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# IS SCENIC BEAUTY A PROXY FOR ACCEPTABLE MANAGEMENT? The Influence of Environmental Attitudes on Landscape Perceptions

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**ABSTRACT:** Pacific Northwest mountain scenes tested whether perceptions of scenic beauty correspond to those of management acceptability, and for whom. A stratified sample of participants included those favoring resource protection, production, or neither. Scenes were rated for either scenic beauty or acceptability. All participants saw very beautiful scenes as acceptable, and the two rating types were correlated but diverged in ways corresponding to environmental attitudes. Participants with opposite attitudes rendered the two ratings in reversed ways: Those favoring resource production had lower standards for both qualities, rated acceptability higher than beauty, and saw ugly scenes as acceptable. Those favoring resource protection had higher standards for both qualities, rated acceptability lower than beauty, and needed beauty to see acceptable management. The nonaligned respondents were in between, judging the two qualities very similarly. Beauty can be a proxy for acceptability within homogeneous or general constituencies but only with careful interpretation across conflicting value orientations.

**Public land management** has always been contentious. Scenery is one of the most ubiquitous ways by which the health of public landscapes is judged by the public. Managers have therefore been justifiably sensitive about scenic

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quality, as was Congress when it included provisions for scenic beauty in the National Environmental Policy Act (NEPA) of 1969 and the National Forest Management Act of 1976. Still, the relationship between public judgments of scenic quality versus the acceptability of public land conditions remains unclear.

One common example of the confusion of perceived acceptability versus scenic beauty arises in land planning executed under the procedural requirements of NEPA. These procedures follow a rational planning process (Meyerson & Banfield, 1955) whereby objective assessments of the environmental impacts of alternative plans precede an overall evaluation of options and choice of action. Planners must make objective assessments of social impacts and aesthetic or visual impacts, among many others, but no assessment of the perceived social acceptability of alternatives is required. Instead, final authorities who select plans for implementation must make judgments about the perceived social acceptability of alternatives using informed, administrative discretion, often based on ad hoc understandings or guesses about social acceptability, just as in decisions made by elected officials. These decisions are made from the totality of many different topical impact assessments, public comments, and, inevitably, politics. This process is intended to allow only more objective assessments to affect choices, to prevent any formal assessment of social acceptability that might trump all other assessments, and to rest final decision assessments not with specialists but with decision makers who are vested with such powers (Buck, 1996).

For all its virtues, this inattention to carefully understanding the perceived social acceptability of planning decisions can be perilous. An overattention to strict NEPA process and to an overly technical decision analysis motivated by agency interests can lead to serious planning failures when final decisions prove socially unacceptable (Wondolleck, 1988). One way to avoid such failures is to better understand the political or social acceptability of alternatives (Gericke & Sullivan, 1994). Studies to foster such understandings have begun (Brunson, 1993; Brunson, Kruger, Tyler, & Schroeder, 1996), and methods for assessing social acceptability are being explored (Zinn, Manfredo, Vaske, & Wittmann, 1998).

There is a frequently used, weak default for incorporating quasi-assessments of social acceptability into planners' fact finding. This has been to use required assessments of visual-aesthetic impact as a proxy for perceived social acceptability (Smardon, 1986). The default assumption has

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been that if a landscape is seen as acceptably attractive, then the public may find the plan, and environmental impacts that produced that landscape, acceptable (Greider & Garkovich, 1994; Magill, 1992; McGuire, 1979).

This assumption is problematic because scenic beauty assessments or perceptions may be hard to justify as a measure of the acceptability of landscapes. They may oversimplify the many, complex, and controversial issues that make up acceptability and mask important differences of opinion behind shared aesthetic perceptions of a lowest common denominator kind (Carlson, 1977). Researchers have also made the same assumption about the identity of aesthetic versus acceptability perceptions (Paquet & Belanger, 1997) or have forced an identity by having respondents rate "scenic acceptability" (Brunson & Reiter, 1996).

Even if this leap of logic has not been clearly validated, NEPA provides little other objective recourse. Decision makers likely recognize that scenic beauty and acceptability are not identical. To the extent they are supposed to, or conscientiously do, rely only on the assessments in hand, they often must decide, or at least explain decisions, as if scenic beauty is a proxy for perceived acceptability. The weight of public comments may bolster their intuitive sense of nonaesthetic acceptability perceptions as they do so. An alternative source of findings about decisions' acceptability could come from more robust public participation than the law requires (Blahna & Yonts-Shepard, 1989), or that planners are usually enabled to do (Creighton, Chalmers, & Branch, 1983) or that they are willing to do (Shindler, Steel, & List, 1996). Meanwhile, assumptions about the relationship between perceptions of scenic quality versus the acceptability of landscapes have long been known to be problematic (Dearden, 1981; Zube, 1976) and are overdue for targeted investigation.

### BEAUTY, ACCEPTABILITY, AND ATTITUDES

The full nature of aesthetic, affective perceptions of outdoor environments versus cognitive perceptions of approval is complex and unknown. In the absence of conditioning information or knowledge, affective visual perceptions, such as scenic beauty, may not necessarily be substantially different than more cognitive perceptions, such as those of the acceptability of landscapes' management (Zajonc, 1980). If cognitive perceptions are normative, like judgments of acceptability, affective visual perceptions may dominate their formation (Ulrich, 1983; Zajonc, 1984). To the extent that perceptions of acceptability are only partly affective perceptions, the two types may be

significantly different, inasmuch as they may arise from different expectation schema (Purcell, 1986). To the extent that acceptability perceptions are mainly cognitive, in deriving an intentional approval behavior, they may also be significantly different from affective beauty perceptions (Russell, Ward, & Pratt, 1981). Whether these two types of perception differ may also be dependent on the kind of person responding to a landscape. Subjective attitudes almost always affect cognitive perceptions, and different kinds of people have been found to render different aesthetic perceptions of landscapes (Kaplan & Talbot, 1988; Lyons, 1983; Noe, 1988; Ribe, 1994).

There is extensive published research about affective landscape perceptions and studies comparing how types of people render such perceptions. There is also literature about perceptions of the content of environmental management—as opposed to its appearance—and how these vary among people with different environmental attitudes. Little published research has explicitly explored how perceptions of management acceptability relate to those of scenic quality, although it is well established that normative expectations of or associations with land use types and designations affect aesthetic perceptions in understandable ways (Anderson, 1981; Hodgson & Thayer, 1980; Wohlwill & Harris, 1980).

A few studies have investigated the relationship between aesthetic and acceptability perceptions. More ecologically sensitive respondents were more sensitive to the acceptability of visual impacts, when the latter were described in words rather than seen in landscapes (Floyd, Jang, & Noe, 1997) or when they were mapped from memory (Harvey, 1995). Brotherton and Deval (1988) found that scenic beauty and acceptability perceptions were most correlated when they both derived from afforestation projects that were seen as more natural appearing. Brunson and Shelby (1992) explored the relationship between perceived scenic beauty and recreational-setting acceptability and found them strongly but imperfectly correlated. Ribe (1999) compared average scenic beauty and management acceptability ratings for six scenes and found the order of these two perception types to be largely the same but with significant differences in their interval differences across scenes.

Affective responses to landscapes may be changed by cognitive processing arising from information provided to the observer. Studies have found that cognitive perceptions, such as acceptability judgments, are affected by information. Just a few studies have explored the influence of information on aesthetic perceptions of outdoor environments. Ribe (1999) found that information influenced perceptions of acceptability more than those of beauty. Information that explicitly refers to strongly affective attributes of scenery, such as dead and burned trees, does moderate negative scenic beauty

perceptions (Buhyoff, Wellman, & Daniel, 1982; Taylor & Daniel, 1984). Information about land management not explicitly related to affective attributes of scenery has no such clear effects (Brunson & Reiter, 1996). Much needs to be learned about these relationships, but this issue was not explored in the study reported here.

None of these studies has explored the correlation of simple perceptions of scenic quality versus management acceptability for different types of people and for a large sample of scenes. None has clearly and specifically tested the assumption that scenically beautiful landscapes are acceptable landscapes, and for whom. The best guidance now available is theoretical ideas about this relationship (Gobster, 1999; Nassauer, 1995; Thayer, 1989). The relation between simple, uninformed perceptions of scenic beauty and acceptability is important, if only because these judgments on simply seeing landscapes are commonplace and can have potentially powerful emotional impacts that can affect lasting public opinions and activism regarding land management (Palmer, 1998; Tarrant & Green, 1999).

#### STUDY OUTLINE

This study investigated the relationship between beauty and acceptability perceptions using methods detailed in the next section. It employed the northern spotted owl controversy (Yaffee, 1994) as a context for a survey. Respondents were drawn from the region directly affected by the controversy, where the issues were widely understood in relation to forest and landscape conditions (Dietrich, 1992). This provided a strong context for scenic acceptability judgments that could readily be different from scenic beauty judgments. The forested mountain landscape of the spotted owl provided a diverse range of scenes for judging. Issues from the controversy were used to measure respondents' attitudes (Walker & Daniels, 1996).

A large, diverse sample of respondents was surveyed. They were sorted along a spectrum of favorability toward habitat protection for the spotted owl. This sorting classified respondents with different attitudes toward environmental protection, which can affect scenic perceptions (McCool, Benson, & Ashor, 1986; Tips & Savasdidara, 1986). The perceptions of members of these attitude classes were then compared to test (a) whether some classes saw differences in beauty versus acceptability differently than others, (b) whether respondent classes differed in their relative standards of judgment for these two qualities, (c) whether these attitude classes' standards differed in judging either one of the qualities alone, and (d) whether any of the above three comparisons produced differences throughout the full range of beauty found in the scene sample.

## METHOD

### SCENE SAMPLE

There were 115 photographic slides taken of vista views in the Cascade and Olympic Mountains of Oregon and Washington. These sampled a wide range of scenic beauty and a wide range of evidence of human activity, from scenes of wilderness to scenes dominated by fresh clear-cuts and roads (Carls, 1974). (This large number of scenes served to include all the conditions required for another study of scene content using the same ratings.) Fifty-five of these were placed at random in one slide set, and the other 55 were placed randomly in another slide set. Another separate set of 5 slides with the same range of scenery was placed at the start of both slide sets to provide respondents with warm-up practice ratings. These were not otherwise included in the study. This procedure produced two similar sets of 60 slides for rating by different respondents. This split into two sets was done to keep the time required for rating within acceptable limits for the groups that volunteered to rate them.

### RESPONDENT SAMPLE

A total of 1,120 respondents was surveyed. These were members of a variety of 57 organizations in western Washington and Oregon who rated the slides as an activity during meetings. Groups were recruited to capture a diversity of people with active interests in preservation versus commodity production on public lands. A few people attending the meetings opted not to participate and were not counted, so a response rate cannot be reported. Eighty-five respondents rated the slides but opted not to answer the questions needed to classify their attitudes regarding public lands management, so they were excluded from the study. This yielded a final sample of 1,035 respondents.

The respondents were not classified or analyzed according to their membership in the groups whose meetings provided the respondents. Instead, each individual respondent was classified later on independently of his or her surveyed group membership. This was done according to his or her own responses to questionnaire items regarding national forest issues. This classification method is described in the next section.

This was not a poll sample. Instead, respondent groups were recruited to capture a stratified sample of roughly equal numbers of people in three sets: (a) those with active interests in commodity production on public lands, or resource-productionist attitudes; (b) those with ecological preservation or

resource-protectionist attitudes; and (c) other nonaligned people tending toward what might be considered more moderate views about environmental issues. These three types were identified by Vining (1992) as tending to react to forest issues with different attitudes and emotions, consistent with Walker and Daniels's (1996) findings.

The groups sampled were recruited to capture a variety of rural, suburban, and urban respondents and the potential range of attitudes toward land management found across such places (Brunson, Shindler, & Steel, 1997; Tremblay & Dunlap, 1978). Diversity was also sought in people's relationships to the forest products industry and in their recreational preferences. The groups included organizations such as logging and property rights advocates, environmental groups of various kinds, and other groups including civic clubs, professional organizations, higher education classes, business clubs, corporate offices, granges, recreation interest clubs, and neighborhood associations.

Each respondent group rated just one of the two slide sets for either acceptability or scenic beauty, entailing four different respondent subsamples: (a) Slide Set 1 rating acceptability, (b) Slide Set 2 rating acceptability, (c) Slide Set 1 rating scenic beauty, and (d) Slide Set 2 rating scenic beauty. Respondent groups were initially allocated to these subsamples at random. Then, decisions were made about which scene set and quality the last groups would rate to ensure that each of the four subsamples would capture at least 75 of the three respondent attitude classes (productionist, protectionist, and nonaligned).

To pursue this desired balance within the slide set-rated and quality-rated subsamples across the three respondent categories, a running tally of responses to the propositions in Table 1 was kept as sampling progressed. Final groups were then recruited that were expected to balance each subsample until the balance was achieved with at least 250 respondents in each of the four subsamples (slide set-rated and quality-rated combinations). This running count of respondent types was temporary for sampling purposes only. Another better and final classification of all respondents is described in the next section, and the corresponding final number of respondents in each category is shown in Table 1.

#### RESPONDENT CLASSIFICATION

The completed sample was sorted by respondents' individual attitudes toward resource production from national forests to yield the classification used for further analysis. The stepwise, k-means, cluster analysis method of nonhierarchical estimate minimization using standardized data was used

**TABLE 1**  
**Response Distributions Among Final Respondent Subsamples to Propositions Regarding the Spotted Owl**

<i>Proposition</i>	<i>All Respondents</i> (N = 1,035)	<i>Productionists</i> (n = 357)	<i>Protectionists</i> (n = 350)	<i>Nonaligned</i> (n = 328)
I believe the northern spotted owl is not really threatened with extinction.				
<i>Strongly disagree</i>	285	13	219	53
<i>Disagree</i>	297	37	110	150
<i>Neutral or not sure</i>	125	61	8	56
<i>Agree</i>	199	141	12	46
<i>Strongly agree</i>	132	105	2	25
I believe there is no real conflict between saving the northern spotted owl and continuing levels of federal forest harvests like those of the 1970s and 1980s.				
<i>Strongly disagree</i>	370	22	253	95
<i>Disagree</i>	315	89	88	138
<i>Neutral or not sure</i>	138	81	6	51
<i>Agree</i>	151	113	1	37
<i>Strongly agree</i>	63	51	3	9
I believe the northern spotted owl should be saved only if it can be done without eliminating jobs and significantly hurting the economies of communities. <sup>a</sup>				
<i>Strongly disagree</i>	193	0	176	17
<i>Disagree</i>	332	2	169	161
<i>Neutral or not sure</i>	142	33	5	104
<i>Agree</i>	270	228	0	42
<i>Strongly agree</i>	99	94	0	5

I believe the northern spotted owl should be saved even at a high economic cost. <sup>b</sup>				
<i>Strongly disagree</i>	213	176	0	37
<i>Disagree</i>	241	147	0	94
<i>Neutral or not sure</i>	196	26	12	158
<i>Agree</i>	255	8	208	39
<i>Strongly agree</i>	134	1	131	2
I believe the northern spotted owl should be saved only if it can be done without significantly hurting private property owners' rights and freedom of land use. <sup>c</sup>				
<i>Strongly disagree</i>	155	0	130	25
<i>Disagree</i>	327	3	176	148
<i>Neutral or not sure</i>	161	25	37	99
<i>Agree</i>	256	193	8	55
<i>Strongly agree</i>	140	137	0	3

NOTE: For clustering purposes, response options were integer coded from 1 (*strongly disagree*) to 5 (*strongly agree*).

a. Efficient final clustering item, with average cluster values: productionists = 4.16, protectionists = 1.51, and nonaligned = 2.57.

b. Efficient final clustering item, with average cluster values: productionists = 1.64, protectionists = 4.34, and nonaligned = 2.62.

c. Efficient final clustering item, with average cluster values: productionists = 4.29, protectionists = 1.78, and nonaligned = 2.59.

(Forgy, 1965; SAS Institute, 1995). This method clustered the respondents into those closest to each other in Euclidean space as defined by their answers to the spotted owl propositions in Table 1. k-means was the best method for this classification to an a priori, set number of classes with the data type and structure in this study (Milligan, 1980) and succeeded in sorting to the expected three respondent types right away, using all combinations of the spotted owl propositions.

The most efficient and final clustering used the responses to the three propositions (see Table 1) regarding jobs and communities, the cost of saving the owl, and property rights. That is, the clusters of respondents resulting from those three items together had mean response values the furthest apart and the smallest mean distance inside the clusters (Gengerelli, 1963). An inspection of the data sorted by final clusters in Table 1, and the mean responses noted in that table, provides a sense of the character and strong expected differences between the respondent classifications.

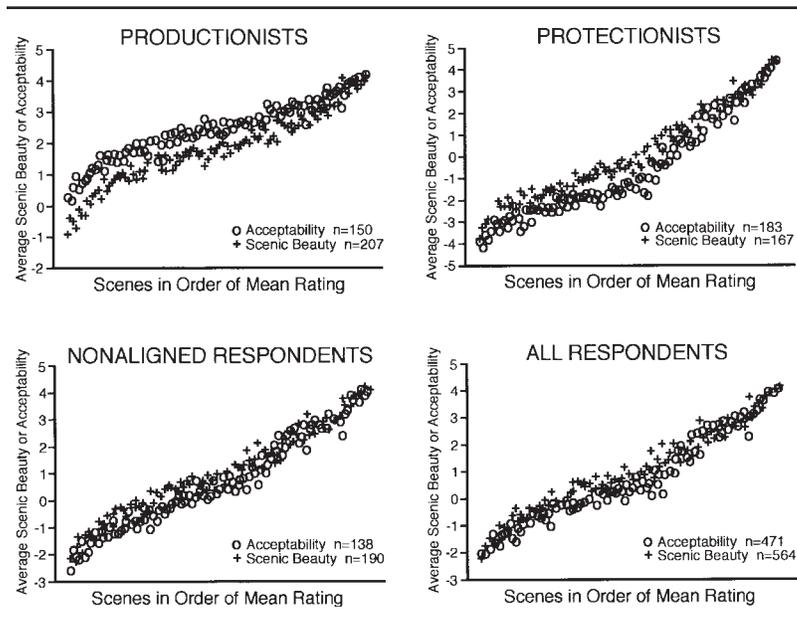
#### SCENE RATING SESSIONS

A slide set was projected in random order for each respondent group after they were read instructions. The respondents rated the slides privately, anonymously, and independently on individual rating forms and then filled in a questionnaire.

The respondent groups that rated the slides for scenic beauty did so on a numeric scale from  $-5$  to  $+5$ . They were instructed that the scale ranged from *very ugly* ( $-5$ ) to *very beautiful* ( $+5$ ), with 0 assigned to slides they found neither beautiful nor ugly or were undecided about.

The respondent groups that rated the slides for acceptability were asked to rate each slide for "its acceptability as a national forest condition," reflecting "how much the landscape shown is in a condition that is acceptable for a publicly owned and managed national forest." They were instructed to apply whatever knowledge and sensibilities regarding national forest management they wished to these judgments. These acceptability ratings were also made on a numeric scale from  $-5$  to  $+5$ . They were instructed that the scale ranged from *very unacceptable* ( $-5$ ) to *very acceptable* ( $+5$ ), with 0 assigned to slides they found to be neither acceptable nor unacceptable or were undecided about.

Respondents were asked to try to use the whole scale in rating slides. The only information provided was that the scenes were from various national forest lands and collectively portrayed multiple uses and not just recreation areas. Respondents were told to view the slides as scenes they might encounter traveling "distant from home" through the Cascade Mountains



**Figure 1: Comparing Acceptability Versus Scenic Beauty Ratings Within Respondent Classifications**

and “distant from their favorite place to visit” (Lyons, 1983). They were asked to rate the scenes without reference to their frames, the appearance of the sky, or the quality of the photographic exposure.

#### ANALYSIS OF RATING TYPES WITHIN RESPONDENT CLASSIFICATIONS

All the scenic beauty ratings rendered for each slide by all respondents were averaged, and the same was done for the acceptability ratings (Schroeder, 1984). They were then averaged again but within each of the three respondent attitude classifications.

The average ratings for acceptability versus scenic beauty within each of the respondent classifications, as well as among all the respondents, were compared across all 110 scenes. For each such comparison, these two rating types were plotted against each other in order of the mean of the scene’s two (scenic beauty and acceptability) ratings (see Figure 1). In each such comparison, a two-way ANOVA was used to test whether the two different but related types of ratings exhibited significantly different mean values. This was a pairwise analysis by scene, not by respondent. In each case, different

respondent sets but in the same attitude classification produced the two different ratings.

It was possible that a classification of respondents would not have significantly different mean acceptability versus scenic beauty ratings, but they might have exhibited significantly different ratings only within a limited range of the rating values rendered, such as only among ugly and/or beautiful scenes. This was an important potential difference that could be tested by comparing the slopes between the two rating types with changes in the underlying scenic beauty that affected both types of ratings.

Within each respondent classification, these differences in the slope of the scenic beauty versus acceptability plots were tested in a manner suggested by Schroeder (1987). This was done by a post hoc *t* test. (This test was found to be more conservative than an analysis of covariance with average scenic beauty ratings across all respondents.) A simple regression model was estimated between each of the two rating types and their combined mean rating values by scene. The resulting estimated slope coefficients for the two rated qualities were then compared for a significant difference using a *t* test employing standard errors derived from the regression estimations.

#### ANALYSIS ACROSS RESPONDENT TYPES WITHIN RATING TYPES

In a different analysis, just the average acceptability ratings across the three attitude classes of respondents were compared across all 110 scenes. This was done by plotting them against each other by scene in the order of the mean of these three acceptability ratings (see Figure 2, top). These three plots were tested for significant differences in their pairwise mean values by ANOVAs. Each pairwise difference was also subjected to a post hoc Scheffe (1953) test derived from a three-way ANOVA involving all three attitude classes. This additional test was used because it is conservative in identifying significant differences and is robust against imperfectly met ANOVA assumptions. These were repeated measures ANOVA by scene, not by respondent. Different respondents of different classifications were making the same acceptability ratings. The same post hoc *t* tests described above were used (for the same reasons) to do pairwise comparisons of plot slopes across the respondent classifications.

The average scenic beauty ratings by attitude class were also plotted together (Figure 2, bottom). Identical analysis procedures as above were applied to these average scenic beauty ratings across the three respondent attitude classes.

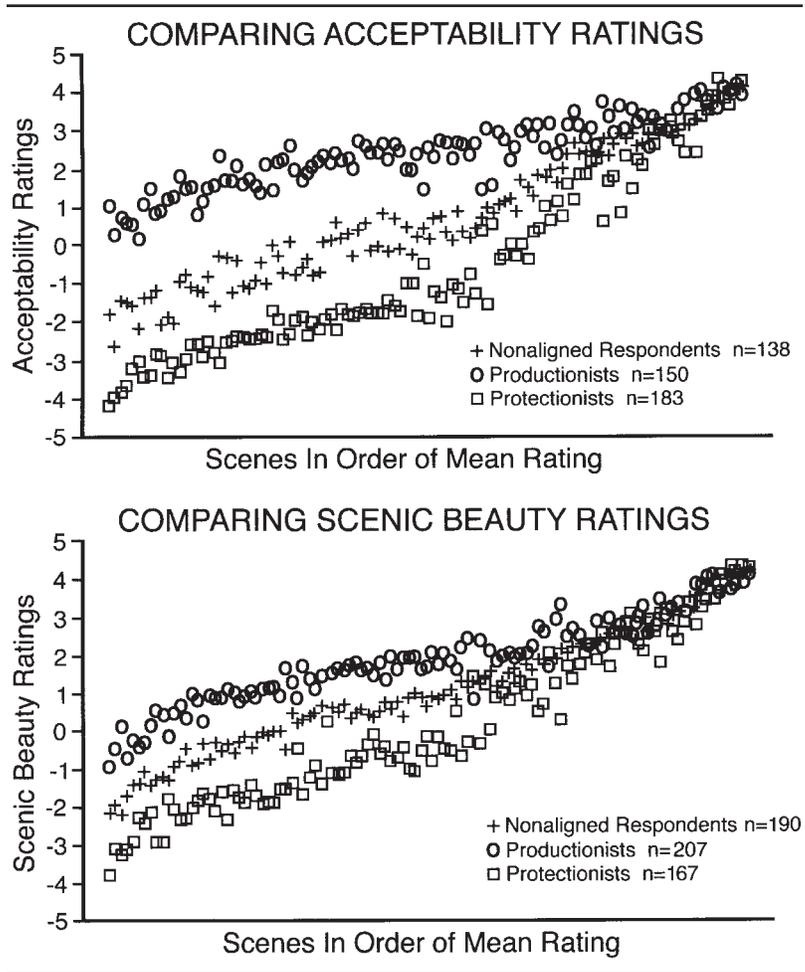


Figure 2: Comparing the Same Rating Types Across Respondent Classifications

RESULTS

COMPARING RATING TYPES WITHIN RESPONDENT TYPES

The graphs comparing average scenic beauty to acceptability ratings across all the scenes are in Figure 1. The two types of ratings there were always correlated. Inspection of all four plots suggests the ratings converged

**TABLE 2**  
**ANOVAs for Ratings of Scenes' Acceptability**  
**Versus Scenic Beauty Within Respondent Types**

<i>Source of Variance</i>	<i>Error Sum of Squares</i>	<i>Mean Square</i>	<i>Error Mean Square</i>	<i>F Ratio</i>	<i>Compare Slopes t<sup>a</sup></i>
Acceptability and scenic beauty					
Productionist	232.00	19.03	1.06	17.88*	6.51*
Protectionist	1,047.54	25.35	4.80	5.28*	1.29
Nonaligned	607.23	5.34	2.78	1.92	1.52
All respondents	561.30	4.48	2.57	1.74	1.10

NOTE: This table presents separate, two-category, related measures one-way ANOVA models.

a. Degrees of freedom are 1/218.

\* $p < .05$ .

at the right-hand end at high values for both qualities, indicating that scenes rated with high scenic beauty strongly tend to also garner similarly high acceptability ratings. Where clear differences between average acceptability and scenic beauty ratings did occur, only for the productionists and protectionists, they appeared more evident for scenes of medium and low scenic beauty. Still, for all respondent classes, only a relatively small number of scenes garnered a positive average rating for one quality and a negative average rating for the other quality.

The plot in Figure 1 for respondents classified as productionists showed a statistically significant difference between their acceptability versus scenic beauty ratings, including a significant difference between the two qualities' best-fit linear slopes (see Table 2). These productionist respondents exhibited lower average standards for rating scenes' acceptability than scenic beauty and consequently tended to rate acceptability higher than scenic beauty.

The plot in Figure 1 for protectionists exhibited the opposite pattern, indicating that this class of respondents rendered higher scenic beauty ratings (lower standards) than acceptability ratings (higher standards). The protectionists produced a statistically significant difference between their acceptability and scenic beauty ratings (see Table 2). This difference, however, was clearly only between the average level of those ratings. It was not between the two qualities' slopes across the graph, which were not significantly different (see Table 2).

The plot in Figure 1 for the respondents classified as nonaligned did not exhibit a statistically different pattern (level and slope) of average acceptability versus scenic beauty ratings across the scenes. The last plot in Figure 1 of ratings averaged across all the respondents showed a very similar pattern to

the nonaligned subsample, also without any statistically significant difference between the two qualities rated.

#### COMPARING RESPONDENT TYPES WITHIN QUALITIES RATED

The graphs comparing the scenes' average ratings for one type of quality at a time between respondent classifications are in Figure 2. Here, too, the average ratings of the different respondent classifications were correlated and converged among scenes rated with high scenic beauty and high acceptability, indicating strong agreement there among respondents of different classifications. When differences between respondent classifications' average acceptability or scenic beauty ratings did occur in Figure 2, they were more noticeable for scenes that had medium and low scenic beauty. Among these medium- to low-level ratings, there were no two classifications of respondents that obviously agreed about either quality rated. In comparing these same-quality perceptions across different classes of respondents (see Figure 2), quite a few scenes garnered positive average ratings from one or two attitude classes but negative average ratings from the other class(es).

The plot comparing average acceptability ratings at the top of Figure 2 exhibited statistically significant differences in the overall level of acceptability ratings between all pairs of attitude classes (see Table 3). All comparisons of acceptability ratings' plot slopes between any two attitude classes were also significantly different. This indicates that the most significant difference between the three classes of respondents occurred among less acceptable scenes, where the plots in Figure 2 diverged. The productionist respondents had the lowest acceptability standards and the highest ratings, the protectionists showed the opposite pattern, whereas the nonaligned respondents were in between.

The plot comparing average scenic beauty ratings at the bottom of Figure 2 exhibited the same pattern of all statistically significant differences (see Table 3) as that above it did for acceptability ratings. This scenic beauty plot had smaller differences between the respondent classifications in both levels and slopes and correspondingly smaller ANOVA error terms (see Table 3).

#### DISCUSSION

The systematic and often significant differences observed between acceptability and scenic beauty ratings indicate that a distinction should be made between these constructs in survey research and land management.

**TABLE 3**  
**ANOVAs for Ratings of Scenes' Acceptability or Scenic Beauty Among Respondent Types**

<i>Source of Variance</i>	<i>Error Sum of Squares</i>	<i>Mean Square</i>	<i>Error Mean Square</i>	<i>F Ratio<sup>a</sup></i>	<i>Mean Difference</i>	<i>Compare Slopes t<sup>a</sup></i>
<b>Acceptability Models</b>						
Productionists and nonaligned <sup>a</sup>	417.94	149.92	1.92	78.20*	1.65**	15.76*
Protectionists and nonaligned <sup>a</sup>	904.90	92.78	4.15	22.35*	1.30**	15.47*
Productionists and protectionists <sup>a</sup>	667.35	478.58	3.06	156.33*	2.95**	21.82*
Productionists, protectionist, and nonaligned <sup>b</sup>	995.10	240.43	3.04	79.01*	NA	NA
<b>Scenic Beauty Models</b>						
Productionists and nonaligned <sup>a</sup>	421.28	31.03	1.93	16.06*	0.75**	15.45*
Protectionists and nonaligned <sup>a</sup>	749.86	47.73	3.44	13.87*	0.93**	20.26*
Productionists and protectionists <sup>a</sup>	612.18	155.72	2.81	55.45*	1.68**	22.47*
Productionist, protectionists, and nonaligned <sup>b</sup>	891.66	78.16	2.73	28.66*	NA	NA

NOTE: NA = not applicable. This table presents eight separate, repeated measures by scene ANOVA models.

a. Degrees of freedom are 1/108.

b. Degrees of freedom are 2/107.

\* $p < .05$ . \*\* $p < .05$ , for Scheffe's post hoc test using the last three-way model listed for each quality.

They are strongly correlated but should not be conflated or assumed to be identical.

People with different types of environmental attitudes agree that the most beautiful landscapes are also the most acceptable, consistent with Tips and Savasdidara's (1986) findings. All these acceptability perceptions of beautiful landscapes may be saturated by strong positive affects overriding cognitive considerations. This shared perception of ideal environments, perhaps best reflected in the national parks movement, seems to found the identification of beauty with healthy landscapes (Cox, 1985). When considering landscapes of less than high or ideal beauty, perceived beauty and acceptability remain correlated in trend and polarity but diverge between people with different environmental attitudes as scenic beauty declines.

As Figure 1 shows, people with attitudes emphasizing the active management of public lands for resource exploitation (productionists) tend to judge scenic beauty differently than acceptability. They tend to see landscapes with evidence of management as more acceptable than beautiful. They tend never to see any landscape as unacceptable, even if they find it ugly. These productionists tend to see clear-cuts or other evidence of management as ugly, consistent with general aesthetic norms (Ribe, 1989), but are more forgiving of that evidence in judging such scenes with higher, positive acceptability. They also judge such ugly scenes with a bit more beauty than do people with other kinds of public land management attitudes (see Figure 2). These productionists tend to judge scenes with evident management as having substantially more acceptability than do people with other attitudes, and more so as scenes get uglier (see Figure 2). This seems consistent with their more industrial or "pre-materialist" perspective toward land management (Steger, Pierce, Steel, & Lovrich, 1989).

People with more "postmaterialist" or postindustrial attitudes favoring management of public lands to support natural processes (protectionists) also tend to judge landscape scenes' beauty differently than acceptability. But they judge the difference in the opposite way than the productionists discussed above, instead viewing landscapes with evidence of management as less acceptable than beautiful (see Figure 1). They tend to see all ugly landscapes as unacceptable (see Figure 1) and clear-cuts or other evidence of management as ugly, consistent with general aesthetic norms, but are more unforgiving of that evidence in judging such scenes with even lower acceptability than beauty. They judge such ugly scenes with a bit less beauty than do people with other public land management attitudes (see Figure 2). These protectionists judge scenes with evident management as having substantially less acceptability than do people with other attitudes, and more so as scenes get uglier (see Figure 2).

People with more nonaligned attitudes, favoring both resource exploitation and nature protection on public lands, or neither strongly, evidently see little difference in judging the acceptability versus scenic beauty of landscapes (see Figure 1). If nonaligned people constitute a majority, as they might (Lovrich & Pierce, 1986), an emphasis on scenic beauty in managing for acceptable landscapes seems warranted in serving the general public. The same conclusion is supported by the identity of scenic beauty and acceptability perceptions among all the respondents' averaged ratings, provided that the numbers of productionists and protectionists were balanced so as to cancel each other to produce very similar perceptions as nonaligned people (see Figure 1). Similarly, nonaligned people's perceptions of either acceptability or scenic beauty tend to be distinctly midway between those of people with the other two types of attitudes (see Figure 2), again acting as surrogates for a balanced average of the other two attitude classes.

### INTERPRETATIONS

People usually arrive at a landscape or land use controversy with predisposed attitudes and preferences derived from experience. These normative predispositions typically have some basis in affective emotions that strongly influence people's values (Zajonc, 1984), such as favoring resource protection. These values may then be reconfirmed by new affective perceptions on encountering a new landscape or controversy. More cognitive ideas or analysis may then be overlaid on affective perceptions in arriving at perceptions of landscape acceptability, perhaps through an interest or involvement in the decision-making process. Affectively derived perspectives may remain a powerful foundation for these more cognitive perceptions.

This study did not investigate the influence of information or participation in planning on perceptions of landscape acceptability. It focused on initial or primary judgments of scenes made without information about landscapes other than that visually evident. It compared how people with very different values added cognitive preferences to their affective reactions to landscape scenes in forming perceptions of acceptability.

### PERCEPTIONS AMONG PEOPLE SHARING SIMILAR VALUES

Average scenic beauty ratings within any one attitude class were correlated with acceptability ratings, and beautiful scenes tended very often to be acceptable and vice versa (see Figure 1). Among simple landscape

perceptions of people with similar values, scenic beauty is therefore a pretty good proxy for acceptability. In such cases, aesthetic perceptions unaffected by information seem to strongly determine perceptions of acceptability.

Among constituencies that do not have strong attitudes either for resource production or protection, average perceptions of scenic beauty versus acceptability are not only correlated but tend to match each other in magnitude. These people are either less able to distinguish the difference between these perception types or are so able but tend to see scenic beauty as a primary indicator of acceptability and, hence, see no significant difference between the two qualities. For these nonaligned people, scenic beauty is a strong proxy for acceptability. The same holds for the larger public, if the number of people favoring resource protection versus production is similar enough to offset each other in "voting" or valuing their perceptions.

Scenic beauty assessments are, however, not perfect proxies for perceptions of acceptability within sets of people with similar and strong environmental attitudes. The same measurement protocol applied to similar participants, with only a change in instructions about the quality to rate, can produce significantly but not radically different average ratings. Environmentalists see significantly less acceptability than scenic beauty, whereas people favoring resource extraction see more acceptability than scenic beauty. These opposite ways of modulating aesthetic perceptions into more cognitive ones disappear only among the most beautiful scenes where all perceptions converge, as they do for everyone.

#### PERCEPTIONS ACROSS PEOPLE WITH DIFFERENT VALUES

The subtle differences between perception types within attitude classes described above are compounded when perceptions are compared across constituencies with different attitudes. In the latter case, scenic beauty is only a proxy for acceptability to the extent that increases in average perceived levels of one quality do correlate to increases in the other. The level and/or rate at which these correlations occur vary significantly among land management constituencies, revealing important differences in their perceptions. These differences across people with different values occur in comparing either their scenic beauty or acceptability perceptions. Differences might only have been expected among the latter cognitive perceptions, with strong agreement about scenic beauty. Instead, attributes of the scenes related to people's particular values did affect scenic beauty perceptions, consistent with Zajonc and Markus (1982), as well as acceptability ratings. Different value orientations do affect standards of aesthetic perception, just less so than they do for acceptability (see Figure 2).

People who favor protection of ecological values require more positive levels of scenic beauty than others do to perceive acceptability (see Figure 2). These protectionists seem to be more emotionally reactive to negative scenic affects. Because they see more scenic beauty than acceptability (see Figure 1), and see the lowest levels of scenic beauty and acceptability (see Figure 2), they may require that other more cognitively perceived environmental qualities (presumably related to perceptions of environmental health) be "added" to scenic beauty before landscapes are seen as more acceptable.

Among people favoring resource production from public lands, more beauty tends to mean more acceptable management, but all levels of scenic beauty and ugliness can garner perceptions of acceptable management (see Figure 1). These productionists are least inclined to perceive negative scenic affects as a consequence of the visual impacts of timber harvesting. Productionists see differences in scenic beauty as others do, but aesthetics tends not to be a basis for disapproving of landscape conditions. For these constituents, scenic beauty can contribute to acceptable management but can also be "discounted" if their conceptions of good management are perceived, even if they substantially reduce scenic beauty.

Managers should be wary of any tendency (McCool et al., 1986) to adopt scenic beauty standards of acceptable management that are sufficient to satisfy constituencies or professionals who favor resource production. These relatively low beauty standards will likely be insufficient for many other constituencies to see landscape management as acceptable. Managers should also not assume that they must always meet the high scenic beauty standards of acceptable management advocated by resource protection constituencies (Magill, 1992). Other constituencies will accept somewhat lower levels of beauty.

Planners and researchers seeking to ascertain the average acceptability of landscapes to the general public may use scenic beauty perceptions or assessments as a proxy for management acceptability. They should, however, ensure that their respondent sample or standards are taken from people not strongly committed to any ideological resource management agenda or that opposing agendas be equally represented in setting standards. The latter choice is obviously wiser in allowing all to be heard. This strategy may be appropriate because scenic beauty assessments can measure the strong and durable emotional perceptions that can serve as a primary basis for general public perceptions of management acceptability (as well as recreational enjoyment of public lands). If, instead, the perceptions of constituencies with strong agendas are of primary concern, planners and researchers must take care to measure the corresponding people's views and not rely on general public-based assessments.

## CONCLUSIONS

Using aesthetic perceptions as a measure of the acceptability of landscape management would seem to oversimplify the complex and controversial. Clearly, there is more that must be considered about acceptability than just aesthetic values. On the other hand, one must also be careful not to overtrivialize aesthetic perceptions.

Simple perceptions of scenic beauty can reflect basic emotional reactions to environments derived from ideals and psychological needs. These can then serve as a strong affective determinant of acceptability perceptions. When these affective responses derive from the same value perspectives, the resulting scenic beauty and acceptability perceptions are nearly the same and a nontrivial proxy for each other. Small but significant systematic differences between beauty and acceptability perceptions occur only when comparing people with substantially different resource management attitudes.

Simple perceptions of scenic beauty are also more robust than just emotional reactions. They can connote more cognitive dimensions inasmuch as they vary systematically and significantly between people with substantially different value perspectives in the same way that acceptability perceptions do. If one is aware of these differences and accounts for them (or discounts them through balanced or neutral sampling) in setting standards for landscape assessments, then here too scenic beauty can be a fair measurement proxy for perceived acceptability of land management.

The results from this study need replication for other landscape and land use types. They also need replication for other landscape planning problem contexts. Studies in contexts where the public is not as well informed about management issues related to scenery content (as it was in this northern spotted owl controversy–derived study) might produce less remarkable differences in perceptions. More studies of information effects on aesthetic versus cognitive perceptions are needed. Studies are also needed regarding how landscape perceptions and people's emotional stakes in scenic beauty influence critical behaviors, such as political activism, voting, and recreational choices and satisfaction.

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