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IMPORTANCE OF SHADING TO VISITORS SELECTING A CAMPSITE AT INDIAN BOUNDARY CAMPGROUND IN TENNESSEE

Abstract.--Campers at Indian Boundary Campground in Tennessee were interviewed during 1966 and 1967 to determine the amount of shading they preferred. The overstory in this campground was selectively thinned several years earlier. This gave campers a choice of campsites, ranging from those so heavily shaded that little sunlight reached the forest floor to campsites that received almost full sunlight. Many visitors to the campground reported that degree of shade was important in their selection of campsites, and many indicated that they want some compromise between full shade and full sunlight. Study findings indicate that recreation managers and planners should examine the current design standard that advocates little or no tree cutting in developed campgrounds.

Recreationists who camp at Indian Boundary Campground (Tellico Ranger District, Cherokee National Forest, Tennessee) are faced with more than the usual number of decisions as they drive around the paved loops looking for a campsite. In addition to deciding on a campsite because of nearness to water hydrant, nearness to comfort station, and degree of isolation, they are provided considerable choice regarding how much shade or sunlight they would like. The choice ranges from shade so heavy that little sunlight penetrates to the forest floor at the campsite to almost full sunlight. The choices that campers make and their reasons are of vital concern to recreation planners.

As developers and managers of nearly 8,000 campgrounds and picnic grounds throughout the nation, USDA Forest Service recreation planners must consider the desires and needs of people. They must also manage these sites so that soils and vegetation remain healthy for long periods under the impacts of heavy recreation use. These two responsibilities may not be entirely compatible.

On the one hand, a full overstory of trees--typical of many forested campgrounds and picnic grounds--severely limits the establishment and maintenance of vegetative ground cover. Ground cover is needed to protect the soil against compaction and erosion and to protect tree roots from exposure and damage.

On the other hand, shade is desirable on recreation sites for the comfort of recreationists. Also, recreationists may shun an area if excessive opening has produced an overabundance of rank understory or

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other undersirable conditions. A moderate overstory cover--neither too much nor too little--will probably best satisfy both human needs and ecological requirements of the site.

The unique canopy conditions at Indian Boundary Campground did not just happen; they were planned and created. Cutting treatments applied at this campground were designed to answer two important questions: (1) What amount of shading is preferred by campground visitors? (2) What is the effect of overstory on the growth and development of grasses, shrubs, small trees, etc.? This paper deals only with the first question and presents preliminary findings; the second question will be discussed in a future paper. The study will continue through 1971.

METHODS

Individual campsites received one of three cutting treatments[1] in late 1964 and early 1965:

Light removal--canopy thinned to allow approximately 10 percent sunlight to reach the forest floor. Stocking throughout the campground existed at about this standard, so few trees were removed.

Moderate removal--canopy thinned to allow approximately 40 percent sunlight to reach the forest floor.

Heavy removal--canopy thinned to allow approximately 70 percent sunlight to reach the forest floor. This severe cut left only a few advantageously located, high-vigor trees.

In 1966 the campground contained 58 campsites, of which 21 received cutting treatments; in 1967 there were 79 campsites, of which 42 received treatments. Campsites not included in the study were cut so they would blend with the locale of treated units.

The campground was opened to public use for the summer of 1966. From early June to Labor Day of 1966 and 1967, visitors were queried under two procedures: (1) personal interview, and (2) self-administered questionnaire. Interviews were conducted on 30 randomly selected days each year. Half the interview days were on weekends and holidays; half were weekdays. Upon completion of the interview, respondents were handed a one-page questionnaire and asked to complete it at leisure.

The interview consisted of four questions designed to determine preferences for various degrees of natural shade, amounts of understory vegetation, and levels of overstory cutting. We interviewed 383 recreationists during 1966 and 1967.

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[1]James, George A., and Cottrell, Richard L. To cut or not to cut. J. Forest. 66: 57-59. 1968.

The one-page questionnaire contained three questions concerning the user's choice of the most- and the least-desirable campsites included in the study and his choice of the most desirable campsite within the entire campground. Each respondent was asked to examine all campsites and to indicate his choice and reasons on the questionnaire. All or part of the questionnaire was completed by 107 respondents.

RESULTS

Interview

In reply to the questions asked by an interviewer, 80 percent of the 383 respondents said they had noticed "a difference in number of trees or amount of shade from one part of the campground to another." Answers to a second question showed that this difference was important to them. Respondents were shown a list of 14 campsite characteristics, three of which were (1) full shade, (2) almost full sunlight, and (3) compromise between full sunlight and full shade. Then they were asked to select, in order of preference, the three campsite characteristics "most important to you when you look for a campsite." Fifty-four percent stated that amount of shade was the most important characteristic in choosing a campsite. Almost 83 percent selected one of the three shade characteristics as their first, second, or third choice--somewhat more than the 69.5 percent probability that one or more shade characteristics would have been selected by chance alone. And, 53 percent of the visitors indicated a preference for moderate shade (moderate tree removal).

When respondents were asked if they liked or disliked "a limited amount of small vegetation to screen your campsite from the view of others," 90 percent favored such vegetation. Only 8 percent opposed such screening; 2 percent had no opinion.

Respondents were asked, "Do you like or dislike tree cutting to open up campsites to sunlight?" Fifty-five percent opposed tree cutting, 40 percent favored cutting, and 5 percent had no opinion.

Questionnaire

In responding to the self-administered questionnaire, approximately a third of the 107 visitors chose a moderately shaded campsite as most desirable and two-thirds chose a campsite with heavy shade. This was true for both the study campsites and for all sites in the campground. When visitors were asked to choose the least desirable campsite among those in the study, 65 percent selected a heavily cut site with little shade, 29 percent selected a site with moderate shade, and only 6 percent selected a site with heavy shade.

The number of the campsite occupied by each interviewed party was recorded to determine which of the treated campsites were being used. Forty-five percent of the interviewed campers occupied campsites

that had received a moderate cut (fig. 1), 34 percent selected a light cut, and 21 percent selected a heavy cut. This observational technique may have been biased because campers would not have had an opportunity to occupy the campsite of their choice if it were already occupied. This bias is believed to be small, however, because the campground was rarely filled to capacity at any time and because opportunities for campsite selection existed within each of the three cutting treatments at almost all times.

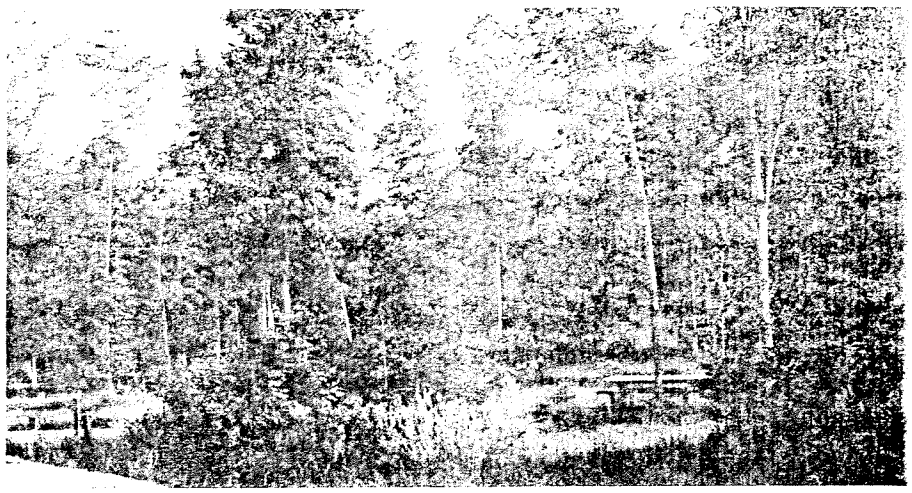

Figure 1.--This thinning was a compromise between full shade and full sunlight; vegetation is healthy and vigorous.

DISCUSSION

In the past, as today, recreation planners have constructed recreation sites by removing only enough trees and other vegetation to permit construction of loop roads, parking spurs, buildings, and facilities. In many areas, today's campers have no choice--campsites are so heavily wooded that little or no sunlight penetrates to the forest floor. Because there have been few audible complaints, we have assumed that fully shaded recreation sites were wanted by the majority of our recreating public.

The preliminary 2-year results of this study strongly indicate that we should examine some of our campground design standards. Visitors to Indian Boundary Campground clearly considered "degree of shade" important in their selection of campsites. By word and action many indicated that they want some compromise between full shade and full sun. Although all questions and answers were couched in terms of "degree of shade or sun," we recognize that aesthetics very likely played an important but undefinable part in campsite selections and in visitor responses to our questions. The moderately and lightly cut campsites are attractive; the heavily cut campsites are certainly less so. It would be extremely difficult to separate aesthetics from considerations about degree of shade.

Recreationists often desire something less than full stocking and full shade, but do not favor indiscriminate cutting in campgrounds. Almost all respondents stated that the "heavy removal" treatment was much too severe.

Although many respondents desired some condition between full sunlight and full shade, and 90 percent desired screening of campsites by shrubs and small trees (obtainable primarily by opening up the stands), more than half (55 percent) were opposed to tree cutting on recreation sites. This reaction to tree cutting is inconsistent with other expressed desires, but we believe there was negative reaction to the word "cutting" and not to the actual practice of selective canopy reduction.

We are sure that some thinning is needed on heavily shaded campgrounds. And, although we probably must give first consideration to cutting treatments that favor the general health and attractiveness of our recreation sites, it appears very likely that a cutting prescription can be found that will satisfy both the ecological requirements of the site and the desires and needs of our recreating public. Little conflict is expected.

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