

## ATTITUDES OF OUTDOOR RECREATIONISTS TOWARD ENVIRONMENTAL ISSUES<sup>1</sup>

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**Abstract:** Using data collected in a general population survey from a random sample of individuals in four communities in Pennsylvania, we explored the issue of whether outdoor recreationists with more favorable attitudes toward environmental issues were more likely than those with less favorable attitudes to engage in pro-environmental behaviors. Results indicated that the more favorable the environmental attitude, the more likely recreationists engaged in each of the pro-environmental behaviors. Implications for encouraging environmental protection are advanced.

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### Introduction

The study of the association between participation in outdoor recreation and environmental concern continues to be of interest to social and behavioral scientists alike. Since Dunlap and Heffernan (1975) first suggested a relationship between outdoor recreation and environmentalism, several researchers (Geisler et al., 1977; Jackson, 1986; Pinhey and Grimes, 1979; Van Liere and Noe, 1981) have examined the associations between outdoor recreation and environmental attitudes. The findings of these studies, overall, suggested that participation in outdoor recreation had only a weak effect on environmental attitudes.

More recently, Nord et al. (1998) and Theodori et al. (1998) investigated the associations of outdoor recreation with measures of environmental concern considered to be indicative of *pro-environmental behaviors*. These researchers posited that participation in outdoor recreational activities could lead to pro-environmental behaviors regardless of whether it led to measurable environmental attitudes. Both Nord et al. (1998) and Theodori et al. (1998) concluded that participation in outdoor recreation was substantially associated with pro-environmental behaviors, and that such findings have practical and policy implications. Funding, promoting, and/or operating informational and educational programs in parks, game lands, and outdoor recreational facilities were offered as one strategy which might be effective in

encouraging environmental protection (Theodori et al., 1998).

However, a gap remains in the outdoor recreation literature. Previous studies have focused on either the associations between participation in outdoor recreation and environmental attitudes (Dunlap and Heffernan, 1975; Geisler et al., 1977; Pinhey and Grimes, 1979; Van Liere and Noe, 1981; Jackson, 1986) or the associations between participation in outdoor activities and pro-environmental behaviors (Nord et al. 1998; Theodori et al., 1998). Equally relevant, though, is the extent to which recreationists' environmental attitudes are *predictors* of pro-environmental behaviors. Although several studies have explicitly addressed the association between environmental attitudes and behaviors (Weigel et al., 1974; Heberlein and Black, 1976; Dunlap and Van Liere, 1978; Borden and Schettino, 1979; Van Liere and Dunlap, 1983; Hines et al., 1987; Oskamp et al., 1991; Scott and Willits, 1994; Vogel, 1996), no research has empirically examined the nature and significance of the association of recreationists' environmental attitudes and pro-environmental behaviors. The present study addresses this issue. Specifically, it asks: Are outdoor recreationists with more favorable attitudes toward environmental issues more likely than those with less favorable attitudes to engage in pro-environmental behaviors? To explore this issue, we use data collected in a general population survey from a random sample of individuals in four communities in Pennsylvania.

### Data

The data used for this paper were drawn from a study that focused on land-use issues at the rural-urban interface in Pennsylvania (Luloff et al., 1995). Study sites were selected based on an empirical classification of every municipality in the Commonwealth with respect to seven indicators. These included: Population size; population growth (1980-1990); migration rate (1980-1990); percent of housing unit change (1980-1990); percent of land in agriculture; percent urban population; and proportion employed in agricultural occupations. From these statistical rankings, four sites were chosen to represent a typology of increasing levels of urban presence and pressure in agricultural areas. The four sites selected were small portions of Snyder, Bedford, Crawford, and Lancaster counties.

In each of these areas, key and action informant interviews were conducted to help identify the major local issues related to land use, agriculture, development, and natural resources and environment issues. Following analyses of these key informant interviews, a household questionnaire was developed to investigate the responses of local citizens to the above issues as well as a variety of other concerns, including community attachment, ties, and participation, stress, and recreation. Following a modified Total Design Method (see Dillman, 1978; Luloff and Ilvento, 1981), data were gathered in the Snyder, Bedford, and Crawford sites using mail survey techniques. Data were collected via a questionnaire drop-off/pick-up procedure (Melbye et al.,

1999) in the Lancaster site due to the presence of a substantial number of Old Order Amish and Mennonites.<sup>2</sup> Overall, a response rate of 51% was achieved. This resulted in 1,491 completed questionnaires across the four sites.<sup>3</sup>

## Measurement

### *Outdoor Recreational Participation*

Outdoor recreational participation was assessed using a list of nine outdoor recreation activities. Respondents were asked if they engaged in: (1) picnicking; (2) camping; (3)

birdwatching; (4) hiking/backpacking; (5) mountain biking; (6) skiing (downhill or cross-country); (7) fishing; (8) hunting; and/or (9) riding off-road vehicles. Of the 1,491 respondents, 88 percent (N = 1,312) indicated that they participated in at least one outdoor recreational activity. The following analyses are based upon these cases.

As shown in Table 1, the least popular outdoor activity was mountain biking, while picnicking tended to be the most popular. While approximately 10 percent of the recreationists had mountain biked within the previous year, almost 95 percent of the recreationists had picnicked.

**Table 1. Participation in Outdoor Recreational Activities**

| Outdoor Activity                   | Percentage |      |
|------------------------------------|------------|------|
|                                    | Yes        | No   |
| Picnicking                         | 94.5       | 5.5  |
| Camping                            | 50.1       | 49.9 |
| Birdwatching                       | 43.9       | 56.1 |
| Hiking/backpacking                 | 39.0       | 61.0 |
| Mountain biking                    | 10.1       | 89.9 |
| Skiing (downhill or cross country) | 19.5       | 80.5 |
| Fishing                            | 55.3       | 44.7 |
| Hunting                            | 43.1       | 56.9 |
| Riding off-road vehicles           | 19.9       | 80.1 |

### *Attitude Toward the Environment*

Attitude toward the environment was measured by asking respondents to indicate their position on environmental issues. Respondents were asked whether they maintained pro-active, sympathetic, neither sympathetic nor unsympathetic, unsympathetic, or oppositional attitudes toward environmental issues. Based on the results of preliminary crosstabulations with each of the pro-environmental behaviors (see below)<sup>4</sup>, response categories were collapsed into "pro-active," "sympathetic," and "neither sympathetic or unsympathetic, unsympathetic, and oppositional." For ease of presentation, the categories are referred to as "pro-active," "sympathetic," and "unsympathetic." The percentages of recreationists indicating pro-active, sympathetic, and unsympathetic attitudes toward the environment were 5.6, 63.0, and 31.4, respectively.

### *Pro-environmental Behaviors*

Respondents were presented with a list of seven items which asked if, during the previous year, they had engaged in any of the following behaviors: (1) contributed money or time to an environmental or wildlife conservation group; (2) stopped buying a product because it caused environmental problems; (3) attended a public hearing or meeting about the environment; (4) contacted a government agency to get information or complain about an environmental problem; (5) read a conservation or environmental magazine; (6) watched a television special on the environment; and (7) voted for or against a political candidate because of his/her position on the environment.<sup>5</sup>

Each pro-environmental behavior was dummy coded (1 = yes).

### *Control Variables*

Following earlier research (Dunlap and Heffernan, 1975; Jackson, 1986; Theodori et al., 1998), age, education, gender, income, and political ideology were included as control factors. Age was measured in years. Education was scored as follows: (1) less than high school; (2) high school equivalent; (3) some college; (4) college degree; and (5) training beyond college. Gender was dummy coded (1 = males). Income was coded: (1) less than \$10,000; (2) \$10,000 - \$14,999; (3) \$15,000 - \$19,999; (4) \$20,000 to \$24,999; (5) \$25,000 - \$29,999; (6) \$30,000 - \$39,999; (7) \$40,000 - \$49,999; (8) \$50,000 - \$59,999; (9) \$60,000 - \$69,999; (10) \$70,000 - \$79,999; (11) \$80,000 - \$89,999; and (12) \$90,000 or more. Political ideology was measured by the categories: (1) liberal; (2) moderate-liberal; (3) moderate; (4) moderate-conservative; and (5) conservative.

### *Analyses*

Logistic regression was used to analyze the nature and significance of the association of recreationists' environmental attitudes and pro-environmental behaviors. The analysis was conducted in two phases. Table 2 reports the bivariate and net odds ratios for the effect of environmental attitude on pro-environmental behaviors when unsympathetic was treated as the reference category (Phase 1).

Table 2. Logit Analysis of Environmental Attitude on Pro-environmental Behavior

| Pro-environmental Behaviors   | N <sup>b</sup> | Bivariate   |             | Multivariate <sup>a</sup> |             |
|---|----------------|-------------|-------------|---------------------------|-------------|
|   |                | Pro-active  | Sympathetic | Pro-active                | Sympathetic |
|   |                | Odds ratios |             |                           |             |
| Contributed time or money to an environmental or wildlife conservation group              | 910            | 18.78***    | 5.01***     | 15.09***                  | 4.19***     |
| Stopped buying a product because it caused environmental problems                         | 906            | 5.97***     | 2.56***     | 5.99***                   | 2.48***     |
| Attended a public meeting or hearing about the environment                                | 910            | 10.92***    | 1.53        | 10.88***                  | 1.54        |
| Contacted a government agency to get information about an environmental problem           | 908            | 9.92***     | 2.23**      | 8.34***                   | 2.00**      |
| Read a conservation or environmental magazine   | 907            | 9.55***     | 2.56***     | 7.50***                   | 2.19***     |
| Watched a television special on the environment   | 906            | 17.26***    | 3.74***     | 12.78***                  | 3.08***     |
| Voted for or against a political candidate because of his/her position on the environment | 898            | 8.11***     | 2.00***     | 7.11***                   | 1.88***     |

<sup>a</sup> Odds ratios computed controlling for age, education, gender, income, and political ideology.

<sup>b</sup> N's vary due to missing data.

\*\* p < 0.01; \*\*\* p < 0.001.

### Phase I

#### Bivariate Results

As shown in Table 2, the results indicated that pro-active recreationists were significantly ( $p < 0.001$ ) more likely than unsympathetic recreationists to engage in all seven of the pro-environmental behaviors. The odds ratios ranged from 5.97 to 18.78. This indicated that while pro-active recreationists were approximately 6 times more likely than unsympathetic recreationists to stop buying a product because it caused environmental problems, they were almost 19 times more likely than unsympathetic recreationists to contribute money or time to an environmental or wildlife conservation group.

The results reported in Table 2 also indicated that sympathetic recreationists were more likely than unsympathetic recreationists to engage in pro-environmental behaviors. All but one of the odds ratios reached statistical significance at the conventional 0.05 level. Sympathetic recreationists did not differ significantly from unsympathetic recreationists in terms of their likelihood to attend a public meeting or hearing about the environment. Of the remaining six odds ratios, all but one was significant at the 0.001 level.

#### Multivariate Results

As in earlier research, controls for age, education, gender, income, and political ideology were then introduced into the model. As noted in Table 2, the results indicated that controlling for these variables had very little effect on the nature of the odds ratios for either pro-active or sympathetic recreationists. More importantly, adding the controls did not alter the significance levels.

Overall, based on the results reported in Table 2, recreationists who expressed either pro-active or sympathetic attitudes toward environmental issues were more likely than recreationists who expressed unsympathetic attitudes toward environmental issues to engage in pro-environmental behaviors. The likelihood of pro-active recreationists who engaged in each of the behaviors was stronger than that for sympathetic recreationists. Moreover, the odds ratios changed only slightly when the controls were added.

### Phase II

Treating respondents who were unsympathetic to environmental issues as the reference category for the environmental attitude variable allowed us to test in Table 2 whether pro-active and sympathetic respondents differed significantly from unsympathetic respondents in terms of pro-environmental behaviors. What we could not test in Table 2 was whether pro-active respondents differed from sympathetic respondents in terms of their environmental behaviors. In order to do so, we recoded the environmental attitude variable. Table 3 reports the bivariate and net odds ratios for the effect of environmental attitude on pro-environmental behaviors when sympathetic was treated as the reference category (Phase II).

While the odds ratios for the sympathetic recreationists in Table 2 and the unsympathetic recreationists in Table 3 were different (due to treating one versus the other as the reference category), their resulting alpha values (or p-values) were identical in the bivariate and multivariate cases. Changing the reference category of the environmental attitude variable from unsympathetic in Table 2 to sympathetic in Table 3 then reestimating the model did not alter the significance levels.

Table 3. Logit Analysis of Environmental Attitude on Pro-environmental Behavior

| Pro-environmental Behaviors   | N <sup>b</sup> | Bivariate   |               | Multivariate <sup>a</sup> |               |
|---|----------------|-------------|---------------|---------------------------|---------------|
|   |                | Pro-active  | Unsympathetic | Pro-active                | Unsympathetic |
|   |                | Odds ratios |               |                           |               |
| Contributed time or money to an environmental or wildlife conservation group              | 910            | 3.75***     | .20***        | 3.60***                   | .24***        |
| Stopped buying a product because it caused environmental problems                         | 906            | 2.33*       | .39***        | 2.42*                     | .40***        |
| Attended a public meeting or hearing about the environment                                | 910            | 7.13***     | .65           | 7.08***                   | .65           |
| Contacted a government agency to get information about an environmental problem           | 908            | 4.44***     | .45**         | 4.17***                   | .50**         |
| Read a conservation or environmental magazine   | 907            | 3.73**      | .39***        | 3.43**                    | .46***        |
| Watched a television special on the environment   | 906            | 4.62*       | .27***        | 4.15                      | .32***        |
| Voted for or against a political candidate because of his/her position on the environment | 898            | 4.06***     | .50***        | 3.78***                   | .53***        |

<sup>a</sup> Odds ratios computed controlling for age, education, gender, income, and political ideology.

<sup>b</sup> N's vary due to missing data.

\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.

*Bivariate Results*

As shown in Table 3, the results indicated that pro-active recreationists were more likely than sympathetic recreationists to engage in each of the pro-environmental behaviors. While pro-active recreationists were 2.33 times more likely than sympathetic recreationists to stop buying a product because it caused environmental problems, they were 7.13 times more likely than sympathetic recreationists to attend a public meeting or hearing about the environment. Each odds ratio reached statistical significance, indicating that the observed differences between recreationists who were pro-active in environmental issues and those who were sympathetic was real.

The results reported in Table 3 also indicated that unsympathetic recreationists were less likely than sympathetic recreationists to engage in each of the pro-environmental behaviors. With the exception of the likelihood of attending a public meeting or hearing about the environment, each of the odds ratios reached statistical significance.

*Multivariate Results*

With age, education, gender, income, and political ideology held constant, the results revealed comparable patterns in the nature of the odds ratios for both pro-active and unsympathetic recreationists, though one statistically significant odds ratio dropped to nonsignificance. After introducing the control variables, pro-active recreationists did not differ significantly from sympathetic recreationists in terms of their likelihood to watch a television special on the environment, despite the fact that they were 4.15 times

more likely than sympathetic recreationists to do so. Taken together, the most interesting finding in Table 3 was that pro-active recreationists were more likely than sympathetic recreationists to engage in pro-environmental behaviors.

*Examining the Control Variables*

An examination of the control variables in Table 4 indicated that age consistently failed to reach statistical significance. Education was positively and significantly related to five of the pro-environmental behaviors. Higher educated recreationists were significantly more likely than those with lower education to contribute money or time to an environmental or wildlife conservation group, to contact a government agency to get information about an environmental problem, to read a conservation or environmental magazine, to watch a television special on the environment, and to vote for or against a political candidate because of his/her position on the environment. While males were significantly more likely than females to stop buying a product because it caused environmental problems, females were significantly more likely than males to attend a public meeting or hearing about the environment. Recreationists with higher incomes were significantly more likely than those with lower incomes to contribute money or time to an environmental or wildlife conservation group, and significantly less likely to vote for or against a political candidate because of his/her position on the environment. Political liberal recreationists were significantly more likely than their politically conservative counterparts to read a conservation or environmental magazine and watch a television special on the environment.

Table 4. Logit Analysis of Environmental Attitude on Pro-environmental Behavior

| Pro-environmental Behaviors   | N <sup>a</sup> | Age  | Education | Gender  | Income | Political ideology |
|---|----------------|------|-----------|---------|--------|--------------------|
|   |                |      |           |         |        |                    |
| Contributed time or money to an environmental or wildlife conservation group              | 910            | .00  | .17*      | .15     | .11**  | -.12               |
| Stopped buying a product because it caused environmental problems                         | 906            | .01  | -.04      | .41**   | -.00   | -.10               |
| Attended a public meeting or hearing about the environment                                | 910            | -.00 | .13       | -.85*** | -.00   | -.01               |
| Contacted a government agency to get information about an environmental problem           | 908            | .00  | .17*      | -.05    | .02    | -.06               |
| Read a conservation or environmental magazine   | 907            | .00  | .27***    | -.16    | .05    | -.13*              |
| Watched a television special on the environment   | 906            | -.00 | .24**     | -.07    | .05    | -.20*              |
| Voted for or against a political candidate because of his/her position on the environment | 898            | .01  | .29***    | .00     | -.09*  | -.06               |

<sup>a</sup> N's vary due to missing data.

<sup>b</sup> Computed controlling for environmental attitude.

\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.

## Conclusions

This study examined the nature and significance of the association of recreationists' environmental attitudes and pro-environmental behaviors. The analysis was conducted in two phases. The results of Phase I indicated that, overall, recreationists who expressed either pro-active or sympathetic attitudes toward environmental issues were more likely than recreationists who expressed unsympathetic attitudes toward environmental issues to engage in pro-environmental behaviors. The likelihood of pro-active recreationists who engaged in each of the behaviors was stronger than that for sympathetic recreationists. The odds ratios changed only slightly when the controls were added. The findings from the second phase of the analysis revealed that, overall, pro-active recreationists were more likely than sympathetic recreationists to engage in the pro-environmental behaviors. Again, the odds ratios changed only slightly after the addition of the control variables. Moreover, an examination of variables which have been shown elsewhere to be associated with environmental concern (i.e., age, education, gender, income, and political ideology) produced findings consistent with previous literature. With the exception of age failing to reach statistical significance, the results were not surprising.

Although both pro-active and sympathetic recreationists engaged more frequently in pro-environmental behaviors than did unsympathetic recreationists, sympathetic recreationists engaged in these same behaviors less often than did recreationists who expressed pro-active environmental attitudes. Taken together, these findings have implications for encouraging environmental protection. To the extent that attitudes and behaviors covary, well designed environmentally-oriented educational and informational campaigns might be

effective in changing existing ecological attitudes among outdoor recreationists and the general public.

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## Notes

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<sup>2</sup> No statistical differences in regard to the available sociodemographic characteristics were found between the Lancaster sample and those from Snyder, Bedford, and Crawford. The percentages of Old Order Amish and Mennonites from the Lancaster site totaled 12 and 5 respectively. The analysis and reported findings include data on both groups. Removal of the Amish and Mennonites from the sample did not change the results reported here.

<sup>3</sup> Using mail survey techniques, a response rate of about 51% was obtained, resulting in 370 completed questionnaires from Snyder, 343 from Bedford, and 385 from Crawford. Using the drop-off/pick-up technique, a response rate of 72% was achieved, resulting in 393 completed questionnaires from Lancaster.

<sup>4</sup> Results of these analyses are available upon request from the authors.

<sup>5</sup> In principal, three of the items could indicate anti- rather than pro-environmental behavior. Respondents could have attended a meeting, contacted a government agency, or voted for a candidate to prevent, rather than to promote, environmental protection. However, the correlation of these variables with unambiguously pro-environmental behaviors indicated that such intentions were rare.