

Visions of American Agriculture

Edited by William Lockeretz



Iowa State University Press
Ames

William Lockeretz is professor in the School of Nutrition Science and Policy at Tufts University, where he edits the *American Journal of Alternative Agriculture*. His research has covered a broad range of agricultural subjects, including environmentally sound alternative production methods, the interactions between farms and cities, and agricultural energy issues.

© 1997 William Lockeretz

Individual authors retain copyright to their own chapters.

All rights reserved

No part of this book may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the copyright holder, except for brief passages quoted in review.

♻ Printed on acid-free paper in the United States of America

First edition, 1997

Iowa State University Press
Ames, Iowa 50014
Orders: 1-800-862-6657
Office: 1-515-292-0140
Fax: 1-515-292-3348

Library of Congress Cataloging-in-Publication Data

Visions of American agriculture / edited by William Lockeretz.

p. cm.

Includes bibliographical references and index.

ISBN 0-8138-2044-8

1. Agriculture—United States. I. Lockeretz, William.

S441.V57 1997

306.3'49'0973—dc 21

97-5083

Last digit is the print number: 9 8 7 6 5 4 3 2 1

5

Agricultural Landscapes in Harmony with Nature

Joan Iverson Nassauer

The Popular Image

The popular image of the countryside is a visual metaphor for human life in harmony with nature. The popular image has enormous appeal, but the reality of ecological health in agricultural landscapes sometimes contradicts the image. This image is more likely to be found in children's books than in pesticide commercials; it is more likely to be seen in a picture hanging on your wall than on a drive through central Illinois; it is more likely to be a part of the view from a home newly constructed on converted farmland than from a home constructed ten years ago and sitting in a sea of five-acre lots.

You know this image: A mix of crops weaves a varied field pattern, livestock graze on the land, woodlands and streams make sinuous borders along the fields, tidy farmsteads dot the landscape. There are fish in the pond, birds in the sky, and wildlife in the woods. The air is clean. There is a small town nearby with a school, stores, and churches. You might not live in this landscape, but you would like to visit it, and when you did, you could stop and enjoy a friendly talk with the farmer and buy fresh produce you couldn't buy in the city.

This image could be called generic nostalgia, but that is only evidence of its broad recognition and enormous appeal. For most Americans this image embodies the same values and expectations they will support in a new vision of the American landscape. These values and expectations include the following:

- The countryside is inhabited by friendly people who enjoy farming and are good stewards of the land.
- People are safe and welcome there.
- The countryside is clean, unpolluted, and uncrowded.

- It produces healthful food—better than what you can buy in the supermarket.
- The countryside provides habitat for wildlife in a way that is more natural than the city.
- The countryside is an attractive place to visit. You can drive through and enjoy the scenery.

In summary, the popular image of the American agricultural landscape grows from beliefs that the countryside is ecologically and socially healthy. It also reflects a belief that even those who do not own farmland or live on farms belong in the countryside as welcome visitors to appealing landscapes. It may not be unreasonable to expect these beliefs to be matched by reality. In fact, the popular image creates a demand for this reality.

A New Vision: Ecological Health in Beautiful Nature

The new vision of American agriculture should grow from the core of this popular old image. As we learn more about the complex ecologies of all landscapes, harmony with nature becomes more of an imperative than an ideal. The common belief that the countryside is a form of nature coincides with the growing awareness that we must ensure ecological health in the countryside. This makes it possible for popular expectations to propel public policy into achieving ecological health for American agricultural landscapes.

The image of nature in the countryside is at the heart of the beauty people seek and find there. When we construct a new vision of agricultural landscapes, we would be foolish to ignore the cultural power of this image. America has become a suburban nation, and some rural counties have grown wealthy as urban people have ventured from cities in search of beautiful nature in the countryside. Beauty could be the sole focus of a new vision. Countryside landscapes are integral to the quality of life in metropolitan areas and are the basis for thriving rural economies. But focusing on beauty alone tends to leave both beauty and the larger agricultural and ecological functions of the landscape undefended. In our culture, aesthetics is mistakenly denigrated as superficial while advertisers construct beguiling images to manipulate our behavior. A thoughtful strategy for American agriculture will use the power of images—not to manipulate but to communicate the ecological achievements of agricultural policy. The agricultural landscape doesn't need a billboard of nature to make us feel that the water is clean and the food is good. The agricultural landscape advertises itself when it conveys the popular image of nature.

Those who track the loss of farmland to exurban development, or fear the pollution of water by feedlots and fertilizers, or know the surreal sterility of monoculture in the grain belt see the jarring contrast between the image and the reality. But it is just this contrast that sets up the possibility for a new vision. If we didn't expect the countryside to be natural, if we saw it as only another form of industry, we might be complacent about the inevitability of lost habitat. If we did not personally enjoy the appearance of good stewardship on the land, we might see the deteriorating health of the countryside as someone else's problem. But because we expect agriculture to be in harmony with nature, we hold a collective image of what the countryside is and should be. A new vision can bring the ecological reality of American agricultural landscapes closer to the evocative popular image of a beautiful countryside.

Limited Knowledge and Intelligent Tinkering: Ecological Conservatism

The popular image of harmony with nature is not enough to tell us what will actually work to improve the ecological effects of agriculture in the future. The image is a democratic goad to healthy agricultural landscapes, but it is not an instruction kit.

We know that new agricultural landscapes cannot be simple replicas of the past and that the agriculture of the future cannot be based on the limited insights of a single discipline or a narrowly construed scientific method (Gerber, Chapter 12; Lacy, Chapter 15). At its best, scientific understanding gives us a conceptual overview of flows of water, soil, nutrients, chemicals, and plant and animal species through the agricultural landscape and its products. It also partly explains the movements of people in and out of the countryside and their reasons and means for staying there. But science does not give us a definitive understanding of how particular agricultural landscapes work, and it cannot give us the kind of informed permission for wholesale disturbance of functioning ecosystems and communities that some developers and agriculturalists desire. Rather, many scientists have reached a conclusion that parallels that of concerned skeptics, a message of caution: Be careful when you change a landscape that works; be cautious about unintended effects of your technology; conserve what works when you experiment with what might work better. Aldo Leopold's (1966) dictum still holds: The first rule of intelligent tinkering is not to throw away any of the parts.

Caution does not prevent change. Rather, it may lead us to reflect on the scale of change that has been introduced into North American

landscapes over the past century and to amend that sweeping scale in agricultural landscapes in the next century. Caution may lead us to return some elements that bring variety and ecological balance to the homogeneous patterns of production in agriculture. As Julia Freedgood describes in Chapter 6, the agricultural landscape *must* function ecologically. Agriculture is integral to large-scale processes of energy conversion, aquifer recharge, soil development, and water and habitat quality. Undoubtedly, we must move to restore some beneficial effects of old agricultural practices that left large-scale ecological processes intact. This does not mean mindlessly returning to old ways. It means critically selecting what worked in the past and inventing new patterns that will work now and in the future. It suggests we begin tinkering not by reconstructing the landscape as our grandparents farmed it or as Europeans first encountered it, but by reexamining some old farming practices and indigenous ecosystems. This perspective on agricultural research resembles the assumptions underlying experiments with cultivating perennial grains more than the assumptions underlying pesticide development.

Knowledge of the ecology and culture of a countryside that works may inform us, but that knowledge is incomplete. It cannot tell us what to do. Caution may lead us to a form of conservation that acknowledges our collective hubris. More accurately than the dichotomous stewardship terms of *conservation* and *preservation*, *ecological conservatism* describes a way of farming that is attentive to what we do not know. With ecological conservatism, past landscape patterns that were successful in maintaining large-scale ecological processes would be the primary guide for inventing new landscape patterns. Consistent with the conclusion that we cannot predict all the effects of landscape change, ecological conservatism would suggest that variations on the patterns that work be introduced gradually—at small spatial and temporal scales—and monitored for their effects. Such small-scale monitored experiments suggest an approach like the on-farm research that has become an integral part of sustainable agriculture. Of course, “small” and “gradual” are relative terms. But if we use energy consumption as one measure, we can be certain that industrial agriculture, with its attendant use of fossil fuels, has brought us too far too fast.

Intelligent tinkering gives us a mechanical metaphor for ecological quality. We imagine the tinkerer at the workbench, with all the parts laid out to experiment with how they might fit together to serve a purpose. The machine the tinkerer makes is not necessarily elegant, but it works, and the extra parts have been carefully saved for the next time

they might be needed. Someone entering the workshop might not see the order in the parts lying here and there, but the tinkerer knows where everything is.

To use the popular image of the countryside to advance ecological health, intelligent tinkering must be translated into visual terms. The new vision of the agricultural landscape must portray ecological health by drawing on what people already recognize. Our cultural image tells us what nature in the countryside looks like. We can adapt this familiar visual metaphor to portray ecological health (Nassauer 1992).

The Look of the Land: Knowledge and Image

Knowledge and image must be intentionally meshed by those who care about public support for the ecological health of the agricultural landscape. As the agricultural landscape recovers characteristics that support ecological health, who will notice, and who will know? Who will advocate, and who will pay? Because image is a reflection of cultural traditions rather than critical analysis, many people will not perceive ecological gains unless the agricultural landscape looks healthy. Because many characteristics that support ecological health are invisible or difficult to see or even contradict the image, knowledge and image will not inevitably converge in the look of the land. They must be designed so that image matches knowledge.

When we don't see ecological health, it isn't because we aren't looking. In Western culture, at least since the seventeenth century, people have entertained themselves by looking at the land to judge the wealth and character of the landowner and to enjoy the beauty of the scenery. In the eighteenth century, educated Europeans and Americans began enjoying the look of the landscape for what it told about the natural history of a place. Although that pastime spawned the natural sciences and the conservation and preservation movements, it has remained a rarefied pursuit. Most people say they enjoy nature, but few people can identify plants or animals. Nonetheless, driving for pleasure is the most popular form of recreation among Americans. When we take a drive in the country, we may not know what we see, but we expect to like it.

Among farmers and homeowners the idea that the way your place looks reflects on you is such a commonplace that people seldom talk about it, but we all know it and think about it as we drive through our neighborhoods. Aldo Leopold (1939) went so far as to state that “every farmer's land is a portrait of himself.” The fact that views of agricul-

tural landscapes are redolent with messages about their caretakers serves to remind us that nature in the countryside is always about people and how they take care of their places. The look of nature so thoroughly infused with human intention should not be confused with nature in the wilderness. Each evokes a different image. Nature in the wilderness may be sublime. In the countryside, the sky and weather bring events of sublime grandeur, but the land is tended.

For knowledgeable viewers, the landscape tells a story that is animated not only by people but by processes and events. Farmers know the drainage and soils and slopes of their land with a subtlety that often surpasses science or engineering. Hart (1975) coined the term "look of the land" to suggest all that the appearance of the landscape can tell us about its history and use. Watts (1957) invited us to "read the landscape" for clues to its ecological character. Lynch's (1960) primer for designers and planners instructed that the environment is an enormous communications device, and he demonstrated how the landscape could be designed to evoke a sense of place. New agricultural landscapes should communicate information so that people can become more knowledgeable about the history and ecological function of the landscape. The landscape should communicate in the most recognizable terms, melding the popular image with cues to ecological function.

Careful Change: Melding the Popular Image and Ecological Knowledge

Melding image and knowledge in public perceptions of the agricultural landscape will lead us to ask two questions whenever we introduce change to increase ecological health. The first, most fundamental, question is: What change will increase ecological health? In Chapter 6, Julia Freedgood describes several potential changes, from increasing connectivity of uncultivated patches to reducing the use of herbicides. Landscape ecology (Forman 1995) and conservation biology (Meffe and Carroll 1994; Noss and Cooperrider 1994) suggest a rapidly expanding set of principles for change. The second, more strategic, question is: What do people expect that kind of ecological health to look like? This is different from asking what that kind of ecological health actually looks like. It is a question of how we portray nature to fit into a cultural tradition. It is a question of how we take care of our landscapes so that our neighbors will admire and enjoy the nature there. To answer, we begin with how people commonly look at the landscape, not how they might be educated to see it.

For most people the expected image of nature in the countryside more closely matches the appearance of a garden or a park than the wilderness. Nature in the countryside means fields and woodlands, birds and flowers, streams and ponds, hills and valleys, barns and livestock, and very few houses. It is nature at a comprehensible scale, where fences and hedgerows run between fields, trees grow beside streams, and a person could walk from here to there. This is an inhabited nature that invites human involvement, kept neat by those who live there and watch over it. It is nature enhanced by signs of human tending, from freshly painted fences and buildings to straight rows in weed-free fields (Nassauer 1988). All this creates the possibility and desirability of a type of nature that looks quite different from what we expect to find in the wilderness.

Knowing that this is the way people expect nature in the countryside to look should affect our practices and plans for the new agricultural landscape. Those who have worked to restore habitat in agricultural landscapes know that even people who enjoy nature often object to the uneven, weedy appearance of habitat plots, restored wetlands, or reserve parcels. This is not the tended nature they expect. In the past decade, wetlands and prairies have sometimes been obliterated in part because their ecological quality was not apparent to those who saw them. Nature and ecological health will not be unified in popular perceptions unless we plan it that way.

Intelligent tinkering at small scales in agricultural landscapes might monitor many ecological effects, asking, How does this new practice affect water quality, species diversity, or economic productivity? It should also monitor perceptual effects, asking, Does the look of the landscape communicate its ecological quality? Do people enjoy the nature they see here?

Familiar Patterns and Intelligent Tinkering: Recognizable Beauty

Making new agricultural landscapes recognizably beautiful will require working with the familiar landscape language of the popular image. Familiar language does not prevent new statements. It allows parts of the language to be used in new ways. Old, recognizable patterns can be used to signify what new ecological elements mean. Below, beginning at the broadest scale, are some possible ways that ecological changes could be juxtaposed with familiar characteristics of attractive landscapes. Large-scale patterns, edges between types of land cover, and frames around ecosystems that introduce new biodiversity—all are

strategies for using what is inherently attractive to convey what actually is healthy in the landscape.

Pattern: Panoramas and Patches

People value panoramic views of the countryside. Panoramic views are more beautiful if they include distinct patterns created by the edges of fields and forest, as with riparian reforestation. In this example (Figure 5.1), the existing landscape has a narrow wooded strip along a river running through the wheat fields of North Dakota. In the simulated alternative (Figure 5.2), ecological function is enhanced by larger wooded patches that transect lowland to upland ecosystems and establish continuous cover along the riparian corridor. Having many fields in a single landscape, such as those created by strip cropping and crop rotations, has the same effect: creating distinct edges and an overall pattern that is associated with good stewardship. Where panoramas are more extensive and the patterns more varied because they look out over rolling hills, they are even more beautiful (Figure 5.3). Where elevated viewpoints create opportunities for panoramic views over rolling hills, new landscape patterns that create more small fields, more crop variety, more hedgerows, and more wooded patches will help the public see nature in the countryside.



Figure 5.1. Beyond a narrow, intermittent fringe of riparian vegetation, the landscape within the river corridor displays little variety in land cover. (USDA-NRCS)



Figure 5.2. This simulation of the same river corridor shows how riparian reforestation that creates some relatively large woodland patches and connected cover along the river also creates a vivid pattern of varied land cover. (Video imaging: Robert Corry)

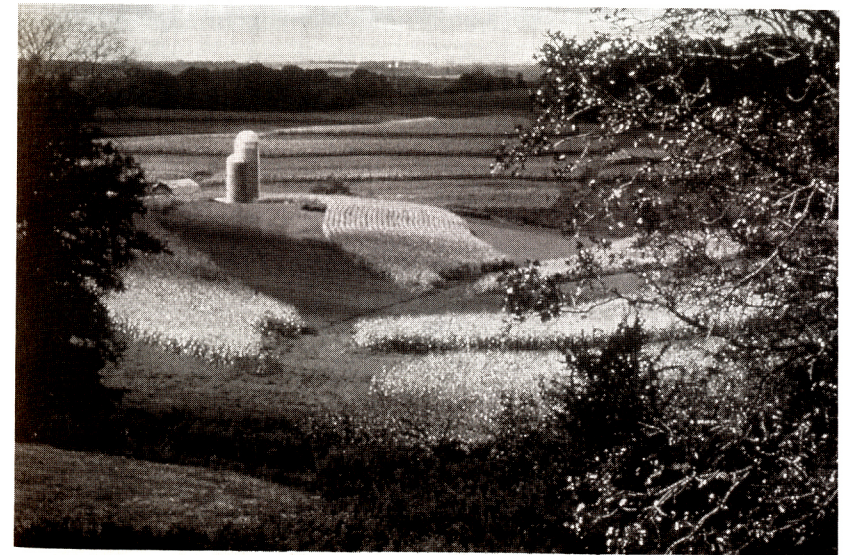


Figure 5.3. Stripcropping and crop rotations also create distinct visible patterns that are associated with good stewardship. The rolling terrain where stripcropping is practiced creates panoramas that make the patterns even more apparent. (USDA-NRCS)

Edges: Curves and Buffers

People expect nature to have curved edges. Several traditional soil and water conservation practices, such as contour plowing, strip cropping, and terracing, emphasize the curve of the land and vividly convey good stewardship, as shown in the video imaging simulation in Figure 5.4. New conservation and reserve plans should use vivid patterns and curves where they fit the land. Conservation reserve parcels that incorporate no pattern are difficult for viewers to decipher; they have been mistaken for weedy fields (Figure 5.5). The simulation in Figure 5.6 shows how maintaining visible curved edges and a pattern of different landcover types can be part of new conservation plans that might include riparian restoration and reserve parcels. Sustainable agriculture practices should be applied with the same awareness of visible pattern and edges. For example, the pattern of paddocks in a landscape managed for rotational grazing can have the same effect as strips.

Where streams, ponds, and roads can be allowed to meander or follow the curves of hillsides rather than slicing through the landscape on a straight line, people will see nature. Where habitat enhancement or the need to buffer the flow of nutrients or sediment suggests planting strips of perennial cover through fields and along streams, the strips can be broadened and curved to convey the image of nature.



Figure 5.4. Conservation practices such as stripcropping create edges that curve with landforms. These vivid patterns are associated with nature.



Figure 5.5. Some reserve and conservation practices, such as the conservation reserve simulated in this picture, have ecological benefits but little perceivable pattern. Consequently, they tend to look weedy or neglected. (Video imaging: Regina Bonsignore)



Figure 5.6. The combination of conservation reserve, riparian restoration, and traditional conservation practices in this simulation create strong patterns with curved edges. Several cues to care, such as a mown strip, flowering plants in the reserve seed mix, and a white fence, are also shown in this alternative. Ecological purposes are achieved, and the image of harmony with nature is created.

Frames: Property and Pride

Because we expect countryside nature to be inhabited by good stewards, landscape change should also display human presence as cues to care (Nassauer 1995). Cues to care are reassuring signs of the good intentions and hard work of the people who own a place; the cues make fields and farmsteads look neat and tidy. They include mown strips, flowering plants, and freshly painted signs and fences. For example, in Figure 5.7, the grassed waterway would create a pattern and has a curved edge. In the simulation in Figure 5.8, the same waterway is shown planted with a seed mix heavy with native flowering plants. Habitat value is enhanced and the ecological intent of the practice is even more vividly conveyed. In the Midwest, the color white is associated with a neat, tidy farmstead. In Figures 5.9 and 5.10, the simulations of a stream and its restoration include white fence posts and bird houses to show that someone is taking care of the restoration—it is not abandoned land. Cues to care allow farmers to display pride of ownership. When they are used to frame ecosystems that we might perceive as messy or weedy, the cues help us see the landscape as tended nature, not neglected land.



Figure 5.7. This grassed waterway contributes to the image of harmony with nature because of its bold pattern and curved configuration. (USDA-NRCS)



Figure 5.8. If the waterway were planted with a seed mix of native plants with an abundance of flowering plants, it would contribute further to ecological health and would even more powerfully convey the image of nature. (Video imaging: Regina Bonsignore)

Making Change Popular: A New Agricultural Landscape

In the new agricultural landscape, ecological health and agricultural production will be communicated by a landscape that resembles the popular image of beautiful nature in the countryside. At the same time, the beauty of the countryside will be protected and perpetuated by the ecological and economic functions the countryside performs. In this vision, beauty is more than skin deep, and beauty is not a trivial byproduct of serious policy. Rather, it is an intentional way to achieve popular support for serious ends: ecological health, agricultural production, and quality of life.

The new agricultural landscape will be beautiful in a way that invites tourism. Scenic roads and byways and places for visitors to stay will become more appealing as parts of the countryside that have lost habitat, streams, or a varied landscape pattern regain a more recognizable image of nature. The countryside will be beautiful in a way that promotes the value of agricultural open space as part of the metropolitan fabric and protects urban agriculture.

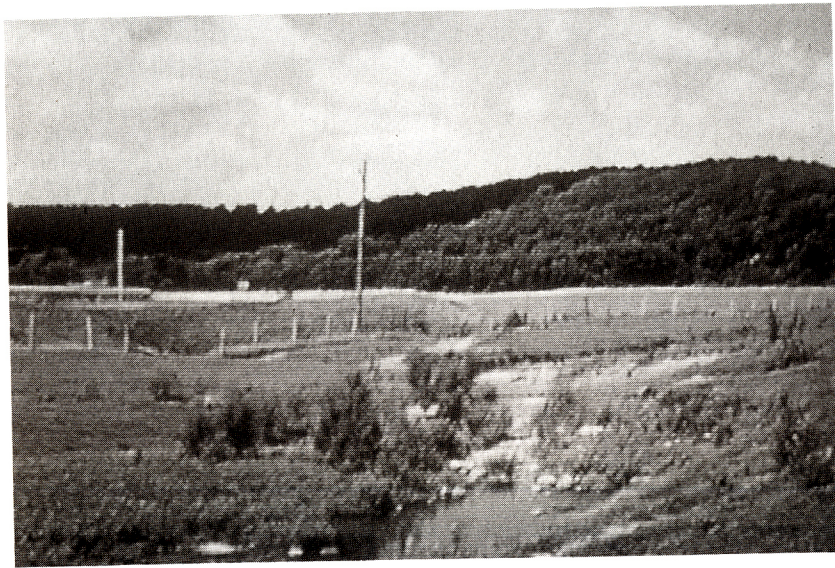


Figure 5.9. This stream restoration site could be restored in a way that would prevent erosion, filter nutrients, and create connected habitat.



Figure 5.10. By incorporating cues to care, such as mown strips, white fence posts, and birdhouses, the stream restoration will not be mistaken for an abandoned field that needs to be "cleaned up." (Video imaging: Regina Bonsignore)

The new agricultural landscape also will communicate the ecological benefits of the countryside to the body politic. The pleasure of nature in the countryside will portray the good stewardship of farmers for all to see.

Reference List

- Forman, Richard T. T. 1995. *Land Mosaics*. New York: Cambridge University Press.
- Hart, J. F. 1975. *The Look of the Land*. Englewood Cliffs, N.J.: Prentice Hall.
- Leopold, Aldo. 1939. The farmer as conservationist. *American Forests* 45 (6): 296-97.
- . 1966. *A Sand County Almanac*. New York: Oxford University Press.
- Lynch, Kevin. 1960. *The Image of the City*. Cambridge, Mass.: MIT Press.
- Meffe, G. K., and C. R. Carroll. 1994. *Principles of Conservation Biology*. Sunderland, Mass.: Sinauer Associates, Inc.
- Nassauer, J. I. 1988. The aesthetics of horticulture: Neatness as a form of care. *HortSci* 23:6.
- . 1992. The appearance of ecological systems as a matter of policy. *Landscape Ecology*. 6:4, 239-50.
- . 1995. Messy ecosystems, orderly frames. *Landscape Journal* 14:161-70.
- Noss, R., and A. Cooperrider. 1994. *Saving Nature's Legacy*. Washington, D.C.: Island Press.
- Watts, M. T. 1957. *Reading the Landscape of America*. New York: Macmillan Publishing Co.