Methods that work: Visitor use management monitoring protocols for protected area managers

Ryan Sharp & Julie Sharp
Methods for Utilization

- Qualitative interviews
  - Onsite and phone
  - Photo elicitation

- Quantitative surveys
  - Onsite, offsite, internet
  - Visual methods
  - Long term

- Field equipment
  - Cameras
  - Counters
  - GPS

- Sampling
  - Stratified random
  - Purposive and snowball
  - Social Media
  - Telephone monitoring

- Software
  - SPSS
  - ArcGIS
  - Qualtrics
  - Timelapse2
National Park Service
U.S. Department of the Interior

Programmatic Clearance
for NPS-Sponsored Public Surveys

Pool of Known Questions

6. Please rate each photograph on Poster 2 by indicating how acceptable you think it is based on the conditions displayed. A rating of +4 means the conditions displayed are “very unacceptable”, and a rating of -4 means the conditions displayed are “very acceptable”. (Circle one number for each photograph.)

<table>
<thead>
<tr>
<th>Photo</th>
<th>Very Unacceptable</th>
<th>Unacceptable</th>
<th>Slightly Unacceptable</th>
<th>Unacceptable</th>
<th>Slightly Unacceptable</th>
<th>Acceptable</th>
<th>Very Acceptable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photo 1</td>
<td>-4</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
<td>0</td>
<td>+1</td>
<td>+2</td>
</tr>
<tr>
<td>Photo 2</td>
<td>-4</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
<td>0</td>
<td>+1</td>
<td>+2</td>
</tr>
<tr>
<td>Photo 3</td>
<td>-4</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
<td>0</td>
<td>+1</td>
<td>+2</td>
</tr>
<tr>
<td>Photo 4</td>
<td>-4</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
<td>0</td>
<td>+1</td>
<td>+2</td>
</tr>
<tr>
<td>Photo 5</td>
<td>-4</td>
<td>-3</td>
<td>-2</td>
<td>-1</td>
<td>0</td>
<td>+1</td>
<td>+2</td>
</tr>
</tbody>
</table>

d. Which photograph looks most like the conditions you experienced today during this visit?

Photo number: ______

e. Which photo (if any) displays the conditions where you believe park managers should take action to improve the areas in Poster 2?

Photo number: ______ OR None of the conditions in the photographs are so unacceptable that park managers should take action to improve the areas in Poster 2

f. Which photograph (if any) displays the conditions that are so unacceptable that you would no longer use the areas in Poster 2?

Photo number: ______ OR None of the conditions in the photographs are so unacceptable that I would no longer use the areas in Poster 2

b. Which photograph (if any) in Poster 2 shows the highest level of use that you believe park managers should allow? In other words, at what point should visitor use be limited? (If use should not be limited at any point represented by the photographs, or not restricted at all, you may indicate that)

Photo number: ______ OR None of the conditions in the photographs are so unacceptable that visitor use should be limited

OR Visitor use should never be limited

Please indicate your level of agreement with the following statements. A ‘5’ indicates you agree most, a ‘1’ indicates you disagree.

Strongly Disagree 1 2 3 4 5 6 7 8 9

Strongly Agree 1 2 3 4 5 6 7 8 9

1. I was able to identify individual animals. 1 2 3 4 5 6 7 8 9

2. I saw a mother with her cubs. 1 2 3 4 5 6 7 8 9

3. I spent time learning about them before I came. 1 2 3 4 5 6 7 8 9

4. Of the information I received from Park Rangers. 1 2 3 4 5 6 7 8 9

5. I had specific interactions with Park Rangers. 1 2 3 4 5 6 7 8 9

6. I understood their behaviors. 1 2 3 4 5 6 7 8 9

7. I understood their emotions. 1 2 3 4 5 6 7 8 9

8. I felt empathy for them because of their emotions. 1 2 3 4 5 6 7 8 9

9. Are at risk in many locations. 1 2 3 4 5 6 7 8 9

10. They are a symbol of conservation efforts. 1 2 3 4 5 6 7 8 9

11. They still exist in the wild. 1 2 3 4 5 6 7 8 9

12. I followed an individual animal throughout my visit. 1 2 3 4 5 6 7 8 9

13. I was able to photograph them. 1 2 3 4 5 6 7 8 9

This visitor survey project has been issued Research and Collecting Permit Number #858 by Denali National Park and Preserve, but has received no funding from the National Park Service.
Table 6. Visitor preferences for potential expansion or creation actions within Lost Valley.

<table>
<thead>
<tr>
<th>Action</th>
<th>Preference points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a new campground</td>
<td>24.35</td>
</tr>
<tr>
<td>Establish a visitor center</td>
<td>22.20</td>
</tr>
<tr>
<td>Expand existing restroom facilities at Lost Valley Trailhead</td>
<td>20.57</td>
</tr>
<tr>
<td>Increase size of roadside pullouts for elk viewing</td>
<td>12.64</td>
</tr>
<tr>
<td>Create new roadside pullouts for elk viewing</td>
<td>11.82</td>
</tr>
<tr>
<td>Establish additional parking options at Lost Valley Trailhead</td>
<td>8.20</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100</td>
</tr>
</tbody>
</table>
### Semi-structured interview themes from visitors experience with the SHEN app

<table>
<thead>
<tr>
<th>Theme</th>
<th>Theme Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wayfinding/Trip Planning</strong></td>
<td>• See where I am in the park</td>
</tr>
<tr>
<td></td>
<td>o List where all bathrooms are</td>
</tr>
<tr>
<td></td>
<td>• See what is around me</td>
</tr>
<tr>
<td></td>
<td>• Provides a realistic feel for distance in the park</td>
</tr>
<tr>
<td></td>
<td>• Like digital maps – have a lot of info in your pocket</td>
</tr>
<tr>
<td><strong>Learning/Education</strong></td>
<td>• Learn about natural features</td>
</tr>
<tr>
<td></td>
<td>o Would like to see plant/animal ID</td>
</tr>
<tr>
<td></td>
<td>o Augmented reality (e.g. Mtn. names)</td>
</tr>
<tr>
<td></td>
<td>▪ At all overlooks</td>
</tr>
<tr>
<td><strong>Park Information/Administration</strong></td>
<td>• Weather</td>
</tr>
<tr>
<td></td>
<td>• When thing are open/closed daily and seasonally</td>
</tr>
<tr>
<td></td>
<td>o When waterfalls are running?</td>
</tr>
<tr>
<td></td>
<td>• When campgrounds are full or 50%, 70% etc.</td>
</tr>
<tr>
<td><strong>Checklists (especially for repeat visitors)</strong></td>
<td>• Trails</td>
</tr>
<tr>
<td></td>
<td>• Plants</td>
</tr>
<tr>
<td></td>
<td>• Animals</td>
</tr>
</tbody>
</table>

Human Behavior Cameras

To understand visitor use levels
Geo-located
Cameras:
- Spypoint D-12
- Moultrie M-888
15-minute time-lapse intervals
  Sunrise to sunset
TimeLapse2 and MS Excel
Trail counters

- Used to understand temporal visitor use patterns
- Geo-located
- Infrared trail counters
  - TRAFx
GPS/GIS/Trail Survey

• Trail Survey Measures:
  • Trail width
  • Trail incision
  • Muddiness
  • Height of vegetation
  • Trail braiding
  • Rugosity
• Survey-grade GPS
• ArcMap 10.3
Questions?

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