Landscape care: Perceptions of Local People in Landscape Ecology and Sustainable Development.

Joan Iverson Nassauer

Landscape and Land Use Planning, 8: 27-41.
American Society of Landscape Architects, Washington DC, 1988.

Abstract

An understanding of how people perceive their local landscapes is necessary to the holistic landscape concepts of landscape ecology and sustainable development. Local landscape perceptions are not likely to be limited to judgments of short-term land economies; long-term and non-economic views, including aesthetic perception, may be more important in local knowledge. Local aesthetic perceptions are not likely to be limited to western conventions of the scenic. Rather aesthetic perceptions may reflect everyday concerns with agricultural productivity or ecological fitness.

Analysis of local peoples' descriptions of 706 rural Minnesota landscapes suggests the degree to which a landscape looks cared for is closely related to its aesthetic quality. Care was perceived in sometimes contradictory landscape characteristics -- neatness, soil and water conservation, or apparent naturalness of the landscape. These characteristics were combined in a geographic information system based model to demonstrate the pervasive local appreciation for landscape aesthetic qualities, and to provide objective documentation of aesthetic quality for local planning.

Care may be a global construct of aesthetic quality that is exhibited in different forms in different local conditions. If so, identifying forms of care and introducing new forms of care may be a useful tool for landscape ecology and sustainable development.

> The indigenous man will occasionally look up from his disturbance of the surface of his territory as he earns his living, to draw into himself all that lies around him in a subconscious search for transcendence. From childhood on, what he sees, he is. Flesh becomes place.
>
> - Ronald Blythe
> An Inherited Perspective: Landscape and the Indigenous Eye

1. Landscape ecology and sustainable development

In discussing landscape ecology and sustainable development, we seek the links between two holistic views of people and land. Landscape ecology is the more precise concept; it frames a holistic ecological science, that places physical, biological, and cultural phenomena in a single system for investigation and management (Naveh and Lieberman 1984, Forman and Godron 1986, Golley 1987). Constructing this holistic frame was a pragmatic move. Looking at large-scale landscape patterns, one is confronted with the effects of culture as much as plant ecology. Without recognition of cultural factors, ecological explanations elude environmental application.

Sustainable development is a more action-oriented concept roughly interchangeable with a set of overlapping terms: appropriate technology, regenerative agriculture, farming systems, low-input agriculture. The set leaves wide leeway for interpretation, but all the terms suggest the need for land management technique that grows from knowledge of system-wide effects. Sustainable development is also a pragmatic response, in this case, to failed, narrowly framed "solutions" to resource development and management problems. Technology-based solutions to development problems failed in part because they lacked a sense of local cultural and ecological conditions, which limit and inform economic and agricultural technique.

A critical discovery, then, in the formulation of both landscape ecology and sustainable development concepts is that culture counts.

2. Local knowledge and landscape perception

One way to think about culture is to begin with the primary human encounter with the environment, perception (Goodenough 1970). What do people notice when they look at the land? Perception is not a mechanical response, it depends on what people know about the landscape. We notice what it germane to our life and livelihood. J. J. Gibson (1979) calls these noticed features of the landscape affordances; we notice what the landscape affords us for our needs and pleasures. We learn what is germane, we learn what to notice, by our experience with the landscape (e.g., Geertz 1983, Kaplan and Kaplan 1982). This relationship (fig. 1) is the basis for claiming the necessity of local knowledge in managing the landscape.

Local knowledge, as Geertz (1983) describes it, is the application of judgment to familiar conditions, as opposed to the application of knowledge to facts. Geertz calls anthropology a "craft of place", which works "by the light of local knowledge". We gain access to local knowledge when we seek the perceptions of local people, those who live in a landscape and consequently have everyday familiarity with it.

As those of us engaged in landscape perception research have struggled to represent the aesthetic value of the landscape, we have often dismissed the significance of local knowledge in favor of more widely shared and easily formalized conventions of scenic beauty (e.g., USDA Forest Service 1974, USDI Bureau of Land Management 1980). Numerous studies (e.g., Fines 1968, Nassauer 1979, Shafer et al. 1969, Shuttlesworth 1979, Wohlwill and Harris 1980, Zube, Pitt, and Anderson 1974) have demonstrated that people looking at photographic representations of landscapes find most attractive those that show conventionally scenic qualities (steep slopes, water features, a mix of trees and open space, structures subordinate to landscape). While such work

has been essential to objectively demonstrating the value placed upon such landscapes, its methodology and focus upon the scenic may obscure more fundamental, everyday conceptions of landscape aesthetic quality that result from local knowledge as opposed to tourist knowledge.

Angus Hills (1978) has suggested that "if we would plan for the husbandry of our natural and human resources...we must build into our acquaintanceship a deeper knowledge of our landscapes, a knowledge which goes beyond the initial perception and yet always reflects an inspirational impact". Koh (1982), Hester (1983), Clifford (1987), and Scarfo (1987) have advocated for the centrality of the perceptions of local people in managing landscape. Palmer (1978), Melnick (1983, 1984), and Schauman, et al. (1986) have demonstrated techniques for describing local perceptions.

While conventional characterizations of the scenic are apparently widely shared, aesthetic qualities of local places are likely to be more particular. At the same time, people perceiving their local landscapes may use some judgment principles in common.

3. Aesthetic perceptions of local landscapes

Production, ecological integrity, and beauty have typically been discussed as distinct attributes of landscape. But in everyday perception, they may not be distinct. While beauty and ecological integrity frequently continue to be set aside when evaluating the short-term economies of land development for production or capital investment, the habit of viewing the landscape in terms of short-term economies may be relatively recent and actually isolated to a small but powerful stratum of the world's population.

Boserup (1965) established that, historically, indigenous agricultural techniques have required knowledge of long-term land rotations, and, implicitly, ecological response to disturbance. For example, her research indicated that slash and burn agriculture and planting vegetable crops with a digging stick (rather than a 16-row planter) makes economic sense if one is thinking in terms of a 15-25 year rotation, which allows regeneration of a woody canopy. A practitioner of slash and burn agriculture, then, would view the Amazonian forest differently than would an industrial forester.

People who work with and in the landscape are likely to find beauty in different aspects of the landscape than are those who are removed geographically or experientially, not working with the land. Among the Pakot people in West Africa, different genders have traditionally had different work on the land. Men have tended to work with the livestock, and they talk about cattle in terms of their beauty. Women have managed the fields, and they talk about the beauty of a green, lush crop (Schneider 1956). Kansans find beauty in well-tended fields and suburban neighborhoods and in subtleties of the sky that might be missed by tourists, who tend to characterize the state's landscape as drab (Fridirici and White 1986). Some English farmers have managed their land to show their progressiveness, in contrast with the aesthetic of English conservationists who see the habitat advantages of more traditional agricultural techniques (Nassauer and Westmacott 1987).

Constructs of productivity, ecological integrity, and beauty may be fused in some moments of perception. For some people looking at their local landscapes, productivity may be necessary to perceptions of beauty. Conversely, beauty may be necessary to perceptions of productivity. For some, ecological integrity may be necessary to perceptions of beauty, or beautiful landscapes may be perceived as ecologically sound. In perception by local people, productivity, ecological integrity, and beauty may not be distinct.

Beauty makes sense in relationship with perceived production and ecological qualities, if it is not limited to the conventionally scenic or described in formal terms like line, form, color, texture. To incorporate non-economic cultural motives into working concepts for landscape ecology and

sustainable development, we need more global constructs of landscape aesthetic quality. We might identify aesthetic quality by its "inspirational impact" (Hills, 1978) or by a local person's delight in attention to a landscape's intrinsic features (Eaton 1988). At the same time we can look beyond the conventional for those features. We can look to local knowledge of the land, the everyday lives and motives of local people, and their resulting selective perception of the landscape.

4. Forms of care

People who have described the aesthetic quality of their local landscapes in coastal Louisiana (Nassauer 1983, Nassauer and Benner 1984), in rural Illinois (Nassauer and Westmacott 1987), and in rural Minnesota have consistently identified landscape features which reflect forms of care. Perceived care may be a powerful determinant of local perceptions of landscape attractiveness. It may be exhibited by different and sometimes conflicting landscape features (e.g., mown lawns and reclaimed prairies). But to local people, familiar with the landscapes they are viewing, it may largely determine whether a landscape is seen as attractive. Furthermore, the display of care in my own landscape, the place that others know as mine, may outweigh economic factors in some land management decisions.

My work investigating the landscape perceptions of farmers in Illinois (Nassauer and Westmacott 1987) suggests that these farmers apply a particular aesthetic to agricultural land, one that is based upon perceptions of productivity, stewardship, neatness, and progressiveness, and that their aesthetic is dependent upon their knowledge of local landscapes and agriculture. In the study I will discuss here, I tested the possibility that farmers' aesthetic is different from that of non-farming rural residents. If a farmer has more knowledge of the local landscape because of his or her work on the land, this difference would be likely.

5. Perceptions of Minnesota rural residents

The purpose of this study was to describe, model, and map landscape attractiveness as perceived by residents of Olmsted County, Minnesota. Interviews were conducted in the summer and fall of 1986 with 48 rural residents of two townships of Olmsted County, Minnesota. The townships were selected to include one township with considerable exurban residential development and one with virtually no exurban development. Within each township, four sections were randomly selected and interviews were requested with all the landowners in those sections: 64% agreed to be interviewed. Of those, 45% were full-time farmers, 33% were not farmers and never had farmed, 22% were part-time or retired farmers.

Participants were interviewed in their homes. They were asked to describe local landscapes that they found attractive and unattractive and to identify a view to each landscape on a plat map or 1:24000 USGS topographic map. 706 views were described. The participants described 391 views as attractive and 298 as unattractive. Most of the views, as identified on the maps, were photographed as a check on the participant descriptions.

View data were analyzed to determine what descriptors participants used to characterize attractive and unattractive landscapes. In total the participants used 124 descriptors: 63 were used exclusively to describe attractive landscapes, 56 were used only to describe unattractive landscapes, and only 5 (agricultural buildings, commercial buildings, farms, mown, houses standout) were used to describe both landscape types.

In an analysis of significant differences in the frequency with which each group (farmers, part-time or retired farmers, and non-farmers) used each descriptor, the part-time or retired group was the extreme outlier for only four descriptors (animals, beautiful, farms, white). For all other cases the frequency for this group fell between that of the farmers and non-farmers.

For a comparison between perceptions of farmers and non-farmers only, several descriptors were combined to make thematic descriptor variables. All descriptors used for views classified as attractive were analyzed in one set (table 1), and descriptors used for views classified as unattractive were analyzed in another set (table 2). The five descriptors used for both attractive and unattractive views were placed in the set in which they had the highest frequency. Of the original 124 descriptors, 101 were combined with other descriptors to make 17 thematic variables, 6 were analyzed in their original form, and 17 with frequencies less than or equal to 5 were dropped.

Analysis of significant differences between the farmer and non-farmer group showed that farmers used terms relating to conservation, productivity, and neatness significantly more frequently than did non-farmers (table 3). However, descriptors of unattractiveness (lack of care of the landscape immediately surrounding residential or commercial buildings (yard care), messiness, non-productivity, poor conservation) were used by farmers and non-farmers with frequencies that were not significantly different. Non-farmers, on the other hand, used descriptors relating to the appearance of naturalness and to conventional notions of scenic quality significantly more frequently than did farmers.

However, the rank order of descriptor frequencies within each group indicates that both farmers and non-farmers perceive many attractive landscapes in conventional scenic terms, and that both find the appearance of naturalness attractive (table 4). Interestingly, the appearance of productivity ranks low for both groups. Where the groups differ more markedly is in the relative importance of care and neatness related descriptors. For example, good care, good conservation, clean and neat, poor care, weediness, all rank considerably higher for farmers than for non-farmers. A comparison of the ranks indicated the farmers and non-farmers come from different populations (Kendall's tau=.82 sig.=.03) in respect to their use of descriptors for local rural landscapes.

When both attractive and unattractive articulations of the same perceived characteristic (e.g., good conservation and poor conservation) are merged in a single frequency count (table 5), this difference is more apparent. Descriptors related to neatness and care rank first and third for the farmers. For the non-farmers, these descriptors rank third and sixth. While scenic qualities and naturalness rank first and second for non-farmers, they rank second and fourth for farmers. A comparison of these ranks further suggests that the farmers and non-farmers come from different populations (Kendall's tau=.88 sig.=.09) in respect to their use of descriptors for local rural landscapes.

These data suggest that while scenic beauty is an important aspect of landscape attractiveness, even for people viewing their local landscapes, apparent naturalness, neatness, and conservation are also important aesthetic qualities to local people. Managing a single place for scenic beauty, apparent naturalness, conservation, and neatness may be impossible; the descriptors conjure up different images and suggest different management approaches.

In interpreting the landscape descriptions of rural residents of Olmsted County, Minnesota, apparent naturalness summarizes their use of the descriptors: natural, habitat, wildlife, trees, native vegetation, development blending into the landscape, not too flat or too bare, not monotonous. Neatness is used to summarize the descriptors: fences, flowers or shrubs, homes, landscaped, lawn ornaments or architectural details, trees in rows, a big yard, clean, neat, no junk, put away, mown, new, no weeds, no flowers, no shade, not landscaped, not mown, cluttered, construction going on, junk, and messy. Conservation is used to summarize: conservation, contour plowing, no erosion, pasture, stripcropping, terraces, windbreak, all planted to corn, effluent from feedlots, erodible land plowed, erosion, no conservation practices being used, not a good job of farming, pastures are overgrazed, plowing up the hills, runoff, slimy-looking water.

However, apparent naturalness, neatness, and conservation all may be construed as forms of care. The farmers articulated a broad concept of care: well-cared-for, well-kept, or maintained, abandoned, neglected, no house on a farm site, not well-kept, old. Many of these descriptors might be applied to any of the landscapes: a natural-looking landscape, a neat landscape, or a landscape with soil conservation practices might be described as well-kept or well-maintained. It might be considered attractive because it was well-cared for (and displayed indicative features of its type).

6. Managing for perceptions of care and scenic beauty

People perceiving their local landscapes are looking for the signs of care that they have learned to perceive. While the farmer is attuned to the appearance of agricultural care (conservation) and control (neatness), the non-farmer may not see that kind of care and may be looking for the care of displaying nature (apparent naturalness). In the landscape type over which both farmer and non-farmer share active management, their yards, there is little significant difference between the groups in the frequency with which they use the descriptors or in the descriptors' rank relative to other terms.

By combining these forms of care with conventional scenic quality, we were able to develop geographic information system (GIS) models of landscape aesthetic quality for Olmsted County, Minnesota. These were mapped for each township using grid-cell data at a .1 acre resolution. Data describing landcover (46 classes, including classification by conservation and cropping practices), and soils (series and phases) were combined and interpreted to map ecological health (relating to apparent naturalness), potential for neatness, and conservation and productivity (relating to appropriate use of soil and water conservation practices in production agriculture). In a process of consultation with local people, these three constructs were then combined with conventional scenic qualities in a model of overall perceived landscape quality (table 6, table 7).

These maps show landscape patterns of the several dimensions of aesthetic quality perceived by Olmsted County people. The models do not produce interval-scale ratings of aesthetic quality, rather they display relevant aesthetic themes suggested by the interview participants. The maps present a coarse ordinal scale. In the final combined map (figure 2), the ordinal levels are: 1) medium gray: very attractive landscapes, which are scenic, look natural, or show care by conservation, 2) light or white: attractive landscapes, which have potential for neatness on residential or farmstead sites or because the land looks productive, and 3) darkest gray: landscapes that are not attractive because they show poor conservation, poor care, or on which non-agricultural buildings are likely to be apparent.

The township map shown here is typical of the county in that it shows that a high proportion of this rural township is attractive on some level (90%). This documentation will be part of the Olmsted County planning process for the protection of farmland.

7. Conclusion

Residents of rural Minnesota perceive their local landscape as having aesthetic quality on many dimensions: the conventionally scenic, the apparently natural, the conservation of soil and water, and the display of neatness are dominant. What is most notable about these dimensions is that all but the scenic imply some degree of care, admiration for appropriate management of the land. We cannot say what care looks like in terms of qualities of form, line, color, or texture, or even of landscape space. But local people, people who are personally knowledgeable about the landscape they are seeing, look for care and judge the landscape accordingly.

That care emerged as such a strong theme in this data reenforces the necessity of landscape architects seeking local knowledge as a means of incorporating cultural factors in landscape ecology or sustainable development. While professional judgments of scenic quality might

coincide with popular judgments, if we fail to ask or frame the question too narrowly, we may miss a larger complex of aesthetic concerns.

At the same time, care may be a device for introducing landscape change. Because care has no distinctive look, no single archetypical picturebook image, we may find it a useful concept for integrating the scientific findings of landscape ecology into the practice of sustainable development. Local people may have an active motive to care for their land and show their care upon it. The particular way that care is shown (perhaps by the construction of new woody corridors and patches rather than by their removal) may change as people have new information about "good" practices.

Finally, local peoples' concern that the landscape look well-kept challenges landscape architects to define landscapes that exemplify and invite good care.

References

Blythe, Ronald. 1980. An inherited perspective: landscape and the indigenous eye. In The Feeling for Nature and the Landscape of Man. Royal Society of Arts and Sciences of Göteberg, Göteberg, Sweden. pp. 12-25.

Boserup, Ester. 1965. The Conditions of Agricultural Growth. Aldine. Chicago.

Clifford, Susan. 1987. Common ground: promoting the value of local places. Landscape Research 12:2-4.

Eaton, Marcia M. 1988. Aesthetics and the Good Life.

Fines, K. D. 1968. Landscape evaluation: a research project in East Sussex. Regional Studies 2:41-55.

Fridirici, Roxanne, and White, Stephen E. 1986. Kansas through the eyes of Kansans. Great Plains Quarterly 6:44-58.

Forman, Richard T. T. and Godron, Michel. 1986. Landscape Ecology. John Wiley & Sons, New York.

Geertz, Clifford. 1983. Local Knowledge. Basic Books, New York.

Golley, Frank B. 1987. Introducing landscape ecology. Landscape Ecology 1:1-4.

Goodenough, Ward H. 1970. Description and Comparison in Cultural Anthropology. Aldine, Chicago.

Hester, Randolph T., Jr. 1983. Process can be style. Landscape Architecture 73:49-55.

Hills, G. Angus. 1978. An ecosystem framework for landscape evaluation. Paper delivered to 1978 Congress of the Canadian Society of Landscape Architects. Winnipeg.

Kaplan, Stephen and Kaplan, Rachel. 1982. Cognition and Environment. Praeger, New York.

Koh, Jusuck. 1982. Ecological design: a post-modern design paradigm of holistic philosophy and evolutionary ethic. Landscape Journal 1:76-84.

Melnick, Robert Z. 1983. Protecting rural cultural landscapes: finding value in the countryside. Landscape Journal 2:85-97.

Melnick, Robert Z. 1984. Cultural Landscapes: Rural Historic Districts in the National Park System. USGPO, Washington.

Nassauer, Joan. 1979. Managing for naturalness in wildlands and agricultural lands. In Our National Landscape. USDA General Technical Report PSW-35, Pacific Southwest Forest and Range Experiment Station, Berkeley. pp. 447-453.

Nassauer, Joan Iverson. 1983. Oil and gas development in a coastal landscape: visual preferences and management implications. Coastal Zone Management Journal 11:199-217.

Nassauer, Joan Iverson, and Benner, Marilyn K. 1984. Visual preferences for a coastal landscape including oil and gas development. Journal of Environmental Management 18:323-338.

Nassauer, Joan Iverson, and Westmacott, Richard. 1987. Progressiveness among farmers as a factor in heterogeneity of farmed landscapes. In Landscape Heterogeneity and Disturbance. Ed. Monica Goigel Turner. Springer-Verlag, New York. pp. 199-210.

Naveh, Zev and Lieberman, Arthur S. 1984. Landscape Ecology. Springer-Verlag, New York.

Palmer, James F. 1978. Citizen assessment of the coastal visual resource. In Coastal Zone 78, pp.1019-1037.

Scarfo, Bob. 1987. Stewardship. Landscape Architecture 77:46-51.

Schafer, E. L., Hamilton, J. F., Jr., and Schmidt, E. A. 1969. Natural landscape preferences: a predictive model. Journal of Leisure Research 1: 1-19.

Schauman, Sally, Carolyn Adams, Carson, Chris, and Durant, Steve. 1986. The Farm Landscape of Whatcom County: Managing Change Through Design. Department of Landscape Architecture, University of Washington, Seattle.

Schneider, Harold K. 1956. The interpretation of Pakot visual art. Man 56: 103-106.

Shuttlesworth, Steve. 1979. The evaluation of landscape quality. Landscape Research 5:14-20.

USDA Forest Service. 1974. The Visual Management System. Handbook 462. USGPO, Washington.

USDI Bureau of Land Management. 1980. Visual Resource Management Program. USGPO, Washington.

Wohlwill, Joachim F. and Harris, Glenn. 1980. Response to congruity or contrast for man-made features in natural-recreation settings. Leisure Sciences 3:349-365.

Zube, Ervin H., Pitt, David G., and Anderson, Thomas W. 1974. Perception and Measurement of Scenic Resources of the Southern Connecticut River Valley. Institute for Man and Environment, Amherst.

Table 1. Descriptors grouped by thematic variables--used to describe attractive landscapes

Apparent naturalness*
- Development blends in
- Habitat
- Native vegetation
- Natural
- Trees
- Wildlife

Apparent yard care
- Fences
- Flowers or shrubs
- Homes
- Landscaped
- Lawn ornaments or architectural details
- Trees in rows

Big yard
- Big yard

Clean and neat
- Clean
- Neat
- No junk
- Put away

Farmstead features
- Agricultural buildings
- Animals
- Equipment
- Silos

Good care
- Care for
- Maintained
- Well kept

Good conservation
- Conservation
- Contour plowing
- No erosion
- Pasture
- Stripcropping
- Terraces
- Windbreak

Mown
- Mown

New
- New

No weeds
- No weeds

Productive
- Crops
- Flat land
- Growing well
- No rocks
- Not wet
- Productive soil

Season
- Season

Scenic
- Beautiful
- Color
- Curved road
- Expansive
- Hills
- Lake, stream, pond
- Lights at night
- Outcrops
- Overlooking
- Peaceful
- Picturesque
- Pleasant
- Pretty
- River valley
- Secluded
- Skyline of the city in the distance
- Sunsets, clouds, the sky

White
- White

* Thematic variables are underlined.

Table 2. Descriptors grouped by thematic variables--used to describe unattractive landscapes.

Buildings too apparent
- Houses loom above
- Houses not far enough away from each other
- Houses standout too much
- Houses too close together
- You can see the houses

Dead or rotten
- Dead or rotten

Lack of yard care
- No flowers
- No shade
- Not landscaped
- Not mown

Messy
- Cluttered
- Construction going on
- Junk
- Messy

Not productive
- Dry crop
- Lifeless
- Not planted
- Not productive
- Poor land
- Setaside land

Not rural in character
- Commercial development
- Too many houses or mobile homes
- Transmission lines

Poor care
- Abandoned
- Neglected
- No house on a farmstead site
- Not well-kept
- Old

Poor conservation
- All planted to corn
- Effluent from feedlots--poor water quality
- Erodible land plowed
- Erosion
- No conservation practices being used
- Not a good job of farming
- Pastures are overgrazed
- Plowing up the hills
- Runoff
- Slimy looking water

Too formal
- Too formal
- Too much concrete

Too open
- Bare
- Flat
- Monotonous
- No trees

Weedy
- Weedy

Table 3.

Viewtype	Significant differences between groups: Descriptors more frequently used by farmers n = 21 (56.7%)	Descriptors more frequently used by non-farmers n = 16 (43.2%)	No Significant Difference Between Groups
Attractive Views n = 292 n=162 (55.57%) described by farmers n=130 (44.57%) described by non-farmers	Good care n=57 r=41 Sig.=.03 Good conservation n=57 r=-.10 Sig.=.04 Productive n=16 r=-.09 Sig.=.05 New n=10 r=-.09 Sig.=-.05 Season n=19 r=-.10 Sig.=.05 Farmstead features n=21 r=-.09 Sig.=.06 Clean and neat n=36 r=-.08 Sig.=.07 Mown n=53 r=-.08 Sig.=.08	Apparent naturalness n=115 r=.17 Sig.=.00 Big Yard n=15 r=.22 Sig.=.00 Scenic n=140 r=.08 Sig.=.07 Apparent yardcare n=70 r=.08 Sig.=.09	White n=13 r=-.03 Sig.=.31 No weeds n=15 r=.01 Sig.=.43
Unattractive Views n=236 n=140 (59.4%) described by farmers n=96 (40.77%) described by non-farmers	Weedy n=45 r=-.14 Sig.=.02 Poor care n=67 r=-.16 Sig.=.01	Too open n=29 r=.24 Sig.=.00 Too formal n=16 r=.33 Sig.=.00 Not rural character n=32 r=.12 Sig.=.03	Lack of yardcare n=24 r=.06 Sig.=.16 Messy n=70 r=-.05 Sig.=.23 Not productive n=18 r=.02 Sig.=.37 Poor conservation n=52 r=.02 Sig.=.39 Buildings too apparent n=30 r=-.00 Sig.=.47 Dead or rotten n=15; r=-.00 Sig.=.49

Table 4. Frequencies and rank order of thematic variables in attractive and unattractive landscapes.

Variable	Farmers (n=21) n(views)=302	Rank	Non-farmers (n=16) n(views)=226	Rank
Good care	30	9/10	13	12/13
Good conservation	38	6	19	7-9
Productive	12	16/17	4	24
New	8	20-23	2	25
Season	14	14/15	5	22/23
Farmstead features	15	13	6	20/21
Clean and neat	24	11	12	14-17
Mown	34	7	19	7-9
Apparent naturalness	52	2	63	2
Scenic	71	1	69	1
Big yard	2	24	13	12/13
Apparent yard care	42	5	39	3
White	8	20-23	5	22/23
No weeds	8	20-23	7	19
Weedy	33	8	12	14-17
Poor care	48	3	19	7-9
Too open	8	20-23	21	6
Too formal	0	25	16	11
Not rural in character	14	14/15	18	10
Lack of yard care	12	16/17	12	14-17
Messy	44	4	26	4
Not productive	10	18	8	18
Poor conservation	30	9/10	22	5
Buildings too apparent	18	12	12	14-17
Dead or rotten	9	19	6	20/21

Table 5. Frequencies and rank order of grouped thematic variables for attractive and unattractive landscapes.

Variable	Farmers (n=21) n(views)=302	Rank	Non-farmers (n=16) n(views)=226	Rank
Good or poor care	78	3	32	6
Good or poor conservation	54	5/6	34	5
Productive or not	33	7	14	7
New, clean, neat, mown, no weeds, white, messy, weedy	156	1	83	3
Apparent naturalness, too open	60	4	84	2
Scenic, season, big yard, bldgs. apparent, not rural, too formal	119	2	133	1
Yard care apparent or not	54	5/6	51	4
Dead or rotten	9	8	6	8

Table 6. Overall Perceived Landscape Quality - Olmsted County, Minnesota

Slope	Landcover: Cemetery	Straight Row-Crops, Continuous Crops	Straight Row-Crops, Rotation or Residue Mgmt	Contoured Continuous Crops	Visible Conservation Agriculture: Stripped, Terraced, or Contour Rotations	Hay, Pasture Grassland	Pasture or Open Space with Trees Up to 50% (Incl. Parks, Golf Courses)	Long-term Specialty Crops: Orchard, Nurseries	Mining or Landfills: could be Reclaimed	Residential: Larger than 1/2 Acre Lots	Residential: 1/2 acre or Smaller	Commercial, Industrial, or Institutional	Transportation or Utilities	Wetland or Water	Wooded 50% or More Trees
Flat: Less than 8% slope	5	4	4	4	6	6	5	5	1	5	3	3	3	8	6
Rolling less than 18% slope	7	2	4	4	6	6	7	7	1	7	3	3	7	8	6
Steep: 18% slope or more	7	2	2	2	6	6	7	7	1	7	3	3	7	8	6

Table 7. Map Classes: Overall Perceived Landscape

Level 1 - Very attractive landscapes: medium gray

a = Very attractive, looks productive with good conservation: visible conservation agriculture; stripped, terraced, contour rotation, pasture, hay, or grassland.

b = Very attractive, looks scenic: rolling or steep landscapes with low density development, partial canopy pasture, parks, golf courses, orchards or nurseries.

c = Very attractive, looks scenic and appears to be good wildlife habitat: water feature, wetland, or wooded.

Level 2 - Attractive landscapes: white or light gray

d = Attractive, looks productive: row crop agriculture on flat or rolling landscape

e = Attractive, potential for neatness: farmsteads, rural character residential sites, flat landscapes with partial canopy, pasture, parks, golf courses, orchards, nurseries or low density development.

Level 3 - Not attractive: dark gray or black

f = Not attractive: mining or landfill

g = Not attractive: agricultural practices with visible potential for erosion

h = Not attractive; visible high density development.

Table 7. Map Classes: Overall Perceived Landscape

Level 1 - Very attractive landscapes: medium gray

a = Very attractive, looks productive with good conservation: visible conservation agriculture; stripped, terraced, contour rotation, pasture, hay, or grassland.

b = Very attractive, looks scenic: rolling or steep landscapes with low density development, partial canopy pasture, parks, golf courses, orchards or nurseries.

c = Very attractive, looks scenic and appears to be good wildlife habitat: water feature, wetland, or wooded.

Level 2 - Attractive landscapes: white or light gray

d = Attractive, looks productive: row crop agriculture on flat or rolling landscape

e = Attractive, potential for neatness: farmsteads, rural character residential sites, flat landscapes with partial canopy, pasture, parks, golf courses, orchards, nurseries or low density development.

Level 3 - Not attractive: dark gray or black

f = Not attractive: mining or landfill

g = Not attractive: agricultural practices with visible potential for erosion

h = Not attractive; visible high density development.