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Visitor Attitudes and Perceptions on Vegetation Management along the Blue Ridge Parkway

Kathlyne A. McGee

To the Graduate Council:

I am submitting herewith a thesis written by Kathlyne A. McGee entitled "Visitor Attitudes and Perceptions on Vegetation Management along the Blue Ridge Parkway." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Forestry.

William E. Hammitt, Major Professor

We have read this thesis and recommend its acceptance:

Robert Orr, Paul Wishart

Accepted for the Council:
Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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VISITOR ATTITUDES AND PERCEPTIONS ON VEGETATION MANAGEMENT ALONG THE BLUE RIDGE PARKWAY

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Kathlyne A. McGee

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ABSTRACT

Vegetation management practices along a scenic parkway may be very costly. A finely manicured appearance requires regular mowing and trimming while a less manicured appearance requires less maintenance.

Many benefits that recreation visitors receive are directly related to how the visual environment is managed and presented (Hammitt 1980; Mercer 1975; Moeller et al. 1974). Driving for pleasure and sightseeing depend greatly on perception of the visual environment. By learning how visitors perceive vegetation management practices along a scenic parkway, natural resource managers could identify preferred scenes and possibly modify some management practices. These modifications could help reduce maintenance costs while making parkways more attractive to visitors. This study was designed to determine visitor attitudes and preferences on vegetation management practices and alternatives along the Blue Ridge Parkway.

Photographs were used in a questionnaire to represent various types of vegetation management. The photos were used as the stimuli for visitors to recall similar vegetation scenes along the Parkway and to present simulations of other possible vegetation management techniques and alternatives.

The study used an information treatment as a first page in one-half of the questionnaires. The treatment was used to determine whether or not information can make a significant difference in visitor attitudes and preferences toward vegetation management practices.

The treatment combined an environmental message and a statement of money savings to tax payers through less intensive vegetation management.

Survey questionnaires were given to 600 Blue Ridge Parkway visitors during the summer of 1982. The questionnaire presented vegetation management practices by using pairs of photos with a brief clarifying statement below each photo. The scenes depicted different levels of vegetation management at overlook vistas and along roadsides. Visitors indicated the preference for each photo as compared to its pair (on a Likert scale). The questionnaire also contained twelve vegetation management alternative statements. These statements were designed to obtain respondent attitudes on practices related but not identical to those depicted in the photos.

Data were analyzed for preferences of photographs, attitudes on vegetation management statements, and the effect of the information treatment. Results indicated that roadside scenes with less mowing were highly preferred. Vista overlooks were preferred with some low foreground and middleground vegetation within the photograph. Scenes containing wildflowers were highly preferred while roadsides with no mowing and vistas with over 50% of the view blocked were the least preferred. Attitudes on the vegetation management statements paralleled the photo preferences closely. The information treatment used appeared to be effective on respondent attitudes and preferences on only a few roadside mowing scenes.

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CHAPTER I

INTRODUCTION

The 1970s and 1980s have brought many changes to American living. While technology moves forward with exciting advances, the American economy has slowed. After inflation and recession periods, changes became necessary in both the private sector and the public sector.

Cutbacks in spending and assistance programs became realities. The United States government began trimming its agency budgets in an effort to reduce spending and balance the budget. The agencies are still dealing with tight budgets and they probably will for many years to come.

One agency that was impacted is the National Park Service (NPS). The NPS spends a substantial portion of its budget maintaining the "crown jewels" of the National Park System for recreation.

Outdoor recreation is being enjoyed by increasing numbers of people. Some of the increase is a result of the fast paced American lifestyle. People deal with rushed schedules, high pressure situations, and frequent business trips away from home and family. The growing need for recreation almost certainly results from various frustrations, stresses and dissatisfactions associated with large urban areas (Milgram, 1970; Dubos 1969). Daily exposure to noise, air pollution, crowded highways, busy stores and cluttered scenery makes one yearn for a time and place to relax, a green place.

In the past two decades, the nationwide demand for outdoor recreation has increased along with the population, the availability of leisure time, and the increased affluence of the people (Clawson and Knetsch 1966). With increasing numbers of visitors, the NPS recognizes the need to maintain or expand current recreation areas.

Recreation benefits that come with hiking, sightseeing and driving for pleasure are directly related to how the visitor sees that environment being managed (Hammitt 1980; Mercer 1975; Moeller et al. 1974). Sight is probably the most important of all senses. It influences human response to environments more directly than the other senses (Welsh, 1966). Because visual perception is important to recreationists, outdoor recreation managers are pursuing better ways to measure people's perceptions of recreational environments (U. S. Forest Service, 1973). As Leopold (1966) said: "To promote perception (of nature) is the only truly creative part of recreational engineering."

Scenic parkways are one type of recreational environment where visual perceptions of visitors are very important. Visitor perceptions of the vegetation management practices along scenic parkways are one of utmost importance in these environments. Yet, vegetation management practices are expensive. Much maintenance equipment is needed along with labor and fuel for the operation. Most parkway areas have already initiated or are contemplating reduction in vegetation maintenance (Hampe and Noe 1979). An important concern for managers is how the public will perceive the changes. Will they accept vegetation changes in the interest of energy saving management practices?

The Blue Ridge Parkway, managed by the NPS, is a major scenic parkway where many of these perception questions can be investigated. This scenic parkway is host to over 16 million visitors annually. The 469 mile parkway follows the Appalachian Mountain chain from Cherokee, North Carolina northeast to Shenandoah, Virginia. It has limited services and facilities although there are numerous access points to private concessions in nearby towns all along the parkway. These off-parkway facilities help keep the drive itself noncommercialized and scenic. The Parkway has continuous vegetation management examples and numerous roadside pull-off overlook areas.

The NPS is interested in the attitudes and preferences of the Blue Ridge Parkway visitor concerning current vegetation management practices. This study involves current practices as well as possible future management practices. In learning visitor attitudes and perceptions of vegetation management, the NPS may consider some changes concerning its management of vegetation. These changes could help reduce agency spending, maintain sound environmental practices, and yet not offend visitors. Knowledge about environmental preferences can furnish an improved basis for planning, developing, and managing visual resources to meet the needs of outdoor recreationists (Shafer, 1969). Certain changes in some vistas and scenes could actually become more appealing and preferred if managers were aware of visitor preferences and nonpreferences. If managers know what elements people prefer to see, certain settings can be managed for those elements yielding the optimal mutual benefit for humans and the ecosystem (Balling and Falk, 1982).

The following is a brief summary of the 1982 NPS Blue Ridge Parkway grass mowing policy:

1) All mowed areas using tractor mowers are maintained from three to six inches in height;
2) Grass under/around guide rails, litter barrels, signs and mileposts shall be cut as needed to look neat and clearly visible;
3) At all major Parkway intersections and approaches, the grounds will be neatly trimmed and appear park-like (Appendix A).

Exemptions from this policy include specific bird nesting habitats, fern and wildflower areas and hiking trails.

The NPS is considering less grass mowing, both in width of the swaths cut and in the frequency of mowings within the growing season. Trees and shrubs at scenic overlooks are also growing in height and density, presenting visibility and management problems. The visitor experience could be affected by partially visible vistas. The purpose of this study, then, was to examine visitor perception of various mowing and vegetation clearing practices along the Blue Ridge Parkway.

A. APPROACH TO THE PROBLEM

Visitor tolerance for various vegetation managment levels were sampled with a survey questionnaire. The questionnaire used color photographs to obtain public response on roadside vegetation management.

Several mowing levels or mowing intensities were represented for preference rating.

Scenic overlook photographs, with various levels of trees and shrubs, were also used to depict visibility levels at vistas. A variety of scenes were portrayed from open views to nearly closed views. Trees and shrubs closed as much as 80% of certain views. Each photo had an adjacent photo pair showing an alternative management practice. These practices included mowing, tree cutting, selectively removing trees and controlled burning. Some photos were actual scenes while others were simulations of the same photo representing another management practice. A set of statements closely related to the photograph section was used to find out visitor attitudes on management alternatives. A treatment was used to determine whether information has as affect on visitor response.

Though not an end in itself, the study aims to present visitor perceptions that outdoor recreation managers can apply to future vegetation management practices. The study should also aid managers in prioritizing maintenance schedules and in initiating more efficient vegetation management practices.

B. OBJECTIVES OF THE STUDY

By applying what was learned about visitor preferences, resource managers could shift emphasis, practicing less intensive management in some areas and more in other areas, without negatively influencing the visitor experience.

Therefore, with the question of Parkway visitor attitudes and preferences in mind, the specific objectives of this research were to:

1. Identify visitor preferences among pairs of vista photos and pairs of roadside photos that illustrated particular vegetation management practices.
2. Test the influence of information on visitor attitudes and preferences toward vegetation management along the Blue Ridge Parkway. One half of the questionnaires began with an information treatment.
3. Examine photo ratings for a threshold or tolerance level related to grass mowing and vista view clearing.
4. Obtain attitude ratings on written questions describing various vegetation management intensities and alternatives.

CHAPTER II

LITERATURE REVIEW

It has been suggested that humans process information, categorizing and arranging it subconsciously into cognitive maps. These mental maps provide an intricate yet rough classification system for human environments. Perceptions or how one views places and things help to design the maps.

Preferences are the result of the perceptions and experiences that people most like. Preference can be influenced by society and culture, but it is also a matter of individual taste for someone, someplace, or something. A method used to determine visual perceptions and preferences is through photographic representations or stimuli.

Although other senses contribute to human environmental perceptions, it apppears that sight is the most important sense and it probably influences human response to environments the most directly (Welsh 1966). It is believed that people react to photographed scenes in the same manner as if they were at that scene (Arnheim 1969). The mind connects photographs with reality.

How people think or feel about a matter is their attitude. Attitude measurement is difficult, but often researchers attempt to obtain this information by sampling people with written communication.

A. COGNITIVE MAPS

Environmental information is processed efficiently and rapidly by humans through mental imaging called cognitive maps. The brain stores and retrieves tremendous amounts of information, including the ability to incorporate new information.

Perception and past experience are important to cognitive mapping. Humans perceive stimuli from the outside environment as a result of the internal cognitive images coded in their heads, formulated through past experiences. Therefore, perception "forms" the cognitive map and the map "forms" perception (Hammitt 1978, Kaplan and Kaplan 1978, Arnheim 1969).

These cognitive maps carry representations of the environment, sensory impressions, and emotional feelings. A person can look at a photograph of a scene previously experienced and accurately recall details of the senses: feeling cold in the snow, the sound of a chattering squirrel, the whisper of the wind in the pines, and how enjoyable the area was. Perception of the photographic scene can be a result of the identical scene previously experienced or of similar scenes.

The importance of memory and recall of preferred scenery and activities can be noted in the use of cameras. Vacationers and recreationists often automatically include the camera into the luggage for memories of the trip (Moeller et al. 1974).

B. PERCEPTIONS AND PREFERENCES

Perception of natural environments is a very complex issue. Understanding perception involves user experience and the lasting memory of the experience. The human mind uses sight to seek patterns or "gestalt", relating forms, shapes, and configurations. Perception is seeking meaningful patterns, themes, groupings, or cluster. Perceptual tendencies are so strong that people fill in missing parts of visual stimuli, in drawings for example (McKim 1972 and R. Kaplan 1979). Eyes serve as movie cameras taking thousands of frames per minute, storing most information, rejecting the remainder. Perception is selective, not admitting all data to be recorded (Bloomer 1976).

How people perceive an environment directly affects how much they prefer it. The question arises concerning the kinds of natural environments people prefer most, and why (Balling and Falk 1982). Gibson (1977) relates to perception in terms of "affordances". "An affordance refers to what a perceived object or scene has to offer as far as the individual perceiver is concerned" (S. Kaplan 1979). Kaplan said that preference can be viewed as an outcome of a complex process that includes perceiving things and spaces and reacting in terms of their potential usefulness and supportiveness.

Preference for natural environments is often linked to aesthetics and scenic beauty. However, there is relatively little information about specific environmental changes or manipulations that affect aesthetic impact (Buhyoff and Riesenman 1979).

Planners and natural resource managers are now concerned with visual preference for landscapes. They realize that environmental aesthetics can influence human well-being (Balling and Falk 1982).

Driving for pleasure is a favorite American form of recreation. Much of the pleasure is derived from looking at the visual resource, our national landscape (Harvard and Chaplin 1979, Schauman 1979, and Hammitt et al. 1984). Sightseeing is in fact the most popular form of outdoor recreation in the United States (Kraus 1971).

C. PHOTOGRAPHS AND VISUAL PREFERENCE

Visual imagery is a powerful tool because it reveals much information. Photo-questionnaires can present different views, alternatives and modification to the environment (R. Kaplan 1979). Pictures and photographs communicate with human visual modality. In presenting the environment, they show if approach and locomotion are facilitated or impeded (S. Kaplan 1979).

Photo quality often varies. Factors that may affect viewer preference of photographs are: type of lense used, depth of focus, angle of view, general composition of the photo, time of day, and the season in which photos were taken (Kreimer 1977). Strict photo specifications are recommended for continuity in rating situations. It has been suggested that researchers use more descriptive techniques combined with surveys to become more effective.

Another consideration in photographs is scene complexity.

Studies suggest that complexity is one of the more important properties of visual stimulus or photographs (Ulrich 1981, McCarthy 1979). Ulrich further suggested that content was more important in attention/interest than complexity. Fodor and Pylyshyn (1981), used words to describe ecological layout of an environment, such as "open" or "cluttered".

Even with limitations, photographs have proven helpful in visual preference research and evaluations. Buhyoff and Riesenman (1979) found that people can express consistent preferences for landscape photographs. "In addition, when individuals are given specific informaton about the photograph content and when that content is photographically controlled, consistent use of preference criteria results".

In reference to predicting visual impacts on the landscape or presenting development alternatives for the landscape, Litton (1979) said that anticipated impacts may be portrayed or simulated with photographs.

In the past, visual effects along highways were often overlooked or disregarded for technical or economic reasons. Optimum visual results cannot be expected to occur spontaneously with a given "good" land management practice, such as soil conservation or preservation. They must be actively considered and pursued (Twiss and Litton 1966).

D. ATTITUDES AND INFORMATION

The concept of attitude measurement scales is not a new idea.

Thurstone used paired comparisons, which he call the "law of comparative judgment" in 1927. Likert built his study in 1932 upon Murphy's 1929 investigation concerning quantitative aspects of the study of social attitudes (Summers 1970). An attempt was made to create a conceptual chart that allowed people to put emotional qualities of the environment into language. Russell and Pratt (1980) offered a scale to broaden previous two-valued affective quality scales, such as stressful vs. nonstressful (Figure 1).

Likert scales were used in this study to allow for graduations of attitudes and preferences in the rating scheme.

Information and communications are most effective and attitudes are most likely to change: "(a) when a message which relates to the individual's needs and wants is presented in such a way and at such a time that it is reinforced by related events; (b) when the change is guaranteed social support; and (c) where channels of action or obstacles to action are pointed out" (Halloran 1967). Webster (1971), said an effective message must attract and hold attention, employ symbols which refer to common experiences, arouse basic needs and suggest a way of satisfying those needs, and it must be acceptable in the receiver's social situation. Written communication can be enhanced by visual stimuli to heighten the impact of the message.

A special type of information, called a persuasive communication, when directed at the person's opinion on a specific issue tends to change opinions on logically related issues as well as the targeted opinion (McGuire and Oppenheim 1967).

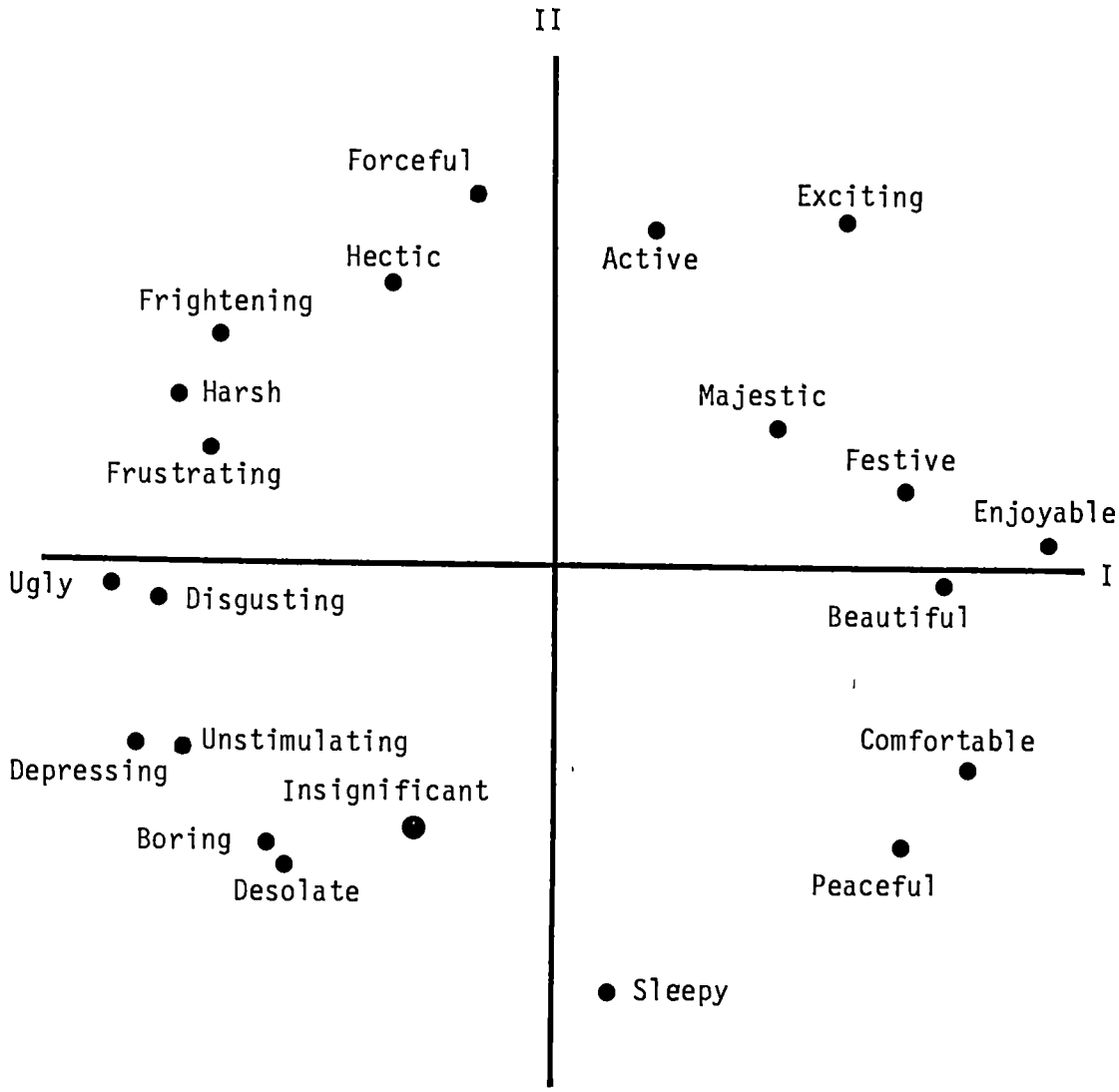


Figure 1. Two principal components of 21 clusters of adjectives descriptive of the affective quality of places; the emotional quality that people verbally attibute to an environment.
(Taken from Russell and Pratt 1980)

Some attitudes are more enduring than others and attitudes vary in intensity (Oppenheim 1966).

Preference ratings for photographs of scenic parkway environments should indicate what vegetation management practices and scenic components of that area interest people. Attitude measurement of written statements should provide additional insight and correlate with visitor photograph preferences. This approach is used as the center or primary data base for this study research.

CHAPTER III

METHODOLOGY

This study was designed to determine the attitudes and preferences of Blue Ridge Parkway visitors on vegetation management. Three types of information were collected:

1) Visitor preferences of photographs,
2) Visitor attitudes on management questions,
3) The above listed points when preceded by an information treatment.

A. STUDY AREA

The Blue Ridge Parkway National Recreation Area is managed by the National Park Service. This scenic Parkway begins at the edge of the Great Smoky Mountains National Park, in Cherokee, North Carolina. It meanders 469 miles northeastward along the ridgetops of the Appalachian Mountains, ending at the Shenandoah National Park in Virginia (Fig. 2).

This diverse area is said to display the Nation's richest variety of deciduous trees and flowering plants. As elevations go above 3,500 feet, the coniferous forests of spruce and fir grow on the cool high peaks. Some visitors have described the Blue Ridge Parkway as scenery and beauty; take that away and there is no Parkway for them.

The Parkway is an extremely important and valuable recreational resource.

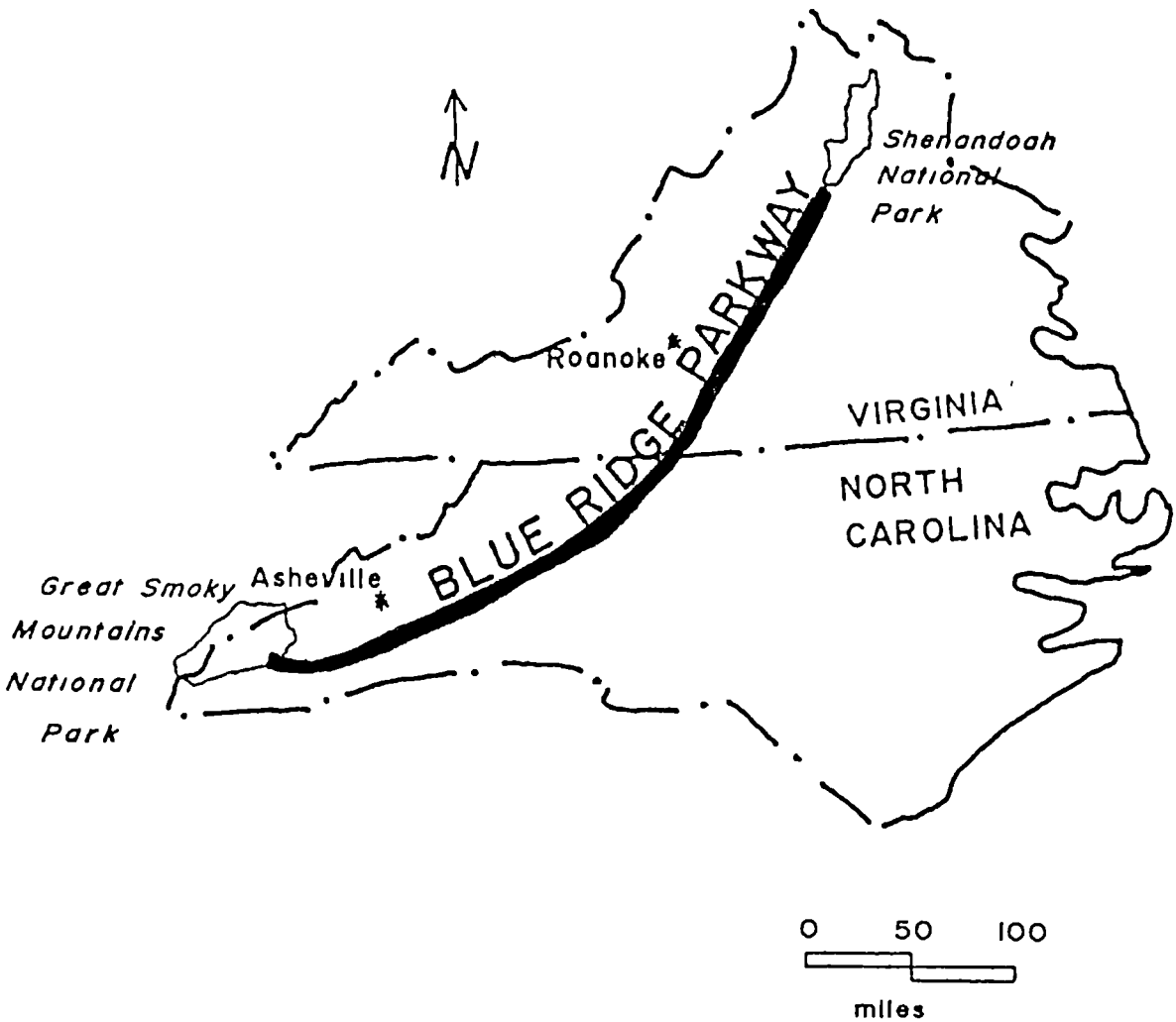


Figure 2. Blue Ridge Parkway map.
(From C. S. Strohmeier master's thesis, 1981)

This unique motorway provides opportunities for sightseeing and it connects other recreational areas and activities in the adjacent national forests and state parks.

B. QUESTIONNAIRE

A photo-questionnaire (in pocket) was the data gathering tool of this study. It was divided into five main parts.

The first part contained a series of 36 color photographs to be rated. The photos addressed three main themes: roadside grass mowing, foreground vegetation just beyond the road, and vegetation at vista overlooks. Roadside views of the Blue Ridge Parkway were obtained from the Parks and Recreation Department of Clemson University. The vista and vista overlook photographs were generated from another NPS study on visitor preferences of scenic vista overlooks (Hammitt 1984). Simulations of some photos were contributed by Syracuse University. These were simulations of actual scenes. The simulations altered the vegetation to represent various types of management by removing or adding vegetation.

The photos, approximately 2 X 3 inches in size were arranged in pairs. There were three pairs per page on each of the six photo pages. Below each photo was printed a preference scale of 1 through 5 and a brief statement. The respondents were to indicate their choice by circling one of the numbers, giving their visual preference for each scene.

The accompanying statements were to direct the respondent's attention to a specific landscape or vegetation management practice within the photo scene.

Photo pairs were used to allow comparisons of vegetation management practices. Each photo showed a management alternative, different from its pair. Each photo was rated using a five point Likert scale (Nachmias 1981) for how much one liked it as compared to its pair (1=not at all, 2=a little, 3=somewhat, 4=quite a bit, 5=very much).

The second part "Vegetation Management Alternatives", was a set of 12 statements. These statements were also rated using a Likert scale. The scale was 1=strongly support, 2=support, 3=probably support, 4=don't support, 5=probably don't support, 6=don't support, 7=definitely don't support. The statements were closely related to the previous photos, putting the management practices into sentence form.

The third part "Outdoor Activities", listed 34 recreational activities. The activities were checked if participated in and put into a frequency catagory. The frequency scale was 1=once a week or more, 2=two to three times a month, 3=once a month, 4=once every couple months, 5=two to three times a year, 6=once a year. This section will be used for other analyses and will not be examined in this study.

The fourth part "Leisure Attitudes", contained ten statements on feelings about leisure, again using a Likert scale. Feelings were rated as 1=strongly agree, 2=agree, 3=probably agree, 4=don't know, 5=probably disgree, 6=disagree, 7=strongly disagree. This section will also be used for analysis elsewhere.

The last part "User Information", consisted of demographic questions on residence, occupation, sex, marital status, education, and income.

The questionnaire was printed on both sides of the paper to keep mailing weight and printing costs low. A colorful, heavier weight green paper was imprinted with a Blue Ridge Parkway scene for the cover.

Each questionnaire was accompanied by a letter of introduction (Appendix B) The two were placed in a large return envelope. The envelope was imprinted with the return address and first class postage. These three items were presented to respondents as a packet during their visit to the Parkway.

C. TREATMENT

One half of the 600 photo-questionnaires began with a one page information message. This information treatment page contained a dual message. An environmental quotation by Aldo Leopold preceded a statement about saving taxpayer's money with a reduction in mowing. The page culminated with, "There is an economy in natural things".

This treatment was used to find out if information influenced participant attitudes on vegetation management when all other procedures and conditions were equal.

D. STUDY POPULATION

On site sampling was used during the last two weeks in August of 1983 along the full length of the Parkway. Every effort was made to include motorcyclists and bicyclists as well as the auto and camper visitors.

To get a broad and balanced sample of the visitors, the Parkway was divided into three sections: southern, middle, and northern. The Appalachian Mountain chain displays great diversity in form, stature, and vegetation over the length of the Parkway. The southern portion is mostly high elevation mountain peaks while the middle is mountainous plateau. The northern portion is ridge and valley.

Each section had many small pull-off, scenic overlook areas, but only a few large pull-off parking lots. Usually these were rest stops, restaurant/gift shops or a nature attraction.

The population sampled was 600 Parkway visitors. They were asked to open and complete the questionnaire at some later time. Pressure was removed as the researchers suggested completing the questionnaire at a campsite, motel room or after the vacation trip.

E. DISTRIBUTION AND FOLLOW-UPS

Over the two week period, each of the three sections were sampled over two weekdays and two weekend days. Approximately 50 visitors were sampled per day, with every other questionnaire containing the information treatment page.

Visitors were sampled from 10:00 a.m. to 6:00 p.m. A University of Tennessee automobile with door emblems was used. Also, a sign was displayed on the windshield to identify the study.

Each researcher approached visitors at the parking lots. A six question contact card (Appendix C) was filled out for each questionnaire distributed. The contact card had questions about the trip so far, and recorded the respondent's name and address. Each visitor when contacted was assured of privacy and anonymity; the addresses were only used for follow-up mailings.

The Dillman et al. (1974) method was used for increasing the return rate on the questionnaires. At about ten day intervals, a series of three follow-ups were mailed:

1. postcard reminder (Appendix D)
2. duplicate questionnaire and new cover letter (Appendix E)
3. final letter requesting cooperation (Appendix F)

This method has proven very successful in obtaining higher return rates (Heberlein, 1978). In this study, 504 useable questionnaires were returned or 84%.

F. RESPONSE

Of the 600 questionnaires distributed, 514 were returned, giving an overall response rate of 85.6%. Of these, 504 questionnaires were useable, giving a net or adjusted rate of 84%.

Only eight visitors or 1.3% refused on site to participate in the study. Table 1 presents the responses broken down by physiographic section.

G. ANALYSES OF DATA

The data from the returned questionnaires were coded and transferred to computer punch cards for analysis. After the card information was electronically put on file, the DEC system 10 was used to analyze the data, using the Statistical Package for Social Sciences (Nie et al. 1975).

Frequencies were computed for the photograph preference ratings and attitudes toward vegetation management. Separate frequency computations were applied to the demographic background variables for the information treatment and no information treatment respondents.

Basic statistics (i.e. mean, standard deviation, variance, minimum and maximum values) were calculated on each variable for all respondents. Student's t-tests were computed for pairs of photos within the information treatment group, and for those within the no treatment group ($p \leq .05$). Student t-tests were also computed for pair differences between the two groups. Photograph scenes were tested against the equivalent or similar situation of the written Vegetation Management Alternatives using the t-test.

TABLE 1. Questionnaire Return Responses by Physiographic Region.

Region	No. of Contacts	No. of Responses	Percent Response
Southern(mountainous peaks)	202	176	87.1%
Middle(mountainous plateau)	190	156	82.1%
Northern(ridge and valley)	208	172	82.7%
Total	600	504	

CHAPTER IV

RESULTS AND DISCUSSION

A. POPULATION DESCRIPTION

Population information was computed with frequency distributions and all percentages have been adjusted to include only usable questionnaire results.

More males (65.7%) completed the questionnaire than females (34.3%). Few Parkway visitors were traveling alone (3.7%), while most visitors were traveling in parties of two (42.9%). The second largest category was groups of three and four people (36.2%). The groups were mainly family groups (73.6%) (Tables 2,3, and 4).

Respondents were primarily married (75.6%), although 16.3% were single (Table 5). Ages ranged from 18 to 80 years old. The mean age was 43.6 years. There was a fairly even distribution of ages, with a few more people age 56 and over (26.5%) (Table 6).

Table 7 shows occupation groups of the respondents. A large number of people were professionals or managers (43.1%). Income levels were distributed well, with the largest frequency occurring in the $20,000 to $29,000 category (19.3%). Some respondents refused to fill in this category on the questionnaire (11.3%) (Figure 3).

The education level of respondents showed that most people had graduated from high school (91.7%). Of these, 73.3% trained beyond high school, with 44.1% holding college degrees or advanced degrees (Figure 4).

Table 2. Population Demographics - Sex

Sex	No. of People	(%)
Male	325	65.7
Female	170	34.3
Missing*	9	-
Total	504	100.0

*Refers to questionnaires not containing this information.

Table 3. Population Demographics - Party Size

Party Size	No. of People	(%)
1	22	3.7
2	253	42.9
3	100	16.9
4	114	19.3
5	48	8.1
6	20	3.4
7+	33	5.7
Missing	10	-
Total	600*	100.0

*Data based on total number of on-site contacts.

Table 4. Population Demographics - Traveling Group

Type Group	No. of People	(%)
Family	416	73.6
Friends	89	15.8
Family & Friends	57	10.1
Other	3	0.5
Missing	35	-
Total	600	100.0

Table 5. Population Demographics - Marital Status

Marital Status	No. of People	(%)
Married	370	75.6
Divorced	22	4.5
Separated	9	1.8
Widowed	9	1.8
Single	80	16.3
Missing	14	-
Total	504	100.0

Table 6. Population Demographics - Age

Age	No. of People	(%)
18-25	53	10.7
26-35	115	23.3
36-45	118	23.9
46-55	77	15.6
56-80	131	26.5
Missing	10	-
Total	504	100.0

Table 7. Population Demographics - Occupation Group

Occupation Group	No. of People	(%)
Prof./Mgmt.	209	43.1
Blue Collar/Serv.	91	18.8
Clerical	38	7.8
Other	147	30.3
Missing	19	-
Total	504	100.0

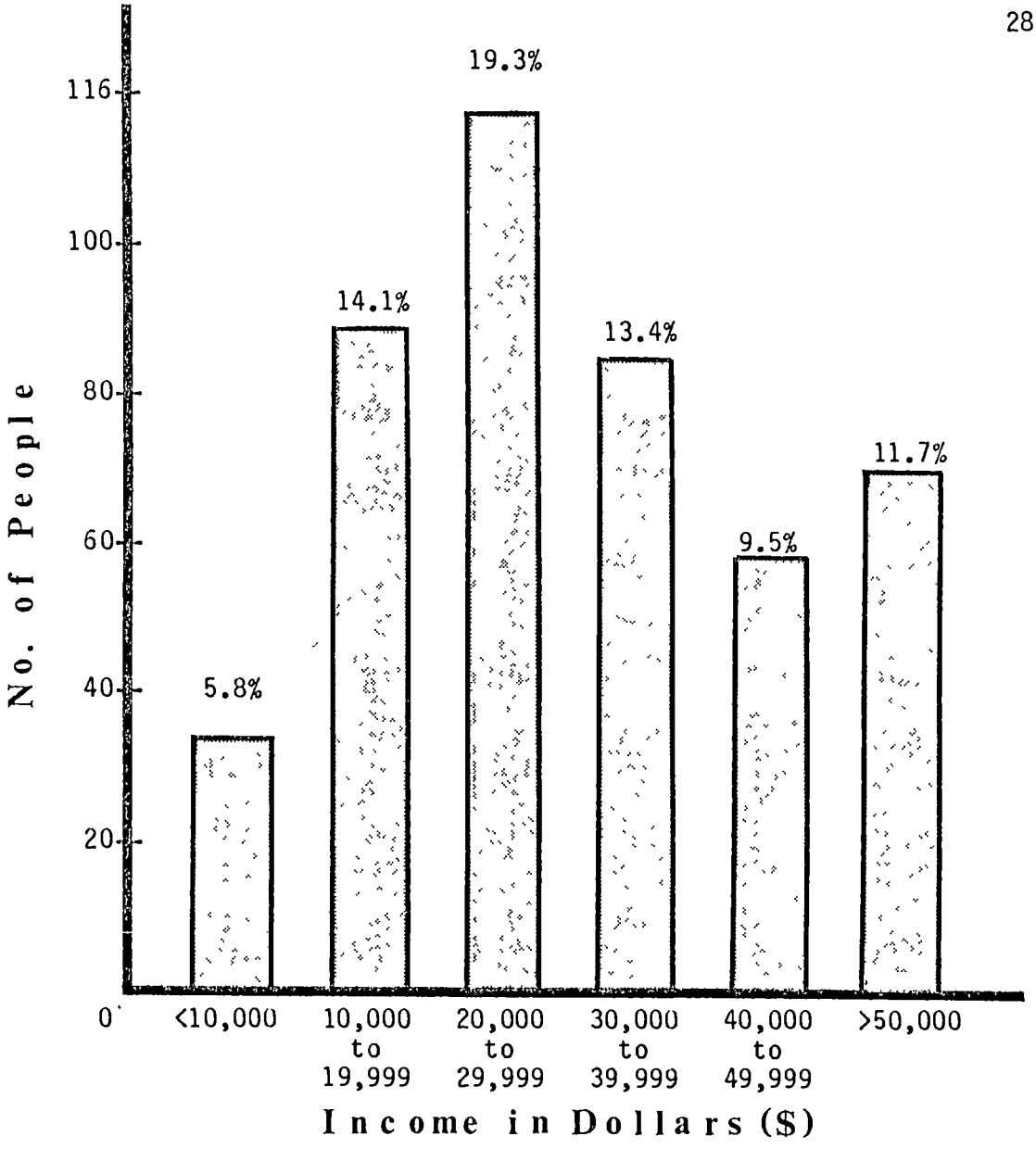


Figure 3. Income Levels of Visitors to the Blue Ridge Parkway, 1982. (Of usable returns, 11.3% did not have this question completed).

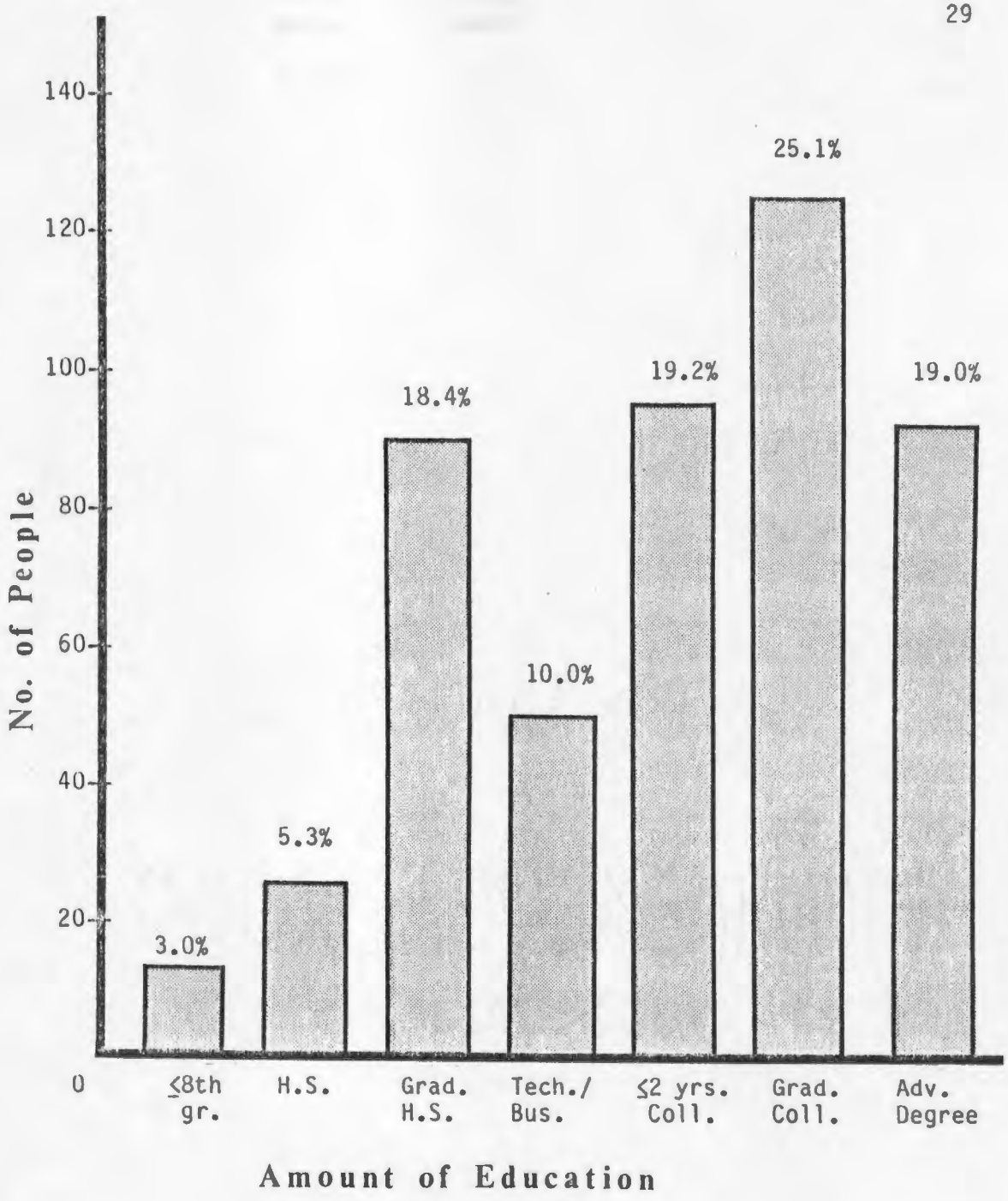


Figure 4. Education Levels Completed by Visitors to the Blue Ridge Parkway, 1982.

The largest number of visitors to the Parkway (55.9%) came from three states, Florida (14.1%), North Carolina (27.7%), and Virginia (14.1%) (Table 8).

Table 9 shows a breakdown of the size area where respondents were raised. The question read, "Check the box that best describes where you lived most of the time before your 16th birthday". It is interesting that all categories were very close in representation.

Each visitor was asked upon contact for approximately how many pull-off overlooks they had visited and how many photographs they had taken so far. Most visitors reported taking five or fewer photographs (74.6%), but most had only stopped at five or fewer overlooks (Tables 10 and 11).

B. SUBPOPULATIONS

Several variable frequencies were checked between the information treatment and no information treatment subpopulations. A crosstabulation procedure was used in the Statistical Package for the Social Sciences (SPSS) program to accomplish the comparisons. The five variable frequencies compared were: sex, marital status, education, occupation, and income.

Table 12 shows the comparisons of the two subpopulations to be remarkably homogeneous. The largest variation was 4.0% in the marital status category of "single or other". The subpopulations are assummed then to be the same and the population homogeneous.

Table 8. Visitor Residence State

State	No. of People	(%)
N. Carolina	140	27.7
Florida	71	14.1
Virginia	71	14.1
Other States	213	44.1
Missing	9	-
Total	504	100.0

Table 9. Visitor Environment Before Age 16.

Area Size	No. of People	(%)
Ranch/Farm	89	18.2
Country(not farm)	72	14.7
Town < 2,500	47	9.6
Town/City (2500-25,000)	88	18.0
City (25,000-100,000)	77	15.7
Suburb	60	12.3
Large City	56	11.5
Missing	15	-
Total	504	100.0

Table 10. Visitor Behavior at Scenic Overlooks-No. of Pull-off Overlooks Visited Prior to Contact by Researcher.

No. of Overlooks	No. of People	(%)
0 - 1	257	43.3
2 - 5	202	34.0
6 - 10	76	12.7
>10	59	10.0
Missing	6	-
Total	600	100.0

Table 11. Visitor Behavior at Scenic Overlooks-No. of Photographs Taken Prior to Contact by Researcher.

No. of Photographs	No. of People	(%)
0 - 1	368	62.6
2 - 5	70	12.0
6 - 10	54	9.2
>10	96	16.2
Missing	12	-
Total	600	100.0

Table 12. Crosstabulation of Frequencies for Selected Population Variables by Information Treatment.

	INFORMATION		NO INFORMATION		
	No. of People	(%)	No. of People	(%)	% Diff.
SEX					
Male	169	34.2	155	31.4	2.8
Female	89	18.0	81	16.4	1.6
Total	258	52.2	236	47.8	
MARITAL STATUS					
Married	184	37.6	185	37.8	0.2
Single & Other	70	14.3	50	10.3	4.0
Total	254	51.9	235	48.1	
EDUCATION					
<8th Grade	8	1.6	7	1.4	0.2
Attended H.S.[a]	12	2.5	14	2.9	0.4
Graduated H.S.	50	10.2	40	8.2	2.0
Tech/Business	23	4.7	26	5.3	0.6
<2 Yrs. Coll.[b]	53	10.8	41	8.4	2.4
Graduated Coll.	63	12.9	60	12.3	0.6
Adv. Degree	45	9.2	47	9.6	0.4
Total	254	51.9	235	48.1	

Table 12 (Continued)

	INFORMATION		NO INFORMATION		
	No. of People	(%)	No. of People	(%)	% Diff.
OCCUPATION					
Prof./Mgmt.	105	21.7	103	21.2	0.5
Bl. C./Serv.[c]	50	10.3	41	8.5	1.8
Clerical	20	4.2	18	3.7	0.5
Other	76	15.7	71	14.7	1.0
Total	251	51.9	233	48.1	
INCOME ($)					
<10,000	24	5.5	11	2.5	3.0
10,000-19,999	40	9.0	45	10.1	1.1
20,000-29,999	56	12.7	59	13.3	0.6
30,000-39,999	44	9.8	37	8.4	1.4
40,000-49,999	29	6.5	28	6.3	0.2
>50,000	37	8.4	33	7.5	0.9
Total	230	51.9	213	48.1	

[a] High School
[b] College
[c] Blue Collar/Service

C. VISUAL PREFERENCES

The 36 photographs in the questionnaire were rated for visual preference. They were presented as 18 photo pairs to be rated for how much one liked a photo as compared to its pair.

Roadside grass mowing scenes were depicted in eight photo pairs. Located under each photo pair is its mean rating and the amount of difference between ratings, both for the information and no information treatment groups.

Table 13, taken from Appendix H, shows two groupings of the roadside mowing photo ratings. In the first five photo pairs, the highest preferences are for the least mowing (Figures 5,6, and 7). Only one mower width (approximately 7 feet) was cut from the pavement. Mowing beyond the guardrail (photo 1b) or mowing to the treeline (photo 2b, 6b, and 9b) was less preferred on all these photos.

An element that may have biased these photo ratings is the presence of summer wildflowers. Wildflowers and broadcast or widespread mowing are not compatible. Some of these wildflowers appear common and somewhat weedy, yet in bloom, and they were preferred over the same mowed area (photo pair 7 and 9).

The last three photo pairs in Table 13 show a change in preference for the more manipulated scenes in the no information treatment group (Figure 8 and 9). It is interesting though to note that the mean preference ratings were reversed in pair 8 and 3 for the information treatment group.

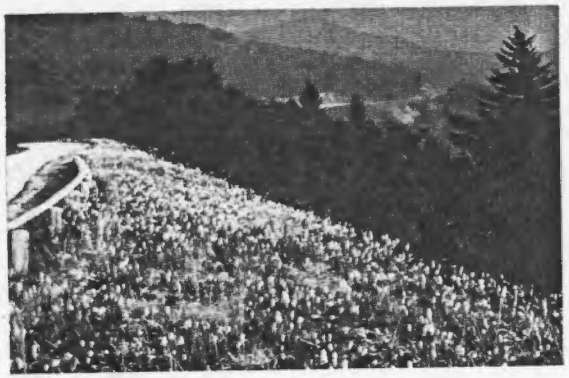
Table 13. Mean Preference Ratings for Paired Photos of Roadside Vegetation, Blue Ridge Parkway.

	NO INFORMATION TREATMENT			INFORMATION TREATMENT		
	Photo Pair Means[a]			Photo Pair Means		
Photo Pair	Less Veg. Removal	More Veg. Removal	Mean Diff.	Less Veg. Removal	More Veg. Removal	Mean Diff.
1a-1b	4.02 ←	2.30	1.72*	3.94 ←	2.37	1.57*
7b-7a[b]	3.87 ←	2.68	1.19*	3.92 ←	2.43	1.49*
2a-2b	3.75 ←	2.79	0.95*	3.76 ←	2.44	1.32*
9a-9b	3.45 ←	2.81	0.64*	3.51 ←	2.51	1.00*
6a-6b	3.57 ←	3.09	0.47*	3.69 ←	2.66	1.03*
4a-4b	1.87 →	4.23	2.36*	2.08 →	3.79	1.71*
8a-8b	2.87 →	3.32	0.45*	3.15 ←	3.02	0.13
3a-3b	2.73 →	3.02	0.29	2.92 ←	2.71	0.21

[a] Means are based on a visual preference rating scale, where 1=liked not at all and 5=liked very much.

[b] The format positions of the less vegetation and more vegetation removal photos were reversed in the questionnaire.

*Mean difference statistically significant at the $p \leq .05$ level.



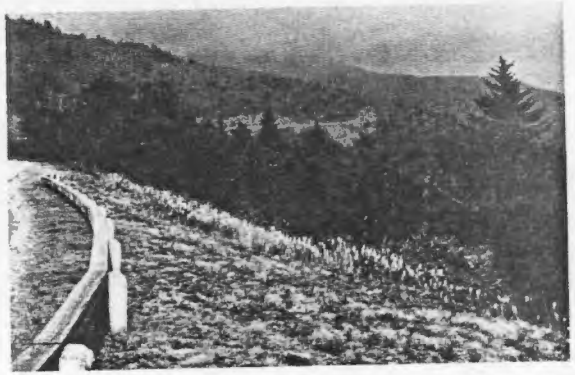
1a

1 2 3 4 5 No mowing beyond guardrail.

$X_T = 3.94$
$X_{NT} = 4.02$

Mean Diff.
1.57 *
1.72 *

1b



1 2 3 4 5 Mowing to and beyond guardrail.

$X_T = 2.37$
$X_{NT} = 2.30$

7a

1 2 3 4 5 Mowing to treeline.

$X_T = 2.43$
$X_{NT} = 2.68$

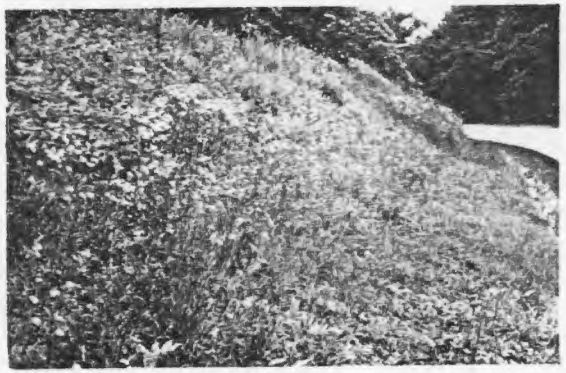
Mean Diff.
1.49 *
1.19 *

7b

1 2 3 4 5 Mowed one mower width from roadside.

$X_T = 3.92$
$X_{NT} = 3.87$

Figure 5. Grass mowing photograph pairs 1a-1b and 7a-7b.
*Means significantly different at the $p \leq .05$ level.



2a 2b

1 2 3 4 5 Mowed one mower width from roadside.

X_T = 3.76
X_{NT} = 3.75

Mean Diff.
1.32 *
0.95 *

1 2 3 4 5 Mowed to treeline.

X_T = 2.44
X_{NT} = 2.79

9a 9b

1 2 3 4 5 Only roadside shoulder mowed.

X_T = 3.51
X_{NT} = 3.45

Mean Diff.
1.00 *
0.64 *

1 2 3 4 5 Mowed to fenceline and beyond.

X_T = 2.51
X_{NT} = 2.81

Figure 6. Grass mowing photograph pairs 2a-2b and 9a-9b.

6a 6b

1 2 3 4 5 Mowed one mower width from roadside.

X_T = 3.69
X_{NT} = 3.57

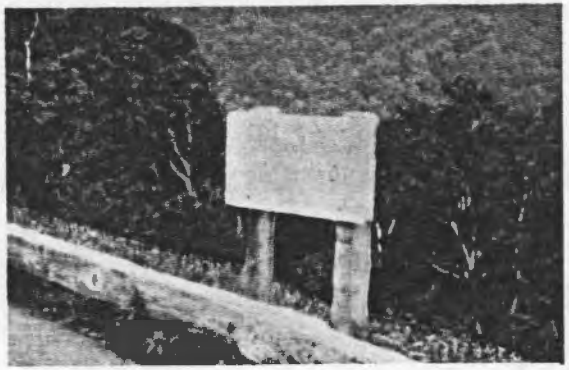
Mean Diff.
1.03 *
0.47 *

1 2 3 4 5 Mowing complete to treeline.

X_T = 2.66
X_{NT} = 3.09

Figure 7. Grass mowing photograph pair 6a-6b.

4a 4b



1 2 3 4 5 Vegetation not mowed around sign.

$X_T = 2.08$
$X_{NT} = 1.87$

Mean Diff.
1.71*
2.36*

1 2 3 4 5 Vegetation mowed around & beyond sign.

$X_T = 3.79$
$X_{NT} = 4.23$

8a 8b

1 2 3 4 5 Mowed only at mid-summer.

$X_T = 3.15$
$X_{NT} = 2.87$

Mean Diff.
0.13
0.45*

1 2 3 4 5 Mowed every three weeks.

$X_T = 3.02$
$X_{NT} = 3.32$

Figure 8. Grass mowing photograph pairs 4a-4b and 8a-8b.

3a 3b

1 2 3 4 5 No mowing.

X_T = 2.92
X_{NT} = 2.73

Mean Diff.
0.21
0.29

1 2 3 4 5 Complete mowing into treeline.

X_T = 2.71
X_{NT} = 3.02

Figure 9. Grass mowing photograph pair 3a-3b.

In this instance, it appears that the information treatment did make a difference on the preference ratings for grass mowing. These three scenes do not contain wildflowers that could possibly bias the visitor preferences.

It is clear that both groups prefer the interpretive sign in photo pair 4 to be visible and neatly mowed around. A man-made feature may appear more harmonious with its setting if the area is intensively managed.

Vista photo mean preference ratings are shown in three groups in Table 14 (Taken from Appendix H). The first group of two photo pairs 16 and 10 (Figure 10), both show heavy vista view blockage by foreground vegetation, mainly trees. About 60 to 80 percent of the vista view is impeded. Clearing the dense tree vegetation to a low foreground level or selectively cutting to re-open the view caused visitors to rate the vegetation management practice or result photo as highly preferred. Not all trees were removed, but the vistas were much more visible. Photo 16b creates a framing or window effect with peripheral trees.

The second group of five photo pairs listed in Table 14 show the vista views only partially blocked (Figure 11, 12, and 13). The foreground trees and woody vegetation block approximately 20 to 60 percent of the view. These photo pairs showed only a small preference difference within each pair. The scene displaying the vegetation management practice or tree removal, in general, was slightly more preferred. It seems to create the framing effect mentioned earlier.

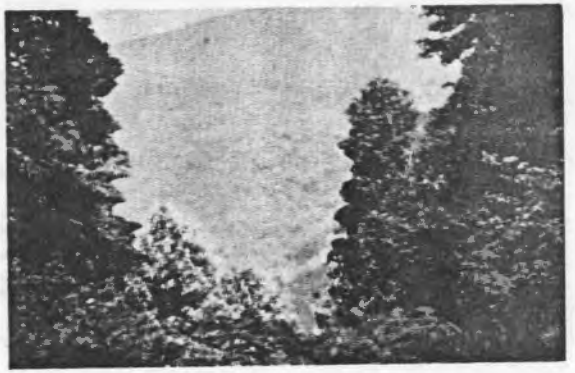
Table 14. Mean Preference Ratings for Paired Photos of Low Foreground and Foreground Vista Vegetation, Blue Ridge Parkway.

	NO INFORMATION TREATMENT			INFORMATION TREATMENT		
	Photo Pair Means[a]			Photo Pair Means		
Photo Pair	Less Veg. Removal	More Veg. Removal	Mean Diff.	Less Veg. Removal	More Veg. Removal	Mean Diff.
16a-16b	1.95 →	4.51	2.55*	1.92 →	4.49	2.57*
10a-10b	2.12 →	4.25	2.13*	2.19 →	4.08	1.88*
11a-11b	3.37 →	3.68	0.31	3.37 →	3.69	0.32*
18a-18b	3.39 ←	3.14	0.25	3.52 ←	3.16	0.35*
13a-13b	2.89 →	3.12	0.23	3.00 →	3.06	0.06
12a-12b	3.14 →	3.30	0.16	3.08 →	3.38	0.30
15a-15b	2.86 →	3.02	0.16	2.90 →	3.09	0.18
14a-14b	3.97 ←	2.61	1.36*	4.09 ←	2.56	1.53*
5a-5b	3.65 ←	2.46	1.19*	3.75 ←	2.40	1.35*
17a-17b	3.89 ←	2.71	1.18*	3.99 ←	2.64	1.35*

[a] Means are based on visual preference rating scale, where 1=liked not at all and 5=liked very much.

*Mean difference statistically significant at the $p \leq .05$ level.

16a 16b



1 2 3 4 5 Trees closing in vista more than 50%.

$X_T = 1.92$
$X_{NT} = 1.95$

Mean Diff.
2.57*
2.55*

1 2 3 4 5 Selective cutting to re-open vista.

$X_T = 4.49$
$X_{NT} = 4.51$

10a 10b

1 2 3 4 5 Trees closing in the scenic vista.

$X_T = 2.19$
$X_{NT} = 2.12$

Mean Diff.
1.88*
2.13*

1 2 3 4 5 Low shrubs in distant foreground.

$X_T = 4.08$
$X_{NT} = 4.25$

Figure 10. Vista view vegetation photograph pairs 16a-16b and 10a-10b.
*Mean difference statistically significant at the $p \leq .05$ level.

11a 11b

1 2 3 4 5 Vista with some trees in foreground.

$X_T = 3.37$
$X_{NT} = 3.37$

Mean Diff.
0.32 *
0.31

1 2 3 4 5 Trees removed from foreground in vista.

$X_T = 3.69$
$X_{NT} = 3.68$

18a 18b

1 2 3 4 5 Original scene with edge trees.

$X_T = 3.52$
$X_{NT} = 3.39$

Mean Diff.
0.35 *
0.25

1 2 3 4 5 Single edge tree removed.

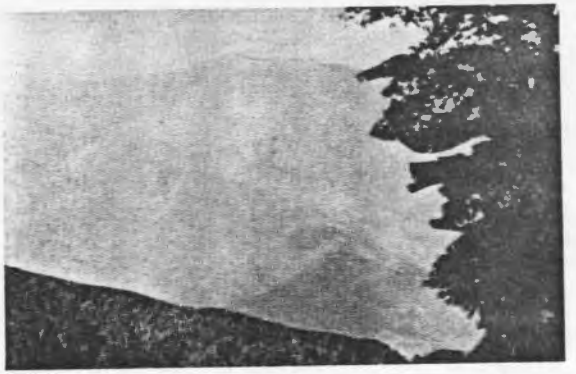
$X_T = 3.16$
$X_{NT} = 3.14$

Figure 11. Vista view vegetation photograph pairs 11a-11b and 18a-18b.

1 2 3 4 5 Scene with foreground trees.

$X_T = 3.00$
$X_{NT} = 2.89$

13a 13b



1 2 3 4 5 Foreground trees completely removed.

$X_T = 3.06$
$X_{NT} = 3.12$

Mean Diff.
0.06
0.23

1 2 3 4 5 Foreground trees in vista.

$X_T = 3.08$
$X_{NT} = 3.14$

12a 12b

1 2 3 4 5 No foreground trees in vista.

$X_T = 3.38$
$X_{NT} = 3.30$

Mean Diff.
0.30
0.16

Figure 12. Vista view vegetation photograph pairs 13a-13b and 12a-12b.

15a 15b

1 2 3 4 5 Shrubs in foreground.

$X_T = 2.90$
$X_{NT} = 2.86$

Mean Diff.
0.18
0.16

1 2 3 4 5 Shrubs removed by cutting & controlled burning.

$X_T = 3.09$
$X_{NT} = 3.02$

Figure 13. Vista view vegetation photograph pair 15a-15b.

It appears that visitors are willing to tolerate some foreground vegetation in the vista view and they may actually prefer it.

The last group of three photo pairs in Table 14 show near foreground vegetation. Visitors preferred the less vegetation management photo (Figure 14 and 15). In fact, the mean differences for all three photo pairs were distinct. Visitors did not prefer the management practices: controlled burning, removal of hardwoods, and mowing and cutting of foreground vegetation (shrubs). It appears that visitors again will tolerate some blocking, less than 30 percent of vista views.

The number of vista photographs was limited, but visitor preferences for several vegetation management practices were found. Where trees and vegetation block approximately 40 percent or more of the vista view, selective cutting creates a significantly higher visitor preference. Perhaps around 40 percent blockage is the threshold that visitors will tolerate. If the vegetation is low in the foreground, visitors tend to prefer the scene. Visitors may not prefer to manage for conifer species; however, only one photo pair tested this, which is not sufficient to draw conclusions. Further research is needed to verify these tentative findings.

Other studies have reported that the use of "photograph labels" may influence the preference rating that people give photographic scenes (Anderson 1981, Hodgson and Thayer 1980). The captions used in the photo questionnaire for this study may have a similar influence.

14a 14b

1 2 3 4 5 Hardwood and conifer (evergreen) trees present.

X_T = 4.09
X_{NT} = 3.97

Mean Diff.
1.53 *
1.36 *

1 2 3 4 5 Hardwoods cut to emphasize conifers.

X_T = 2.56
X_{NT} = 2.61

5a 5b

1 2 3 4 5 Shrub vegetation in near foreground.

X_T = 3.75
X_{NT} = 3.65

Mean Diff.
1.35 *
1.19 *

1 2 3 4 5 Shrubs managed by controlled burning.

X_T = 2.40
X_{NT} = 2.46

Figure 14. Vista view vegetation photograph pairs 14a-14b and 5a-5b.

17a 17b

1 2 3 4 5 Low shrubs in distant foreground.

X_T = 3.99
X_{NT} = 3.89

Mean Diff.
1.35 *
1.18 *

1 2 3 4 5 Mowing and cutting of foreground vegetation.

X_T = 2.64
X_{NT} = 2.71

Figure 15. Vista view vegetation photograph pair 17a-17b.

However, these captions are different in that they point out different levels of vegetation management in the scenes. They were not used as bipolar statements of natural versus manipulated. It was intended that the caption statements direct the respondent to a particular vegetation management practice being demonstrated within each photo pair. Sensitive words such as "mowed" were used in both photos within a pair. Photo pairs concerning trees and vistas used words such as "removed" instead of the more sensitive "cut" wherever possible, except when needed to describe a perticular management practice.

D. VISITOR SUPPORT FOR VEGETATION MANAGEMENT ALTERNATIVES

Visitors were also asked to give their level of support for twelve written statements concerning vegetation management alternatives. In an effort to learn of visitor attitudes, level of support was asked for three statements that addressed levels of vista maintenance and nine statements that described levels of roadside vegetation maintenance.

This section was developed to compliment or possibly replicate visitor attitudes with the visual preferences discussed in the photograph comparisons of management practices. These statements were not specifically related to any one photograph or pair of photographs.

The levels of support were based on a scale of 1=strongly support to 6=definitely don't support (Appendix H). For presentation here, the categories were collapsed. "Strongly support" and "support" were combined to form the <u>support</u> designation.

"Probably support" and "Probably don't support" formed the indefinite designation. "Don't support" and "definitely don't support" formed the non-support designation (Table 15).

Visitors tend to support the first two vista statements. Annual vista clearing and cutting or trimming every 5 to 7 years were supported by approximately 40%. The third statement, maintenance often enough so that no more than one-third of the view was blocked, was strongly supported by 59%. This support is in agreement with the photograph preferences. Up to about 40% view blockage was tolerated, although selective cutting or tree removal increased preferences for those scenes to a slight degree.

In the roadside grass mowing statements, a high amount of non-support (74%) was found for weekly mowing, like a lawn. Only 8% supported this statement. The other statement receiving non-support (44%) was mowing from the road's edge to the treeline. This agrees with the photo preferences also where mowing to the treeline was not preferred (Photo 2b, 6b, and 7a).

Mowing practices that were most supported were: mowing once in the Fall after the wildflowers are through blooming (41%), mowing only one mower width from the edge of the road surface (46%), and mowing only when necessary to maintain driver safety and help prevent grass fires (37%). This last statement, however, was not supported by almost an equal number (36%).

Visitors were very indefinite and undecided on mowing two mower widths from the road's edge (38%) or mowing from the road's edge to the ditch or swale (39%).

Table 15. Levels of Support for Vegetation Management Alternatives Statements on Pull-off Vistas and Roadside Grass Mowing, Blue Ridge Parkway.

MAINTENANCE OPTION	LEVEL OF SUPPORT (%)			
	Support	Indefinite	Non-support	Don't Know
Shrubs and trees at pull-off vistas should be cut or trimmed :				
annually to maintain a completely clear view.	41	25	28	6
every 5 to 7 years, before the shrubs in the foreground block much of the distant view.	42	35	14	9
just often enough so that no more than 1/3 of the view is blocked.	59	31	23	7
The roadside grass should be mowed :				
weekly, like a lawn.	8	15	74	4
every two weeks, when 3 to 6 inches tall.	31	28	36	5
once per month, when at least 10 inches tall.	32	34	27	7
once in the Fall after the wildflowers are through blooming.	41	23	27	9
only one mower width (7 feet) from the edge of the road surface.	46	28	21	5
two mower widths (14 feet) from the road's edge.	19	38	33	10
from the road's edge to the ditch or swale.	24	39	20	17
from the road's edge to the treeline.	23	26	44	7
as little as possible, only when necessary to maintain driver safety and help prevent grass fires.	37	23	36	4

There may be a problem in trying to visualize these two situations. One more indefinite or undecided practice was mowing once per month, when at least 10 inches tall (34%). This statement received almost equal numbers of supporters (32%) and non-supporters (27%). This agrees with the photograph preferences of photo 8a which received a low preference rating.

Results from the roadside maintenance statements closely agree with the photograph preference ratings. Most visitors preferred mowing one mower width from the roadside and mowing after the wildflowers are through blooming. Most visitors did not prefer frequent mowing and mowing to the treeline.

E. INFORMATION TREATMENT EFFECTS

The T-test was used to compare the mean differences for each photo pair between the information treatment and the no information treatment.

Photo pairs showing a significant difference ($p \leq .05$) between groups were few. The information treatment influenced preference ratings on three of the eighteen pairs (Table 16).

Photo 4a-4b

Photo 6a-6b

Photo 8a-8b

All three photo pairs show grass mowing scenes. Only photo pair 6 contains wildflowers, which could possibly bias the results.

Table 16. Paired T-Test of Photograph Preferences by Treatment, Blue Ridge Parkway.

Photo Pair	Group	Mean Diff.	T Value	df	2-tail Probability
1	I.T.[a]	1.57	-0.69	462	0.492
	N.T.[b]	1.72			
2	I.T.	1.32	1.69	458	0.920
	N.T.	0.95			
3	I.T.	0.21	2.05	455	0.410
	N.T.	0.29			
*4	I.T.	1.71	3.11	443	0.002
	N.T.	2.36			
5	I.T.	1.35	0.76	450	0.450
	N.T.	1.19			
*6	I.T.	1.03	2.37	454	0.018
	N.T.	0.47			
7	I.T.	1.49	-1.41	449	0.160
	N.T.	1.19			
*8	I.T.	0.13	2.62	446	0.009
	N.T.	0.45			
9	I.T.	1.00	1.42	454	0.157
	N.T.	0.64			
10	I.T.	1.88	1.37	461	0.171
	N.T.	2.13			
11	I.T.	0.32	-0.05	457	0.961
	N.T.	0.31			
12	I.T.	0.30	-0.58	453	0.561
	N.T.	0.16			
13	I.T.	0.58	0.73	455	0.468
	N.T.	0.23			
14	I.T.	1.53	0.89	457	0.372
	N.T.	1.35			
15	I.T.	0.18	-0.08	458	0.933
	N.T.	0.16			
16	I.T.	2.57	-0.12	458	0.906
	N.T.	2.55			
17	I.T.	1.35	0.79	460	0.429
	N.T.	1.18			
18	I.T.	0.35	0.48	455	0.630
	N.T.	0.25			

*Information Treatment was statistically significant at the $p \leq .05$ level.

[a]-I.F. is Information Treatment
[b]-N.T. is No Information Treatment

The information treatment group preferred less mowing in three of the four photos. The preference toward more mowing is found with photo 4b, where intensive mowing occurred around the interpretive sign.

The conclusion can be drawn that in this study, the information treatment page did have an effect on visitor preferences in 37% of the grass mowing photos. There appeared to be no effect on visitor preferences of the vista photos.

F. PHOTO RATING COMPARISONS WITH SIMILAR PRINTED STATEMENTS

Support for the Vegetation Management Alternatives statements was compared to the preference ratings of the photos. Each vegetation statement was compared in a t-test with all photos that showed a similar vegetation management practice (Table 17).

For example, the respondents were divided into two groups, based on whether they "supported" or "didn't support" each of the vegetation management alternatives. Then the mean preference ratings of each group were compared for each photo that illustrated the management practice described in the alternative statements. As an example, did those respondents who said they "supported" mowing only one mower width from the roadside actually rate photos of this practice (i.e. photo 6a) higher in preference than those respondents who "didn't support" the statement?

Table 17. Vegetation Management Alternatives Statements Compared to Related Photographs.

MAINTENANCE OPTION	Photo No.	Mean Group 1[a]	Mean Group 2[b]	T Value	Sign. Level
The roadside grass should be mowed :					
1. weekly, like a lawn.	-	-	-	-	-
2. every two weeks, when 3 to 6 inches tall.	8b	3.75	2.52	8.47	0.0001
3. once per month, when at least 10 inches tall.	-	-	-	-	-
4. once in the Fall after the wildflowers are through blooming.	1a	4.28	3.41	5.37	0.0001
	1b	2.14	2.82	-4.21	0.0001
	2a	3.98	3.25	5.03	0.0001
	7b	4.13	3.55	3.90	0.0001
	9a	3.86	2.81	6.23	0.0001
5. only one mower width (7 feet) from the edge of the road surface.	6a	4.37	2.56	12.35	0.0001
	7b	4.49	2.84	10.46	0.0001
	9a	4.15	2.47	9.88	0.0001
6. two mower widths (14 feet) from the road's edge.	6b	3.25	2.44	3.83	0.0001
	9b	3.12	2.19	4.53	0.0001
7. from the road's edge to the ditch or swale.	9a	3.45	3.89	-2.11	0.0360
	9b	2.87	2.25	2.66	0.0090
8. from the road's edge to the treeline.	2b	4.20	1.73	17.12	0.0001
	6b	4.37	1.91	18.01	0.0001
	7a	4.13	1.75	15.93	0.0001
9. as little as possible, only when necessary to maintain driver safety and help prevent grass fires.	-	-	-	-	-
Shrubs and trees at pull-off vistas should be cut or trimmed :	5a	3.34	4.15	-6.24	0.0001
	5b	2.88	2.05	5.27	0.0001
	11b	4.08	3.05	6.23	0.0001
10. annually to maintain a completely clear view.	12b	3.89	2.72	7.01	0.0001
	13b	3.58	2.47	6.44	0.0001
	17b	3.30	1.93	9.22	0.0001
11. every 5 to 7 years, before the shrubs in the foreground block much of distant view.	5a	3.86	3.44	2.30	0.0230
	17a	3.97	3.57	2.38	0.0280
12. just often enough so that no more than 1/3 of the view is blocked.	10b	4.03	4.36	-2.65	0.0090
	11a	3.68	2.93	4.84	0.0001
	12a	3.48	2.58	5.57	0.0001

[a] Strongly support and support
[b] Don't support and Definitely Don't Support

Six of the nine vegetation management alternative statements concerning the levels of grass mowing were illustrated or closely simulated in the photograph section. All six statements were not rated significantly different from the comparable photographs. Therefore, respondents rated preferences for the statement ideas basically the same as the preferences for the photographs. There is a significant relationship between preference ratings for the statements and the photographs.

The support for statement 4 (see questionnaire in pocket) on mowing after the wildflowers were through blooming had a significant relationship with preferred photos 1a, 7b, and 9a. Each photo contained wildflowers and mowing only one mower width from the road. This was true also of photo 1b which was not preferred for mowing beyond the guardrail, including the wildflowers.

Vegetation statement 5 was supported for mowing only one mower width from the road's edge which had a significant relationship with photos 6a, 7b, and 9a. All photos preferred one mower width and also had wildflowers in the scene.

Visitors did not support vegetation statement 8, mowing from the road's edge to the treeline. This had a significant relationship with photos 2b and 7a, which were not preferred for mowing to the treeline.

The vista view statement 10 was supported for annual cutting or trimming for a completely clear view. Significance was determined with photos 5a, 5b, and 17b. Photo 5a was preferred for shrub vegetation in the near foreground, which would need regular trimming.

Photos 5b and 17b were not preferred and the significance is unclear.

Statement 11 was supported for cutting and trimming every 5 to 7 years to prevent view blockage. Photo 5a shows significance in preference for shrubs in the near foreground.

Some vegetation statement results related very closely to the preferences found in the photo ratings. The amount of statements relating to specific photos only allowed for limited comparisons.

CHAPTER V

BACKGROUND VARIABLES

Studies of this nature generally observe the possible effects that population background variables may have on results. That is, do variables such as visitor marital status, education, sex, occupation or income level affect visual preference or visitor attitudes.

One-way analyses of variance and/or Chi-square tests were applied for each background or demographics variable in the questionnaire. These tests can tell the researcher if the population is homogeneous or if subpopulations exist. For each population variable, no significant differences were found for the visual preference ratings or vegetation management statements. The information treatment group or subpopulation was also tested separately from the no information group. These subpopulations again showed no significant differences between visitor characteristics. Therefore, the study population was very homogeneous.

Wellman and Buhyoff (1980) found that people who had varying orientations toward natural landscapes have been shown to demonstrate strong similarities in their preferences. They submit that possibly generic or generalized landscape preference models may be meaningful.

Student's t-test and Chi-square were statistical tests used to discern differences among treatment groups across background variables and no significant differences were found ($p \leq .05$).

CHAPTER VI

MANAGEMENT IMPLICATIONS

General implications are suggested by the results of this study. Natural resource managers may benefit by using the findings to aid in future planning, developing, and managing of visual resources. Visitors usually come to the Blue Ridge Parkway for the visual resource, to sightsee. Therefore, visitor attitudes and preferences should be considered as suggestions on how to maintain or improve the resource.

Preference for roadside grass mowing widths and foreground vegetation levels (Shafer 1977), and the amount of tolerable vista view obstruction that visitors prefer to see, allow managers to maintain scenic parkways accordingly. Location of possible future vehicle pull-off vista areas may also be located on a basis of vegetation preference.

Scenes that visitors seemed to desire and like most were those with a minimum of roadside mowing, especially if wildflowers appear along the roadside. Visitors do prefer to have a sign clearly visible and maintained. They like scenic vistas to have a relatively clear view, but they do tolerate some obstructions. Low foreground and middleground trees and shrubs are preferred. By mowing roadsides less than to the treeline and planting more roadside wildflowers, visitors should enjoy the drive even more than they now enjoy it.

Manicured areas containing signs should continue to be maintained with frequent mowings. Managers could select shrub species for intermittent plantings where distant vistas are preceded by large open areas. Vistas with the view now blocked over 50% could be improved by selectively thinning out those trees in direct view. Peripheral trees at an overlook appear to be no problem for sightseers. In fact, these edge trees seem to "frame" or focus the viewers attention inward. This framing of the view directs attention toward the far end of the scene (U.S.F.S. 1973). In this study, distant mountains became the focal points.

Visitor attitudes supported infrequent grass mowing only one mower width from the road and mowing once in the Fall where wildflowers bloomed. They strongly supported cutting and trimming vegetation just enough so that no more than one-third of the view is blocked. These strongly supported attitudes concur with the photograph results and the visitor support could be sustained or increased by following the suggestions already specified.

Scenes that were not preferred included management by controlled burning of vegetation, blocked vistas, and total cutting of intermediate hillsides. Although controlled burning is not liked, it is a very valuable management alternative to mechanical control of vegetation. Similar results and negative visual effects were found by Anderson et al. (1982). It is inexpensive, ecologically sound and beneficial, and the burned area "greens up" in a very short time (about 2 weeks), making the burn almost completely disappear.

Keyes (1984) found that an unpreferred scene significantly increased in preference for trail users when an interpretive sign was placed at that scene. Perhaps an interpretive sign could be placed at burned areas, explaining the benefits of controlled burning as a management tool. Blocked vistas and complete vegetation vista foregrounds have already been discussed.

Managers of existing Parkway scenery as well as that of possible future parkways or scenic highways that implement the visitor perception and preference methodology should enhance sightseeing and driving for pleasure.

State and local highway departments could consider implementing the preferred practices along interstate highways and state highways. This may improve visitor preferences of the view as well as aid in combating "highway hypnosis". The addition of wildflowers would be especially helpful in this respect and they would warrant less frequent mowing along the roadsides.

Perhaps future studies of this kind could include everyday highway travelers. A study might be created specifically for highways and interstates, even to the extent of sampling perceptions and attitudes on billboards.

The photo-questionnaire was an effective tool to obtain visitor attitudes and preferences for vegetation management along the Blue Ridge Parkway. Visitors received the researchers, the study, and the questionnaires with considerable enthusiasm. Through the follow-up reminders, a very high percentage of questionnaires were returned (85.6%). Only 1.6% were not properly completed and were unusable.

The vast majority of visitors accepted, understood and returned the questionnaires. This method was highly successful as others have found (Fountain 1972, Hampe and Noe 1979, Hammitt 1980, Keyes 1984).

CHAPTER VII

SUMMARY AND CONCLUSIONS

The purpose of this study was to determine the visual preferences for and attitudes toward vegetation management along the Blue Ridge Parkway.

The general scope of the study relates to the perceptions people have of a scenic parkway. In particular, maintenance of the vegetation and how it affects perceptions and consequently visitor preferences and attitudes was being studied. It is hoped that natural resource managers might rework vegetation management priorities to include visitor preferences. At the same time, managers will most likely conserve maintenance funds by altering intensive vegetation manicuring practices. Specific objectives aimed toward assisting natural resource managers were to:

1. Identify preferences among pairs of vista photos and pairs of roadside photos that illustrated particular vegetation management practices;
2. Test information influences on visitor attitudes and preferences toward vegetation management along the Blue Ridge Parkway. One half of the questionnaires began with an information treatment;
3. Examine photo ratings for a threshold or tolerance level related to grass mowing and vista view clearing;

4. Obtain attitude ratings on written questions describing various vegetation management intensities and alternatives.

The research was based on the theory that people are information processing organisms, assimilating information about their environment. Environments offer different information and are preferred on the content they reveal. This approach allowed for grouping of similarities found among visitor preferences which led to specific suggestions for resource management.

A. SOME RESULTS

Photograph preference ratings indicated that visitors have definite preferences for certain grass mowing scenes and certain scenic vista scenes along the Parkway. Of particular interest and preference to visitors in this study were: a minimum of roadside grass mowing; inclusion of low foreground and a limited amount of middleground trees and shrubs within a vista view; and vistas in which trees and shrubs blocked less than 50% of the dominant view.

Based on Likert preference ratings, frequency distributions were used to determine the most preferred scenes and management practices. The most preferred roadside scenes were those showing a minimum of mowing, only one seven-foot width or swath from the road surface and those showing wildflowers at the roadsides. The most preferred vista scenes were those containing low vegetation such as small trees or shrubs intermediate on the land preceding the distant mountain view.

Least preferred roadside scenes included grass mowing from the road surface to the treeline. The exception to this intensively manicured look became apparent when a sign occurred at the roadside. Visitors preferred close mowing around the sign. Least preferred vista scenes were those with the view blocked over 50% by trees and tall vegetation. Also controlled burning was not preferred as a management alternative.

The information treatment was apparent in affecting visitor preferences for only three photograph pairs. All three were grass mowing scenes, two preferring less mowing while the third preferred more mowing around a sign. Even with this dichotomy, the mowing around the sign was less preferred by the information treatment group than by the no information treatment group, the desired result.

Visitor attitudes supporting similar mowing and cutting practices were sampled with written statements. Visitors strongly supported mowing only one width from the road, mowing once in the Fall after wildflowers have bloomed and cutting vegetation just enough so that no more than one-third of the vista view is blocked.

The results of this study imply that roadsides need not be maintained to a highly manicured level. One mower cutting width from the road and more wildflowers would be preferred by visitors. The mowing threshold lies somewhere between mowing one mower width but not mowing completely to the treeline. Some low foreground shrubs are desirable within a vista view. The tolerance threshold for vista blockage is no more than 50% of the view being allowed to become overgrown.

Those scenes offering partial visual penetration were preferred over heavily blocked scenes and very open scenes.

Information treatments can be useful in affecting visitor preferences, but a clear and possibly more persuasive message than used in this study may give more decisive results. Weakness of the message used could be due to:

1. Visitors missing the information treatment page;
2. Information treatment language was too complex;
3. The message was not clearly defined;
4. The message benefits were not strong enough to motivate change.

B. IMPLICATIONS

A visual preference approach appears to be an effective and cost efficient approach for resource managers to obtain visitor preferences. A significant amount of money could be saved through less vegetation maintenance. Adding wildflowers to roadsides would require less mowing and would most likely improve preferences.

Many agencies are facing budget cutbacks, but they are reluctant to attempt maintenance changes and the possibility of offending visitors. Controlled burning, used as a management tool to economize, warrants further testing, possibly using demonstration plots. By knowing what elements or dimensions of a scene are preferred, managers may base their ideas and possibly policy changes for the future on recreationist views, their audience and users.

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APPENDIXES

APPENDIX A

BLUE RIDGE PARKWAY 1982 MOWING POLICY

BLUE RIDGE PARKWAY

MOWING STANDARDS - ROADSIDES

1982

The following standards are to be applied to roadsides and public use areas on the Parkway. Mowing, including other roadside maintenance activities, is to be done in accordance with the Parkway land use maps. On those sections of Parkway where land use maps are not available, or interpretation of the maps is necessary, Facility Managers should consult the Resident Landscape Architect.

These standards are to be applied only to those areas for which the Facility Managers have assigned specific personnel a territorial responsibility for both the "mowing" and the "trim mowing" and have funds budgeted under turf maintenance in FY 1982.

The mowing of roadsides and public use areas along the Blue Ridge Parkway will be considered satisfactory when:

1. Mowing is accomplished within those areas as depicted on the attached sketches and in accordance with the "trim mowing" priority list.

2. All mowed areas using tractor mowers are maintained at a minimum uniform height of three inches and a maximum of six inches.

3. Mowing areas where specific bird nesting habitats are identified by the District Naturalist shall not be cut until after nesting season. The Subdistrict Maintainance Foreman should work with the Subdistrict Ranger regarding this matter.

4. Grass under guide rails and litter barrels, along curbs and rock walls and fences, and adjacent to signs and mileposts shall be cut on an as-needed basis to keep these facilities looking neat and clearly visible at all times.

5. All turf areas to be mowed with lawnmowers (hand operated or riding type) shall be cut on an as-needed basis and at the highest height setting on all lawnmowers.

6. Where mowing of trailsides is necessary, the cut will be as wide as feasible up to one mower width from each side of the trail at the highest height setting. Ferns and wild flowers along the trails shall not be mowed except to provide sufficient clearance for unimpaired foot travel.

Where ferns and wild flowers hang over the trail walking surface, they should be cut for safety and convenience.

7. Use of fertilizer and lime shall be only in the amounts recommended by a soil testing laboratory.

8. At all major Parkway intersections and approaches, the grounds will be neatly trimmed and the appearance will be park-like (Attachment III). Major intersections are defined as those with one or more ramps connecting the Parkway with the highway. All secondary and deeded reservation roads will be mowed in such a manner as to provide safe Parkway entry and exit but to discourage overburdening (Attachment III).

9. From time to time, certain areas may be designated "Wild Flower Preserves" where mowing is regulated according to bloom and seeding periods. Where special consideration is required, the Subdistrict Ranger should designate these areas in writing and approved by the District Ranger by milepost and station to the Maintenance Foreman. This information should be attached as an addendum to copies of the Mowing Policy in that subdistrict. An on-site inspection of these areas by the Subdistrict Ranger, Maintenance Foreman and Mower Operators should be conducted prior to mowing season. Otherwise, areas with obvious displays of showy plants shall not be mowed until after the wildflowers have bloomed and seeded. Areas where endangered species are known to exist and which should be mowed at an earlier time than which they would normally be mowed under the conditions of the Mowing Policy should also be identified.

10. All Parking overlooks with treelines and islands will be kept neatly trimmed to a prime park-like appearance back to the overlook turn signs; all grass bays and specimen planting areas will be mowed except when managed in conjunction with Items 3 or 9.

Grass bays with good wildflower displays or specific bird nesting habitats shall not be mowed until after the flowers bloom or the birds leave.

11. The Facility Managers are authorized to designate areas where no mowing will be done above the ditch line until after the first killing frost. These areas should be selected where restrictions of Parkway drainage structures would not become critical or sight distances would not be obstructed.

a. On cut slopes where cutting is done to woody plants two inches and larger, a scalloped or deckled treeline shall be maintained to break up a green wall effect.

b. High heading on woody plants is not acceptable. Such plants damaged in this manner must be cut flush to ground level and either chipped or removed.

c. Fill slopes and fields predominated by fast growing woody growth will be mowed when necessary to restrict such growth and prevent the need for hand clearing. The Facility Manager has authority to mow those areas where this problem exists.

12. Safety

a. Tractor mowers shall be equipped with two alternating four-inch, double-faced electric flashers at least three feet above each rear wheel; and one Hallwood-type mirror, six inches wide by ten inches long, mounted in a manner providing the tractor operator maximum rear view vision from the tractor seat. Tires shall be ribbed tread type.

b. Tractor mower operators and trim mowers SHALL wear hard hats and orange safety vests at all times when operating tractor mowers or performing trim mowing tasks.

c. The tractor motor SHALL ALWAYS be shut off when operator is off the tractor.

d. Each mowing day, appropriate warning signs shall be located at the ends of the area to be mowed and at a sufficient distance from the mowing machine to satisfactorily alert drivers approaching the mowing operation.

e. Safety goggles shall be worn while operating weed-eaters or similar types of tools or equipment.

APPENDIX B

LETTER OF INTRODUCTION

The University of Tennessee
INSTITUTE OF AGRICULTURE

Department of Forestry, Wildlife, and Fisheries
P O Box 1071
Knoxville, Tennessee 37901 1071
Telephone (615) 974-7126

Dear Friend:

We are conducting a vegetation management study, (the cutting of grasses, woody shrubs and trees along roadsides and vistas) sponsored by the University of Tennessee in cooperation with the National Park Service. With current budget cuts, it is very important to the Park Service to practice efficient vegetation management while maintaining the scenic beauty of the Blue Ridge Parkway You, the visitor, can best tell us what you like to see. Your survey responses will contribute to this important study and may be used by the National Park Service for future vegetation management practices of the Parkway.

All information which you give is held strictly confidential. Your name will not be connected with your responses. You will notice a number code on the back cover of your questionnaire. This number is used only to tell us that you have completed and returned the questionnaire so you will not be sent the follow-up mailing for nonrespondents.

We appreciate and value your care in helping us with this study. Please complete the questionnaire and mail it back to us as soon as possible You do have a say and you can make a difference!

Again, Thanks

Dr William E. Hammitt and Kathlyne A. McGee
The University of Tennessee

APPENDIX C

CONTACT CARD

PARKWAY VEGETATION MANAGEMENT STUDY

1. How many miles have you traveled on the Blue Ridge Parkway on this trip?
_____MILES

2. How many days have you spent on the Parkway so far? _____DAYS

3. Including yourself, how many people are in your traveling group?
_____PEOPLE

4. Is your group made up of:

_____FAMILY
_____FRIENDS
_____FAMILY AND FRIENDS
_____OTHER (please specify)
_____

5. How many pull-off overlooks have you stopped at up to this point?
_____OVERLOOKS

6. How many photographs of pull-off overlooks have you taken up to this point? _____PHOTOGRAPHS

NAME_____AGE_____

ADDRESS_____

CITY_____ST_____ZIP_____

APPENDIX D

POSTCARD REMINDER

Dear Parkway Visitor:

About one week ago, you were given a questionnaire concerning your recent trip on the Blue Ridge Parkway.

This is a reminder that as of yet we have not received your completed questionnaire. If you have lost the questionnaire, please let us know and we will send you another.

If you have already returned the questionnaire, please accept our thanks. Your views are important and we look forward to receiving them.

Sincerely,

Kathlyne A. McGee

Kathlyne A. McGee
University of Tennessee
615/974-7126

APPENDIX E

LETTER REMINDER

The University of Tennessee
INSTITUTE OF AGRICULTURE

Department of Forestry, Wildlife, and Fisheries
P O Box 1071
Knoxville, Tennessee 37901 1071
Telephone (615) 974-7126

Dear Parkway Visitor:

WE STILL NEED YOUR HELP! As of yet, we have not received your questionnaire concerning your recent trip on the Blue Ridge Parkway.

We have enclosed a second copy of the questionnaire with a return stamped envelope. We would appreciate you completing the questionnaire and returning it as soon as possible.

You are one of a very small number of people chosen to provide information for this study. Therefore your point of view is very important.

Thank you for your cooperation

Sincerely,

Kathlyne A. McGee

Kathlyne A. McGee
University of Tennessee
615/974-7126

APPENDIX F

FINAL LETTER REMINDER

The University of Tennessee
INSTITUTE OF AGRICULTURE

Department of Forestry Wildlife and Fisheries
P O Box 1071
Knoxville, Tennessee 37901 1071
Telephone (615) 974 7126

Dear Parkway Visitor,

This is the final letter requesting that you return your questionnaire. We are depending on your answers to complete this important study on vegetation management preferences along the Blue Ridge Parkway.

Please consider participating in the study Thank you for your interest and cooperation in this National Park Service study.

Sincerely,

Kathlyne A McGee
University of Tennessee
615/974-7126

APPENDIX G

PHOTOGRAPH MEAN PREFERENCE RATINGS FOR INFORMATION TREATMENT GROUP AND NO INFORMATION GROUP, BLUE RIDGE PARKWAY

Photograph Mean Preference Ratings for Information Treatment Group and No Information Group, Blue Ridge Parkway.

Photo Pair No.	Means of Paired Photos A	B	Mean Difference	Test Value	Significance Level
			CONTROL		
1	4.02	2.30	1.72	11.73	0.0001
2	3.75	2.79	0.95	5.92	0.0001
3	2.73	3.02	-0.29	-1.68	0.0940
4	1.87	4.23	-2.36	-18.10	0.0001
5	3.65	2.46	1.19	7.74	0.0001
6	3.57	3.09	0.47	2.73	0.0070
7	2.68	3.87	-1.19	-7.28	0.0001
8	2.87	3.32	-0.45	-2.96	0.0030
9	3.45	2.81	0.64	3.39	0.0010
10	2.12	4.25	-2.13	-17.67	0.0001
11	3.37	3.68	-0.31	-1.93	0.0540
12	3.14	3.30	-0.16	-0.96	0.3390
13	2.89	3.12	-0.23	-1.33	0.1840
14	3.97	2.61	1.36	9.83	0.0001
15	2.86	3.02	-0.16	-1.03	0.3030
16	1.95	4.51	-2.55	-24.66	0.0001
17	3.89	2.71	1.18	7.93	0.0001
18	3.39	3.14	0.25	1.68	0.0950
			TREATMENT		
1	3.94	2.37	1.57	10.40	0.0001
2	3.76	2.44	1.32	9.03	0.0001
3	2.92	2.71	0.21	1.23	0.2190
4	2.08	3.79	-1.71	-10.66	0.0001
5	3.75	2.40	1.35	9.09	0.0001
6	3.69	2.66	1.03	6.36	0.0001
7	2.43	3.92	-1.49	-10.18	0.0001
8	3.15	3.02	0.13	0.82	0.4110
9	3.51	2.51	1.00	5.79	0.0001
10	2.19	4.08	-1.88	-14.53	0.0001
11	3.37	3.69	-0.32	-2.07	0.0400
12	3.08	3.38	-0.30	-1.84	0.0670
13	3.00	3.06	-0.06	-0.36	0.7190
14	4.09	2.56	1.53	11.18	0.0001
15	2.90	3.09	-0.18	-1.13	0.2580
16	1.92	4.49	-2.57	-23.37	0.0001
17	3.99	2.64	1.35	9.57	0.0001
18	3.52	3.16	0.35	2.54	0.0120

APPENDIX H

VEGETATION MANAGEMENT ALTERNATIVES

FREQUENCY CALCULATIONS RESULTS,

BLUE RIDGE PARKWAY

Vegetation Management Alternatives Frequency Calculations Results, Blue Ridge Parkway.

	Strongly Support	Support	Probably Support	Probably Don't Support	Don't Support	Definitely Don't Support	Don't Know
The roadside grass should be mowed :							
1. weekly, like a lawn.	3.5	4.1	2.2	12.7	21.6	52.1	3.9
2. every two weeks, when 3 to 6 inches tall.	12.2	19.3	10.9	17.0	17.4	18.5	4.7
3. once per month, when at least 10 inches tall.	12.9	19.5	19.3	14.4	14.4	12.2	7.3
4. once in the Fall after the wildflowers are through blooming.	22.0	19.1	12.8	10.2	13.5	13.5	8.9
5. only one mower width (7 feet) from the edge of the road surface.	20.8	25.5	18.0	9.7	10.5	10.5	4.9
6. two mower widths (14 feet) from the road's edge.	7.3	12.0	17.6	20.3	21.0	11.6	10.3
7. from the road's edge to the ditch or swale.	7.4	16.6	24.7	14.6	10.3	9.2	17.2
8. from the road's edge to the treeline.	12.2	11.3	11.1	14.6	20.2	23.5	7.2
9. as little as possible, only when necessary to maintain driver safety and help prevent grass fires.	22.8	14.5	11.3	11.9	13.8	21.9	3.8
Shrubs and trees at pull-off vistas should be cut or trimmed :							
10. annually to maintain a completely clear view.	24.1	17.1	13.9	10.9	15.6	12.4	6.2
11. every 5 to 7 years, before the shrubs in the foreground block much of distant view.	15.5	26.4	21.9	13.3	7.3	6.7	9.0
12. just often enough so that no more than 1/3 of the view is blocked.	19.0	40.0	17.1	13.7	11.4	11.2	6.6

VITA

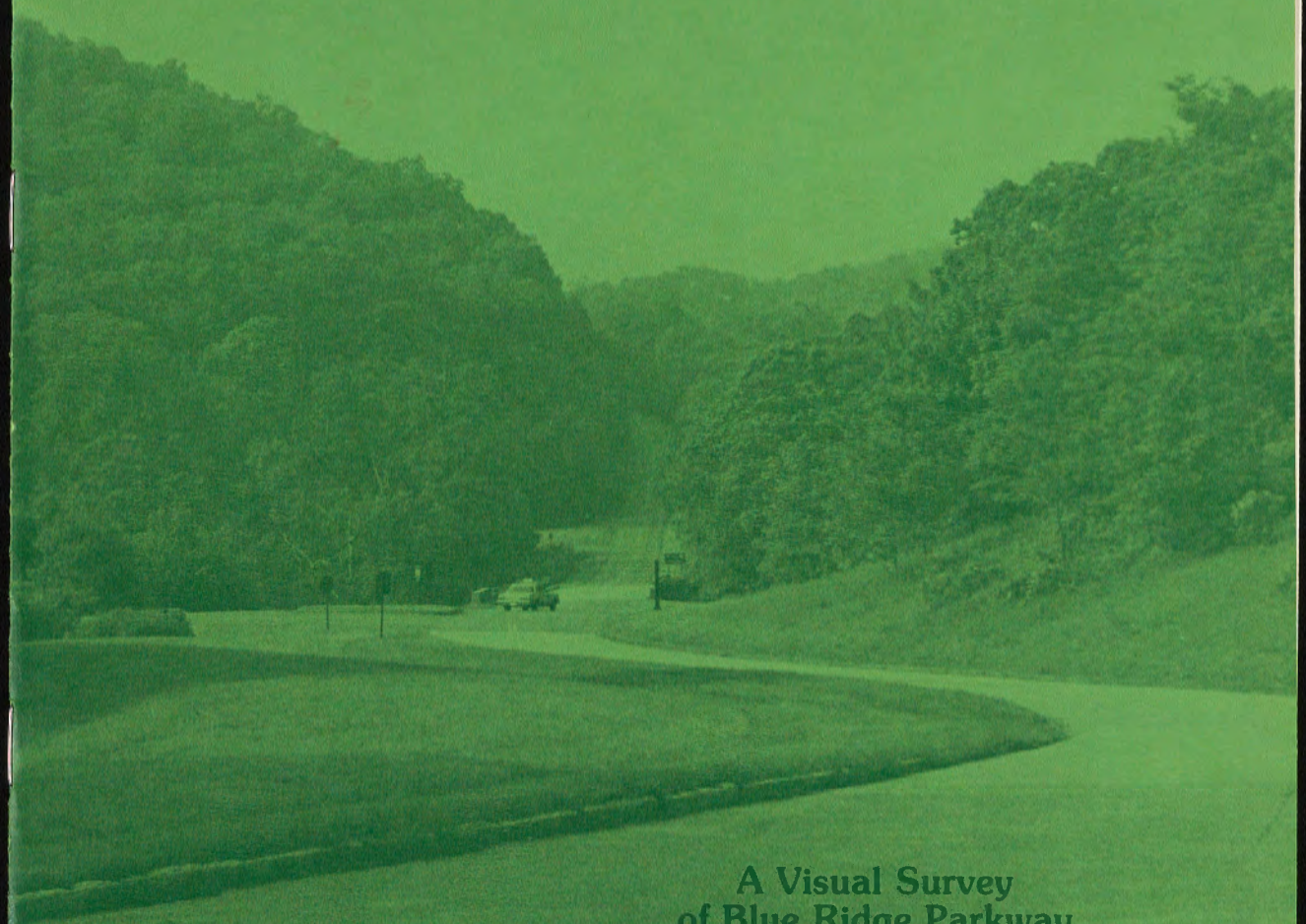
Kathlyne Ann McGee was born in Saginaw, Michigan on September 3, 1953. She attended elementary schools in Bridgeport, Michigan and graduated from Bridgeport High School in June 1971. Kathy attended Valencia Community College in Orlando and was awarded an Associcate of Arts degree in Forestry in December 1978. She received a Bachelor of Science degree in Forestry in December 1982. She graduated with honors, majoring in the Forest Resource Management curriculum.

In January 1983, she entered The Graduate School at the University of Tennessee and was awarded the Master of Science degree from The University of Tennessee, Knoxville, in March 1985.

During the college years, Kathy was employed with Walt Disney World in Florida, The Cracker Barrel in Knoxville, Brownlee Construction in Knoxville, and the Ijams Audubon Nature Center in Knoxville.

The author is a member of the Society of American Foresters, Phi Kappa Phi, Xi Sigma Pi, Gamma Sigma Delta, and the Golden Key National Honor Society. She has done volunteer work for the Knoxville Zoological Park.

SCENIC PARKWAY STUDY



A Visual Survey of Blue Ridge Parkway Vegetation

Department of Forestry, Wildlife, and Fisheries

The University of Tennessee

1983

VISUAL PREFERENCES ALONG A SCENIC PARKWAY

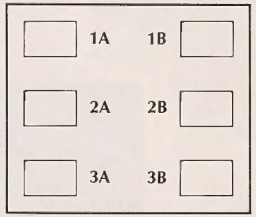
Perceptions of Vegetation Management

Vegetation management along the Blue Ridge Parkway can be conducted at various levels of intensity. For example, the roadside grass can be mowed weekly, monthly, bi-monthly, etc. We would like your opinion to some possible levels of grass mowing and tree clearing that might be practiced on the Parkway. By rating the vegetation management examples in our photos, we can determine what Parkway visitors prefer.

Instruction

There is a collection of photographs presented as three (3) pairs per page.

EXAMPLE:



Each picture has a short description under it. Please pay particular attention to the described feature as you rate each photograph.

First, look through them quickly to get a general feeling for the photographs. Then, go back and carefully read the description. Rate EACH photo (compared to its pair) for HOW MUCH YOU LIKE IT. Simply circle the number of your choice below each photograph.

1 = not at all
2 = a little
3 = somewhat
4 = quite a bit
5 = very much

Thank you!

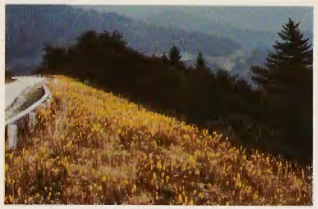
Kathlyne A. McGee
The University of Tennessee

"There are idle spots on every farm- and every highway is bordered by an idle strip as long as it is. Keep cow, plow, and mower out of these idle spots, and the full native flora, plus dozens of interesting stowaways could be part of the normal environment of every citizen."

Aldo Leopold,
Pioneer Ecologist
from
A Sand County Almanac

Just a 50% reduction in mowing on the Blue Ridge Parkway will save taxpayers $71,000 per year.

There is an economy in natural things.



1a

1 2 3 4 5 No mowing beyond guardrail.

1b

1 2 3 4 5 Mowing to and beyond guardrail.

2a

1 2 3 4 5 Mowed one mower width from roadside.

2b

1 2 3 4 5 Mowed to treeline.

3a

1 2 3 4 5 No mowing.

3b

1 2 3 4 5 Complete mowing into treeline.

4a

1 2 3 4 5 Vegetation not mowed around sign.

4b

1 2 3 4 5 Vegetation mowed around & beyond sign.

5a

1 2 3 4 5 Shrub vegetation in near foreground.

5b

1 2 3 4 5 Shrubs managed by controlled burning.

6a

1 2 3 4 5 Mowed one mower width from roadside.

6b

1 2 3 4 5 Mowing complete to treeline.

7a

1 2 3 4 5 Mowing to treeline.

7b

1 2 3 4 5 Mowed one mower width from roadside.

8a

1 2 3 4 5 Mowed only at mid-summer.

8b

1 2 3 4 5 Mowed every three weeks.

9a

1 2 3 4 5 Only roadside shoulder mowed.

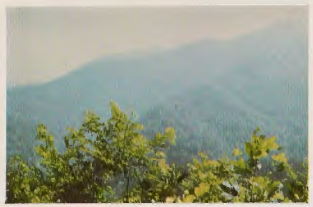
9b

1 2 3 4 5 Mowed to fenceline and beyond.

10a 10b

1 2 3 4 5 Trees closing in the scenic vista.

1 2 3 4 5 Low shrubs in distant foreground.



11a 11b

1 2 3 4 5 Vista with some trees in foreground.

1 2 3 4 5 Trees removed from foreground in vista.

12a 12b

1 2 3 4 5 Foreground trees in vista.

1 2 3 4 5 No foreground trees in vista.

13a 13b

1 2 3 4 5 Scene with foreground trees.

1 2 3 4 5 Foreground trees completely removed.

14a 14b

1 2 3 4 5 Hardwood and conifer (evergreen) trees present.

1 2 3 4 5 Hardwoods cut to emphasize conifers.

15a 15b

1 2 3 4 5 Shrubs in foreground.

1 2 3 4 5 Shrubs removed by cutting & controlled burning.

16a

1 2 3 4 5 Trees closing in vista more than 50%.

16b

1 2 3 4 5 Selective cutting to re-open vista.

17a

1 2 3 4 5 Low shrubs in distant foreground.

17b

1 2 3 4 5 Mowing and cutting of foreground vegetation.

18a

1 2 3 4 5 Original scene with edge trees.

18b

1 2 3 4 5 Single edge tree removed.

THANK YOU for rating the photos. We now have a few questions for you to answer which will help us interpret your ratings and leisure patterns.

VEGETATION MANAGEMENT ALTERNATIVES

The following items describe various levels at which the grass and shrubs along the Blue Ridge Parkway could be maintained. Please indicate whether you support or do not support each of the following management options. (Circle the most appropriate response for each statement).

	Strongly Support	Support	Probably Support	Don't Know	Probably Don't Support	Don't Support	Definitely Don't Support
I. The roadside grass should be mowed:							
1. weekly, like a lawn.	1	2	3	4	5	6	7
2. every two weeks, when 3 to 6 inches tall.	1	2	3	4	5	6	7
3. once per month, when at least 10 inches tall.	1	2	3	4	5	6	7
4. once in the Fall after the wildflowers are through blooming.	1	2	3	4	5	6	7
5. only one mower width (7 feet) from the edge of the road surface.	1	2	3	4	5	6	7
6. two mower widths (14 feet) from the road's edge.	1	2	3	4	5	6	7
7. from the road's edge to the ditch or swale.	1	2	3	4	5	6	7
8. from the road's edge to the treeline.	1	2	3	4	5	6	7
9. as little as possible, only when necessary to maintain driver safety and help prevent grass fires.	1	2	3	4	5	6	7
II. Shrubs and trees at pull-off vistas should be cut or trimmed:							
10. annually to maintain a completely clear view.	1	2	3	4	5	6	7
11. every 5 to 7 years, before the shrubs in the foreground block much of the distant view.	1	2	3	4	5	6	7
12. just often enough so that no more than 1/3 of the view is blocked.	1	2	3	4	5	6	7

OUTDOOR ACTIVITIES

We would like to ask some questions about the kind of outdoor recreation activities in which you participate. FIRST, place a check mark only by those activities in which you annually participate, AND SECONDLY, indicate how often you do these activities by circling the appropriate code number.

Code			
1	1 wk+	=	Once a week or more
2	2-3 mth	=	Two to three times a month
3	1 mth	=	Once a month
4	1 cple mth	=	Once every couple months
5	2-3 yr	=	Two to three times a year
6	1 yr	=	Once a year

		1 wk+	2-3 mth	1 mth	1 cple mth	2-3 yr	1 yr
1.	_____ Camping in remote wilderness areas	1	2	3	4	5	6
2.	_____ Camping in developed campgrounds	1	2	3	4	5	6
3.	_____ Hunting	1	2	3	4	5	6
4.	_____ Fishing	1	2	3	4	5	6
5.	_____ Riding motorcycles, trailmobiles, snowmobiles, etc. off the road	1	2	3	4	5	6
6.	_____ Driving 4-wheel drive vehicles off the road	1	2	3	4	5	6
7.	_____ Wildlife and bird photography	1	2	3	4	5	6
8.	_____ Bird watching	1	2	3	4	5	6
9.	_____ Hiking	1	2	3	4	5	6
10.	_____ Nature walks	1	2	3	4	5	6
11.	_____ Walking for pleasure	1	2	3	4	5	6
12.	_____ Bicycling	1	2	3	4	5	6
13.	_____ Horseback riding	1	2	3	4	5	6
14.	_____ Canoeing	1	2	3	4	5	6
15.	_____ Sailing	1	2	3	4	5	6
16.	_____ Other boating (water skiing)	1	2	3	4	5	6
17.	_____ Outdoor pool swimming	1	2	3	4	5	6
18.	_____ Other swimming outdoors	1	2	3	4	5	6
19.	_____ Golf	1	2	3	4	5	6
20.	_____ Tennis	1	2	3	4	5	6
21.	_____ Playing other outdoor games or sports	1	2	3	4	5	6
22.	_____ Going to outdoor concerts, plays	1	2	3	4	5	6
23.	_____ Going to outdoor sports events	1	2	3	4	5	6
24.	_____ Visiting zoos, fairs, amusement parks	1	2	3	4	5	6
25.	_____ Sightseeing	1	2	3	4	5	6
26.	_____ Picnicking	1	2	3	4	5	6
27.	_____ Driving for pleasure	1	2	3	4	5	6
28.	_____ Other outdoor activities (please specify) _____	1	2	3	4	5	6

Do you attend

29.	_____ Football games	1	2	3	4	5	6
30.	_____ Basketball games	1	2	3	4	5	6
31.	_____ Baseball games	1	2	3	4	5	6
32.	_____ Track and field	1	2	3	4	5	6
33.	_____ Other _____	1	2	3	4	5	6
34.	_____ How often do you watch sports on TV?	1	2	3	4	5	6

LEISURE ATTITUDES

These items measure your attitudes toward leisure. By this we mean how you feel about your leisure, your recreation, or the things you do in your free time. Please answer as quickly and accurately as possible indicating whether you agree or disagree with each of the following statements. (Circle the appropriate response for each statement).

		Strongly Agree	Agree	Probably Agree	Don't Know	Probably Disagree	Disagree	Strongly Disagree
1.	Leisure is my most enjoyable time.	1	2	3	4	5	6	7
2.	I admire a person who knows how to relax.	1	2	3	4	5	6	7
3.	I like to do things on the spur of the moment.	1	2	3	4	5	6	7
4.	I would like to lead a life of complete leisure.	1	2	3	4	5	6	7
5.	Most people spend too much time enjoying themselves today.	1	2	3	4	5	6	7
6.	I don't feel guilty about enjoying myself.	1	2	3	4	5	6	7
7.	People should seek as much leisure as possible in their lives.	1	2	3	4	5	6	7
8.	I'd like to have at least two months vacation a year.	1	2	3	4	5	6	7
9.	Leisure is great.	1	2	3	4	5	6	7
10.	It is good for adults to be playful.	1	2	3	4	5	6	7

USER INFORMATION

These questions deal with background information that will help us determine the current users of the Blue Ridge Parkway. All information is strictly confidential and will not be associated with you as an individual.

1. Current residence: _____ (city) _____ (state)

2. How long have you lived at your current residence? _____ years. (RECORD TO NEAREST WHOLE YEAR).

3. Where were you raised? _____ (city) _____ (state)

4. Check the box that best describes where you lived most of the time before your 16th birthday.

   _____ on a farm or ranch
   _____ in the country but not on a farm or ranch
   _____ in a small town (population less than 2,500)
   _____ in a town or small city (2,501 - 25,000)
   _____ in a city (25,001 - 100,000)
   _____ in a suburb and within 25 miles of a large city (more than 100,000)
   _____ in a large city (more than 100,000)

5. What is your occupation? Please be as specific as possible, tell what kind of work you do, not for whom you work. If student, housewife, or retired, please say so. _____

6. Indicate job title: _____

7. In what year were you born? _____

8. Sex: _____ MALE
   _____ FEMALE

9. What is your present marital status?
   _____ 1 Married
   _____ 2 Divorced
   _____ 3 Separated
   _____ 4 Widowed
   _____ 5 Never Married (Single)

10. Education: check the highest level attained

    _____ 8th grade or less
    _____ Attended high school
    _____ Graduated from high school
    _____ Technical/Business school
    _____ Attended 2 years of college or less
    _____ Completed college
    _____ Advanced degree

11. Income: check the level that contains your 1982 TOTAL FAMILY INCOME before taxes. (Please include here all income received by anyone in your household).

    _____ LESS THAN $5,000
    _____ $5,000 - $9,999
    _____ $10,000 - $14,999
    _____ $15,000 - $19,999
    _____ $20,000 - $24,999
    _____ $25,000 - $29,999
    _____ $30,000 - $39,999
    _____ $40,000 - $49,999
    _____ $50,000 - $74,999
    _____ $75,000 - $99,999
    _____ $100,000 and over