

Visitors and Managers: Differing Evaluations Concerning Recreational Impacts and Preferences for Management Actions?

Odd Inge Vistad

Norwegian Institute for Nature Research (NINA), Division for Man-Environment Studies,
Fakkeldgarden, 2624 Lillehammer, Norway
Email: oddinge.vistad@nina.no

Abstract: During the summer of 1999 tourists were interviewed along two important scenic roads in Norway. Later on managers in all Norwegian counties were asked some of the same questions. The questionnaire presented twelve photos of trails and paths in different conditions, and twelve potential management actions concerning minimizing or repairing impacts on the ground. The results show significant differences between the two groups in their evaluations of photos with comprehensive impacts and corduroy covered paths. The managers have a lower level of tolerance towards impact, and the visitors are more in favor of using corduroy. Almost all of the proposed management actions were also rated significantly different, but the two groups are still quite consistent in their overall rating patterns: Actions concerning information of visitors or shielding the resource are favored; using fees is unacceptable.

INTRODUCTION

The impact of recreation and tourism on the natural environment has been an important research and policy topic in recent years (Liddle, 1997, Hammitt & Cole, 1998). Reported visitor concern about such impacts has been promoted as a basis for a practice of self-regulation and management intervention. Nonetheless, there have been relatively few empirical evaluations of how such impacts affect the visitor experience.

Provisions of (physical) facilities in recreational areas often have a double purpose. They offer service to the visitors, but their primary purpose might equally well be as management actions with the purpose of limiting impacts on the natural environment.

Research in the outdoor recreation field suggests that land managers may be more concerned about impacts than are the visitors. But how do the two groups judge the need for facilities, and which management actions are regarded as good or acceptable tools in order to repair or minimize impacts?

It is important to understand the visitors' evaluations (as a stakeholder group) in order to determine whether "conventional wisdom" about concern for such impacts are accurate, and whether facilities and management actions are necessary. Moreover, it is important to know to what extent the visitors represent a homogeneous group and whether various stakeholders support a given management action or set of actions.

This paper reports results from two studies in Norway concerning evaluations of impacts and stated preferences for facilities and other management actions. The results will be discussed in relation to recreational experiences, management

objectives, and also in relation to what is acceptable environmental conditions and the establishment of environmental standards.

METHODS

The evaluations are based on respondent ratings of 12 nature-oriented photos showing paths and trails in different conditions and shapes, combined with ratings of several (written presentations of) potential management actions for minimizing or repairing impacts. The rating questions used a 7-point scale, where a low number indicates a negative valuation of a picture or a management action. Four is a neutral statement. Surveys were administered to visitors along Sognefjellsvegen (a scenic road through a mountain area in the middle of Southern Norway) and along Atlanterhavsvegen (a scenic road along a part of the coast between the two towns Molde and Kristiansund N) during the summer 1999 (N=569). The visitors were contacted along the roadside, where they filled out a self-report questionnaire. A broad mixture of nationalities was represented in the sample: 40 % Norwegians, 24 % Germans, 9 % Dutch, 8 % Swedes and 6 % Danes, together with tourists from 14 other nations.

All the relevant managers at the county level (The Environmental Division at the 20 County Governors Offices) in the entire country were mailed a questionnaire during the autumn 2000 (N=205). The managers were (on an average level) much more experienced in outdoor recreation than the visitors.

The relevant questions for the results presented here were identical in the two studies. The analysis used are ANOVA (analysis of variance) and Factor

Analysis (Principal Component Analysis, Varimax rotation)

RESULTS

Impacts on the ground

Significant differences (ANOVA, 5 % level) were found between the managers and visitors for 10 of the 12 pictures. Each of the last two pictures show a path with little or limited impact on the ground, and both were given a high positive rating from both groups (mean values 5,45 and 5,71 for the two pictures). The rest of the pictures display a great variety in types and levels of impacts, and there is also (as always with photos) quite a lot of other information (more or less hidden) in the pictures. A factor analysis tries to simplify data in a complex material; in this case data “hidden in the 12 pictures”.

A factor analysis revealing three factors explains 54,0 % of the variance. The factors can be described as following:

- **Factor 1:** Comprehensive impact on the ground (comprised by seven pictures) - called HI-IMPACT
- **Factor 2:** Logged paths, to shield the ground from impacts (two pictures) – called CORDUROY PATH
- **Factor 3:** Minor impact on the ground (three pictures) – called LO-IMPACT.

Analysis of variance (of the factor scores) shows that there are significant differences between the visitors and the managers in how they value HI-IMPACT ($F(1, 697) = 94.64, p < .001$) and CORDUROY PATH ($F(1, 697) = 23.18, p < .001$), but not LO-IMPACT ($F(1, 697) = .22, p = .643$). (Factor 3 includes the two pictures that did not show significant differences in themselves either, between the two groups – mentioned above).

So what do these differences actually indicate? We can make three new variables, each of them reflecting one factor. We get an average rating for each respondent by combining the rating scores for

the pictures that make up each of the factors. This way we can visualize the pattern:

HI-IMPACT: The average score is low (meaning ‘negative’ rating of the pictures) for both groups on this factor, but especially low for the managers (2.8). The visitors’ average is 3.8. The interpretation is that the visitors have a higher tolerance for recreational impact on the ground than do the managers.

CORDUROY PATH: Here the average score is close to neutral (4). But the visitors’ average is in the positive direction (4.7) while the managers’ average is somewhat negative (3.9). It seems like the visitors appreciate facilitation like wooden cover along or on a trail, more than the managers.

LO-IMPACT: The average score is almost identical for both groups, and this is the only factor with an average score clearly in a positive direction (5.6). The interpretation is that both groups tolerate, and probably even appreciate, the moderate impact along a path.

Valuation of facilities and management actions

We presented 12 different types of facilities or management actions to the respondents. All of them represent an alternative in managing recreational impacts. The results show a great variety in how both the visitors and the managers evaluate the different alternatives.

Once again we used an exploratory factor analysis in trying to reveal an overall pattern in the material. The analysis gave four factors (Eigenvalues > 1) explaining 57,7 % of the variance. The factor loading matrix is presented in Table 1.

Proposed management action	Factor 1	Factor 2	Factor 3	Factor 4
Regulate the number of visitors in wildland areas	.766			
Regulate certain activities in certain areas	.720			
Prohibit big groups	.712			
Only allow camping on specific sites	.429			
Fee requirement for entering a specific area		.827		
A yearly fee for using the nature for recreational purposes		.771		
Fee requirements for activities that especially impact the natural resources		.686		
Inform visitors in order to guide the use to robust areas			.835	
Inform visitors in how to impact as little as possible			.826	
Restore and strengthen the sites by supplying more soil before sowing or planting				.835
Close especially impacted sites for some years, so that the vegetation can recover				.552
Making corduroy paths across bogs				.421

Table 1. Rotated factor loading matrix (sorted) for variables on management actions

The result of the factor analysis is quite easy to interpret. The variables with high loading on each of the factors can be thematically simplified like this:

- **Factor 1:** Regulations and prohibitions
- **Factor 2:** Economical means
- **Factor 3:** Informing the public
- **Factor 4:** Protecting or repairing the resource

There is a significant difference between the visitors and the managers for all four factors. Regulations and prohibitions (factor 1) is more appreciated by the managers than the visitors ($F(1, 517) = 11.87, p < .01$). It is opposite with the economical means (factor 2); these are more acceptable among the visitors ($F(1, 517) = 30.60, p < .001$). To inform the public (factor 3) seems to be more welcomed among the managers than among the public itself ($F(1, 517) = 19.36, p < .001$). To protect or repair the resource (factor 4) is valued more positively among the visitors than the managers ($F(1, 517) = 20.39, p < .001$). But these results only present the differences between the two groups, not their actual view on the different actions.

Table 2 presents the valuation of the different management proposals in a descending order, with the most favored ones at the top (based on the mean value in the whole sample). Generally spoken, it is highly acceptable to inform the visitors how to behave, but not to make them pay. The different

suggestions with prohibitions and regulations varies along the scale; it is more accepted with specific regulations (certain activities in certain areas) than more general regulation (visitors in wildland areas).

DISCUSSION

The results show that there are significant differences between the visitors and the managers both in their level of tolerance for recreational impact, and in what they consider to be good management practice in dealing with recreational impacts. However, it is very important to note that the two interest groups, despite the differences, follow almost the same pattern in how they evaluate both the impact and the management actions. Although the visitors have a higher tolerance than the managers for recreational impact along a path, they still prefer a path with little impact. And although the visitors are less appreciative than the managers of 'information of visitors' as a management action, they still find this the most favorable one among the proposed actions. We have the opposite case with 'fee actions': These are (perhaps surprisingly?) more acceptable among the visitors than among the managers, but they are still rated as unacceptable management actions. Today it is not relevant policy in Norway, anyhow, to introduce fees as a management actions, because of 'Allemannsretten'.

Management actions	Interest group	Mean (n)	Mean (N)
Inform visitors in how to impact as little as possible	V	6.1	6.1
	M	6.2	
Inform visitors in order to guide the use to robust areas	V	5.7	5.8
	M	6.2	
Close especially impacted sites for some years, so that the vegetation can recover	V	5.8	5.7
	M	5.5	
Regulate certain activities in certain areas	V	5.2	5.4
	M	5.9	
Making corduroy paths across bogs	V	5.3	5.3
	M	5.2	
Restore and strengthen the sites by supplying more soil before sowing or planting	V	5.2	5.1
	M	4.7	
Prohibit big groups	V	4.3	4.4
	M	4.8	
Only allow camping on specific sites	V	4.5	4.4
	M	3.9	
Fee requirements for activities that especially impact the natural resources	V	4.2	4.2
	M	4.1	
Regulate the number of visitors in wildland areas	V	3.7	3.8
	M	3.8	
Fee requirement for entering a specific area	V	3.0	2.7
	M	2.2	
A yearly fee for using the nature for recreational purposes	V	2.4	2.2
	M	1.6	

Table 2. How the two interest groups (Visitors and Managers) value different management proposals – separately (n) and all together (N). The scale goes from 1 (= very bad) to 7 (= very good).

This public right of access says (both according to tradition and law) that anyone is allowed to walk etc. on uncultivated land, without paying, and no matter who owns the land, "... when it is done considerately and with due care" (Ministry of Environment 1985, Vistad 2001a).

The ratings on the different management actions show quite a similar pattern as the results from a previous study in two recreational areas in Norway (Vistad 2001). An important point here is that these two recreational areas are located quite a distance from the road. They require hiking or canoeing to be reached, and these visitors were also more experienced recreationists. Anyhow, the level of experience does not seem to influence the results dramatically: The most popular actions (the same list was used in the two studies) were those based on use of information, and on protecting or repairing the resource, and the least favorable ones were fees – quite similar to the present study.

Many studies conclude that recreational impact on the ground are quite accepted by the visitors, especially when compared with impacts like litter and other "unnatural" traces (Stankey & Schreyer, 1987, Kuss et al., 1990, Vistad, 1995). This study shows that the tolerance for impact on the ground is very much a question of how comprehensive the impact is. Cole et al. (1997) have a similar conclusion in their study from high-use destinations in six wilderness areas.

These findings show the relevance of discussing and studying "the limits of acceptable change" of a recreational resource. Evaluating and defining standards of quality is one of the important, but difficult tasks for the managers (Anderson et al., 1998, Lime et al., 2000, Manning, 2000). For the managers it must be pleasant to confirm that their view – in this study – is very much mirrored by the visitors' view. But there are still important differences to be noticed.

An important reminder is the fact that the visitors (or even managers) seldom or never appears to be a homogeneous group. Here the visitors and managers have been treated as two groups, only comparing mean values. There will probably be a broader variety in the results if we bring in the potential of segmenting variables like attitudes, recreational experience, gender, nationality etc.

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