

**National Park Service
U.S. Department of the Interior**



Social Science Program

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Programmatic Approval for NPS-Sponsored Public Surveys

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| 1. | Project Title: Happy Isles and Half Dome Trail Corridors Visitor Use Study | Submission Date: 4-18-2012 |
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2. **Abstract:** The Happy Isles Trail and Half Dome Trail Corridors are two of the most heavily visited and iconic trail corridors within Yosemite National Park. These trails also has the highest number of search and rescue (SAR) incident occurrences. The park is interested in understanding the causes that lead to these events, as well as how they might help prevent such events. To understand this, the park wants to survey visitors' awareness of the hazards and risks associated with hiking along the trail corridors. This will also include asking visitors about their perceptions of information along the trail and potential management actions.

The results from the Half Dome survey will be used to inform the Half Dome Trail Stewardship Plan Environmental Assessment (EA) for a long-term strategy for visitor use management.

(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:** Yosemite National Park

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|-------------------------|-------------------|--------------|----|--------------------|
| 6. Survey Dates: | Happy Isles Trail | June 1, 2012 | TO | September 30, 2012 |
| | Half Dome Trail | May 1, 2012 | TO | August 31, 2012 |

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

| | | | | |
|--|--|---|--|---------------------------------------|
| <input type="checkbox"/> Mail-Back Questionnaire Other (explain) | <input checked="" type="checkbox"/> On-Site Questionnaire | <input checked="" type="checkbox"/> Face-to-Face Interview | <input type="checkbox"/> Telephone Survey | <input type="checkbox"/> Focus Groups |
|--|--|---|--|---------------------------------------|

8. **Survey Justification:** *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.*

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

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, operations, management, education, and interpretive activities. According to NPS Management Policies 2006, the NPS is directed to provide for quality recreation experiences and to reduce or remove hazards that may not be appropriate or practicable in a national park setting" while recognizing that visitors must assume a degree of responsibility for their own safety and experiences.

Yosemite National Park (YOSE) accommodates over 3 million visitors per year. The Happy Isles and Half Dome trails are the most popular hiking corridors in Yosemite National Park. Due to increases in visitor use, natural hazards, and search and rescue incidents, the managers at YOSE have requested this information because visitor-use and safety management on these trails is a priority at the park. Managers are directed to ensure safe, high-quality visitor experiences. This information collection will help managers to better understand visitor use, awareness and perception associated with trail corridor.

This collection will use two questionnaires to provide YOSE managers with information about the recreational uses of the Happy Isles Trail and Half Dome Trail. The surveys will be used to determine the causes that lead to visitor accidents and the efforts related search and rescue events at Happy Isles Trails; and the other will try to understand visitor use and the quality of the online permit reservation system at Half Dome.

The results of both surveys will help to identify a long-term visitor use strategy for these iconic trails. The data will be used to provide scientifically defensible data that are needed to develop future management options and planning activities that will be used to address visitor-use management in the Park.

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 both surveys will be all visitors, 18 years and older. During the last 5 years, the park averaged just over 1,700,000 recreational visits during the study period (peak summer season); this study proposal anticipates contacting 1,250 recreation visitors.

Half Dome Trail:

June 1 - September 30, 2012

Happy Isles Trail:

May 1 – August 31, 2012.

(b) Sampling Plan/Procedures:

Half Dome Trail

Visitor survey sampling will occur on a total of 15 randomly selected days during the peak summer visitation season. During each sampling day between 9:00 a.m. and 4:00 p.m., trained surveyors will be stationed at the base of the Half Dome Trail. When the sampling period begins, the surveyors will approach the first visitor group descending from the Half Dome Trail and ask them to participate in the survey. When the surveyor has recruited a group to participate, he/she will identify a single member of the group to serve as the study participant by asking for the member of the group whose birthday is closest to the current date. The surveyor will record the date and time directly onto the questionnaire.

The surveyor will then hand the questionnaire to the visitor, and instruct him/her to complete the instrument while on-site. The surveyor will also be available for any clarifications regarding questionnaire. Surveyors will wear NPS staff, NPS volunteer or Student Conservation Association intern shirts and hats so that they will be easily identified by visitors.

After the first interception, the surveyors will intercept every 5th group to pass by the survey location. A selected member (i.e., member of group with the closest birthday) of the group will be asked to participate in the survey. This process will continue throughout the sampling day, resulting in approximately 50 groups intercepted per sampling day. A series of short breaks for the surveyors will be designed into the sampling schedule.

Happy Isles Trail

Visitor survey sampling will occur on a total of 15 randomly selected days during the peak summer visitation season. Sampling days will be stratified by day of the week and location, with four sampling locations (surveys will be divided equally at each location) –

- 1) Happy Isles Trailhead,
- 2) John Muir Trail at its Junction with the trail to Glacier Point,
- 3) Vernal Fall viewing area, and
- 4) Nevada Fall viewing area

On each sampling day, trained surveyors will be stationed at each sampling location from 8am to 5pm. When the sampling period begins, the surveyors at each sampling location will approach the first visitor group exiting the study area and ask them to participate in the survey. If members of the visitor group agree to

participate, the eligible person (18 years of age or older) in the group whose birthday is closest to the sampling day will be asked to complete the questionnaire.

When the surveyor has completed his/her contact with the group, the surveyor will ask the next visitor group exiting the study area to participate in the survey. This process will continue throughout the sampling period. Visitors will be asked to complete the questionnaire on-site in the presence of the surveyors, who will be available to answer any questions and collect the surveys upon completion. Those who refuse to fill out the survey on-site will be considered a “refusal”.

(c) Instrument Administration:

Visitors selected for participation in the survey will be read the following script:

“Hello, my name is _____. I am conducting a survey for the National Park Service to better understand your use of this trail in Yosemite National Park. Your participation is voluntary and all the responses will be kept anonymous. Would you be willing to answer some important questions regarding your visit here? This should only take about 10 minutes.”

→ If **YES** – then ask, “has any member of your group participated in this survey before?”

If **“YES”** (already asked to participate) then, *“Thank you for participating in this study but you have already provided us with the information we need. Have a great day.”*

If **“NO”** (has not been previously asked to participate) then, *“Thank you for participating in our survey today. “Who in your group (at least 18 years old) has the next birthday?”*

→ If **NO**– (soft refusal) - ask them if they would be willing to answer the non-response bias questions (listed below) and then thank them for their time.

1. Where did you start your hike today?
2. Did you encounter a park ranger on your hike today?
3. Approximately how many previous hikes have you taken in Yosemite National Park in the past 12 months?

Record responses in spaces provided on the tracking sheet

→ If **NO**– (hard refusal) - end the contact and thank them for their time.

The visitors that agree to participate will be asked to complete and return the questionnaire onsite; and address any questions to the surveyor.

The group size, type of activity (i.e., day hiking, backpacking), and presence or absence of children of all groups contacted (including those who choose not to participate) as well as the responses to the non-response bias questions will be recorded in a survey log for the purposes of testing for non-response bias.

(d) Expected Response Rate/Confidence Levels:

Based on a series of similar visitor surveys conducted at five locations in Yosemite National Park range from 90% to 57% (Lawson, Kiser, Hockett, Reigner, Chamberlin, & Choi, 2008; Blotkamp, Meldrum, Morse, & Hollenhorst, 2010). Lawson et al. (2009) reported an overall response rate of approximately 90% (n = 291) on a similar intercept survey study on the Half Dome Trail. The anticipated response rates for this collection are listed below:

Half Dome:

An 80% response rate is expected for this survey, based on previous and nearly identical studies in Yosemite National Park. A total of 750 visitors will be contacted for the survey. It is expected that approximately 600 visitors will respond to the survey instrument. Based on this sample size, there will be 95% confidence that study findings will be accurate to within 4 percentage points (Fowler, 1993).

Happy Isles:

An 80% response rate is expected for this survey. A total of 500 visitor groups will be contacted during the sampling period. Based on previous and nearly identical studies in Grand Teton, Yosemite, and Sequoia and Kings Canyon National Parks, it is expected that 400 visitors will agree to participate in the survey.

Based on the survey sample size, there will be 95% confidence that the survey findings will be accurate to within 5 percentage points (Fowler, 1993), and will have a power level greater than .80 for any number of statistical tests (two-tailed independent samples t-test, multivariate regression), at the .05 alpha-level. Thus, the proposed sample size will be adequate for bi-variate comparisons and will allow for comparisons between study sites and more sophisticated multivariate analysis if deemed necessary.

| | Number of Contacts | Expected Response Rate | Expected Number of Responses | Margin of Error +/- % |
|--------------------------|--------------------|------------------------|------------------------------|-----------------------|
| Happy Isles Trail | | | | |
| Onsite Contacts | 500 | 80% | 400 | 5 |
| Half Dome Trail | | | | |
| Onsite Contacts | 750 | 80% | 600 | 4 |
| | 1,250 | | 1,000 | |

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

The number of refusals will be recorded, reported, and screened for non-response bias. The three non-response bias questions listed above will be used along with the comparison of respondent characteristics (group size, time of visit) to non-respondent characteristics gathered on the survey. Results of the non-response analysis will be reported and the implications for management discussed. In particular, information will be provided to the park about subgroups of visitors to whom the results may not be generalizable, if non-response bias is detected.

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

The survey methods and questionnaire were reviewed by Yosemite National Park, Resource Management and Sciences and Visitor Protection Divisions. The questions in this survey are similar to those used in previous studies at several other national parks. All of the questions appear in (or are variations of) survey items in the NPS "Pool of Known Questions."

10 **Burden Estimates:** We plan to approach a total of 1,250 individuals during the entire sampling period. With the anticipated response rates mentioned in section 9d above, we expect to receive 1,000 total responses for this collection.

We expect that the initial contact time will be at least one minute per person (1,250 x 1 minute = 21 hours). We expect that 250 visitors will refuse to participate during the initial on-site contact, for those individuals we will record their reason for refusal and ask them to answer the three questions that will be used for the non-response check. This is estimated to take no more than 2 minutes (250 x 2 = 8 hours) to complete each session.

For those who agree to participate (n= 1,000) we expect that 1,000 will complete and return the survey, with that, an additional 10 minutes will be required to complete the follow through (1,000 response x 10 minutes = 167 hours). The burden for this collection is estimated to be 196 hours.

| Estimated Number of Contacts | | Estimation of Time | | Estimation of Respondent Burden | |
|--------------------------------------|-------|--|----|---------------------------------|------------|
| Total Number of Initial Contacts | 1,250 | Estimated Time (mins.) to Complete Initial Contact | 1 | Estimated Burden Hours | 21 |
| Estimated number of on-site refusals | 250 | On-site Refusal/nonresponse | 2 | Estimated Burden Hours | 8 |
| Total Number of Responses | 1,000 | Time to complete and return surveys | 10 | Estimated Burden Hours | 167 |
| | | | | Total Burden | 196 |

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11. **Reporting Plan:** The results of this information collection will be presented in a summary report to the NPS. Key estimates from the data will be descriptive in nature, primarily measures of central tendency (mean and median), dispersion (standard deviation), and frequency distributions. Some tests for differences in means and proportions by various sub-groups are expected, as well as correlations between evaluations and use levels (measured by a descriptive use monitoring program). Analyses will generally follow standard methods for survey research in parks and recreation settings (Vaske, 2008).

Electronic versions of the final report will be submitted as required by the NPS Social Science Division and to the Yosemite National Park staff.

REFERENCES CITED:

- Blotkamp, A., Meldrum, B., Morse, W., and Hollenhorst, S. (2010). Yosemite National Park Visitor Study, Summer 2009. Visitor Services Project Report No. 215. Moscow, ID: National Park Service and University of Idaho, Cooperative Park Studies Unit.
- Fowler, F. (1993). *Survey Research Methods, 2nd Edition*. Newbury Park: Sage Publications.
- Lawson, S., Kiser, B., Hockett, K., Reigner, N., Chamberlin, R., and Choi, J. (2008). *Visitor Use Computer Simulation Modeling to Address Transportation Planning and User Capacity Management in Yosemite Valley, Yosemite National Park*. Final study report. Virginia Polytechnic and State University.
- Vaske, J. (2008). *Survey Research and Analysis: Applications in Parks, Recreation, and Human Dimensions*. State College, PA: Venture Publishing, Inc.