

NEEDS AND FEARS: THE RESPONSE TO TREES AND NATURE IN THE INNER CITY

by Janet Frey Talbot and Rachel Kaplan

Abstract. Interviews were conducted with 97 Detroit residents living in primarily Black low- and moderate-income areas, in order to assess the preferences of inner city residents for different types of natural areas. The participants rated 26 photographs for preference, and also answered questions about the particular elements that made certain outdoor areas especially liked or disliked, and about the importance they placed on their own opportunities to enjoy the natural environment. The results indicated that well-maintained areas incorporating built features were preferred over more untouched and densely wooded areas, which were often associated with fears of physical danger. The participants' responses also indicated that these residents placed a very high value on their opportunities to enjoy the outdoors. Few differences in preferences or in value perceptions were found when stratifying the sample according to demographic characteristics. The results emphasize the importance of appropriate management of urban forestry resources, and suggest that outdoor spaces should be planned for ease of visibility as well as for pleasing arrangements of natural features.

Natural areas have a special role in large cities, particularly in the older residential sections which are now largely inhabited by Blacks and other minority groups. In an era of declining municipal resources as well as increasing demands on those resources, however, the quality of the nearby outdoor environment has received relatively little attention. Older residential areas of cities do include public parks, but there is little understanding of how these and other elements of nature are perceived and to what degree they are valued by current urban residents.

One explanation for this lack of concern may be the common assumption that nature is valued less by Black inner city residents than it is by others. Various studies have suggested that these urban populations may be "different" in their relationship to the natural environment. Metro, Dwyer and Dreschler (1981) asked urban fifth-graders about their visits to forest areas. Although there were no race differences in the enjoyment of past ex-

periences, a greater percent of Black students had never gone to the woods before, and these students expressed more fears about such a visit than did the equally inexperienced White children in the sample. Dorsey (1972) and Kellert (1979) have found lower scores on nature knowledge and conservation attitude scales among Blacks as compared to Whites. These results may reflect real racial differences in knowledge levels and in opinions on management issues, but they exclude any consideration of personal values and the meaning attached to individual contact with nature, or preferences for particular environments and management options.

In fact, other studies do suggest that disadvantaged urban residents enjoy some contacts with nature. With improved conditions on once-polluted urban waterfronts, fishing is emerging as a major recreation activity (Fogle, 1975). Lewis (1979) has documented the extreme popularity of gardening among urban public housing residents, as well as the perceived benefits which accompany this involvement. Little (1974) has cited a survey of Harlem residents during the 1960s in which the most frequent complaint about their neighborhood was the lack of trees and grass. And Getz, Karow and Kielbaso (1982) found very positive attitudes towards urban trees among a random sample of Detroit residents, along with common perceptions of the importance of trees as compared with other public amenities and services in the city.

In further exploring the value of the urban forest for Black residents, a central issue may be not simply whether nature is valued at all, but what particular kinds of natural areas are preferred. The present study was designed to explore this and related questions. Photographs of various kinds of natural areas were shown to inner city residents of Detroit, Michigan. Preference ratings were

recorded for these scenes, as were the participants' answers to open-ended questions about what they specifically liked and disliked about these and other outdoor areas. Each interview also included questions dealing with the perceived value of having opportunities to enjoy the outdoors.

Methodology

Ninety-seven interviews were conducted with residents of three different low- to moderate-income Black neighborhoods in Detroit, Michigan. The goal in selecting neighborhoods was not to sample all Detroit residents, but rather to interview residents in stable, primarily Black "core city" areas in order to explore the special needs of this population. In addition, a sufficient number of elderly individuals was included so that the needs and preferences of this group could be assessed independently. The three neighborhoods varied somewhat in housing composition and in access to public open spaces. One neighborhood consisted primarily of detached single-family homes, while the others also included duplexes and small multiple-family structures. Public schools with attached playfields were located in two of the neighborhoods: in these areas, roughly half of the residents surveyed lived within a block of these open areas, while the other half lived three or more blocks from the open space. As Table 1 indicates, the sample (which was 97% Black) included more older than younger individuals, was primarily self-described as lower-income, and was largely composed of long-term Detroit residents.

Participants in the study first sorted twenty-six photographs into five piles according to preference, where preference was defined as how well they liked each of the areas pictured. The photographs represented a wide variety of outdoor areas, including unmanicured wooded areas, lakes and rivers, landscaped parks, picnic areas and residential street scenes. After sorting the photographs, participants answered a brief series of open-ended questions dealing specifically with the reasons for their preferences, and how they responded to nature in general. The interviews were conducted in August of 1982 by a retired Black woman with many years of interviewing experience. Contacts were made by knocking

on doors within specified residential areas. Interviews were conducted at the participants' homes and lasted about thirty minutes each.

Results

The photograph preference ratings yielded two general classes of findings. First, a dimensional analysis of the ratings was performed in order to explore the common perceptual categories into which the photographs clustered. In addition, ratings were examined separately with a focus on the best- and least-liked scenes.

Photograph dimensions. Photograph ratings were processed through dimensional analysis techniques according to methods developed and used extensively elsewhere (Kaplan, 1975). The aim of these data-reduction procedures is to explore the basic structure of groups of variables, and to identify subsets of variables which are responded to similarly. The specific methods used are two programs which employ very different mathematical procedures — the ICLUS hierarchical clustering program (Kulik, Revelle and Kulik, 1970) and the SSA-3 non-metric factor analysis program (Lingoes, 1972). Both procedures have been found to yield stable results when analyzing comparable variables across different groups of subjects. By examining the results of both programs and eliminating inconsistencies between the solutions, the researcher isolates dimensions or factors which are robust and not dependent on the mechanics of any one unique algorithm. Table 2 gives mean preference ratings and Alpha values, a measure of internal consistency (Cronbach, 1951), for each of these perceptual categories.

Local Parks and Walks was the most preferred grouping. This dimension included all of the residential street scenes as well as scenes of small and well-maintained park areas. The park

Table 1: Sample characteristics (number of respondents in parentheses).

age	15 to 29 (20)	30 to 49 (21)	50 to 69 (23)	older (33)
sex	male (40)		female (56)	
income	low (50)	medium (36)		high (4)
years in Detroit	1 to 10 (8)	11 to 20 (13)		longer (76)
previous residences	only cities (56)		other places (40)	
children in household	none (61)	one or more (35)		

scenes depict very flat and open areas, with buildings usually visible in the background. Although play equipment appears in some photographs, scenes in which swings or other playground features are dominant did not cluster with this dimension.

Both of the less-preferred dimensions depict larger and more densely forested scenes, with buildings appearing in very few of the photographs. The Woods and Path dimension is composed of large natural areas, each of which includes a pathway or small opening where one could walk through the scene. The Woods and Water dimension consists of similarly large, densely forested areas, with a lake or river in the foreground.

These two latter dimensions were somewhat intercorrelated ($r = .48$). Other scenes which were similarly unmanicured but which did not include any particularly striking natural features (such as water or a large expanse of trees) were not included in these dimensions.

The fact that the dimension including the residential street scenes was preferred over the dimensions composed of more natural areas is particularly noteworthy. This result is opposite to that of an earlier study with female college students, in which similar residential scenes were rated far below more natural areas (Kaplan, 1978). On the other hand, this result does agree with a recent survey of a broad sample of Detroit residents in which both verbal and photographic ratings reflected higher preferences for trees on neighborhood streets than for larger wooded areas (Getz et al, 1982).

Photograph preferences. Participants were encouraged to use each of the five piles when sorting the twenty-six photographs. While many respondents indicated that they really liked all of the scenes, the sorting task was performed easily and the resultant average ratings cover a broad range. Figures 1 and 2 show the two highest and the two lowest rated photographs in the study.

The eight photographs which received ratings of 4.0 or higher are, like those in Figure 1, parks or neighborhood scenes with both natural and built elements. Most of these highly preferred scenes include a sidewalk or other built pathway, and many also include park equipment like swings and

picnic shelters. Each scene is characterized by smooth ground texture and by a generally well-kept appearance. These scenes include five of the seven photographs in the Local Parks and Walks dimension, along with larger parks in which trees are widely spaced throughout fairly open grassy areas.

At the low end of the preference scale, the four photographs with ratings of 2.75 or below are, like those in Figure 2, unmanaged areas with heavy undergrowth. Dense groupings of trees appear in these scenes, but many of the trees shown are scrubby or appear dead. Weeds are sometimes a dominant element, and appear to some extent in all of the non-preferred scenes. Two of the five photographs in the Woods and Paths dimension are included among these low-rated scenes.

Examining the contents of photographs at both ends of the preference scale has reiterated the distinctions found among the three dimensions, with well-maintained areas incorporating built features being preferred over natural areas that are relatively untouched. Both neatness and the presence of amenities such as benches and pathways seem to be relevant in these rankings. The built component emerged distinctly in the dimensional analysis. The concern for maintenance is evident both within the dimensions and in examining the relative ratings of individual photographs. Within each perceptual dimension, preferences were lower for the less manicured as opposed to the more trimmed areas. No matter what its specific content, the most preferred scene in each perceptual dimension has a well-manicured character, while scenes with lower ratings appear less orderly. Thus, although the element of neatness does not emerge as a coherent perceptual category in and of itself, it appears to be a critical determinant of preference ratings.

Liked and disliked features. After completion of the sorting task, participants were asked to describe particular aspects of the outdoor areas in the photographs which were especially liked and disliked. The answers to these questions were summarized in categories which are presented in Table 3.

The disliked qualities which were most frequent-

ly mentioned reflect general concerns for orderliness, safety, and for the lack of visibility within an area. Disorderliness in a scene was the most frequently mentioned point of concern, and weedy areas were not appreciated. Other disliked features reflect concerns for spaces that are dark and seem closed-in or threatening. The presence of "too many" trees and bushes was frequently mentioned as a specific point of concern.

A much larger number of responses was made when participants were asked what it was that they particularly liked in the scenes. Their answers were quite varied, representing specific themes as well as a more general enjoyment of "pretty" and "parklike" scenes. Particular natural features were noted, such as the trees and water, the suggestion of being a wildlife area, and the natural quality of a scene. In addition, built features including swingsets, picnic shelters, sidewalks, ballfields, and other amenities were pointed out as being especially appreciated. Concerns for neatness and for safety were again ex-

pressed, as they were in responses to the question on disliked features. Finally, some residential street scenes were viewed as being "good places to live," and the appearance of a place to walk or drive through some scenes was particularly liked.

Some of these comments may appear to contradict each other. For example, trees are mentioned as being both especially liked and especially disliked features. Disorderliness is not preferred, but natural beauty in a scene is valued. And it may not be obvious what kinds of areas seem either dangerous or safe to a sample of inner city residents. Again, looking at the specific photographs being referred to in each case is instructive in clarifying these expressions of preference.

The bottom photograph in Figure 2, which shows a small creek heavily lined with scrubby, barren-looking trees, was the most frequently cited example of disliked trees. At the other extreme, a scene dominated by three large evergreens, and two other scenes containing a distinctive willow tree and a line of white birches

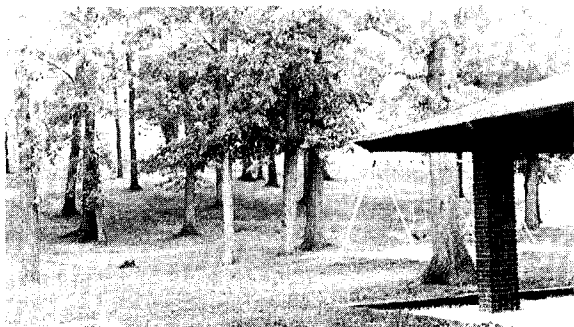
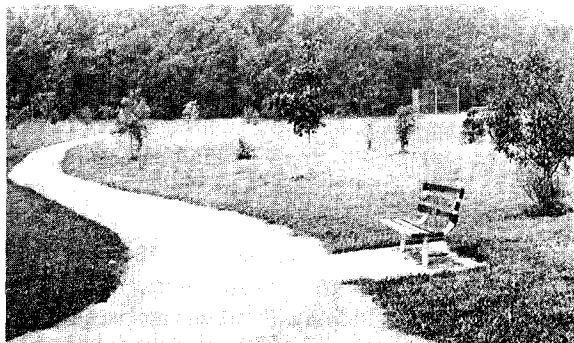


Figure 1. Scenes with highest average preference ratings (over 4.5 on 5-point scale).

Figure 2. Scenes with lowest average preference ratings (below 2.5).

were frequently pointed out as having trees which were well-liked.

Both photographs in Figure 2 were cited as examples of places that looked weedy, disorderly and dangerous. The unmanicured quality of these two scenes is obvious. At the same time, other unmanaged scenes were described more favorably as being "wildlife areas" or having "natural beauty." These were rated higher by the sample as a whole, and were among the natural areas with

Table 2: Photograph clusters.

Category	Alpha value	Number of photographs	Mean preference
Local parks and walks	0.77	7	4.02
Woods and water	0.79	4	3.10
Woods and paths	0.69	5	2.98

* Preferences were rated from 1 to 5, where 5 indicates scenes which were highly preferred.

Table 3: Liked and disliked characteristics of outdoor areas.

Specific characteristic	Number of comments *
Disliked features	
Disorderly (cluttered, messy, dirty, not kept up)	56
Weeds	55
Gloomy (too dark, too bushy)	43
Looks dangerous	41
Trees (too many, they look dead)	38
Liked features	
Trees (so many, so big, different kinds)	92
Built features (swings, shelter, bench, side-walk, playground, pathway, fence, ballfield)	84
Neatness (trimmed, manicured, kept up)	84
Pretty (scenic, beautiful)	76
Park area	69
Water	69
Wildlife area (fish, birds, squirrels)	42
Looks safe	41
Natural beauty (not man-made, the woods, the country)	41
Good place to live	39
Road	37
Walking area (flat, could walk there)	33

* Frequencies include multiple comments. Only comments mentioned by at least 30% of the sample are included in Tables 3 and 4.

more distinctive features which had clustered into the Woods and Water and the Woods and Paths dimensions. One example is a scene showing a large log next to a rushing river in a heavily-wooded area, which was often described as a nice place to go fishing.

The quality of danger may not be readily apparent in the scenes in Figure 2, other than in the extremely rough ground textures evident in both photographs. Some respondents specifically suggested that weedy areas would give muggers a good place to hide in. However, the inference of safety in other scenes seems more straightforward. Two photographs were often described as looking like safe places. Each of these, including the bottom photograph in Figure 1, depict parks with swingsets and other children's play equipment.

To summarize these findings, many specific features were noted as contributing to the respondents' preference judgments. Scenes with a few large and/or distinctive trees in an open grassy area were generally preferred. Unmanaged natural areas were appreciated only when they had distinctive physical features rather than just looking like the woods. Smooth ground textures and generally well-kept appearances were especially important to the sample. In their absence, heavy undergrowth strongly suggested the threat of physical danger.

Differences in preferences for areas.

Somewhat surprisingly, there were few differences in preferences within the sample, either in the photograph ratings or in the verbal descriptions of preferred and non-preferred outdoor areas. No significant differences in preferences for the three photograph dimensions were found when stratifying the sample according to any of the demographic variables listed in Table 1 (note that levels were collapsed in some categories to assure sufficient sample sizes. The significance criterion used was 0.05).

A few significant results were found when examining the verbal descriptions and the differences in ratings for the best- and worst-liked individual photographs. Respondents who had always lived in cities gave lower ratings to the woody creek scene (in Figure 2), and more often said they disliked disorderly scenes and liked park

areas, when compared with the rest of the sample. Elderly people reflect nearly opposite distinctions, with higher ratings for this same woody creek scene, and less frequent comments about liking park scenes. And people from households with children were more favorable to the scene with swings (in Figure 1), less favorable to the creek scene, and less frequently said they liked areas that were just scenic, when compared with the rest of the sample.

The value of nature. In a separate open-ended question, participants were asked what kinds of response they had to outdoor areas, what feelings they gained from being outdoors. Answers to this question, as shown in Table 4, indicate that being outdoors is a positive experience. Being outdoors provides an opportunity to relax, to get away from pressures and worries, to think, and just to enjoy oneself.

While this range of answers is not at all surprising, Table 5 indicates that these opportunities are not seen as trivial by urban Black residents. When asked how important they thought that nature was in their lives, only 18 respondents perceived a relatively low value in their infrequent involvement with nature. Four people said that nature was not extremely important to them, but they still found it a daily interest. The remaining 74 individuals responded that nature was a very important part of their lives, and for the majority of these, it was an everyday pursuit.

Searching for differences within the sample in these perceived values again yielded minimal results. People from households with children more often said that being outdoors gave them time to think. And non-elderly respondents more often described being outdoors as generally enjoyable. Other than these two findings, however, there were no differences in the values that were perceived by the participants in relation to their opportunities to be outdoors or otherwise involved with nature.

Conclusions

These findings demonstrate that urban Blacks perceive a very high value in their contacts with nature. Being outdoors is not only seen as being enjoyable, it is also perceived as a very important part of life to a large majority of this sample. These

findings clearly illustrate the value of nature to a population with relatively little opportunity to enjoy it, and whose interest in nature has previously been viewed with some skepticism.

Other results of this study have direct practical value for the professional urban forester or arborist. The use of photographic material made it possible to distinguish preferences for different kinds of natural areas. Despite the participants' common appreciation for contacts with nature, these results demonstrate that urban Blacks have strongly negative feelings about some specific types of outdoor areas. Areas with large amounts of undergrowth and with dense groupings of trees received low ratings from this sample. The most highly preferred landscapes, on the other hand, were characterized by limited numbers of trees and bushes, by being well-manicured and open settings, and by including various built features such as pathways and benches. The openness and the presence of playground features appear to have special importance in alleviating the fear of

Table 4: Response to outdoor environments.

<i>Personal response</i>	<i>Number of comments *</i>
Relaxing (restful, soothing)	82
Enjoyable (pleasant, good feelings)	74
Escape worries (get rid of worries, escape city pressures, forget tensions)	39
Thinking (time to think, let your thoughts wander)	31

* Frequencies include multiple comments.

Table 5: Importance of nature experiences.

<i>Perceived value</i>	<i>Number of respondents</i>
Low (not extremely important, infrequent concern)	18
Moderate (not extremely important, but part of daily life)	4*
High (very important, frequent involvement)	29
Daily life (very important, part of daily life)	45

* Omitted from statistical testing.

danger which was implied in some of the less manicured scenes in the study.

The urban Blacks in this study demonstrate a fairly distinct pattern of preferences for different types of outdoor areas, giving higher ratings to settings which are heavily human-influenced and lower ratings to more natural settings than have been found with other samples. It is not possible, given the scope of the present study, to clarify the reasons for these distinct preferences. Wendling (1980) and Dwyer, Hutchison and Wendling (1981) discuss studies of racial differences in park preferences, in which greater concerns about safety and maintenance and higher preferences for developed areas and for urban parks have been expressed by Blacks than by White respondents. On the other hand, Anderson (1978) found only minor differences in preferences between Blacks and Whites in a rural Michigan area, although the differences that were found show a striking similarity to the findings reported here. Schroeder (1983) found that residential background also predicted differences in preference for more natural and more manicured outdoor areas, although he did not examine other possible predictors such as race and sex. In the absence of more conclusive evidence, it seems possible that many factors influence the preferences of urban Blacks, perhaps not the least of which is the existing physical danger in the nearby environment (as suggested by Metro et al, 1981).

It is important that further studies be done to clarify these issues. However, the results of the current study suggest many ways in which the special needs of current urban residents could be taken into account in the management of the urban forest. While the opportunity to pursue outdoor interest is highly valued by urban residents, danger is also a common concern. Planning outdoor spaces for easy visibility as well as for arrangements of natural features should become equally important concerns for urban foresters, as well.

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*School of Natural Resources
University of Michigan
Ann Arbor, Michigan 48109*