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**Sources of Conflict Between Hikers and Mountain Bike Riders in
the Rattlesnake NRA**

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ABSTRACT: Mountain bike riders and hikers in the Rattlesnake National Recreation Area were studied to assess the extent of conflict between the two groups and to search for underlying reasons. Mountain bike riders tend to perceive bicyclists and hikers as more similar than hikers do. Actually, they do differ in attitudes they hold about the area and reasons for visiting it, though they do not commonly perceive these differences. However, the groups tend to not differ in areas they believe themselves to be different. Nearly two-thirds of the hikers feel that the mountain bikes are objectionable, but respondents have difficulty specifying behavior that reduces their enjoyment. Educating mountain bike riders about behavior that others consider unacceptable and educating hikers about the similarities between hikers and mountain bike riders may reduce feelings of conflict. More direct management approaches must also be considered.

KEYWORDS: Mountain bikes, hikers, conflict, wilderness.

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The bicycle-hiker conflict in backcountry areas is the latest high-profile conflict in outdoor recreation. In the past, interactivity conflicts have centered on differences in technology, particularly with respect to methods of travel. But in the case of bicycle-hiker conflict, the role of technology has taken a new twist. In contrast to previous conflict research on such groups as crosscountry skiers vs. snowmobiles or canoeists vs. motorboats, the hiker-mountain bike conflict is not over motorized technology. In fact, the clean, "outdoorsy" image associated with mountain bikes has probably helped inspire proposals to allow mountain bikes in congressionally designated wilderness areas.

Given this potentially radical change in wilderness policy, an empirical examination of the hiker-mountain bike conflict seems timely and valuable to planners, policy makers, and managers of wilderness and other recreational lands. This paper compares hikers and bicyclists in terms of environmental meaning, perceptions of similarity, and conflicts. This was also a unique opportunity to study users of a National Recreation Area that contains some designated wilderness. This study builds on the conceptual work on conflict of Jacob and Schreyer (1981) and Adelman *et al.* (1982).

The prototype mountain bike was constructed in 1974 using a mixture of salvaged parts from durable all-purpose bicycles of the 1950s and 1960s and the multiple-gear drive trains of the European racers of the time (Foote 1987). Mountain bikes were not immediately perceived as a threat to backcountry users across the nation. McCay and Moeller (1976) found that a slight majority of Ohio hikers were not overly concerned about meeting bicycles while hiking. While 40 percent reported that such an encounter would be undesirable or very undesirable, 28 percent felt neutral about meeting bicycles, and 32 percent reported that they enjoyed meeting people riding bicycles during their hikes.

Things have changed since 1974. By the end of 1983, 200,000 mountain bikes had been sold in the United States and total sales have exceeded 5 million bicycles to date (Foote 1987; Coello 1989). In many states, mountain bikes are outselling other bicycles ten to one (Grost 1989). Terminology has emerged to describe these hybrid bicycles and the people who ride them. Bicycles have been called "urban paraphernalia" by those resisting their presence in backcountry areas (Meyer 1985); their riders have acquired disparaging nicknames: "kamikazes," "banzai squads," and "Rambo riders" (Foote 1987; Coello 1989; Cohen 1989). Most of the contact between hikers and bicyclists has been visual. The extreme case, however, may be in one park in California where spinal injury and broken arms, legs, and collarbones have been reported as a result of mishaps between bicyclists and hikers (1987).

Conflict between bicycle riders and hikers is evident in a growing number of areas across the country. Along urban trails in Chicago, interviews of bicycle riders revealed that the majority of negative comments received about the 20-mile trail related to crowding and conflicts between trail users, and only secondly to the location and design of the trail itself (Gobster 1988). This conflict is of growing concern to many land management agencies, both urban and rural (Keller 1990).

Social Conflicts Between Competing Users

Conflicts between recreational user groups competing for the same space have been studied for several types of groups, including canoe paddlers/ motorized users, motorized/nonmotorized rafters, skiers/snowmobilers, and motorcycles/hikers/horseback riders/bicycle riders. The emphasis in most of these studies, however, has been to determine if conflict exists. This is commonly done through a set of forced-choice questions in which respondents

are asked to indicate whether they enjoy, dislike, or do not mind meeting other competing groups of resource users. The most consistent finding from this research has been that conflict was often "asymmetrical." This meant that the conflict was one-sided; it was experienced by only one of the competing groups involved, or one group experienced conflict at a much higher frequency.

Adelman *et al.* (1982) was a notable exception to these descriptive studies in that the researchers made the first effort to develop hypotheses to explain why canoe paddlers disliked meeting or seeing motorcraft users in the Boundary Waters Canoe Area Wilderness (BWCAW). Adelman *et al.* found that a majority of motorcraft users perceived paddling canoeists as similar to themselves, while the majority of paddling canoeists perceived motorcraft users as dissimilar to themselves. The two groups differed on whether the BWCAW should be a kind of place generally unaffected by the presence of people, on the type of experience that should be provided at the BWCAW, and on the reasons for coming to the BWCAW. Significantly more paddlers than motorcraft users felt that the other user groups get in their way at portages, make too much noise, disturb their fishing, get in their way on the water, and take up all the good campsites. As hypothesized, paddling canoeists were reciprocating smiles and waves to motorcraft users while disliking them. More than 70 percent of the paddlers disliked meeting or seeing motorcraft users, while only 8 percent of the motorcraft users disliked meeting or seeing paddlers. Adelman *et al.* concluded that perception of similarity, perceived competition for resources, differing definitions of resources, and different motives for coming to the area are all important determinants of the level of attraction between members of these two groups, especially in the early stages of interaction.

Conflict among outdoor recreationists is partly a result of behavior evaluated as unacceptable by one party (such as making too much noise, taking the good campsites, or getting in the way at portages) and partly a result of perceived intergroup differences (such as different lifestyles, different attitudes about the environment, and basic difference in motives for coming to the site). For example, the role of intergroup differences in attitudes about the environment, feeling about the values of an area, and in motives for visiting the site are emphasized in the theory of recreational conflict proposed by Jacob and Schreyer (1981). These predispositions toward the environment can be described in terms of a person's relationship to the resource, i.e., the meanings, symbols, and attachments a visitor may assign to a specific geographical area. Although the Jacob and Schreyer (1981) work was limited to a theoretical treatment, measures of relationship to the resource factors have been developed (Williams and Roggenbuck 1989).

In this study we were interested in determining how mountain bike riders and hikers differ in the way they relate to the recreational resource. If they do differ, do individuals perceive these differences, giving rise to feelings of conflict? Alternatively, is conflict more likely to originate from some unacceptable behavior by members of one of the groups? We also explored how wilderness visitors differ from those who do not enter the wilderness on these

conflict issues. If the sources of conflict, or potential conflict, between hikers and mountain bike riders can be explained within this framework, some ideas may emerge regarding how to reduce this growing conflict.

Methods

Survey Site

The Rattlesnake National Recreation Area (RNRA) is a USDA Forest Service administered area just outside Missoula, Montana. Most of the use of the RNRA comes from the 70,000 residents of Missoula and outlying communities. The 61,000-acre National Recreation Area is characterized by high mountain streams, deep canyons, remote lakes, and some signs of previous settlements. The 33,000-acre Rattlesnake Wilderness lies within the boundary of the National Recreation Area. One primary trailhead entrance to the National Recreation Area is believed by managers to account for as much as 80 percent of the visitors who enter the area. Virtually all mountain bikes that enter the RNRA enter through this one entrance. A substantial amount of very-short-distance trips originate here, also. Although bicycling use has always existed, in recent years the volume of visitors on mountain bikes has grown rapidly, along with the technological sophistication of the bike itself. Reports of conflicts between bikers and hikers have grown in recent years, despite the fact that only a moderate amount of mountain biking is on rough trails traditionally associated with hiking. Much of the mountain bike traffic is on very wide trails that were once roads. At the time of this study there was no major bicycle management strategy in place.

Survey Method

Weekday (Monday-Thursday) and weekend (Friday-Sunday) clusters of days were selected for sampling from 1 May through 30 September 1989. Sampling occurred primarily at the main trailhead; however, on approximately one-fourth of the sample days interviewers were stationed at one of two remote trailheads that are believed to account for the majority of the remaining use entries. There were a total of thirty-six sample days during this period. On each sample day two out of three possible four-hour time blocks were randomly selected for visitor contact beginning no earlier than 0800 and ending no later than 2000.

As each visitor passed the interviewer (either entering or exiting) during the selected time block, one screening question was used to determine whether the person would be asked to participate in this study. Because nearby residents use much of the extreme lower portion near the trailhead like a local park (jogging, short walks, walking dogs, etc.), only those visitors staying a minimum of two hours were asked to participate in the study. Each was interviewed to collect basic on-site information regarding length of visit, travel destinations, and group characteristics. Each person in the group over fifteen years old was also asked if he or she would be willing to receive a mailback questionnaire at his or her home. The purpose of the questionnaire was to allow classification of visitors into the conflict groups, determine the extent of conflict expressed by members of the perceived conflict groups, and to explore potential sources of this conflict.

Measures

The extent of conflict was measured in three ways. First, each visitor had the opportunity to respond to a forced-choice question, expressing feelings on enjoyment, dislike, or neutrality toward meeting the other type of group on trails in the Rattlesnake. Mountain bike riders could also indicate if they had never met hikers on these trails, and hikers could indicate that they had never met bikers. Second, each subject was asked if "the behavior of any other individual or group interfered in any way with your enjoyment of visits to the Rattlesnake." If the respondent said yes, he or she was asked to indicate what type of group he or she attributed the behavior to and to describe the specific "behavior that interfered with your trip." Third, the respondents were asked to indicate the extent of "problems you may have run into on your visit(s) to the Rattlesnake" on a scale with points labeled "no problem at all," "a small problem," "a moderate problem," "a big problem," and "don't know." Included among these items were "too many hikers," "too many bicycles," and "bicycles traveling too fast."

It was felt that one index to RNRA visitors' attitudes about the environment would be their attachment to wilderness as a resource. Legally defined wilderness was explained briefly to respondents and an assessment of attachment to wilderness was obtained. In addition, questions that measure attachment to the RNRA were included (Williams and Roggenbuck 1989). Besides overall attachment to the Rattlesnake (feelings about the values of the area), factor analysis revealed two separate dimensions of the attachment scale, place dependence and place identity. Place dependence is the degree to which a place meets the visitor's goals better than an alternative place. Place identity is the extent that one uses the environment to create and maintain self-identity.

In addition to attachment, another aspect of relationship to the resource discussed by Jacob and Schreyer is mode of experience. Likert-scale items were used to assess the extent to which visitors focused on the setting, activity, or social aspects of the trip. These Likert items were anchored by "strongly agree" and "strongly disagree" responses. Additional modes of experience variables included trip characteristics such as group composition, group size, and length of stay.

There was an evaluation of how important various aspects of the RNRA were to the experience obtained during a visit to the area. Visitors were asked to indicate how much various social condition factors mattered to them, or influenced the quality of their recreation experiences. Responses were on a six-point Likert scale, ranging from "not at all" to "extremely important." Additional environmental orientation variables included various elements of familiarity with the RNRA, outdoor organization membership status, education level, childhood and current residence classification, occupation, income, age, and typical length of stay at sites like the RNRA.

Visitors were asked to indicate how similar they *perceived* "those who hike into the Rattlesnake and those who ride bicycles on visits" to be on eleven items. These items generally related to the relationship to the resource factors and sociodemographic questions asked of all visitors.

Visitors were classified into one of four different groups based on two variables. We were interested in, first, whether the visitor reported riding a

bicycle during this visit to the National Recreation Area and, second, whether or not the visitor entered that portion of the RNRA classified as wilderness during the trip. It was assumed that when a visitor responded that he or she entered the wilderness during the visit, and he or she also rode a bicycle, he or she rode the bicycle through the RNRA nonwilderness portion to a point near the boundary of the wilderness and then hiked into the wilderness from that point. We make this assumption because riding a bicycle into the wilderness would be a violation of the law.

Findings

Response

We mailed 296 surveys to visitors over fifteen years of age who had indicated a willingness to receive and complete the survey. Of these, three were not deliverable and two were returned but not usable. A total of 211 completed questionnaires were returned, providing an overall response rate of 73 percent. In a test for nonresponse bias, those who returned the questionnaire were compared to those who did not on six on-site questions. These questions included group type, group size, gender, length of stay, age, and number of previous visits. These two groups were not significantly different ($p < .05$) on any of these variables. One followup of supplemental questions was sent to all respondents to obtain an Overall indication of conflict and an assessment of perceived similarity between groups. Of the 211 sent out, 161 (76 percent) were returned.

Sample Characteristics

Approximately 50 percent of respondents were bicyclists and 50 percent were not. About one-third (thirty-four) of the nonbicyclists reported that they entered the wilderness portion of the RNRA during their visit and about one-third (thirty-eight) of the bicyclists similarly reported they entered the wilderness during that particular visit. Bicyclists and nonbicyclists were split approximately fifty-fifty male and female.

Conflict

As often found in recreation conflict research, there was an asymmetrical conflict relationship evident between hikers and mountain bike riders. Only one mountain bike rider indicated that he or she disliked meeting backpackers or day hikers in the Rattlesnake. On the other hand, 32 percent of the hikers who did not enter the wilderness indicated that they disliked meeting bicycles (chi-square, $p < .001$). Only 6 percent of the hikers indicated that they had never met a bicyclist in the Rattlesnake.

When asked to identify specific types of groups that interfere with enjoyment of trips to the Rattlesnake, only 9 percent of nonwilderness bicyclists and 4 percent of wilderness bicyclists cited day hikers or backpackers. Just over 23 percent of hikers attributed interference to bicyclists (chi-square, $p = .056$).

Specific interfering behaviors listed by hikers, attributable to bicyclists, were most often "traveling too fast" and "not being courteous to hikers."

Only about one-third (32 percent) of nonwilderness bicyclists and one-fourth (25 percent) of wilderness bicyclists indicated that "too many hikers" had been a problem, at some level, on trips to the Rattlesnake. In extreme contrast with this, nearly two-thirds (64 percent) of nonwilderness hikers and more than half (58 percent) of wilderness hikers indicated that "too many bicycles" or "bicycles traveling too fast" had been a problem on visits to the Rattlesnake (table 1).

**Table 1 Hiker and Bicyclist
Evaluation of Other Group as a Problem***

Group type N	Potential problem evaluated (%)	Problem		No Problem	
		N	(%)	N	(%)
Nonwilderness bicyclist	Too many hikers	14	31.8	30	68.2
Wilderness bicyclist	Too many hikers	6	25.0	18	75.0
Wilderness hiker	Bicycles traveling too fast or too many bicycles	15	57.7	11	42.3
Nonwilderness hiker	Bicycles traveling too fast or too many bicycles	30	63.8	17	36.2

*Chisquare=15.3 3df,p=.002.

Perceived Similarities

When an overall index of perceived similarity between hikers and mountain bikers was calculated (5=strongly agree, 1=strongly disagree), an analysis of variance revealed significant differences in mean scores for the four groups (table 2). The wilderness bicyclists indicated strong beliefs that the two groups were similar, while the hikers, particularly the wilderness hikers, were least likely to agree that the two groups were similar. When the individual items were examined, differences were found on beliefs about similarities in types of places they live, lifestyles, types of jobs they have, levels of education, the income they receive, attitudes they have about the environment, and feelings about the values of the area (ANOVA, pg.10) (table 2). In all cases the wilderness biker registered the strongest agreement with these similarity questions, differing significantly from one or both hiker groups in every case and quite often differing from the bicyclists who did not enter the wilderness.

Relationship to the Resource

The degree of attachment to the wilderness resource was very high for each of the four groups studied. Significant differences existed between the groups based upon whether or not they entered the wilderness but not based upon

**Table 2 Hiker and
Bicyclist Perceived Similarity Scores'**

Item Grouping ¹	Wilderness		Nonwilderness		PR>F	
	biker	hiker	biker	hiker		
	A	B	C	D		
Overall index		43.236.8	39.0	38.4	.049	
A>B,C,D						
Types of places they live	4.3	3.8	3.9	3.6	.026	A>B,C,D
Lifestyles	4.0	3.5	3.8	3.4	.083	A>B,D
Types of jobs	4.0	3.4	3.7	3.4	.041	A>B,D
Levels of education	4.2	3.4	3.8	3.4	.008	
A>B,C,D						
Age	3.5	3.0	3.0	3.3	.330	
Income	3.8	3.1	3.0	3.3	.005	
A>B,C,D						
Types of places they grew up	3.8	3.5	3.3	3.4	.163	
Distance traveled to get there	3.8	3.4	3.3	3.6	.123	
Reasons for coming	3.8	3.3	3.9	3.7	.118	
Attitudes about the environment	3.93.2	3.7	3.5	3.5	.085	A>B
Feelings about the values of the area	4.0	3.3	3.7	3.6	.0775	A>B

¹ 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly agree.

² Grouping by Student-Newman-Keuls test, p<.10.

³ Overall index is an additive scale which includes all items.

whether or not they rode bicycles (table 3). A look at the other relationship to the resource scales designed to assess attachment to the RNR A revealed slightly lower attachment values generally with some variation explained by group membership for only one of the items. For place dependence the two groups who reported riding bicycles revealed greater attachment of this sort to the place (mean=3.3) than for the hikers of the study (mean=3.0). No differences were evident based upon whether or not they entered the wilderness.

Mode in Which Individual Experiences the Environment

The four groups demonstrated some differences in the mode in which they experienced the environment. Generally, the scores calculated from the Likert scales were again quite high. It was found that the bicyclists who remained outside the wilderness boundary reported significantly less focus on the setting than did the other three groups (ANOVA, p=.003). The groups who did not enter the wilderness exhibited significantly lower scores than the wilderness groups (p=.009) on activity focus. The extent of focus on social aspects of the trip did not differ significantly across the four groups. Generally, setting focus scores appeared highest of the three focus score for each group.

Other mode of experience factors examined included group size, group type, and length of stay. Group size did differ across the groups (chi-square, p<.05). The evident differences included an increased chance for bicyclists who

Table 3 Relationship to the Resource Factors*

Item Grouping*	Wilderness biker		Nbnwilderness hiker		PR>F
	A	B	C	D	
Attitudes about the environment					
Attachment to the wilderness resource A,B>C,D	4.1	4.2	3.7	3.7	.002
Feelings about the values of the area					
Place identity	3.3	3.1	3.3	3.1	.434
Place dependence A,C>B,D	3.3	2.9	3.4	3.0	.014
Place attachment	3.4	3.2	3.4	3.1	.177
Reasons for coming (mode of experience)					
Setting focus A,B,D>C	3.9	3.9	3.5	3.8	.003
Activity focus A,B>C,D	3.6	3.7	3.4	3.3	.009
Social focus	3.5	3.7	3.5	3.7	.366

* Comparative scores based on mean response to 5-point Likert scales anchored by strongly agree (5) and strongly disagree (1).
^b Groupings based on Student-Newman-Keuls, p<.10.

entered the wilderness to travel alone or in groups larger than four. The hikers were more likely to be in groups of two or three people, as were the bicyclists who did not enter the wilderness. Accordingly, the bicyclists who entered the wilderness more often described his or her group as "alone" and the hikers who did not enter the wilderness were more likely to be in a family group than the other users were (chi-square, p=.012). Length of stay did vary significantly across the four groups (ANOVA, p<.001). There were basically three divisions in length of stay. Wilderness hikers had the highest mean (28.6 hours), followed by wilderness bikers (11.8 hours). These two groups were significantly different from each other and from both nonwilderness groups. The two nonwilderness groups were not significantly different from each other at around 5.5 to 6 hour means.

Environmental Orientation

The groups differed significantly in only a few social and physical condition factors posed to them. For this analysis responses were divided into two groups. Those responding in the two highest response categories (the item matters very much or an extreme amount in achieving quality recreation experiences) made up one group and all other legitimate responses made up the comparison group. The groups differed as follows. (1) Hikers who entered the wilderness were more likely to report the number of groups of people encountered along the trail was an important factor (chi-square, $p=.010$). (2) Bicyclists who entered the wilderness were less likely to report that the number of *large* groups encountered along the trail each day affected their recreation experiences (chi-square, $p=.012$). (3) Bicyclists who entered the wilderness were also less likely to report that noise originating inside the RNR A mattered to them (chi-square, $p=.007$) or that the number of visible campfire rings influenced their recreation experience ($p=.015$).

There were no differences between any of the groups on age, number of previous visits, years since the first visit to the RNRA, visits per year to the site, number of wilderness areas they had visited, years since they first visited a wilderness, number of visits per year to wilderness, whether or not they belong to conservation organizations (33 percent do), education, income, kind of place they grew up in and live now, and occupation.

Implications

Maybe the most important finding to be reported to managers of areas like the Rattlesnake is simply the proportion of hikers who express feelings of conflict toward bicyclists. With the typical forced-choice question, between 30 and 37 percent indicated that they did not like meeting bicycles on trails in the Rattlesnake. Wilderness hikers had the highest number of individuals who did not like meeting bicycles in the Rattlesnake, but not a significantly larger percentage than hikers in the nonwilderness portion of the Rattlesnake. This asymmetrical relationship is not of the magnitude that may have been anticipated given the findings in previous recreational conflict research. When managers receive complaints about bicycles in the Rattlesnake they now have a notion of the percentage of the hikers who feel similarly. Because a substantial amount of bicycle use in the RNRA is on old roads, these percentages could be higher in areas where a greater amount of use is on narrow trails.

Identifying specific individual or group behavior that diminished visitor experiences was a difficult task for visitors. Only about 20 percent of the hikers could specify bicyclist behavior that interfered with their enjoyment.

Many of those who had not reported disliking meeting the conflicting group on the trails still felt the opposing group was a problem. This is a slightly different aspect of conflict. This response suggests that there are more mountain bike riders who feel that there are too many hikers in the area than there are mountain bike riders who dislike meeting hikers in the area or who feel that hikers diminish the quality of their visits. This is also true for hikers evaluating the extent of

problems associated with bicycles. Although visitors conclude that the other group is often a problem of varying magnitude, the problems do not always affect the recreational experience and do not lead to specification of objectionable behavior.

When visitors were asked how similar they perceive bicycle riders and hikers to be, bicyclists who entered the wilderness exhibited slightly stronger perceptions of similarity than the other groups. Interestingly enough, the wilderness hiker was usually the group that felt the least similarity to bicyclists. Specific factors in which wilderness bicyclists exhibited significantly stronger similarity belief scores include the type of place they live, lifestyle, occupation, levels of education and income, attitudes about the environment, and values of the area. On most of these items the perceptions held by the wilderness bicyclist are very accurate. The mountain bike riders and hikers are hardly distinguishable on these factors.

Real differences between the groups, however, were few and did not follow the patterns of perceived dissimilarity. Mountain bike riders and hikers who entered the wilderness were similar in environmental attitude and activity focus. Of all groups, bicyclists who remained outside the wilderness focussed least on the setting. The only clearly distinguishing point between mountain bike riders and hikers was the extent to which the two groups were dependent upon the Rattlesnake for the activities they like to participate in. The bicyclists were significantly more dependent on this alternative.

There are many options being discussed and tried which offer potential for managing mountain bikes (Keller 1990). The findings of this study suggest that a light-handed technique, such as education, offers potential to at least partially manage the conflict expressed over mountain bike use. Bicyclists need to become more aware that some of them are exhibiting behaviors that diminish the recreational experience of hikers and that nearly two-thirds of the hikers view this as a problem that needs to be addressed. Commonly cited is failure to slow down when meeting hikers, which is perceived as dangerous and discourteous. Johnson and Swearingen (1988) concluded that visitors to a national park who were engaging in behavior that violated the norms of the general visitor population were often unaware of the harmfulness of their behavior and did not perceive excessive impacts due to their behavior. This may be the case with many mountain bike riders. Although education is being suggested as one means to reduce what hikers term "problem behavior," Swearingen and Johnson (1990) point out that there will likely remain the noncompliant visitor who is more likely to be motivated by direct management strategies than by altruistic appeals. While new mountain bike management strategies at the Rattlesnake NRA are based upon rider education, promotion of low-impact riding techniques, and public service programs such as trail building and maintenance (Baker 1990), regulations and enforcement may be required to assure resource protection due to the behavior of a small percentage of visitors who do not respond to the educational effort. In the event that some direct management measure is determined necessary, it is highly likely that hikers and compliant bicyclists will support these regulations to change the behavior of the noncompliant minority.

Another light-handed effort that might reduce conflict would be to educate hikers about the possibility of meeting bicyclists in the RNRA and what to expect from these encounters. Managers might also correct some of the misperceptions regarding how the groups differ. The mountain bike riders and hikers, particularly those who go to the Rattlesnake to visit the wilderness, have more in common than the hikers realize. The bicyclists seem to be more aware of the similarities, probably because they are basically hikers who are using the bicycles to gain quicker access to the wilderness boundary. But their interest in the setting and attachment to the wilderness resource are similar to those wilderness visitors who do not use a bicycle to gain quick access. Mountain bike riders are also more likely to be hikers at other times than hikers are to be bicyclists.

Information that is currently lacking for such an educational program and could benefit from future research is the extent of crossover between bicycle riding and hiking. Our perception is that the bicycle riders and hikers who did not go into the Rattlesnake Wilderness, while less attached to the wilderness, are also less specialized users of the area and that as (or if) they progress toward a deeper appreciation of the natural environment, the more similar they will become to the current wilderness users in this area. There is also a need for better understanding of how visual evidence of mountain bike impacts influences both the quality of hiker experiences and feelings of conflict.

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