



*The*  
**PHOTO-CHOICE METHOD**  
*for Recreation Research*

*by Elwood L. Shafer, Jr.*

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***The Question***

**W**HAT do people want in forest-oriented outdoor recreation, and what are they willing to pay for it? This question is being asked constantly by those recreation planners and administrators who are striving to serve the public better.<sup>1</sup> We will probably never be able to determine preferences for all types of outdoor recreation facilities; this is so because the effects of certain population variables cannot be measured. However, there are areas in which scientific investigation of user preferences may prove useful — such as measuring preferences for park facilities and design, or measuring preferences for forest environmental conditions. It is in these areas of research that the photo-choice method may be an appropriate tool.

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<sup>1</sup>Resources for the Future. ANNUAL REPORT 1958: 41-57. Washington, D. C.

## *The Method*

The photo-choice method of study described here was used in a study of outdoor recreation on four state parks in northeastern Pennsylvania in 1962. Only the method of study will be presented here. The results will appear in another paper now being prepared for publication.

This study was designed to measure a recreationist's preference among different types of outdoor facilities or conditions by means of several series of photographs. Each series of photos illustrated different types of a certain facility or condition.

For example, take picnic areas. The photo series might offer a choice among three different types of picnic areas: (1) a forest area having a high canopy, (2) an area with trees having a low canopy, or (3) an open parklike area with scattered trees (fig. 1). For a swimming area, the photo series might offer a choice of a sand-and-turf beach, a beach with trees, or a natural stream (fig. 2). Other photo series might illustrate different types of camping facilities, campsite spacings, sanitation facilities, or fireplaces.

Respondents, in personal interviews, were asked to designate the one type of facility within each series that they liked most — after considering an associated cost for each type. Cost figures represented a realistic use-cost for development, construction, maintenance, and expansion or replacement of individual facilities. If a respondent did not prefer any type of facility within any one series, he had the alternative choices of designating "none of these," or "not interested in this facility."

### *Photographs*

Where possible, each photo series contained a photo of a high-, medium-, and low-cost item within a particular facility category. By covering the total range of costs for a facility, survey results reflected approximately, if not exactly, the preference patterns within any category. All photos within a series were taken about the same distance from the subject. For example, swimmers used for scale in figure 2 are all about the same size.

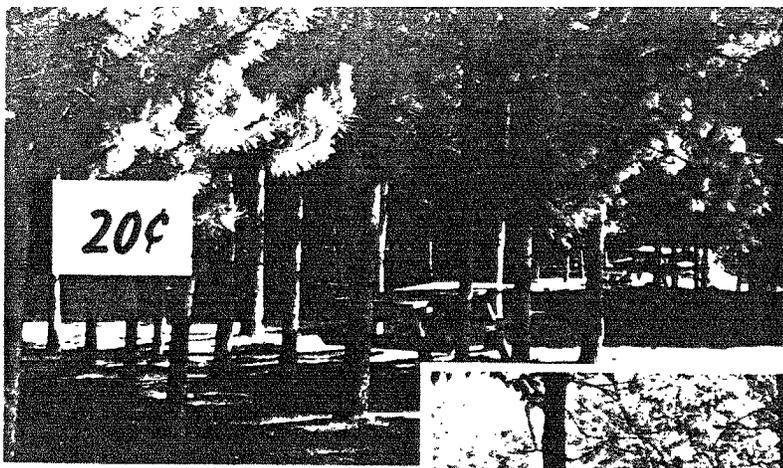
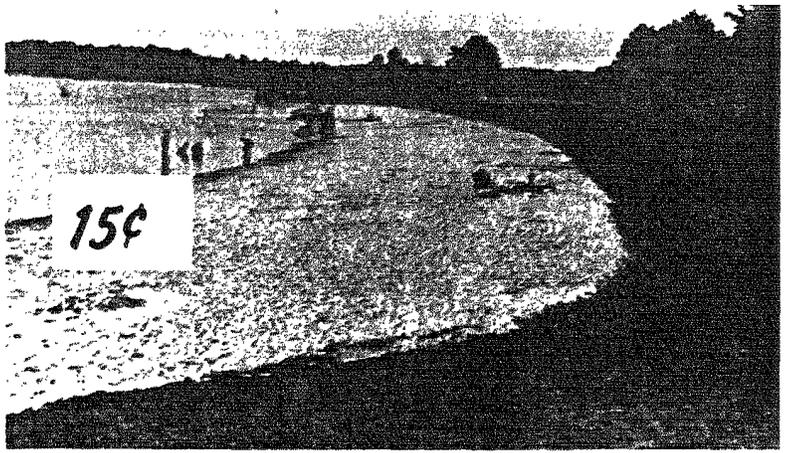
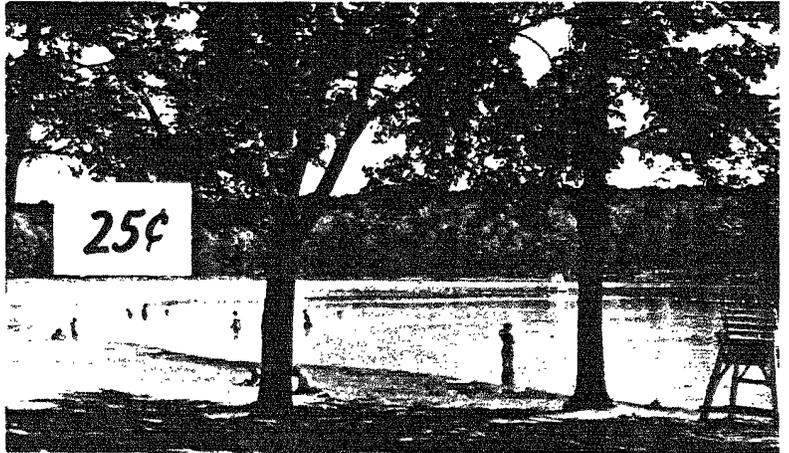


Figure 1.—Recreationists were asked: "Which picnic area would you choose? (1) Low canopy? (2) High canopy? (3) Scattered trees?"

1 — 15¢



2 — 25¢



3 — 5¢

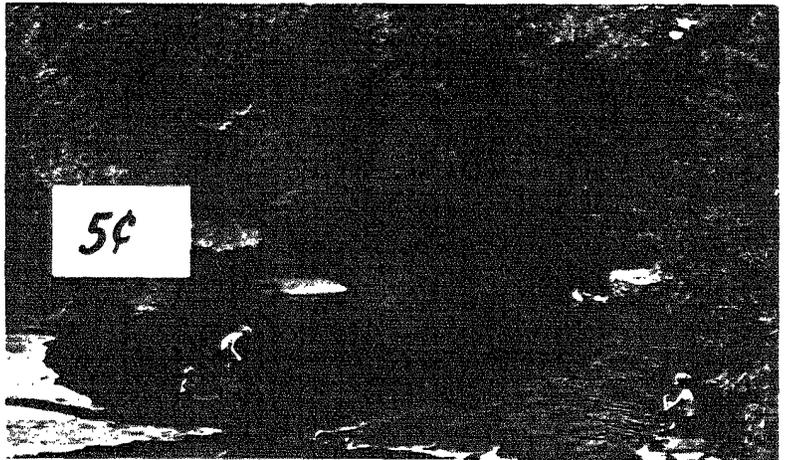


Figure 2.—Which swimming area would you choose?  
(1) Sand-and-turf beach? (2) Beach with trees?  
(3) Natural stream?

## Costs

After deciding which facilities to illustrate in the survey, it was necessary to derive a user cost for each one. The procedure<sup>2</sup> used was as follows. First, the net present value of a facility cost (NPV cost) was computed. To do this, it was necessary to choose a relevant period of time over which the analysis would apply; this was about 20 years for most recreational facilities on state parks. After discussions with park managers and construction foremen, a schedule was prepared which included:

- The initial development costs of the facility.
- An annual listing of additional costs such as those for administration, maintenance, and replacement. These were discounted at compound interest (4 percent is suggested) to the beginning of the period.

This schedule allowed computation of the gross present value of costs (GPV cost). From this were subtracted the present values of any improvements not exhausted at the end of the period (as a simplification, a straight-line depreciation may be used). The result is the NPV cost. Finally, the use charge to cover NPV cost was determined by making —

$$\text{NPV cost} = \text{NPV returns}$$

and —

$$\text{NPV costs} = \frac{CN [1.0p^n - 1]}{(0.0p) (1.0p)^n}$$

where —

C = unit charge per day for a particular facility.

N = average number of times the facility is used per year — as computed from recent park attendance records.

n = number of years in the analysis period.

p = interest rate (4%).

NPV costs = net present value of costs.

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<sup>2</sup>As recommended by Robert Marty, forest economist, Northeastern Forest Experiment Station, Upper Darby, Pa.

So —

$$C = \frac{\text{NPV costs } (0.0p) (1.0p)^n}{N [(1.0p)^n - 1]}$$

### **Presentation**

For the interview presentation, each photo was standardized to 3½ x 4½ inches in size. The photos were mounted in a protective plastic cover, and were arranged opposite the questions pertaining to that facility (fig. 3). To avoid the possibility that position of photos might affect the frequency with which they are chosen, the pictures should not be arranged in a fixed cost sequence.



Figure 3.—In the presentation, the photographs were arranged opposite the questions pertaining to that facility.

The following refinements should be considered in the design of future photo-choice surveys:

- To determine the effect of costs in influencing choice, half of the respondents could be asked to select facilities from an interview presentation in which facility costs have been omitted.
- Several pictures of the same facility could be used to avoid bias due to content or picture quality. For example, the effect of rocks in the foreground of the high-canopy picnic area (fig. 1) might influence selection of this facility. The rocks were purely incidental to the photograph and not necessary to the general type of facility. One possible solution to this type of bias would be to use several photographs to indicate each general type of facility.
- Colored versus black and white photographs could be compared for differences in survey results.
- Respondents could be asked to rank their choices within each series. Resultant information might allow managers greater latitude in the decision-making process.

## *Interview Procedure*

The most appropriate location for using the photo-choice method on public recreation areas was found to be at or near a swimming area. Observations by park supervisors indicate that, on a typical summer day, most of the people who come to a state park usually frequent the beach area and vicinity during their visit regardless of their other activities or the duration of their stay.

### *Sampling Design*

Récreationists were sampled along a series of randomly selected parallel courses that ran perpendicular to the beach and extended into adjoining picnic areas (fig. 4). In traversing a course, the interviewer selected every  $n^{\text{th}}$  person to interview. Sampling ratios

were determined from the previous year's park attendance records.

Each respondent selected was interviewed only once. An interview schedule that contained 6 series of photographs required 5 to 10 minutes per interview. When the interviewer completed a sampling course, he returned to the starting point and proceeded as before until the required number of people had been sampled for one day.

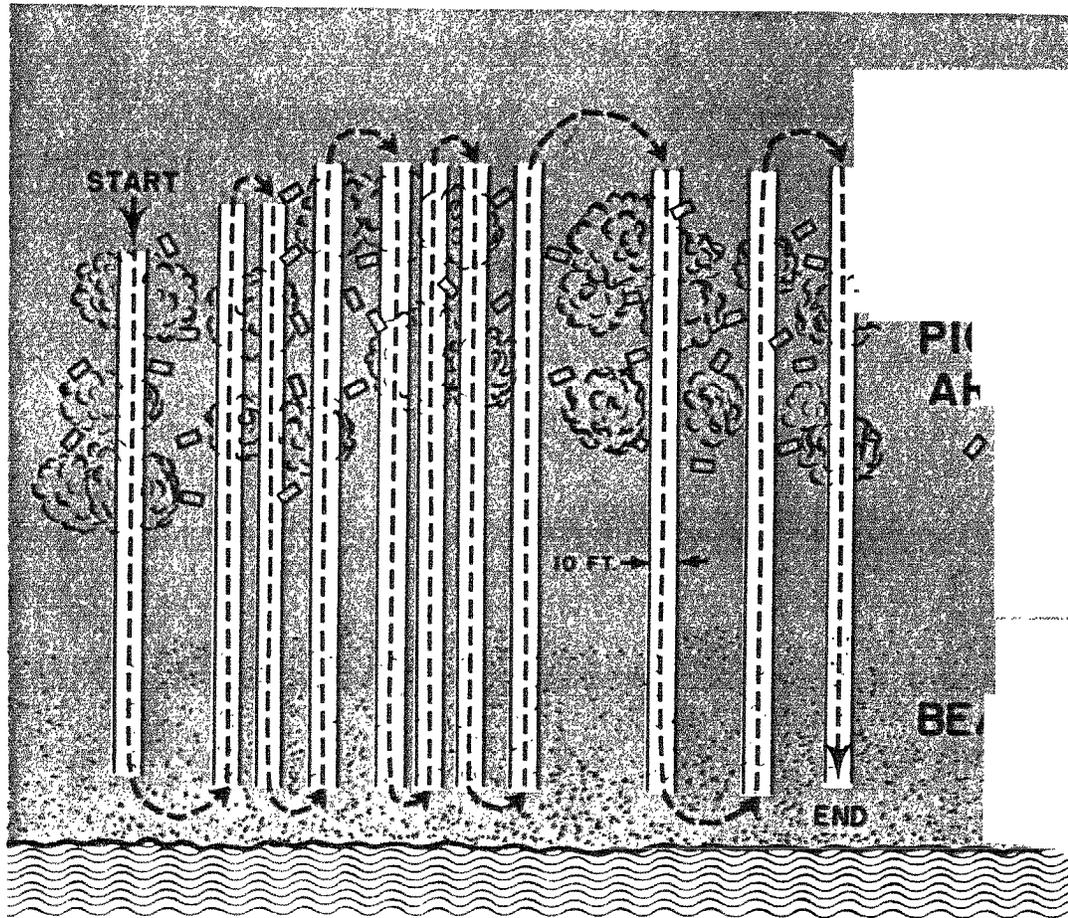


Figure 4.—Sketch of a sampling pattern for a photo-choice survey, showing the course followed by the interviewer.

## *Collection of Data*

Interview periods were scheduled between 11 a.m. and 5 p.m., because during this time of day most recreational activity at a park is on or near the beach area. Interviews were restricted to typical summer days, and the interviewer asked the respondent to limit his choices to "a day just like today."

Before presenting the pictures to a recreationist, the interviewer explained to the respondent that:

- The cost of each facility selected would be added by the interviewer.
- The recreationist was to base his final combination of preferences for all facilities on the total cost per day of all items selected.
- After considering the total cost, the recreationist would be allowed to change his individual choices to coincide with a total cost that he would be willing to pay.
- When making his selections, the respondent should consider the type of group he is with on that day.

When the respondent objected or questioned the use of cost figures in influencing his selection, the interviewer explained that for this study some limitation has to be placed on the types of facilities so that everyone interviewed would be thinking along the same lines. In addition, the interviewer re-emphasized that these were actual costs and were considered as being paid directly by the user. Also, when necessary, a further explanation was provided by comparing this survey approach to a situation in which the recreationist might be asked which of two kinds of picnic lunches he preferred to have — a steak or a hot dog. Without a cost associated with this selection there was little doubt as to which one he would select. The interviewer then explained that this was the same reason for using a cost figure with the recreational facilities.

To insure proper interpretation of survey results, respondents were stratified as campers and noncampers; and campers were

further stratified into those who were camping in the park at the time of the interview and those who were not.

## *Advantages and Limitations*

The photo-choice survey method has several advantages:

- It is much faster than most procedures used to obtain this type of information.
- It is designed to be interesting to the respondent — this should help to establish rapport, decrease the number of nonrespondents, and encourage reliable answers.
- The pictures can be studied by the respondent without lengthy verbal instructions from the interviewer.

Several limitations of the method are:

- Answers to hypothetical questions of choice do not always indicate how people may act. That is, people may select one facility on the basis of photographs yet actually choose a different one when faced with the actual situation.
- Responses may be influenced by specific details in the pictures.
- The method does not measure real demand. Instead, it measures some degree of preference. But if this preference is consistent for certain facilities, then there will be some substance to the results and similar choices could be expected in other recreational situations.