Examining Winter Visitor Use in Yellowstone National Park

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Abstract—This research was designed to assist the managers of Yellowstone National Park (YNP) in their decision making about winter visitation. The focus of this report is on winter use patterns and winter visitor preferences. It is the author's hope that this information will benefit both the quality of winter experiences and the stewardship of the park resources. This report addresses three fundamental questions: 1) Who are the visitors to YNP and why did they visit? 2) What are the characteristics of the winter visit and how do visitors travel within the park 3) What are the visitor evaluations of current social conditions? 4) Are potential management actions consistent with desired experiences?

Winter recreation use in Yellowstone National Park (YNP) has dramatically increased over the past three decades, imparting various challenges to park management. Management has identified many social issues such as overcrowding, visitor conflicts, and visitor behavior as central concerns (Greater Yellowstone Coordinating Committee 1997). Yellowstone National Park also is a proposed Wilderness and the central feature of one of the wildest remaining sections of the lower forty-eight states. Visitors have expressed contrasting concerns related to the impacts of motorized use on their winter experience. This study, investigates the social impacts of snowmobile use in YNP and examines the questions: What are visitor evaluations of current social conditions? And, are potential management actions consistent with the motivations and satisfaction of visitors? Are visitors willing to make tradeoffs with respect to the preservation of bison in the Park? These questions are typical of the issues facing many protected area managers.

While early explorations in wildland recreation research examined and characterized recreationists according to the activity in which they participated, the prevailing trend now is toward a more sociological and behavioral approach. This movement, spearheaded by researchers such as Driver, Tinsley, and Hendee, focuses on the psychological and physical benefits and outcomes that people receive or expect to receive through certain behaviors in certain recreation settings (Manning 1986). Known as the "unmet needs" hypothesis, this principle is based on the work of psychologists Lawler, Azjen, and Fishbein (Driver, Tinsley, and Manfredo 1990).

As recreational benefits were identified through research on a diversity of leisure types, researchers needed to create reliable methods of measuring those benefits. One example of a predominant motivation scale used to quantify the benefits of recreation is the Recreation Experience Preference (REP) Scale developed by Driver and his colleagues (Driver 1977). Motivation scales, such as Driver's REP scales, measure the importance of certain motivations or experiences for recreation along different domains, such as creativity, enjoying nature and thrill seeking. These scales can easily be adapted to measure reasons, feelings and satisfaction (Crandall, 1980). Since the development of reliable motivation scales, recreation researchers have studied the behavioral elements of leisure in a variety of contexts. Research has analyzed recreationists involved in a diversity of activities in a variety of settings from river anglers to cross country skiers to backcountry hikers (Knopf 1983, Manning 1986). Ultimately, the motive scales serve an important role in management by establishing "motive groups" and allowing managers to make decisions based on the preferences of these groups. Thus, wildland managers are encouraged to think of visitors in terms beyond uniform activity groups and rather as groups associated with common motivations, attitudes and expectations.

In our study information regarding motivations for visiting, satisfaction with certain experiences, and support for management actions was gathered from winter visitors to YNP. This effort undertook to aid managers in their evaluation of current setting conditions and visitor support for management actions. Understanding motivations, satisfaction and support for management actions provides managers with predictive tools related to visitor behavior and potential management initiatives. In this paper we will establish the methods used for data collection, we will provide the results of some of the analysis, and we will discuss underlying research themes and management implications.

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Study Methods

The goal of the research project was to gain information about Yellowstone National Park winter visitors' motivations, satisfaction, their support for a range of management action and to evaluate visitor travel dynamics. To this end, data were collected in three different forms: mail-back questionnaires, on-site surveys, and hourly oversnow vehicle counts.

Mail-Back Questionnaires

The bulk of the information gathered from YNP winter visitors was from the mail-back questionnaires. In this study, 1818 winter visitors to Yellowstone National Park were contacted at the four entrances to the Park, including the North (Mammoth), East (Cody), South (Flagg Ranch) and West (West Yellowstone) entrances. Names and addresses of visitors were collected, voluntarily, on thirteen randomly selected days in January, February, and March of the 1997-1998 winter season. Sample days included weekends and weekdays. Sampled followed a systematic random sample of the four entrances. Sample size at each entrance was proportionately representative of the number of visitors expected to be entering at each site. A random sample of 1505, approximately fourteen percent of the total visitors through each entrance, was mailed a questionnaire. The initial mailing and subsequent reminders yielded a response rate of seventy-one percent or 1064 questionnaires returned.

Onsite Surveys

To address a subset of questions about setting conditions, short on-site interviews were conducted at two sites on the interior of the park. The Old Faithful visitor center and the Fishing Bridge warming hut were selected for their diversity of location and visitation. Old Faithful is a high-use area and the Fishing Bridge has relatively low-use. Surveys at Old Faithful occurred on February 12, 13, and 27. Visitors at the Fishing Bridge were surveyed on January 30 and 31, February 14, 15, and 28, as well as March 1st. Visitors surveyed include those travelling by snowcoach and snowmobile. Two hundred and eight interviews were conducted; forty-seven percent at the Fishing Bridge warming hut and fifty-three percent at Old Faithful visitor center.

Hourly Snow Vehicle Counts: Results

The results presented here are directly related to current management issues including, the acceptability of current traffic conditions, the reasons why visitors came to the Park, visitor satisfaction with their experience, visitor classifications according to their motives, and support for management actions.

Individually, these aspects of the visitor experience each provide an integral piece towards understanding the relationship between visitors and YNP's winter setting and ultimately, what influence management initiatives may have on that relationship. Measuring the acceptability of potential traffic conditions within the Park reveals the socially constructed standards or norms with respect to crowding.

Acceptability of Traffic Conditions

In the mail-back questionnaire we asked visitors to rate the acceptability of encountering 0 to 50 snowmobiles per hour on a nine point scale running from -4, very unacceptable to +4, very acceptable (Fig. 1). This figure shows that the point at which the number of encounters crosses from the acceptable range to the unacceptable range is approximately 33 other snowmobiles encountered per hour. This data combined with information from the travel patterning model tells us that current conditions, in

terms of number of encounters and total daily visitation, would have to triple before respondents would deem these conditions unacceptable.

Motives for the Visit and Experience Satisfaction

One of the objectives of this study was to identify what motivates people to visit YNP and how these motives are linked to satisfaction and support for management actions. This type of analysis depends on the selection of a wide range of motivations with which visitors could identify. Scale items were adapted from extensively tested Recreation Experience Preference (REP) scales (Driver 1977) and a similar study examining winter recreationists to Voyageurs National Park (Lime and Lewis,1996). Respondents were asked to rate the importance of each reason to them and their visit to YNP. Respondents then identified for each item how satisfied they were with that experience. Table 1 illustrates the means, medians, standard deviations, and ranks of each of the items.

At a glance, the table shows that visitors were generally satisfied with their experiences in the Park. The medians here ranged from moderately satisfied (3) to totally satisfied (4). According to the means and subsequent ranks, natural scenery, wildlife, having fun, and viewing bison are the most important reasons respondents visited YNP. Of least importance to respondents were items such as developing skills,

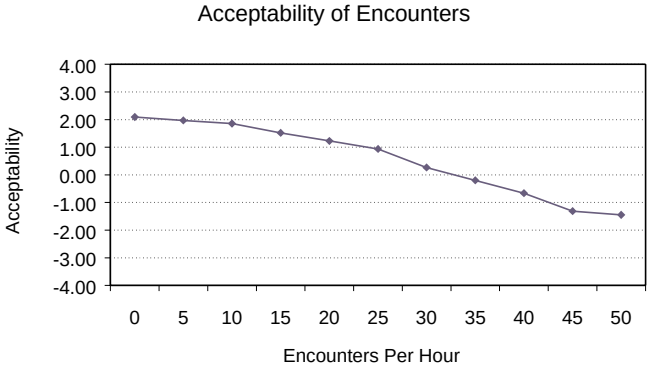

Figure 1—Acceptability of traffic conditions.

Table 1—Respondent ratings of reasons/experiences in importance and satisfaction.

Reason/Experience	Importance				Satisfaction				
	Mean	Med.	Std. Dev.	*R.	Mean	Med.	Std. D.	R.	**R.D.
Enjoy natural scenery	4.77	5	0.57	1	3.89	4	0.36	1	0
View wildlife	4.63	5	0.62	2	3.73	4	0.53	4	-2
Have fun	4.37	4	0.75	3	3.77	4	0.47	2	1
View bison in natural setting	4.22	4	0.91	4	3.69	4	0.63	6	-2
Get away from the usual demands of life	4.22	4	0.91	5	3.73	4	0.54	5	0
Experience the tranquility	4.18	4	0.92	6	3.46	4	0.79	18	-12
Snowmobile or ski in wild/natural setting	4.15	4	1.13	7	3.67	4	0.66	8	-1
Experience new and different things	4.07	4	0.87	8	3.64	4	0.56	9	-1
Do something with family	4.06	4	1.18	9	3.75	4	0.57	3	6
Have adventure	4.03	4	0.92	10	3.61	4	0.61	11	-1
Learn more about nature	4.01	4	0.91	11	3.54	4	0.64	13	-2
Learn about natural history	3.97	4	0.92	12	3.49	4	0.68	16	-4
See Old Faithful	3.95	4	1.1	13	3.58	4	0.76	12	1
Experience peace and quiet	3.79	4	1.12	14	3.28	4	0.87	25	-11
Be with people who enjoy same things	3.78	4	1.13	15	3.63	4	0.61	10	5
Be with members of my own group	3.75	4	1.22	16	3.69	4	0.56	7	9
Get away from crowds	3.67	4	1.15	17	3.10	3	0.96	40	-23
Do something creative	3.66	4	1.06	18	3.51	4	0.70	15	3
Experience excitement	3.59	4	1.08	19	3.48	4	0.69	17	2
Bring my family/group closer together	3.57	4	1.25	20	3.53	4	0.69	14	6
Experience solitude	3.51	4	1.2	21	3.25	3	0.87	29	-8
Learn more about cultural history	3.47	4	1.06	22	3.26	3	0.77	28	-6
Feel healthier	3.44	4	1.2	23	3.39	4	0.77	19	4
Be in an area where wolves exist	3.43	4	1.4	24	3.25	4	0.92	30	-6
Help reduce tension	3.24	3	1.28	25	3.38	4	0.8	21	4
Allow my mind to move at slower pace	3.23	3	1.28	26	3.37	4	0.81	22	4
Promote greater environmental awareness in own group	3.19	3	1.27	27	3.36	4	0.79	23	4
Be challenged	3.12	3	1.12	28	3.33	3	0.76	24	4
Have thrills	3.09	3	1.22	29	3.39	4	0.74	20	9
Reflect on and clarify personal values	3.04	3	1.18	30	3.27	3	0.8	26	4
Share what I have learned with others	3.01	3	1.24	31	3.27	3	0.81	27	4
Keep physically fit	2.92	3	1.17	32	3.2	3	0.85	34	-2
Talk to new and varied people	2.84	3	1.09	33	3.23	3	0.8	31	2
Rest physically	2.8	3	1.15	34	3.21	3	0.85	33	1
Feel more self-confident	2.76	3	1.17	35	3.23	3	0.84	32	3
Be at a place where I can make own decisions	2.69	3	1.21	36	3.11	3	0.91	37	-1
Help others develop skills	2.66	3	1.19	37	3.13	3	0.85	36	1
Develop skills	2.58	3	1.08	38	3.2	3	0.82	35	3
Be more productive at work	2.51	3	1.18	39	3.11	3	0.89	38	1
Escape family temporarily	2.11	2	1.13	40	3.11	3	0.98	39	1

*Rank by Means; **Rank difference between importance and satisfaction means; Importance: 1=Very important, 2=unimportant, 3=neither important or unimportant, 4=important, 5=very important; Satisfaction: 1=not at all satisfied, 2=somewhat satisfied, 3=moderately satisfied, 4=totally satisfied

becoming more productive at work, and escaping family. Respondents were also highly satisfied with their experience.

The ranks and the rank differences from Table 1 reveal items that may be of most interest to management, those that are highly important to respondents, but garner relatively lower satisfaction. These items have highly negative rank differences. Three items, experiencing tranquility, peace and quiet, and getting away from crowds, fall into this category. This suggests that while visitors are coming to YNP to find tranquility, peace and quiet, and to escape crowds, at least some of them are relatively less satisfied with what the Park offers in these areas. Conversely, respondents view being with their group and having thrills relatively unimportant, but are proportionately more satisfied with having achieved these ends (as reflected in the high positive rank differences).

Visitor Classifications According to Motivations

The importance ratings from the forty motive items were analyzed to reveal whether a simpler underlying structure could summarize and represent the motives. This was done by performing a principal component factor analysis. Reducing the number of variables in this manner provided us with a statistically more dependable measurement of reasons why visitors came to YNP. This procedure revealed six different underlying factors which we labeled according to their fundamental themes. These factors are shown in Table 2. These factors serve as summaries of the forty motives and will then be used to group respondents according to their scores on these factors.

Factor one, Self-help and Reflection, can best be characterized as the desire to attend to personal needs, like reducing tension, feeling healthier, and self-reflection. This factor represents an introspective motivation, including decision-making and self-confidence. Factor Two, Nature and Learning, can be described as motivations to learn about the natural and cultural history of the Park. This category includes viewing and learning about wildlife and nature. The third factor, Solitude, Peace, and Quiet, depicts motivations related to getting away from crowds, noise, and the hustle and bustle of everyday life. Experiencing natural scenery is also included in this factor. Opportunities for adventure and fun are fundamental to factor four, Thrills and Spills. This category includes thrill seeking and the desire to experience excitement. Motivations in factor five, Skills and Fitness, include physical challenge, skill development and keeping fit. The final factor, Family and Friends, emerged as the category representing social motivations. Items inherent in this factor include being with members of own group, bringing family or group closer together, and being with people who enjoy the same things. Thus, this tells us that the forty motivations utilized in the questionnaire do fall into distinct factor categories which represent broader motivations. When examined internally, these factors reveal reasonable and prudent underlying themes.

Defining Respondent Groups by Motivations for Visiting YNP

The six factors identified through factor analysis can be used to discern different groups or clusters of respondents according to their motivations. Using cluster analysis we identified the four clusters depicted in Table 3 These four groups best characterized our respondents, while maximizing the statistical differences between the clusters.

The Personal Growth cluster represents those respondents who rated items in the Self-help and Reflection factor as highly important to them or to their visit. Thirty-eight percent of respondents fall in this motive cluster. While the reflection and introspection are primary reasons respondents in this group came to YNP, they also rated the motivation items in the Learning and Nature category moderately high. Overall, these visitors are motivated to experience personal gains, in terms of feeling healthier, reducing stress, and learning about their environment. The social aspect of visiting Yellowstone, for example being with family or friends, is not as important to them.

Table 3 illustrates that learning about their environment is the fundamental reason why visitors in the Nature Study cluster came to YNP. Learning about the natural and cultural history of the Park, as well as viewing bison and other

Table 2—Factor summaries.

Factor 1: Self-help and reflection	Factor 2: Learning and nature
Help reduce tension	Learn more about natural history
Allow mind to move more slowly	Learn more about nature
To make own decisions	Learn more about cultural history
Be more productive	View bison in nature
Reflect on values	View wildlife
Feel more self confident	
Feel healthier	
Help others develop skills	
Factor 3: Solitude, peace, and quiet	**Factor 4: Thrills and spills**
Get away from crowds	Experience excitement
Experience peace and quiet	Have thrills
Experience the tranquility	Have adventure
Experience solitude	Have fun
Enjoy natural scenery	
Factor 5: Skills and fitness	**Factor 6: Family and friends**
Keep physically fit	Be with members of my own group
Develop skills	Do something with family
Be challenged	Bring my family/group closer together
	Be with people who enjoy same things

Table 3—Clusters.

	Personal growth	Nature study	Quiet activity	Accidentals
Factor	Mean	Mean	Mean	Mean
Self-help and Reflection	.6878	-.9555	-.6679	.3875
Learning & Nature	.3007	.6512	-.6698	-1.2879
Solitude, Peace & Quiet	.1058	-.4287	.9308	-1.2768
Thrills & Spills	.1850	-.2603	.0636	-.4594
Skills & Fitness	.1146	-.7126	.3952	.1128
Family & Friends	.0583	-.1705	.0915	-.4437

wildlife in their natural setting are highly important aspects of their visit. This cluster represents eighteen percent of respondents.

Visitors in the Quiet Activity segment, seventeen percent of respondents, seek solitude, tranquility and quiet in a physically challenging environment. These visitors come to YNP to maintain personal fitness and develop their skills away from crowds and noise.

Respondents in the final segment, Accidentals, did not rate any of the factors particularly high. They did show some motivation for reducing tension, feeling healthier, and becoming more productive, included in the Self-help and Reflection factor. These visitors are labeled Accidentals since they don't seem to share the same types of motivations found in most recreationists. Perhaps, other factors not specific to the experiences found in YNP motivated them to visit, or our group members made the decision to visit and their own motivations are not particularly tied to YNP. Over eight percent of respondents are represented by the Accidentals motive cluster.

Visitor Support for Management Actions

Gaining insight into support for potential management actions is valuable to managers who must make decisions that affect visitor experiences in the park. It is important to not only understand what management actions visitors favor, but also to identify the management actions that have little support from specific visitor types that may prove to cause future conflict.

Respondents were asked to express their support or agreement with various management actions under two different formats. First, respondents rated their support from one, "strongly oppose" to five, "strongly support on a series of management actions given the conditions of the Park on their visit. The management actions were generated from information supplied by NPS staff, planning and policy documents. Table 4 illustrates the most and least supported management actions. The means range from "oppose" (2) to "support" (4). The requirement of noise and emissions standards on all snowmachines gained on the most support

Table 4—Support for management actions.

Management actions	N	Mean	Med.	Std. Dev.
Require all snowmachines to meet strict, but reasonable emissions/noise standards	1051	4.02	4	1.08
Provide more info-appropriate behavior	1050	3.96	4	.93
Provide more info-snow/trail conditions	1052	3.80	4	.83
Provide more info-identifying points of interest along trails	1050	3.79	4	.93
Maintain and groom snowmobile trails more often	1049	3.74	4	1.17
Provide more info-things to see and do outside of YNP	1054	3.71	4	.95
Be more aggressive enforcing-snowmobile speed limits	1053	3.66	4	1.10
Be more aggressive enforcing-safety rules and regs	1049	3.62	4	.98
Provide more info-things to do in YNP	1046	3.59	4	.95
Continue and increase advertisement of other rec. areas	1047	3.56	4	.96
Provide more trails/locations for recreation use	1047	3.51	4	1.21
Provide more park rangers	1053	3.39	3	.89
Increase facilities provided to disperse use	1046	3.39	3	1.05
Provide guided snowmobile trips by NPS staff	1051	3.02	3	1.10
Establish alternate use periods	1036	3.01	3	1.08
Provide more winter accommodations	1049	2.90	3	1.20
Close roads to oversnow vehicles	1039	2.16	2	1.27
Restrict groomed roads to snowcoach travel only	1048	2.10	2	1.31
Plow road from W Yellowstone to OF	1046	2.02	2	1.27

1=strongly oppose, 2=oppose, 3=neither support or oppose, 4=support, 5=strongly support.

(mean = 4). The least supported management actions are related to changing the current status of the groomed roads. Respondents on average oppose closing roads to oversnow vehicles or restricting the roads to snowcoach use as do they oppose plowing the road from West Yellowstone to Old Faithful.

Respondents were then asked to rate the extent they agreed or disagreed with requiring visitors to follow a list of eight management initiatives in order to better protect the bison herd in the Park. The management initiatives range from the less intrusive, like limiting the size of groups and shortening the winter season to more intrusive including watching a compulsory video and implementing a permit system. The scale provided ranged from one, "strongly disagree" to five, "strongly agree." In general respondents did not agree with any of the requirements proposed to protect the bison herd. Table 5 shows that the means ranged from "neither agree or disagree" (3) to "strongly disagree" (1). Of those items implementing a permit system and restricting the days of the week visitors could travel in the Park garnered the least agreement. On average, visitors neither agreed or disagreed with limiting the size of visitor groups. This initiative had the highest mean.

Research Themes and Management Implications

There Is a Wide Diversity Among Winter Visitors

At first glance, it would be easy to assume that Yellowstone winter visitor's are fairly homogenous. Snowmobilers use the same mode of transportation, tend to look alike, and follow fairly similar and predictable travel patterns. The same may be said about people who come to ski or snowcoach. The data from this study, however, demonstrate that within each activity type, visitors seek distinctly different experience and should not be assumed to be seeking and enjoying a uniform type of experience dictated by activity type. Traditional recreation management principals suggest that managing for experience opportunities is generally preferred over managing for activities.

Recognizing that visitors are seeking differing goals has at least three implications for management. First, it would be easy for managers to assume that the visitors are homogenous. This could inaccurately lead to the assumption that visitors would respond to or support management actions uniformly. For example, in comparing Accidental Tourists with visitors seeking Nature Study (two of the clusters of visitor motivations) we see distinct differences in their support of management actions. The Accidental Tourist, for example, may not appear satisfied with any action but also may not have that great of investment with the outcome of the management. Where as a person seeking nature study may have a greater stake in the management action and would be willing to sacrifice slightly more of their experience to the perceived good of the natural resources.

Second, it would be easy to assume that snowmobilers are uniformly different from visitors who do not snowmobile. While visitors who snowmobile are more likely to be interested in personal growth or to be there "accidentally", visitors engaged in each type of activity are distributed across all four of the motivation clusters identified in this data. Similar dynamics occurs when looking at the distribution of visitor types that access the park from each entrance. That is, at each entrance we see a range of visitors in each motivation cluster, some seeking nature study, some peace and quiet, some fitness, etc.

Third, many of the visitors do more than one activity while in the park. Taken together, the use of experience motives is a more valid way to address the visitor segments than to consider the groups skiers, snow coach riders, snowmobilers or pleasure drivers. It also does not seem that the entrance one uses is closely related to the goals for a visit or assessment of management conditions.

Tying together the of the above-mentioned implications, it can be seen that managers are working with a visitor population that will be difficult at times to read. While they look and travel in similar patterns, they differ in their reason for visiting and assessing the park. Since goal interference is considered a primary influence on conflict among recreationists, it appears as likely for conflict to be occurring within visitor types as among them. Indeed, the slightly lower satisfaction levels of the accidental tourists may be associated with such conflicts (it is difficult to estimate the motivation this group would have to approach a manager with a complaint, however, since they are not as engaged within the park as the other visitors). Management strategies that increase the opportunities for nature study, personal growth and quiet fitness, are likely to be supported by a broad subset of the visitors.

Table 5—Support for management initiatives in order to protect the bison herd.

Management Initiatives	N	Mean	Med.	Std. Dev.
Limit size of groups	1043	3.01	3	1.25
Travel only in specific areas	1040	2.88	3	1.32
Watch 30 minute video	1046	2.55	2	1.21
Wait up to one hour before travel	1005	1.99	2	.91
Travel only at particular time of day	1032	2.10	2	1.06
Travel only on particular days of the week	1037	1.98	2	1.02
Travel only in shortened season	1031	2.12	2	1.12
Obtain a required permit	1039	1.95	2	1.10

1=strongly disagree, 2=disagree, 3=neither agree or disagree, 4=agree, 5=strongly agree.

The Yellowstone Experience Is Satisfactory!

The winter visitor experience to Yellowstone National Park is a treasured one. From many visitors we have heard stories of extraordinary events, magical moments, and unforgettable images of one of the nation's greatest parks. Yellowstone in winter is a powerful experience and visitors feel fortunate in being able to see its treasures. There are those who view the winter as a resting period for the park and its denizens, a change to recover from the pressures of summer visitation. However, the winter visitors not only treasure the same peace and quiet, they are seeking out many of the same experiences that Yellowstone provides during the spring, summer and fall.

It is a park known for its wildlife – wolves, bison, and elk. It is a symbol of the nation, and features such as Old Faithful are powerful attractants at any time of the year. Visitors enjoy the opportunity to recreate, escape the usual routine of their daily lives, and to share their experiences with family and friends. Visitors are prepared to accept moderate levels of organization and regulation given the uniqueness and importance of the experience. Being kept to the roads, and the traffic congestion that sometimes this entails in both winter and summer is tolerable. Overall, satisfaction with the winter experience is very high.

The winter visitors to Yellowstone generally perceive the current management strategies to be fair and appropriate. There is not a perceived problem requiring drastic action. The winter visitors are supportive of management actions that would facilitate or improve the experiences they are currently afforded, such as requiring stricter emission standards for snowmobiles, greater enforcement of current safety rules and regulations, and the provision of more information about the park and its features. Management actions that are not supplemental to current conditions and that might disrupt or substantially alter the balance of experiential opportunities receive uneven support, or common levels of opposition. (One example that receives strong disapproval is the plowing of the road to Old Faithful).

It is not uncommon for visitors to recreation sites to be generally supportive of the status quo or to encourage of slight improvements. YNP's winter visitors' tolerance level of current conditions (or even greater levels of crowding) however, seems notable as does the opposition to a variety of management options that would constrain or curtail some of the current visitor activities.

For example, the lack of support for a variety of trade-offs that visitors might be asked to make in order to better protect the park's bison herd is surprising, particularly given the importance they express for wildlife values. Even moderate requests, such as watching a compulsory 30 minute video receive active levels of opposition. We suggest that winter visitors perceive either there is no problem with visitor interactions with the bison, or that suggested management actions would not have the desired effect on the bison herd, or that the actions suggested are inappropriate for protecting the bison. While the visitor may have heard about the problem, there is little impetus for change generated by his or her own experiences within the park. Things seem and feel OK, and perhaps their generally high levels of satisfaction with this special and unique opportunity flavors their perceptions of the park and its management. This might be indicative of many wildland planning and management contexts. Generally, visitors are supportive and appreciative of the recreation opportunities provided and resist putting these opportunities at risk. The status quo is very powerful and the public is often suspicious of manager motivations for changing these conditions.

There Is Time for Good Planning

While winter use issues within Yellowstone National Park are embroiled with tension and controversy, the majority of the visitor experiences within the park are fairly intact. In the absence of another surge of demand or a dramatic alteration of the experience by a management action, it is likely that satisfaction levels will remain high. Although there is a possibility that some people have been displaced and are therefore unaccounted for within this sample, the visiting population of winter users in Yellowstone National Park are highly satisfied. These data suggest that managers have a window of opportunity here in which planning efforts can be conducted and the implementation of such plans gradually applied. The urgency to address issues associated with winter use in YNP is not originating from the majority sentiment of the winter visitors.

Recommendations for Wildland Managers

We have demonstrated that seemingly appropriate approaches to measuring crowding (by only asking evaluations of current conditions) and to typifying visitor groups (by activity segment) may be overly simplistic. Instead, we have demonstrated underlying motive groupings and a modeling-based approach to measuring social condition evaluations. We believe these alternative approaches will be more useful for managers, particularly in predicting future visitor behaviors and likely support for management actions.

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