The Countryside Visual Resource[1]

Sally Schauman[2/]

Abstract: This paper identifies the types of visual resource changes occurring in rural landscapes. These types include changes due to agricultural technology and land use patterns. The changes are described in relative dimensions of the landscape elements both as patterns and as individual visual elements. This paper relates visual resource changes to various countryside contexts and thus begins to evaluate the impact of change in certain landscapes. Finally, a process for identifying and evaluating visual changes in rural areas is proposed.

BACKGROUND

The American countryside is a major national asset. Each day we mine, drill, divide, flood, pave or plant some part of the countryside landscape. Before we take any of these actions, we should first understand the countryside's resources. But seldom do we fully understand. Before we choose to change the countryside, we should consider the scenic values of this landscape. Unfortunately, we never do.

In the United States, political concern for the countryside visual resource is just emerging.[3/] The study of it is embryonic[4/] and frequently confused with the study of visual resources in wildland landscapes. The countryside has received some attention in other countries[5/] In this country the Soil Conservation Service (SCS) works primarily in the countryside. SCS landscape architects are developing tools and techniques to deal with the countryside scenic resource within the evolving theories of visual resources but based on practical field experience.

The visual resource is the consistently definable appearance of the landscape and may be described by the measurable visual elements; topography, water, vegetation, sky and structures and the patterns of interaction among these elements (SCS 1977). Visual resource quality is an evaluation that follows the objective definition of the resource. An evaluation of visual quality is not a simple matter for it occurs within the arena of perception [6/] Regardless of many unanswered perception questions, quality must be identified among generically similar groups. A juicy orange is not a juicy apple.

Visual quality can be determined within a frame of reference (SCS 1978). It is more supportable if it is determined within a context (Smardon 1978). One frame of reference emerges from a

---

[1/] Presented at the National Conference on Applied Techniques for Analysis and Management of the Visual Resource, Incline Village, Nevada, April 23-24, 1979.

[2/] Landscape Architect, Soil Conservation Service, Washington, D. C.

[3/] The first National Conference on the Scenic Quality of Rural Areas was held in April 1979 by the National Trust for Historic Preservation.

[4/] Except for the prodigious commentaries of J. B. Jackson, almost no systematic study of the American countryside visual resource exists.

[5/] For the range and scope of this work see Davidson and Wibberley (1977), Weller (1973), Coeterier and Dijkstra (1976), Ayso et al. (1976), Williams (1977), and Leonard (1977).

[6/] See Melhorn et al. (1975), and Craik and Zube (1975) for discussion of perceived quality.

study of the visual resource along a section line from the inner city to the pristine wilderness. While an infinite number of discrete units appears along this section, various clusters can be identified. One convenient clustering classifies the section into groups known as inner city, suburbs, countryside, wildlands.[7/] and wilderness. In SCS we define countryside as discrete units of the landscapes that are recognizable by the predominance of agricultural patterns and activities including interspersed natural areas, woodland and rural communities. Countryside contrasts with suburbs which have denser residential patterns.

In time, the lack of scholarship on the American countryside visual resource will be overcome. In the meantime we must begin by analyzing the existing and future countryside. To do this we must see more than the endearing but inaccurate mental graphic of the pastoral farmstead with its hardworking farm family leading the simple but good life amid interesting barns, quaint fences, flowering fruit trees and docile grazing animals. We need to analyze objectively the countryside visual resource now and as it appears to be changing. We in SCS believe we can do this by considering visual elements in the landscape and the patterns these elements display.

VISUAL ELEMENTS AND PATTERNS

Only five elements are potentially visible in any landscape: landform, vegetation, water, structures and sky. All five elements can be modified by human action, but the first four elements provide one ready basis for describing both the existing and changing countryside landscape as manipulated by human decisions.

Landform

The shape of the landscape seems to be the most important element. Perhaps this is true because we also feel the landscape's form as we move either against or with gravity through any given landscape. We do not need our eyes to tell us when we are climbing a hill. Landform is a major factor in most published landscape analysis processes.[8/] Many of these analysis techniques relate the magnitude of change or relief in landform to quality. These techniques that assume landforms with the greatest diversity of dissection and the steepest slopes are more desirable [9/] The assumption is reasonable for some-but not all- situations.

For example, many countryside landscapes are croplands with flat to moderately rolling topography which would be evaluated as "minimal" by some prevailing variety classification systems.[10/] Yet there is no evidence that the public perceives these croplands as minimal resources, and there is only scant documentation to assure us that the average viewer rates the visual resource cropland as lower than that of forested mountains. [11/] Classification systems that evaluate steep topography with flat landscapes may seem reasonable in countries where the distances are short between natural and agricultural areas. In the United States, however, the distances between countryside and wildland are frequently great. And some states have little topographic relief and almost no wildlands.

Are these areas devoid of high-quality visual resources? It's likely that the residents believe that some distinctive visual resources do exist in these areas. The lack of major topographic relief in countryside landscapes should be interpreted within the countryside context rather than within the context of wildlands. What does the lack of major topographic relief mean in a countryside visual resource situation? Several observations from SCS landscape resource experience in agricultural areas seem reasonable:

1. The horizontal nature of crop landscapes makes them especially sensitive to the presence of vertical elements such as streamside vegetation, shelterbelt trees, farm structures, utility poles.

2. When any topographic relief does exist, it emerges prominently. Thus, wooded drainage patterns become vivid amid cropland, and hill forms are accentuated by agricultural activities such as terracing and stripcropping.

[7/] "Lands unoccupied by crops, pastures, urban, residential, industrial or transportation facilities " (Schwarz et al. 1976).

[8/] Nee Weddle (1973) for summary.

[9/] See Forest Service (1973) and Weddle (1973).

[10/] See Forest Service (1973 , p. 13) for minimal criteria and Bureau of Land Management (1975) for low quality criteria.

[11/] See Mitchell (1974) who found that the "presence of manmade objects is associated with the least-preferred scenes," p. 44; while Zube et al. (1974) found that "... topographic relief ... water, agricultural elements and natural elements ... all have a positive effect on the scenic resource value," p. 103.

3. Since there are fewer elevated viewpoints, the plan views of ground surface patterns are seen less frequently and less extensively. Disruptive patterns can be screened more easily.

4. In rolling and flat countryside areas the horizon line is more uniformly horizontal and is often the most conspicuous landscape edge. Any element that breaks up the horizon line or changes its uniformity becomes very prominent.

5. Not all agricultural activity occurs in flat to rolling topography. Some upland farming includes pastures and orchard crops. When agricultural activities such as tree rows and fences are aligned with the topography, they tend to emphasize the landform.

6. Some flat and rolling croplands are in valleys bounded by relatively rugged topography. The juxtaposition of flat and steep landscapes within the same viewshed gives both landscapes a special visual meaning and, perhaps, even their unique visual identity. The flat fields of the Willamette Valley, for example, are enhanced visually when Mount Hood appears in the distance. Views from the Skyline Drive in Virginia are better because the Shenandoah Valley's orchard crops can be seen below.

   While not as steep or dissected as wildlands, the topography of the countryside varies greatly within its own context. The subtle changes in the visual resource of the American countryside must be studied in relationship to the diverse human activities that occur there.

Vegetation

Vegetation in the countryside includes agricultural crops that vary widely in size, form, color, texture, and planting pattern. Consider the diverse appearances of both the individual vegetative elements and the crop patterns among the following: low annual (soybeans), high annual (corn), medium perennial vine (grapes), high deciduous tree (apples), high evergreen tree (citrus), high palm (date), wetland shrub (cranberries), dryland grass (wheat) and aquatic grass (rice). Consider not only that crops change in appearance through seasons; but also that, on any one landscape, different crops may appear in different seasons of the same year or in the same season of different years. If we add to the visual diversity of crops, the visual diversity of vegetation in the interspersed natural areas, pastures, woodland plots and rural communities, we can see a rich palette of countryside vegetation. Likely combinations of vegetative visual elements need to be sorted out before any classification of countryside visual resources can be made. In the meantime several observations seem reasonable:

1. Shelterbelt and drainageway trees become visually important in landscapes where low crops or pastures are visually homogeneous from year to year. These trees often provide the only spatial definition in an otherwise horizontal landscape.

2. Some crops can screen effectively and therefore can absorb visual intrusions better than other crops. For example, little ground level visibility exists through a landscape of citrus groves or mature corn.

3. If we compare two landscapes with a uniform texture--one an evergreen forest with a uniform height, color and texture, such as a black spruce area, and the other a crop landscape--we are likely to rate the cropland as more visually interesting since it changes in texture, height and color through the growing season.

4. Row crops, especially irrigated crops, give the landscape a strong linear matrix. Any nonlinear pattern located amid these straight lines will be prominent.

5. Some countryside landscapes, such as pastures, idle fields and fallow fields, are predictable locations for seeing wildlife and grazing animals.

   The vegetative visual element in the countryside context is widely varied and often related to agricultural activities.

Before we can deal thoroughly with the countryside visual resource, we need to study further the vegetation, the juxtaposition of vegetative types, and the modifications to the vegetative patterns resulting from changes in agricultural technology.

Water

One of the few generally accepted notions in visual resource theory is that water is a desirable, if not a preferred element in the landscape.[12/] In

[12/] See Zube et al. (1974), Methorn et al. (1975), and Litton et al. (1974) for indicative references to the importance of water in the landscape.

the countryside context, water may be one of the more important visual elements. Water is related directly to agriculture, and appears in the countryside in a wide variety of both manmade and natural configurations.

Consider the visual diversity among these typical water patterns in the countryside: perennial natural streams, field drainage ditches, excavated stock watering ponds, natural sinks, impounded small ponds, rice paddies, natural lakes, impounded lakes, ocean coastlines, lined irrigation channels, natural marshes and natural rivers. The diversity of edge configuration, dimension of surface area and appearance of associated vegetation are but a few of the visual variables in this list. Fortunately, some work has been done on classifying the water element (Litton et al. 1974). We need to establish a classification system appropriate to the countryside context. We need also to correlate the classifications to preferences within a local frame of reference. For example, a lined irrigation channel filled with glistening water amid cotton rows in a desert landscape may not evoke the same response as a similar concrete channel transversing grassland. Is a rainbow created by irrigation vapor any less prominent or desirable than one created by a natural waterfall?

Structures

The words *countryside structure* evoke a rose-colored image from deep in the American psyche: a freshly painted farmhouse, Mail Pouch signs, quaint barns, rustic stone fences and sparkling farm ponds. Unfortunately, the typical countryside graphic no longer resembles either the stark clarity of a Wyeth rural landscape or the beloved scenes of a Currier and Ives print. The countryside now includes interstate highways, transcontinental transmission lines and conduits, regional shopping centers, vacation farmettes, theme parks, airports, national cemeteries, solid waste landfills and mining structures. Until a short time ago the impact of locating these structures in agricultural areas was not widely considered. Only very recently have the scenic resources of natural and manmade resources in the countryside been recognized as they relate to land use (Bergland 1978). More important are the changes in structures brought about by new technology. In any case, no systematic study of structural elements in the countryside exists. We need to identify the factors that give some structures an indigenous appearance while other structures seem to be misfits. We should identify landscape criteria to identify the most likely countryside areas for locating needed but visually intrusive structures with minimum impact.

Patterns

While each of the five visual elements needs to be studied within the countryside context, the pattern of interaction among the elements is also a crucial study need. The patterns or the images of all the elements taken together provide the landscape with its identity.[13/] Occasionally, a single visual element gives the landscape a definable identity such as miles of wheat fields. More often, however, it is the combination of visual elements in a consistently describable pattern that gives us our lasting impression of a landscape. The countryside visual resource of the Connecticut River Valley appears distinctly different than the countryside of the Willamette River Valley. Understanding the individual visual elements will help us, but in the final analysis we must deal with the elements together as patterns. We must understand the existing countryside patterns in order to evaluate ongoing changes. We must begin immediately, for surely the rate of change will accelerate.

COUNTRYSIDE VISUAL RESOURCES CHANGES

The American countryside changes rapidly before our eyes but beyond our consciousness and attention. In other countries, the concern for countryside change has become the focus of government action (Davidson and Wibberley 1977). By contrast, American interest in the visual countryside has been low and the landscape architectural study of it has been inconsequential (Schauman 1977). In the countryside context several change agents emerge: urbanization in remote areas (Sunbelt and second homes), urbanization in suburbs (most typical problem), linear systems (roads and conduits), industry and mining, and agricultural production and technology. These agents differ in their potential for changing the visual resource in terms of areal extent, magnitude and degree of permanence. For example, residential structures may be built on only a small area, but they permanently change the visual resource over a large area. Mining activities may make major changes for a short time on vast areas which may be returned to their original appearance. The visual impacts of change due to urbanization, mining and linear systems will be discussed by other conference speakers. This discussion focuses on agricultural trends and changes in the countryside visual resource: idle farms, specialized farming, animal production, farm machinery and irrigation.

Idle Farms

Between 1950 and 1974 the urbanization process consumed 17 million acres of the countryside. More than 1/3 of this land in the fast growth urban

---

[13/] The identity of the landscape is similar to what Simonds refers to as landscape character (Simonds 1961).

area has been classified as open and idle landscapes (USDA 1978). They are often idle farms that have been sold and are falling into disrepair. These are untended landscapes, slowly reverting to nature while patiently awaiting the inevitable shroud of suburbia. Working farms in the same landscapes often appear derelict as a result of neglected maintenance. Soon-to-be demolished barns do not need fresh paint.

Specialized Farming

In all regions of the United States cash-grain farms grew in population by 1/3 from 1973 to 1975 (Williamson 1978). This trend is a result of the increase in the world wide need for American grain crops. Several visible landscape changes result when specialization is in one or two cash crops such as soybeans and corn. Small farms are aggregated into large farms with large field sizes. Many large farms include leased or jointly owned land; the farm operator benefits from the increased efficiency of a large operation, but is not burdened by a major capital investment. The result is that fewer farm operators live on small to medium size farms, while the population of large farms increases. Thus the density of farmsteads in farmed areas is decreasing.

The potential high yield cash crop stimulates the farm operator to use every inch of available land for planting. The visual resource changes in the landscape resulting from cash crop trends are obvious in many midwestern states. The field sizes are larger; therefore, the spatial definition and patterns of the landscape change to a larger, less human scale. The number of farmsteads and the artifacts of the family farmstead are decreasing. The family orchard, pet horses, small herds, animal barns and field fences are disappearing. The farm operator can live in town, buy the family's food at the supermarket, and convert the farmstead landscape to a corn or bean field.

Another type of farm specialization is related to money but not to cash crops. These farms are few in number, but significant in their visual resource considerations. The specialization is gentle farming, often horse or cattle breeding. Here the farm owner resides amid a well tended and carefully managed landscape. In Virginia, the landscape image includes white horse fences, green improved pastures, flowering fruit trees, a main house (often of historic interest), and grazing thoroughbreds. All the landscape elements and activities are in scale and harmony. The countryside image of these farms varies among regions, but the net result essentially is the same. They provide major open space and visual resource values.

Animal Production

Often the farmer growing a corn or bean cash crop will purchase calves to feed during the winter months. Since these landscapes are devoted mainly to crops, few if any permanent pastures or hayfields can be seen. In both meat and dairy production, there is an increase in the use of pellet feed, a reduction in the area in which animals are confined, and a trend to store an increased amount of silage. In addition to a reduction in the general pastoral scenes of hayfields and grazing animals, several visual changes occur in the structures related to animal production. New farm artifacts begin to appear. Making their debut in the landscape are tall blue silos, large roof structures covering expansive feed lots, and waste management systems ranging from simple lagoons to complex tanks, pipes and processing systems.

Farm Machinery

As the size of farms grows larger, the size of the equipment follows. Larger machinery in itself is a small visual change, but the implications of its use are major visible changes. For example, larger, more expensive equipment requires larger, sturdier storage sheds (often made of reflective metal), and larger maintenance areas. Perhaps the most important visual change is the change in field borders and windbreaks. The larger equipment requires a larger turning radius in the field. To give the equipment more room to turn around many field windbreaks have been destroyed [14/] The destruction means not only the disappearance of a strong visual change, often the most prominent visual element in a crop landscape, but also an increase in the appearance of erosion.

Irrigation

Irrigation is an ancient technology but a modern phenomenon. The advent of lightweight metal resulted in a cheap efficient system for deploying water more extensively. Current estimates indicate that 80 per cent of all water consumed and 50 per cent of all water withdrawn or diverted in the United States is used for irrigation. Approximately 60 million acres were irrigated in 1977.[15/] The technology of irrigation continues to change as new channel

---

[14/] Lloyd (1978) states the destruction of windbreaks has been mostly of field rather than farmstead windbreaks.

[15/] Irrigation data vary considerably because of the varying definitions for types of irrigated land and the variations in reporting systems. These data are as reported in Boone (1978) and McNeill (1978).

linings, sprinkler systems, control devices and drip systems evolve. The conservation of irrigation water becomes crucial. The social, political and economic issues of using water for irrigation are emotion ridden with strong advocates on all sides. In spite of the potential for bias, a few objective observations concerning visual changes due to irrigation trends are possible.

The irrigated landscape has clear patterns that reflect the irrigation system, such as linear channels and circular field patterns. The frequency and distribution of irrigation patterns in the landscape will increase. While most irrigation now occurs in the far West, a wider application of irrigation will be seen. Anyone who has flown across the country in the past 5 years will attest to the spread of the giant green circles.

The impact of new irrigation technology on the visual landscape is conjectural. Drip irrigation has been applied only since about 1968. In those few years, many landscapes previously unusable for crops, have been planted. In California, the newly planted avocado areas are a striking visual change. No doubt new irrigation technology will be reflected in future countryside visual elements and patterns.

CONCLUSION--THE FUTURE

The agricultural changes cited are not a complete list but are only indicators. Compared to other change agents, such as urbanization, linear systems and mining, agricultural changes may be the least noticeable in the countryside landscape. It is not really important to rank change agents as to the magnitude of their impact. It is more important to recognize the cumulative consequences that result when all change agents are in effect. We have only recently begun this recognition process. It is vital that we proceed with some speed. From our experience in the Soil Conservation Service we are convinced the American countryside is a valuable visual resource. We have and will continue developing ways to deal systematically with that visual resource. We intend to develop better visual data to deal intelligently with existing development decisions and to establish a base line to measure future changes. SCS landscape architects have not been issued rose-colored glasses. Rather we are trying to deal with a variable and complex visual resource in the countryside as we see it--not as we romantically remember it.

LITERATURE CITED

Ayuso, E. et al.
1976. A computer model for land use planning. Case study of a rural derelict area: Ayllon, Spain. Landscape Plann. 3(1,2):101-140.

Bergland, Bob
1978. Statement on land use policy. 5 p. USDA Secretary's Memorandum 1827, Washington, D. C.

Boone, Sheldon G., Chairman
1978. Draft report on irrigation water use and management. Technical Work Group of the Interagency Task Force on Irrigation Efficiencies. 226 p. Denver, Colo.

Bureau of Land Management
1975. Visual resource inventory and evaluation. 17 p. Bur. of Land Manage. Man. 6310, Washington, D. C.

Coeterier, J. F. and H. Dijkstra
1976. Research on the visual perception and appreciation of, and visual changes in a hedgerow landscape. Landscape Plann. 3(4):421-452.

Craik, Kenneth H. and Ervin H. Zube
1975. Issues in perceived environmental quality research. 78 p. Inst. for Man and Environ., University of Massachusetts, Amherst, Mass.

Davidson, Joan and Gerald Wibberley
1977. Planning and the rural environment. 221 p. Pergamon Press, Oxford.

Forest Service
1973. National forest landscape management system. USDA Agricu. Handb. 462, 47 p. Washington, D. C.

Leonard, P. L. and R. O. Cobham
1977. The farming landscapes of England and Wales: A changing scene. Landscape Plann. 4(3):205-236.

Litton, R. Burton, R. J. Tetlow, J. Sorensen and R. A. Beatty
1974. Water and landscape - an aesthetic overview of the role of water in the landscape. 314 p. Water Inf. Cent., Port Washington, N.Y.

Lloyd, William J.
1978. Windbreaks in the Great Plains and the SCS windbreak inventory. Unpubl. paper presented at the NACD annual meeting in Anaheim, Calif.

Mayes, Dorothy
1979. Agriculture in the next century. Farm Index 8(1):16-19.

McNeill, Ed, ed
1978. Irrigation survey. Irrig. 28(6):46a-g.

Melhorn, Wilton N., Edward A. Keller and Richard A. McBane
1975. Landscape aesthetics numerically defined (LAND system): Application to fluvial environments. 101 p. Water Resour. Res. Cent., Purdue University, West Lafayette, Ind.

Mitchell, James Paul
1974. A study of aesthetic preferences. 126 p. Off. Water Res. Tech., Wyoming University, Laramie, Wyo.

Muller, Jorg
1973. The changing countryside. 7 p. Atheneum, New York.

Schauman, Sally
1977. The changing visual resource of agricultural landscapes. In visual resources management. Colorado Chapter, American Society of Landscape Architects, Vail, Colo.

Schwarz, Charles F., Edward C. Thor and Gary H. Elsner
1976. Wildland planning glossary. USDA For. Serv. Gen. Tech. Rep. PSW-13, 252 p. Pacific Southwest Forest and Range Experiment Station, Berkeley, Calif.

Simonds, John O.
1961. Landscape architecture. 244 p. McGraw Hill, New York.

Smardon, Richard C.
1978. Law and aesthetics or when is the pig in the parlor? Unpublished manuscript. 154 p. Dep. of Landscape Architecture, University of California, Berkeley, Calif.

Soil Conservation Service
1977. Design of open channels. USDA Soil Conserv. Serv. Tech. Rel. 25, 220 p. Washington, D. C.

Soil Conservation Service
1978. Procedure to establish priorities in landscape architecture. USDA Soil Conserv. Serv. Tech. Rel. 65. 19 p. Washington, D, C.

United States Department of Agriculture.
1978. Land use. 7 p. U. S. Dep. Agric., Briefing Paper No. 9. November 29, 1978, Washington, D. C.

Weddle, A. E.
1973. Applied analysis and evaluation techniques. Derek Lovejoy, ed. In land use and landscape planning. p. 53-82. Harper and Row. New York, N. Y.

Weller, John B.
1973. Land use and agricultural change. In Derek Lovejoy, ed. land use and landscape planning. p. 85-110. Harper and Row, New York.

Williams, Michael
1977. Settlements in rural areas: Planned landscapes and unplanned changes in south Australia. Landscape Plann. 4(1):29-52.

Williamson, Daniel R.
1978. Bucking the trends. Farm Index. 7(12):10-11.

Zube, Ervin H., David G. Pitt and Thomas W. Anderson
1974. Perception and measurement of scenic resources in the southern Connecticut River Valley. 191 p. Inst. for Man and His Environ., University of Massachusetts, Amherst, Mass.