

# Outdoor Recreation and Environmental Concern: An Empirical Examination<sup>1</sup>

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**ABSTRACT** Three hypotheses concerning the relationship between participation in outdoor recreational activities and environmental concern are developed from existing literature. The first predicts a positive association between participation in outdoor recreational activities and environmental concern. The second predicts a stronger association between participation in "appreciative" activities and environmental concern than between "consumptive" activities and environmental concern. The third predicts a stronger association between participation in outdoor recreational activities and concern for protecting aspects of the environment necessary for pursuing such activities than between participation in outdoor recreational activities and more "distant" environmental concerns. The hypotheses are tested with data from a 1970 statewide survey. The first receives weak support; the second and third receive substantial support. Implications of the results for the future of pro-environmentalism in American society are discussed.

## Problem

It is often suggested that the emphasis on outdoor recreation in our society was an important factor in the recent emergence of the "Environmental Movement" and the corollary rise of public concern with environmental quality (Albrecht, 1975; Davies, 1970:22-23; Gale, 1972:283-284; Schnaiberg, 1973:608-609).<sup>2</sup> It is implied, for example, that involvement in outdoor recreational activities creates an awareness of environmental problems by exposing people to instances of environmental deterioration; creates a commitment to the protection of valued recreation sites; and, also, cultivates an esthetic taste for a "natural" environment which fosters a generalized opposition to environmental degradation.<sup>3</sup> However, while limited data exist which suggest that

membership in outdoor recreational organizations leads to active involvement in the environmental movement (Faich and Gale, 1971), to our knowledge there is no evidence on the more specific issue of whether involvement in outdoor recreation leads to increased environmental concern among the general public. In view of the likelihood that outdoor recreation will continue to grow in our society (Cicchetti, 1973; U.S. Bureau of Outdoor Recreation, 1967), this connection could have significant implications for efforts to achieve and maintain environmental quality. Our paper is an empirical examination of this important issue.

In addition to its practical implications, the question of whether involvement in outdoor recreation activities increases environmental concern among the public is an interesting social science issue—for two reasons. First, most of the empirical literature on outdoor recreation treats involvement in such leisure activities as a dependent variable to be explained by independent variables such as demographic characteristics (e.g., age, sex, and socioeconomic status) or social-psychological characteristics such as attitudes and values (Burdge and Field, 1972:64-67; Klausner, 1971:131ff.). Second, the bulk of social science literature treats attitudes and values as independent variables influencing human behavior, which is thus viewed as a dependent variable (e.g., Rokeach, 1973; Wicker, 1969). In contrast, we examine whether behavior (i.e., participation in outdoor recreation activities) influences attitudes and values (i.e., environmental concern).<sup>4</sup>

While we have thus far referred to "outdoor recreation" in general terms, there are clearly different types of outdoor recreational activities and it is important to distinguish between them. Although rather detailed typologies have been developed to classify outdoor recreational activities (Burch, 1965; Hendee *et al.*, 1971), for our purposes the simple "appreciative-consumptive" distinction presented by Hendee (1969) is most relevant. Consumptive activities, typified by hunting and fishing, involve taking something from the environment and thus reflect a "utilitarian" orientation toward it. Such a stance, wherein nature is viewed as existing for man's utilization, has been a dominant theme in our society (Moncrief, 1970).<sup>5</sup> In contrast, appreciative activities (e.g., hiking, camping, and photography) involve attempts to

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<sup>2</sup> On the rise of public concern see: Albrecht, 1975; McEvoy, 1972. For analyses of the Environmental Movement see: Gale, 1972; Morrison *et al.*, 1972; Schaberg, 1973.

<sup>3</sup> While not mentioned in the literature, it is also likely that outdoor recreationists are often exposed to informational and educational programs (by the Forest Service, for example) stressing the importance of environmental quality.

<sup>4</sup> We are, of course, not alone in treating behavior as an independent variable (e.g., Brivold, 1973). We feel justified in doing so since the behavior in question—participation in outdoor recreation—seems likely to have preceded environmental concern.

<sup>5</sup> We are using "utilitarian" in a broad sense to refer both to the "wise use" segment of the conservation movement (which tries to insure that there will always be sufficient resources to meet man's needs) as well as to economic interests which simply want to exploit resources. Both of these positions view the natural environment as existing primarily to fulfill man's needs (Morrison *et al.*, 1972:260-261; McEvoy, 1972:215-216).

enjoy the natural environment without altering it. Such activities are thus compatible with the "preservationist" orientation which attempts to maintain the environment in its natural state. This orientation to the environment has always been much less popular in our society than the utilitarian approach. However, the preservationist orientation appears to be growing and has contributed greatly to the rise of the contemporary environmental movement and public concern with environmental quality (Gale, 1972:283; Hendee *et al.*, 1969). In view of the foregoing, it seems logical to expect that appreciative activities would foster greater environmental concern than would consumptive activities. In fact, it could be that consumptive activities are unrelated, or even negatively associated with environmental concern, although this is only hinted at in the literature (Gale, 1972:284). At a minimum, however, participation in appreciative activities is expected to generate greater environmental concern than will involvement in consumptive activities.

The global concept of "environmental concern" also deserves comment. It is widely recognized that the current effort to achieve and maintain environmental quality has a number of specific foci—natural resources (including both conservation through wise-use and complete preservation), pollution, and overpopulation (Dunlap *et al.*, 1973). It seems that involvement in outdoor recreation activities would most likely sensitize individuals to the importance of protecting areas necessary for those particular activities. While this can be expected to create a concern for conservation-preservation issues, whether it will also create a more generalized environmental concern extending to a variety of ecological issues is debatable. In short, while outdoor recreation is expected to help create a concern for the protection of natural resources making such activities possible, we expect that they will have less effect on more distant environmental issues such as pollution control (at least when the latter are unrelated to the leisure activities). On the basis of the foregoing discussion, it is possible to state a number of hypotheses concerning the relationship between involvement in outdoor recreation and environmental concern which will be tested:

- 1) There is a positive association between involvement in outdoor recreation and environmental concern.
- 2) The association is stronger between appreciative activities and environmental concern than between consumptive activities and environmental concern.
- 3) There is a stronger association between outdoor recreation and concern with protecting aspects of the environment necessary for pursuing such activities than between outdoor recreation and other environmental issues such as air and water pollution.

### *The study*

In the summer of 1970 a large sample of Washington state residents were surveyed via mail questionnaire concerning their priorities for the allocation of public funds. Since details of the study have been presented elsewhere (Dillman, 1971; Dillman and Christenson, 1972; 1974), the sampling will not be described here, except to note that the 5,101 respondents appear to provide a fairly accurate representation of Washington's 1970 population.<sup>6</sup>

By having respondents assign priorities to governmental expenditure areas, Dillman and Christenson attempted to measure the "public values" of Washington's residents. Their method of forcing respondents to assign priorities to competing expenditure areas should yield good indicators of "environmental concern." Rather than simply being asked to indicate their degree of concern about environmental problems as is typically the case (McEvoy, 1972:224), the respondents had to decide how much emphasis—via government funding—should be placed on environmental quality relative to other societal goals.<sup>7</sup>

The respondents were presented first with a list of 15 general expenditure areas and were asked to indicate whether less, the same, or more money should be spent on each. Two of the areas dealt with protecting natural resources and controlling pollution (others included such goals as public education, national defense, health and medical care, crime prevention). Next, a list of 36 more specific items within the 15 general areas was presented and the respondents were asked to indicate the priority each should receive for funding on a four-point scale: none, low, medium, or high. This paper uses six of the specific items—two deal with natural resources and four concern pollution—and the two general items noted above. Thus, we have a total of eight indicators of environmental concern.

The first of three items concerning protection of the natural environment was "protection of forests and other natural areas for public enjoyment," and was on the list of 15 general expenditure areas. It was intended to tap a generalized concern for maintaining a natural environment which the public can enjoy; 51 percent of the sample felt more funds should be spent on this area. Two other items appearing on the list of 36 specific areas are also relevant. "Preserve areas of unspoiled natural beauty for the future" represents a classic "preser-

<sup>6</sup> Due to a desire to make regional comparisons, Dillman over-sampled rural areas and under-sampled King County (the location of Seattle). Weighting procedures were subsequently used to construct the representative statewide sample which we use in this analysis (Dillman, 1971).

<sup>7</sup> The survey results indicated that Washington residents place a high value on achieving and maintaining environmental quality. Expenditures for pollution control and protection of natural resources were given high priority, as only "law and order" programs received more support (Dillman and Christenson, 1974).

vationist" stance (Hendee *et al.*, 1969) and was rated an area of "high" priority by 42 percent of the respondents. "Take measures to protect endangered species of wildlife" also reflects a preservationist stance and was rated as a high priority by 35 percent of the sample.<sup>8</sup> The five items concerning pollution control include the general area of "pollution control" (for which 69 percent said "more" should be spent) as well as four items from the list of specific programs. These items, and the percentage of respondents rating them as "high" priority, are: "control industrial air pollution" (56); "control air pollution from motor vehicles" (44); "prevent serious agricultural pollution of water from fertilizers, pesticides and animal wastes" (54); and "prevent serious industrial pollution of water" (69).

Our independent variable, participation in outdoor recreational activities, was measured by presenting the respondents with a list of 14 leisure activities and asking them to indicate "how many times per year" they participate in each. They were given a four-point scale consisting of "none," "1-5," "6-14," and "15 or more." Of the 14 activities, only responses to 5 could be distinguished as either clearly appreciative or consumptive: "hiking," "camping," and "visiting state parks and scenic areas" fall in the former set; "fishing" and "hunting" comprise the second. These items will be used in the following analyses.

### Results

Since our independent variables are four-category ordinal scales and our dependent variables are either three-category (in the case of general areas) or four-category (in the case of specific areas) ordinal scales, gamma is used as a measure of association (Mueller *et al.*, 1970:279-292). Space limitations obviously preclude the presentation of the 40 tables resulting from cross-tabulating the 5 independent and 8 dependent variables; therefore, only the resultant gamma coefficients are reported in Table 1.<sup>9</sup> There are a number of patterns apparent in Table 1. We will discuss them in the context of the three hypotheses presented above.

<sup>8</sup> Dillman and Christenson (1974:216-218) also found another item, "develop available forests, lakes and rivers for public recreational use," to load very high on what they term a "protect nature" factor. However, this item does not deal with the protection of nature; indeed, preservationists might view support for it as encouraging environmental degradation through increased development.

<sup>9</sup> Since it is easy to obtain "statistically significant" associations with our large sample, we shall follow Davis (1971:49) and regard coefficients under .1 as negligible—even if statistically significant. While Davis presents his rule-of-thumb for Yule's  $Q$ ,  $Q$  and gamma are similar and, in fact, identical in  $2 \times 2$  tables (Mueller *et al.*, 1970:290). For those who are interested, all *nonnegligible* gammas in Table 1 are significant at the .01 level. Significance levels were computed following the procedures presented in Freeman (1965:170-175), using corrections for ties and a one-tailed test.

The first hypothesis, that there will be a positive association between involvement in outdoor recreation and environmental concern, received mixed and generally weak support from the data. Camping, hiking, and visiting parks and scenic areas were all substantially associated with concern for protecting forests and other natural areas; fishing was also related but with less strength. These activities, except fishing, were also associated (at lower levels) with a concern for preserving areas of unspoiled beauty for the future. Only hiking and hunting were associated with concern for protecting endangered wildlife. Hiking and visiting parks were the only activities correlated with "pollution control," "control industrial air pollution," and "control air pollution from motor vehicles." Camping alone among the activities was associated with "prevent serious agricultural pollution of water." None of the activities was associated with "prevent serious industrial pollution of water."

Overall, then, the first hypothesis received weak support. With few exceptions the associations were in the predicted direction (positive), but 60 percent (24 of 40) were of negligible magnitude. The bulk of the latter, however, were concentrated among fishing and hunting, thus suggesting the necessity of contrasting the effects of appreciative and consumptive activities. This distinction is the basis of the second hypothesis.

Clearly there was considerable support for the hypothesis that there is a stronger association between involvement in appreciative activities and environmental concern than between involvement in consumptive activities and environmental concern. With the exception of concern for endangered species of wildlife, the associations between the appreciative activities and the various indicators of environmental concern were always higher than those between the latter and consumptive activities. Further, while 14 of the 24 associations between environmental concern and appreciative activities reached a nonnegligible level, this was true for only 2 of the 16 associations between environmental concern and consumptive activities. Finally, the only negative associations were between hunting and environmental concern.

The third hypothesis, that there is a stronger association between outdoor recreation and concern with protecting aspects of the environment necessary for pursuing such activities than between outdoor recreation and other environmental issues, also received considerable support. Involvement in outdoor recreation was much more likely to be associated with a concern for protecting nature than with controlling pollution. More specifically, camping, hiking, and visiting parks and scenic areas were related (often substantially) with a concern for protecting forests and natural areas and preserving them for the future. In contrast, the associations between both camping and visiting

Table 1. Associations between outdoor recreation activities and environmental concern (gamma coefficients)

Environmental concern items	Appreciative			Consumptive
	Camping	Hiking	Visiting parks	
Protection of forests and other natural areas for public enjoyment	.314	.255	.316	.123
Preserve areas of unspoiled natural beauty for the future	.153	.138	.165	.055
Take measures to protect endangered species of wildlife	.065	.109	.073	.068
Pollution control	.078	.129	.152	.053
Control industrial air pollution	.086	.112	.134	.020
Control air pollution from motor vehicles	.039	.123	.102	.005
Prevent serious agricultural pollution of water	.100	.090	.082	.063
Prevent serious industrial pollution of water	.055	.087	.085	.038
				-.047

parks and concern with protecting endangered wildlife were negligible. Perhaps this is because presence of wildlife is not particularly necessary for the enjoyment of these activities. Fishing and hunting were associated only with the programs likely to be of most relevance to the pursuit of each—fishing with the protection of forest areas (likely to contain streams, rivers, and lakes), and hunting with the protection of endangered species of wildlife. Turning to pollution control programs, the trend becomes even more apparent. Associations between appreciative activities and concern with controlling pollution tended to be considerably smaller than that between such activities and concern with protecting the natural environment. In fact, a slight majority of the former (8 out of 15) were negligible. Focusing on the consumptive activities, a similar pattern emerges. All of the associations between fishing and concern with pollution control were negligible and all of the comparable associations for hunting were slightly negative. In sum, the third hypothesis received considerable support.

#### Checking for spuriousness

While the magnitudes of the foregoing associations were often fairly low, their overall pattern is supportive of our second and third hypotheses. We need, however, to consider the possibility that the

observed association between involvement in outdoor recreational activities and environmental concern is spurious (Rosenberg, 1968: Ch. 2). This possibility is suggested by the fact that a number of demographic characteristics—age, sex, rural-urban residence, and socioeconomic status—have been found to be associated both with participation in outdoor recreation (Burdge and Field, 1972:65; Klausner, 1970:133ff.) and with environmental concern (Dillman and Christenson, 1972:246-253; McEvoy, 1972:231). Consequently, in order to check for spuriousness, we examined the above associations while controlling for age, sex, residence, education, and income. Given the difficulty of computing fifth-order partial gammas, we used Pearson's  $r$  and partial correlation.<sup>10</sup> Controlling on all five demographic variables simultaneously had little effect. All of the nonnegligible associations reported in Table 1 produced statistically significant zero-order correlation coefficients, and in every instance the resultant fifth-order partial correlation coefficients remained statistically significant.<sup>11</sup> This suggests that the associations reported in Table 1 are not spurious.

Although the nature of nonexperimental research always leaves open the possibility of spuriousness, controlling for those variables which past research indicates to be most important did not affect the relationship between outdoor recreation and environmental concern. Consequently, we tentatively conclude that there is a nonspurious relationship between involvement in outdoor recreational activities (especially appreciative activities) and environmental concern.

#### Discussion

Our data have important implications for current and future efforts to achieve environmental quality in our society. The widespread support enjoyed by environmentalists at the time of the first Earth Day in 1970 has decreased considerably as the "cosis" (both economic and social) entailed by pro-environmental actions have become apparent (Albrecht, 1972; Dunlap and Gale, 1974; Morrison, 1973) and

<sup>10</sup> We realize these statistics assume interval data. However, for a strong defense of using parametric analyses with ordinal data see Bohrnstedt and Carter (1971: especially 131-133). The appropriateness of this procedure is further suggested by the fact that gamma and Pearson's  $r$  produced similar patterns of zero-order relationships in our data.

<sup>11</sup> Further, there were only four cases in which a negligible but statistically significant zero-order relationship became a statistically insignificant partial relationship: the correlations between camping and "pollution control" (significant at .05 level) and camping and "control industrial air pollution" (significant at .01 level) become nonsignificant; the positive correlation between hiking and "preserve areas of unspoiled natural beauty for the future" (significant at .05 level) and the negative correlation between hunting and "control air pollution from motor vehicles" (significant at .05 level) both became nonsignificant.

as public opinion has followed its ephemeral course (Downs, 1972). However, if involvement in outdoor recreation tends to increase environmental concern, and possibly even stimulate pro-environmental actions as some have suggested (Fatch and Gale, 1971; Gale, 1972), this bodes well for the future of pro-environmentalism in our society. As noted at the outset, leisure time spent in outdoor recreation is expected to increase greatly in the future, and this is especially true of the appreciative activities which we have found to be most strongly associated with environmental concern (Hendee, 1969:259-261). Clearly, environmental concern will be strengthened if it is associated with a basic structural feature of our society such as increased leisure time devoted to outdoor recreation.

What we are implying is that outdoor recreationists may constitute a potential constituency (Turner, 1970:150) for environmental activists. We suspect that Gale (1972:284) is correct when he maintains that "strong personal attachment to an outdoor-recreation activity can lead to an equally strong commitment to protect those features of the environment which contribute directly to enjoyment of the activity." In the present case we have measured "commitment" to environmental protection by respondents' support for allocating public funds for such purposes. While we argued earlier that this is a more meaningful indicator of "environmental concern" than the typical questionnaire item, "how concerned are you about environmental problems," it obviously does not tap respondents' willingness to become involved personally in environmental issues. Nonetheless, it seems reasonable to believe that environmental concern, as we have measured it, might be translated into support for "pro-environmental" candidates and ballot measures—initiatives and referenda—designed to protect the environment. Such support may become crucial as environmental issues increasingly become political issues (Dunlap and Gale, 1974).

Our guarded optimism concerning the positive effect of outdoor recreation on environmental concern must be tempered, however, by our own data. First, the observed associations between outdoor recreation and environmental concern were generally quite modest. Further, recall that the third hypothesis (outdoor recreation is most strongly associated with concern for protecting those aspects of the natural environment necessary for the pursuit of such activities) received considerably stronger support than did the first; the latter implies an *unqualified* association between outdoor recreation and environmental concern. This result is not surprising in view of social-psychological literature indicating that the greater the similarity between and specificity of an attitude and a behavior, the closer the correspondence between them (Wicker, 1969:71-72). Thus, it appears that increased participation in outdoor recreation is likely to significantly increase

concern for fairly specific environmental goals, such as protecting a popular recreation site from destruction, but the degree to which environmental concern generated from recreational activities will extend to broader issues, such as supporting ballot measures to protect scenic areas or coastlines, seems less. The degree to which concern will extend to even more distant issues, such as control of urban air pollution, appears very slight.

Our optimism must also be qualified by the fact that we found considerably stronger associations between appreciative activities and environmental concern than between consumptive activities and environmental concern. Even though the former recreational activities are increasing faster than the latter, there are still very significant numbers of participants in hunting and fishing. Second, and more important, due to lack of data we have ignored a third type of outdoor recreation which is also growing rapidly—the use of snowmobiles, trail bikes, and all-terrain vehicles (Environmental Action Bulletin, 1974:1). These activities were not included on the questionnaire and do not fit into the appreciative-consumptive typology. Indeed, given the severe environmental degradation they often produce it might be appropriate to term them "abusive" (or "exploitive") activities.<sup>12</sup> Whether participation in these activities produces patterns of environmental concern similar to those of hunting and fishing is not known. It could be that involvement in activities which often result in environmental degradation may create a *lack of concern* for environmental quality. The only relevant data we have seen leave this somewhat unanswered. Knopp and Tyger (1973) found participants in cross-country skiing (an appreciative activity) to hold significantly more pro-environmental attitudes than owners of snowmobiles (presumably participants in an "abusive" activity). However, it is impossible to determine the degree to which the latter grouping should be considered "anti-environmental" since there was no comparison grouping composed of a cross-section of the public. Nonetheless, the growing popularity of abusive recreational activities qualifies our optimism that increasing outdoor recreation will result in greater environmental concern in our society.

To conclude, we strongly feel that the issue raised in this paper concerning the contribution of outdoor recreation to environmental concern deserves further investigation. It is important to not only examine a wider range of recreational activities and indicators of

<sup>12</sup> We realize that *responsible* use of these vehicles is not necessarily environmentally abusive. Further, we acknowledge that appreciative and consumptive activities sometimes result in environmental abuse. Nonetheless, environmental damage by such vehicles—relative to other forms of outdoor recreation—seems frequent enough to warrant labelling their use as "abusive."

environmental concern (both attitudinal and behavioral) but, also, to develop an understanding of the intervening processes by which the concern is generated. For example, is the critical role of outdoor recreational activities to expose individuals to instances of environmental degradation, thus creating a *belief* in the seriousness of concern? Given the importance of maintaining a habitable environment, and the crucial role public concern will likely play in attempts to do so, the issue posed in this paper deserves more attention.

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