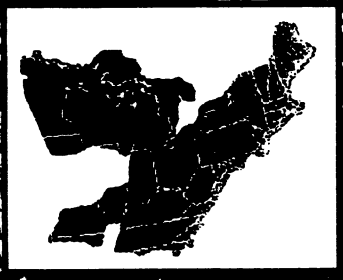
Riparian Management in Forests

Edited by

Elon S. Verry
James W. Hornbeck
C. Andrew Dolloff



of the Continental Eastern United States

Riparian Management in Forests of the Continental Eastern United States

Edited by
Elon S. Verry
James W. Hornbeck
C. Andrew Dolloff

LEWIS PUBLISHERS
Boca Raton London New York Washington, D.C.

Library of Congress Cataloging-in-Publication Data

Riparian management in forests of the continental Eastern United States / edited by Elon S. Verry, James W. Hornbeck, C. Andrew Dolloff.

p. cm.

Includes bibliographical references (p.) and index.

ISBN 1-56670-501-0 (alk. paper)

1. Riparian forests--East (U.S.)--Management. 2. Riparian areas--East (U.S.)--Management. 3. Forested wetlands--East (U.S.)--Management. I. Verry, Elon S. II. Hornbeck, James. W. III. Dolloff, Charles Andrew, 1952-

SD144.A112R56 1999

333.91'62'0974—dc21

99-048938

Cover photo by Peter L. Card III: The Mississippi River, Mile 10, Clearwater County, Minnesota

Lewis Publishers is an imprint of CRC Press LLC

No claim to original U.S. Government works

International Standard Book Number 1-56670-501-0

Library of Congress Card Number 99-048938

Printed in the United States of America 1 2 3 4 5 6 7 8 9 0

Printed on acid-free paper

Chapter 11

The Human Dimensions of Riparian Areas: Implications for Management and Planning

John F. Dwyer, Pamela J. Jakes and Susan C. Barro

I was born upon thy bank, river,
My blood flows in thy stream,
And thou meanderest forever,
At the bottom of my dream.
Henry David Thoreau, Journals *(1906)* 1842 entry

This chapter introduces an important dimension in building our understanding of how riparian systems function — people. The human dimensions of natural resource management concerns how people value and interact with these ecosystems, their processes and functions. People as users, managers, owners, or involved citizens are integral components of riparian ecosystems and are interconnected with the physical and biological dimensions in many ways.

Managers are finding themselves spending more time working with the public. A better understanding of people's values, attitudes, beliefs, knowledge, and expectations about riparian areas can facilitate efforts to involve a wider segment of the public, making management more effective. We hope the information in this chapter is helpful in guiding this important endeavor and that it will also encourage researchers from the physical, biological, and social sciences to work more closely together to support the management of riparian systems.

We begin the chapter by defining two fundamental components for understanding the human dimensions of riparian ecosystems: people-resource interactions and the uniqueness of riparian areas. We then present four case studies that illustrate applied human dimensions research carried out at the request of managers or planners. In the last section we discuss how to effectively use human dimensions research in guiding planning and management efforts.

People-Resource Interactions

Most people interact with riparian ecosystems in some way through work, play, or day-to-day living. These interactions are almost universal because many cities, towns, businesses, homes, recreational areas, and other important parts of people's lives are located in riparian areas. Many people's livelihoods are tied directly or indirectly to riparian areas, especially as fishing and hunting guides, farmers, loggers, resort owners, miners, marina operators, municipal water supervisors, and others. People's leisure time is often linked with riparian resources. Those living near riparian areas tend to have more direct contact with them on a day-to-day basis, while those farther away usually experience riparian areas less intimately or less frequently. Even people far from lakes, rivers, streams, and other riparian areas may still relate to them regularly through memories, photographs, and other means. Riparian resources are often highly significant to these individuals.

Relationships between people and riparian areas change as the population and its distribution over the landscape changes. Changes in land use, economic development, modifications in transportation corridors, and shifts in people's values, attitudes, and behaviors may significantly affect the character of human-riparian interactions.

Uniqueness of Riparian Areas

Two distinguishing characteristics of riparian areas have important implications for the human dimensions of these ecosystems. First, riparian areas offer opportunities for *unique experiences* that depend on the presence of a land/water interface. People seeking different experiences often converge on the same, sometimes limited, geographic area. Outdoor settings with both land and water have a high esthetic appeal and are preferred for a range of outdoor activities (Dwyer et al. 1989; Kaplan 1977; Schroeder et al. 1990; Schroeder 1996; Stynes 1997). As a result, riparian areas are the focus of much conflict. For example, kayakers and jet skiers, managers protecting endangered species and trappers, individuals seeking solitude, and resort developers all compete for access and control.

Water plays a key role in linking geographically dispersed areas, carrying and sometimes magnifying the impacts of actions in one area to another. The *presence of linkages* is the second major characteristic of riparian areas that makes them unique from a human dimensions standpoint. Linkages increase the significance, complexity, and scale of riparian resource management. While many interactions among people and resources are concentrated at the land/water interface, the resulting impacts extend beyond adjacent geographic areas. Social linkages with riparian resources are likely to extend the scale of analysis for planning because many of those who influence or are influenced by riparian areas reside outside of the physical boundaries of the riparian area or watershed. Management of riparian areas is

complex and collaborative, and it occurs at several scales. Some issues are largely local in nature; others must be considered at a regional or perhaps national scale.

Given the diverse and dynamic interactions people have with riparian areas, one of the fundamental questions for management is "How do people value particular areas?" Bengston and Xu (1995) provide evidence of recent shifts in the way that people value forest ecosystems. They found that people's values related to forests are shifting from economic or utilitarian views to an appreciation of the life support (e.g., environmental), esthetic, and moral or spiritual qualities of the forest. Understanding the diverse ways in which people value riparian areas and incorporating this information into resource planning facilitates sound decision making.

Human Dimensions in Riparian Management: Four Case Studies

Each of the following case studies illustrates human dimensions research undertaken at the request of land managers or planners to aid in riparian area management and decision making. These studies show how human dimensions research can improve efforts to consider people's concerns in the management of forests and other ecosystems. The social settings for these efforts range from rural to urban, and various ecosystems are represented.

Enhancing Public Involvement: Black River, Michigan

The Black River flows through the Ottawa National Forest in northern Michigan. Forest personnel were aware of the special character of the Black River area and wanted to include people's values and feelings about the area plan for the future. Schroeder (1996) worked with forest staff to find out more about people's attachment to the Black River area. Fliers about the study were sent to members of the public involved in planning for the Black River Opportunity Area and were also posted in local businesses and at recreation sites. People responded to the fliers by sending the researcher their names and addresses. Study participants were then asked to write about the area and the features and experiences that have led them to special feelings about the Black River area.

A qualitative analysis of these written descriptions indicated that esthetic, cultural, and natural values are highly important (Schroeder 1996). Visitors and residents reported the rustic and peaceful character of the Black River area central to their experience of a special place. The culture and history of the area as a commercial fishing village is also important to their sense of the Black River as a special place. They greatly appreciated the well-maintained recreational facilities and easy access to waterfalls and other scenic resources.

The study identified specific places and features in the Black River area that are especially important to people, such as waterfalls, large trees, clean water, and wildlife. By identifying what particular features of the area are considered special and why, this study helped clarify what visitors and residents desire. Results enabled managers to corroborate and extend information obtained in other public involvement activities.

National Forest Planning: Functional Communities of Northern Wisconsin

Riparian areas and their resources are important to communities. Many settlements tied their initial identity to riparian resources as a "river town" or "port city," for example. Strong ties still exist between communities and riparian resources.

As part of an effort to revise the forest management plans on the Chequamegon-Nicolet National Forest in Wisconsin, Jakes et al. (1998a; 1998b) conducted a series of face-to-face interviews with long-time residents of northern Wisconsin. The purpose of these interviews was, first, to identify functional communities — geographic areas in which people share perceptions of, and relationships to, forests and natural resources — in and around the national forest. Researchers then analyzed and described communities' ties to the landscape.

Residents of northern Wisconsin indicated that activities in, and issues related to, riparian areas are very important in defining or characterizing local communities. For example, residents along the south shore of Lake Superior focused on that Great Lake and its role in defining their community (especially in terms of maintaining a quality of life for area residents). One resident in northeastern Wisconsin labeled her community the "Silent Sport Capitol of Northern Wisconsin," reflecting the importance of canoeing, kayaking, fly fishing, and other recreational activities on wild and scenic rivers in establishing an identity for that community. In identifying land management issues, those interviewed in northern Wisconsin emphasized their ties to riparian areas. For example, residents of one community expressed concern about the effects of a proposed mining development on the area's lakes and rivers. Many residents stressed the importance of publicly owned land in maintaining access to lakes and rivers that were becoming off limits to local users due to development. Findings from this study helped guide, and sometimes refocus, the revision of the forest plan for the Chequamegon-Nicolet Forest.

Policy Development and Regional Planning: Seasonal Homeowners in Michigan

On any Friday evening in Michigan, Interstate-75 traffic is bumper-to-bumper as residents travel "up north to the cabin." Seasonal homes are a significant presence in counties across northern Minnesota, Wisconsin, and Michigan, where they account for more than half of the houses. The demands of seasonal residents for new or improved services, and their values (sometimes different from local residents) are the impetus for many of the changes observed in northern Lake States rural communities.

Stynes et al. (1997) surveyed 1,300 seasonal homeowners from six counties of Michigan's northern Lower Peninsula by mail to identify the characteristics of seasonal homes and their owners, measure patterns of use and associated recreation activity; and estimate the local economic impacts of seasonal homes. Results indicated 80% of the properties are on lakes, which suggests significant implications for riparian resource management.

Almost half of the homeowners in the survey cited outdoor recreation as an "extremely important" reason for owning their seasonal home. Many of their recreational activities occur in riparian areas including fishing from shore, cross-country skiing, hiking, nature study, and the use of snowmobiles and other off-road vehicles. The conversion of seasonal homes to permanent residences also has important implications for local and regional planning. Stynes et al. found that 40% of the seasonal homeowners listed the potential use as a retirement home as an important reason for owning their seasonal home. Twenty percent said they are likely to convert their seasonal home to a permanent residence within the next 5 years. If half of those likely to convert do so, the resident population of the region would increase by 10% in 5 years and by 20% in 10 years. Much of this increase could take place in riparian areas, particularly sites along lakes.

As a result of this research, Michigan and neighboring states have increased their efforts to more fully account for and include the needs of seasonal homeowners in local and regional planning and to consider the potential impacts of seasonal home development on rural communities and natural resources.

Urban Restoration: The Chicago River

The Chicago Rivers Demonstration Project was begun in the early 1990s as a national model for the enhancement of urban waterways. The project established an extensive partnership coordinated by the USDI National Park Service Rivers, Trails, and Conservation Assistance Program and by the Friends of the Chicago River. Physical, biological, and social components of the riparian ecosystem were analyzed along the 156-mile river corridor to obtain baseline data on ecosystem health and to identify the diversity of uses and perceptions of the corridor (Gobster and Westphal 1998a).

Analysis of the social component of the project included several methods of gathering information from people who had different types of associations with the river. People recreating along selected reaches of the river were interviewed on-site to gather information on the range of activities that take place there as well as the different opportunities provided. Focus groups were conducted with residents who lived near the river to gain a deeper understanding of how they perceived and used the river and how they thought it could be improved. Riparian corridor residents were sampled by telephone about their awareness and perceptions of the river to obtain a statistical representation for all corridor residents. Canoeists, kayakers, and rowers were surveyed by mail about their use of the river. Finally, in-depth personal interviews were conducted with resource experts in positions potentially influential in determining recreational use of the corridor.

Results of the various studies, which reinforced each other, indicated that many outdoor activities are associated with the Chicago River and its corridor (Westphal 1998). Some of these activities involve active use of the water or land/water interface, but a great many do not. Respondents reported that "as long as the river doesn't smell too bad" it was a great recreation resource for many activities from biking to relaxing to boating. For many, the river and associated environments are an important part of the broader setting for their experiences, creating a richer neighborhood or workplace. For others, the river is the place to go for a break from hectic city life. Visual access was as important as physical access to the river (Gobster and Westphal 1998b). But results of the Chicago River study also highlighted the fact that many urban residents, even those living near the river, do not feel connected to it and, thus, are unaware of its condition. Information gained about how people use and perceive the river as well as how the river corridor could be enhanced is already being used in long-range plans for river management, and efforts to increase people's awareness of the river and knowledge of related issues are underway.

Human Dimensions Research

Results of the case studies discussed above gave managers new insights to help them more fully integrate the human dimensions into riparian resource management. As more people interact with riparian resources and feel compelled to be more involved in the management of these areas, the need to better understand the human dimensions becomes increasingly important for managers. Consequently, research on the human dimensions of riparian ecosystem management merits at least as much attention from researchers as the physical and biological dimensions do (Jakes and Harms 1995). In many instances, management questions will require research that links the biological, physical, and social sciences. When research is integrated across disciplines, the high standards of scientific quality established for each scientific discipline must be maintained.

Building an understanding of the human dimensions of riparian areas requires systematic and scientifically valid approaches. According to one of the standard social science research texts, *The Practice of Social Research* (Babbie 1998), we must engage in the three major elements of scientific enterprise — theory, data collection, and data analysis. In the four case studies described above, researchers used these elements to make sense of what they observed about people living, working, and recreating in natural environments.

As managers increasingly work with researchers, it is important to understand the process by which a managerial question is answered through research. First, the managerial question is translated into a research question. Once the research questions are clearly understood, researchers can select the methods of data collection and analysis that will best answer them. In essence, then, the specific research question(s) determine the research approaches and methods used (Bickman and Rog 1998). The answers to some questions require in-depth information about people's emotions, beliefs, relationships, and values (e.g., esthetic, moral, or spiritual) that is best gathered and analyzed with qualitative approaches. Alternatively, questions related to such things as behaviors, activities, and preferences are often best answered by collecting and analyzing data using quantitative approaches.

In the case studies we have presented in this chapter, researchers drew on theory from a variety of social sciences including environmental psychology, rural sociology, political science, geography, and economics. Researchers used one or more data collection techniques that produced both qualitative and quantitative data to help answer research questions (Table 11.1). The methods of data analysis ranged from content analysis to standard statistical analysis. If you'd like more detailed information about human dimensions research, consult the literature listed in Table 11.2.

Human Dimensions Information in Management and Planning

The goal of human dimensions research in riparian ecosystems is to help managers and planners make decisions that will maintain or improve the health and sustainability of these systems and increase their contributions to the quality of life. In the following discussion, we highlight a few examples of how human dimensions information can be useful in planning for and managing riparian areas.

Table 11.1 Advantages and limitations of various social science methods

Methods Applied in Case Studies	Advantages of Methods	Limitations of Methods
Focus groups - Chicago River	• Relatively inexpensive ($3,000 - $5,000 per group). • Interaction among group members enriches information. • Has flexibility to pursue issues discovered during discussion. • Can be a source of detailed information.	• Requires trained facilitator to conduct groups. • Strong/vocal individuals may dominate flow of discussion. • Results cannot be generalized to a larger population. • Special training needed to interpret results.
In-depth interviews - Wisconsin functional communities - Chicago River	• Can get in-depth and rich information. • Is flexible to allow pursuit of interesting topics. • Allows interviewees concerns and expectations to emerge.	• Requires trained interviewers. • Is time consuming (1-2 hours each). • Usually only a small number of people can be interviewed. • Results cannot be generalized to a larger population. • Generates large amounts of detailed data that may be difficult to interpret.
Content analysis Text Interpretation - Black River	• Can be applied to a variety of written materials such as letters, newsletters, and newspapers. • Method is not hampered with details of recruitment, sampling, or scheduling interviews.	• Time consuming to repeatedly read through text, identify themes or keywords, and code responses. • Requires special training to select materials for analysis and to conduct and report on analysis.
Mail survey - Chicago River - Seasonal homeowners	• Findings can be generalized to a larger population. • Relatively low level of intrusion (People can fill out survey at their convenience).	• Tends to be expensive due to costs of acquiring a random sample, designing and printing surveys, and a need for repeated mailings. • Knowledge of statistics is needed for analyzing and interpreting results. • Surveys of non-respondents may be necessary.
Telephone survey - Chicago River	• Results can be generalized to a larger population. • Can get quick responses. • In comparison to a mail survey, it is easier to ensure that people answer all the survey questions.	• Tends to be expensive because it often involves contracting with a phone survey lab. Costs are associated with designing the survey, paying trained telephone interviewers, and analyzing data, etc. • Can inconvenience or intrude on people. • Some of the people you want to talk with may be less likely to agree to an interview over the telephone.

Developing Management and Planning Options

There is a tendency to regard human dimensions information as a tool for supporting or "selling" projects, programs, or policies that have already been agreed upon by managers and planners. However, such information can play a key role in the development of management and planning alternatives. The traditional "after the fact" approach for using human dimensions information is not nearly as effective as one where human dimensions information is used to *develop* projects, programs, and policies. In many instances, the time and effort spent early on in incorporating human dimensions information into development of management and planning options reaps huge dividends later in reduced effort needed to "sell," "revise," "re-plan," or "reconsider."

The following questions provide a guide to help managers and planners evaluate riparian resource management options from a perspective that connects the physical, biological, and social dimensions of riparian systems within the context of resource management. If these questions cannot be answered in a management situation, additional information and research may be needed.

- What benefits associated with riparian areas are important to people?
- What characteristics (structure and function) of the riparian area are critical in providing these benefits?
- How will changes in the structure and function of the riparian area influence the benefits made available to people?
- To what extent are individuals and groups (including communities) willing to accept or support changes in the riparian area necessary to accomplish management goals, given that these changes may affect the array of benefits available to people?

Establishing Dialogue with the Public

Involving the public in planning and management is critical for effective management and use of riparian areas. For the public to provide meaningful guidance, we need to develop more effective techniques to (1) inform citizens about riparian resources and their management, (2) involve the public in developing and assessing management options, and (3) draw a wider range of individuals and groups into the planning process and into monitoring the results once plans are implemented.

Information about ecosystems (How do they change over time?; How do they respond to management programs and practices?) is particularly relevant to public involvement. Jakes

(1998) outlined how public involvement (and research) can help build a better understanding between the public and planners/managers and bring their expectations and goals for resource management decisions more into sync.

For effective dialogue between managers, planners, and the public to occur, some common understanding is necessary. Managers cannot assume that their knowledge and beliefs are shared by a large segment of the public. For example, riparian area managers may feel there is ample justification for conducting ecological restoration in riparian areas to achieve biodiversity (as well as other) goals. However, the public may not support this type of effort because many people do not understand the ecological restoration process or the reasons behind it. Barro and Bopp (1996) report that the college students they surveyed in the Chicago area were not aware of the subtleties of ecological restoration, such as the concept of increased biodiversity and enhanced ecosystem function. Two factors that have been identified as barriers to communicating about and gaining support for ecological restoration and increasing biodiversity are (1) the complexity of the issue, and (2) people's lack of experience in natural areas (Bidwell and Barro 1997). Other significant barriers to overcome relate to the perceptions that managers and planners have about what the public wants or expects from riparian ecosystems. Promising approaches to reducing these barriers include more dialogue between managers, planners, and the public, as well as increased research on what the public wants and expects from the management of riparian resources.

Deciding Whether to Apply Human Dimensions Information

In analyses of resource planning and management options, there are questions about whether information from other situations or places can be applied in the current analysis. This is of particular concern when considering information on the human dimensions of resource management.

People's interactions with riparian systems may vary significantly with place and time, depending on the riparian resources, management context, and people's values, beliefs, and expectations about riparian areas and their management. For example, Chicago residents are likely to have quite different standards of quality for the Chicago River than for a mountain brook. And a visitor from Minnesota (Land of 10,000 Lakes) may perceive the water quality in the Chicago River differently from a Chicago resident. This is not to say that information from other areas and experiences cannot sometimes supply helpful guidance for management decisions, but planners and managers need to clearly understand and consider the context in which that information was generated.

Given the complexity of riparian resource management and use, managers will seldom, if ever, have complete information on which to base their decisions. This holds true for physical and biological as well as human dimensions information. Thus, riparian management decisions will continue to be made in the face of a significant degree of

uncertainty, but this uncertainty can be reduced by gathering information from a variety of sources and by maintaining a strong dialogue with the public.

Using Secondary Data to Describe the Human Dimension

Resource managers and planners frequently ask about using the information related to people and their activity that is readily available from the U.S. Bureau of the Census as well as from state, regional, and local agencies. This includes information on population, employment, housing, manufacturing, and other factors. Although this information (which is readily available at http://www.census.gov) provides useful insight into the human resources in particular areas, it is not linked to specific resources or their management. Consequently, while we might be able to gain insight into the trends in population, employment, and housing in a particular area, we would not know how that information was tied to the management of riparian resources. For example, (1) how might changes in the local population influence riparian resource management, and (2) how might riparian resource management influence the future population in the area. The overlay of physical, biological, and social resources in a GIS format shows the association among variables and helps to outline the context for management, but it does not tell us anything about cause and effect relationships that are critical in evaluating planning and management options. Analysis of management and planning options needs to focus on these cause and effect relationships between the key attributes of people and management options.

Displaying Human Dimensions Information

Human dimensions information should be presented in a manner that facilitates its use in planning and management. To reach a broad audience among resource managers and the public, researchers must look for improved ways to display results of human dimension research. At public meetings on resource management, people often cluster around maps, discussing the information being displayed. This reflects how graphs, charts, and maps enhance the communication process (Bickman and Rog 1998, 527). At the same time, some information does not lend itself to graphic displays, such as information about people's values, feelings, and links to the land. These may be best presented in narrative form or by other methods.

Summary

"People are part of [riparian] systems: they derive material and nonmaterial goods and services from them; they live, work, and play in [riparian areas], and their attitudes, behavior, and knowledge of the [riparian] ecosystem affect it in both direct and indirect ways. Thus, [riparian] management systems that alter the structure and processes of the biological component will alter the human system that interacts with it. Conversely, the way in which people are organized and the processes through which they make decisions will lead to alterations in the [riparian] ecosystem." (FEMAT 1993, VII-110)

The human dimension is a critical component of the planning and management of riparian ecosystems that promises to increase in significance over time. We have presented case studies that illustrate the depth, complexity, and significance of people's interactions with riparian ecosystems across a rural to urban continuum. These illustrations include a wide range of social science research techniques that can facilitate and improve riparian resource planning and management. We have provided some general guidance for using these techniques to help steer the management and use of riparian areas. In the development and analysis of planning and management options, the human dimensions should receive attention comparable to that given to the physical and biological dimensions; and high-quality science and analysis need to be applied. In many instances, it is crucial to identify physical, biological, and social linkages. The effectiveness with which human dimensions are integrated into resource planning and management is likely to determine the effectiveness of riparian area management and planning in the years ahead.

Sandy Verry

Boating the Great Lakes and Great Rivers of the East is a major recreation pursuit.

Table 11.2 References for human dimensions research methods

Bailey, K. O. 1994. Methods of social science research. New York: Free Press. 588p.

Creswell, J. W. 1994. Research design: qualitative and quantitative approaches. Thousand Oaks, CA: Sage Publications. 228p.

Delbecq, A. L., A. H. Vandeven, and D. H. Gustafson. 1975. Group techniques for program planning: a guide to nominal group and delphi processes. Glenview, IL: Scott, Foresman. 174p.

Denzin, N. K. and Y. S. Lincoln, eds. 1994. Handbook of qualitative research. Thousand Oaks, CA: Sage Publications Inc. 643p.

Dey, I. 1993. Qualitative data analysis: a user-friendly guide for social scientists. London: Routledge. 285p.

Dillman, D. A. 1978. Mail and telephone surveys: the total design method. New York: Wiley. 325p.

Fink, A. 1998. How to conduct surveys. 2nd ed. Thousand Oaks, CA: Sage Publications. 160p.

Kruger, R. A. 1994. Focus groups: a practical guide for applied research. Thousand Oaks, CA: Sage Publications. 255p.

Lavrakas, P. J. 1993. Telephone survey methods: sampling, selection, and supervision. 2nd ed. Newbury Park, CA: Sage Publications. 181p.

Morgan, D. L. and R. A. Kruger. 1997. The focus group kit. Thousand Oaks, CA: Sage Publications. 5 - volume set.

Morgan, D. L. 1997. Focus groups as qualitative research. 2nd ed. Thousand Oaks, CA: Sage Publications. 255p.

Patton, M. Q. 1982. Practical evaluation. Beverly Hills, CA: Sage Publications, Inc. 313p.

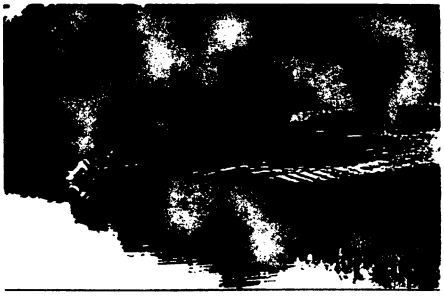
Rivard, R. T. 1997. A sense of place. The Bee. 113:1-3.

Federal Interagency Restor. Group

Federal Interagency Restor. Group

Federal Interagency Restor. Group

Sandy Verry



Sharon E. Sneddon

Vacationers, members of watershed districts, soil and water conservation districts, lake associations, county citizens, township citizens, want and need to be part of planning for riparian area management. Besides the sense of ownership, common ground alternatives gain acceptance and implementation through peer networking.

Clockwise from upper left: fencing and rock ford for cattle, discussing rootwad installation for bank stabilization, restoring the banks of the AuSable in Michigan, public use of national forest lake access, and public fishing on private lands with easements.