

National Park Service
 U.S. Department of the Interior
 Social Science Program



Expedited Approval for NPS Sponsored Surveys

1.	Project Title:	Recreational uses of cliff resources in the New River Gorge National River	Submission Date	3-28-2011
2.	Abstract:	<p>The New River Gorge National River (NERI), contains over 50 miles of vertical rock walls—the most extensive in West Virginia and possibly within the entire Appalachian range. These cliffs and gorges have been identified as contributing to NERI’s national significance, and contain specialized and potentially rare plant communities. The Park’s mandate is to protect these cliffs, as well as provide for opportunities to enjoy these resources. However, important data is lacking pertaining to both the visitor use of the cliffs, as well as impacts from usage. This survey will collect information about the visitor use, knowledge and preferences related to cliff management, as well as potential impacts to the cliffs and associated resources related to visitor use.</p> <p>(not to exceed 150 words)</p>		

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Project Information

5	Park(s) for which Research is to be conducted	New River Gorge National River (NERI)
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6	Survey Dates	Anticipated Start Date:	04/15/2011	Anticipated End Date	11/7/2011
			(mm/dd/yyyy)		

7.	Type of information Collection Instrument (Check ALL that Apply)				
	<input type="checkbox"/> Mail Back Questionnaire	<input type="checkbox"/> On-Site Questionnaire	<input type="checkbox"/> Face-to-face Interviews	<input type="checkbox"/> Telephone Survey	<input type="checkbox"/> Focus Groups
	<input type="checkbox"/> Other (explain)				

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

The long expanses of cliffs in the NERI are fundamental resources to NERI and are essential to its national significance (Mahan, 2004; NPS, 2009). Based on research from other areas (Camp and Knight 1998; Farris 1998; Hilke 2002; McMillan and Larson, 2002; Nuzzo, 1995 and 1996), there is growing concern that cliff biodiversity in more popular areas has been, and continues to be, degraded by impacts from recreational rock climbing and other recreational uses. The cliffs are popular destinations for a diverse group of users, particularly rock climbers. Over 1,600 bolted climbing routes exist in NERI (many established before NPS obtained ownership) and this abundance of routes draws climbers from all over the world. The effect of recreational use on cliff-associated rare plant communities, rare and endangered animal species, and their habitats, is unknown. This project will collect information that is critical to understanding visitor use of cliff face and near-cliff-face ecology that can be used to make science-based management decisions on cliff use. This visitor survey is part of a larger interdisciplinary study—the other parts include a botanical assessment of cliff face species, as well as a geological assessment of the cliff resources.

Visitor use impacts to NERI cliff areas from rock climbing, bouldering and hiking appear to be increasing in scope and magnitude. Vegetative communities that live on cliffs and rock outcrops are very susceptible to human impacts (Wood, Lawson, and Marion, 2006). Increased visitor use of NERI cliff areas has led to a proliferation of social trail networks, widespread vegetation trampling, and resultant soil erosion (Vanderhorst, 2007). Scraping of fungi, mosses, and other non-vascular plants from cracks and crevices by climbers has also been noted (Varner, 2007). Lichens and bryophytes (mosses and liverworts) may take years to grow back (McMillan and Larson, 2002). Many of the stunted bonsai-like trees on cliff edges are hundreds of years old and are easily impacted by soil loss and damage to their trunks when used for climbing anchors by climbers. Degradation of NERI cliff-top vegetative communities has been documented (Vanderhorst, 2007), but cliff face and cliff base communities have not been inventoried or assessed. Miles of popular climbing area cliff faces are potentially under threat of being denuded of lichen and other vegetative cover. Rare rimrock plant communities have exhibited declines in size and vigor (Maxwell, 2007).

These observations have given rise to a concern about the current level of cliff-area recreational use, and that coupled with other noted visitor use impacts (e.g. illegal campsites and fire pits, food scraps, human waste) to these areas and changing environmental factors, may lead to irreparable damage to the cliff ecosystem. Past park

efforts to manage group size and restrict rock climbing activities in some areas has been followed by these activities expanding into other, more sensitive, areas. In regards to recreational use of the cliffs, while smaller scale recreation surveys have been conducted (Attarian, 1998; Ramthun and Blake, 2002), no comprehensive survey has been conducted of the cliff users (day hikers, climbers, etc.). Thus the park has very little idea about how much use the cliffs are experiencing, if and what impacts are occurring, and visitor's awareness of and opinions regarding these unique cliff resources

Study Purpose

This visitor survey will assess the type and extent of recreational activities, visitor attitudes and preferences regarding cliff use and values, and behaviors and opinions associated with visitor impacts on cliff areas. This study will gather visitor information about activities, importance of facilities, opinions about the values of cliffs and their habitats, low impact behaviors, opinions regarding resource impacts, management preferences, and trust in information sources and management (Cvetkovich & Winter, 2003; Davenport, Leahy, Anderson & Jakes, 2007; Gilbertson, 2002).

Questions that are used were modified from a number of previous studies (Monz, 2009; Ramthun & Blake, 2002; Schuster, Thompson, & Hammitt, 2001; Wynveen, Kyle & Theodori, 2008). Two main types of cliff users at NERI are hikers and climbers—while all users will be surveyed, it was important to use a different survey for climbers. Thus two versions of the survey were created—one specifically for climbers, and the other version for all other users (the surveys are predominately the same, with slight wording modifications). Differences in opinions, preferences, and knowledge between the user groups will be assessed as well.

Management implications

The overall goals of this project are first, to better understand the different user groups of cliff resources in NERI. Secondly, the results will then be used develop focused educational and interpretive interventions to increase awareness of the uniqueness of the cliff resources and minimize cliff impacts, by targeting specific user groups that use the cliff areas (Ham & Krumpe, 1996). After assessing knowledge levels, attitudes, management preferences and recreational impacts in this survey, park managers will be in a better position to develop targeted interpretive and educational products and programs designed to address resource and visitor needs (i.e., increase understanding, increase appreciation of cliffs and awareness of potential visitor impacts, etc.). Currently, that knowledge (related to visitors) is lacking. In addition, results of this survey (as well as the results from the larger study) will help managers revise their climbing management plan.

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

(a) Respondent Universe

On-site surveys at NERI will be used to collect data from approximately 800 adult (18 and older) visitors between April and November 2011

(b) Sampling Plan/Procedures

A stratified random sampling approach will be used: stratified by day of week (weekday/weekend), time block on that date (morning/afternoon), and by location (trailhead). In the summer season, May through August, the survey will be administered on weekdays (Mon.-Thurs.) and weekend days (Fri-Sun.). In addition, data will also be

collected on one weekend day from mid-April to mid-May, and in Sept. & Oct. The sampling days will be either from 9am-4pm, or 12pm-7pm (with some minor adjustment in the spring and fall for changing daylight hours). Total sampling days will be approximately 50 over the course of the study (36 days in the summer, and 14 days in the spring/fall). Four trailheads will be selected for sampling for this study: Fern Creek, Kaymoor, Beauty Mountain, and Bubba City. These trailhead were chosen because they will capture a large percentage of both climbers and other cliff users, as well as capture the diversity that exists among climbers (traditional vs. sport; beginners vs. experts, etc.). These sites were selected after discussions with local climbers and NERI staff. One trailhead will be sampled on each day. The goal will be to collect approximately 200 surveys over the course of the study at each trailhead

A convenience sample of visitors will then be done on the sampling days. If possible, all individuals or groups of visitors exiting the trail will be asked to participate. For those in groups, the adult with the most recent birthday will be asked to fill out the survey (White, Virden, van Riper, 2008). When the interviewer has completed the visitor contact, he/she will recruit the next exiting group to participate in the study.

(c) Instrument Administration

As noted, on-site surveys will be used to collect the data. Surveys will be self-administered by the visitors at trailheads within NERI. During each sampling day, a trained surveyor will be stationed at selected trailheads in NERI. At the beginning of the sampling period at each sampling location, the interviewer will select the first visitor group exiting the cliff area and ask them to participate in the study. When the surveyor has completed the visitor contact, he/she will recruit the next exiting group to participate in the study. This process will continue throughout the sampling period. Exiting visitors will be read a standard introductory script, similar to ones used in social science surveys in other U.S. National Parks (Littlejohn and Gramann, 2002).

After approaching the visitors, they will be asked to participate in the study, and will be told that it is voluntary, confidential, and the results will be anonymous. If they assent, they will be asked if they are climbing. There will be two versions of the survey—one for climbers, and one for other users (which is more focused on hiking). Both surveys include many of the same questions (modified as appropriate) for comparison, but the climber version has additional climbing specific questions. Climbers will receive the climbing survey; all others will receive the other survey ('hiking' survey). The surveyor will fill out the visitor contact log after interacting with every group. No incentives will be offered to fill out the survey. The survey will include questions about: 1) demographics, 2) trip and activity characteristics, 3) awareness and understanding related to cliff resources and impacts, and 4) opinions related to using and managing cliff resources

(d) Expected response rate/confidence levels

The expected response rate (those accepting and then completing the survey on-site) should be approximately 80-90% of approached visitors. Previous studies at NPS and other outdoor recreation sites using similar on-site surveys have found similar response rates (Coble, et al., 2007; Monz, 2009; Ramthun, 2002).

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

Non-response bias is not expected to be a factor as we anticipate a high response rate (Coble, et al., 2007; Monz, 2009; Ramthun, 2002). However, a contact log will be used to track all visitors approached, including non-respondents. Therefore, some simple non-

response bias analyses (gender, group size, type of group) will be used to test for differences between those filling out the survey and those refusing

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

Both survey instruments were peer reviewed by an academic expert associated with recreation and parks research at West Virginia University prior to data collection, as well as NERI staff. Modifications were made based on their feedback. The climbing survey was then pilot-tested on 4 climbers familiar with NERI, and final modifications were made

10.	Number of Respondents	11.	Estimated Time (Mins)	12.	Burden Hours
	Initial Contacts: 950		Initial Contacts: 1 Minute		Initial Contact 16 Hours
	Expected Responses: Hikers: 400 Climbers: 400		Complete Instrument Hikers: 15 Minutes Climbers: 20 minutes		Complete Instrument Hikers: 100 hours Climbers: 133
					Total: 249

13.	Reporting Plan	A summary of the study results will be provided in report format to NPS and other interested agencies. Study results will be presented at various academic and professional conferences, e.g., the International Symposium for Society and Resource Management, the National Association for Interpretation workshop, and/or the George Wright Society Forum. Articles will be submitted for publication to one or more appropriate parks/outdoor recreation research journals (such as Park Science, Journal of Interpretation research, etc.). A copy of all reports will be archived with the NPS Social Science Program for inclusion in the Social Science Studies Collection.
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