

## RECREATIONISTS' ATTITUDES TOWARD THE FOREST AND FOREST MANAGEMENT POLICIES

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**Abstract:** Two hypotheses concerning recreationists' attitudes toward the forest and forest management policies were examined using telephone survey data from samples of forest landowners and nonowners in Pennsylvania. The first hypothesis, that differences between forest landowner and general public recreationists would be obtained with respect to attitudes toward forest management policies, was not supported. The results did support the second hypothesis, which stated that differences existed between the two groups in terms of general forest attitudes. Implications of these findings are advanced.

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### Introduction

Although there is an extensive body of literature examining the association between participation in outdoor recreational activities and environmentalism (Dunlap and Heffernan, 1975; Geisler et al., 1977; Pinhey and Grimes, 1979; Van Liere and Noe, 1981; Jackson, 1986; Theodori et al., 1998), little research has been conducted on the association of forest recreation with environmental concern (Nord et al., 1998; Theodori and Luloff, *forthcoming*). Utilizing telephone survey data from samples of forest landowners and nonowners in Pennsylvania, Nord et al. (1998) examined the association of forest recreation with two measures of environmentalism—environmental concern and pro-environmental behavior. Their results indicated that participation in forest recreational activities was moderately associated with pro-environmental behavior but only weakly associated with environmental concern.

More recently, Theodori and Luloff (*forthcoming*) extended this research by comparing the environmental concern of nonindustrial private forest landowner recreationists with general public recreationists in Pennsylvania. They examined whether forest landowner recreationists were more likely than recreationists drawn from the general public to engage in pro-environmental behaviors. Their results indicated that, on the average, recreationists drawn from the general public did not engage in as many pro-environmental behaviors as forest landowner recreationists.

The present research extends the literature on forest recreation and environmentalism. Building upon earlier work (Theodori and Luloff, *forthcoming*), two hypotheses concerning recreationists' attitudes toward the forest and forest management policies were examined. First, it was hypothesized that there will be differences between forest landowner and general public recreationists with respect to attitudes toward forest management policies. The second hypothesis was that there will be differences between the two groups in terms of general forest attitudes.

### Data

The data used in this study were collected by telephone survey. During the fall of 1991, a randomly selected sample of 601 NIPF landowners and 600 members of the general public from the Commonwealth of Pennsylvania were interviewed. In addition to gathering descriptive social and demographic information for both groups, the survey included attitudinal and behavioral questions about the environment, the forest, forest policies, and recreation.<sup>1</sup> While the two groups were quite similar in terms of sociodemographic characteristics, forest landowners were slightly older, more likely to be white, had slightly higher average incomes, and were more likely to live in rural areas (see Luloff et al., 1993; Bourke and Luloff, 1994).

### Measurement and Analyses

#### *Measuring Forest Recreation*

Two aspects of forest recreational participation were measured. These included: (1) frequency of forest visitation; and (2) types of forest recreation activities in which respondents participated. In order to filter forest recreationists from non-participants, respondents were asked how often they or any member of their household visited forests for recreation/vacation purposes. Responses categories included: (0) never; (1) less than once a year; (2) once a year; (3) several times a year; (4) monthly; and (5) at least weekly. As shown in Table 1, the majority of the respondents in each group visited forests for recreation/vacation purposes at least several times a year. While one of every ten general public respondents visited forests more than once a week, nearly one third of the forest landowners did so. Only 12% of the general public and 6% of the forest landowners never visited forests for recreational purposes. These cases were excluded from the following analyses.

**Table 1. Frequency of Forest Visitation (in percentages)**

<i>Frequency of Visit</i>	<i>General Public</i>	<i>Forest Landowners</i>
More than once a week	10.3	31.1
Monthly	12.8	19.3
Several times a year	39.4	28.2
Once a year	16.5	10.6
Less than once a year	8.7	4.8
Never	12.3	6.0

Respondents who reported visiting forests for recreational purposes were asked whether they engaged in any of the following outdoor recreational behaviors: (1) camping; (2) hiking; (3) sightseeing by car; (4) picnicking; (5)

birdwatching; (6) fishing; (7) hunting; and/or (8) riding off-road vehicles. Multiple responses were allowed. Table 2 presents the distribution of forest recreational participation for the general public and forest landowners.

**Table 2. Forest Recreational Participation (in percentages)**

<i>Outdoor Activity</i>	<i>General Public</i>	<i>Forest Landowners</i>
Camping	42.4	40.6
Hiking	55.6	63.1*
Sightseeing	45.2	37.3*
Picnicking	55.2	38.3***
Birdwatching	12.6	20.9**
Fishing	35.7	38.5
Hunting	25.1	46.4***
Riding off-road vehicles	8.9	14.1*

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

As shown in Table 2, the most popular activity for each group was hiking, while the least popular for each group was riding off-road vehicles. Picnicking was the second most popular outdoor activity for the general public, while hunting was the second most popular activity for the forest landowners. Significance tests for the difference in the proportion of forest landowner and general public recreationists who engaged in each outdoor activity was examined using a z-test for the difference between proportions (Agresti and Finlay, 1997). This z-test takes the form:

$$z = \frac{\hat{\pi}_2 - \hat{\pi}_1 - 0}{\sqrt{\frac{\hat{\pi}_2(1-\hat{\pi}_2)}{n_2} + \frac{\hat{\pi}_1(1-\hat{\pi}_1)}{n_1}}}$$

Where  $\hat{\pi}_1$  and  $\hat{\pi}_2$  denote the sample proportions, and  $n_1$  and  $n_2$  denote the independent random sample sizes.

General public recreationists were more likely than forest landowner recreationists to engage in sightseeing ( $p < 0.05$ ) and picnicking ( $p < 0.001$ ). Conversely, the forest landowners were more likely than members of the general public to engage in hiking, riding off-road vehicles ( $p < 0.05$ ), birdwatching ( $p < 0.01$ ), and hunting ( $p < 0.001$ ). There were no significant differences with respect to camping and fishing.

It is not unreasonable to expect that outdoor recreationists would engage in several activities (Jackson, 1986; Theodori et al., 1998). In this sample, approximately 70% of the general public and about the same percentage (69%) of the forest landowner recreationists engaged in two or more outdoor activities. The respective mean scores for recreational participation were 2.8 for the general public and 3.0 for the forest landowners. The difference between these groups was not statistically significant.

#### *Measuring Forest Attitudes*

##### *Attitudes Toward Forest Management Policies*

Attitudes toward forest management policies were measured by seven questions. Respondents were asked whether they strongly agreed, agreed, disagreed, or strongly disagreed with the following forest management policies: (1) banning the general practice of clear-cutting; (2) encouraging mineral exploration and extraction; (3) establishing more nature preserves; (4) promoting economic development through expansion of the forest products industry; (5) encouraging protection of fish and wildlife habitats; (6) designating more "wild and scenic rivers;" and (7) encouraging forest landowners to harvest timber.

A principle axis factor analysis of the seven forest management policies revealed that there were two underlying themes: (1) management policies advocating the

preservation of the forest, and (2) management policies advocating the use of the forest (data not shown).<sup>2</sup> Responses to the battery of items measuring attitudes toward forest management policies were dichotomized into the categories of "agreement" (strongly agree and agree) and "disagreement" (strongly disagree and disagree). The difference in the proportion of general public and forest landowner recreationists agreeing with each forest management policy was examined using a z-test. An examination of Table 3 shows that no significant

differences existed between the two groups with respect to these items. The overwhelming majority of both groups of recreationists supported the protection of fish and wildlife habitats, the designation of more "wild and scenic rivers," and the creation of more nature preserves. Both groups expressed similar attitudes toward banning clear-cutting, promoting economic development through the expansion of forest products industries, and encouraging future mining and timber uses.

**Table 3. Agreement Toward Forest Management Policies (in percentages)**

<i>Policies Advocating Use of Forests</i>		
<i>Forest Management Policies</i>	<i>General Public</i>	<i>Forest Landowners</i>
Encouraging mineral exploration and extraction	50	46
Promoting economic development of forest products industries	56	61
Encouraging forest landowners to harvest timber	50	56
<i>Policies Advocating Preservation of Forests</i>		
<i>Forest Management Policies</i>	<i>General Public</i>	<i>Forest Landowners</i>
Establishing more nature preserves	93	90
Encouraging protection of fish and wildlife habitats	98	96
Designating more "wild and scenic rivers"	94	91
Banning the general practice of clear-cutting	66	61

*General Forest Attitudes*

General forest attitudes were measured by three types of variables: (1) attitudes toward the use of forests; (2) attitudes toward responsibility for conservation of the forest; and (3) attitudes toward education of and planning for forest use and conservation. In order to assess attitudes toward use, respondents were asked whether they thought cutting down trees in Pennsylvania's forests usually resulted in: (1) soil erosion; (2) wildlife habitat destruction; (3) permanent loss of forests; (4) muddy streams; (5) residential and commercial development; and (6) loss of recreation space. Responses were dichotomized into yes and no.

To assess attitudes toward responsibility for conservation, respondents were asked who should be responsible for deciding about the conservation of forest land. Response categories included: landowners only; both the landowners and the government; and the government only.

Lastly, to examine attitudes toward education of and planning for use and conservation of forests, respondents

were asked whether they strongly agreed, agreed, disagreed, or strongly disagreed with the following items: (1) It makes good sense for a forest land owner to have an overall plan for using and taking care of the forest; (2) People need more information on what could be done to take better care of the forests; and (3) Trying to teach people about the forests is a waste of time and money. As with the items measuring attitudes toward forest management policies, responses were dichotomized into "agreement" and "disagreement."

Attitudes toward the use of forests were assessed using a z-test for the difference between proportions. An examination of Table 4 shows that general public recreationists were significantly more likely ( $p < 0.001$ ) than forest landowners to view each of the possible outcomes—soil erosion, wildlife habitat destruction, permanent loss of forests, muddy streams, residential and commercial development, and loss of recreation space—as problems resulting from the cutting down of trees in Pennsylvania's forests.

**Table 4. Attitudes Toward the Use of Forests (in percentages)**

<i>Possible Outcomes</i>	<i>General Public</i>	<i>Forest Landowners</i>
Soil erosion	81	71***
Wildlife habitat destruction	92	77***
Permanent loss of forests	74	63***
Muddy streams	85	76***
Residential and Commercial Development	88	77***
Loss of recreation space	80	67***

\*\*\*  $p < 0.001$ .

The question about who should have responsibility for deciding about the conservation of forest land was analyzed by a cross-tabulation. As shown in Table 5, the cross-tabulation of recreationist group and responsibility revealed a highly significant relationship ( $p < 0.001$ ). While forest landowner recreationists were equally divided between landowners having the sole responsibility and both the

landowners and the government sharing the responsibility for the conservation of private forests, an overwhelming majority of the general public respondents (75%) asserted that the responsibility should be divided between the landowners and the government. Few respondents in either group stated that the government should have the sole responsibility of taking care of private forests.

**Table 5. Attitudes Toward Responsibility of Conservation of the Forest (in percentages)**

<i>Responsibility for the Forest</i>	<i>General Public</i>	<i>Forest Landowners</i>
Landowners only	22.5	49.4
Landowners and government	74.9	50.5
Government only	2.5	0.5

Chi square = 85.562;  $df = 2$ ;  $p < 0.001$ .

Attitudes toward education about and planning for forest use and conservation were assessed also using a z-test for the difference between proportions. An examination of Table 6 shows that the overwhelming majority of both groups agree that it makes good sense for a forest landowner to have an overall plan for using and taking care of the forest, that people need more information on what could be done to take better care of the forests, and that

trying to teach people about the forests is not a waste of time or money. General public recreationists were significantly more likely ( $p < 0.05$ ) than forest landowners to agree that landowners need to have an overall plan for using and taking care of the forest and significantly more likely ( $p < 0.01$ ) to agree that people need more information about the forests.

**Table 6. Attitudes Toward Education About and Planning For Conservation of Forests (in percentages)**

<i>Attitudes</i>	<i>General Public</i>	<i>Forest Landowners</i>
It makes good sense for a forest landowner to have an overall plan for using and taking care of the forest	97	94*
People need more information on what could be done to take better care of the forests	98	95**
Trying to teach people about the forests is a waste of time and money	6	8

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

## Conclusion

The results of this study indicated that while both forest landowner and general public recreationists engaged in about an equal number of outdoor recreational activities, differences in patterns of forest recreation existed. More important, though, were the findings concerning the two hypotheses. The results did not support the first

hypothesis, which stated that differences between forest landowner and general public recreationists would be obtained with respect to attitudes toward forest management policies. The second hypothesis, that differences between the two groups existed in terms of general forest attitudes, received substantial support. General public recreationists were more likely than forest landowners to view each of the six possible outcomes

resulting from cutting down trees in Pennsylvania's forests as problematic. Furthermore, general public recreationists were more likely than forest landowners to assert that the responsibility for deciding about the conservation of forest land should be divided between the landowners and the government. Lastly, general public recreationists were more likely to agree that landowners need to have an overall plan for using and taking care of the forest and that people need more information about the forests.

Despite the statistical significance, the substantive significance of these findings should not be overlooked. For example, while the general public recreationists were significantly more likely than the forest landowners to view each of the six possible outcomes resulting from cutting down trees as precarious, nearly 7 out of every 10 forest landowners also felt that cutting had deleterious impacts (Table 4). Moreover, the overwhelming majority of both the general public and forest landowners supported efforts in education about forests and planning for conservation. Both of these areas are critical to the sustainable use of forests for recreation.

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## Notes

<sup>1</sup> See Luloff et al. (1993), Bourke and Luloff (1994), and Nord et al. (1998) for detailed descriptions of the sample.

<sup>2</sup> Data available upon request from authors.