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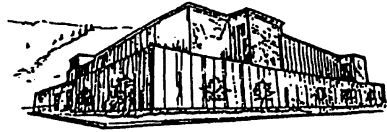
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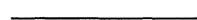
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**RECREATIONAL TRAIL CONFLICT:
ACHIEVING EQUITY THROUGH DIVERSITY**

by

Clifton R. Koontz

B.A. Colorado College. 2000

presented in partial fulfillment of the requirements

for the degree of

Master of Science

in Recreation Management

The University of Montana

May 2005

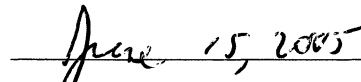
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Recreational Trail Conflict: Achieving equity through diversity

Chairperson: Stephen F. McCool 

An increasing demand and decreasing supply of outdoor recreation opportunities have fueled conflict between user groups. Conflicts that begin as one group's interference of another group's goals eventually become symmetrical, and involve land management agencies. Managerial responses to conflict often become the focus of controversy. Fairness in the allocation of resources is central to the debate.

For recreational trails, multiple-use is necessary to achieve efficiency in management, community among trail users, and to minimize biophysical impacts. At the same time, zoning use-types best mitigates social impacts, which are typically one-directional. In an effort to resolve conflict, this research investigates how to fairly distribute recreational trails among various user groups.

First, the nature of conflict is considered in terms of two conflict predictors: mode of travel and mode of experience. More technological uses generally conflict with less technological uses. Activity-based experiences tend to interfere with setting-based experiences. Different modes of travel are potentially compatible if compensated by different modes of experience.

Diversity in opportunities is key to achieving fairness. An equitable land management district must allow each user group to be the most technological activity permitted on some portion of its trail system. The Recreation Opportunity Spectrum concept is utilized by mapping trail systems based on the most technological uses permitted for each route. This evaluation is applied to BLM trails surrounding Moab, Utah.

Second, facilitating public involvement is promoted as critical in planning for diverse trail systems. Collaborative processes that are inclusive, informed, and deliberative can reward agencies with better plans and greater support. Mode of travel can serve to acknowledge conflicts between groups. Mode of experience can provide a foundation of commonality. The collaborative process is evaluated for recreation planning in Grand County, Utah.

Third, this project addresses ways for managers to communicate plans and their rationale to visitors. Describing entire trail systems in terms of diversity encourages a district-wide consideration of fairness. Detailing potential types of encounters helps match visitors with appropriate opportunities. By utilizing predictors of conflict, managers can articulate a universal trail ethic that spans across activities. These concepts are compared to the communications program for Sand Flats Recreation Area.

Acknowledgements

I would like to acknowledge my committee chair, Steve McCool, for aiding my development of this project and refining my technical writing skills. I am grateful to committee member Alan Watson for stimulating my thoughts on the issue of recreation conflict and its resolution. Thanks to committee member Jeff Greene for helping me place recreation management into the greater context of public administration. Also, I appreciate department chair Wayne Freimund for joining my committee as a last-minute request. Finally, I am in debt to my mother, Ann Koontz, for her lifetime of support.

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I. Introduction

Three primary goals of outdoor recreation management are to protect biophysical resources, ensure visitor safety, and achieve visitor satisfaction (Moore, 1994). The third objective is elusive because of the pluralistic nature of American society and the diversity of experiences sought. When the interests of one recreationist interfere with that of another, conflict results. The field of recreation management has traditionally dealt with recreation conflict at the individual, operational level. That is, one user conflicts with another user via direct interaction. Additionally, conflict exists at a social, systemic level. When responding to user conflicts, managers must make ethical choices, even if implicit. These choices often redefine conflicts instead of resolving them. Consequently, controversy begins to encompass the land management agency and its policies. A complete understanding of mature conflicts must address equity in the allocation of recreation resources.

At the operational level, recreation conflict can be “defined as goal interference attributed to another's behavior” (Jacob & Schreyer 1980). More broadly, it may stem from social value differences (Kluwe & Krumpel 2003, Watson 2001). Conflict is not merely a matter of congestion, though high use levels can exacerbate controversy. It can occur between individuals of the same activity, but often involves different activities. At its inception, conflict is often asymmetrical. For example, a motorcyclist may conflict with a hiker because the exhaust sound interferes with the attainment of solitude, or because the hiker

views the presence of technology as inappropriate in a primitive, natural setting. Meanwhile, the hiker's behavior may not conflict with the motorcyclist's goals or values.

Conflict often becomes symmetrical through time (Jackson *et al.* 2003, Devall & Harry 1981). If left unchecked, conflict frequently grows in scale (Carpenter & Kennedy 1991, Little & Noe 1984). As a response to conflict, managers commonly use one of two broad options in terms of resource allocation. Referred to as "ignore or restrict," these options are especially typical in response to new recreational activities (Kulla 1991). In the previous scenario, if a manager restricts access to mitigate conflict, then the motorcyclist begins to take issue with the hiker. On the other hand, if the manager fails to respond to conflict, the hiker will feel that his or her concerns are neglected. Either way, the conflict eventually involves the policies, themselves. In fact, the managerial "solutions" can become the source of new "problems," yielding more complex and intense conflict. So in addition to conflicting with one another, users eventually come into conflict with management. When viewed systemically, the solutions are part of the problem, and conflict exists between multiple parties in every direction.

Understanding conflict at the second level inherently involves the concept of fairness, in providing a quality experience for one user or providing access for another. The goals of quality and quantity lack a common denominator, so comparing them is complex. Access planning is about integrating the interests of user groups. No theoretical basis exists for planners to formally acknowledge these tradeoffs, making objectivity even less attainable.

For trails, the tension is often between sharing and zoning strategies. To what extent should managers mix or separate trail uses? Which combinations of uses make sense? By addressing equity in the allocation of recreation resources, this study takes a peripheral approach to resolving conflict.

Trends driving conflict between trail users

Forest Service managers have identified conflict as the second-largest emerging issue for recreation management, only surpassed by legal/ political challenges to decision making (Jakes *et al.* 1990). Likewise, “the National Recreational Trails Advisory Committee identified trail-user conflict on multiple-use trails as a major concern that needs resolution” (Moore 1994). Before focusing on conflict resolution strategies, consider a handful of large-scale changes in society that fuel conflict. Changes involve decreasing supply, increasing demand, divergent public attitudes, and poor institutional support. Managers have some degree of control over a few trends, while they can merely respond to other ones which are outside the managerial sphere of influence.

Recreational trails become a more precious resource as their supply decreases while the demand for them grows. On the supply side, open space is shrinking as development spreads. Budget cuts have forced federal agencies to level off or reduce the quantity of planned and maintained recreational trails (Hart 1995). For example, the mileage of Forest Service trails dropped 30% between 1944 and 1985, and maintenance of the remaining

trails has commonly been neglected (Krumpe & Lucas 1986). This decline has been largely due to the conversion of trails into roads (U.S.D.A. Forest Service 1980), growing environmental restrictions, and budget cuts (Nicholes 1980). These trends are compounded by the public's net loss of access to private lands (U.S.D.A. Forest Service 2001).

On the demand side, the popularity of outdoor recreation is widening and deepening. The rise in outdoor recreation exceeds the rate of population growth, as 94.5% of Americans recreated outdoors in 1995 (Cordell *et al.* 1995). Partly driven by technology, recreation activities are diversifying (Gartner & Lime 2000). For example, off-road driving has grown 43.8% between 1983 and 1995 (U.S.D.A. Forest Service 2001). Sales of all-terrain vehicles (ATVs) have increased fivefold from 1993 to 2002 (Specialty Vehicle Institute of America 2002). Participation in mountain biking exploded through the 1990s (Warnick 1995). Rising energy costs, tightening intervals of free time, and urbanization have concentrated use around the urban fringe (Nicholes 1980, Warnick 1995, Vilter *et al.* 1995).

Divergent and heightened expectations are creating conflict. On one hand, urban dwellers have adapted to their environments as demonstrated by relaxing their definition of a “wilderness” experience (Dustin *et al.* 1995). On the other hand, Americans’ fast-paced lifestyles have made leisure time more valuable. So while their definitions of quality vary, Americans place a growing importance on a quality experience (Gartner & Lime 2000,

Godbey 1986). Also, environmental education has raised demands for resource protection (Roggenbuck 1992). However, conflict ensues when environmental messages target one user group while neglecting or failing to influence another.

Compounding these attitudinal differences, increased fragmentation of various publics has escalated natural resource conflicts (McMullin & Nielson 1991). For example, hikers in Rattlesnake National Recreation Area were less likely than mountain bikers to engage in both activities (Watson *et al.* 1991). Consequently, hikers were also less likely than bikers to accurately describe the demographics of the other user group (Watson *et al.* 1991). Misconceptions lead to false accusations, such as blaming another group for poor trail conditions, when they are actually due to a lack of maintenance (Moore 1994).

Managers often lack an understanding of the recreationists they are managing. Land managers tend to have traditional forestry backgrounds, and view recreation negatively (Dustin & Knopf 1989). More agency research needs to focus on non-Wilderness activities (Krumpe & Lucas 1986). Emerging activities, such as mountain biking and off-highway vehicle (OHV) riding, are particularly susceptible to managerial ignorance (Vilter *et al.* 1996, Nicholes 1980). "Despite years and years of research, we really know very little about the behavior and needs of snowmobilers and off-road recreation (ORV) users" (McCool 1978). Though this statement is over a quarter-century old, it probably holds truth, today.

Finally, managers lack institutional support to resolve recreation conflicts. National forest and district-level supervisors rated user conflict as less of a problem than lower-level managers (Jakes *et al.* 1988), indicating that managers can anticipate less help from their superiors. Indeed, managers target inadequate institutional support as the number one barrier to resolving user conflict (Jakes *et al.* 1988). For example, agencies rarely offer the resources for managers to compete or cooperate with non-government media, such as the Internet. Private guidebooks and the Internet are more popular than agency publications, though they may steer readers to locations not intended for the given activity.

Managerial responses to trail-user conflict

At the systemic level, agency actions intended to reduce one conflict often create another. For instance, extensive restrictions placed on any single activity may create animosity between user groups and provoke noncompliance. To adequately define the problem, the investigative scope must include managerial solutions. Recreation managers have a range of options at their disposal, and successful resolution goes beyond merely opening or closing trails. Manning (1979) outlined nine broad strategies for managing outdoor recreation. Table 1 applies each strategy to the problem of trail-use conflict, resulting in a range of actions. Each action satisfies some concerns while neglecting or intensifying others. In terms of allocation, some actions either improve or reallocate existing opportunities, while other actions expand or reduce the overall amount of opportunities. As a rule of thumb, the greater the allocation change, the greater the resulting conflict.

Table 1. Management strategies and corresponding actions for recreational trails. (primary & secondary strategies from Manning 1979)

<i>primary strategy</i>	Increase Durability of Resource	
<i>secondary strategy</i> —————>	1. develop facilities	2. harden site
<i>action for trail use</i>	improve staging area	improve existing trails
<i>primary strategy</i>	Increase Supply	
<i>secondary strategy</i>	3. time	4. space
<i>action for trail use</i>	transfer use to off-peak times	construct more trails
<i>primary strategy</i>	Limit Use	
<i>secondary strategy</i>	5. amount	6. type
<i>action for trail use</i>	cap the level of use per time	prohibit a particular activity
<i>primary strategy</i>	Reduce Impact of Use	
<i>secondary strategy</i>	7. modify use	
<i>action for trail use</i>	education & enforcement	
<i>primary strategy</i>	Reduce Impact of Use (cont.)	
<i>secondary strategy</i>	8. disperse use	9. concentrate use
<i>action for trail use</i>	separate types of uses	combine types of uses

For trails, increasing the durability of resources means maintaining or further developing the existing trails and staging areas. Site design to combat congestion, soil erosion, and safety hazards all contribute to reducing or preventing conflict. Therefore increasing resource durability can be a win-win situation for all involved trail users. Trail work does not necessarily mean making trails too easy or too developed in appearance. The only necessary costs are financial, and generally the burden is placed on agencies. However, volunteer trail users and federal grants like the National Recreational Trails Fund can subsidize dwindling agency budgets.

Limiting the amount of use generally benefits those users who feel crowded, but

negatively impacts users who are indifferent to high use levels. Limits on use levels may or may not be made specific to each activity. Limiting the types of use means prohibiting particular forms of travel from a trail. Obviously, the permitted users win while the restricted users lose out in this case. Unlike zoning, limiting by use-type involves closing a trail to an activity without providing a substitute opportunity elsewhere. If the excluded activity is somehow illegitimate, or if sufficient alternatives already exist, then managers can justify closure. However, in most cases, eliminating an opportunity without providing an alternative would merely displace social and environmental impacts.

Increasing the supply of opportunities by time involves promoting trail use at less popular times. Dispersing the use over time benefits peak-time visitors while penalizing off-peak visitors. Increasing the supply by space translates into constructing new trails, or designating unofficial, existing trails. New trails are new opportunities for trail users, but also new costs and ongoing responsibilities for agencies, or whatever organization funds the project. Unless the development replaces poorly-designed trails or off-trail use, then new trails also incur environmental costs.

Finally, reducing the impact of use can be accomplished in three general ways. First, modifying use involves changing the behavior of visitors. Teaching trail etiquette has the potential to significantly reduce conflict. Similar to increasing site durability, reducing use impact helps all trail users. Educational campaigns are usually a great deal of work. Nevertheless, when successful they allow for self-regulation, which is less expensive than

law enforcement. Second, dispersing trail use includes separating different types of uses. Separating uses benefits those who experience conflict with other use-types. Third, concentrating trail use involves combining activities. Combining uses favors those who do not feel in conflict with others.

Table 1 also illustrates the relationship between a change in allocation and the resultant degree of controversy. Strategies that merely make better use of existing opportunities, such as trail maintenance and education, tend to be least controversial. Agencies may underutilize these options, due to perceived financial constraints. Strategies that increase or reduce the overall amount of recreational opportunities, such as creating new trails or closing existing ones, generally cause the most controversy. Therefore, these options often seem politically unfeasible, and less commonly used.

Compared to modifying the supply of net opportunities, reallocating the existing opportunities is somewhat less controversial, more feasible, and more common. Combining and separating trail uses are opposite actions with opposite consequences for the affected groups. Indeed, these strategies are two sides of the same coin, so to speak. User groups tend to argue for one approach or the other. Compelling arguments for both sharing and separating make each of them an indispensable component of trail systems.

To share or not to share

The case for trail sharing rests upon the ideals of efficiency and community. From an agency perspective, sharing may be the only way to meet a variety of demands for a finite resource, without destroying that resource. Jim Miller, the Dispersed Recreation Program Manager for the U.S. Forest Service, contends that the agency "cannot provide a separate trail for every use and user group. There is not enough land for multiple trail systems" (Miller 1998). Duplicate trail systems would multiply the impacts to biophysical resources. Further, they would escalate the responsibilities for maintenance and patrolling. Sharing trails can translate to sharing responsibilities, as different types of users volunteer to perform trail work together.

In addition to managerial efficiency, shared-use advocates point out the social benefits of community interaction. Increased fragmentation of the public has heightened recreation conflict (McMullin & Nielsen 1991). In one study, for instance, hikers in the Rattlesnake National Recreation Area were less likely to report conflict when they had experience mountain bicycling (Watson *et al.* 1997). Trails are one of the few places left in society where people of different backgrounds interact. Understanding can promote consideration and tolerance. It combats the polarization of user groups by providing a forum to identify common interests. At best, shared-use trails can foster a sense of community, and shared vision (Hasenauer 1997).

On the other hand, all recreational uses cannot take place everywhere all the time. Some use combinations are inherently incompatible, such as interpretive walks and competitive

events. Furthermore, experiences like wilderness travel and freestyle motocross require single-use areas that cannot accommodate *any* other uses, let alone one another. Unlimited access would not ensure opportunities for nature study or a primitive experience. Therefore, federal agencies must zone some uses to comply with their multiple-use mandates.

With combining and separating uses as critical ingredients in recreation management, trail sharing becomes a matter of extent. How can planners fairly choose between sharing and zoning strategies? Should they cater to those who experience conflict, or to those who do not? When agencies neglect the equity dimension of trail allocation, conflict intensifies between users and spreads to managers. Since sharing and zoning strategies are commonly used, controversial, intimately related, and essential, they are the focus of this project.

Many driving forces have heightened recreation conflict over the past half-century. Research has largely overlooked conflict at the systemic level, which involves managerial responses and the allocation of recreation resources. Managers have a range of strategies to resolve conflict, but little guidance in choosing among them. Trail sharing is necessary to realize the benefits of efficiency and community. Separating uses can be essential to prevent goal interference. Choosing between strategies is arbitrary unless it acknowledges the ethical consequences of any decision. To avoid this fate, planners need a theoretical foundation for achieving equity in trail allocation.

Recreation research has studied the importance of equity and various ways to define it. River runners on the Snake River based their willingness to try allocation systems according to self-interest more than fairness (Shelby et al. 1989). However, fairness most strongly determined respondents' acceptability of allocation systems. Furthermore, perceived chances of success are often opposing between user groups. As recreation resources become more scarce, agencies should increasingly turn to fairness in guiding their decisions (Dustin & Knopf 1989). Crompton and Lue (1992) established a taxonomy of eight potential guidelines for allocating recreation resources. "Compensatory" guidelines privilege the (1) economically disadvantaged, "equality" distributes the (2) input requirements or (3) output benefits equally, "demand" bases distribution on (4) demonstrated use or (5) political advocacy, and "market" allocates according to the (6) taxes paid, (7) direct price paid, or (8) least cost alternative.

This project will not limit itself to a narrow definition of equity. Rather, it treats equity as "justice according to fairness especially as distinguished from the mechanical application of rules" (Merriam-Webster 1996). The notion of fairness serves to compliment a body of formal laws, which inherently has gaps. For trail allocation, federal agencies could comply with all legislation and yet still treat user groups inequitably. Multiple-use laws direct agencies to "balance" uses, and Executive Order 11644 requires them to "minimize" conflicts with OHV use and other forms of recreation. To appropriately use their discretion, agencies need guidelines for measuring fairness in balancing uses and minimizing conflicts.

Project goals and organizational strategy

The project goal is not to arrive at some perfect ratio of strategies, but to provide agencies with a tool for addressing equity dilemmas. Resolving conflict through trail allocation requires agencies to apply management concepts for considering equity in trail planning, utilize input from all affected user groups, and effectively convey final plans to visitors of their trail systems. Therefore, this project attempts to answer the following three questions:

- How can recreation planners achieve equity through trail allocation?
- How can agencies best utilize public involvement for trail planning?
- How can recreation managers present trail plans to resolve conflict?

The organizational strategy to pursuing these goals is as follows. The introduction has (1) identified broad trends affecting trail uses, and (2) derive management actions specific to trail systems from each broad strategy. Chapter Two will (3) articulate a relationship between trail uses, (4) integrate shared use and zoning to utilize the benefits of each strategy, and (5) propose a way to evaluate equity in travel plans. Chapter Three will (6) outline ways for agencies to incorporate user knowledge and (7) earn public support through an inclusive process. Chapter Four will (8) promote a district-scale treatment of equity and an awareness of existing opportunities to gain visitor approval of trail systems, and (9) establish a universal trail ethic that spans across activities. Each chapter will (10)

apply the concepts to the trail system surrounding Moab, Utah. These objectives may indirectly contribute to reducing conflict. The ultimate goal of this project is to manage multiple-use trail systems in a way that is most satisfying to all involved users.

II. Achieving Equity Through Diverse Trail Allocation

Utilizing the principal of diversity in opportunities, this chapter proposes a framework for assessing equity in trail allocation. It begins with the concept of the Recreation Opportunity Spectrum (ROS), and then focuses on types of trail encounters as an important attribute of diversity. Second, characteristics of trail use (mode of travel and mode of experience) are analyzed as predictors of conflict. Third, these characteristics are shown to compensate for one another, making different activities potentially compatible. Fourth, since conflict is asymmetrical across a range of activities, then a range of trail-use classes would achieve equity among the various user groups. Fifth, this objective of providing diverse trail classification is integrated back into ROS as a tool for managers. Finally, the tool is applied to a real-world trail system that is popular for many uses. Subsequent chapters utilize the framework laid out here, for reaching consensus in collaborative planning and gaining compliance of the approved policies.

Utilizing the Recreation Opportunity Spectrum concept

If inequitable trail allocation is a cause of conflict, then the Recreation Opportunity Spectrum concept is part of the solution. "Managing opportunities for recreation to promote a diversity of experiences is crucial for social equity" (Clark & Stankey, 1979). Public land users vary in their definitions of a "quality" experience. "This generalization is true, even for specific categories of recreationists" (Clark & Stankey, 1979). Therefore,

planners should zone for a variety of opportunities. The ROS concept focuses on settings to provide diversity. The total setting is defined by three attribute types: physical (degree of naturalness), social (such as the presence of other people), and managerial (such as facilities and restrictions).

The social setting refers to the amount, location, and kind of interaction between people. The appropriate amount of interaction is generally lower for primitive settings and higher for modern settings. Similarly, a greater variety of encounters with other activities is acceptable in modern settings than in primitive ones. “It is necessary to consider the acceptable diversity of use because interaction alone is not a sufficient measure of an area’s social carrying capacity; the types of use found at a particular setting may be more important in defining capacity than the amount of use” (Clark & Stankey, 1979). Since the type of use encounter strongly influences recreational experiences, this characteristic warrants further investigation. Ultimately, encounter-types can become attributes of ROS classes.

Understanding and predicting conflict

Combining and separating trail uses are both necessary management tools, and both lead conflict. If the direction of conflict between user groups were unpredictable, then equity would be impossible to assess. However, the direction of asymmetry in conflict is fairly consistent. That is, managers can make decent generalizations about which other trail uses

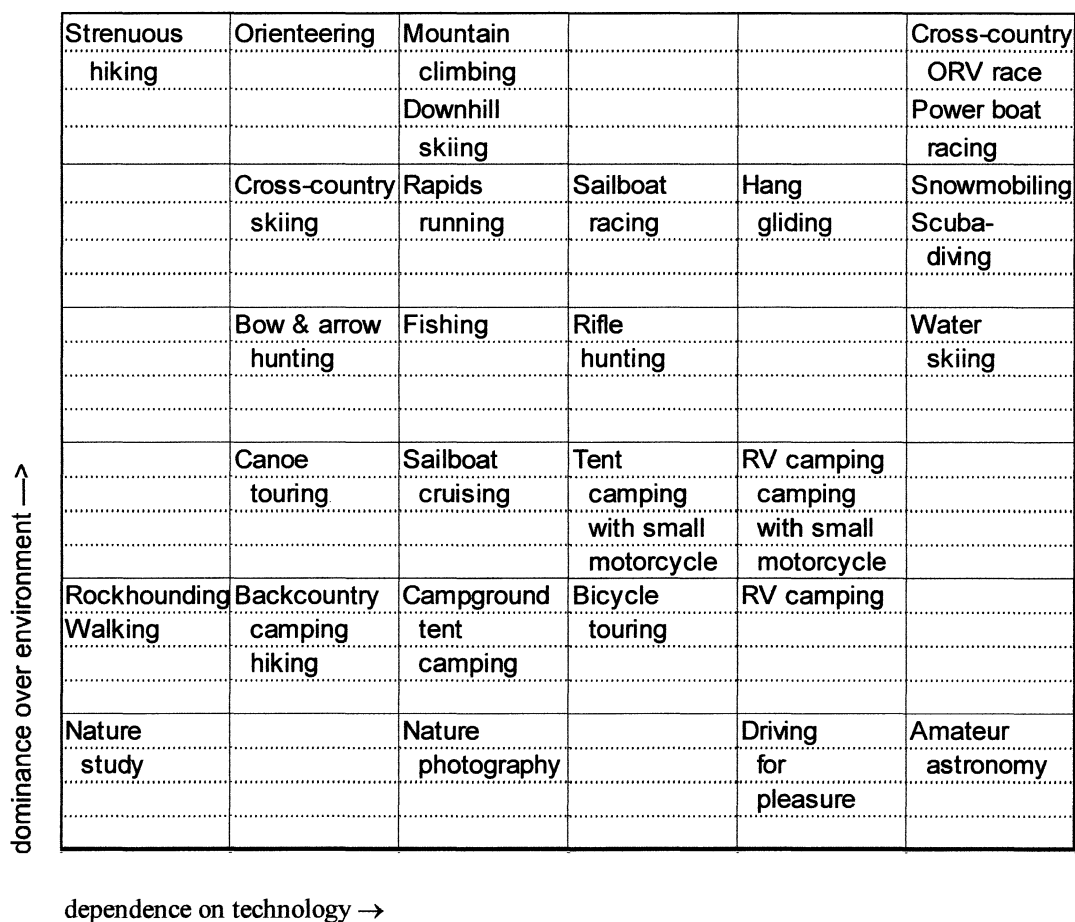
and management strategies a given user group will conflict with. By understanding the nature of these conflicts, trail planners can utilize trail sharing and zoning to serve the interests of all trail users.

The history of research on recreation conflict marks a shift from modeling goal-interference to understanding social values (Watson 2001). Chapter Three, on collaborative public engagement, is a response to this trend. Nevertheless, tests of Jacob and Shreyer's propositions indicate that there is still some value in the idea of goal-interference (Vaske *et al.* 2000). Indeed, social values may serve to compliment goal-interference, rather than replace it. Manning's (1999) synthesis of recreation research reviews Jacob and Shreyer's model along with one by Bury, Holland, and McEwen (1983). The causal factors of conflict are somewhat redundant between the two theoretical approaches. However, Bury's model begins to relate variables to one another, which may be an under-explored avenue to consider. Therefore, this chapter utilizes Bury's model as a starting point for understanding conflict.

Bury, Holland, and McEwen theorized three characteristics of activities that directly influence conflict: spatial/temporal proximity with other activities, dominance over environment, and reliance on technology. Proximity refers to how close together (in space or time) two activities take place. Environmental dominance means "conquering" the surroundings, and is associated with control and challenge. Technological reliance is the extent to which an activity relies on modern machinery. The authors placed dominance and

reliance on opposite axes of a grid, producing a map of activities to approximate their compatibility (Figure 1). They proposed that the linear distance between activities on the grid serve as an estimate of conflict. The estimated conflict suggests how managers ought to control the proximity of activities, by combining or separating them. Bear in mind that other characteristics, such as personal conduct during encounters, may be equally influential in creating or preventing conflict.

Figure 1. A conceptual model of recreation conflict (from Bury *et al.* 1983).



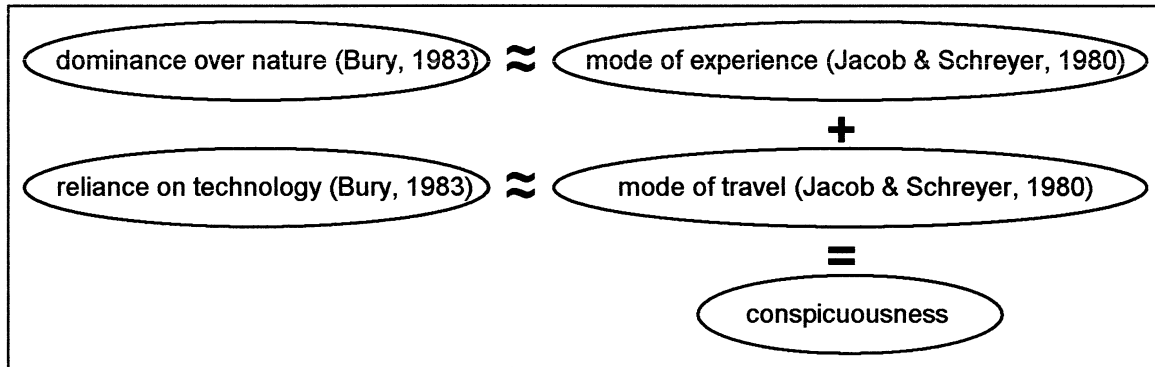
Consider the relationships between various terms used in recreation conflict research

(Figure 2). For trails, reliance on technology can be approximated by one's mode of travel. Although gadgets such as Global Positioning System units contribute to technological reliance, transportation equipment is the most readily apparent use of technology on trails. Types of travel form a crude spectrum of technological reliance. While the relationships are complex, they can be roughly organized by the means used to accomplish various tasks. For example, summertime trail uses include hiking, horseback riding, mountain biking, motorcycling, all-terrain vehicle (ATV) riding, and four-wheeling. Walking is the most primitive form of human travel. Use of animals requires domestication and the associated tack. Bicycles utilize mechanical advantage through gears, chains, and wheels. Motorcycles have engines to propel forward motion. ATVs are designed with four wheels to automatically balance the machine. Full-size vehicles offer power steering and seating compartments that reorient the operator's role from rider to driver. Along the use spectrum, more technological modes of travel conflict with lesser ones (Table 2).

Just as technological reliance equates to the mode of travel, environmental dominance can be likened to the mode of experience. Jacob and Schreyer (1980) define mode of experience as a range from "focused" (setting-based) to "unfocused" (activity- or socially-based). For instance, Bury's model rates rapids running as more dominant than canoe touring. In terms of focus, rapids running is oriented towards skills and thrills while canoe touring is oriented toward one's surroundings or companions. Like canoeing, most activities can be carried out with a variety of orientations. Trail use that is oriented toward the activity is more environmentally dominant, and thus conflicts with experiences based

on the setting (Table 3).

Figure 2. Relationships of terminology common in recreation conflict literature.



If both technological reliance and environmental dominance compound conflict, then they should be able to cancel one another out. Specifically, individuals engaged in less technological activities are less sensitive when they are focused on their activities or peers, as opposed to the setting. Referring to Figure 1, nature study and strenuous hiking may be equally independent of technology. However, since strenuous hiking is focused more on the activity, it is less sensitive to conflict than the setting-based study of nature. Conversely, those participating in more technological activities are less threatening when focused on the setting, as opposed to the activity or social group. Again in Figure 1, cross-country OHV races and amateur astronomy both rely on technology. But since astronomy is focused on the setting, it is less intrusive than the activity-based racing of OHVs. Yet, the linear distances of Bury's model suggest that strenuous hiking and amateur astronomy conflict as much as nature study and OHV races do.

Table 2. Modes of trail travel, from least to most reliant on technology.





















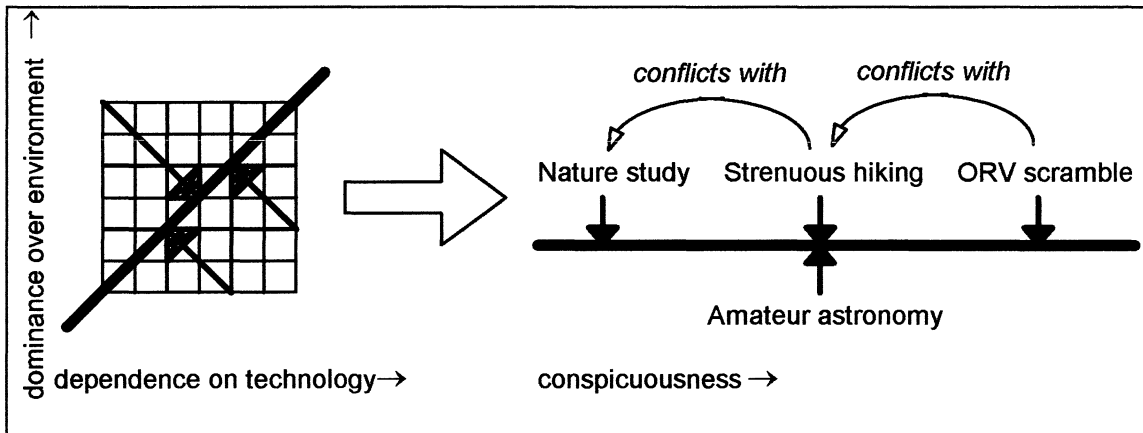
 conflicts with no other uses on the basis of technology.	 conflicts with 	 conflicts with  	 conflicts with   	 conflicts with   	 conflicts with     
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Table 3. Modes of experience, from least to most dominant over environment.

setting-based conflicts with no other uses on the basis of technology.	activity-based or socially-based conflicts with setting-based
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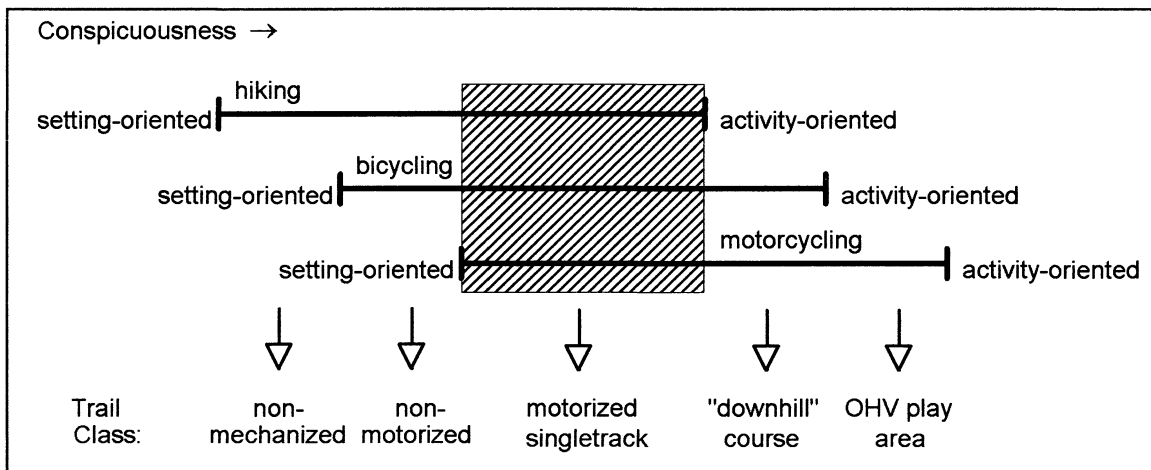
To establish a more accurate predictor of conflict, this project proposes merging dominance and reliance into one single axis (Figure 3). The simplified result is a suggested continuum of conspicuousness, which represents a type of experience's predisposition to conflict. More conspicuous uses are relatively intrusive, while less conspicuous uses are relatively sensitive. Gaps between types of experience along the continuum serve to approximate potential conflict. Both environmental dominance and technological reliance increase conspicuousness and the potential for conflict.

Figure 3. Conversion of Bury's model (Figure 1) into a single dimension.



Interactions between the least and most conspicuous uses yield the greatest conflict, while moderately conspicuous uses are compatible to interact. Applied to trail uses, Figure 4 illustrates how experiential orientation can make different activities compatible (in this case, hiking and motorcycling). Without data, the figure is only theoretical in its relation between activities and orientations. Nevertheless, it captures an implication of Bury's original model. In developing the grid, a co-author predicted that "managers who use this model will soon recognize the diversity of group values involved" (McEwen et al. 1980).

Figure 4. Technological reliance (activity) and environmental dominance (orientation) as measures of compatibility. (shaded area represents where all three activities are compatible)



Providing diverse trail opportunities to achieve fairness

The condensed version of Bury's model has two primary implications. First, it provides a theoretical way of understanding how different activities can be compatible. Conspicuousness, and in turn compatibility, are complex matters. Compatibility is a function of many characteristics, only one of which is the mode of transportation. Figure 4 illustrates how another characteristic, experiential orientation in this case, can compensate for technological differences that would otherwise render activities incompatible. "The conflict has no clear alignment of values, with motorcyclists on one side and non-motorcyclists on the other. Many motorcyclists and non-motorcyclists can pursue their outdoor recreation interests compatibly within the same area" (McEwen *et al.* 1980). This conclusion suggests that trail sharing can be a viable strategy, and that its efficiency and


























community benefits can be realized.

A second implication is that any user group can potentially benefit or lose out from trail sharing, depending on which uses they share with. Conspicuousness, and thus conflict, is a relative matter. Any given type of use is both more and less conspicuous than other uses. Setting aside other use characteristics, bicyclists generally gain from sharing with hikers, because it provides greater trail access. On the other hand, bicyclists generally lose from sharing with motorcycles, due to goal interference. By the same token, motorcyclists gain or lose from sharing with bicyclists or ATV riders, respectively. User groups prefer trail sharing only when it suits their interests. This conclusion suggests that equity is not merely a question of sharing or not sharing between two activities. Rather, the issue involves a range of trail uses and an even greater variety of use combinations.

Given this distribution of trail sharing's costs and benefits, how should planners group various activities? This project proposes that each user group is entitled to be the most technologically reliant activity on some portion of their trail systems. Such a guideline is the simplest way to ensure that each group is granted the privilege of accessing some trails with less reliant users, while bearing the responsibility of sharing other trails with more reliant users. For mountain bikers, this means accessing some hiking trails, but also sharing other trails with motorcyclists (bottom of Figure 4). Transferring this reciprocal notion to each activity could produce a comprehensive system of trail classifications. Some popular forms of summertime travel, for example, might range from hiking-only trails to roads for

full-size vehicles (Table 4).

Table 4. Hypothetical classifications for backcountry trails, and their permitted uses.

non-assisted	non-mechanize	non-motorized	bike stunt course	motorized singletrack	ATV trail	primitive road	OHV play area
			<i>(single use)</i>				<i>(single use)</i>
							
							
							
							
							

Less technologically reliant uses would almost always be permitted, though in some cases they may be discouraged. For instance, a bicycle course with constructed obstacles may prohibit equestrian use. Similarly, OHV play areas are generally unsuitable for non-motorized use. Though a few single-use classifications are warranted, most designations involve some form of sharing. Most importantly, each activity is the most technological use-type in at least one classification, while sharing with more technological uses in others.

Planning must take a less direct approach for the other conflict predictor, mode of experience. Agencies generally do not have the authority to regulate a visitor's focus. However, they do have control of technological characteristics that correlate with one's mode of experience. For example, more stringent exhaust-sound requirements would discourage activity-oriented motorcyclists, who are primarily concerned with the performance of their machines. Furthermore, merely providing the option of sharing with more or less technological uses will steer individuals to the appropriate opportunities. Given the choice, activity-based motorcyclists will tend to choose a designated OHV play area versus using a shared trail that requires a code of conduct.

Beyond encounters, other setting characteristics (physical, social, and managerial) serve to guide planners in deciding which routes to designate for which combination of uses. "Only by defining the types of experience opportunities that are most likely and possible in a given environment can an explicit differentiation between activities be made" (Driver & Brown 1978). Understanding the demands for opportunities and the capabilities and restrictions of resources are prerequisites to creating a classification system for trails of a given area. Consequently, the distribution of trail resources will vary by district.

To illustrate this variability, suppose destination A is known for horseback riding. And horses are more comfortable encountering bicycles in open areas rather than confined areas. Therefore, a relatively large amount of equestrian opportunities will be designated

in this district, and only those horse trails in open fields will be open to bicycle use. In contrast, destination B is known for ATV riding. And riders are more likely to stay on the trail when the setting naturally confines travel. Thus, this district will provide many ATV opportunities, but most of the opportunities will exist in forests as opposed to prairies.

Even this modest guideline subscribes to a particular definition of fairness. Proposing that trail systems include each class of trail is based on equality, the ideal of equal benefits. Although any definition of equity can be debated, the assumptions of this guideline are defensible by agencies. First, equality is one of only three guidelines that Californians largely agreed upon for allocating recreation resources (Crompton & Lue 1992). Second, equality is at least implicit in the multiple-use mandates of federal land management agencies. Third, the proposed guideline allows for the influence of other allocation methods. Political decisions are often a compromise of competing ideals. The starting point of requiring at least one trail for each use-type to be most dominant merely ensures that equality is a component of decision-making.

Aside from prescribing that trail systems provide opportunities for each use to be the most technological one permitted, this project is merely descriptive. Its scope is limited since the allocation of any finite resource requires prioritizing values. Deciding the proportions of access for various trail uses is a political matter. Factors include the extent to which uses are inherently compatible, the influence of trail etiquette in resolving conflict, and which groups assume the responsibility of trail maintenance (Table 5). However, ensuring that

user groups share with more and less technological uses may be a good starting point. "One important role in planning is to better understand the distributive aspects of the consequences of a proposed plan" (McCool & Guthrie 2001). Fairness can only be achieved once the costs and benefits of a proposal are made explicit.

Table 5. Some dimensions of equity in access allocation between various trail uses.

dimension	examples
	traits of the physical resources
quality	setting, trail features, proximity to population centers, diversity in these
quantity	distance of trails, area of zones
alternatives	off-trail options, adjacent lands under different administration
	traits of the activities
popularity	participation rates, projected growth, user days, distance traveled / outing
compatibility	inherent compatibility with other trail uses, etiquette, adherence to rules
appropriateness	compatibility with conservation, compatibility with other land uses
responsibilities	trail adoption, maintenance, patrolling, willingness to pay
communal	tourism, visitor versus local use
other	historic precedence, resource specificity

Expanding the Recreation Opportunity Spectrum application

When one considers how the ROS concept has been adopted by federal agencies, it is no surprise that conflict surrounds the equity issue. Use-type interaction is not detailed in the ROS classifications widely adopted by the Forest Service and BLM. Since technological reliance is an important predictor of conflict, federal agencies should include the

interaction between activities in their formal planning frameworks. This could be accomplished through the commonly-used ROS classes, which zone by area. Beyond merely distinguishing between motorized and non-motorized use, they could specify other characteristics of transport, such as vehicle width.

However, the pattern of trail use is inherently linear. Therefore applying the ROS concept to trails may be most effective during the process of designating routes, not just zoning areas. This process is commonly referred to as travel planning, route designation, or access planning. Addressing equity at the route-level allows for greater flexibility and detail to provide diverse combinations of uses. Mapping trails based on their most technological uses could ensure that each user group has opportunities where they do not have to share with more technological activities. Additionally, travel plans should provide each user group with opportunities for both setting-based and activity-based experiences.

Case study: Moab, Utah

To illustrate this concept of equity in trail allocation, consider a widely-used trail system in southeastern Utah. The landscape surrounding Moab (population 7,000) is internationally renowned for a variety of outdoor activities. River runners, rock climbers, and an array of trail users are drawn to this high desert region, which offers a unique mixture of deep canyons, broad plateaus, and intriguing geologic features. Nearby Arches and Canyonlands National Parks receive a total of over one million annual visits. However,

most of the land surrounding these parks and the town of Moab is administered by the Bureau of Land Management. Recreationists rely on BLM lands for activities not accommodated in the parks (such as mountain biking and OHV riding), additional hikes and scenic drives beyond the parks, and opportunities close to town. In fact, BLM lands of the Moab Field Office receive two million visitors, annually (D.O.I Bureau of Land Management 2005).

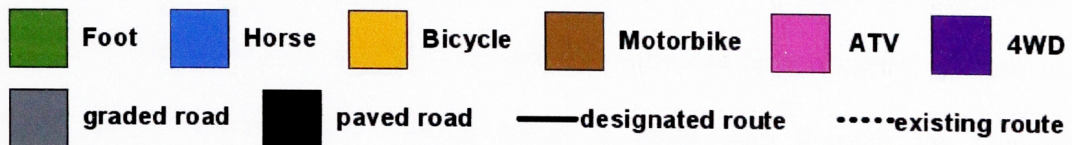
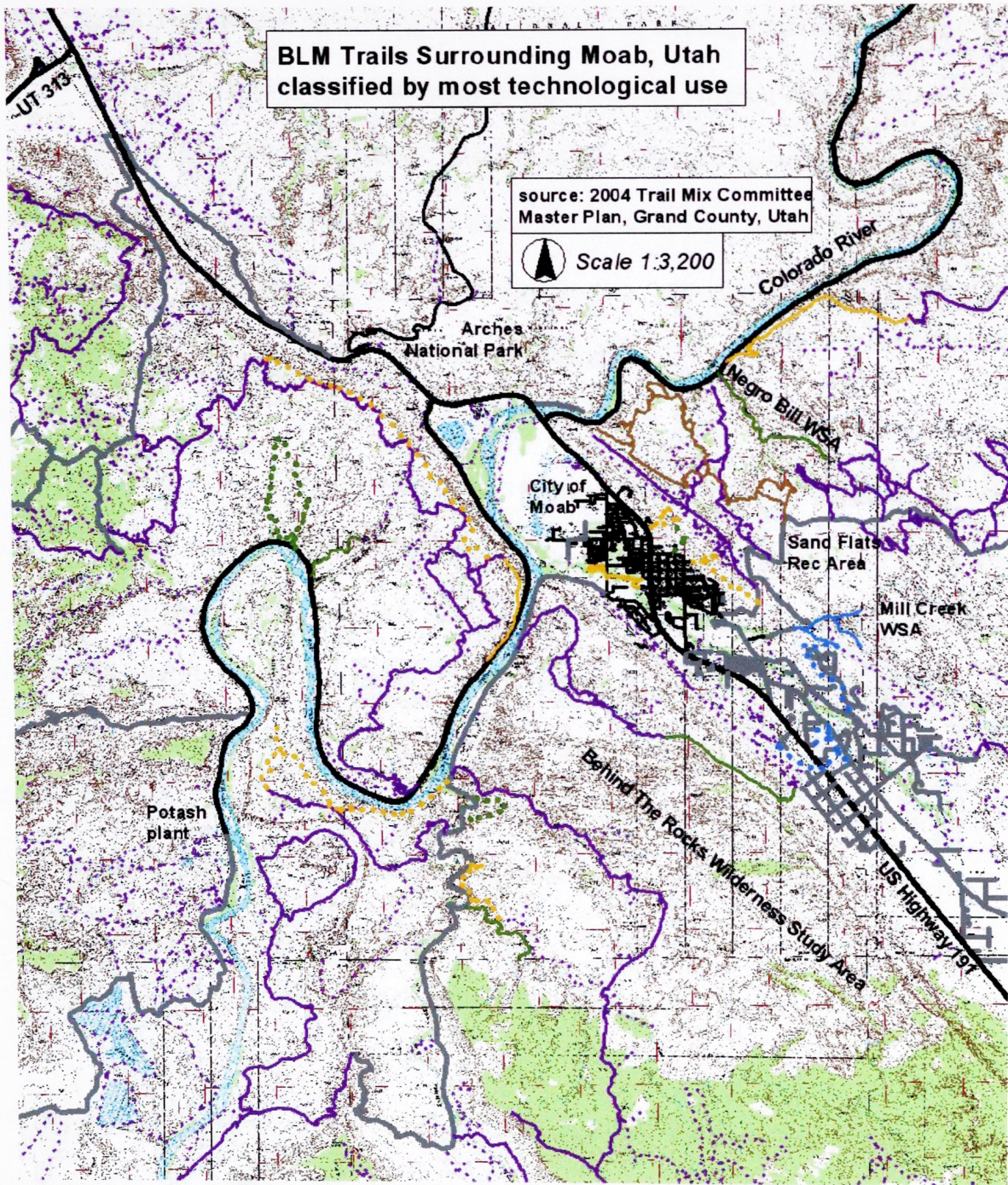
Uranium mining, which predominantly occurred from the 1950s to 1960s, created a network of rugged roads across this region. This development immediately attracted four-wheeling enthusiasts, who still comprise a substantial portion of Moab's tourism. Some motorcycling also occurred in the 1960s, an activity which has gained participation in Moab during the past decade. Both mountain biking and ATV riding rose dramatically in the 1980s, and within ten years bicycling has matched four-wheeling in popularity. As mountain bike use leveled off, motorcycle and ATV riding has grown, though it has not reached the popularity of bicycling or four-wheeling. Horseback riding is done primarily by residents of Moab. BLM land also provides an alternative to the national parks for hiking, including several Wilderness Study Areas.

As part of their 2003-2007 Resource Management Plan revision process, BLM's Moab Field Office is developing a travel plan. The plan will restrict vehicle travel to designated routes, with few exceptions. Since the current policy merely limits travel to "existing" routes, this will essentially be the first travel plan for this area. Though some routes are

officially designated open or closed, recreationists are free to use several thousand miles of abandoned mining roads. Additionally, the current policy allows travel along several hundred miles of singletrack trails. Some trails are historic, while others were created by recreationists prior to 2001, when vehicle travel was completely unrestricted on most BLM land around Moab. In addition to providing an escape from more technologically-reliant modes of transport, singletrack facilitates a more intimate, or setting-based experience. As a more active level of management, this travel plan has the potential to profoundly impact recreation and other resources surrounding Moab.

The travel planning process also provides an excellent opportunity to address the issue of fairness among trail users. Providing a diversity of use-type designations is one method of achieving equity. Therefore, it is important to consider the existing opportunities in terms of use types. Such an analysis could highlight deficiencies in the current trail system, and guide planners in reallocating trails to achieve equity among user groups. The Moab Field Office extends at least twenty miles in every direction from Moab. For the sake of simplicity, this project will focus on BLM land within a roughly seven-mile radius of Moab. Figure 5 illustrates the trails in this area, which are symbolized in terms of their most technologically reliant uses.

Figure 5. BLM trails surrounding Moab, Utah, classified by most technological use.



Notice that Figure 5 distinguishes between designated and existing routes. Since vehicle travel is currently limited to existing routes, virtually all existing trails are permitted. For these unofficial routes, use types are only restricted by the physical characteristics of the route, such as its width. Additionally, some routes are officially designated for recreation. BLM specifies use-type restrictions for some of the designated routes, and consistently permits less technological uses. A substantial portion of recreational use takes place beyond the opportunities that are currently designated.

In terms of designated opportunities, the vast majority of trails are open to full-size vehicles. Several short, hiking-only trails exist. A couple non-mechanized trails are accessible by horse, particularly near Mill Creek. A few trails are non-motorized, allowing mountain bikes to be the most technological use (most notably, Porcupine Rim). Only one trail is designated for motorcycles, though its slickrock surface makes the four-wheel prohibition less relevant. No trails are specifically designated for ATVs. Existing, but undesignated, trails immediately surrounding Moab have a similar proportion of use-types. Many undesignated roads are used by full-size vehicles, and fewer non-motorized trails exist near lower Kane Creek, Gold Bar, Lions Back, and lower Mill Creek areas.

Of course, there is no objectively ideal ratio between different trail classifications. Nevertheless, a couple rough judgments can be made. For four-wheeling enthusiasts, the currently designated roads probably do not provide sufficient opportunities, on their own. However, the network of all existing roads is more than enough for this most

technologically dependent user group. To achieve equity, some portion of the unofficial roads should be designated for full-size vehicles, while the remainder should be closed to four-wheeling. For all other user groups, the currently designated opportunities would be distinctly insufficient, if the remaining trails were closed. Therefore, additional trails ought to be specifically designated for hiking, horseback riding, bicycling, motorcycling, and ATV riding.

There are several ways BLM could ensure opportunities beyond those shared with full-size vehicles. Perhaps the simplest option is to designate the existing singletrack trails for these uses. Most of the existing non-motorized trails are in the vicinity of Moab (Figure 5), while a network of OHV trails exists further northwest, surrounding White Wash. Utilizing unofficial trails would minimize environmental and social impacts. A second option is to construct entirely new trails, though the initial impacts to biophysical resources may be politically unacceptable. A final option is to designate existing roads for use only by smaller vehicles. While this approach would satisfy environmental interests, it could be less enjoyable for the trail users, and create conflict with excluded user groups.

Beyond these broad guidelines, trail allocation is a political matter. The arguments for more or less of any particular classification can be made on many grounds. Arguments for hiking trails center around the activity's appropriateness, since it potentially causes little impact and fosters appreciation of nature. The case against hiking trails involves the alternatives to BLM trails, since off-trail opportunities are limitless and nearby national

parks provide developed hiking trails. Equestrian riding is also unrestricted, and participation rates are low. Mountain biking, on the other hand, is extremely popular among visitors. Cycling advocates insist that Jeep trails do not completely substitute for a singletrack experience.

Motorcyclists also value singletrack, and require much longer trails to provide a full-day ride. ATV riders are probably more content with the existing Jeep trails, though a true ATV trail would provide diversity. Both types of OHV riding are becoming more popular in Moab, and they contribute financially through state registration fees. Four-wheel drivers enjoy substantial access, due in large part to the historic use patterns and adoption of trails. The fact that these motorized uses consume fuel and emit exhaust makes them less appropriate to some segments of the public. Advocates counter that technology yields fuel efficiency and quieter mufflers, especially if encouraged by regulations.

Technology has also created demands for more challenging terrain, especially for "free ride" bicycles and "rock crawling" vehicles. These styles of activity generally require open areas, instead of designated routes. Should BLM provide for some or all emerging demands? On one hand, there is a great supply of desert, some of which is inherently durable or already impacted. On the other hand, perhaps these users should turn to private and state property. If emerging uses are not accommodated somewhere, they will take place in an unmanaged fashion. Perhaps BLM should create ROS classes for activity-based experiences to take place in challenging terrain.

Since a draft of the plan has not been released, this project cannot analyze BLM's proposal. However, the formal process for the travel plan can provide some indication. Moab BLM recreation branch chief, Russ von Koch, explained the route designation process during a personal interview. According to von Koch, BLM will first designate areas as open, limited, or closed to motorized travel, as mandated by Executive Order 11644. The Moab Field Office tends not to rely on its agency's adoption of the Recreation Opportunity Spectrum, since the majority of lands would fall under the "roaded, natural" classification. For the travel plan, BLM uses aerial photography to identify and describe routes. Routes will only be designated if they serve a "purpose," such as industrial, managerial, or recreational.

Recreational purpose is essentially defined by the popularity of the route. Planners use materials such as guidebooks and commercial outfitter itineraries to indicate a route's popularity. The purpose, or value, of a route is then weighed against conflicts, such as those with industrial activities or sensitive resources. For routes that multiple user groups value highly, von Koch predicts that they will remain shared between those groups. Routes within sufficient purpose and acceptable conflict are designated, and use-types are assigned. Planners will make these decisions on a route-by-route basis. The resulting plan, as von Koch pointed out, is subject to adapt with changing circumstances.

While it may ultimately succeed, BLM's route designation process does not formally

consider equity among trail uses. Relying on aerial photographs may neglect certain types of routes, such as singletrack and routes on slickrock (a barren rock surface). Approximating recreational purpose with popularity may bias against users seeking more primitive settings. Furthermore, it is likely to limit consideration to those routes that are already designated. The vast majority of designated routes are roads open to full-size vehicles. Most singletrack trails are less crowded and less covered in guidebooks, but are valuable to local residents and those visitors who are "in the know."

Perhaps most importantly, deciding on routes individually leaves little opportunity to recognize and respond to an excess or deficiency of particular trail types. For example, without identifying diversity in trail types as an explicit goal, planners may not prioritize designating a portion of the existing singletrack trails. Considered individually, most of these less established routes will likely be deemed purposeless, despite their crucial function for two-wheeled and non-mechanized users. Unless goals such as the need for singletrack are identified in the scoping phase and incorporated into the travel plan, the case-by-case route designation could systematically eliminate critical components of diversity. In other words, it may prevent planners from "seeing the forest for the trees."

All of these circumstances favor the status quo. First, the Moab Field Office has chosen to generally disregard BLM's ROS tool due to its descriptive limitations. Prescriptively, however, ROS could have powerful implications. The prevalence of roaded, natural zones might highlight a need for more or less developed opportunities. The ROS concept could

also be applied in a linear fashion. Representing both existing and proposed uses, maps could denote routes by their most technological use-types. As demonstrated in this case study, such analysis would reveal a heavy weighting toward full-size vehicle use.

Second, the route designation process, by design, is likely to perpetuate this weighting. That is, the travel plan will designate many popular roads as open to full-size vehicles, and few less-common roads or trails as limited to smaller vehicles. If so, users of more primitive, narrower trails will be displaced, as their opportunities become prohibited. In response, these users may return to the more popular roads (resulting in dissatisfaction and conflict), illegally construct alternative trails (resulting in environmental degradation), or find a new destination to recreate (resulting in lost income for Moab). These social, biophysical, and economic impacts could be averted with a process that formally addresses fairness in the travel plan.

Nevertheless, even the existing process could achieve equity if planners personally recognize the need for it. Careful observation of public comment would draw out this theme of equity, since many comments have pertained to use designations. Also, success is far more likely if planners seriously consider the routes submitted by citizens, organizations, and local government. This pool of data comprises valuable routes, which could round out BLM's own aerial inventory. Given the route designation process, the success of this travel plan rests upon the discretion of those agency employees holding authority over it.

III. Facilitating Public Involvement In Trail Planning

The necessity of public involvement is testified by this project's framework for trail allocation. Planning for trails means addressing value-based questions and utilizing first-hand knowledge. Throughout his life, Albert Einstein maintained that "problems cannot be solved at the same level of awareness that created them." Agencies alone, cannot solve recreation conflict. In addition to conveying trail users' values, public input allows planners to tap into technical and experiential understanding. Ideally, stakeholders work together toward resolution. The process of engagement creates knowledge and legitimizes decisions. Benefits of public involvement include a better plan, greater public support, and reduced conflict between user groups. Equity in trail allocation cannot be achieved without public input.

This chapter makes a case for public involvement in trail planning, especially at the collaborative level where government shares decision-making responsibility with public representatives. In a conceptual way, it summarizes characteristics of a good process. An inclusive process requires a sufficient representation of interests, while involving individuals that are prone to reach consensus. A process is informed when participants have equal opportunity to give and receive information. A deliberative process achieves meaningful dialogue, where participants go beyond compromising their positions and attempt to integrate their interests. The chapter highlights how trail users' modes of experience can often serve as a commonality, while their modes of travel serve to

understand conflicts. Once user groups come to a common understanding of their relationships with one another, they become more receptive to developing a diverse trail plan that satisfies all interests. These concepts are compared to a county-level planning process designed to influence federal decision-making on BLM lands around Moab, Utah.

Beyond a lack of facilitation skills in agency workforces, perhaps the greatest institutional roadblock to public involvement is perceived public incompetence (Probst *et al.* 2000). However, visitors' perceptions differ from management's (Roggenbuck 2000). Whether right or wrong, those perceptions matter in decision-making. Furthermore, when it comes to trail recreation, the technical know-how often lies with participants. Trail users know their particular preferences, specific concerns about others, and solutions for satisfaction and conflict resolution. For example, motorcyclists generally prefer trails over roads (Nelson 1990, Schuett 1998), a fact that few recreation managers realize. Riding trails instead of roads often involves sharing with non-motorized users. Noise is the primary complaint against motorcycles (AMA 2005), and erosion is commonly attributed to OHVs. Yet sound restrictions and trail maintenance are often overlooked as solutions to trail conflict. Interaction with trail users can help managers isolate root problems and devise uncommon solutions.

The degree of public involvement can range from government informing the public of its decisions, to actually delegating authority to citizens (McKinney & Harmon 2004). In between, agencies can seek input and advice, such as required by the National

Environmental Policy Act (NEPA). Or they can go one step further by working with stakeholders and sharing the problem-solving responsibility. This level of participation is often called collaboration. Consensus building is a type of collaboration that aims to reach agreement on a particular plan or issue, and is the focus of this chapter. McCool *et al.* (2000) propose that for any decision to be considered consensus, participants must mutually agree (1) on a common definition of the problem, (2) that a solution can be reached through public participation, (3) to include all affected interests, (4) to reach a decision that most participants can "go along" with, (5) to equally distribute knowledge among participants, and (6) to permit the agency to initiate action.

In most cases, collaboration has been a more successful form of decision-making than merely informing or seeking input, in terms of the satisfaction, durability, costs and relationships involved (McKinney & Harmon 2004). In a study of mediated dispute resolution, 85% of stakeholders had a positive view of the mediation process and its outcome (Susskind *et al.* 2003). Collaboration should start early, to avoid a conflict spiral where sides form, positions harden, communication stops, resources are committed, conflict goes outside community, perception becomes distorted, and a sense of crisis emerges (Carpenter & Kennedy 1991). Systemic problems of natural resource management require institutional changes in government (Caldwell 1990). To begin resolving trail conflicts at the societal level, agencies must be willing to share some decision-making authority with the concerned publics, via collaboration.

Facilitation of the collaborative process is ideally carried out by an independent party, or by trained employees of an agency. Facilitators must adopt a process-orientation. "Good" process is inclusive, informed, and deliberative (McKinney & Harmon 2004). To include all stakeholders, the conveners should consider who is interested or affected by the issue, who is required to implement the decision, and who holds political veto power. Primary stakeholders of trail systems are the trail users and land managers or property owners. Secondary stakeholders include non-trail recreationists, adjacent land managers or property owners, other levels of government, and environmental interests. Collaborative efforts that are insufficiently inclusive will likely have their decisions challenged by the excluded groups.

There are several guidelines for assembling and retaining the "right" group of people. The "right" individuals are amenable enough to reach consensus, while also sufficiently representative of their group's interests to achieve legitimacy. Facilitators should continually assess each stakeholder's Best Alternative To Negotiated Agreements (BATNA). For example, a user group's BATNA might be to recreate illegally, while an environmental group's BATNA may be to litigate. Cognizant of their BATNAs, facilitators attempt to compel each group that collaboration is its best option. Also to promote participation, implementing agencies should ensure participants that their efforts can actually influence outcomes. At best, agencies can promise to adopt whatever the collaborative team decides, to the extent that law allows. In order for participants to develop a sense of ownership in the decision-making process and its outcome, they must

first be granted the power to affect decisions (Lachapelle & McCool 2005).

As the second component of a good process, collaboration is informed when information flows freely. "An informed process is one where there is an equal opportunity to share views and information. The process fosters... consideration of a variety of options... [and] the best available information, regardless of the source" (McKinney & Harmon 2004). For trail planning, informed process translates into a complete inventory of routes. In the inventory stage, collaborative teams should begin with maps that include all data submitted from trail users. Then they can consider the quality of the submitted data, and resource conflicts, to eliminate certain routes from further consideration. From the initial inventory, the remaining routes that have acceptable impacts will ultimately comprise the final plan. Therefore, plans based on an incomplete inventory fail to meet the "informed" criterion of the collaborative process.

The third characteristic of a good process, deliberative, essentially means meaningful dialogue. Deliberation occurs when people actively listen, and go beyond one another's positions to consider their interests. Many times, trail users can trade across differences, so to speak. For example, in zoning mechanized and motorized use, mountain bikers may express particular interest in frontcountry opportunities with hardened terrain, while OHV riders may prefer the sense of adventure provided by backcountry trails with loose surfaces. In planning within the consequent OHV zone, take into account that motorcyclists tend to prefer more challenging trails (Nelson 1990) while ATV trips are

more likely to involve multiple activities (Fisher & Blahna 2001). Reserving the most rugged trails for motorcyclists while accommodating ATVs on routes that access fishing ponds, for instance, would integrate the interests of these user groups.

A deliberative process can yield solutions that actually integrate a variety of interests, more than just compromising them. So before conducting a route inventory, stakeholders should generate goals and articulate their preferences. A third party's understanding of participants' relationships can position collaborative teams for success. In order to establish a foundation for integration, facilitators ought to highlight common interests, where they exist. Trail users' commonalities often lie in their mode of experience. For example, a good starting point is to establish that trail users "share common goals to protect access to public lands, protect the environment and its beauty, to enjoy traveling and being outdoors, and to encourage responsible recreation and tourism" (Macdonald 1992). Such realizations dispel the perception of a zero-sum game. While resources are limited and compromise is necessary to some extent, shared values among trail users typically allow for a win-win situation. Identifying commonalities can untangle the polarization that results from prolonged conflict.

At the same time, facilitators must be careful not to neglect conflicts by overstressing commonalities. After establishing goals and preferences, the process should formally solicit concerns. Facilitators can utilize the concept of technological reliance to acknowledge differences in use types, and the potential for conflict. Then they can

superimpose conflict asymmetry onto this spectrum of uses in order to reveal the similar predicament that user groups share. Reliance on technology differs among trail uses, and the more reliant uses generally impact the less reliant ones. This disparity is real, and may deserve to be compensated via trail allocation. Consequently, advocates of a given activity attempt to align with less reliant uses, while dissociating from more reliant ones. For instance, former International Mountain Bicycling Association president, Gary Sprung, insists that "for some, mountain bikers are motorcyclists without engines, whereas we know ourselves to be more like hikers with wheels" (Sprung 1998).

However, technological reliance is a relative matter. Nearly every user group can relate to being the source or recipient of social impacts. This dilemma is shared by all trail users, though few probably recognize it. Keen facilitation will uncover stakeholders' common predicaments by disrupting their rhetorical alignments. For instance, bicyclists' complaints about motorcycles are quite similar to hikers' complaints about bicycles. The case against both activities involves erosion, physical danger, and environmental intrusiveness. Any proposal that does not acknowledge this pattern is incomplete. Comparisons between modes of travel can be made on a whim. Deliberative dialogue goes beyond the jockeying of political positions to discover themes that underlie an issue. For trail allocation, the problem becomes conflict asymmetry across a hierarchy of activities. The solution almost certainly includes diversity in trail designations. In another publication, Gary Sprung demonstrates critical thinking and arrives at a similar solution. "When we maintain that the distribution of uses is out of balance, we must acknowledge that balance includes a place

for our opponent" (Sprung 1997).

In *The Tragedy of Puddin'head Wilson*, Mark Twain asserts that "one man alone can be pretty dumb sometimes, but for real bona fide stupidity there ain't nothing can beat teamwork." Indeed, collaboration is challenging, and demands competent facilitation. Agencies that properly engage the public, however, are often rewarded with better plans and stronger political support. The benefits of consensus building extend beyond any planning document. The process improves relationships, and generates the social capacity to resolve conflicts. "When trail conflict situations are tackled head on and openly they can become an opportunity to build and strengthen trail constituencies and enhance outdoor recreation opportunities for all users" (Moore 1994).

Public involvement in Grand County, Utah

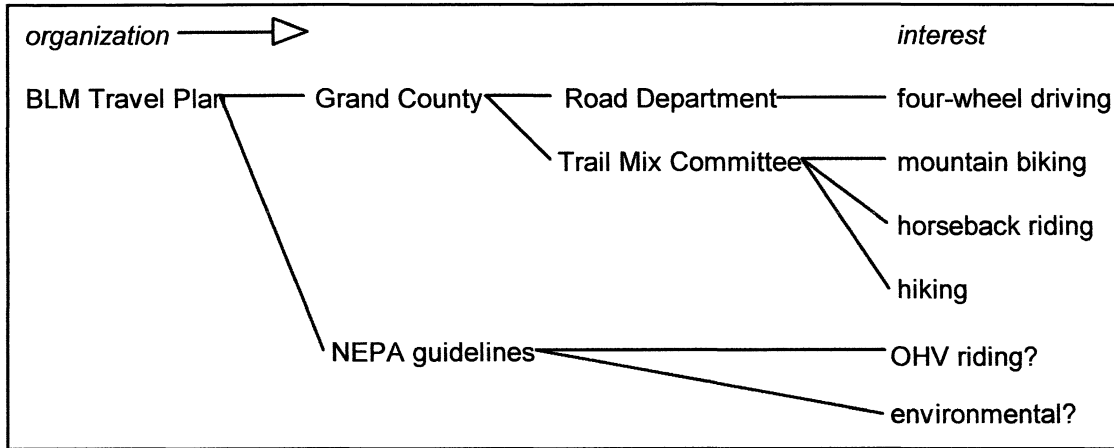
Principles of good process may be conceptually perfect, but can fall apart in the face of complex, conflict-ridden situations. BLM land surrounding Moab, Utah makes an excellent case study for public involvement in the planning process. In addition to economic and environmental stakes, a variety of recreationists rely on this desert region for quality experiences. Oil and gas, primitive areas, and recreational access are increasingly scarce, making Moab more valuable to a growing number of people and diversity of interests. With so many interests, conflicts are inevitable. However, engagement among these stakeholders has the potential to resolve many of their conflicts.

Lessons from past achievements and failures can direct future planning efforts toward success.

BLM's Moab Field Office began revising its Resource Management Plan in 2003, and aims to finish by 2006. The process will establish its first comprehensive travel plan, which will restrict vehicles to designated routes. BLM solicits public comments in accordance with NEPA. So far, the Moab Field Office has accepted scoping comments and trail data from the general public. Once it releases draft alternatives, another comment period will commence. Generally speaking, the Moab Field Office has not involved the public beyond its legal obligations.

By legislative mandate, and perhaps encouragement from the executive branch, BLM also turns to local government for planning input (Figure 6). Grand County is over 2.5 million acres, three quarters of which is administered by BLM. Resident's lifestyles and livelihoods are strongly tied to BLM land. Grand County Council, the primary body of county government, refers to the Road Department and Trail Mix Committee on BLM recreation matters. Both groups have hosted meetings in the past five years, and BLM recreation staff members have routinely attended. BLM Recreation branch chief, Russ von Koch, states that his agency is taking county advice seriously, and will incorporate county proposals into its planning decisions.

Figure 6. Avenues of public input for BLM's Moab RMP.



The Grand County Road Department maintains over one thousand miles of graded dirt roads, mostly on BLM land. Additionally, it claims roughly 3,500 miles of non-maintained road, via an 1866 mining law known as Revised Statute 2477. R.S.2477 grants counties right-of-way across federal and state land for roads that existed prior to 1976, when the statute was repealed. However, Utah counties are in litigation over R.S.2477, and the debate largely focuses on what constitutes construction and maintenance. The semantics of a road are complicated by the fact that vehicle ways in flat, non-forested deserts require little to no maintenance. So currently the true jurisdiction of these primitive roads is unknown.

In 2001, the Road Department convened a collaborative group, called the Access Committee, to develop a proposed road plan for BLM consideration. To solicit participation, the department placed an advertisement in the local newspaper. They received responses from twenty-five individuals, representing various recreational and

environmental interests, and accepted all of them into the group. The Access Committee began meeting monthly, and hired a professional facilitator to provide a formal process in dispute resolution. After establishing common goals and conveying individual interests, the group delved into access planning. Instead of considering the entire county at once, the committee decided to begin with small planning sites presumed to be the least controversial. Even this modest goal was not reached, let alone the overall aim of developing a county-wide road plan. In 2003 the committee disbanded with no planning accomplishments.

In discussing the Access Committee with several of its members, there is at least consensus about the reasons for its failure to reach any planning agreement. Everyone agreed that the group was too large, and that there were too many "radicals" on all sides of the issue. Apparently, fewer people and more willingness to compromise would have helped. These sentiments were repeated by the committee's creator, Dave Vaughn, who is assistant supervisor of the Grand County Road Department. Vaughn even suspects that some members, from various interest groups, intentionally stifled the process. Interestingly, everyone pointed to the participants for the committee's demise. No one claimed the issue was inherently intractable, provided that reasonable concessions are made.

The story of the Access Committee raises questions about which individuals to select from various interest groups. On one hand, the people chosen were preeminent figures of their

local groups, whether an environmental organization or four-wheeling club. As respected individuals, their presence gave the committee legitimacy. On the other hand, their styles of dispute resolution were allegedly incompatible with collaboration, resulting in a stalemate. If the convener brought more moderate people to the table, they may have reached an agreement. However, the interest groups may not have felt represented. Perhaps conveners should seek the most moderate individuals who are, nevertheless, respected among their communities. In Moab, such individuals likely exist. If not, then collaboration is not the best venue for resolving access issues in this area.

Since the Access Committee produced no plan, the Road Department devised its own road plan. Grand County's legal interests dovetail with four-wheeling interests for access. Consequently, the Road Department has personal ties with the Red Rock Four Wheelers, a local club that is very active. Dave Vaughn sought planning input from The Nature Conservancy, and accommodated some of their concerns. To its planning table, the Road Department also claims to have invited members of the Trail Mix Committee, which formally aims to preserve and expand non-motorized opportunities. However, Trail Mix denies this assertion. The road plan included no formal process for public input. Ultimately, the plan proposed to close 2000 of the 5000 miles that the county claims to own. Most of the closures are dead-end or duplicate routes that serve less recreational purpose. Fewer of the closures were made in response to specific environmental or social concerns. In 2004, Grand County Council approved the road plan.

Meanwhile, recreation planning has developed through another county committee, Trail Mix. David Olson, Planner and Community Development Director for the city of Moab, created Trail Mix in 2001 with support from Kimberly Shappart of the County Council and Russ von Koch of BLM. Although Olson intended Trail Mix to include all recreationists, its executive committee consists of a chairperson, vice chairperson, and representatives of hiking, horseback riding, mountain biking, and the County Council. The committee holds two meetings each month, one of which is open to the public while the other is for the six-member executive committee. Trail Mix has also hired one part-time trail coordinator, which Olson says has been crucial for accomplishing its projects. Though they do not have a position on the executive committee, representatives from local environmental groups have participated during monthly meetings. Olson believes that the committee has experienced difficulty satisfying environmental interests, since they have expected Trail Mix to adopt their proposals, which call for a dramatic expansion of designated Wilderness.

In 2004, Trail Mix began developing a non-motorized trail plan for the entire county. The general public was free to provide planning input during the monthly meetings. Additionally, Trail Mix sought to work with the Red Rock Four Wheelers. Skeptical of the committee's explicit non-motorized mission, the club declined their offer. In January of 2005, Trail Mix finally sat down with the Road Department to discuss converting a few dozen miles of road for exclusive, non-motorized use. The Road Department met most of their requests, but denied a few. By the end of the month, Trail Mix released its first draft,

which proposed to close very few existing opportunities to motorized use. Instead, it would officially designate a few hundred miles of trail that already exists for various non-motorized uses, and even designate several existing motorcycle trails. At the public meeting in February, representatives of both environmental organizations and off-highway vehicle groups expressed a few concerns with the plan. Based on this feedback, Trail Mix revised the draft slightly, and now seeks approval from the County Council.

Some contention remains as a result of the separate process for road and non-motorized trail plans. The road plan became the benchmark, since it was completed first. The Road Department maintains that it already made great concessions by closing two-fifths of its road system, and did not intend to compromise further. Trail Mix counters that the road plan was made in private, and it only closed "leftover" roads that provide little opportunity for quality, non-motorized recreation. Through the strength of personal relationships, the two county organizations did come to an agreement. Furthermore, consensus was achieved relatively quickly by starting with two separate plans, and then assimilating them. Though it would have been more difficult, starting inter-departmental collaboration at the onset of planning may have yielded greater satisfaction and less residual frustration among the participants.

In addition to the timing, power relations probably also played a role in the outcome. The Road Department has sway through its claim of a vast network of roads. Though the jurisdiction is still in question, the county government seems fairly confident in the

R.S.2477 litigation process. Therefore, litigation serves as a powerful BATNA for the Road Department. Dave Vaughn points out that R.S.2477 does not preclude negotiation, since the county can agree to close roads without relinquishing ownership of them. Nevertheless, the Road Department's tentative authority influences such negotiation. Case in point, the Trail Mix plan requires support from the Road Department in order to receive approval from the County Council, while the road plan had no such obligation.

Eventually, BLM will receive two complimentary planning documents; the road plan and non-motorized trail plan. County planning included significant public input and negotiation between interest groups. Indeed, Trail Mix is a success in grassroots collaboration. However, Figure 5 illustrates the limitations of inclusiveness in Grand County's planning process. The Road Plan effectively represents four-wheeling interests, with the exception of rock crawling, which frequently takes place off of constructed roads. Trail Mix officially represents non-motorized trail uses, through its executive committee. By holding public meetings, Trail Mix is accessible to other interests, as well. Nevertheless, several key interests lacked formal input in county planning. First, motorcyclists and ATV riders (who depend on motorized trails, not just roads) were not provided equal status. Second, environmental interests were also limited to commenting at public meetings, as opposed to negotiating within the executive committee. Consequently, OHV and environmental advocates are forced to rely on standard NEPA avenues to influence BLM decision-making. The likely result is no consensus.

The boundaries of county representation raise an important question about collaboration. Should every planning committee provide equal opportunity for all stakeholders of a given issue? The answer is probably affirmative for BLM, which is the primary decision-making body. Conceptually, collaboration necessitates complete inclusion. However, the answer may be negative for Grand County. After all, the Road Department and Trail Mix plans are merely recommendations to BLM. Perhaps the county government ought to represent whatever interests it chooses. For one thing, fewer stakeholders yields efficiency in decision-making, which reduces costs, at least initially. Also, BLM will incorporate environmental concerns through NEPA compliance. On the other hand, many Grand County residents ride OHVs and value the natural environment. Though the county need not represent national interests, it should include the diversity of its own local interests. Furthermore, the strength of Grand County's influence on the federal government hinges upon its inclusiveness. BLM is more likely to adopt recommendations when the county accomplishes the difficult task of negotiation. As it stands, if BLM depends too heavily on county proposals, they can expect legal challenge from both OHV and environmental organizations.

In summary, Grand County planning has demonstrated successes and failures, each one providing a lesson about the public involvement process. First, collaboration is hard work, especially when committees are large, and the selected representatives are idealistic. Second, though county administrative divisions can successfully plan in isolation and later merge their plans, the process would be more fair and satisfying to coordinate from the

outset. Third, power relations influence negotiation, especially when cooperation is delayed, and even when the extent of authority remains in question. Fourth, while limiting representation is expedient, it is ultimately less effective in producing a durable plan. Therefore, stakeholders should be granted equal decision-making authority, not merely the opportunity to comment. To most effectively influence federal planning for the next RMP, Grand County can make these improvements to best represent the diversity of its community.

In regard to the principles of good process, the Access Committee and Trail Mix have several implications. Both committees were sufficiently informed. They are distinguished by their extent and type of inclusiveness. The Access Committee represented the widest range of interests, but the individuals who volunteered were incapable, or perhaps uninterested, in reaching consensus. This preliminary condition precluded meaningful discussion, despite the best efforts of a professional facilitator. Perhaps in reaction to the Access Committee, Trail Mix became somewhat less inclusive. The conveners refrained from giving board-level status to local four-wheeling groups and litigious environmental organizations, both of which had stalled the Access Committee. Trail Mix also seemed more receptive to individuals of a more moderate political stance, regardless of their interests. This was a winning formula, and the group achieved deliberative dialogue. In learning from the mistakes of the Access Committee, however, Trail Mix may have gone too far in the other direction.

In the future, Trail Mix could gain inclusiveness by expanding their representation via moderate environmental and motorized recreation interests, such as The Nature Conservancy and a local OHV trail-riding club. To establish a foundation for consensus among a wider range of interests, conveners could emphasize an appreciation for Moab's "canyon country" as a common thread among all recreationists. Ironically, resource specificity is what makes recreation planning around Moab so contentious in the first place. Nevertheless, the problem of many people assigning different meanings to a place can become part of the solution. That everyone loves Moab is a starting point for consensus. The variety of ways people enjoy Moab is rather unique, even among tourist towns. So, not only do community members value the landscape, but also the diversity of opportunities it provides. In future planning efforts, the overarching goal ought to be conserving nature to enjoy in a variety of ways. If goal identification is the most immediate barrier to problem solving (Lachapelle *et al.* 2003), then merely articulating the aims of resource conservation and experiential diversity could assist the planning through to its implementation.

IV. Gaining Visitor Support For Trail Systems

Once a trail plan has been finalized, communicating the plan and its rationale are important steps for managers to follow. Even an ideal plan will fail if trail users expect their interests to be satisfied at each site, are unaware of opportunities or restrictions, or have differing views about appropriate conduct. Managers can utilize the same concepts from planning (using predictors of conflict to designate a diverse trail system) to ensure that implementation compliments the travel plan. First, information campaigns can articulate how diverse opportunities achieve equity between trail users. Second, they can present available opportunities and restrictions to match visitors with appropriate trails and create realistic expectations. Third, public information can establish behavioral norms to make trail sharing more satisfying for all users. These measures are aimed at gaining support for and compliance of the implemented plan, to ultimately resolves conflicts.

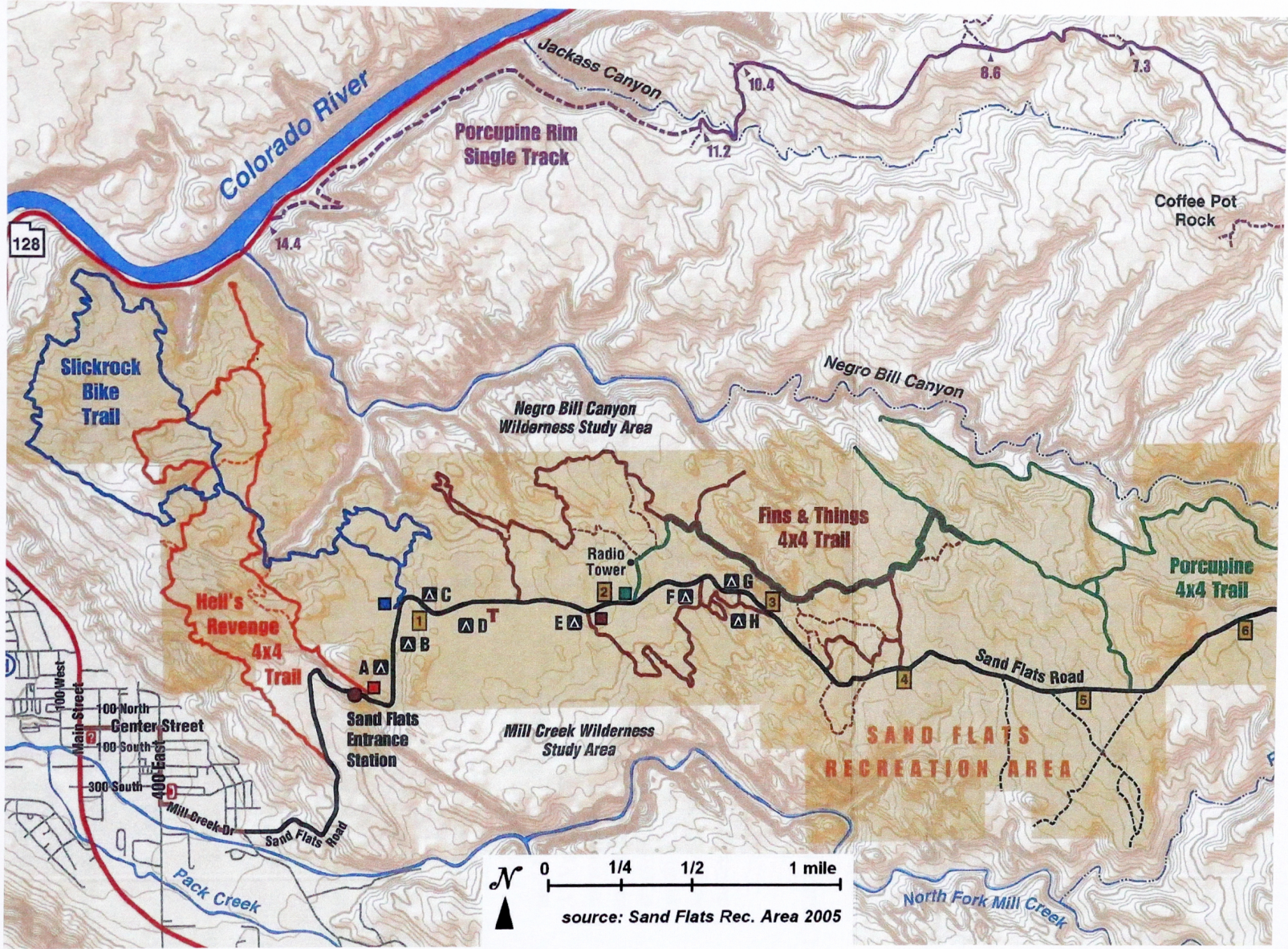
Encouraging a district-wide treatment of equity

Describing a trail system (or several networks) to users is an important opportunity for managers to gain support for the plan. The trail system should be presented as a whole, not just the sum of its parts. Public information could highlight the efficiency benefits of trail sharing, and the necessity of some zoning. Utilizing both of these strategies creates a diverse trail system, and an equitable allocation of resources. This kind of introduction trains trail users to consider fairness in a larger spatial context. The larger context could

encourage trail users to think like managers, by considering fair solutions to complex problems, instead of just pursuing their own interests. This sophistication could inhibit individuals from expecting their interests to be satisfied on every parcel of public land.

Consider equity in a spatial context for a particular set of trails near Moab, Utah (Figure 7). Sand Flats Recreation Area is 7,240 acres of a unique high-desert landscape, including many slickrock fins and domes juxtaposed with the neighboring La Sal mountains. Grand County and BLM partnered to manage this recreation area starting in 1995, with aid from Americorps. Sand Flats is home of the world-renowned Slickrock Trail. Created by motorcyclists in 1969, Slickrock accommodates over 100,000 annual visits, mostly by mountain bikers. Also, Hells Revenge Trail is famous among four-wheeled users, and is very popular during the Easter Jeep Safari and spring break season. Camping is accommodated at designated sites along the entrance road. The area is bound by the Colorado River to the northwest, Negro Bill Wilderness Study Area to the northeast, Mill Creek Wilderness Study Area to the southeast, and the town of Moab to the southwest.

Figure 7 Sand Flats Recreation Area, near Moab, Utah. (from SFRa 2005 Visitor Guide)



Sand Flats Recreation Area is a successful example of multiple-use trail planning. One could say that its diverse trail system provides something for almost everyone. Sand Flats is a step ahead of the Moab district as a whole, in terms of active management. The new brochure and entrance-station sign are great improvements for visitors to learn the opportunities, restrictions, and basic codes of conduct. Nevertheless, some gaps still exist in the content of these sources. The brochure's section on trails begins by highlighting the more popular trails. However, it could more clearly outline the diversity of activities that the trail system provides for. The following is a hypothetical introduction that portrays an equitable balance of trail sharing and zoning:

Welcome to Sand Flats. This trail system provides something for everyone. Fins 'n Things and Hell's Revenge 4x4 trails are accessible to all vehicles, including four-wheel drives and ATVs. The Slickrock Bike Trail provides an opportunity for motorcyclists and bicyclists to ride a narrower trail. Porcupine Rim Single Track allows mountain bikers and hikers to enjoy a non-motorized experience. Hikers and horseman are free to travel off-trail, but asked to avoid cryptobiotic soils. Our diverse trail system provides many kinds of opportunities in a relatively small area. Those seeking a non-mechanized Wilderness experience should try nearby Negro Bill and Mill Creek canyons. Cross-country, OHV play riding is available at the White Wash sand dunes, thirty miles to the northwest.

Creating an awareness of opportunities and restrictions

A trail system only realizes its potential for satisfaction when visitors are aware of its diversity. Traditionally, land management agencies have not fully informed visitors of the opportunities available from ROS planning (Watson & Roggenbuck 1985). All of the setting characteristics have not been transferred to Recreation Opportunity Guides (ROGs). Even when the information is present, the format is not conducive to decision making. Some ROGs require reading descriptions for every site. Others have a tree

diagram, which implicitly ranks characteristics in order of their importance. Since visitors prioritize these characteristics differently, ROGs should have multiple tree diagrams, each with a different order of decision-making. Electronic media would allow visitors to input the desired characteristics and their relative importance. This format could provide an optimal list of site choices.

To make informed choices among options, visitors need to know a variety of characteristics about each trail. For conflict prevention, the experiential orientation and types of encounters should be specified. Visitors seeking a setting-based experience generally are sensitive to impacts from more technological uses and unlikely to interfere with less technological uses. Therefore, setting-based users can be guided toward trails that are only shared with less technological users. Likewise, visitors seeking an activity-based experience typically are unaffected by more technological uses, but do interfere with less technological uses. So activity-based users can be steered toward trails shared with more technological uses. Table 6 guides Sand Flats users of a given travel-type and experiential orientation to particular trails. Setting-based experiences match visitors with trails shared by less technological uses, while activity-based experiences match them with more technological uses.

Table 6. Two-dimensional Recreation Opportunity Guide for Sand Flats Recreation Area.

	setting-based	intermediate	activity-based
foot / horse	nearby WSAs	Porcupine Rim Single.	Slickrock Bike Trail
mountain bike	Porcupine Rim Single.	Slickrock Bike Trail	Fins 'n Things 4x4
motorcycle	Slickrock Bike Trail	Fins 'n Things 4x4	Hell's Revenge 4x4
ATV / 4WD	Fins 'n Things 4x4	Hell's Revenge 4x4	other recreation areas

Once visitors have selected a site, influencing their expectations is a primary way to facilitate satisfying experiences and prevent conflict (Cole *et al.* 1987). This strategy includes informing trail users of the encounters they are likely to experience. Anticipating shared use, less technological users may accept more technological uses as appropriate. It also allows more technological users to prepare for encounters, and practice etiquette. For instance, in a popular canyon outside Salt Lake City, hikers with less experience were more likely to report conflict with mountain bikers (Ramthun 1995). Perhaps less experienced hikers did not expect to see mountain bikers, or did not know what behavior to expect of them. When visitors are prepared for encounters along their selected trail, they are primed for a satisfying experience.

The informational campaign for the Slickrock Bike Trail could do a better job of preparing different types of users for encountering one another. The new brochure and kiosk at the entrance station do mention that Slickrock is shared between motorcycles and bicycles. However, the majority of Slickrock riders probably do not read these sources of information. At the staging area, a sign merely mentions motorcyclists in a historic

context. The only indication that motorcycles are permitted is a small sticker attached to a cattle guard, roughly fifty yards up the trail. This sets the stage for conflict, as some bicyclists expect not to see motorcyclists, and some motorcyclists do not expect to make any special considerations for bicyclists. A highly-visible sign, placed immediately at the new trailhead, could prepare users for encounters, and provide alternative opportunities:

This trail is shared between mountain bikes and motorcycles. Shared use requires motorcyclists to pass politely, and bicyclists to accept sharing. Motorcyclists seeking a less confined experience may prefer Hell's Revenge 4x4 Trail. For bicyclists seeking a non-motorized experience, try Porcupine Rim Single Track.

Along with communicating opportunities, conveying restrictions is essential for preventing conflicts. A five-year study on the effects of a visitor information program in Mendocino National Forest concluded that the vast majority of OHV violations were committed inadvertently by uninformed visitors (Applegate & Hamilton 1994). Posted restrictions should be accompanied by an explanation for the policy, directions to alternative opportunities, and an incentive for compliance. For the Slickrock Bike Trail, restrictions are not posted any more sufficiently than the permitted uses. The updated brochure and entrance station sign state that the trail is unsuitable for ATVs. At the trailhead itself, there is no reference to larger vehicles. On the same sign that would notify two-wheeled users about trail sharing, a four-wheeled restriction could be clearly posted:

"Stop! Due to safety concerns, four-wheeled vehicles are not accommodated on the Slickrock Bike Trail. However, several nearby trails are permitted for ATV and rock-crawling enthusiasts. To the west, Hell's Revenge 4x4 Trail traverses much of the same territory as Slickrock. To the east, Fins 'n Things 4x4 Trail provides four-wheeled users with a somewhat less challenging experience. Your cooperation on Slickrock will help preserve access to the other trails for larger vehicles."

Articulating the use spectrum into a universal trail ethic

Perhaps the most critical factor in the success of a shared trail is individual behavior. Basic courtesy, or rudeness, can influence an encounter far more than the number of wheels on a vehicle. The "golden rule" (do unto others as you would have them do unto you) is an ethical pillar of many societies. Within particular user groups, norms are often well crystallized. For example, mountain bikers need momentum to ascend hills. So when cyclists stall on a hill, they to pull off the trail in order to give way to the cyclists behind them. However, the golden rule is complicated by the fact that many activities take place on the same trails. Norms differ between modes of travel and modes of experience. The concept of a use spectrum can modify the golden rule to apply to shared trails.

To explain the use spectrum, one can begin by establishing the hierarchy based on technological reliance. This ranking defines which user groups are relatively more or less sensitive to one another. Second, highlight the similar predicament that the groups share with one another. That is, each group tends not to welcome more technological uses, while being unwanted by less technological uses. The common predicament fosters sympathy for other types of users that one may encounter. Even without participating in these other activities, all trail users can relate to being the more or less technological user. This commonality allows recreationists to imagine themselves in one another's shoes, or boots as the case may be.

Applying the spectrum of uses, the golden rule of trails is to treat less technological users

as one would expect more technological users to treat oneself. By the same token, expect more technological users to treat oneself as one would treat less technological users. Consider mountain bikers for this reversibility test. Cyclists ought to accept motorcyclists to the extent that they expect hikers to accept themselves. Likewise, they ought to provide hikers with the same courtesy they demand from motorcyclists. For instance, if a cyclist expects to be judged by hikers based on her behavior instead of the mode of transport she prefers, then she should follow the same guidelines for judging a motorcyclist. In a normative sense, the golden rule of trails essentially establishes a universal norm to assume the responsibility of proper conduct and accept the presence of others.

Since each type of trail use has some unique needs and impacts, it is necessary to provide substantive information about particular use combinations. Because mountain biking can be virtually silent and involve high speeds, there is potential to startle non-mechanized users. Without ever having hiked or ridden horses, even an experienced cyclist may be oblivious to this concern. Likewise, motorcyclists who never remove their helmets may not realize their impacts to hikers seeking natural quiet. Educational materials should detail specific protocol and the rationale behind it. At Sand Flats, brochures mention that OHV riders should yield to other users and pass slowly and quietly. A trailhead sign could go a step further in reducing conflict by defining users' relationships along with the behavioral guidelines:

Volunteer motorcyclists created the Slickrock Bike Trail in 1969, with cooperation from BLM. Since then, it has become extremely popular for mountain biking. Recognizing this historic precedence, bicyclists should be tolerant of sharing the trail with motorcycles. Since motorized use impacts the bicycling experience, motorcycle riders should take several measures to respect non-motorized trail users. Slow down, quiet your engine, and provide ample space

when passing. This way, everyone can enjoy the trail for years to come.

Conclusion

Information campaigns for trail systems can benefit from the theme of achieving equity through providing diverse trails. Through the consideration of fairness on a spatial scale, visitors will support trail systems that employ shared use and zoning. When opportunities and restrictions are well-presented, visitors can make educated decisions and avoid conflict-prone situations. Understanding the spectrum of trail uses promotes tolerance and courtesy among different groups. Sand Flats Recreation Area exemplifies a solid informational campaign that could become even better by drawing out the equity theme. Describing opportunities and restrictions in the context of a diverse trail system could be more effective. For instance, their brochure thoroughly explains ecological reasons for staying on the trail, but skimps on the social reasons for trail etiquette. Couching etiquette in terms of fairness could be more persuasive in modifying attitudes and behavior to resolve conflicts.

V. Conclusion

Outdoor recreation demands are growing while undeveloped lands are shrinking. This combination will continue to heighten conflict, unless managers take proactive measures. As is the case for many issues in recreation management, no single response will suffice (Cole *et al.* 1987). Even trail maintenance can contribute to resolving conflict. Controversies that begin between user groups develop into issues with management policies. A central question is how to most fairly allocate recreational resources. Trail planning that formally addresses equity between trail users has the potential to resolve existing conflicts and prevent future ones.

Providing diverse opportunities is a primary way to achieve equity among recreationists. The Recreation Opportunity Spectrum concept would become more applicable by including social encounters as a characteristic to diversify. Trail conflict is strongly influenced by one's mode of travel and mode of experience. Since more technological uses tend to conflict with less technological uses, each user group should be designated as the most technological use on some portion of a given trail system. Since activity-based experiences tend to conflict with setting-based experiences, these orientations can compensate for technological differences, and make many use-types compatible. A range of trail designations allows trail sharing's costs of conflict and benefits of efficiency and community to be distributed equitably among user groups. Encounter-types could be incorporated into the ROS tool of zoning by area. Trail diversity could be even better

ensured at the route level, by considering the most technological use for each route in a travel plan.

No matter how much theory or research grounds planning, the process must include trail users to achieve equity. Managers need to facilitate dialogue between user groups to successfully integrate their interests. Collaboration is inclusive when interested parties are given equal participation, informed when information flows freely, and deliberative when dialogue goes beyond participants' positions and reveals their interests. Identifying shared modes of experience can highlight common values, as most trail users appreciate their place of recreation. Recognizing different modes of travel can serve to understand and resolve conflicts. Asymmetrical conflict across a spectrum of uses almost certainly requires diverse opportunities as part of the solution. Based on their own circumstances, trail users can collaborate to devise a plan that equitably allocates trails in their area. This kind of consensus building will likely produce a better plan and greater support than the minimal NEPA requirements would yield.

This planning rationale can be carried through to implementation, when agencies describe opportunities to visitors. By introducing visitors to entire trail systems, managers can illustrate how diversity in trails achieves equity among the public. Recreation Opportunity Guides can specify the types of encounters likely on each trail, so visitors can choose based on their activity and experiential orientation. Anticipating shared use, more technological users will be prepared to practice etiquette, while less technological users

will more readily accept the presence of other uses. Finally, managers can utilize the relativity of technological reliance to reveal the predicament common among all user groups. Realizing that each group tends to welcome less technological uses while shunning more technological uses, trail users become more receptive to sharing the privilege of access and accepting the responsibility of etiquette. This universal trail ethic maximizes the compatibility between different activities.

Since most of this project consists of theoretical proposition, there is a great need for empirical research. Two areas of uncertainty are in understanding conflict and in testing the effectiveness of attempts for its resolution. To better understand conflict, researchers can determine the relative influence of major conflict predictors. How strong in predicting conflict are modes of travel, modes of experience, or behavior during interactions? To what extent do they compensate for one another? This line of study can reveal the level of compatibility between various activities. Additionally, how much is conflict caused by perceived inequalities between user groups? And how do trail users evaluate equity in management policies? Another approach could measure the existence of norms and difference between the norms of various user groups. Ultimately, such analysis could indicate the potential for trail users to develop more widespread norms.

The other area of needed research involves measuring the affects of managerial actions. Studies can test the effectiveness of various responses, including trail closures, zoning, educational campaigns, facility development, or some combination. In particular, do

diverse trail systems indeed increase satisfaction and reduce conflict among visitors? To answer this question, a study could measure satisfaction and conflict for several trail systems or districts. In one case, trails would be all shared, with very few restrictions. In another case, uses would be almost completely separated. In a final case, trails would be partially shared and partially zoned. In order to include potentially displaced users, entire communities should be sampled as opposed to the recreationists present at a site. This kind of study would test the validity of the claim that providing diversity resolves conflict.

Even without further research, agencies can begin utilizing the concept of achieving equity via diverse trails to plan for recreation, facilitate public involvement, and gain support for approved plans. In "Equity Issues in Outdoor Recreation," Daniel L. Dustin and Richard C. Knopf assert that "wise management necessarily means doing what is fair or equitable for everyone" (Dustin & Knopf 1989). If so, wise trail allocation involves fairly distributing the costs and benefits of sharing among user groups. This more direct approach to achieving equity is also a peripheral way to resolve conflict. In combination with traditional responses to recreation conflict, diverse trail opportunities could better satisfy the interests of the American public.

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