

# Visual Perceptions of Management on Arid Lands

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**Abstract**—A study determined people's perceptions of many types of managed and unmanaged landscapes as represented on slides. In scenes of arid lands in the western United States, most respondents liked natural features such as deserts and mountains. In scenes of mining operations, respondents perceived "roads" as the most prevalent evidence of management activity. Areas reported as having an "arid look" were disliked by the respondents, and areas having "no trees" or "no vegetation" were disliked even more. Nonetheless, arid lands that were reported as "deserts," "sand dunes," "prairies," and "open range," were liked by more than twice as many respondents; thus, people tended to have a positive perception of arid lands. People may have liked arid landscapes, despite not liking arid-looking lands, because landscapes such as deserts and prairies project an image of "openness," which was liked by most respondents.

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Visitors to wildland areas of the United States see an untold variety of natural and manmade features that comprise our national landscape. But what do they really see, and do they express their feelings about their perceptions in a meaningful way? People endow meaning to landscapes (Lynch 1960; Lee 1976), as landscape architect Garrett Eckbo (1969) said: "The physical landscape is visual; the social landscape is verbal." Thus, it is through words that people express what landscapes mean to them and their concern for what is seen. Verbal expressions of what people see in landscapes provide clues not only to the meanings they assign to landscapes, but also to their concern for management and its influence on visual quality. Verbal expression, then, can indicate to managers the public's reaction to natural resource management, and these expressions can suggest management alternatives that are sensitive to the desires of the viewing public.

Efforts to assess public concerns about the landscape and its management led to the development of sensitivity levels in the Visual Management System used by the U.S. Department of Agriculture, Forest Service to plan management within visual constraints. Presumably, sensitivity levels measure viewer interest in the scenic quality of landscapes by determining the frequency of visitor travel along highways. However, actual concern of the public has not been measured; it is assumed on the basis of the public's presence along the highways coupled to a value judgment that they have a concern for aesthetics.

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## Objectives and Methods

In 1989 a study was completed to determine if indicators of concern, or peoples' feelings, about the visual quality of landscapes could be developed based upon whether people liked or disliked objects and management actions they reported seeing in scenes of various landscapes (Magill 1990, 1992). Forty-one different groups of respondents were shown sets of color slides that illustrated various landscape components, structures, and management actions throughout the western United States. Slide sets represented objects photographed from fixed positions using lenses of different focal lengths to simulate their appearance at different distances. Slides were randomly distributed into 8 slide shows of 30 slides each. During shows, respondents completed a questionnaire providing brief descriptions of two objects, in order of importance to them, that attracted their attention in the slides. Because the questions were open-ended, all of the objects were described in respondents' own words. Also, they indicated whether they liked, disliked, or were indifferent to the objects seen. All objects reported by respondents were either natural objects, manmade objects, or indicators of management actions including forests, mountains, deserts, timber cutting, grazing, electronic sites, and mining.

This paper describes peoples' perceptions and opinions about natural and managed arid landscapes.

## Results and Discussion

Despite efforts to obtain a heterogeneous sample, the results showed that 41 percent of the respondents were professionally trained persons and another 29 percent were retirees. Eight percent had attended college, and 73 percent had annual gross family incomes of \$25,000 or more. Two-thirds of the respondents were male, and most recreated on wildland areas 3 to 10 times per year. The majority of the 788 respondents were primarily long-term suburban residents of California.

The respondents reported seeing 154 objects as most important to them in the slides of managed and unmanaged areas. Among the objects perceived that might be associated with shrub lands or arid lands were landscape vegetation, conditions, and forms variously described as brush, vegetation, deserts, open range, desolate, openness, and arid look. Also included were perceptions such as roads, mines, ranches, grazing, and overgrazing, which indicated management activities.

According to Vernon (1968), people tend to focus attention on objects which are most important to them, while things of lesser interest are seen only peripherally. People also tend to be more interested in and assign more importance

**Table 1**—Respondent opinions about some vegetative objects on all sites.

Vegetative object	Number of responses	Opinions reported		
		Like	Dislike	Indiff.
----- percent -----				
No trees	(180)	7	79	10
No vegetation	(85)	9	71	18
Sparse vegetation	(131)	15	53	25
Sparse forests	(227)	23	42	27
Brush	(1,047)	47	17	30
Vegetation	(675)	74	8	13

to natural landscape elements, such as forest stands and mountain ranges and peaks, in contrast with various indicators of management, like roads and mining. And, 79 percent of the responses described various combinations of trees, hills, valleys, mountains, vegetation, and other objects descriptive of natural landscape conditions. Thus, most people, in this study, were attracted by natural landscape objects seen in slides, regardless of management or lack of it.

### Perceptions of Natural Resources

The most frequently reported object and one of the most liked landscape elements in the study was “forest stands.” The stands accounted for nearly 13 percent of the responses for scenes of managed and unmanaged landscapes. The next most frequently reported vegetative object was “brush” (2.7 percent) followed by “vegetation” (1.8 percent), and they were liked, respectively, by 47 and 74 percent of those reporting them (Table 1). (Small frequency percents are the consequence of the large number of objects reported.)

Apparently respondents preferred seeing landscapes that were well covered by trees or vegetation, rather than arid lands with little or no vegetation. For example, 42 percent of the respondents disliked “sparse forests” and 53 percent disliked “sparse vegetation” (Table 1). Negative opinions were greater for perceptions of barren or arid landscapes. Thus, landscapes reported as having “no trees” were disliked by 79 percent of the viewers, and those having “no vegetation” were disliked by 71 percent (Table 1).

“Bare areas” rated among the 10 most frequently reported natural landscape elements for all scenes in the study, and they were disliked by 61 percent of those who reported them for arid land scenes (Table 2). As might be expected, “barren valleys,” “bare hills,” “bare mountains,” and “bare peaks” were also disliked. Yet, if valleys, hills, mountains, or peaks were described as forested, grassy, or green, they were liked. In fact, all predominantly green landscapes were liked by more than 80 percent of those that reported them. Respondents were more favorably disposed toward vegetated landscapes, especially well-forested and “lush” appearing landscapes rather than those perceived as barren or arid.

Only “bare areas,” “deserts,” “openness,” and “prairies” were reported among the 23 most frequently reported objects or landscape conditions for scenes of all landscapes (Table 2). “Openness,” while also descriptive of panoramic views of well-vegetated landscapes, is used commonly to

describe arid lands, and 82 percent of the respondents liked scenes of arid lands that they perceived as having “openness” (Table 2). Additionally, 61 percent of the viewers liked “open range,” 55 percent liked “deserts,” and 46 percent liked “prairies” (Table 2). All are landscapes that may be characterized as “wide-open spaces.” The “liking” of deserts may be enhanced if sand dunes are seen, because 76 percent of the respondents liked the “sand dunes” they reported (Table 2).

Some readers may be confused by the apparent inconsistency of respondents who like deserts and prairies, while others do not like areas that are bare, barren, desolate, or have an arid look. While deserts and prairies may be said to have all of these characteristics, nothing in the study clearly distinguishes why the dilemma exists. It has been shown that many respondents also like landscapes having traits suggestive of openness. Possibly, the wide-open appearance of deserts and prairies may override perceptions of desolation, barrenness, or aridness. If so, those who see deserts and prairies as wide-open spaces may view them favorably, while those who do not see them as open spaces may perceive only the negative traits.

Another perspective suggests that while most of the present study’s respondents liked scenes of “deserts” and background “mountain ranges” (76 percent), a study in the eastern United States rated a scene of sand dunes and arid mountains as the last choice of respondents (Shafer and others 1969). In the current study, respondents were overwhelmingly from California where desert and other arid landscapes are common. The eastern study’s respondents were predominantly Easterners who may not have experienced arid landscapes. Thus, it seems likely that persons raised or living in the Southwest may perceive openness, deserts, and prairies more favorably than those living in locations without such landscape features.

Not all objects that are components of arid lands were liked. Some respondents said that scenes had an “arid look” and others said scenes looked “desolate.” Fifty-three percent of those who reported “arid look” did not like it, and 51 percent said they did not like scenes they perceived as “desolate” (Table 2). Bare or brown hills and mountains project the appearance of an arid environment, whereas green or forested hills and mountains do not appear as arid. Thus, an example of the respondents’ dislike for arid lands was demonstrated by whether they liked or disliked arid

**Table 2**—Respondent opinions about conditions reported for arid lands.

Conditions	Number of arid land responses	Opinions reported		
		Like	Dislike	Indiff.
----- percent -----				
Openness	(248)	82	6	7
Sand dunes	(139)	76	3	15
Open range	(54)	61	9	20
Deserts	(460)	55	17	22
Prairies	(266)	46	16	31
Desolate	(49)	26	51	12
Arid look	(218)	14	53	24
Bare areas	(410)	13	61	20

and lush conditions. Arid hills and mountains were disliked by 46 percent of those who reported them, while only 22 percent liked such landscapes. By contrast, 81 percent of the respondents who reported lush-looking hills and mountains liked them while a mere 4 percent disliked them. These data support the conclusion that people may like deserts, sand dunes, prairies, and open range if they perceive them as wide-open, but if they perceive landscapes as arid, bare, or desolate they regard them with little favor.

## Perceptions of Management

In the study, several objects associated with land management were reported frequently enough for scenes of arid lands to merit discussion. “Roads” were reported more frequently, whether on arid lands or elsewhere, than other evidence of land management. Even in scenes of timber harvesting, they were reported more frequently than forest clearcuts, though only minimally. In addition, respondents either disliked roads (41 percent) or were indifferent to them (31 percent) with one notable exception (Table 3): forty-one percent of the respondents liked a dirt road that faded from the lower right corner into the center of a range land scene. This finding, as well as a couple of examples from non-arid lands, suggests that certain types of roads may contribute aesthetic quality to some scenes, thereby drawing favorable responses.

“Roads” on arid lands were disliked most at two locations in eastern California: Death Valley Junction, near the California-Nevada border, (72 percent) and Poleta Creek, on the Inyo National Forest (75 percent). At these locations, dislike of “roads” may be attributed to different conditions, but study data did not permit determining why respondents’ opinions differed for various landscape scenes.

Seventy-two percent of those who reported “roads” for Death Valley Junction disliked them. The objectionable “roads” were mining exploration roads located 4 miles from the photo point and oriented away from the viewers. Also, they were seen as parallel lines that were several miles apart, and the light color of the dirt roads made them stand out from the adjacent vegetation. The regularity of spacing, along with the color contrast with surrounding vegetation, possibly suggested human activity where none was expected by the respondents.

The “roads” at Poleta Creek were 3 miles from the photo point, and they were irregularly scattered over the landscape. However, soils at the location were white, so road cuts and fills, eroded soils, and unvegetated areas contrasted strongly with the short, sparse vegetation. The combination of naturally exposed soils and road exposures may have caused respondents to see more “roads” than actually existed, thus eliciting negative responses to perceptions of an excessive number of roads.

“Microwave towers” and “powerlines” may or may not be easily seen when they are located on arid lands; visibility depends upon their location, color, and the distance from the observer. Those located along skylines may be seen easily, while those with mountains for a background are less likely to be seen unless their color contrasts sharply with soils and vegetation. Of course, the greater the distance from the towers or powerlines to the observer, the less likely they will be seen. Whenever they were seen by respondents, “microwave towers” and “powerlines” were disliked by 58 and 68 percent, respectively (Table 3).

Electronic devices drew relatively large numbers of responses for only two of five scenes. In one scene, a satellite dish was consistently mistaken as a microwave tower and disliked by 59 percent of the viewers. Located on the crest of a hill, it seemed that more respondents should have seen and reported the object as a satellite dish. Though it drew the most responses for the scene, some attention was diverted by other objects such as roads, rocks, vegetation, brush, buildings, and hills.

Respondents were attracted by “powerlines” in another scene, and 68 percent did not like the lines (Table 3). Again, the powerlines drew the most responses, but attention also was drawn to brush, hills, and mountain ranges. In both cases, attention was diverted by objects probably of more interest to the respondents than either the satellite dish or the powerlines.

Commonly, mines may be seen on arid lands, and spoil overcasts and piles usually are easily detected. In general, mines seen on arid lands were disliked by 50 percent of the respondents while 22 percent liked them (Table 3). However, it may be necessary for people to be interested in mining before mines are actually seen as visual intrusions. Few reported seeing “mines” in the arid land scenes. Gold mining in Nevada resulted in the entire top of some low mountains being removed, and only flat tops and considerable overcast material were seen. Yet, less than 2 percent of the respondents reported “mines,” and half of them did not like the mining. Most people reported “mountain ranges” (13 percent), “hills” (13 percent), “brush” (12 percent), and “deserts” (7 percent) for the scene. Low detection of the mining may be related to the color of the mining spoils. Spoils were similar in color to surrounding hills, thus contrast was very low. At other locations, mining spoils contrasted sharply with adjacent soils and vegetation making them easier to detect.

A few respondents reported “grazing” or “overgrazing” for scenes of managed lands, and many of the reports were for arid lands. Grassland scenes apparently stimulated perceptions of grazing or overgrazing, even when cattle were not present, but nothing in the data explained such responses. When reported, “grazing” was liked by 51 percent of those who had viewed scenes of arid landscapes,

**Table 3**—Respondent opinions about objects reported for scenes of managed arid lands.

Object	Number of responses	Opinions reported		
		Like	Dislike	Indiff.
----- percent -----				
Overgrazing	(37)	0	95	3
Powerlines	(145)	5	68	22
Microwave towers	(140)	8	58	29
Mines	(58)	22	50	9
Roads	(567)	21	41	31
Fences	(236)	28	29	38
Trails	(67)	49	28	18
Grazing	(49)	51	16	27

and only 17 percent disliked it, while some were indifferent (Table 3). On the other hand, not a single person liked "overgrazing." The percentage of people who disliked "overgrazing" was greater than those who disliked "roads" (41 percent) or "clearcuts" (76 percent), although the number of reports was much greater for "roads" and "clearcuts."

## Management Implications

Study determined that most respondents were more interested in and assigned more importance to natural landscape elements in contrast with various management actions (Magill 1992). Examination of the study's arid landscape components revealed that respondents liked scenes of deserts, prairies, and range lands primarily for the openness or wide-open feeling they conveyed. Yet, whenever scenes were perceived as arid or desolate, they were disliked by the respondents. Thus, arid or desolate-appearing landscapes may be regarded unfavorably by people, whereas a sense of openness or a wide-open feeling may override their negative perceptions.

The openness that people like makes management difficult, because roads, electronic devices, buildings, and mining operations on arid lands cannot be easily concealed. Thus, evidence of management activities needs to be carefully located to avoid unfavorable public reaction, especially if it can be seen from places frequented by many people. In general, roads detract from the aesthetic quality of arid land scenes. Though one case suggested that meandering, unimproved roads might contribute aesthetic quality to arid land scenes, this potential was not verified and would require further study.

It may be advisable for managers to consider the color of soils and vegetation whenever they are making management plans. Mine spoils and road cuts and fills that blend with surrounding landscapes are less likely to be detected and arouse criticism. If they contrast sharply, then mitigating actions, such as employing site preparation and plantings, may be necessary. In the case of microwave and powerline towers, painting them colors compatible with the surroundings may be effective.

Overgrazing has long been a contentious issue between ranchers and land managers and the viewing public. The study did not determine when respondents ceased to be favorably impressed with grazing and commenced seeing range lands as overgrazed and disliked. Nevertheless, managers should be aware that many lay people will perceive some arid lands and range lands as overgrazed, whether they are or not.

In conclusion, a different approach has been described for evaluating public perceptions and opinions of arid landscapes. It documented what some people saw in color slides of managed and unmanaged landscapes and identified what they liked and disliked about the scenes. Hopefully, resource managers have been provided with a better understanding of public concerns for the visual impact of management practices on arid lands and have been made more visually sensitive to public desires.

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