

Identifying Research Needs for Improved Management of Social Impacts in Wilderness Recreation

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Abstract—This paper summarizes the social impact research and information needs derived from a workshop of over 50 recreation management staff in the New Zealand Department of Conservation. The overall objective was to establish the basis for developing a research plan underpinning social impact management. After scoping the diversity of social impact issues, the workshop identified five main social impact themes that categorized social impacts as being caused by management actions, intergroup encounters and conflicts, intragroup encounters and conflicts, inappropriate uses and behaviors, and off site intrusions. Exploration of these social impact themes yielded numerous research questions, which were grouped under identifying demand characteristics, defining social values, understanding and managing recreation conflict, and evaluating management outcomes. A social impact research framework is proposed based on interactions between specifically defined places, physical and social human effects, and social values.

Following a successful workshop on the physical impacts of visitors on natural and historic resources (Cessford 1997, Cessford and Dingwall 1997), the New Zealand Department of Conservation (DOC) held a workshop on the social impacts of visitors on the recreation experiences and sociocultural values of others (Wellington, May 13-18, 1998). Its main purpose was to identify DOC research and information needs in this particular area of conservation management. To achieve this result, around 50 participants were selected from the DOC staff required to manage and research visitor impact problems, along with selected park management staff from the local government sector. From the United States, Alan Watson of the Aldo Leopold Wilderness Research Institute gave a comprehensive social science perspective, while Laurel Boyers of Yosemite National Park provided practical management experience in deriving research needs under high-pressure social impact conditions. This represented a new approach to identifying the research and information needs for the management of New Zealand's growing and diversifying outdoor recreation and tourism sector in national parks and similar protected areas.

To set the scene, presentations were made on the latest legislation and policy for DOC's visitor impact management responsibilities (Department of Conservation 1996, 1998).

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State-of-knowledge summaries on social impacts and management processes were presented, social impact definitions were discussed, and several New Zealand case studies of issues and solutions were also explored. Participants contributed through directed discussions in working groups, which over the three days of the workshop:

- identified the diversity of social impact issues that they had encountered;
- explored five summary social impact themes; and
- determined four research and information themes for improved social impact management.

Social Impacts and Social Values

Before summarizing these workshop findings, it is helpful to briefly define some key terms. The “social impacts” can be considered human effects on physical and social conditions that detract from associated social values. What are these social values? In a wilderness management context, the social values associated with human activities at places have two interrelated but distinct components—recreation experiences and sociocultural perspectives.

The social values associated with recreation experiences are the outcomes anticipated from engaging in chosen activities at chosen places. These can form the basis for the specific recreation management priorities at those places. They relate directly to active on-site participation by visitors in recreation activities. The social values associated with sociocultural perspectives have a different context. They relate to the wider values that people attribute to different places for different reasons, derived from the natural, historic and cultural heritage features present at or associated with places. They can form the basis for specific conservation and heritage management priorities at those places. However, they may not necessarily involve any direct site visit and are commonly off-site perspectives.

In both cases, the on-site activities of recreation visitors can have major effects on the social conditions prevailing at a site, some of which may represent serious impacts on the desired social values associated with those sites. With this distinction acknowledged, the remainder of this paper summarizes the social impact themes identified; presents the main research and information conclusions derived from these themes; and proposes the basis for a social impact research plan.

Social Impact Themes

When exploring social impact issues, workshop participants paid particular attention to a variety of factors. These

included the effects of management actions, different cultural and spiritual perspectives, individual and group values, evaluations of other groups, expectations and satisfactions, perceptions of crowding, mode of transport, motorized versus non-motorized activities, applications of new technology, inter- and intra-activity conflict, values and ideology, adjacent land uses, intrusive activities, different setting contexts and commercial involvement in recreation activities. Some of these issues were considered inherent in all social impact questions (for example, social-cultural perspectives; individual and group values; visitor expectations and satisfactions). However, five distinct but overlapping social impact themes were consistently identified. These were social impacts generated by:

- Management intervention
- Intergroup encounters and conflict
- Intragroup encounters and conflict
- Inappropriate uses and behaviors
- Off-site intrusions

Working group findings are reported fully in the workshop summary and proceedings (Cessford 1999a,b). Summary descriptions of these findings are provided below for each of the social impact themes, including the initial research and information issues raised.

Management Intervention

Social Impact Issues—Management intervention aims to change the physical conditions of sites and the social conditions of related recreation experiences. These changes will interact to directly or indirectly affect the types of physical and social impacts that might occur. Direct effects may be from deliberate management choices providing for specific recreation outcomes, such as provision of certain facilities or imposition of particular use-rationing approaches. Any impacts from these actions will be limited to some visitors, while others will regard the outcomes as positive. Indirect effects may arise from management actions targeting other non-recreation objectives such as heritage conservation, visitor safety or facility maintenance. Impacts here may also reflect different visitor perceptions of the management techniques themselves, based on different attitudes toward issues like perceived recreation freedom, degree of management regimentation, appropriateness of user charges and commercial provision of recreation opportunities. In all cases, an array of direct and indirect, planned and unplanned, and positive and negative consequences will result from management actions. Managers need a good understanding of all such consequences.

Consideration of these social impact issues emphasized the effects from use restrictions, imposing charges for access or use, changes in access provisions, provision of information services, provision of more on-site staff presence, the balance of commercial and noncommercial uses, and other management operations (such as pest control). These were summarized into four main categories of management intervention contributing to social impacts:

- visitor use restrictions and controls
- provision of visitor facilities and services
- conservation operations
- applications of information services

The other context for management-derived impacts concerned the effects of management inaction. Social impacts can accelerate and diversify when managers are unaware of changing social and physical conditions. Even if managers are aware, they may lack the time, resources or knowledge to take some action. This highlights some of their important monitoring and priority-setting information needs.

Initial Information Needs—The main questions pointed to the need for assessment and evaluation, determining what are the social, physical and management outcomes of different management interventions. Of particular interest was how these interventions impact differently on different visitor groups. Key questions include: What are the attitudes of visitors toward different management options? What is the relative effectiveness of different interventions? How effective are visitor satisfaction measures in management evaluation? How important to evaluating management success is a clear specification of management objectives? Of secondary importance were a group of research needs dealing with the flexibility available to managers to develop new or different management options under current operating frameworks (such as funding, legislation, policy and partnerships). This involves research on management processes and their interactions with legislation and policy development.

Inter-Group Encounters and Conflicts

Social Impact Issues—The social impacts among recreationists and with other stakeholders usually involves intergroup conflict due to negative perceptions of the presence, behavior and characteristics of other people. Conflicting groups are typically of different activity types that are sharing sites and competing there for access to their desired recreation experiences. The most common example is of motorized versus non-motorized activities.

There is also growing recognition of wider social impact perspectives including other stakeholders: locals versus tourists, rural versus urban, management versus users, private versus public, commercial versus noncommercial and different cultural perspectives. The sources of these impacts may range from the effects of direct physical contact with people on-site to indirect and abstract disapproval felt from an off-site perspective about certain other groups of people using a particular setting. Some reflect common values held in relation to traditional versus nontraditional use; resident versus nonresident use; national versus international visitor use; and rural versus urban use. The following examples of intergroup conflict issues were considered:

- commercial versus noncommercial uses
- conflict and competition between different activity groups
- varying degrees of compliance with regulations
- different perceptions of ownership and attachment to the activity and setting

Initial Information Needs—Two types of research need arose here. First, developing an understanding of recreation conflict processes for achieving clearer problem definition. Research here can improve the identification of those factors contributing most to how different visitors evaluate each other in different situations, answering the basic question—what is this conflict really all about? Second, research on

assessing the effectiveness of information approaches, for evaluation of the best options for solutions. Using information to influence visitor choice of particular activities and sites, and how they evaluate other visitors, is commonly considered a priority means to address conflict issues. How effective are different information strategies and techniques in preventing or reducing conflict?

Intra-Group Encounters and Conflicts

Social Impact Issues—Principles of intergroup conflict also apply at a more subtle level within an activity group. Specific attention to intragroup conflicts gives a more detailed perspective on the underlying causes of all social impacts. The most common perspective on intragroup conflict has been through a focus on recreation crowding. This has little to do with absolute numbers or use-levels; rather, it reflects how different use-levels and behavior-styles within an activity are interpreted as being appropriate. Put simply, intragroup conflict may arise between people involved in the same activity, but who differ significantly in terms of the primary qualities they expect to experience. Conflict can arise where others, through their perceived or real behaviors, are attributed with having different values for these qualities. The following examples of intragroup conflict issues were considered:

- types of inappropriate behavior
- crowding and conflict perceptions
- different values and attachments for settings and activities
- traditional versus nontraditional cultural use
- different activity orientations
- degree of fee compliance

Initial Information Needs—The main information needs identified for managing the social impacts of intragroup conflicts were based on the need to improve understanding of inappropriate behavior and crowding. This was based on defining and scoping different behavioral and crowding problems, and understanding both the common contributing factors applying in most cases, and the unique factors specific to certain activity types or sites. How do these factors relate to on-site management for specific recreation experience goals? Are these goals made apparent to visitors prior to and during their visits?

Inappropriate Uses and Behaviors

Social Impact Issues—Some types of activity have more obtrusive effects in both intergroup and intragroup conflict situations. These are the activities, use-styles and behaviors most likely to consistently generate social impacts with those others that consider such effects “inappropriate.” Specific focus on what comprises these more “intrusive” impact effects is important, because it can allow better anticipation of the future conflicts likely to arise in changing recreation situations. It can also aid prediction of the likely outcomes from management actions taken specifically to reduce particular conflict-generating effects. The following examples of inappropriate uses and behaviors were considered:

- use of new technology
- motorized vehicle use for recreation
- motorized vehicle use for access
- commercial competitive events
- other outdoors events
- antisocial or criminal behavior

Initial Information Needs—Research discussions here emphasized the need to improve understanding of interactions between different visitors, activity styles, place and activity dependence, group values and individual values and perceptions of place. What makes some recreation activities, experiences and visitors more susceptible (or tolerant) to impacts than others? What visitor characteristics and behaviors have disproportionately greater impact effects? General review research was favored here. Also emphasized was a need for research that provided processes for systematically defining social and environmental values at defined places. This would also require investigation of how people’s values and sense of place could change over time. Such information could provide an improved management capacity for specifically identifying elements of social and physical quality, and the appropriate and inappropriate behavior types, in different situations and sites.

Off-Site Intrusions

Social Impact Issues—Significant social impacts can arise due to human activity on the land, water or airspace beyond direct management control. Aircraft overflights, activities on lakes and rivers, and activities on adjacent lands are often managed differently from the experiences being managed for on the conservation lands. Intrusions by effects such as noise, light and the presence of “inappropriate” activities, developments or land-uses can have negative effects on recreation experiences. In addition, off-site perspectives of the on-site recreation activities and management can lead to wider impacts on sociocultural values in society, which have implications for on-site management. This represents the broader perspective of social impacts beyond simple on-site competition. The following examples of off-site social impact issues were considered:

- inconsistent management controls on adjacent areas of land, air and water
- sociocultural values for places
- visitor expectations generated from media, marketing and promotion activities
- nonuser perspectives and nonuse issues
- change in socioeconomic conditions
- pressures from public participation processes

Initial Information Needs—The basic questions raised here emphasized the importance of identifying interactions between off-site and on-site factors, defining the relationships and components, and determining means to alter these as required. However, most of the social impact issues raised here will already be covered by general questions in recreation conflict research. Particular attention was paid to the positive value in specifically engaging in off-site management actions to influence on-site conditions. The main questions here related to information use, and which techniques were most effective.

Research and Information Themes

The main research and information themes were derived from the workshop discussions on the preceding social impact themes. Although these themes are described individually below, they are all interrelated and presented in no particular order. The main research and information themes were:

1. Identifying recreation demand characteristics
2. Defining social values in recreation places
3. Identifying and managing recreation conflict
4. Evaluating management outcomes

Identifying Recreation Demand Characteristics

Accurate data on visitor numbers, characteristics and motivations represents the essential baseline information required for achieving various visitor management objectives. With improved expressions of these elements, research and management solutions derived to address the more complex social impact issues can be more effectively applied. The outcomes of site management for recreation experiences will be most often measured in terms of participation levels and indicators of visitor satisfaction. Neither of these measures can be applied effectively at visitor sites if there is not reliable record of visitor numbers or refined knowledge of what visitors want from their site visits.

The key question here is what are the volumes, patterns and trends of demand for different recreation opportunities? Table 1 highlights the main types of research and information investigations required.

Defining Social Values in Recreation Places

A consistent theme throughout the workshop was that the social values being provided and protected at places managed for visitor use need to be better identified and characterized,

and specified as management objectives. Improved specification of site-related management objectives will assist in assessing the likelihood of social impacts developing, the most effective management interventions that may be applied for them and the most appropriate indicators and standards that may be required for monitoring. However, it was clear that there are significant knowledge gaps in understanding the sociocultural and recreation-experience values, their associations with specific places and their practical application to defining site-specific social management conditions. The Recreation Opportunity Spectrum (ROS) was discussed as one example of a framework that goes part way toward fulfilling this need, but workshop participants considered this framework applied at a level too coarse for effective site-specific management actions and monitoring processes. While the opportunity-class criteria provide the physical and social background setting for more site-specific visitor-management areas, they require more explicit and site-specific management objectives. To reveal where social impacts are occurring, or might be anticipated, managers need a systematic framework for clearly identifying the particular sociocultural and recreation-experience values they are managing for at different sites within the wider management frameworks such as the ROS.

The key question here is how can we define, classify and specify the different social values associated with different recreation settings? Table 2 highlights the main types of research and information investigations required.

Identifying and Managing Recreation Conflict

When the desired sociocultural and recreation-experience values at particular places can be defined and specifically managed for, the main social impact issues that occur will arise in two ways. First, where the recreation experience opportunities provided by management, and the associated sociocultural values they might also be protecting, are inconsistent with those that visitors (or non-visitors) may expect. Second, when the presence and behavior of other visitors prevent these recreation experiences from being achieved as expected, or compromise the sociocultural values held.

Table 1—Research areas for identifying recreation demand characteristics.

Indicative information areas	Indicative research areas
<ul style="list-style-type: none"> * Visitor numbers * Demographics * Use patterns * Visitor wants/needs * Use/activity trends * Projections/modelling * Resource demand * Resource supply * Monitoring methods 	<ul style="list-style-type: none"> * Visitor counting technologies. Both the innovation of new counter hardware applicable to a variety of locations, and new software applications for managing count data. * Visitor counting systems. Modelling for strategically deploying counters to allow extrapolation of counts across wider visitor systems, and for monitoring trend indicators. * Visitor characteristics, trends and projections. Develop methodologies for the systematic recording of standardized demographic indicators in visitor monitoring programs, and in any complementary visitor survey research. * Visitor motivations and expectations. Summarize the state-of-knowledge on visitor motivations for recreation participation in outdoor settings, including reference to generic motivations; those motivations more specific to different activities, visitor-groups and site categories; and how these relate to visitor expectations. * Site-dependence and supply. Identify the relative site dependence of different visitor/activity groups, and review these needs relative to the current and potential supply of appropriate recreation opportunities.

Table 2—Research areas for defining social values in recreation places.

Indicative information areas	Indicative research areas
Social values Value classifications Norm definitions Site quality Sense of place values Activity attachment Place attachment Activity/site links Visitor preferences	<ul style="list-style-type: none"> * Defining social values. Summarize the state-of-knowledge on systematically distinguishing and defining recreation-experience and sociocultural values, particularly within recreation management frameworks. * Defining sense-of-place. Investigate the nature of “place” values associated with defined sites (e.g. sense of place, attachment, ownership, or dependence), and how these may vary between different activity, visitor and non-visitor groups. * Social value classification. Investigate options for generalizing and classifying shared values, and for distinguishing those other values unique to certain groups. Identify the similarities and differences in social value patterns among different groups. * Evaluate social norm applications. Summarize the principles of social norm definition and their practical utility for providing a characterization of different social values. * Linking values to expectations. Summarize the state-of-knowledge on any relationships between the social values attached to places, and activities at places, and the formation of visit expectations for those places. * Defining social value management objectives. Review management processes for specification of site-specific management objectives that provide for particular recreation-experience opportunities, and protecting particular sociocultural values.

Having an explicit set of experience-based management objectives for any given site or area will make these social impact inconsistencies more transparent, and thus more readily predictable and manageable. Moreover, when the other social values associated with particular places can be specified, other social impact issues that can arise will be more readily addressed. As demonstrated by McCool and Cole (1997), all of the main planning frameworks for managing recreation experiences and social impacts depend on a baseline definition of such management objectives—leading to the specification of particular social and physical conditions as indicators, with associated standards.

The main research needs here relate to how people determine that their sociocultural values and/or preferences for recreation-experiences are compromised. Perceptions of conflict and crowding appear the main ways in which these compromises are negatively perceived. However, people demonstrate various coping strategies (such as rationalization, product shift, displacement) that limit the utility of simple cause-effect relationships in understanding and managing the generation of social impacts. Moreover, different visitors, visitor groups, activity groups and non-visitors all have different value perspectives. How can we equitably manage sites used by and valued by a diversity of people?

Without taking account of such intervening processes and variables, management may fail to identify progressive erosion of more impact-sensitive sociocultural and recreation-experience values. These can be replaced by others more impact-tolerant in a process often termed “recreation succession”. The generation of social impacts is a perceptual process with a number of stages and intervening variables. In the context of an overall visitor management framework, improved understanding of how these elements interact, and some pragmatic “best-practice” specification of what assumptions can be reasonably made, will promote improved management to prevent or reduce social impacts.

The key question here is how are the sociocultural and recreation-experience values compromised by people's presence and behavior in recreation settings? Table 3 highlights the main types of research and information investigations required.

Evaluating Management Outcomes

Managers need to look at the outcomes of recreation management actions directed at social impact issues, including regulations and controls, facility and service provision and the consequences of non-recreation management actions directed at other conservation objectives. Management actions influence the social and physical conditions at sites used to achieve different recreation experiences. These may be direct actions aimed specifically at managing some social impact issue, or indirect actions taken for some other purpose. By taking or not taking different actions, management may have both positive and negative affects on different recreation experience opportunities. Managers first need to know if the actions they are taking are achieving the required outcomes. Second, they need to know what problems arise from the social and physical changes they create. To better distinguish these positive and negative outcomes, managers must have first specified their objectives for taking those specific actions. It is important to have distinguished these specific “action-objectives” from the wider management objectives prevailing at a site-level.

Developing more accurate means of assessing visitor satisfaction will be a key to evaluating management effectiveness. This was a strongly expressed information need from workshop participants. Where notable levels of dissatisfaction are revealed at sites, it is likely that the social and physical conditions created by management actions are inconsistent with visitor expectations. Where this dissatisfaction represents visitor expectations that are fundamentally inconsistent with management objectives for a site, the problem may result from managers not effectively informing visitors of the appropriate social and physical conditions at the site. Where this dissatisfaction represents compromised visitor experiences due to inadequate services and facilities, or negative perceptions of other visitors, specific on-site management actions may be required.

The strategic use of information as management tool was also highlighted by workshop participants as a particularly preferable means of influencing visitor choices of site and activity and their expectations of these. Improving

Table 3—Research areas for identifying and managing recreation conflict.

Indicative information areas	Indicative research areas
Social impacts	<ul style="list-style-type: none"> * Social conflict processes. Summarize the processes of social conflict generation, emphasizing identification of characteristic patterns and notable exceptions, and including definition of any management generalizations and assumptions that can be made in different current and proposed situations. * Inter-activity conflict characteristics. Define any characteristic conflict patterns among different activity groups or different types of visitors, emphasizing any salient features of differences in motivations, appearance and behavior that most stimulate conflict perceptions. * Coping strategies. Summarize the state-of-knowledge about social impact coping strategies; their effects on visit evaluations, and any processes of recreation-experience site succession that occur. * Enhance site capacity. Identify any changes to social and physical conditions that can most enhance the capacity for different groups to share sites or to tolerate dissimilarity, and what management actions can most promote those changes. Investigate examples of successfully shared sites to identify any common factors. * Link sense-of-place to conflict perception. Investigate relationships between different sense-of-place values and the development of conflict perceptions. * Identify conflict indicators. Define the more impact-sensitive social values for sites, and derive a suite of pragmatic indicators for site monitoring based on carrying capacity standards from clearly defined site management objectives.
Conflict generation	
Crowding perceptions	
Coping strategies	
Site succession	
Impact tolerances	
Perceived differences	
Norm applications	
Site-specificity	
Activity-specificity	
Place dependence	
Visitor preferences	
Carrying capacity	

understanding of visitor values and of the experience outcomes from different management actions will allow better application of this information tool. As with other management options, evaluation of the effectiveness of different information strategies, and of the techniques most suited to different visitor groups and conflict issues, is important. Direct on-site approaches by credible staff will be important in some situations, while indirect use of off-site media or publication sources will be important in others. The need to have a variety of indirect and direct options to meet different management needs was highlighted.

The key question here is how can we improve the success of our management actions? Table 4 highlights the main types of research and information investigations required.

Conclusion: Integrating Research and Management

Operational managers want pragmatic guidance on how to apply any new research understandings at the site-specific level. The Department of Conservation is already establishing a site-based system for managing the facilities and services it provides for visitors. As part of this development, it planned to engage in further processes to define the physical and social conditions that should apply at these visitor sites to facilitate the social and experiential outcomes being managed for. In line with this direction, a social impact research plan is required to better define the array of social values and impacts and to integrate them with the setting of site-specific visitor management objectives.

Table 4—Research areas for evaluating management outcomes.

Indicative information areas	Indicative research areas
Management options	<ul style="list-style-type: none"> * Classify management options. Summarize the different management options for influencing on-site social and physical conditions and pre-visit visitor expectations, emphasizing social value management, and the characteristic positive and negative outcomes for different visitors associated with each option. * Evaluate management option effectiveness. Review and summarize the relative effectiveness of different direct and indirect management options, with reference to different stages in visitor planning and decision-making processes, and with emphasis on the use of information. * Evaluate visitor satisfaction applications. Summarize the effectiveness of visitor satisfaction measures in identifying social impact effects and determining the success of management interventions, and specify any limitations to the use and interpretation of such measures. * Define "management-action" objectives. Distinguish overall site management objectives from the objectives for specific management interventions, and identify respective indicator options for management-monitoring processes. * Evaluate management systems. Summarize the state-of-knowledge on systematic recreation management frameworks and their changing strengths and weaknesses in different situations and scales of application.
Outcome evaluations	
Monitoring outcomes	
Quality specifications	
Indicators/standards	
Visitor satisfactions	
Decision processes	
Information options	
Visitor preferences	

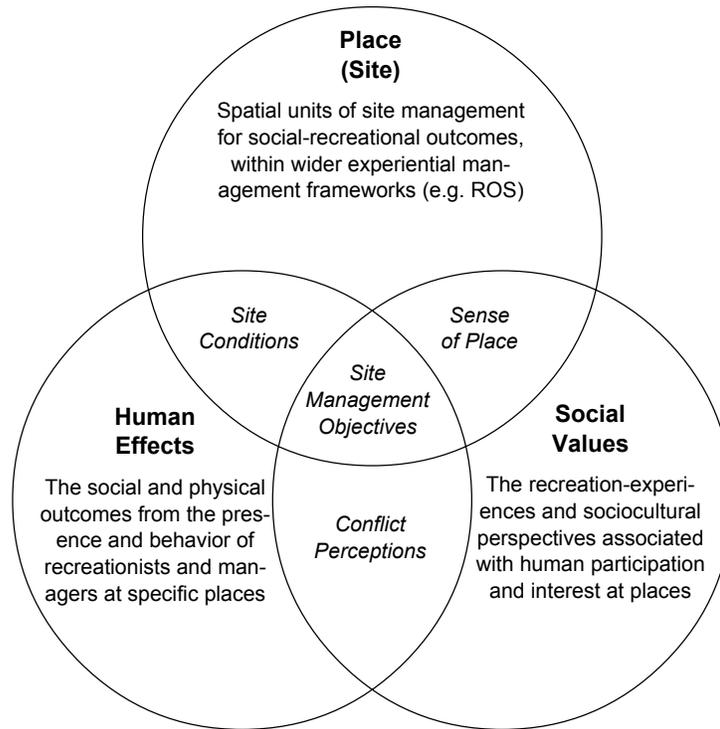


Figure 1—Interrelationships of human effects, social values and recreation places for identifying and managing social impact research needs.

The conceptual framework outlined in figure 1 summarizes how the findings from the social impact workshop can contribute to developing such a research plan. The key process at work here is the interaction between the human effects on social values at specific places. The focus of research need is clearly on improving the specification of management objectives, based on the key sociocultural and recreation-experience values at different visitor sites and the various human effects acting on them. Without these clearly specified and targeted objectives, it is unlikely that any generic monitoring methodologies will provide sufficient focus to ensure resources are effectively directed to the most pressing social impact management needs.

Research can contribute to fulfilling this need at a variety of levels. At more general levels, the investigation of different human effects and social values can increase overall knowledge and understanding. Investigations that focus on the interactions between these human effects and social values can increase understanding of how social conflict perceptions are generated, and how they might be managed. Investigations of more operational relevance to management agencies will focus on how these human effects and social values relate to managed site conditions at defined places. Managers can then use the results of such investigations to define more site-specific management objectives. Research results that promote a more site-based categorization of desired social and physical conditions, sense-of-place perspectives and conflict perceptions will be of particular value to management decision-making. Above all, the work

reported in this paper highlights the need for a research framework and process that progressively incorporates different levels of research in a systematic site-based management context. Progress will be incremental as the results from different research and information sources are incorporated into any overall framework. Work to establish such a process framework should be given priority in overall research planning, leading to improved social impact management in wilderness recreation settings.

Acknowledgments

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