identify potential social indicators of quality for soundscape conditions in Bandelier and will be used by managers to plan for future visitor services.

9. **Survey Methodology: (Use as much space as needed; if necessary include additional explanation on a separate page.)**

(a) Respondent Universe:

The respondent universe for this collection will be all adults (18 years and older) visiting Bandelier National Monument from May 15 to August 15, 2013.

(b) Sampling Plan/Procedures:

The sampling period will occur for a total of 30 days between May 15th and August 15, 2013. Within this 30-day window, we will survey 10 days each at the following three locations: the Alcove House, the Long House and approximately 1.5 miles down the Ponderosa Trail, within the designated wilderness boundary. Sampling days will be stratified by day of the week and location. On each sampling day, two trained surveyors will be stationed at one of the three locations between 9 a.m. and 6 p.m. The two surveyors will recruit study participants by contacting a random sample of visitors as they are exiting the study areas.

With the assistance of the Bandelier staff, the researcher team will play traditional cultural sounds (e.g., chants, drumming) during 5 of the 10 sampling days at Long House. The remaining 5 sampling days will be considered control days (without the cultural sounds). All respondents will receive the same version of the survey, regardless of whether they visited the Long House area during a treatment day or control day.

(c) Instrument Administration:

During the sampling period, trained surveyors will ask every Nth visitor/group exiting the sampling location if they would be willing to participate in a visitor survey. Visitors who are unwilling or unable to participate in the survey will be asked a one question which will be used to determine non-response bias, and thanked for their consideration. Respondents who are willing to participate and who have not previously participated, will be read the instructions, informed to address any questions to the surveyor, and given the survey. This process will continue throughout the sampling period at each of the three study locations.

For example, surveyors will use the following script when working with potential respondents:

> *"Hello, my name is _____. I am a researcher with Colorado State University conducting a survey for the National Park Service to better understand visitor's use and attitudes towards the management of sounds at Bandelier National Monument. Your participation is voluntary, all responses will be anonymous and the survey will take about 15 minutes to complete. Have you or any members of your group participated in this survey while at Bandelier?"*
>
> *If "Yes" then, "Thank you for helping with this research. Have a safe trip home."*

If "No" then, "Would you be willing to spend a few minutes to answer some questions regarding your visit here?"

- *If "Yes" then, "Thank you for your willingness to assist with this study. I'll read you the survey instructions so we can begin."*

- *If "No" then, "Do you mind if I ask, is this your first trip to Bandelier?" Thank you for your time and consideration, I hope you enjoy your visit."*

(d) Expected Response Rate/Confidence Levels:

Based on current visitor use estimates and previous response rates averaging approximately 80% in other NPS units (Pilcher et al., 2008; Marin et al., 2011) using similar survey instrumentation, a total of 530 visitors will be contacted during the sampling period. At Alcove House, it is estimated that 200 visitors will be approached with the soundscape questionnaires, and 160 visitors will be willing to participate. At the Long House, it is also estimated that 200 visitors will be approached with the survey, while 160 will be willing to participate. At the wilderness site down the Ponderosa Trail, it is estimated that 130 visitors will be approached, and 104 visitors will be willing to participate. Based on the estimated sample size and current visitation to the sampling locations in Bandelier, there will be 95% confidence that these survey findings will be accurate to within +/- 5 percentage points (Vaske, 2008).

(e) Strategies for dealing with potential non-response bias:

The number of refusals will be recorded, reported, and screened for non-response bias using a non-response question (e.g. "Do you mind if I ask, is this your first trip to Bandelier?"), which will be recorded in a survey log. Data from the survey will be analyzed for non-response bias by comparing participating groups' characteristics to non-participating groups' characteristics gathered on the corresponding survey log sheets. Any implications of non-response bias for park planning and management will be reported.

(f) Description of any pre-testing and peer review of the methods and/or instrument (recommended):

Similar surveys have been administered by the PI and associated researchers in other National Park Service units, such as Denali, Muir Woods, Yosemite, and Sequoia National Parks. The staff at Bandelier worked with the researchers to determine the best methods and appropriate instrument for use in Bandelier. In total, the questions included in this instrument were reviewed by the principal investigator, research staff and graduate students, scientists from other universities with expertise in survey research methods and national park planning and management, staff at the National Park Service Natural Sounds and Night Skies Division and staff at Bandelier.

10 **Burden Estimates:** We plan to approach 530 potential respondents, and with an anticipated response rate of 80%. We expect that the initial contact time will take two minutes per person (530 x 2 minutes = 18 hours). We expect that 106 (20%) people will refuse to participate in the survey. For those individuals, we will record their reason for refusal and ask them to answer a non-response check question that will be recorded on the survey log. This is estimated to take no more than 1 minute (106 x 1 = 2 hours) to complete.

For those 530 originally contacted, we expect that 424 will agree to participate in the survey, which would add an additional 15 minutes to complete (424 x 15 minutes = 106 hours). The total burden for this collection is estimated to be 126 hours.

Estimated Number of Contacts			Estimation of Time (minutes)			Estimation of Respondent Burden (hours)	
Total Number of Initial Contacts:	530		Estimated Time (mins.) to Complete Initial Contact:	2		Time to Complete Initial Contact	18
Estimated number of refusals:	106		On-site Refusal/ nonresponse:	1		On-site Refusal/ nonresponse	2
Expected number of responses:	424		Time to complete and return surveys:	15		Time to complete and return surveys:	106
						Total Burden:	**126**

11. **Reporting Plan:** A final technical report will be delivered to Bandelier and will contain a description of the study purpose and key findings. Frequencies, means and/or proportions will be presented for each question. A final copy of the report will be submitted to the NPS Social Science Division for archiving in the Social Science Studies Collection as required by the programmatic approval process.

REFERENCES CITED

Haas, G.E., & Wakefield, T.J. (1998). *National Parks and the American Public*. A summary report of the National Parks Conservation Association, conducted by Colorado State University.

Marin, L. D., Newman, P., Manning, R. E., Vaske, J. J., & Stack, D. (2011). Motivation and acceptability norms of human-caused sound in Muir Woods National Monument. *Leisure Sciences, 33*(2), 147 – 161.

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Vaske, J. J. (2008). Survey research and analysis: Applications in parks, recreation and human dimensions. State College, PA: Venture Publishing.