



### Expedited Approval for NPS-Sponsored Public Surveys

1. <b>Project Title:</b>	Visitor Use Estimation and Long-Term Monitoring Methods & Protocols	<b>Submission Date:</b>	11/04/10
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2. <b>Abstract:</b>	Accurate estimates of visitor use are critical to resource protection and managing the visitor experience. Denali National Park and Preserve's protocol for estimating visitor use aggregates estimates from the many different ways visitors can enter the park, e.g., arriving by airplane via a glacier landing, visiting the Talkeetna Ranger Station, or entering through the main park road. However, there are concerns with the counting methods at these entrance points: visitors who enter at multiple points in the same day might be doubled counted, assumptions to estimate various visitor segments at the main entrance area have not been adequately tested, and airplane arrivals might not be accurately reported. This study seeks to sample visitors during our sampling period (3/15/2011-10/15/2011) to estimate arrival by airplane, assess the extent of double counting, and test assumptions used in estimating the visitors entering through the main park road.
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(not to exceed 150 words)

#### 3. Principal Investigator Contact Information

**First Name:**  **Last Name:**

**Title:**

**Affiliation:**

**Street Address:**

**City:**  **State:**  **Zip code:**

**Phone:**  **Fax:**

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#### 4. Park or Program Liaison Contact Information

**First Name:**  **Last Name:**

**Title:**

**Park:**

**Park Office/Division:**

**Street Address:**

**City:**  **State:**  **Zip code:**

**Phone:**  **Fax:**

**Email:**

**Project Information**

5. **Park(s) For Which Research is to be Conducted:**

6. **Survey Dates:**  (mm/dd/yyyy) to  (mm/dd/yyyy)

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.)**

Denali National Park and Preserve (DNPP) currently estimates, and reports to the National Park Service Public Use Statistics Office, total recreation and non-recreation visits to the park. These estimates of visitor use are important for a variety of reasons: determine trends, biophysical resource management, managing the visitor experience, and facility planning and management. Given the importance of use estimates, it is critical that these estimates are as accurate as possible.

DNPP is just over 6 million acres, and as a result, there are many locations where visitors can enter the park. The Alaska National Interest Lands Conservation Act (ANILCA) also allows for entrance into the park by aircraft and snowmachine. The large size and multiple methods of entry pose challenges to providing an accurate estimation of recreation and non-recreation use. DNPP is in the process of refining its protocol for estimating visitor use. This study seeks to address four high priority areas identified by DNPP where additional research is needed:

1. DNPP does not have a system to estimate of the occurrence in which visitors are being double counted.
2. DNPP does not have a method to estimate the number of visitor entering the park beyond mile 15.
3. DNPP does not have a method to assess the accuracy of concessionaire-reported visitors arriving by aircraft.
4. DNPP does not have a process to determine the recreational preferences of visitors and local residents during the shoulder seasons (non-peak summer season)

The specific goals of this study are to:

1. provide an estimate of the number of visitors who have been counted twice, or more, in a single day,
2. estimate the proportion of visitors at the main north side entrance area that travel past mile 15 on the park road vs. those who do not,
3. estimate the number of visitors traveling into the park by aircraft,
4. obtain basic information on activities and visitor origin,
5. collect the above information across the entire summer, and
6. gather information on shoulder season users.

We will use a series of on-site surveys to meet the above goals. Slightly different surveys will be used at different locations, but in general the surveys will ask questions regarding the visitor's experiences at DNPP.

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 study will be visitors entering the park via:

- the primary park road in Denali NPP from March 15 to October 15,
- train from May 15 to September 15, and
- flights originating from the Talkeetna airport between April 1 and August 31.

separate page.)

**(b) Sampling plan/procedures:**

All sampling will occur during spring summer and fall of 2011. Survey locations will be stratified by season and time:

- 1) spring shoulder season: March 15 to May 15
- 2) summer early season: May 16 to June 15
- 3) summer peak: June 16 to August 31
- 4) fall shoulder season: September 1 to October 15

Spring shoulder season

The spring shoulder season occurs when the park road opens to private vehicles (mid March) and continues until the park buses begin operations. During the spring shoulder season there are limited visitor facilities and access. There are 44 weekdays and 18 weekend days during this time. However, variability will increase as the temperatures become warmer, and use is likely to be higher on weekends. Thus, we will further stratify the spring shoulder season into early/late season for the weekend days. Visitors will be sampled at the Alpine Vista Rest Area between 2 p.m. and 9 p.m. with daylight permitting.

Our possible survey days will be allocated in proportion to expected use (Vaske, 2008; Watson et al., 2000) (Table 1).

Table 1. The Number of Days Randomly Selected for Sampling During the Spring Shoulder Season

	Weekday	Weekend – early (1p – 5p)	Weekend – late (5p – 9p)
Savage River	4	2	4

Summer early season main entrance area

The summer early season is mid May to mid June. More access points become available during this time and there is a wider variety of visitor activities. During this time, there are 31 days in which to sample. There are three locations we will sample during this time period: the park road (near where people will exit), the train depot, and the Jonesville Trail (a pedestrian trail leading from the nearby lodging area to the park). The park road and Jonesville Trail will be sampled across three time blocks: 9 a.m. to 1 p.m., 1 p.m. to 5 p.m., and 5 p.m. to 9 p.m. This results in 93 time blocks for each location (the Park Road and the Jonesville Trail).

The train depot will be sampled based on the train schedule. We will sample passengers as they depart. The southbound train departs approximately 12:30 p.m. and the northbound train leaves approximately 4 p.m.; both times will be sampled on the same day.

We expect the greatest variance on the park road, and therefore we will allocate more of our possible survey days to that location (Vaske, 2008; Watson, et al., 2000) (Table 2).

Table 2. The Number of Days Randomly Selected for Sampling During the Summer Early Season

	9a -1p	1p – 5p	5p – 9p
Park road	5	5	5
Train Depot	n/a	3	n/a
Jonesville Trail	2	3	3

Summer peak season main entrance area

The summer peak season is June 16 to August 31. Visitation increases during this period. During this time, there are 77 days in which to sample. There are three locations we will sample during this time period: the park road near where people will exit, the train depot, and the Jonesville Trail (a pedestrian trail leading from the nearby lodging area to the park). The park

road and Jonesville Trail will be sampled across three time blocks: 9 a.m. to 1:30 p.m., 1:30 p.m. to 6 p.m., and 6 p.m. to 10:30 p.m. This results in 231 time blocks for each location (the Park Road and the Jonesville Trail).

The train depot will be sampled based on the train schedule. We will sample passengers as they depart. The southbound train departs approximately 12:30 p.m. and the northbound train leaves approximately 4 p.m.; both times will be sampled on the same day.

We expect the greatest variance on the park road, and therefore we will allocate more of our possible survey days to that location (Vaske, 2008; Watson, et al., 2000) (Table 3).

**Table 3.** The Number of Days Randomly Selected for Sampling During the Summer Peak Season

	<b>9a -1:30p</b>	<b>1:30p – 6p</b>	<b>6p – 10:30p</b>
Park road	10	11	11
Train Depot	n/a	4	n/a
Jonesville Trail	6	6	6

Fall shoulder season

The fall shoulder season is September 1 to October 15. We will stratify this time into weekend and weekday time periods. The park road and Jonesville Trail will be sampled from 4 to 9 p.m.; the train depot will be sampled at the times of the two departing trains. Jonesville Trail and the Train depot will only be sampled until September 15, when the services in McKinley Village close. After the buses stop running we will sample with the methods described in the spring shoulder season.

Our possible survey days will be allocated in proportion to expected use (Vaske, 2008; Watson et al., 2000) (Table 4).

**Table 4.** The number of Days Randomly Selected for Sampling During the Fall Shoulder Season

	<b>Weekday</b>	<b>Weekend</b>
Park road	4	8
Train Depot	2	1
Jonesville Trail	2	2

Talkeetna Airport

The Talkeetna Airport will be sampled from April 1 through August 31. Randomly selected days at the airport will be sampled from 8 a.m. to 4 p.m.

Our possible survey days will be allocated in proportion to expected use (Vaske, 2008; Watson et al., 2000) (Table 5).

**Table 5.** The Number of Days Randomly Selected for Sampling at the Talkeetna Airport

	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>August</b>
Talkeetna Airport	4	12	14	14	9

**(c) Instrument Administration:**

Spring Shoulder

During this time, as most visitors are likely to go at least to Savage River, we will sample at the Alpine Vista Rest Area. Several sandwich sign board will announce the survey and vehicles will be pulled over at the rest area. The passengers will be asked if they would be willing to complete the survey. We will randomly select a number corresponding to seats in a vehicle, and ask the person sitting in that seat if they would be willing to complete the survey. The questions will be asked to the survey respondents, and the responses will be recorded. It should take no longer than 4 minutes to complete.

Park Road in the Main Entrance Area

During the randomly selected times, we will pull vehicles over as they exit the park. Several sandwich sign board will be used to inform visitors about the survey. To allow for completion of

the survey and avoid cars being backed up, we will only pull over one vehicle at a time. After the survey has been completed, we will sample the next vehicle to exit the park. We estimate this will work out to be approximately every fifth vehicle. There are several types of vehicles that might be pulled over: private vehicles, hotel shuttles, and tour buses. Different questionnaire formats will be used for the private vehicles vs. the hotel shuttles and tour buses. The questionnaire for private vehicles branches after the question for those who stayed overnight in the park versus those who did not.

#### *Private vehicles*

The people in the vehicle pulled over will be asked if they would be willing to complete the survey. The first four questions will be asked of the entire group. The next three questions will be asked of one individual in the vehicle. We will randomly select a number corresponding to seats in a vehicle, and ask the person sitting in that seat to answer the last three questions. The questions will be asked to the survey respondents, and the responses recorded. The survey should take no longer than 4 minutes to complete.

#### *Hotel shuttles and tour buses*

For hotel shuttles and tour buses, the survey administrator will board the shuttle, take a quick count of the number of passengers, then ask those who rode a bus past mile 15 of the park road to raise their hand. The number of individuals taking a park bus will be counted and recorded. The survey administrator will also ask how often they took a bus trip into the park during their visit (asked in categories), how often they entered the park through various areas, and what activities they participated in. The number of visitors raising their hands to these questions will be recorded.

#### Fall shoulder season

The fall shoulder season includes 15 days when the buses are running. During this time visitors will be sampled as they exit the park (similar to the summer season – using the summer season survey). After the buses stop running and services in McKinley village close, we will sample at the Alpine Vista Rest Area using the shoulder season survey.

#### Jonesville Trail

When the Jonesville Trail is sampled, a survey administrator will be stationed at the beginning of the trail. A sandwich board will announce the survey. As visitors pass by the survey administrator will ask if their group is exiting the park. If their group is exiting they will be asked to participate in the survey. Given the time to administer the survey, it is expected we can sample approximately every 5<sup>th</sup> group exiting. The survey should take no longer than 4 minutes to complete.

#### Train Depot

When the train depot is sampled, a survey administrator will be stationed at the boarding area. A sandwich board will announce the survey. As visitors enter into the boarding area, they will be asked if their group is exiting the park. If their group is exiting they will be asked if they would be willing to participate in the survey. As the passengers will be assembling at approximately the same time, we acknowledge that it might be difficult to sample all passengers. We estimate we will sample approximately 30% of the exiting passengers.

#### Talkeetna Airport

A survey administrator will be at the airport and will ask passengers who are waiting for an air taxi or a scenic flight if they would be willing to participate in the survey. For those willing to participate, the questions will be asked to the survey respondents, and the responses recorded. It should take no longer than 4 minutes to complete. It is estimated we will contact approximately 40% of visitors.

#### **(d) Expected response rate/confidence levels:**

Based on previous studies in Denali NPP (Fix, 2009; Meldrum, et al., 2006; Swanson et al. 2002), and other studies conducted in Alaska that have pulled vehicles over (Stegmann, Fix, & Teel, 2008), we expect an 80% response rate. Surveys will be administered to individuals, but the

key question of whether they took a bus past mile 15 will be asked of all members of their group. Thus, an expected confidence interval was calculated for bus ridership and the other individual questions (Table 6). Assumptions used to calculate the response rate are as follows:

- Buses comprise 15% of vehicles pulled over, with an average of 20 passengers per bus.
- The contact for buses consists of only the driver (assuming the driver will refuse for the entire bus), however there are 20 visitors responding per bus.
- It was assumed there are 2.65 people per vehicle and as the average group size on the Jonesville trail, and a group size of 2 for the bus and Talkeetna airport.
- The number of visitors contacted during the time blocks was estimated from Alaska Department of Transportation traffic counts and use statistics reported by DNPP.

Table 6. Contacts, respondents, visitors represented, and confidence intervals.

	Visitors contacted	Responses	Visitors represented (bus ridership) <sup>1</sup>	CI @ 95% confidence level bus ridership <sup>2</sup>	CI @ 95% confidence individual questions <sup>1</sup>
Park road	6,369	5,956	7,387	+/- 1.1%	+/- 1.3%
Train Depot	2,785	2,228	4,455	+/- 1.5%	+/- 2.1%
Jonesville Trail	381	305	807	+/- 3.5%	+/- 5.6%
Talkeetna Airport	1,940	1,552	3,104	+/- 1.8%	+/- 2.5%

1. Shoulder seasons (when buses are not running) are not included in the bus ridership estimate.

2. Assumes a 50/50 split of people who took the bus vs. not for groups, and a 50/50 split for the individual questions.

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

Visitors during the shoulder seasons (when buses are not running) who do not wish to complete the survey will be asked if they would complete two questions: 1) activities they participated in, and 2) their residency.

Visitors during the summer who do not wish to complete the survey will be asked if they would complete two key questions:

- 1) *if members of their group took the bus past mile 15, and*
- 2) *residency*

These questions related to the goals of this study, and will allow us to determine if there is non-response bias in our sample. In addition, group size will be noted by the survey administrator. This is also a key variable, and will further help determine if non-response bias is an issue.

Visitors at the Talkeetna Airport who do not wish to complete the survey will be asked if they would complete two key questions that will be used to estimate double counting. We will ask::

- 1) *if they have entered the Talkeetna Ranger Station, and*
- 2) *if they plan to take a bus into the park at the main entrance area that day.*

With these variables we will be able to weight the data to examine the effects of any potential non-response bias.

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

The questions included on the survey are adopted from a study conducted in Denali NPP in 1996 (Valdez, 1997), 2004 (Watson et al., 2005), and 2006 (Meldrum, et al. 2006). In addition, the methods for survey administration have been previously used in DNPP (Fix, 2009; Meldrum, et al., 2006; Watson et al., 2006) and elsewhere in Alaska (Fix, 2008; Stegmann, Fix, & Teel, 2008). The proposed methods and survey have been reviewed by scientists at the Institute of Social and Economic Research at the University of Alaska Anchorage and Denali National Park and Preserve.

10. **Total Number of Initial Contacts**

11,149

11. **Estimated Time to Complete Initial Contact**

1

12. **Burden Hours:**

186  
652

**Expected Respondents:**

9,782

**Instrument (mins.):**

4

**Total**

838

13. **Reporting Plan:**

The University of Alaska Fairbanks, in cooperation with the University of Alaska Anchorage, will present results to the NPS and provide a written report. The presentation and report will present:

- Estimates of the percentage of visitors that are double counted.
- The ratio of visitors and visits traveling past mile 15 of the park road vs. those who do not.
- An estimate of visitors arriving by airplane.

In addition, the above estimates will be calculated for differing seasons of use, with comparisons made among the seasons. The presentation and report will also include recommendations for long-term visitor use estimation.

A copy of the final report will be archived in the NPS Social Science Studies Collection.

## References

Fix, P.J. (2008). White Mountains National Recreation Area and Steese National Conservation Area Benefits Based Management Study. Report prepared for United States Bureau of Land Management, Fairbanks Field Office. Department of Resources Management, University of Alaska Fairbanks.

Fix, P. J. (2009). Methods to Measure the Level of Indicators in Denali National Park and Preserve. Project report for the National Park Service. Fairbanks, Alaska: School of Natural Resources and Agricultural Sciences, Department of Resources Management, University of Alaska Fairbanks.

Meldrum, B. H., Evans, J. & Hollenhorst, S. J. (2007). Denali National Park and Preserve Visitor Study Summer 2006. Park Studies Unit, Visitor Services Project Report 180. Social Science Program, National Park Service, U.S. Department of the Interior.

Stegmann, A. J., Fix, P. J. & Teel, T. L. (2008). Benefits Based Management Study for the Dalton, Taylor and Denali Highways. Project report for USDI Bureau of Land Management. Fairbanks, Alaska: Department of Resources Management, University of Alaska Fairbanks.

Swanson, J. E., Vande Kamp, M. E., & Johnson, D. R. (2002). A survey of overnight backcountry visitors to Denali National Park and Preserve. Technical Report NPS/CCSOUW/NRTR-2002-04 NPS D-318. Cascadia Field Station, USGS/BRD/FRESC, College of Forest Resources, University of Washington.

Valdez, S. D. (1997). Denali National Park Visitor Use Survey: 1996. US Department of the Interior, National Park Service, Public Use Statistics Program Center (WASO), Denver, CO.

Vaske, J. J. (2008). Survey Research and Analysis: Application in Parks, Recreation and Human Dimensions. State College, PA: Venture Publishing.

Watson, A. E., Cole, N., Turner, D. L., & Reynolds, P. S. (2000). Wilderness recreation use estimation: a handbook of methods and systems. Gen. Tech. Rep. RMRS-GTR-56. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.