
Research Note

Clarifying Interpersonal and Social Values Conflict among Recreationists

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Recreation conflict has been examined relative to interpersonal (i.e., goal interference) conflict and differences in social values. Although this distinction is useful, prior methodologies for operationalizing the two concepts can result in a confound where individuals in the interpersonal conflict category could be expressing goal interference, social values, or both types of conflict. This research note: (a) clarifies the conceptual distinction by incorporating an additional variable that sorts respondents into the most appropriate conflict categories, and (b) uses a multivariate approach to provide an overall evaluation of the magnitude of each type of conflict. Data were obtained from on-site surveys of cross-country skiers ($n = 264$) and snowmobilers ($n = 203$) at two Colorado locations. Consistent with previous research, an asymmetrical relationship was found between skiers and snowmobilers, with skiers experiencing more conflict. Cluster analyses of six conflict items indicated that 36% of skiers reported no conflict, 30% noted a conflict in social values, and 34% experienced interpersonal conflict. By comparison, 81% of snowmobilers indicated no conflict, 0% social values conflict, and 19% interpersonal conflict. Few respondents expressed both interpersonal and social values conflict. Whether these levels of conflict are acceptable or unacceptable depends on management objectives and desired outcomes.

KEYWORDS: *Interpersonal conflict, social values, recreation conflict, skiers, snowmobilers.*

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Introduction

Researchers have analyzed recreation conflict for over four decades (e.g., Graefe & Thapa, 2004; Lucas, 1964). Although most researchers have examined interpersonal (i.e., goal interference) conflict (e.g., Jacob & Schreyer, 1980; Schneider, 2000), others have introduced and explored social values (i.e., social acceptability) conflict (Carothers, Vaske, & Donnelly, 2001; Vaske, Donnelly, Wittmann, & Laidlaw, 1995). Previous methodologies for defining interpersonal and social values conflict, however, can lead to a confound. Respondents categorized as experiencing interpersonal conflict may be expressing goal interference, social values, or both types of conflict. This research note offers methodological enhancements that: (a) clarify the conceptual distinction by sorting respondents into the most appropriate categories (i.e., no conflict, social values, interpersonal, or both), and (b) provide a multivariate evaluation of each type of conflict.

Conceptual and Measurement Distinctions

Interpersonal conflict occurs when the presence or behavior of an individual or group interferes with the goals of another individual or group (Jacob & Schreyer, 1980). A skier, for example, may experience interpersonal conflict if he or she is cut off by or collides with a snowboarder (Vaske, Dyar, & Timmons, 2004). Most recreation research has focused on interpersonal conflict between different activity groups such as non-motorized and motorized watercraft (Lucas, 1964; Shelby, 1980), skiers and snowboarders (Thapa & Graefe, 2003; Vaske, Carothers, Donnelly, & Baird, 2000; Vaske et al., 2004), hikers and mountain bikers (Carothers et al., 2001; Ramthun, 1995), hunters and non-hunters (Vaske et al., 1995), and cross-country skiers and snowmobilers (Jackson & Wong, 1982; Knopp & Tyger, 1973).

Various approaches have been used to measure interpersonal conflict (Watson, 1995). Some studies, for example, examined the extent to which visitors found encounters with others to be desirable or undesirable (e.g., Watson, Nicolucci, & Williams, 1994). Interpersonal conflict has also been described as the direct competition over resources (Devall & Harvey, 1981) or physical incompatibilities among groups (Bury, Holland, & McEwen, 1983). A more direct measure has examined the extent to which an encounter interferes with one's enjoyment (Watson, Williams, & Daigle, 1991). These approaches, however, suggest that conflict stems from problems associated with a given recreation experience.

Social values conflict occurs between groups who may not share similar norms/values about an activity (Ruddell & Gramann, 1994; Vaske et al., 1995). Unlike interpersonal conflict, social values conflict is defined in the literature as conflict that can occur even when there is no direct contact between the groups (Carothers et al., 2001). For example, although encounters with llama packing trips may be rare, individuals may philosophically disagree about the appropriateness of using these animals in the backcountry (Blahna, Smith, & Anderson, 1995).

A study at Mt. Evans, Colorado examined the distinction between interpersonal and social values conflict (Vaske et al., 1995). Interpersonal conflict between hunters and wildlife viewers was minimized due to the region's topography and management regulations separating the two activity groups. Conflict experienced between the groups was primarily attributed to differences in value orientations regarding the appropriateness of hunting and wildlife viewing. Nearly all of the non-hunters did not observe hunting-associated behaviors (e.g., see hunters, see animals be shot), yet still perceived social values conflict with hunters. Carothers et al. (2001) examined interpersonal and social values conflict among mountain bikers and hikers. Hikers were more likely to report both interpersonal and social values conflict than bikers.

In these investigations, perceived conflict was operationalized by combining responses from two sets of questions. First, individuals indicated how frequently events happened to them during their visit. In the Mt. Evans study (Vaske et al., 1995), events included three non-hunting (see people feed wildlife, disturb/harass wildlife, and see dogs chase wildlife) and three hunting situations (see hunters, hear guns being fired, and see animals be shot). Responses were analyzed as "observed" (i.e., at least once) or "did not observe" the event (i.e., never saw). Second, respondents evaluated the extent to which they perceived each event to be a problem. Items were coded on a scale from "not a problem" to "extreme problem." For analysis purposes, responses were recoded into two categories ("no problem" or "problem").

Combining the frequency of occurrence (observed, not observed) variables with the corresponding perceived problem (no problem, problem) variables for each respondent produced conflict typologies with three possible attributes (Figure 1). Individuals who observed or did not observe a given event, yet did not perceive it to be a problem were considered to have experienced no conflict (i.e., no interpersonal or social values conflict). Those who never saw a given event, but believed that a problem existed for the event were considered to be expressing a conflict in social values. Conversely,

		Perceived Problem	
		No	Yes
Observed	No	No Conflict	Social Values Conflict
	Yes	No Conflict	Interpersonal Conflict

Figure 1. Conflict evaluation table. (Adapted from Vaske et al. (1995)).

those who witnessed a particular event and believed that it had caused a problem were judged to be indicating interpersonal conflict.

These procedures used to operationalize "no conflict" and "social values conflict" are conceptually clear (Carothers et al., 2001; Graefe & Thapa, 2004; Vaske et al., 1995). If recreationists do not consider a situation/event to be a problem, regardless of whether or not it is observed, no conflict is apparent. If an individual does not observe an existing situation, but believes that it is problematic, the conflict stems from his or her social values. Conceptual problems, however, may arise when differentiating interpersonal from social values conflict using prior methodologies. People who observe a situation/event *and* judge it to be a problem may be expressing interpersonal, social values, or both types of conflict. This research note uses data from skiers and snowmobilers to directly address this limitation by segmenting respondents in the interpersonal conflict category according to their agreement (or disagreement) with the statement "just knowing that skiers (or snowmobilers) are in the area bothers me."

Research (see Graefe & Thapa, 2004 for review) has examined respondents' evaluations of several conflict situations/events (e.g., discourteous behavior, not yield right of way) and classified respondents into conflict groups (i.e., no conflict, interpersonal, social values) for each individual situation. Multiple indicators allow a more complete understanding of recreation conflict (Schneider, 2000). Managers, however, are often interested in knowing the overall proportion of respondents experiencing no conflict, interpersonal conflict, or social values conflict with another activity (not individual situations/events) to guide management actions such as education and zoning (Graefe & Thapa, 2004). For researchers, knowing the aggregate proportion of respondents in each category would facilitate comparisons among activities and resources. This research note offers a multivariate approach for evaluating the overall proportion of each type of conflict. This note empirically addresses two research questions. First, to what extent are respondents in the interpersonal conflict category expressing interpersonal conflict, social values conflict, or both types of conflict? Second, can a multivariate approach be useful for segmenting respondents according to the type of conflict, if any, that they experienced?

Methods

Study Areas

Data for this study were obtained from cross-country skiers and snowmobilers at two locations. First, Wolf Creek Pass is located in southwest Colorado in the San Juan/Rio Grand National Forest. Nearly all users were day visitors (Cline Jr., 2004). A task force of interest groups and managers was established in January 2002 to develop guidelines for managing potential conflict between skiers and snowmobilers. Some zoning restrictions were imposed on snowmobile access (e.g., prohibited in bowls, off trails, in undesig-

nated areas) in an attempt to reduce interaction between the two activity groups. Signs were posted to implement the guidelines.

Second, Vail Pass is located in central Colorado in the White River National Forest. Similar to Wolf Creek, Vail Pass can be considered a front-country setting that caters to skiers and snowmobilers. Unlike Wolf Creek, however, Vail Pass is a fee-operated area requiring recreationists to pay an entrance fee. Currently, there are no access restrictions at this location.

Data Collection

At each study area, on-site surveys were distributed on randomly selected days during the winter of 2002-2003 at parking lots frequented by skiers and snowmobilers. All cross-country skiers and snowmobilers visiting these locations on the designated days were asked to complete the survey after their recreation experience. Two versions of the survey were developed, one for skiers and one for snowmobilers. The version that respondents completed was based on the activity in which they had participated on the day that they were surveyed. Completed surveys were obtained from 160 skiers and 83 snowmobilers at Wolf Creek, and 104 skiers and 120 snowmobilers at Vail Pass. The combined sample size from both locations was 467 (response rate = 96%). Ancillary analyses (i.e., *t*-tests, χ^2 tests) comparing Wolf Creek and Vail Pass respondents revealed statistical equivalency in their survey responses so the data from the two areas were aggregated.

Analysis Variables and Strategy

Activity (skier, snowmobiler) was the independent variable. Only six snowmobilers and 24 skiers participated in the other activity. Deleting these 30 dual-sport participants did not change the findings, thus all respondents were retained in the analyses.

Consistent with past research (Carothers et al., 2001; Vaske et al., 1995), respondents were first asked how frequently they had observed selected situations/events. Skiers were asked how frequently they had: (a) heard snowmobiles, (b) smelled snowmobile exhaust, (c) saw snowmobilers riding out of control, (d) saw snowmobilers riding too fast, (e) saw snowmobilers being rude/discourteous, (f) saw snowmobilers pass too closely, (g) saw snowmobilers not yielding the right of way, and (h) saw snowmobilers disturb wildlife. With the exception of the first two items, snowmobilers were asked the same set of questions about skiers. Response categories were "never," "1-2 times," "3-5 times," and "almost always." For analysis purposes and consistent with past research (Carothers et al., 2001; Vaske et al., 1995), responses were recoded as "observed" (i.e., at least once) or "did not observe" the event (i.e., never experienced event).

Respondents were then asked if they believed that each of these events was a problem. Responses were coded on a 4-point scale from "not a problem" to "extreme problem." For analysis purposes and consistent with past

research (Carothers et al., 2001; Vaske et al., 1995), variables were recoded into two categories (“no problem” or “problem”).

Similar to previous research, combining the frequency of occurrence (observed, not observed) variables with the corresponding perceived problem (no problem, problem) variables for each respondent produced conflict typologies with the three possible attributes: (a) no conflict, (b) interpersonal conflict, and (c) social values conflict. This approach assumes that individuals witnessing an event/situation *and* evaluating it as problematic experienced only interpersonal conflict and not social values conflict. To test this assumption and address the first research question, respondents in the interpersonal conflict cell (Figure 1) were classified further based on their agreement with the statement “just knowing that snowmobilers (or skiers) are in the area bothers me.” Individuals who were initially identified as having interpersonal conflict, yet agreed that just knowing snowmobilers (or skiers) were in the area bothered them, were reclassified as having *both* interpersonal and social values conflict (Figure 2). Respondents who disagreed with this statement were considered to be reporting only interpersonal conflict.

This analysis strategy resulted in six situations/events (e.g., passing too close, out of control) common to both activities where respondents were described as having: (a) no conflict, (b) interpersonal conflict, (c) social values conflict, or (d) both interpersonal and social values conflict for each event. To address the second research question, separate K-Means cluster

		Perceived Problem	
		No	Yes
Observed	No	No Conflict	Social Values Conflict
	Yes	No Conflict	Interpersonal and Social Values Conflict ¹
			Interpersonal Conflict ²

¹ Individuals in this cell indicated that they observed a given situation, perceived that situation to be a problem, and *agreed* with the statement “just knowing that skiers (or snowmobilers) are in the area bothers me.”

² Individuals in this cell indicated that they observed a given situation, perceived that situation to be a problem, and *disagreed* with the statement “just knowing that skiers (or snowmobilers) are in the area bothers me.”

Figure 2. Revised conflict evaluation table.

analyses were conducted on the six variables for skiers and snowmobilers to obtain an overall view of the total proportion of respondents in each activity experiencing each type of conflict.

Results

In total, 42% of cross-country skiers observed snowmobilers riding out of control; only 27% of snowmobilers saw skiers out of control (Table 1). Similarly, 52% of skiers saw snowmobilers riding too fast; only 25% of snowmobilers reported seeing skiers going too fast. This pattern occurred for five of six variables where comparisons were possible. Statistical differences, however, were only noted for three of these six situations/events: (a) riding/skiing out of control, (b) riding/skiing too fast, and (c) disturbing wildlife ($\chi^2 \geq 10.41$, $df = 1$, $p < .001$).

A similar asymmetrical pattern emerged for the perceived problem situations/events (Table 2). For the six variables where comparisons were pos-

TABLE 1
Observed Skier and Snowmobiler Behavior at Wolf Creek and Vail Pass

	Skiers (%)	Snowmobilers (%)	χ^2	<i>p</i> -value	Cramer's <i>V</i>
Hearing snowmobiles					
Never	7	—	—	—	—
One or more times	93	—			
Smelling snowmobile exhaust					
Never	23	—	—	—	—
One or more times	77	—			
Riding/Skiing out of control			10.41	< .001	.152
Never	58	73			
One or more times	42	27			
Riding/Skiing too fast			33.59	< .001	.273
Never	48	75			
One or more times	52	25			
Being rude and discourteous			3.54	.060	.089
Never	65	73			
One or more times	35	27			
Passing too close			0.16	.194	.162
Never	63	69			
One or more times	37	31			
Not yielding right of way			0.23	.681	.023
Never	69	67			
One or more times	31	33			
Disturbing wildlife			11.61	< .001	.162
Never	78	91			
One or more times	22	9			

TABLE 2

Perceived Skier and Snowmobiler Problem Behavior at Wolf Creek and Vail Pass

	Skiers (%)	Snowmobilers (%)	χ^2	<i>p</i> -value	Cramer's <i>V</i>
Hearing snowmobiles					
No problem	25	—	—	—	—
Problem	75	—			
Smelling snowmobile exhaust					
No problem	24	—	—	—	—
Problem	76	—			
Riding/Skiing out of control			66.97	< .001	.390
No problem	39	78			
Problem	61	22			
Riding/Skiing too fast			85.69	< .001	.440
No problem	34	78			
Problem	66	22			
Being rude and discourteous			30.24	< .001	.261
No problem	46	72			
Problem	54	28			
Passing too close			45.32	< .001	.320
No problem	43	75			
Problem	57	25			
Not yielding right of way			15.83	< .001	.189
No problem	49	68			
Problem	51	32			
Disturbing wildlife			100.29	< .001	.478
No problem	43	89			
Problem	57	11			

sible, skiers experienced substantially more problems than snowmobilers did. Between 51% and 66% of skiers rated snowmobilers' behaviors as problematic. Comparable evaluations among snowmobilers ranged from 11% to 32%. All relationships were statistically significant ($\chi^2 \geq 15.83$, $df = 1$, $p < .001$). The Cramer's *V* effect sizes ranged from .19 to .48. Using guidelines from Cohen (1988) and Vaske, Gliner, and Morgan (2002), these effect sizes suggest "medium"/"typical" to "large"/"substantial" differences between skiers and snowmobilers.

Conflict evaluations were operationalized by combining each individual's responses to the questions in Tables 1 and 2. Reported conflict was consistently higher among cross-country skiers than snowmobilers (Table 3). Between 68% and 89% of snowmobilers experienced no conflict. Conversely, across all situations/events, over half of skiers reported some form of conflict with snowmobilers. The type of conflict reported (i.e., interpersonal, social values, or both) varied among skiers' evaluations. For "riding out of control," "rude and discourteous behavior," "passing too closely," and "not yielding

TABLE 3
*Perceived Conflicts Reported by Skiers and Snowmobilers at Wolf Creek
 and Vail Pass*

	Skiers (%)	Snowmobilers (%)	χ^2	<i>p</i> -value	Cramer's <i>V</i>
Hearing snowmobiles			—	—	—
No conflict	25	—			
Interpersonal conflict	53	—			
Interpersonal & social values	20	—			
Social values conflict	2	—			
Smelling snowmobile exhaust			—	—	—
No conflict	24	—			
Interpersonal conflict	51	—			
Interpersonal & social values	19	—			
Social values conflict	6	—			
Riding/skiing out of control			77.60	< .001	.407
No conflict	39	78			
Interpersonal conflict	26	15			
Interpersonal & social values	12	2			
Social values conflict	23	5			
Riding/skiing too fast			97.68	< .001	.457
No conflict	34	79			
Interpersonal conflict	43	10			
Interpersonal & social values	7	6			
Social values conflict	16	5			
Being rude and discourteous			48.20	< .001	.317
No conflict	46	72			
Interpersonal conflict	21	20			
Interpersonal & social values	11	2			
Social values conflict	22	6			
Passing too closely			53.21	< .001	.337
No conflict	43	75			
Interpersonal conflict	25	17			
Interpersonal & social values	11	3			
Social values conflict	21	5			
Not yielding the right of way			37.12	< .001	.279
No conflict	49	68			
Interpersonal conflict	20	24			
Interpersonal & social values	10	3			
Social values conflict	21	5			
Disturbing wildlife			108.76	< .001	.477
No conflict	43	89			
Interpersonal conflict	14	4			
Interpersonal & social values	8	1			
Social values conflict	35	6			

the right of way," responses were generally evenly distributed between interpersonal and social values conflict. Between 20% and 25% of skiers' evaluations were in either of these two categories. For other situations, (e.g., hearing snowmobiles, smelling exhaust), the majority of conflict was interpersonal. Conflicts that included *both* interpersonal and social values accounted for 7% to 20% of skiers' responses and 1% to 6% of snowmobilers' responses. Among the six situations/events where comparisons were possible, type of conflict was significantly different between skiers and snowmobilers ($\chi^2 \geq 37.12$, $df = 3$, $p < .001$). These differences were "medium"/"typical" to "large"/"substantial" ($V = .28$ to $.48$; Cohen, 1988; Vaske et al., 2002).

The cluster analyses provided a multivariate perspective of conflict (Table 4). For each activity (skiers, snowmobilers), cluster analyses were performed for 2, 3, and 4 group solutions. The 3-group solution provided the best fit for skiers; the 2-group solution fit the data best for snowmobilers (e.g., only one individual in the third snowmobiler cluster). To confirm these solutions, the data were randomly sorted three times and cluster analyses were conducted after each sort. These analyses supported the two (snowmobilers) and three (skiers) group solutions.

TABLE 4
Cluster Analyses of Skier and Snowmobiler Conflict Evaluations

	Final cluster centers ¹			χ^2	Cramer's V
	Cluster 1	Cluster 2	Cluster 3		
Skier evaluations of snowmobilers	$n = 83$	$n = 79$	$n = 68$		
Riding out of control	No Conflict	Interpersonal	Social Values	287.17	.778
Riding too fast	No Conflict	Interpersonal	Social Values	278.49	.778
Rude and discourteous	No Conflict	Interpersonal	Social Values	238.64	.720
Passing too closely	No Conflict	Interpersonal	Social Values	278.43	.778
Not yielding the right of way	No Conflict	Interpersonal	Social Values	289.12	.793
Disturbing wildlife	No Conflict	Interpersonal	Social Values	179.60	.625
Snowmobiler evaluations of skiers ²	$n = 140$	$n = 22$			
Skiing out of control	No Conflict	Interpersonal	—	110.41	.779
Skiing too fast	No Conflict	Interpersonal	—	121.66	.818
Rude and discourteous	No Conflict	Interpersonal	—	49.62	.552
Passing too closely	No Conflict	Interpersonal	—	126.54	.834
Not yielding the right of way	No Conflict	Interpersonal	—	76.53	.648
Disturbing wildlife	No Conflict	Interpersonal	—	30.59	.410

¹All chi-squares were statistically significant at $p < .001$.

²Given that the three-cluster solution for snowmobiler evaluations of skiers resulted in only one individual in the third cluster, the two-cluster solution was used to describe the sample. The cluster analyses did not reveal a clear group of skiers or snowmobilers that reported *both* interpersonal and social values conflict.

Among skiers, the first cluster of individuals ($n = 83$) did not express any conflict. Skiers in cluster 2 ($n = 79$) consistently indicated interpersonal conflict and those in cluster 3 ($n = 68$) consistently expressed social values conflict. For snowmobilers, 140 respondents were in the no conflict group and 22 were in the interpersonal conflict cluster (Table 4). Overall, 81% of snowmobilers did not experience any conflict and 19% experienced interpersonal conflict (Table 5). Among skiers, 36% were in the no conflict category, 34% of the conflict was attributed to interpersonal interactions, and 30% involved differences in social values regarding snowmobiling. Although a few respondents (1%-20%) expressed *both* interpersonal and social values conflict for each specific situation/event (e.g., passing too close, out of control; Table 3), the cluster analyses did not reveal a clear group among the total proportions of skiers and snowmobilers that expressed both types of conflict (Tables 4 and 5, Figure 2).

Discussion

This research note showed that skiers experienced more conflict than snowmobilers, as 64% of skiers reported some form of conflict (e.g., interpersonal, social values) compared to only 19% of snowmobilers. Skiers experienced more social values (30%) and interpersonal (34%) conflict than snowmobilers did (0% and 19%, respectively). Although these findings would have been predicted by past research (see Graefe & Thapa, 2004 for review), the juxtaposition of the relative impact of interpersonal and social values extends the conflict literature in three ways.

First, unlike previous work (Carothers et al., 2001; Vaske et al., 1995), individuals in the interpersonal conflict category were segmented further according to their agreement with the statement "just knowing that skiers (or snowmobilers) are in the area bothers me." Findings showed that 1% to 20% of respondents expressed *both* interpersonal and social values conflict for each of the individual conflict situations/events (e.g., passing too close, out of control). Overall, however, the cluster analyses of these conflict indicators did not show a clear group of skiers or snowmobilers that reported

TABLE 5
Overall Proportion of Perceived Conflict by Skiers and Snowmobilers

Type of Conflict ¹	Skier Evaluations of Snowmobilers (%)	Snowmobiler Evaluations of Skiers (%)
No conflict	36	81
Interpersonal conflict	34	19
Social values conflict	30	0

¹The cluster analyses did not reveal a clear group of skiers or snowmobilers that reported *both* interpersonal and social values conflict (see Table 4).

both types of conflict. Perhaps this finding is partially related to the activities examined. Among snowmobilers, for example, most reported no conflict and few expressed social values conflict so it is not surprising that the cluster analysis did not yield a separate group that experienced both types of conflict. It remains a question of future research to determine the extent to which data from other activity groups (e.g., hunters, wildlife viewers, hikers) are consistent with those reported here.

Respondents in the interpersonal conflict category were classified further by whether they were "bothered" that skiers or snowmobilers were in the study areas. This approach should be viewed as a starting point for examining the extent to which recreationists may be expressing both interpersonal and social values conflict. It is debatable, however, whether this terminology adequately captures the type, intensity, and duration of conflict. Further research is needed using single (as done here) or multiple items to segment respondents in the interpersonal conflict category, and whether alternative techniques provide similar results to those observed here.

Second, research exploring interpersonal and social values conflict has explored a range of potential conflict indicators. Given the complexities of understanding conflict (Graefe & Thapa, 2004), researchers should continue to include multiple indicators of potential problem situations, as was done here. What distinguishes this study from earlier work (e.g., Carothers et al., 2001; Vaske et al., 1995) is the cluster analyses of the conflict indicators. Findings provided a differentiation of the overall proportion of participants in each activity (skiers, snowmobilers) that experienced no conflict, interpersonal, social values, or both types of conflict. Overall results for these types of conflict (i.e., Table 5) can be communicated to managers more readily than more complex findings (i.e., Table 3). Examination of particular conflict indicators, however, is still important because it identifies specific problems that may warrant management attention.

Third, although generalizing findings from only a few studies of interpersonal and social values conflict can be risky, the data are beginning to present a picture of how these concepts may influence recreation conflict. In the Mt. Evans study of hunters and non-hunters (Vaske et al., 1995), nearly all of the conflict was attributed to differences in value orientations regarding hunting and wildlife viewing. Only limited interpersonal conflict was observed. In contrast, Carothers et al. (2001) found interpersonal conflict was the primary source of discord among hikers and mountain bikers. The lack of social values conflict between hikers and mountain bikers was attributed to similarities in the two groups' value orientations and demographic profiles. Findings for skiers and snowmobilers presented here fall somewhere between these two extremes. Approximately one-third of skiers expressed a conflict in social values and another third indicated interpersonal conflict. Among snowmobilers, there was no social values conflict and limited interpersonal conflict with skiers.

Perhaps the extent of interpersonal and social values conflict may lie on a continuum. If two or more activity groups differ substantially in their value orientations (e.g., hunters, non-hunters), social values conflict may likely

dominate. When recreationists share similar values (e.g., hikers, mountain bikers), interpersonal conflict may likely be the major determinant of conflict. If, as in this research note, the group's share certain common goals (e.g., winter recreation), but differ in the mode by which they experience the setting (e.g., non-motorized, motorized), interpersonal and social values conflict may be influential. The extent to which this potential "conflict continuum" generalizes to other activities requires empirical examination.

Whether conflict between cross-country skiers and snowmobilers has reached unacceptable levels at Wolf Creek and Vail Pass depends on standards that managers may use for evaluating the situation. If the management objective is 0% conflict, a problem situation exists. If management is willing to tolerate 50% of visitors reporting some form of conflict, results suggest that a problem situation may not exist for snowmobilers, but may exist for skiers.

Two general strategies have been recognized for dealing with conflict: (a) zoning, and (b) education (Graefe & Thapa, 2004; Schneider, 2000; Vaske et al., 1995). When conflict stems from interpersonal conflict, zoning incompatible users to different locations may be effective. When the source of conflict is a difference in values, education may be required. At Wolf Creek, zoning restrictions have been imposed on snowmobiles. Findings presented here show that skiers still expressed either interpersonal or social values conflict. Further restrictions may mitigate interpersonal conflict, but will not likely resolve conflict driven by differences in social values.

One management option is to prohibit snowmobiles from this area and develop a "snowmobiler only" area at another location. Such a severe action may be met with resistance from snowmobilers. An alternative and less extreme strategy would involve working with skiers and snowmobilers to explore ways to minimize problem situations. Educating skiers could highlight technological improvements in snowmobiles that reduce noise and exhaust, two major complaints identified in this study. Managers could require snowmobiles to have the latest technology installed and explain types of behaviors (e.g., ride too fast/out of control, not yield right of way) likely to create conflict. Monitoring these requirements, however, is a management challenge. In addition, any of these management alternatives will require a concerted effort by all involved interest groups (e.g., USDA Forest Service, Backcountry Snowsports Alliance, cross-country skiers, snowmobilers). Finally, research including panel/longitudinal designs is needed to determine the extent to which these and other potential management strategies (e.g., speed restrictions, directional trails) may effectively address conflict between these activity groups.

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