

University of Montana

## ScholarWorks at University of Montana

---

Society and Conservation Faculty Publications

Society and Conservation

---

2002

### Assessing the Relationship Between Desired Experiences and Support for Management Actions at Yellowstone National Park Using Multiple Methods

William T. Borrie

*University of Montana - Missoula*, [bill.borrie@umontana.edu](mailto:bill.borrie@umontana.edu)

Mae .. Davenport

Wayne A. Freimund

*University of Montana - Missoula*

Robert E. Manning

Follow this and additional works at: [https://scholarworks.umt.edu/soccon\\_pubs](https://scholarworks.umt.edu/soccon_pubs)



Part of the Social and Behavioral Sciences Commons

### Let us know how access to this document benefits you.

---

#### Recommended Citation

Borrie, William T.; Davenport, Mae ..; Freimund, Wayne A.; and Manning, Robert E., "Assessing the Relationship Between Desired Experiences and Support for Management Actions at Yellowstone National Park Using Multiple Methods" (2002). *Society and Conservation Faculty Publications*. 11.  
[https://scholarworks.umt.edu/soccon\\_pubs/11](https://scholarworks.umt.edu/soccon_pubs/11)

This Article is brought to you for free and open access by the Society and Conservation at ScholarWorks at University of Montana. It has been accepted for inclusion in Society and Conservation Faculty Publications by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact [scholarworks@mso.umt.edu](mailto:scholarworks@mso.umt.edu).

# **Assessing the Relationship Between Desired Experiences and Support for Management Actions at Yellowstone National Park Using Multiple Methods**

Mae A. Davenport  
William T. Borrie  
Wayne A. Freimund  
Robert E. Manning

---

**ABSTRACT:** The nature of recreation and resource management issues related to the winter season in Yellowstone National Park requires a holistic approach in understanding visitor preferences, perceptions, and support for management actions. A dramatic increase in winter visitation over the past three decades and intense controversy related to bison management in the park have posed difficult challenges to managers. Specific questions such as what do visitors want out of their experience and how do visitors perceive management initiatives are central to these challenges. A multiple methods approach, one quantitative and one qualitative, was employed to gain more depth and breadth in understanding. The quantitative study used a mail-back questionnaire to measure the importance of certain visitor experiences and agreement with specific management initiatives. An apparent discord between respondents' desired experiences and support for management actions sparked a qualitative investigation. In-depth interviews provided insight into why visitors believe wildlife is at the heart of the experience, but are unlikely to support management actions aimed at protecting the bison herd in the park. The complement of the two methods suggests that other factors, such as awareness of a problem, perceived role of the park, and trust in the decision-makers, influence visitors' perceptions of management actions.

**KEYWORDS:** Recreation experiences, winter recreation, recreation management, triangulation.

**AUTHORS:** Mae Davenport is a graduate research assistant in Recreation, Resource Management, Department of Forest Resources, University of Minnesota. William Borrie and Wayne Freimund are both associate professors, School of Forestry, University of Montana and Robert Manning is a professor, School of Natural Resources, University of Vermont. Contact Mae Davenport at Department of Forest Resources, University of Minnesota, 115 Green Hall, 1530 Cleveland Ave North, St. Paul, MN. 55108-6112. Email: dave0050@tc.umn.edu.

---

## Introduction

The managers of Yellowstone National Park (YNP) are facing a winter use management situation that embodies rapid growth in demand, conflicts among recreationists and the environment, a string of litigation, and intense scrutiny from gateway communities (Sacklin, Legg, Creachbaum, Hawkes & Helfrich, 2000). The intertwined nature of these problems suggests that none can be resolved independent of the other, that policy must be comprehensive in nature, and that multiple sources of knowledge are required to facilitate their resolution.

Winter use in YNP has grown significantly since snowmobiles were first permitted, up 300% since 1971 to 120,000 visits per year since 1998 (Littlejohn, 1996, as reported by Sacklin et al., 2000). Of these visits, about 60% were accounted for by visitors snowmobiling, 30% entered by automobile, and 10% traveled through YNP via multiple passenger snowcoaches. Such winter use occurs during the time of the year when effects on wildlife may be most dangerous, primarily through disturbance that may diminish energy reserves. While there is considerable scientific and polemical debate about snowmobiling and its effects on wildlife in particular, snowmobiling in Yellowstone potentially provides recreational experiences not found elsewhere. The debate over snowmobiling encompasses both biophysical and social dimensions. How the issue is resolved will carry significant implications for both.

Of particular interest at the time this research was undertaken (1998) was the potential impacts of snowmachine use on the bison herd in the park, particularly associated with air quality, stress, and bison migration patterns. Discussion about the latter issue was heightened to national levels when approximately one third of the bison herd died in the winter of 1996-1997. According to park officials, "some starved, but federal and state wildlife staff killed many because they strayed from the Park and were believed to pose a potential source of brucellosis for livestock." (Sacklin et al., 2000, p. 246). These events raised the need to not only understand the relationship between bison migration and groomed snowmachine roads but also the impact of bison management initiatives on the recreation experience.

Better knowledge of visitor experience preferences and perceptions of proposed management actions is needed to resolve the complex questions and issues faced by YNP managers. Both a solid understanding of what perceptions visitors share related to potential management actions and a detailed understanding of why visitors have those perceptions are needed to answer these questions. The objectives of the research reported in this paper were to a) develop a *generalizable* understanding of *what* experiences visitors seek in YNP and the *extent* to which they support management actions and b) to develop an *in-depth* understanding of *why* visitors prefer certain experiences and *why* visitors feel as they do about management interventions. Our challenge was to integrate two distinct approaches that would ultimately meet these objectives.

## Literature Review

Recreation and leisure research has long converged on studies of preference. Early research ventures focused on activity and setting preferences, while more recent studies have examined experience preferences in conjunction with different dimensions of the recreation setting, such as visitor preferences related to the physical environment, social conditions, and management actions. Visitor preference information has guided decision-making related to the physical, social and managerial settings of protected places (McLaughlin & Paradise, 1980).

The predominant methodology used to measure preference is through the use of the Recreation Experience Preference (REP) scale developed by Driver and colleagues (Driver & Tocher, 1970). REP scales measure the importance of selected motivations for recreation or recreation experiences along different domains, such as creativity, enjoying nature, and thrill seeking. These scales have been applied to a diversity of recreation activities in a variety of settings from river anglers to cross-country skiers to backcountry hikers (McCool & Reilly 1994; Manning 1999). The motive scales serve an important role in management by establishing “motive groups” and allowing managers to make decisions based on the experience preferences of these groups rather than typifying visitors by activity. Motive analysis has demonstrated a wide diversity of experiences sought by visitors within each activity type.

Recreation studies have also attempted to link preferences to various factors, such as specialization (Schreyer & Beaulieu, 1986), or involvement (Young, Williams & Roggenbuck, 1991). For example, Schreyer and Beaulieu (1986) investigated the factors that influence the setting preferences of visitors with varying levels of experience. Their findings suggest that visitors with a relatively high degree of experience in and commitment to wildland recreation settings, differ in the way they contemplate and structure decisions regarding various setting attributes. Other research has investigated the relationship between different realms of preference. Virden and Knopf (1989) examined the activity, experience, and setting preferences of visitors to American Flats Recreation Area, Colorado. They found that some visitors' experience preferences were closely associated with activity choices, while other visitors' experience preferences were linked to setting preferences. This case study attests to the complexities and depth of the relationships between experience preferences and setting preferences.

Another approach to understanding recreation preferences couples experience preference with management preference. To test the concepts of experience, activity, and setting preferences, Manfredo et al. (1983) surveyed visitors to wildlands in Wyoming. They assessed desired experiences along with setting preferences, including support for potential management actions. The results from this study support the idea that visitors can be grouped according to experience preferences and these groups vary in their support for management actions. However, these researchers add that the validity of this quantitative approach (e.g., does the survey instrument correctly and comprehensively measure intended concepts) needs to be addressed in future research.

### **Multiple Methods Approach**

The research presented in this paper was aimed at assessing what kinds of experiences visitors to Yellowstone National Park desire, what management actions visitors support or oppose, and why. We tackled these complex questions through methodological triangulation, or a multiple methods approach. Initially a quantitative approach was undertaken. Limitations of this methodology, especially related to underlying meanings of quantitative results, led to an in-depth qualitative approach that honed in on these meanings.

The dominant method of examining desired experiences and support for management actions has been a quantitative approach. Riding the wave of advancements in our understanding of recreation experiences, however, is the adoption of research methodologies that capture more completely the *lived* recreation experience. Our notion of recreation has evolved from mere activities to complex, dynamic, and highly subjective experiences (Clawson & Knetsch, 1966;

Hammit, 1980; Mannell & Iso-Ahola, 1987; Manfredo & Driver, 1996). In light of this, many researchers contend that multiple methods are needed in examining complex phenomena (Harper, 1981; Howe, 1985).

Literature in sociology and recreation supports the use of multiple methods. One distinct advantage of combining methods in recreation research is improved reliability and validity. Many researchers tout the advantages of converging on data from multiple approaches. Sociologists Denzin (1970) and Webb (1970) argue that triangulation allows researchers to transcend biases associated with singular methodologies. Howe and Keller (1988) see multiple methods as complementary. They contend that, "the evaluator can supplement the weaknesses of one approach with the strengths of another, thereby using complementarity for a deeper, fuller, and richer understanding" (p. 39). Henderson et al. (1999) linked quantitative and qualitative data in a study of physical activity of African American and American Indian women. The researchers argue that this methodology enabled them to acknowledge the assumptions and limitations associated with the study methods, elicited a broader perspective of the issue, and gave them insight into the complex relationships of specific concepts related to the study topic. The research presented here follows this paradigm and therefore addresses the issue of complexity and depth in assessing visitor experience and management preferences.

Experience preferences and perceptions of management were examined through a process of discovery, as research questions and objectives evolved. The result, in our opinion, is a more holistic, accurate, and more defensible picture of the Yellowstone winter experience relative to proposed management actions.

### **Quantitative Study Methods**

One objective of the quantitative study was to understand the range and diversity of experiences winter visitors were hoping to have in Yellowstone. To that end, the REP scales provided a mechanism through which a range of desired visitor experiences could be assessed. A second goal was to identify visitor support for various potential management actions, making it possible to link experience preferences with support for management actions.

Visitors to YNP were systematically sampled at four entrances to the Park on random days from January through March 1998. The systematic sample was stratified by entrance, day of week, and time of day. Names and addresses were collected by a field researcher and a subsample of visitors, proportionate to use levels at the four entrances, were sent a mail-back questionnaire. Follow up reminders and questionnaires were sent consistent with Dillman's Total Design Method (1978), an approach shown to increase response rates and improve accuracy, while reducing public burden. The survey instrument included questions related to the importance of experiences, support for management actions, as well as various measures of use and user characteristics (Borrie et al., 1999).

Respondents were asked to rate forty experience items (see Table 1 for list of items) on a five-point scale (1 = "very unimportant" and 5 = "very important"). To address potential bison management initiatives, respondents were asked to indicate their level of agreement with eight management actions that could be taken to improve conditions for the bison herd. The eight management actions were derived from alternatives being considered within an environmental impact statement and would all constitute some degree of imposition on the visitor's experience. The questions were phrased as follows: "It has been suggested that the National Park Service should take each of the following actions in order to better protect the bison herd. Considering that you may be affected by these actions, please indicate to what

**Table 1**  
**Experience Preference**

	N	Mean*	Std. Deviation
Enjoy natural scenery	1035	4.77	.57
View wildlife	1038	4.63	.62
Have fun	1035	4.37	.75
View bison in natural setting	1020	4.22	.91
Get away from the usual demands of life	1022	4.22	.91
Experience the tranquility	1025	4.18	.92
Snowmobile or ski in wild/natural setting	1031	4.15	1.13
Experience new and different things	1034	4.07	.87
Do something with family	998	4.06	1.18
Have adventure	1029	4.03	.92
Learn more about nature	1024	4.01	.91
Learn about natural history	1026	3.97	.92
See Old Faithful	1019	3.95	1.10
Experience peace and quiet	1018	3.79	1.12
Be with people who enjoy same things	1021	3.78	1.13
Be with members of my own group	1001	3.75	1.22
Get away from crowds	1020	3.67	1.15
Do something creative such as take photos	1019	3.66	1.06
Experience excitement	1020	3.59	1.08
Bring my family/group closer together	1015	3.57	1.25
Experience solitude	1023	3.51	1.20
Learn more about cultural history	1021	3.47	1.06
Feel healthier	1006	3.44	1.20
Be in an area where wolves continue to exist	1022	3.43	1.40
Help reduce tension	1014	3.24	1.28
Allow my mind to move at slower pace	1013	3.23	1.28
Promote greater environmental awareness in own group	1007	3.19	1.27
Be challenged	1010	3.12	1.12
Have thrills	1020	3.09	1.22
Reflect on and clarify personal values	1011	3.04	1.18
Share what I have learned with others	1006	3.01	1.24
Keep physically fit	1012	2.92	1.17
Talk to new and varied people	1024	2.84	1.09
Rest physically	1006	2.80	1.15
Feel more self-confident	1007	2.76	1.17
Be at a place where I can make my own decisions	1011	2.69	1.21
Help others develop skills	1006	2.66	1.19
Develop skills	1019	2.58	1.08
Be more productive at work	1004	2.51	1.18
Escape family temporarily	1001	2.11	1.13

\*On a 5-pt. scale: 1 = very unimportant, 2 = unimportant, 3 = neither important nor unimportant, 4 = important, 5 = very important

degree you agree that visitors should be required to (see list in Table 2).” Responses were recorded on a scale that ranged from 1= “strongly disagree” and a 5 = “strongly agree.” Incongruity within this analysis, led to questions regarding the interpretation and defensibility of the outcomes.

**Table 2**  
**Support for Management Actions Aimed at Protecting Bison Herd**

	N	Mean*	Std. Deviation
Limit the size of groups	1043	3.01	1.25
Travel only in specific areas	1040	2.88	1.32
Watch a compulsory 30 minute educational video	1046	2.55	1.21
Travel in the park only in shortened season	1031	2.12	1.12
Travel in the park only at particular time of day	1032	2.10	1.06
Wait up to one hour before beginning to travel	1005	1.99	.91
Travel in the park only on particular days of the week	1037	1.98	1.02
Obtain a required, randomly distributed, but limited in number, permit	1039	1.95	1.10

\*On a 5-pt. scale: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree.

### Qualitative Study Methods

A qualitative investigation was undertaken the following winter to clarify apparent incongruities regarding the important properties of the experience and lack of support for proposed management actions. The goal of the qualitative study was to provide the depth of understanding that the initial quantitative survey lacked. Issues raised in the quantitative study's findings served as a basis for development of the interview guide in the qualitative approach.

In-depth interviews were conducted at six locations within YNP. Locations were selected to represent both high and low use areas. Visitors were approached at warming huts, interpretive centers, and lodges. The field researcher conducted interviews on random blocks of days during four-hour time blocks. The sample was stratified by weekend/weekday and location. The sampling goal was to contact as many individuals as possible within the allotted time period. Interviews lasted from five to thirty minutes and each was tape-recorded and transcribed verbatim. The interview guide covered three broad subjects—the nature of the winter experience, perceptions of conditions, and support for management issues. Specific questions keyed in on these themes (see Figure 1.).

Follow-up questions were asked in the course of the interview, such as probes about why participants felt wildlife was important, or why they were unwilling to support road closures. This unstructured format enabled the researchers to capture rich details about the experience.

Analysis of qualitative information consisted of organization, interpretation, and theory building, based on Strauss and Corbin's analysis procedures in grounded theory (1990). In organization, phenomena embedded in participant perspectives were given a representative name and then grouped into broad categories, through open-coding procedures. For example, descriptions of bison were labeled "bison" and then later grouped in a broader category termed "wildlife." The data were organized into categories using NUD\*IST software. The categories and text were then examined for common themes, patterns, and relationships. For example, wildlife was a common topic among participants who frequently mentioned the thrill of seeing bison foraging for food or watching coyotes interact. Through these descriptions a common theme emerged, related to the importance of observing wildlife in its natural habitat. Because the strength of qualitative assessment and underlying goals of the study were depth and breadth of meaning, words, categories, and themes were not quantified.

**Figure 1**  
**Interview Guide**

1. What does the Yellowstone experience offer that you can't get anywhere else?
2. Is the opportunity to snowmobile [ski or ride a snowcoach] in Yellowstone important to your experience? Why?
3. Is there anything that you would change about the park or your experience here? Why?
4. In order to protect the things that are important to your visit, would you be willing to support some management actions, such as:
  - a) requiring visitors to watch a 30 minute video before entering the park,
  - b) restricting the times visitors can be in the park in the winter, or
  - c) closing some sections of groomed roads to snow vehicle use? Why?

### **Results of the Quantitative Assessment**

Of the 1505 visitors selected from the original sample, 1064 questionnaires were returned for a response rate of 71%. 63% of the respondents were male. They ranged from 18 to 70 years old, and were generally, highly educated. Nearly one third of the respondents reported a household income of over \$100,000. Over 70% of respondents traveled in the park by snowmobile only.

#### *Experience Preferences*

An examination of the experience preferences of winter visitors to YNP clearly shows the importance of wildlife. Of the forty scale items included in the questionnaire, enjoying natural scenery ( $m = 4.77$ ), viewing wildlife ( $m = 4.63$ ), having fun ( $m = 4.37$ ), and viewing bison in their natural setting ( $m = 4.22$ ) were, on average, among the four most important reasons for visiting YNP (Table 1). In contrast, developing skills ( $m = 2.58$ ), being more productive at work ( $m = 2.51$ ), and escaping the family temporarily ( $m = 2.11$ ) were the least important to respondents on average. Regardless of activity (snowmobiling, snowcoach touring, or skiing), respondents on average rated enjoying natural scenery, viewing wildlife, and viewing bison in their natural setting as important or very important experiences (4.02 or higher).

#### *Support for Management Actions*

On average, respondents were neutral in their support for proposed management actions taken to protect bison herds (Table 2). Requiring group size limits and travel only in specific areas were the most supported actions with means of 3.01 and 2.88, respectively. Requiring visitors to travel in the park only on particular

days of the week ( $m = 1.98$ ) and requiring visitors to obtain a permit ( $m = 1.95$ ) were the least supported management actions, on average. Respondents across the board, including visitors on skis, snowcoach, and snowmobile, expressed a general lack of support of any of these management actions.

### **Results of the Qualitative Assessment**

99 visitors were approached in YNP and asked to participate in an interview. 93 visitors agreed to be interviewed. 70% of the interviews used in the analysis were conducted with visitors who had snowmobiling experiences in the park. Males and females were equally represented among those interviewed.

#### *Experience Preferences*

The in-depth interviews clearly establish natural scenery and wildlife as common and important themes in visitors' descriptions of their recreation experience. Moreover, the interviews revealed what it is about wildlife and natural scenery that is so important. For interviewees, it was not just seeing wildlife, but seeing an abundance and diversity of unique wildlife in a natural setting. For example, Max<sup>1</sup> and Nora had this to say about their wildlife experience,

Max: [the bison] were standing in the hot spring, steam rising. We were right there. It was awesome, beautiful.

Nora: We don't have them in California and the elk, we don't have elk either, very awesome. It's just a treat....

Max: When we're snowmobiling [in California] there are no animals around. It's just really neat seeing the wildlife.

When asked to describe their visit to YNP, participants tended to list the species of animals they saw. Visitors seem to keep track of their wildlife observations, similar to avid birdwatchers or other wildlife enthusiasts. The abundance of bison, elk, and waterfowl was noted by visitors interviewed. For example, when asked the highlights of his park visit, Stan listed the kinds of wildlife he saw,

We saw more animals, from the littlest to the biggest, a lot of buffalo, a swan, coyotes. We saw a couple of swan, a lot of elk, but I was impressed with the buffalo.

For others, however, it is the natural conditions accompanying that opportunity that are most remarkable. The thrill of watching wildlife interact in their natural habitat is reflected in many of the participants' stories. Those who observed such interactions felt lucky to have those opportunities in Yellowstone. The following excerpt is an example of one impression a participant had with regards to wildlife and natural conditions.

Alice took a wildlife tour guided by a naturalist into the Lamar Valley, where she got a rare glimpse of wolves feeding on an elk carcass. She described the fierce scene as thrilling and more than surpassing her expectations.

---

<sup>1</sup>Names were chosen to uniquely identify responses, but do not reflect participants' real names.

Yesterday we took the wildlife tour guided by a ranger naturalist...and we saw a whole wolf pack. We saw them, either they had killed a bull elk or a ranger had shot a bull elk that was injured. She set up her scope so that we could see the kill site. And then we saw a bald eagle that was munching away on something. And we saw the various wolves as they were coming to take turns. The whole pack, you know, sitting up like a quarter of a mile away and then they take turns coming down...kind of in priority of their, I suppose, their hierarchy. And then we saw a bunch of them, you know, just lolling on their back, probably with very full bellies, but that was very thrilling. So the park...I think in the winter has more than fulfilled our expectations.

Understanding what experiencing wildlife in YNP means to visitors helps us to assess visitor attitudes toward management actions that might alter wildlife viewing opportunities in the park.

#### *Support for Management Actions*

The interviewees were directly asked how willing they would be to support management restrictions to better protect the bison herd and then asked to explain their support or opposition. Four distinct themes were evident in their responses:

- 1) Access as a role of Yellowstone National Park
- 2) Lack of a credible problem
- 3) Impacts on visitor experience
- 4) Are recommendations based on science or opinion?

#### *Access as a Role of YNP*

Among those who opposed management change, some believed that the park's role is that of a place for people and it's the people's right to be there. These participants were against almost any kind of restrictions on access. These visitors stressed the need to have access to Yellowstone and many felt that they had the right to be there. For example, Wendy was in Yellowstone on a snowmobile. She recognized the advantage of protecting the bison by restricting visitor access to them, but contended that seeing them is too important. She explained, "No, I think that just from the environmental standpoint it's nice to have all these animals have this nice seclusion, but nobody gets to see them. I wouldn't want to do that to myself or anyone else."

Another visitor on a snowmobile, Roberta, saw the value of nature lying in human enjoyment of it. She asks succinctly, "Why have nature, if people can't be around to enjoy it?" Jake also toured Yellowstone on a snowmobile. He was not in favor of any of the management actions offered to him to protect the bison herd in particular. He added, "It's a people's Park and all people ought to be allowed," and then continued, "the more that's open, the better the access."

#### *Lack of a Credible Problem*

Commonly, visitors who described their close encounters with wildlife remarked at how indifferent the bison appeared to be with respect to the presence of visitors. Although, some interviewees noted that the bison seemed to be agitated, many felt like their encounter had little or no effect on the bison. *Not affecting the wildlife* was a predominant theme in the data as the following excerpt illustrates. Greg states:

I don't really know what the problems with the bison are. They don't seem to mind the snowmobilers. They'll stand right there by the side of the trail and go right by them real slowly. They don't even mind that you're there it seems like. I don't even think that they care if we're out here.

Still many of these participants admitted that if they had proof of environmental degradation, they would support restrictions on use.

### *Impacts on Visitor Experience*

As our quantitative survey illustrated, many visitors have clear expectations and motivations for their visit. Several participants contemplated how specific management actions would change their experience for them and were more concerned about the logistics of each initiative. How management change would affect the visitor experience was a consideration for many participants. Respondents contemplated how their experience would be restricted in terms of access, time, and freedom. While these visitors weren't necessarily against wildlife preservation, they were hesitant when preservation means restricting their own experience. Many visitors said they "like the way the Park is now" and were wary of change.

Caren, who snowshoed in Yellowstone, was not aware of any problems with the protection of the Park's resources. She was skeptical about restricting group size, but would support a mass-transit system. She later voiced support for an educational video and potentially limiting the times people could travel in the Park. Here's what she had to say about limiting visitor group size: "I don't know, because my whole family, there's five in my family, so if we couldn't come as a family, I would not be happy about that."

### *Are Recommendations Based on Science or Opinion?*

A few participants stressed the importance of scientific proof and questioned the capability of the Park's decision-makers to explore all other management options before restricting use. For example, when Michael was asked about the possibility of shortening the winter season he replied,

Before they do that, I think they ought to determine that this is, the common problem. What is the problem with bison wandering out of the Park? Are they carrying that disease and is it safe? To what extent do the bison wander out of the Park; is their migration affected by the groomed trails? You can count that. You can count the bison and find out where they are, and another question would be are there some simple things you could do, like certain trail points, where you could keep the bison from getting that trail. I think get some wildlife biologists involved and they can do it.

Valerie, a visitor on a snowmobile, also mentioned cattleguards, when asked about her support for closing some sections of groomed roads to oversnow vehicles to protect the bison herd. When asked if she would support management change if she had better proof of impacts, she replied:

True. It's easy to take a management action with no clear objective and some generalization, but the results may not be what you expect. Measure the environment before you take the action. Measure after you take the action to see if it's good.

Eve stressed the importance of good relations between Park management and the public. When it was suggested that the Park Service should close some road sections to oversnow vehicles, she said.

I'd be sad about it, but if it were necessary then I'd support that. I just don't want it to become political to the point where it's closed for political reasons and not true wildlife management reasons.

Eve demanded true scientific proof of degradation. It appears that she was also skeptical of the Park Service's agenda. Eve was asked if there were particular sections that she would want to remain open. She answered,

I don't think it would be up to me whatsoever. It would be up to what is truly needed to manage wildlife. It doesn't have anything to do with which ones I would be interested in.

So on one hand while Eve didn't perceive a problem with the protection of wildlife, she would support necessary actions with proof. And furthermore, she thinks that these decisions should be based on science and not on politics or visitor opinion.

Randy, who toured YNP on skis, was asked if he would be supportive of restrictions on the times that visitors could be in the Park to protect wildlife in the Park. He answered, "I guess I'd have to defer. The answer is yes, deferring that decision to those professionals that are trained in the habitat and how different species react to man."

Sarah, a visitor on snowcoach, said she would support restricting the times visitors could be in Yellowstone in the winter. Here's how she explained this:

Well, because I would trust that they wouldn't do such a drastic thing unless they had good reason to. I certainly would not want them to just do it because somebody got the idea that it might be nice to give the animals a break. I mean how do they know. But if they can convince the people that they know what the animals need better than the rest of us, then I think they ought to do that. But I'm not sure...I don't know what the animals need, but maybe somebody else does. If the animals are showing signs of stress, well, they should have a break.

## **Discussion**

The results of both the quantitative study and the qualitative study demonstrate the range of recreation experiences that visitors seek in YNP, the experiences that are most important to visitors, and why those experiences are important.

The quantitative data showed us that visitors want a variety of experiences. This finding is particularly noteworthy in that winter visitors may appear quite homogenous and could easily be mistaken for a group with uniform motives. Wildlife is a very important draw for visitors. The quantitative data demonstrate the importance of viewing wildlife and bison, in particular, to visitors and the extent to which this preference is shared. The qualitative data identify the uniqueness of the interaction visitors have with wildlife, such as bison. Consistent with previous research (Martin, 1997) it's not merely the presence of wildlife in the park that is central to the experience, but the opportunity to observe an abundant diversity of

unique wildlife species in their natural habitat. Knowing the factors important to winter recreation experience brings researchers and managers closer to understanding the complexity of the visitor experience.

Given the stated interest in observing bison that was evident in both data sets, it would seem that visitors would be highly supportive of management initiatives designed to protect the bison herd from the impacts of winter recreation use. However, results of the quantitative study indicated visitors are relatively unwilling to make personal trade-offs with their experience to protect bison. One interpretation of this unwillingness might be that the goals of visitors are inconsistent with the goals of bison management. The researchers suspected that goal interference would provide a misleading interpretation of visitors' resistance to management. To overcome this problem, a second round of data collection was undertaken to focus more clearly on the importance of wildlife viewing to the visitor experience and receptivity to management actions.

The qualitative data provided both confirmation and explanation of this apparent conundrum. Participant responses confirm and extend our understanding of the questionnaire data, illustrating the interconnectedness of the values of YNP, the uniqueness of the recreation experience, and the difficulty or appropriateness of protecting the bison herd.

Assessing the experience relative to support for management actions proved to be an issue that added complexity to this analysis. Expressed support for a setting attribute (bison) and willingness to make personal trade-offs for that aspect of the experience are not the same thing. This is important for managers to recognize in that they frequently hear how "wonderful" the features of the park are and may not be as aware of visitors' opinions on other important factors, such as access to those features.

By the same token, resistance to management intervention is not wholly based on potential impacts to the visitor experience. While some visitors were simply philosophically opposed to reduction in human access to the park, others suggested that they would respond to sound science.

For many visitors the need for restricting access to protect wildlife in Yellowstone was not apparent, at least not by their own observations. Wildlife, and bison in particular, did not appear to visitors to be affected by the presence of recreationists. There was also a frequent challenge to the credibility of the decision makers and the degree to which they were basing their assessment of the situation on sound science. Some visitors questioned the agenda of managers and suggested that politics may play a role in management initiatives.

## **Conclusions**

Recreationists are easy for managers to underestimate. Their large numbers, short visits, and relatively passive orientation can be deceptive in terms of the sophistication of their motives and their view of management. In this case, it may have been easy to dismiss a lack of support for management as rejection of anything that would inconvenience the visitor. While this would have been partially true, there is a more complex interaction among the visitor's philosophic orientation toward the park and the logistics of their visit that was influencing their support for management.

Establishing a conceptual framework of how visitors perceive and assess management change will help to bridge the knowledge gap between managers and the public. Visitor resistance to managerial intervention is often quite sophisticated and frequently based on philosophy as well as practical concerns. Managerial campaigns and interpretive programs that educate the public about why the

intervention is needed should address that sophistication and be grounded in science. Managers may also need to better communicate the underlying objectives of management, especially those related to the mission of the agency. Again, interpretive programs can address the delicate balance between protecting natural resources and providing quality recreation experiences. Gathering information to better understand the visitor perspective on resource management issues will help establish communication and trust among stakeholders and managers. Combining quantitative and qualitative approaches in research gives managers the information needed to do this.

The multiple methods approach used in this study added depth and meaning to the complexities inherent in visitor desired experiences and support for management actions. This approach not only addressed the question of what experiences are preferred and what actions are supported, but also why. Using multiple methods provides managers with a more holistic picture of recreation, both in capturing a diversity of perspectives and in exploring depth in meanings.

### References

- Borrie, W.T., Freimund, W.A., Davenport, M.A., Manning, R.E., Valliere, W.A., & Wang, B. (1999). Winter Visit and Visitor Characteristics of Yellowstone National Park. Final Report 1999. (Unpublished report prepared for Yellowstone National Park, WY).
- Clawson, M. & Knetsch, J. (1966). *Economics of Outdoor Recreation*. Baltimore, MD: Johns Hopkins University Press.
- Davenport, M.A., Freimund, W.A., Borrie, W.T., Manning, R.E., Valliere, W.A., & Wang, B. (2000). Examining visitor use in Yellowstone National Park. In S. F. McCool, D.N. Cole, W.T. Borrie, and J. O'Loughlin. (Comps.) *Wilderness science in a time of change conference - Volume 4: Wilderness visitors, experiences, and visitor management*. Missoula, MT; May 23-27, 1999. Proceedings RMRS-P-15-VOL-4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station (pp. 86-92).
- Denzin, N.K. (1970). *The Research Act: A theoretical introduction to sociological methods*. Chicago, IL: Aldine Publishing Co.
- Driver, B.L. & Tocher, S.R. (1970). Toward a behavioral interpretation of recreational engagements, with implications for planning. *Elements of Outdoor Recreation Planning*. ed. B.L. Driver. Ann Arbor, MI: The University of Michigan Press. pp. 9-31.
- Hammitt, W.E. (1980). Outdoor recreation: is it a multi-phase experience? *Journal of Leisure Research*, 12, 107-115.
- Harper, W. (1981). The experience of leisure. *Leisure Sciences*, 4, 113-126.
- Henderson, K.A. Ainsworth, B.E., Stolarczyk, L.M., Hootman, J.M., & Levin, S. (1999). Notes on linking qualitative and quantitative data: the cross cultural physical participation study. *Leisure Sciences*, 21, 247-255.
- Howe, C.Z. (1985). Possibilities for using a qualitative research approach in the sociological study of leisure. *Journal of Leisure Research*, 17, 212-224.
- Howe, C.Z. & Keller, M.J. (1988). The use of triangulation as an evaluation technique: illustrations from regional symposia in therapeutic recreation. *Therapeutic Recreation Journal*, 22, 36-45.
- Littlejohn, M. (1996). Visitor Services Project: Yellowstone National Park Visitor Study. Visitor Services Project Report 75. Moscow, ID: University of Idaho, Cooperative Park Studies Unit.

- Manfredo, M. & Driver, B.L. (1996). Measuring leisure motivation: A meta-analysis of the recreation experience preference scales. *Journal of Leisure Research*, 28, 188-213.
- Manfredo, M.J., Driver, B.L., & Brown, P.J. (1983). A test of concepts inherent in experience based setting management for outdoor recreation areas. *Journal of Leisure Research*. 15, 263-283.
- Mannell, R.C. & Iso-Ahola, S.E. (1987). Psychological nature of leisure and tourism experience. *Annals of Tourism Research*, 14, 314-331.
- Manning, R.E. (1999). *Studies in Outdoor Recreation: Search and research for satisfaction*. Corvallis, OR: Oregon State University Press.
- Martin, S. (1997). Specialization and differences in setting preferences among wildlife viewers. *Human Dimensions of Wildlife*, 2(1), 1-18.
- McCool, S.F. & Reilly, M. (1994). Benefit segmentation analysis of state park visitor preferences and behavior. *Journal of Park and Recreation Administration*, 11(4), 1-14.
- McLaughlin, W.J. & Paradice, W.E.J. (1980). Using visitor preference information to guide dispersed winter recreation management for cross-country skiing and snowmobiling. In *Proceedings of the North American Symposium on Dispersed Winter Recreation*. February 27-29, 1980. University of Minnesota, St. Paul, MN (pp.64-72).
- Sacklin, J.A., Legg, K.L., Creachbaum, M.S., Hawkes, C.L. & Helfrich, B. (2000). Winter visitor use planning in Yellowstone and Grand Teton National Parks. In S.F. McCool, D.N. Cole, W.T. Borrie, and J. O'Laughlin. (Comps.) *Wilderness science in a time of change conference - Volume 4: Wilderness visitors, experiences, and visitor management*. Missoula, MT; May 23-27, 1999. Proceedings RMRS-P-15-VOL-4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station (pp. 243-250).
- Schreyer, R. & Beaulieu, J.T. (1986). Attribute preferences for wildland recreation settings. *Journal of Leisure Research*, 18, 231-247.
- Strauss, A. & Corbin, J. (1990). *Basics of Qualitative Research: Grounded theory procedures and techniques*. Thousand Parks, CA: Sage.
- Virden, R. & Knopf, R. (1989). Activities, experiences, and environmental settings: A case study of Recreation Opportunity Spectrum relationships. *Leisure Sciences*, 11, 159-176.
- Webb, E.J. (1970). Unconventionality, triangulation, and inference. In N.K. Denzin (Ed.). *Sociological Methods: A sourcebook*. Chicago, IL: Aldine Publishing Co.
- Young, J.M., Williams, D.R., & Roggenbuck, J.W. (1991). The role of involvement in identifying users' preferences for social standards in the Cohutta Wilderness. In *Proceedings of the 1990 Southeast Recreation Conference*. Ashville, NC, February 14-16, 1990. Gen. Tech. Rep. SE-67. Ashville, N.C: USDA Forest Service Southeast Forest Experiment Station.