United States
Department of
Agriculture

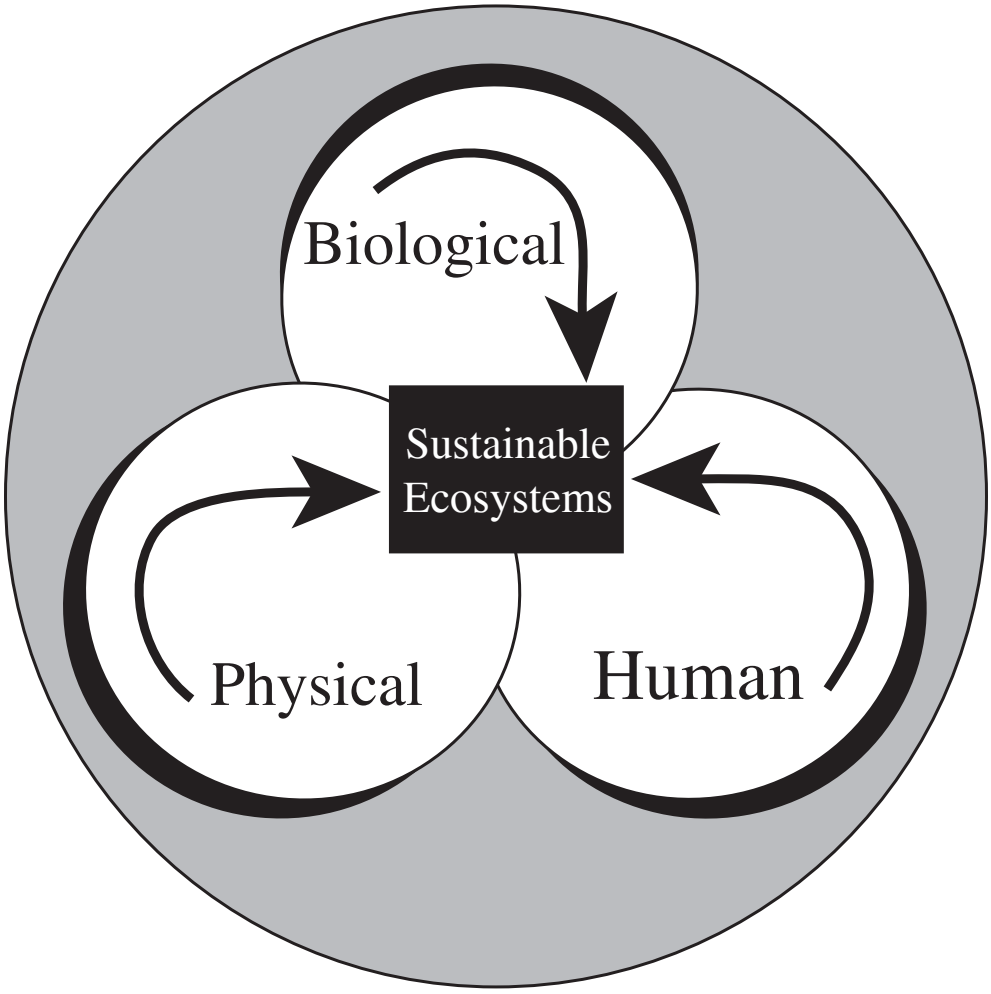
Forest Service

**Southern
Research Station**

General Technical
Report SRS–65

A Human Dimensions Framework: Guidelines for Conducting Social Assessments

Alan D. Bright, H. Ken Cordell, Anne P. Hoover, and Michael A. Tarrant



The Authors:

Alan D. Bright, Associate Professor, Department of Natural Resource Recreation and Tourism, Colorado State University, Ft. Collins, CO 80523-1874; **H. Ken Cordell,** Project Leader, Recreation, Wilderness, Urban Forestry, and Demographic Trends Research, USDA Forest Service, Athens, GA 30602-2044; **Anne P. Hoover,** National Program Leader, Social Science Research, USDA Forest Service, Washington, DC 22209; and **Michael A. Tarrant,** Associate Professor, Warnell School of Forest Resources, University of Georgia, Athens, GA 30602-6555.

Abstract

This paper provides a framework and guidelines for identifying and organizing human dimension information for use in forest planning. It synthesizes concepts from a variety of social science disciplines and connects them with measurable indicators for use in analysis and reporting. Suggestions of analytical approaches and sources of data for employment of the identified social indicators are provided.

Keywords: Forest planning, human dimensions, social indicators.

June 2003

Southern Research Station
P.O. Box 2680
Asheville, NC 28802

A Human Dimensions Framework: Guidelines for Conducting Social Assessments

Table of Contents

Page

Introduction 1

Part I: The Need for and Development of the Human Dimensions Framework 3

Chapter 1: Human Dimensions in Ecosystem Management: Needs, Guiding Principles, and Definitions 5
- Toward Developing a Human Dimensions Framework 5
- Applications of Social Science Information 5
- Advancements in Social Science Research Methods 6
- Guiding Principles for an Human Dimensions Framework 6
- The Role of Social Sciences in Land Management Planning 7
- Using Information from Multiple Social Science Disciplines 8
- The Organizational Role of an Human Dimensions Framework 8
- The Nature of Ecosystems 9
- Ecosystem Management 9
- Definition and Principles of Ecosystem Management 9
- Human Dimensions in Ecosystem Management 10
- Societal Trends Toward a Human Dimension in Ecosystem Management 10
- What is Meant by Human Dimensions Information 12
- Benefits of Collecting Social Information 12
- Integrating Social Information into Ecosystem Management 12
- Integrated Planning and Land Management 13
- How Can Integration be Achieved 13
- Using Stakeholder Input into Ecosystem Management 14

Chapter 2: The Role of Social Assessment in Integrating Human Dimensions Information 15
- The Nature of Social Assessments 15
- Social Assessment 15
- The Role of Social Assessment in Integration 16
- The Importance of Scale in Social Assessment 16
- The Process of Conducting Social Assessments 18

Chapter 3: The Human Dimensions Framework: Determining Relevant Characteristics of the Social Environment 21
- The Human Dimensions Framework 21
- Using the Human Dimensions Framework 21
- The Human Dimensions Framework for Guiding Assessments 22
- Indicators of Social Dimensions and Concepts in Social Assessment 25
- Social Indicators and Their Role in Ecosystem Management 25
- Criteria for the Appropriate Use of Social Indicators 25
- Perceptual Indicators and Their Role in Ecosystem Management 26
- Specifying the Information: Identifying and Measuring Human Dimensions Framework (Dimensions, Concepts, and Indicators) 26
- Dimension I—Historical Background 27
- Dimension II—Population Characteristics 27
- Dimension III—Community Resources 28
- Dimension IV—Social Organization Structures and Processes 29
- Dimension V—Public Perceptions and Well-Being 31

Part II: Data Collection 33

Chapter 4: Collection and Use of Secondary Documentary and Historical Data 35
- The Identification and Collection of Secondary Documentary Data 35
- Sources of Secondary Documentary Data 35

Page

Conducting a Literature Search from Previous Research 39
Advantages and Disadvantages of Secondary Data 40
A World Wide Web Tool for Collecting Secondary Information 40

Chapter 5: Developing and Administering Survey Research 41
Factors Affecting the Survey Method Decision 41
Sampling 41
Type of Population 41
Question Structure 41
Organizing the Survey 43
Pretesting the Survey 43
Desired Response Rates 43
Costs of Survey Administration 44
Available Facilities 44
Length of Data Collection 44
Description of Survey Methodologies 44
Comparing Self-Administered Surveys, Telephone Surveys, and Personal Interviews 47
Bibliography for Conducting Survey Research 48

Chapter 6: Developing and Administering Group Interviews 49
Brainstorming 49
Consensus-Building Techniques 49
The Nominal Group Technique 49
The Delphi Technique 49
Natural and Formal Field Interviews 49
Focus-Group Interviews 50
Use of the Focus-Group Interview 50
When to Use and Not to Use a Focus-Group Interview 50
Preparing for a Focus-Group Interview 51
Steps for Conducting a Focus-Group Interview 52
Bibliography for Conducting Group Interviews 53

Chapter 7: Selecting a Sample of Respondents from the Population 55
Probability Samples 55
Probability Sampling Procedures 56
Nonprobability Samples 56
Nonprobability Sampling Procedures 56

References 59

Appendix: Description of Dimensions, Concepts, and Indicators 61

Introduction

On April 8 through 10, 1997, a workshop focusing on the need for improved human dimensions information for ecosystem management and, more specifically, for U.S. Department of Agriculture, Forest Service (Forest Service) planning processes, was held in Salt Lake City, UT. The workshop brought together social scientists from a variety of academic disciplines and research social scientists from within the Forest Service, its regional offices and national forests, and its State and Private Forestry branch of operations, to discuss social science applications. Academic disciplines represented at the workshop included social psychology, environmental psychology, rural sociology, resource economics, anthropology, archaeology, political science, geographic information systems, ecology, social ecology, history, and landscape architecture. Discussion and ideas generated there resulted in the development of this publication.

Our purpose in writing these guidelines is twofold. First, it presents a framework for identifying and organizing human dimensions information—the human dimensions framework (HDF). The HDF brings together concepts from a variety of social science disciplines, categorizes them into basic social dimensions, and connects the concepts with measurable indicators designed to represent those concepts. Secondly, it provides guidance in use of the HDF. A variety of approaches have been developed to aid land managers in collecting and using human dimensions information. These guidelines focus on one of those approaches, the social assessment. A social assessment has been defined (Bitterroot Social Research Institute 1994) as:

> . . . a method of data collection and analysis used to generate information about (1) social structure, (2) social processes, and (3) the social changes being wrought in given social structure(s) and process(es).

A variety of methods and tools for collecting social assessment information are available. The HDF connects concepts and indicators from the social sciences with appropriate methods for collecting relevant data. It includes consideration of primary data such as information about the values and perceptions of local community residents, which can be gathered by means of various types of surveys as well as personal and group interviews. It also includes secondary data such as historical records about a community or region, including sociodemographic and socioeconomic characteristics. Historical data are available in the form of interviews with residents, newspaper archives, and historical documents found in libraries or similar depositories. Sociodemographic and socioeconomic data are available from the U.S. Bureau of the Census and other repositories of statistical information.

How one uses this document will depend on the purpose for doing a social assessment. Its effective use will not require an individual to read this document from beginning to end. There are two parts, written logically to follow one another; but, users are encouraged to move directly to the part or chapter most relevant to them.

Part I is presented in three chapters, and it discusses the nature of ecosystems and their management, the ultimate role of social assessments in ecosystem management, and a framework for examining the human dimension of ecosystems. Chapter 1 discusses the nature of ecosystems, ecosystem management, and the role of human dimensions in ecosystem management. It also reviews some current thinking on the integration of human dimensions with the ecosystem planning process. Chapter 2 describes social assessments, their role in the integration of human dimensions information; the importance of the spatial, social, and temporal scales of analysis; and a description of a general process for conducting a social assessment. Chapter 3 presents the HDF in the form of a matrix of social dimensions, concepts, and indicators. Following a brief description of the HDF, chapter 3 explores the steps taken when conducting a social assessment and discusses the need to establish purpose and scope. In addition, it examines characteristics of the social environment that are relevant to a social assessment within the context of the HDF and includes an outline of the types of information that should be gathered (social and perceptual indicators). Chapter 3 also includes a description of social dimensions and their relevant concepts and indicators identified in the HDF.

Part II describes the collection of data necessary when conducting a social assessment under the HDF and is organized into four chapters. Chapter 4 describes the collection and use of secondary documentary and historical data. Chapter 5 describes the development and administration of survey research. Chapter 6 describes the development and administration of group interviews; and chapter 7 briefly discusses sampling issues. Part II is intended to introduce readers to basic techniques for collecting social information, not to replace the significant amount of time and experience that trained social scientists devote to learning their work. When a social assessment of a region or community is being considered, we highly recommend that forest planners consult with their regional office social science coordinator or other social scientists about the most appropriate methods for conducting various aspects of their assessment.

The target audience of Part II includes forest planners, interdisciplinary team leaders, or other individuals who are

responsible for conducting a social assessment for a forest region, community, or other level of interest. Although no knowledge of social science methods is necessary, training or experience, or both, in the social sciences will enhance the manager's ability to apply the presented information directly to a social assessment.

Performance and learning objectives focus on what the manager will gain from information about social science methods. The information presented will enable the manager to

1. Contribute to the process of making decisions about what type of data collection method is appropriate for various types of social assessments.
2. Participate in the data collection process.
3. Consult a bibliographic listing of additional publications providing additional information about data collection techniques. In addition to these citations, the manager is encouraged to consult a regional social science coordinator or other available social scientists about the most appropriate method.

This paper describes a framework and system tested in the late 1990s. It explores concepts that may be useful in developing practical new systems of social science research.

Part I

The Need for and Development of the Human Dimensions Framework

Chapter 1

Human Dimensions in Ecosystem Management: Needs, Guiding Principles, and Definitions

This chapter discusses the need for and use of human dimensions information in forest planning—one of the processes of ecosystem management. It describes how human dimensions needs were identified and principles developed in a workshop setting. It considers the nature of ecosystems, the practices followed in ecosystem management, and the integration of human dimensions information into ecosystem management.

Toward Developing a Human Dimensions Framework

On April 8 through 10, 1997, U.S. Department of Agriculture, Forest Service (Forest Service) officials held a workshop focusing on the need for improved human dimensions information in land management planning. Held in Salt Lake City, UT, this workshop brought together social scientists from a variety of academic disciplines, Forest Service research social scientists, and a full complement of forest management and extension specialists from throughout the agency. Represented academic disciplines included social psychology, environmental psychology, rural sociology, resource economics, anthropology, archaeology, political science, geographic information systems (GIS), ecology, social ecology, history, and landscape architecture. The workshop's purpose was to facilitate discussions of human dimensions information as germane to responsible management of public resources and to develop a framework that will aid planners in integrating such information into regional assessments, project planning, and policy analysis. Over the course of that workshop, participants identified a variety of needs as well as the roles that social scientists can play in answering those needs. Although workshop participants identified a significant number of items where current forest planning efforts are not making sufficient use of human dimensions information, the most prevalent concerns focused on the nature of efforts to apply social science to planning and decisionmaking and advancements in the methods of social science research. The needs described here are not exhaustive; however, they represent the tenor of workshop discussions about what is necessary in developing an effective human dimensions framework.

Applications of Social Science Information

Workshop participants identified and discussed five needs pertaining to the use of social science in Forest Service planning and policy development:

1. To synthesize human dimensions analysis
2. To recognize the public as an equal partner in natural resource management
3. To recognize and accept that diverse resource values must be considered in managing ecosystems
4. To connect social science theory with practical applications of forest planning
5. To promote effective resource stewardship on nonindustrial private forest, rural, and urban lands

Need 1

After much discussion, participants agreed that forest planning must synthesize human dimensions analysis in two distinct but equally important ways. First, social science data must be linked to biological and physical science information if the planner is to recognize the complex, interactive role that humans play in natural systems. Second, the planner must use information from a number of social science disciplines in the planning process to obtain the broadest possible perspective of human interaction with the natural world. Such synthesis will tell a more comprehensive story than has been told about the effects of policies and practices within a region.

Need 2

Forest Service managers at every level of agency activity are better understanding the need to move away from expert-based decisionmaking and towards the sharing of roles, power, and knowledge. Our public partners' lives continue to be influenced both directly and indirectly by efforts to sustain ecosystems whose functions are vital to stakeholders. Ecosystem management must, therefore, be a collaborative process that invites input from and involvement with all stakeholders. To facilitate such collaboration, we need to take steps that will ensure knowledge-based public participation.

Need 3

For decades, many have noticed that nonmarket values related to recreation, science, culture, and aesthetics are just as important as traditional, market-based values. As a result, conflicts are common among competing interests, and the values of different stakeholder groups are continuously changing. A shift to focus more on the importance of such values in forest management may help the manager to identify policy directions that benefit both natural resources and humans.

Need 4

Human dimensions information from a variety of earlier research has lessened the need to replicate studies and has invited a more complete understanding of complex social issues. However, human dimensions information gathered from social science inventory techniques is practically useless if it is not applicable to the geographic area being considered. Operationally, an HDF may best be limited to the scope and scale applicable to a national forest plan or a landscape assessment.

Need 5

Forest Service State and Private Forestry officials must focus their attention on community stewardship in forest-dependent rural areas. Collaborative and integrated community and resource stewardship is key to expanding any program of outreach education and information dissemination, as well as in the development of community stewardship indicators.

Advancements in Social Science Research Methods

In addition, to advance the usefulness of human dimensions information in forest planning, we identified five needs that can be met using current research methods, or methods yet to be developed

- Training of Forest Service personnel to gather human dimensions information
- Methods for continuous monitoring of the social environment
- Effective integration of present and future methodologies
- A comprehensive database of case studies showing successful application of social science methodologies
- A guide that provides information about the social assessment process

Need 6

Although the technical expertise is primarily within the purview of social scientists, forest planners familiar with the HDF concept will understand the processes by which social information is identified, collected, and analyzed. Such understanding will enable the planner to take a more informed and active role in the collection, analysis, and integration of human dimensions information.

Need 7

Over time, human values are continually changing as demographics shift both within and among regions. The social assessment can be an effective tool for tracking such changes and ensuring that decisions consider current social conditions. In addition, long-term data collection will allow ongoing analysis of a region's changing social environment.

Need 8

There are extensively tested methods for gathering social information, and each is effective in obtaining and analyzing a variety of data types. A complete social assessment will have considered information collected by a variety of methods, thereby allowing a more comprehensive and corroborating analysis of the social environment in space and time.

Need 9

Related to the need for integrating current and future methodologies is a need to identify completed case studies or assessments. Identification of successful and unsuccessful aspects of their use in earlier forest planning efforts will serve as valuable and useful lessons. Learning from documented experience will lead to continuing improvement in the collection and integration of social information.

Need 10

Several comprehensive social assessments have been conducted at the ecoregion level. However, managers also have identified the need for social assessments at smaller scales; e.g., the community level. Forest Service personnel in rural or urban communities have opportunities to play an active role, if not a lead role, in conducting such assessments. On-site personnel usually have greater knowledge of connections among planning issues and the social environment of an area, which allows them to make realistic and sensitive recommendations for management activities and gives them an improved ability to implement recommendations. Because few forest planners have a social science background, a guide to the nature of social assessment and the appropriate scope or scale of geographic analysis would allow them to take a more active role. Such local involvement does not preclude the need for trained social scientists, but a more active role by local planners would help ensure that issues unique to the area, and most likely understood best by those who work and live there, are adequately addressed.

Guiding Principles for a Human Dimensions Framework

Doing a better job of including social information within the decision-making processes may ultimately be the driving force behind successful application of the Forest Service mission of collaborative stewardship. It can help give voice to a broad range of potential stakeholders and invite them

into the planning process. Such an approach recognizes the importance of cultural diversity and the value of differing public views and attitudes. Done effectively, the social assessment explores not only how humans affect resources, but also how resource management affects humans.

Many types of social information are useful in making a comprehensive social assessment. Similarly, a wide array of methods is available for gathering such information. Generally, attempts to understand the social environment within a geographic region using unnecessary, limited information or methods will lead to inadequate and inaccurate estimates of the social climate. An HDF should be built from a social assessment that considers and uses all relevant information types and methods. It should provide guidance on how that information will increase understanding and guide forest management decisions.

For an HDF to be responsive to Forest Service social assessment needs, as well as the needs of an individual national forest, it should be composed according to fundamental principles that provide consistency across all levels of analysis. In conceptualizing the HDF, we identified 10 key principles.

Guiding principles for a human dimensions framework:

Principle 1. A prerequisite for integrating human dimensions information with biophysical information in ecosystem management is an understanding of the social environment of the affected region.

Principle 2. A social assessment should include information that is representative of all constituencies that have an interest or stake in the area or region.

Principle 3. The collection and analysis of social information should be a collaborative effort of forest planners and all potential stakeholders.

Principle 4. The social assessment should provide both an historical and a current description of the social environment and include predictions of future trends.

Principle 5. Information from diverse social science disciplines should be integrated in ways that allow the planner to explore the full extent of social conditions.

Principle 6. A variety of data sources, types, and collection methods should be used to synthesize social information.

Principle 7. Social information should illustrate the connections among theory, research, and practical managerial applications.

Principle 8. An HDF should be built from social information collected and analyzed on multiple scales.

Principle 9. An HDF should show the connections among specific social concepts, their relevant indicators, and agreed upon principles and guidelines.

Principle 10. An HDF should clearly show the relationships among resource issues, social assessment questions, and social science concepts and indicators.

These principles address several concerns, including identification of the role of social science information in Forest Service planning, the need to use information from multiple social science disciplines, and the special qualities an HDF must have to organize the information effectively.

The Role of Social Sciences in Land Management Planning

Principles 1 through 4 address the basic role of social sciences in Forest Service planning, policy, and decision-making processes.

Principle 1

Information collected by social science research is gathered from a variety of interrelated sources. These data sources cover the social and cultural units of a region; its demographics, economic structures, market forces, technology, political institutions; and the values and behaviors of stakeholders and other interested publics. Given the complex array of important social information available, it should be possible to thoroughly understand all aspects of the social environment that are relevant to specific ecosystem management planning issues.

Principle 2

This involves ensuring that individuals in all public sectors, not just those who happen to live in the local community, are recognized as stakeholders. Ecosystem management means different things to different people, and there is a growing diversity of people with a stake in how public resources are managed.

Principle 3

Ensuring the usefulness of social assessment in applied ecosystem management requires a clear understanding of resource challenges and policy issues. Stakeholders should be involved early in the process and make collaborative efforts to understand important problems and policies. Social science

is not decision-making; rather, it provides input for decision-making. All resource management decisions are inherently social and fundamentally political. Turning all issues into technical problems to be solved by a few biophysical scientists and forest planners is no longer a viable option.

Principle 4

The sociodemographic and socioeconomic character of a geographic region, as well as the attitudes and values of stakeholders there, may not be stable; over time they may change. Historical analysis of a social environment will provide clues to that character. In turn, an historical analysis also may provide insight to future issues.

Using Information from Multiple Social Science Disciplines

Principles 5 through 7 speak to the importance of incorporating social assessment indicators drawn from a variety of social science disciplines.

Principle 5

To understand the human dimension of ecosystems, the planner will need information from a variety of social science disciplines. The practice of ecosystem management must be consistent with the dynamics of human society and mindful of the effects humans have on the natural world. Participants in the social assessment may include psychologists, sociologists, economists, anthropologists, archaeologists, political scientists, geographic information systems (GIS) technologists, ecologists, historians, landscape architects, and others.

Principle 6

An effective synthesis of social information from the work of various social science disciplines requires the recognition that not all sociocultural information can be expressed in documents and databases. A variety of information sources should be explored. Both secondary and primary data will be necessary. In addition, both quantitative and qualitative data may be relevant to the analysis; e.g., quantitative indicators may not provide sufficient information about the political sensitivity of an issue, including which agencies and interest groups are involved. Qualitative data are necessary for a comprehensive analysis of the political environment. Finally, social information should include data from both new and proven collection methods. It may be helpful to formally catalogue successful case studies and develop a system for providing planners and managers with access to the data. By using various sources, types, and methods of data collection, the planner will be able to share with stakeholders the historical and current social contexts in which ecosystem management policies are established.

Principle 7

Often, stakeholders point to a perceived chasm between theoretical research and the ability to respond to actual needs identified by on-site managers and planners. Appropriate use of scientific data entails the communication of practical human dimensions information that will improve a manager's understanding of the social environment and lead him or her to better decision-making.

The Organizational Role of a Human Dimensions Framework

Principles 8 through 10 address the extent to which an HDF can organize social information and provide methods for gathering that information.

Principle 8

Biophysical scientists have developed a mapable, hierarchical classification of natural ecological units to facilitate the study of ecosystem functions. Such units consider similar patterns in physical features including soils, landform and topography, and climate. Ecosystem management must consider multiple scales—from large-area ecoregions to natural drainages and smaller areas. To account for similar, multilevel social environments, social scientists have developed a hierarchical means of assessing social conditions. In addition, the multiple social scales relevant to ecosystem management must consider the temporal dimension or recognize that human values and social conditions change over time. Social scientists say that within an HDF we can find guidelines for assessing the social environment in terms of trends across all relevant spatial and temporal scales.

Principle 9

Broad principles and guidelines facilitate management consistency across regions and over time, in that managers use a common means of data collection and processing when conducting individual assessments. Although there is not always a single correct interpretation of social or cultural data, or both, if social science concepts and their indicators are to be relevant, they should reflect a system of principles and guidelines generally agreed upon by various potential users and scientists; and they should focus on stated goals, strategic priorities, and desired outcomes.

Principle 10

In the context of ecosystem management, land management planning should begin with identification of important questions. To be most applicable to planning processes, an HDF should clearly show the connections between general

issues and relevant questions. Social science concepts and indicators relevant to the assessment also should be identified and connected to real issues and problems.

The Nature of Ecosystems

According to documents written for the Interior Columbia Basin Ecosystem Management Project (ICBEMP) in the Pacific Northwest, ecosystems are:

> places where all plants, animals, soils, waters, climate, people, and processes of life interact as a whole. They may be small, such as a rotting log, or large, such as an entire continent; smaller ecosystems are subsets of larger ones. All ecosystems have flows of things—organisms, energy, water, air, nutrients—moving among them. Ecosystems change over space and time, so it is not possible to draw a line around an ecosystem and try to keep it the same. Instead, managing ecosystems means understanding and working with the processes that cause ecosystems to vary and to change (Quigley and others 1996, p. 18).

Within this description, the authors intimate several important concepts (ICBEMP 1996). First, ecosystems are dynamic, evolutionary, and resilient. Current conditions have resulted from both natural and human historical events. They are constantly and naturally evolving in response to fire and floods, landslides and volcanic eruptions, shifts in climate, and other natural occurrences. Second, the links that exist within and among ecosystems can (and should) be studied at a variety of scales. Ecosystems may be small, but they ultimately are subsets of larger systems. It is important to recognize multilevel organization when trying to understand the dynamic nature of ecosystems. Third, ecosystems have biophysical, economic, and social limits. Given the evolving nature of ecosystems and the environmental elements that support them, human benefits ultimately are limited by the ecosystem's ability to meet human demands. Finally, we are limited in the extent to which we can predict changes in ecosystems. The wide variety of assumptions and uncertainties inherent in predicting ecosystems changes makes even the most sophisticated modeling approaches little more than educated guesses about how ecosystems will change over time.

Ecosystem Management

The dynamic, complex, limited, and uncertain nature of ecosystems and of human interactions with them have raised complex issues for those who are charged with managing them. Concerns about long-term sustainability have led land managers to adopt ecosystem management as a philosophy and guiding principle. Concerns have become so pervasive that at least 18 Federal agencies are now committed to the practice of ecosystem management (Morrissey and others 1994).

Definition and Principles of Ecosystem Management

Definitions of Ecosystem Management

While there is no common, universal definition of ecosystem management, the following are some definitions that have been offered:

- The careful and skillful use of ecological, economic, social, and managerial principles in managing land and resources (ecosystems) to produce, restore, or sustain ecosystem integrity and desired conditions, uses, products, values, and services over the long term (Overbay 1992).
- The strategy by which the full array of forest values and functions, in aggregate, is maintained at the landscape level. Coordinated management at the landscape level, including across ownerships, is an essential component (Society of American Foresters 1993).
- A strategy or plan to manage ecosystems for all associated organisms, as opposed to a strategy or plan for managing individual species (Forest Ecosystem Management Team 1993).
- The optimum integration of societal values and expectations, ecological potentials, and economic plus technological considerations (Everett and others 1994).
- A resource management system designed to maintain or enhance ecosystem health and productivity while producing essential commodities and other values to meet human needs and desires within the limits of socially, biologically, and economically acceptable risk (Berg and others 1993).
- Integrating scientific knowledge of ecological relationships within a complex sociopolitical and values framework toward the general goal of protecting native ecosystem integrity over the long term (Grumbine 1994).
- Integration of ecological, economic, and social principles to manage biological and physical systems in a manner that safeguards the ecological sustainability, natural diversity, and productivity of the landscape (Wood 1994).
- A collaborative process that strives to reconcile the promotion of economic opportunities and livable communities with the conservation of ecological integrity and biodiversity (Keystone Center 1996).
- Multiple-use management that integrates the needs of people with environmental values in such a way that the national forests and grasslands are maintained over time as diverse, productive, and sustained ecosystems (Driver and others 1996).

Whichever definition one may adopt, each shares the common theme of maintaining healthy ecological conditions while sustaining the production of those natural resources to which humans assign value.

Principles of Ecosystem Management

In a review of literature in the areas of conservation biology, ecosystem management, environmental management, adaptive management, and other areas, the authors identified several common principles of ecosystem management (Cortner and others 1996, Moote and others 1994)

- The first principle called for socially defined goals and management objectives. Goals and objectives should be stated explicitly in terms of desired future conditions and behaviors, rather than on deliverables like board feet of timber, total catch of fish, or recreation visitor days (Ecological Society of America 1996). However, the primary thrust of this principle is that such goals should be socially defined. Ecosystem management as described in the publication and the process of identifying desired future conditions ultimately reflects social values.
- The second principle calls for an integrated, holistic view of the function and structure of ecosystems. We recognize ecosystems as complex, dynamic systems of interrelated components that include social, political, economic, biological, and physical features. In any such system, the human species not only challenges sustainability, but also can play an important role in achieving it.
- The third principle calls on the manager to consider broader spatial and temporal scales during the analysis process. The appropriate scale should be determined for each ecosystem, based to a large degree on societal values and goals. However, increasing understanding of the scale of ecological processes at the genetic, species, and ecosystem levels requires reconciliation of both spatial and temporal scales (Ecological Society of America 1996). When considering spatial scales, the manager must recognize a number of ecological, political, generational, and ownership boundaries that may be relevant to long-term management of the resources (Cortner and others 1996). In addition, while management agencies must make short-term decisions; e.g., on a fiscal year basis, ecosystem management practices will be framed on time scales that reach beyond any human lifetime. The need for making short-term decisions within the context of long-term planning and commitment is of paramount importance (Ecological Society of America 1996).
- The fourth principle calls for collaborative decisionmaking. It asks the manager to recognize the need for input from a variety of individuals, agencies, and organizations. Considering the interests of all stakeholders requires open lines of communication and the continuing collaboration of social and biological scientists, land management agencies, and private interest groups.
- The fifth principle emphasizes the need for institutions to be adaptable to shifting social values and perceptions, as well as ecosystem components. Land management agencies, as well as the laws, policies, and management practices that govern land and resource uses, need to reflect changes in social values, environmental conditions, political pressures, available data, and knowledge (Cortner and others 1996). Similarly, social and biological scientists must consider a growing body of knowledge that changes—sometimes fundamentally—our understanding of ecosystem function and integrity. Management goals and strategies should be considered hypotheses that are continuously tested through monitoring. Using objective measures, the manager conducts monitoring progress to compare baseline with desired conditions, recognizing human limitations. Conventional management practices may be shown to affect the function and intensity of a complex ecosystem in unknown ways (Ecological Society of America 1996, Likens 1992).

These principles urge the land manager to view possibilities of ecosystem management as the worthy goal of maintaining healthy biological ecosystems. Effective ecosystem management is as much a social (Forest Ecosystem Management Team 1993) and political process (Cortner and Moote 1992) as it is a scientific process.

Human Dimensions in Ecosystem Management

In the ICBEMP, biophysical and social scientists presented a general planning model for ecosystem management (Quigley and others 1996). The described four primary activities are:

- Assessments of stakeholders and their questions about biophysical, social, and economic situations; potential tradeoffs and limitations; future conditions; and the element of risk
- Decisions regarding management goals in light of management alternatives, likely impacts of alternatives; preferred alternatives, and the selected alternative
- Implementation of decisions on the ground through established partnerships, publicity and participation plans, and adaptive management
- Monitoring biophysical outcomes, social and economic outcomes, and societal values and goals

As do other strategic models, this general planning model encourages monitoring throughout the planning process, which will allow the manager to make adjustments consistent with a changing environment. It emphasizes the inclusion of more than just biophysical information at all stages of the planning and management process.

Societal Trends Toward a Human Dimension in Ecosystem Management

The principles of ecosystem management and the ICBEMP general planning model expand on a long-established view of how America should manage her natural resources.

Traditionally, decisionmakers relied almost exclusively on information provided by resource managers with expertise in the biological and physical sciences. Political power regarding management of our natural resources was largely in the hands of land management agencies and industry. Recently, however, there has been a shift in philosophy about how land and resource management should proceed. Over the last four decades, this shift has led to passage of several Federal laws that have (a) expanded the view of natural resource management as a commodity-producing enterprise to one that recognizes a broader set of human values related to the resources; e.g., the Wilderness Act of 1964, the Wild and Scenic Rivers Act of 1968, and the Endangered Species Act of 1973; (b) directly considered human welfare as a condition of the overall natural environment; e.g., the Clear Air and Clean Water Acts; and (c) encouraged, and, in some cases, required public involvement in the planning process; e.g., National Environmental Protection Act of 1969, the National Forest Management Act of 1976.

Statutory action is only one way that changes in land and resource management practices are made. Social trends have become bellwethers of change, too. People want to know who has the authority to make decisions that affect America's natural resources; and their questions have raised the political stake of ecosystem management considerably. While Federal resource managers who have decision-making responsibilities represent all Americans, a growing number of citizens, special-interest groups, and others want a say in how our public lands and resources are managed. This power shift is evident to both agency managers and the constituent groups they serve.

External Social Factors

The need for human dimensions information has resulted from a growing diversity of values relevant to natural resource management. While inherently social, all such values represent widely divergent interests in management outcomes. Stankey and Clark (1992) identify several such interests. In the past, management of ecosystem components focused on forest and rangeland commodities; i.e., the value of timber, range, and minerals. With their role in market exchanges, commodity values were easily measured—monetarily. The public now is placing more importance on those values not so easily measured, including:

- Amenities found in lifestyle, scenery, wildlife, and nature
- Air and water quality
- Habitat conservation, sustainability, threatened and endangered species protection, and biodiversity
- Public uses such as subsistence, recreation, and tourism
- Spiritual renewal

In response to the vast amount of information now available about the finite and fragile nature of the global resource base, the public is increasingly attentive to management issues. Their concern, combined with the increasing importance of noncommodity values, has fostered both a desire and an expectation of greater public participation in natural resource management. In turn, greater public participation has spawned a proliferation of interest groups, each with its own vision of appropriate uses of the world's natural resources.

Such increased public attention has fostered a reluctance to accept ecosystem management expertise. While scientists and managers know how to grow trees, manage fish and wildlife populations, fight forest fires, and stabilize watersheds, they have less experience in and knowledge of managing human constituencies. A growing number of lawsuits about management practices challenge the manager-as-expert paradigm that drove the machinery of policymaking for nearly a century.

An overriding social trend inextricably linking humans to the natural resources on which they depend has heightened public interest in ecosystem management—more clearly now than in many generations. For most of the 20th century, the natural resource professions seemed to place humans outside of and apart from natural ecosystems. Our species was seen either as accidental victim or beneficiary of the natural or preordained rule of the natural world.

Internal Social Factors

While external factors have had significant effects on the dynamics of natural systems, changing attitudes within the land management agencies also has fueled the engine of change. For example, some employees within the Forest Service have begun to challenge traditional resource management. In surveys by the Association of Forest Service Employees for Environmental Ethics, a natural resource philosophy that emphasizes ecosystem protection over commodity production has become increasingly prominent (Brown and Harris 1992).

In a survey of 54 natural resource professionals, Schlager and Freimund (1997) identified barriers to implementing ecosystem management. The most common one was confusion about the meaning of ecosystem management (noted by more than 60 percent of the respondents). Nearly half (46 percent) cited fears of violating the Federal Advisory Committee Act; fears that often result in cancellation of public participation meetings to avoid such violations. Other barriers included the difficulty of interorganizational coordination and artificial political boundaries, perceived threats to private interests, and institutional culture, attitudes, and structure. Cortner and others (1996) identified additional institutional barriers to ecosystem management within Federal land management agencies, including the Forest Service: (a) the constraining nature of existing laws, policies, and regulations in implementation of ecosystem management practices; (b) the

unknown nature and effects of institutional mechanisms for managing across jurisdictions; (c) the potential necessity for both internal organizational change and new relations among resource management agencies and the public (whose support for ecosystem management is, as yet, relatively unknown); (d) the need to reexamine the theories underlying ecosystem management; and (e) the inadequacy of current research methodologies for examining institutional questions about ecosystem management goals and objectives.

These barriers, both within the Forest Service and among its constituents, have led to the growing perception that formal consideration of a social or human dimension to natural resource management is appropriate. The public is demanding information about and participation in the decision-making process.

What is Meant by Human Dimensions Information

The use of human dimensions information in resource management is not new. Managers' personal encounters with forest visitors or at public meetings and open houses, as well as the information available in any Forest Service office, all contribute to the information pool. Nonetheless, the linkage of human needs, desires, and appetites to natural resource decisions has generally been thought too inexact to be used in making science-based decision-making. There is a growing emphasis on the science of human participation in ecosystem processes. Integrating social science information into the decision-making process and weighing it equally with information from the biological and physical sciences produce balanced solutions. Human dimensions inquiry has been described as seeking to understand the human demands on, values and perceptions of, and interactions with ecosystems; and a means of integrating those into ecosystem-related policy, programs, and management (USDA Forest Service 1994).

Information about the human dimensions of ecosystem management considers people as a part of ecosystems. Human needs, perceptions, beliefs, values, and behaviors have important influences and will continue to have influences well into the future.

Several kinds of human dimensions information are relevant to ecosystem management. Prominent among them are demands—consumptive and nonconsumptive; onsite and offsite; individual, collective, and global community; and those that serve current and future human needs for raw materials, experiences, employment, and ecosystem conditions. We express our demands through both market and nonmarket institutions and by monetary and nonmonetary means. Our needs stem from individuals, communities, and societies. As well as making these demands of the resources that sustain us, we also assign them human values and perceptions—our attitudes, moral beliefs, interpretations, and political positions are based on and form the foundation of human culture. The natural environment affects a society's belief system and world view, which in turn affect individual and community management of the environment. In addition to demands, values, and perceptions, we also bring to the natural world a complex of interactions—we affect ecosystems, and ecosystems affect us. Our harvesting, grazing, mining, development, road building, and many other human activities bring tangible effects. Floods, hurricanes, droughts, earthquakes, famines, and other catastrophic natural phenomena may result in part from human activity.

Benefits of Collecting Social Information

It has become apparent that the biological and physical sciences are not capable of addressing all natural resource management issues. Using social science in managing ecosystems can provide several benefits (Decker and others 1996, Manfredo and others 1996). For example, a systematic collection of social information can help describe the social environment in which natural resource management actions occur. Social information may be used to identify the needs, interests, and expectations of the publics we serve. In turn, social information can enhance communications, allowing us to be more responsive to human needs.

The information social science provides also can enhance our ability to anticipate and understand conflicting interests and controversies. Our recognition of human dimensions in ecosystem management can help ensure fairness and balance in decision-making by having us attend to the rigors of scientific inquiry; i.e., reliability, validity, representativeness, and generalizability. Social information can reveal the values and potential biases of natural resource managers, which may influence their decision-making. Finally, gathering human dimensions information can be a cost-effective means of reducing potential controversy. Failure to do so may increase management costs over the long term and also increase cynicism, heighten frustrations and distrust, and increase public reliance on lawsuits and legislation (Forest Ecosystem Management Team 1993). Generally, the overriding benefits of systematically collecting social data are improved ecosystem management and policymaking.

Integrating Social Information into Ecosystem Management

Collecting the information necessary for a comprehensive social assessment is only one step toward sustainable ecosystem management. Resource managers everywhere are asking how they should integrate social information into

plans for managing biophysical systems. Demand for natural resources, widely diverse values and expectations, as well as differences of opinion on appropriate use, have led to innumerable conflicts. The fragmented nature of land management jurisdictions, together with the many complex and often ambiguous regulations, often has served only to exacerbate such conflicts. The integration and use of social data in planning and decisionmaking are increasingly seen as valuable means of resolving conflicts before they are taken to the judicial or legislative arena.

While the integration of scientific findings to accomplish ecosystem management is not altogether new, practitioners have focused primarily on the interdisciplinary work of biological and physical scientists; e.g., foresters, wildlife biologists, and aquatic professionals. When considered seriously, social data usually were only used in the economic analysis of management alternatives.

There are several possible explanations for our failure to use social data to the fullest extent. The most obvious is a lack of recognition that the social sciences can play a critically important role in forest planning. Indeed, many maintain that ecosystem management is primarily within the domain of biological and physical scientists. A second reason, and one that may further explain its lack of acceptance, is that social science concepts are considered fundamentally theoretical and not useful to the same extent as results produced by more tangible scientific inquiry.

A broadly accepted set of guidelines and procedures, within a grounded conceptual framework, has not been developed and extensively tested. In addition, on the rare occasion when social data successfully have been integrated into management strategies, there was little communication across forest regions about how the methods could be more generally applied. Conferences and scientific journals are now addressing the need to incorporate social science methods into the planning process. Regrettably, those responding most often have been other social scientists and academicians who can only try to transfer information and technology to ecosystem managers. Progress on developing an HDF has been slow.

The overriding concern of policymakers, managers, researchers, and citizens has been for finding appropriate ways to identify, measure, evaluate, understand, and incorporate into decision-making the diverse values, interests, and uses that society has for forest resources (Clark and others 1999).

Integrated Planning and Land Management

Ecosystem management must focus on sharing and coordinating the values and inputs of agencies, publics, and other interests when conceiving, designing, and implementing policies, programs, or projects (Mitchell 1986). Successful integration invites diverse perspectives on an issue, perspectives that rely on information from scientists, managers, and citizens across a variety of spatial and temporal scales.

In describing integrated approaches to resource planning and management, Lang (1986) envisioned two dimensions. First, integrative management must be strategic. It is a dynamic process, not an end, which recognizes the ecosystem as a complex and ever-changing whole. It focuses on action by addressing the needs of forest policy implementation at each stage of planning and includes in the planning process all who have a stake in the health and sustainability of the ecosystem. It focuses on specific issues and concerns rather than generalities, and it is adaptable. Integration is ongoing. Finally, strategic integration helps build constituencies who understand their stake in the ecosystem and the integral part they play in the management process.

The second dimension of integrative management (Lang 1986) is the interactive nature of implementation. All stakeholders have an opportunity to participate in the decision-making process, all have access to relevant information, and each participant is recognized for his or her contribution. The process invites individuals and communities of interest to consider how competing values foster conflict in natural resource management. Interactivity lends legitimacy to the process of mutual understanding and makes possible the necessary changes among stakeholders and user groups.

Integrated management also must provide a broadened view of the problem or issue under consideration. The biophysical and social aspects must be given appropriate weight. Recognizing interconnectedness enhances the interpretation of data.

How Can Integration be Achieved

Integrating social and biophysical information is a process of considering multiple perspectives; e.g., the organizational, political, and personal, which are drawn from all stakeholders. Achieving integration always will require sincere and considerate activity, even though certain barriers to understanding may remain. For example, many planners have used a technical model of planning, rather than a strategic one (Lang 1986). Very few managers are educated in either integrative planning or the social sciences, even fewer in both.

Despite these obstacles, successful integration of social science data with ecosystem management practices is possible. It will be a deliberate process fostered by a desire

to incorporate both social and biophysical information, a synthesis of input begun with a systematic process for identifying and collecting social information.

Using Stakeholder Input into Ecosystem Management

Planning ecosystem management from multiple perspectives requires the participation of scientists and planners representing various disciplines. The National Environmental Policy Act of 1969 requires an interaction of individuals from multiple disciplines for the purpose of ensuring integration of natural and social sciences in decision-making. This requirement has led to the creation of ad hoc interdisciplinary teams (IDTs) to ensure that individuals from a variety of disciplines contribute knowledge from their respective fields; e.g., wildlife biology, forestry, and economics. An IDT considers tradeoffs that will be necessary to achieve multiple goals and the effects that management activities would have on sustainability.

Whereas IDTs strive to integrate and apply natural resource and social science information, Clark and others (1999) identified a number of problems they may encounter along the way. First, scientists may seem sometimes to be advocating only their own disciplinary interest. Such provinciality, while not always inappropriate, may hinder understanding and the necessary consideration of other points of view. Second, one person may not adequately represent the theoretical and methodological perspectives of a given discipline. For example, one social scientist probably will not have expertise in all the social sciences; many may be necessary. Third, unless an IDT has set procedures by which its members can successfully interact, as well as common themes that will encourage goal-oriented interaction, problem solving may not represent all relevant perspectives. For example, one group may perceive a problem as purely biophysical while others perceive it as social, temporal, or spatial. Finally, an IDT may suffer internal problems such as those that occur when one group holds a disproportionate amount of power and influence in the decision-making process.

Although organizing diverse stakeholders through IDTs may be difficult, problems usually result from failures in leadership rather than the team process. Up-front steps to recognize and avoid such problems will always be necessary. Clark and others (1999) looked at previous approaches to interdisciplinary teamwork to determine what successful integration of social and biophysical information may look like. Their research highlighted coordination, environmental modeling, and collaboration.

Coordination requires more than simply engaging several individuals or groups in work on a particular problem. The IDT members may require only periodic interaction with other participants. Individuals from diverse disciplines must make deliberate efforts to apprize other team members of how implementation of their ideas might affect other ecosystem components. Social and biophysical components are within the province of each team member.

Environmental modeling, or simulation, allows an IDT to more easily hypothesize how various social and biophysical components interact and how they are influenced. Modeling social and biophysical relationships allows team members to view an ecosystem management problem through the lens of cross-discipline complexity.

Finally, through collaboration, two or more stakeholders work together synergistically. They use both social and biophysical sciences to address and respond to ecosystem management challenges.

In summary, successful integration of the social and biophysical sciences will require all participants to understand the challenges and follow the IDT process. The team leader will facilitate shared perspectives and emphasize the need to understand how social and biophysical information must both be used to solve ecosystem management problems. Such understanding will be enhanced by technologies for simulation and modeling; e.g., GIS. Collaboration among IDT members with expertise in both social and biophysical sciences can improve planning when the issues are complex and also enhance understanding among diverse stakeholder groups with interests in management outcomes (Clark and others 1999).

Chapter 2

The Role of Social Assessment in Integrating Human Dimensions Information

A number of human dimensions processes are relevant to ecosystem management planning. These include public involvement, environmental justice analyses, social impact assessment, economic impact assessment, supply and demand analyses, and input/output modeling. Although the HDF described in chapter 3 identifies social concepts and indicators appropriate for a variety of human dimensions processes, here we focus on social assessment.

The Nature of Social Assessments

The social assessment is an essential component of ecosystem management. Biophysical assessments explore ecological conditions, current and desired, as well as an area's particular needs. Similarly, a special assessment should explore social conditions in a region—current and desired—as well as the particular needs of residents and visitors.

Social Assessment

The social assessment process can take many forms and help managers achieve a number of goals and objectives. The guidelines presented here describe ways that forest planners can collect and use social information at a variety of scales. Social assessment is a means of collecting data and performing analysis to generate information about (1) social structure, (2) social processes, and (3) social changes in a given social structure and process (Bitterroot Social Research Institute 1994).

The primary purpose of a social assessment is to provide the basis for identifying and forecasting consequences of possible projects or policies. Human communities interact in complex ways with ecosystems and their management. By understanding historical and contemporary society, we can better understand the connection between humans and the natural environment. Generally, social assessments examine the social, political, economic, and cultural conditions at various geographic and temporal scales.

Although a social assessment does not constitute a specific decision, it can provide data that are useful in the decision-making process. Nonetheless, it is important to distinguish between social assessment and social impact analysis (SIA). An SIA forecasts social impacts that may result from implementation of a forest planning alternative or a more specific project. It has been described as a component of the environmental analysis process in which social science information and methodologies are used to evaluate or project how current programs or proposed actions may affect humans (FSH 1909.17).

An SIA is conducted in compliance with such laws as the National Environmental Protection Act (NEPA) and is well grounded in literature (Burdge 1994, Finsterbusch and others 1983). Whereas an SIA focuses on the possible effects of specific management actions, a social assessment considers the social environment and provides a variety of information for more general purposes:

1. To identify social trends or patterns related to changes in population and other demographics, resource uses, recreation, and tourism
2. To locate and describe subcultures within a region
3. To understand the capacities and organization of a community, including its cohesion (unity and cooperation), how members of the community respond to problems (collectively and as individuals), and infrastructure flexibility
4. To identify regulatory and societal norms of behavior within a community
5. To recognize perceptions of key ecosystem issues
6. To acknowledge public opinion regarding management options
7. To identify and understand the nature of stakeholder groups and other interested publics
8. To develop methods of communication among stakeholders and other interested publics
9. To identify opinion leaders within a community
10. To use key economic indicators, including the region's economic diversity, employment rates and types, income levels, and resiliency
11. To understand how change, over time, is reflected in the indicators used to monitor social conditions

Such information can provide a more thorough understanding of a geographic region, which will be useful in forest planning; and it will furnish baseline information for assessing the possible effects of alternative policies. Collaborative social assessments recognize that the need for information and data can be met by using a variety of knowledge sources, methods, and processes. Although systematic, consistent guidance for conducting social assessments across regions has not been developed, there is a growing interest in ways to organize assessments consistently across agencies and regions.

The Role of Social Assessment in Integration

The use of social assessment in policymaking and planning efforts can underscore the importance of integrating social and biophysical sciences. A social assessment will provide baseline information that forest planners can use to connect social conditions to specific ecosystem management issues. Current and historical analyses of the social environment allow planners to better understand how people relate to the natural world. More specifically, understanding historical and current social conditions fosters multiple perspectives, which are key to ecosystem management. Resource planning traditionally has been seen as technical rationality. Lang (1986) suggested that a technical perspective:

1. Assumes there are specific technical solutions to identified problems
2. Assumes that problems, though complex, can be separated and solved as smaller problems, which, when recombined, can be used to resolve the larger issue
3. Relies on data and system models for inquiry
4. Focuses on cause-and-effect relationships
5. Assumes that the analyst can be unbiased by personal values when considering facts
6. Focuses on quantification of information while assuming that the objectivity of numbers reflects reality and is required for rational dialogue
7. Attempts to provide optimum solutions to problems
8. Disregards individual needs and preferences

A technical perspective is useful when looking at ecosystem management issues. However, integrative management must consider multiple perspectives. The social assessment makes it possible to consider other perspectives and incorporate other participants into the planning process. Such perspectives may offer organizational, political, or personal points of view.

The organizational perspective considers reciprocal relationships among agency officials, the ecosystem management process itself, and other key players who have a stake or interest in management outcomes. The organization's point of view is important because key players use social power to influence ecosystem management policy and practices, as well as the perceptions and behaviors of others.

The political perspective focuses on a total complex of human relations and how they affect the allocation of resources. More specifically, it considers the views of elected officials and political appointees. The public interest is a focus of genuine concern, rather than some abstraction worthy of only passing interest. The time horizon surrounding a political perspective is relatively short—typically tied to the time elected officials and appointees serve. From a political point of view, ecosystem management may be only a tool for short-term solutions that will benefit stakeholders who currently have political influence. Intuition as much as hard data is key to political viability.

The personal perspective considers attitudes, beliefs, knowledge, and values of individuals within the larger social fabric. Personal points of view are within the province not only of the general public, but also of the leadership community.

Although technical, organizational, political, and personal perspectives share some points of view, and oftentimes conflict, all are necessary when integrating social information into ecosystem management processes. They represent a broad constituency of stakeholders and others. A holistic approach to ecosystem management invites the understanding of all fundamental ecosystem components, both human and biophysical. Entire ecosystems depend for their survival and productivity on society's ability to address individual ecosystem management problems and issues (Clark and others 1999).

The social assessment facilitates an integration of biophysical and social information into ecosystem management policies and practices. It can enable managers to better understand and evaluate human activities or indifferences, not only on an ecological level but also from cultural, social, economic, organizational, political, and personal perspectives. It can help bridge the gap between social scientists and resource managers by helping connect social theories with real-world needs. By collaborating with a variety of stakeholders, managers who use social assessments can promote dialogue among those directly responsible for managing the ecosystem and the individuals and organizations with a stake in how they are managed (Jensen and others 1999). Such dialogue can lead to an exchange of information about values, an opportunity to resolve conflicts, and a robust understanding of alternative management proposals.

The Importance of Scale in Social Assessment

An important consideration in conducting social assessments is the scale at which information is collected. The HDF addresses scale in three ways: spatial, social, and temporal.

The Spatial Scale of Analysis; Focusing on Place

Typically, when issues of scale are raised during ecosystem analysis, spatial scale is the first mentioned. The researcher begins by identifying the specific ecological unit to which the ecosystem management issues and problems pertain. According to ECOMAP (Cleland and others 1997), a

Federal interagency team charged with identifying a hierarchy of ecological units, "[T]he primary purpose for delineating ecological units is to identify land and water areas at different levels of resolution that have similar capabilities and potentials for management." Below is one list of planning and analysis scales (Driver and others 1996, Stankey and Clark 1992):

1. **Land unit**—where project and other management-area planning and analysis occur. Measured in units up to thousands of acres, analysis at this scale may first consider sites, stands, and drainages. For each, questions of management effects are posed.
   a. **Site**—a relatively small area of only a few square yards or a few trees. How will site changes; e.g., increased downed woody material, affect present or future recreational uses?
   b. **Stands**—relatively small units of land, around 100 acres, which include a variety of species and maintain natural levels of production and resilience to stress; typically defined by foresters, are these units of analysis relevant to the public?
   c. **Drainages**—will range from hundreds to thousands of acres; drainage boundaries are defined by topography; drainage functions have significant potential effects on human behavior; and what are the cumulative effects of changes in drainages on recreation and resource-dependent communities?
2. **Landscape**—a level of analysis generally defined by forest- or area-wide planning. Landscape is often defined by watershed boundaries and multiple drainages. It ranges from 100 to 100,000 acres, containing many stands and sites. What mix of forest attributes and conditions is acceptable to the human community at the landscape level?
3. **Ecoregion**—the largest geographic level of ecosystem management planning, the analysis of which may first consider three hierarchical levels; regional, continental, and global. The potential need for international planning is inherent at the ecoregion scale. Ecoregions are measured in ten-thousand- to hundred-thousand-square miles.
   a. **Regional**—large-scale areas (several thousand square miles) that may involve multiple political and administrative jurisdictions, as well as varying ecological conditions; how do changes at the ecoregional level influence the range of social and environmental diversity sought by local communities, regional populations, and tourists?
   b. **Continental**—includes large areas that may cross one or more national boundaries; several environmental, political, and cultural systems may be included, as well as several ecoregions; what are the physical, social, and economic factors that contribute to advantages that one region may hold over another?
   c. **Global**—the largest level of analysis, the global extends beyond all political boundaries to encompass a variety of legal, economic, and cultural systems; what different systems of stewardship and property rights traditional to each culture may be appropriate when managing natural resources in the U.S.?

Whereas each of these levels of planning and analysis are defined by ecological or physical boundaries and were developed primarily for biophysical assessments, they also have usefulness in social assessment. A special Forest Service task force reached several conclusions regarding the use of social information in ecosystem management (Driver and others 1996). First, it found that a corresponding, though not necessarily equal, hierarchical classification would be necessary for social analysis to be relevant. Second, while information about biophysically defined units may be relevant to the assessment of some social conditions, the converse is not always true. Most social variables do not relate directly to biophysical units. This is due to human mobility and production capabilities, as well as the diverse values humans hold toward land areas other than those nearest them. Finally, the social variables necessary for an assessment may vary across levels of analysis. For example, interactions among stakeholder groups at a landscape scale may differ significantly from those at a regional scale.

For these reasons, we cannot expect a geographic scale for conducting social assessments to coincide with an ecological-unit scale. When relevant social variables can be analyzed using ecological units, that scale is applicable; but when ecological units are not applicable, a hierarchy for social analysis that parallels the hierarchy for ecological units can be devised. Driver and others (1996) suggested four levels of social analysis for ecosystem management:

1. **Small/Local**—site, project, and local community
2. **Medium/Multicommunity—**medium-sized natural ecosystem; national forest
3. **Large/Regional**—ecoregion, large natural ecosystem; may include all or parts of several national forests
4. **Very Large/National—**several regions, may cross political boundaries to include international or global management issues.

These levels are not mutually exclusive; in many cases, social analyses should be conducted at more than one level, given the scope of an ecosystem management issue or problem.

The Social Scale

Human society is organized by patterns of attitude, behavior, knowledge, motivation, belief, expectation, and preference. Much of the information necessary for social-scale analysis could be grouped into a common, hierarchical arrangement of societal elements (Clark and others 1999, Stankey and Clark 1992):

1. **Individuals**—the basic unit of social analysis, often representing general citizens, the family, and members of organizations; what is the range of knowledge about ecological processes that individuals hold, and what are the values and attitudes that influence and are influenced by that knowledge? How are individuals influenced by ecosystem management decisions?
2. **Groups**—informal associations of individuals other than families that form around social networks and shared interests; how do ecosystem management programs unite or divide groups with various interests in natural areas?
3. **Organizations—**groups connected formally by work and professional relationships as well as political interests; these groups often form as a result of common concerns related to specific issues, creating communities of interest; how do activities of ecosystem managers produce coalitions among different organizations, and how does this affect the nature of social and political power that ultimately influences ecosystem management decisions?
4. **Communities**—urban, suburban, and rural communities of people; the concept of community may transcend individuals and groups to include a complex social system and a sense of shared identity among community members; how do ecosystem management activities influence social structures and the variety of institutions that provide a sense of order in a community; e.g., the effects of declining harvest levels on social services in forest-dependent communities?
5. **Populations—**an aggregate of communities, organizations, groups, and individuals that may include a diversity of social, economic, and political structures; the demographic and socioeconomic structure of populations and projected changes in such structures raise important questions about desired uses (and nonuses) of natural areas, as well as the values that drive decisions about those uses; what are the trends in population structure variables such as age, education, and residence and how are such trends connected to resource values and preferred uses?

The Temporal Scale

The third scale of social analysis is temporal. Human society is dynamic, as are the individuals, groups, organizations, communities, and populations of which it is composed. The effects of ecosystem management decisions on society as a whole are therefore also subject to changing attitudes, values, preferences, and dependence on the resources that support it. Historical data are useful in describing the current social environment of a region. By analyzing past and present, the social scientist may begin identifying potential trends or changes in a region's social environment.

Interrelationships among Scale Types

Stankey and Clark (1992) and Clark and others (1999) discuss links between places and people by connecting them with the ecological processes and activities/institutions that affect them. Figure 1 (adapted from Stankey and Clark 1992) illustrates the interactions of people, places, and processes over time.

This illustration emphasizes relationships forged within an ecosystem management context represented by the overlapping sections of people, places, and processes. Social and ecological processes connect people to the ecosystem. For example, resource allocation, planning, and management activities (prescriptive processes); collection and dissemination of information through education, marketing, research and development, as well as monitoring and evaluation (information processes); policy formation, judicial and political activity, and mediation (conflict resolution); the nature and evolution of values, attitudes, and perceptions of stakeholders (social and psychological processes); and succession, disturbance, and migration (ecological processes) (Stankey and Clarke 1992).

The Process of Conducting Social Assessments

Whereas much has been written about the process of conducting a social assessment, there are, in general, six steps:

Step 1. Establish the Purpose and Scope of the Social Assessment

Before considering research design, sampling, and data collection, the social scientist first must establish purpose and scope. This step drives social assessment planning by identifying relevant issues and the population affected by the issues. Purpose and scope govern decisions that will be made in all subsequent steps.

Step 2. Determine Relevant Characteristics of the Social Environment

The objective of this step is to identify information that is relevant to the assessment's purpose and scope. Relevancy will depend on what ecosystem management issues are identified in step 1, as well as specific questions regarding those issues.

Step 3. Determine Appropriate Methods for Conducting the Social Assessment

The approach taken when collecting social information depends largely on the type of data needed. Distinctions among data types can take two forms (Cordell and others 1999). First, data may be categorized by source, as either

primary or secondary. Primary data are generated and compiled over the course of an original study. This type of data is useful in addressing a specific issue or responding to an identified information need. Secondary data come from established sources and probably were collected for other purposes. They will, however, provide information relevant to a proposed project. Social assessments often include both primary and secondary data.

Second, social data can be categorized by the method used to record it; i.e., quantitative or qualitative. Quantitative data are gathered along continuous numerical scales that may be analyzed using descriptive or inferential statistical techniques. Such data may include number of recreation trips per year or percent of people holding particular attitudes toward an ecosystem management policy. Qualitative data are usually verbal responses to issue statements. The latter are not statistically analyzed; rather, they are summarized and interpreted by the researcher. Primary and secondary data can be either quantitative or qualitative. The following are research methods common to primary and secondary data collection. Although not an exhaustive list, it represents those methods most useful when doing a social assessment of a region or community.

Outline of common research methods and techniques for collecting primary and secondary data applicable to a social assessment follows:

Source	Methods
Primary	1. Survey research
	a. Self-administered questionnaire
	b. Telephone survey
	c. Personal interview
	2. Group interviews
	a. Brainstorming
	b. Nominal group technique
	c. Delphi technique
	d. Natural and formal field interviews
Secondary	3. Statistical and nonstatistical documentary data
	4. Historical analysis
	5. Literature search for previous research

Note: Each of these data-collection techniques may be used to collect either quantitative or qualitative data. However, quantitative data usually are gathered by self-administered questionnaires and telephone surveys, whereas qualitative data usually are gathered through individual and group interviews.

Step 4. Select a Sample from the Human Population of Interest

The focus of a social assessment is on human populations and geographical settings. As we noted in the preceding chapter, four levels of social analysis may be used in ecosystem management planning: small/local, medium/multi-community, large/regional, and very large/national (Driver and others 1996). The local includes an individual community and the rural area surrounding it. A local area probably will be smaller than a county. The multi-community includes two or more communities and may span more than one county. The regional may include significant parts of a State or, possibly, several States. The national will include several States, span more than one region, or may encompass all regions and States. Social assessments at a variety of geographic scales may be needed; and to determine the appropriate level a researcher must consider both population scope and assessment objective(s).

When the social scientist has determined the population(s) of interest and social assessment objectives, he or she must then choose an appropriate unit of analysis by discerning how stakeholders and other interested publics organize themselves; i.e., in terms of individual, group, organization, community, or population. The individual is an especially important consideration because a person's values and attitudes toward ecosystem management are affected by management decisions. The individual unit of analysis may also include households. The group includes informal associations of individuals that are built around social networks and shared interests. The organization includes groups that are formally connected by work or professional relationships as well as by political interests. Groups represent reciprocal human relationships with ecosystems, the social and political power influencing those relationships, and ultimately the decision we make in managing ecosystems. The community includes urban, suburban, and rural peoples; and a population includes a broad collection of communities, organizations, groups, and individuals, as well as a diversity of social, economic, and political structures. Any or all of these units of analysis may be relevant to a social assessment. For example, examining the role that natural resource policy plays in the economy of a community will require more than the identification of specific attitudes and behaviors.

Sampling a population of interest involves the selection of individuals or households when the information is to be obtained from primary data sources. The kind of sample will depend on the goals and objectives of the social assessment. For example, some probability sampling techniques have been designed to draw samples that are representative of a given population of interest. Generally, such techniques are used when the data to be collected are of a quantitative nature, and the assessment goals are to draw inferences about the population of interest. Purposive samples (samples

designed to identify specific types of respondents) are used when qualitative data are gathered from individual and group interviews.

Step 5. Collect Data Needed to Describe the Social Characteristics from Step 2

Once the purpose of an assessment is clear, data collection methods can be identified and developed; and when collection of primary data is necessary, the social scientist selects a sample and begins the collection process. The researcher must take appropriate steps to eliminate any suggestion of bias or invalid results. Several texts that specifically describe the process necessary for each methodology may be consulted when collecting primary data. The researcher also may consider using consultants who have experience with survey techniques. However, the use of consultants should not preclude the manager's need to understand the collection process. The more a manager understands the appropriate processes, the more involved he or she can be. Specific knowledge about the study area and the issues are likely to enhance the assessment's quality.

Step 6. Analyze the Information, Adequately Document the Work Done, Describe Implications, and Prepare Appropriate Reports

Generally, analysis of data will require the time of an individual familiar with statistical techniques and analysis, as well as interpretation of qualitative data. However, a Forest Service manager familiar with the development and administration of the assessment will be able to contribute that expertise to accurate analysis and interpretation of the data. Data analysis should be tied to the overall goals and objectives of the assessment. A variety of statistical software packages are available to simplify quantitative data analysis.

Chapter 3

The Human Dimensions Framework: Determining Relevant Characteristics of the Social Environment

This chapter presents the HDF and a description of steps taken to conduct a social assessment. It also identifies relevant characteristics of the social environment that are to be studied in the assessment process.

The Human Dimensions Framework

The HDF is a question-based tool that uses social assessment questions, social data that are collected to answer those questions, and appropriate methods of data collection. Eight questions address primary issues that the social scientist must consider:

1. What are the human uses of natural resources in the assessment area?
2. Who are users of natural resources in the assessment area?
3. What are the social and economic characteristics of the geographic region surrounding the assessment area?
4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
5. What is the nature of relationships among nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
6. What are the relevant stakeholder and public perceptions related to ecosystem management issues driving the social assessment?
7. What do stakeholders and the public value about the natural environment, natural resources of that environment, and the uses of those resources?
8. What recent social and economic trends in the affected regions are relevant to management of the ecosystem?

We identified five dimensions of social data that are relevant to the assessment process: historical background, population characteristics, community resources, social organizational structures and processes, and public perceptions and well-being. Several concepts pertinent to those dimensions are used as indicators of responses to the social assessment questions. Together, they form a matrix, which we identify as the HDF.

Using the Human Dimensions Framework

From the user's point of view the HDF is driven by the preceding eight social assessment questions. As referred to her, users are those charged who conduct the social assessment; e.g., forest planners. Although users may examine concepts and indicators relative to those questions, the HDF described on the next several pages begins with social assessment questions. Ideally, using the HDF involves the following steps:

1. Identify pertinent social assessment question(s) from the (list 1 through 8) matrix.
2. Identify the concepts and indicators that will provide information about the social assessment question (represented by * within the matrix).
3. Go to the appendix page noted within the matrix. Each appendix page provides a description of an indicator, the concept it represents, and the method of measuring the indicator.
4. Consult chapters 4 through 7 for more specific discussion of how to use each data collection method.

The Human Dimensions Framework for Guiding Assessments

Dimension I. Historical Background

Concepts and Indicators	Appendix Page	Social Assessment Questions							
		A	B	C	D	E	F	G	H
Concept Ia. Historical Experience									
Community origin	90	*			*	*			*
Recent or current experience with ecosystem management issues	90	*			*	*		*	*
Names and characteristics of influential persons, groups, or families	91		*		*				
Distinctive characteristics of the community that are strongly valued locally	91				*			*	
Prominent stakeholder groups with a history in the area	92		*		*	*			

Dimension II. Population Characteristics

Concept IIa. Cultural Characteristics									
Ethnicity/race	92			*	*				*
Language diversity	92			*	*				*
Religious affiliations and practices	93	*	*	*	*				*
Property ownership	93	*	*	*	*				*
Length of residence	93			*					*
Cultural-based values	94			*	*	*	*	*	*
Concept IIb. Population and Demographics									
Total population	94			*					*
Changes in population size	95			*					*
Residential distribution	95	*	*	*	*				*
Age distribution	95			*					*
Gender distribution	95			*					*
Education	96			*					*
Household composition	96			*					*
Population and demographics by ethnicity	96		*	*					*
Concept IIc. Economic and Employment Characteristics									
Employment levels	97			*					*
Occupational diversity	97		*	*		*			*
Distribution of employment by sector	97		*	*		*			*
Labor force participation by groups	98		*	*		*			*
Household income	98			*					*
Poverty	98			*					*
Wealth	99			*					*
Public assistance and welfare	99			*					*
Economic and employment characteristics by ethnicity	99			*					*

Dimension III. Community Resources

Concepts and Indicators	Appendix Page	Social Assessment Questions							
		A	B	C	D	E	F	G	H
Concept IIIa. Facilities and Services									
Current levels of public facilities and service	100			*		*			
Current levels of private facilities and service	100			*		*			
Concept IIIb. Spatial Relationships and Ecosystem Dependency									
Ecosystem classifications	101				*	*			
Water resources	101				*	*			
Energy and mineral resources	101				*	*			
Wildlife abundance	101				*	*			
Recreation resources	102				*	*			
Public land classifications	102				*	*			
Private land classifications	102				*	*			
Resource uses	103				*	*			
Population density	103				*	*			
Migration	103				*	*			
Settlement patterns	104				*	*			
Land tenure	104				*	*			
Dimension IV. Social Organization Structures and Processes									
Concept IVa. Economic Organization									
Economic diversity	105	*	*	*	*	*			*
Export dependency	105			*					*
Small businesses	105			*					*
Shopping patterns	106			*					*
House values	106			*					*
Land values	106			*					*
Retail sales	107			*					*
Concept IVb. Governmental Structure									
Local government positions	107				*				
Formalization of planning department	107				*				
Connections to outside agencies	108				*				
Relationships among local jurisdictions	108				*				
Concept IVc. Social Diversity									
Gender distribution	108			*					*
Ethnic, religious, and cultural diversity	109			*	*				*
Residential stability	109			*	*				*
Voluntary organizations and membership	109		*	*	*				*
Factions and special interest groups	110		*	*	*				*

Dimension IV. Social Organization Structures and Processes (continued)

Concepts and Indicators	Appendix Page	Social Assessment Questions A	B	C	D	E	F	G	H
		Concept IVc. Social Diversity (cont.)							
Values and beliefs related to natural resources issues	110				*				*
Attitudes toward natural resources	110				*				*
Transient populations	111			*					*
Civil rights	111			*					*
		Concept IVd. Outside Linkages							
Local ties to State and Federal governments	112				*	*			
Previous Federal/State grants and other programs	112				*	*			
The presence of regional, national, or international businesses or agencies	113				*	*			
Newcomers to the area	113				*				
		Concept IVe. Distribution of Resources and Power							
Economic equity	113				*				
Environmental justice	114	*			*	*			
Size and structure of local government	117				*				
Presence of stakeholder groups	117	*	*		*				*
Legal constraints	118				*				
		Concept IVf. Community Resilience							
Coordination in current projects	118				*				
Coordinative mechanisms	118				*				
Persistent conflicts or issues	119				*				
Dimension V. Public Perceptions and Well-Being									
		Concept Va. Perceptions of Natural Resources							
Values and beliefs related to natural resource issues	119				*	*	*	*	
Attitudes toward natural resource issues	120				*	*	*	*	
Stakeholder views and beliefs	120				*	*	*	*	
Attitudes toward natural resource issues	121				*	*	*	*	
		Concept Vb. Connection to Natural Resources							
Tourism and recreational uses	121	*			*	*		*	*
Resource-based employment	122	*			*	*		*	*
Traditional uses	122	*			*	*		*	*
Sense of place	123	*			*	*		*	*

Dimension V. Public Perceptions and Well-Being (continued)

Concepts and Indicators	Appendix Page	Social Assessment Questions							
		A	B	C	D	E	F	G	H
				Concept Vc. Perception of Well-Being					
Behavioral and situational conditions	123			*				*	*
Access to facilities, services, and resources	124			*				*	*
Community satisfaction	124			*				*	*

Note: A more specific description of dimension, concept, and indicator can be found on the page of the appendix indicated.

* Indicates that the relevant indicator is connected to the social assessment question.

Indicators of Social Dimensions and Concepts in Social Assessment

The second step of the social assessment—determine relevant characteristics of the social environment—identifies what information is necessary. Relevancy is determined by issues raised during establishment of purpose and scope (step 1). This chapter describes the dimensions, concepts, and indicators of an HDF (see appendix).

The HDF is a guide for identifying paths of information and gathering data relevant to ecosystem management. Human dimensions represent key components of, and relationships with, the human ecosystem that affect, or are affected by, an ecological system. They are an amalgamation of concepts identified by a variety of social science disciplines. Social life is multidimensional, and the dimensions are interdependent. For example, the economic, social, and cultural conditions of a community are dependent on actions of the decisionmakers within a community (affiliated with private institutions, special interest groups, public authorities, and other organizations), which in turn are influenced by government mandates, informal regulations, laws, and policies.

Social Indicators and Their Role in Ecosystem Management

An important tool for assessing the social environment within a geographic region is the kind of information social scientists call social indicators. Social indicators are statistics, statistical series, and other forms of data conciliation and evidence that enable policy and decisionmakers to assess various social aspects of a society, evaluate specific programs, and determine the impact of those programs (Miller 1983).

Social indicators can be used to effect successful ecosystem management. An integrated set of social, economic, and ecological measures available to be collected over time and primarily derived from available data sources, social indicators are grounded in theory and useful to ecosystem management and decisionmaking. They represent an integration of statistical measures rather than a simple collection of facts (Force and Machlis 1997). In addition, the principal sources of social indicators can be found in such databases as are kept by the U.S. Census Bureau. Information about social indicators should be collected repeatedly over time, allowing the manager to recognize changes in a region's social environment and facilitate ongoing historical analysis. The identification of social indicators is grounded in theory; they almost always will reflect a multidisciplinary perspective. They concern people's attitudes about the social, economic, and institutional nature of a geographic region. Finally, social indicators provide practical information for monitoring current and changing situations, making decisions about appropriate management strategies, analyzing policy, and applying social research to ecosystem management planning and practices.

Criteria for the Appropriate Use of Social Indicators

Regardless of scale (national, State, regional, county, or community), social indicators should meet certain criteria in order to maximize their relevance (Clark 1973). First, they should be measurable. This does not suggest that there is a need to quantify all social indicators; rather, it suggests that information about a social indicator should be obtainable without relying on guesswork or risking misinterpretation or inaccuracy or both. Second, social indicators should consider social importance and shared goals; i.e., they

should be relevant to issues generally considered important to public land managers, stakeholders, and other interested publics. Third, social indicators should have policy relevance. Even though a resource management issue might be socially important, and there may be reasonable consensus on the actions to be taken, the best policies may not be politically feasible. For example, protection of an area within a watershed may require the cessation of all activity within a national forest. Such a policy very likely would be unacceptable to many residents and potential users.

Priority should be given to indicators relevant to feasible policies and have some consistency with land management goals and objectives. Stewart, Jakes, and Monson (1997) provide two compelling, albeit opposing, arguments regarding whether one should conduct a full social assessment for forest plan revision or limit the assessment only to indicators relevant to the policy at hand; e.g., those that may be affected by proposed actions. Finally, social indicators should fit into an integrative model that recognizes the interrelatedness of indicators and broader concepts.

Perceptual Indicators and Their Role in Ecosystem Management

Quantitative social indicators can provide a lot of information about the social environment, although a significant amount of social information must be quantitative. A social assessment must examine the perceptions of individuals and groups. Perceptual indicators may be quite diverse, even within a population that appears relatively homogeneous ethnically, educationally, and economically. Within the constructs of our HDF, perceptual indicators are in three groups: attitudes, beliefs, and behaviors.

Attitudes

Attitudes describe the extent to which individuals or groups find an object or behavior desirable. They are evaluated; i.e., good or bad, positive or negative, beneficial or harmful. Attitudes may describe the extent to which individuals favor or oppose specific management policies. They may serve to determine the public's perceived quality of life or well-being, provide a measure of the public's view of a land management agency's actions, or reflect a group's or organization's responses to another group or organization and the ecosystem management issues they share.

Beliefs

Within the context of social assessment, beliefs are reflected in our attitudes towards objects or behaviors. They can occur in response to specific management actions; e.g., road closure. On the other hand, they may involve more value-based perceptions. For example, what general environmental values do people hold, and how might they influence attitudes regarding identified ecosystem management policies or practices? If beliefs represent what people perceive to be true or false, they are not explicitly evaluated; nonetheless, we can infer what an evaluative attitude might be by examining and interpreting the expression of the belief about identified issues.

Behavior

Behavior is a person's or a group's response to perceptions and beliefs. We can make inferences about attitudes and perceptions based on observed behaviors. In fact, behaviors identified by responses to a self-report questionnaire reflect beliefs about behavior, rather than the behavior itself (Dillman 1978). Nonetheless, asking people about their behavior is not the same as asking about their beliefs. Identification of behavior as a factor separate from belief is warranted. Behavioral questions address what people have done, are currently doing, or intend to do. For example, what has been the historical recreational use of a primitive natural area? What types of recreation behavior are pursued in particular parts of the ecosystem? What are the trends in recreational behaviors; and what do these trends say about future use?

Specifying the Information: Identifying and Measuring Human Dimensions Framework (Dimensions, Concepts, and Indicators)

The second and third steps of the social assessment process call for identifying information required and making decisions about which data to collect. This section describes concepts and indicators in the HDF and discusses how the data for each indicator should be collected. More specific descriptions of data collection methods are provided in chapters 4 through 7. The following descriptions of data-collection bases are provided to familiarize the reader with issues relevant to each. In all cases, the planner or manager conducting a social assessment should strongly consider contacting a social scientist.

Concepts and indicators in the HDF are organized into five dimensions: historical background, population characteristics, community resources, social organizational structures and processes, and public perceptions and well-being. Although presented separately, these five dimensions are interrelated. Therefore, information about the concepts obtained by social assessment should be evaluated within the context of other social concepts.

Dimension I—Historical Background

Historical Experience

Indicators—When evaluating the social environment of a community, the planner or manager should understand the historical context of community life and its organic ties to the ecosystem. The nature of a community's historical dependence on natural resources is pertinent to consideration of current issues. Understanding the evolution of a community helps the planner identify causes of important social attitudes and community structure. Furthermore, information about how residents have reacted to important issues will provide important clues about problems and opportunities. In short, an historical review of a community's social environment relative to natural resources should include an analysis of specific indicators, including:

1. Community origin (the social and economic history of the community)
2. Recent or current responses to ecosystem management issues
3. Names and characteristics of influential persons, groups, or families within the community
4. Distinctive characteristics of the community that are highly valued locally
5. Prominent stakeholder groups with a standing history in the area

Methods for Collecting Data

Local histories may be helpful in assessing a community's connections with its natural resource base. Often, such histories have been published; although they may seem rich with information, such publications may reflect only the author's opinion or point of view. Local histories also may be found in public and university libraries, local newspapers, historical societies' records, and through interviews with longtime local residents. In addition, records of recent public meetings, scoping sessions, and published or otherwise-posted public comments, as well as other agency plans or data on the community or region, may be available. All such sources may provide important historical information.

Dimension II—Population Characteristics

The most basic social assessment dimension describes population in terms of three distinct concepts: culture, demographics, and economics.

Cultural Characteristics and Social Groups

Indicators—A detailed analysis of cultural characteristics is warranted when the study area includes diverse racial, ethnic, religious, or occupation-based populations. Where there is such diversity, it is important to recognize how groups may hold different values with regard to the issues. If some groups seem potentially to be more affected by ecosystem management decisions, the planner should seek to understand the groups' unique character and how they relate to management decisions.

Often it is not easy to identify distinct social groups. On the one hand, such groups as seasonal agricultural workers are composed of clearly distinctive and relatively easy to identify ethnicity; but, on the other hand, a group like the League of Women Voters may be practically invisible to all but its members. Community histories can provide significant information about the attributes that set a social group apart, its evolution, and patterns of interaction among different social groups. The current social organization of a community may well be outlined in such histories. Factors that may help describe cultural social groups include:

1. Ethnicity/race
2. Language diversity
3. Religious affiliations and practices
4. Property ownership
5. Length of residence
6. Cultural based values

Methods of collecting data—Information about unique cultural groups can be found in local, State, and university libraries. More up-to-date and situation-specific information is available through interviews with community residents and members of particular cultural groups. Local histories (available in local and regional libraries or from interviews with long-term local residents) and newspapers can also provide information about the more salient groups in the community.

Population and Demographics

Indicators—Information about population and demographics can contribute to an essential description of a community's makeup. It will allow the forest planner or manager to see more clearly how population trends may influence or be influenced by ecosystem management and policy. Further, analysis of trends will illustrate population changes by age, gender, education level, or ethnicity. Such changes may influence relationships among social groups within the community. Demographic characteristics that are important in understanding the social environment of a community include:

1. Total population size
2. Changes in population size
3. Residential distribution
4. Age distribution
5. Gender distribution
6. Education

7. Household composition
8. Population and demographics by ethnicity

Methods of collecting data—The primary source of data about population and demographics is the U.S. Census of Population and Housing, which is published every 10 years. In most cases, decennial census data provide an adequate description of the population and its demographics. Intercensus population and demographic data also may be helpful, especially if significant changes in population demographics have occurred since the last census.

Economic and Employment Characteristics

Indicators–This concept considers the extent to which a local population depends on natural resources. Current levels of employment in each economic sector identify the number of people in forestry, farming, or tourism occupations; and workforce composition in terms of women, youth, or ethnic groups is informative in describing local employment. A social assessment should address how management of local ecosystems affects a region's economy. Specific indicators include:

1. Employment levels
2. Occupational diversity
3. Distribution of employment by sector
4. Labor force participation by groups
5. Household income
6. Poverty
7. Wealth
8. Public assistance and welfare
9. Economic and employment characteristics by ethnicity

Methods of collecting data—Information is available from the decennial U.S. Census, which includes data about population (every 10 years), housing (every 10 years), agriculture (every 5 years), and business and industry (every 5 years).

Dimension III—Community Resources

Community resources are the services, facilities, and access to opportunities available to a local population. Analyzing this dimension will consider access by the population as a whole, as well as by specific groups. These resources, as well as spatial relationship and dependence on the ecosystem, serve as a useful concept when conducting a social assessment.

Facilities and Services

Indicators—Demand for facilities and services is not only proportional to changes in a population, but also to changes in resource suppliers, economic activity, and income. Overall, the cost, quality, and availability of public and private services are connected to a community's sense of being (Branch and others 1984). Factors that describe this component include:

1. Current levels of public facilities and service
2. Current levels of private facilities and service

Methods of collecting data–The most common sources of information are the service providers. Such agencies or private organizations can provide data on current supply and demand, as well as the impacts wrought by those market forces. Public attitudes and expectations regarding service levels are also valuable measures of community satisfaction. Leaders and the citizens they serve are often polled by telephone survey, mail questionnaire, and personal or group interviews.

Spatial Relationships and Ecosystem Dependency

Indicators—Generally spatial relationships and dependency refer to human demands for and uses of natural resources. People's dependence on, demand for, and use of ecological resources vary considerably. Land use and settlement patterns can be traced along a continuum from undeveloped to developed (Manley and others 1995). Evidence from recent assessments; e.g., in the Pacific Northwest and Southern Appalachians, demonstrates how communities heavily dependent on traditional extractive uses of forests have experienced or will experience significant changes in the distribution of economic and noneconomic activities in the near term. Examination of the type and extent of such evidence can provide the forest planner or manager with important information for managing sustainable ecosystems, identifying and promoting alternative economic strategies, employment retraining, and community education. In this dimension, the economic health of a region—in terms of local, national, and international demand for forest, water, wildlife, energy, and mineral resources—is an important factor of long-term sustainability. Indicators of spatial relationships and ecosystem dependency include:

1. Ecosystem classifications
2. Water resources (existence of and demand for)
3. Energy and mineral resources (existence of and demand for)
4. Wildlife resources (existence of and demand for)
5. Recreation resources (existence of and demand for)
6. Public land classifications
7. Private land classifications
8. Resource uses
9. Population density
10. In- and out-migration
11. Settlement patterns
12. Land tenure

Methods of data collection—Secondary sources, such as social and economic data already collected in previous social assessments or other data-collection exercises, provide information relevant to spatial relationships and economic dependence on natural resources. A significant amount of economic data about demand for various commodity and recreation resources is appropriate in a social assessment. The land manager or planner would be well advised to consult a social scientist trained in economic analyses.

Dimension IV—Social Organization Structures and Processes

This dimension describes social interaction within a community. Such interactions evolve over time and usually are unique to each community. To understand a community and its relevance to ecosystem management planning and practices, the planner and manager must consider its social structures and processes. These include economic organization, government structure, social diversity, external linkages, distribution of resources and power, and community resilience.

Economic Organization

Indicators—Job creation significantly affects the economic health of a community and the purchasing power of its citizens. In turn, economics determine the number and types of services provided. Diversity of opportunity is important in maintaining a community's economic health. In small communities that depend on a single industry, economic growth often is stagnant, and prospects for sustainability are few. This is especially true of rural communities that are within commuting distance of relatively aggressive regional population centers. A local area's ability to compete with the larger, more diverse regional center will depend on the availability of financial and service-related resources, as well as the community's ability to make economic linkages by exporting goods. Factors to consider when examining the economic diversity and complexity of a region include:

1. Export dependency
2. Small businesses
3. Shopping patterns
4. House values
5. Land values
6. Retail sales

Methods of Data Collection—The U.S. Bureau of the Census measures the diversity of industry and commerce; and it is possible to tap important databases listed in the classified section of telephone directories, as well as databases maintained by chambers of commerce. Certainly, interviews with community and business leaders will provide insight into the economic diversity of a region.

Governmental Structure

Indicators—Changes in population size and diversity, as well as the region's economic structure, influence the nature of local government. In many small communities, officials who serve without pay and whose main employment is outside of government do administrative tasks. An increase in the complexity of local government and the tasks and responsibilities such officials carry out will often lead to a need for paid officials and the hiring of professional staff. Among the tasks that accompany this trend are transactions that involve corporations, State and Federal agencies, and interstate or international commerce organizations. Responding to the requests and dealing with a spectrum of regulations may necessitate establishment of a formal and structured government. Such a process can be difficult and may not reflect the wishes of those who would be governed. Factors relevant to diversification of governance are useful in a social assessment. Of particular interest are the roles and responsibility of the current local government, including:

1. Local government positions
2. Planning capabilities
3. Connections with outside agencies
4. Relationships between local government jurisdictions

Methods of collection–Information about local government is available through personal interviews with local officials and residents, or in government employee rosters and newspaper reportage.

Social Diversity

Indicators—Another common outcome of increases in population and economic diversity is change in social complexity. Increased diversity in ethnicity, culture, religion, and other demographics is one certain outcome. Social complexities actually may change accepted norms of behavior within a population. Long-time residents, particularly in rural areas, often will express a sense of loss of community and shared values. For example, an increase in natural resource-based tourism will increase the number of visitors to an area but also may bring transient populations, especially in areas where tourism opportunities are seasonal. Changes may result from the decline of resource-based industries. An area then might experience out-migration of even long-term residents. Important factors when assessing social diversity and complexity include:

1. Gender distribution
2. Ethnic and religious/cultural diversity
3. Residential stability
4. Voluntary organizations and membership
5. Factions and special interests
6. Values and beliefs related to natural resources
7. Attitudes toward natural resource issues

8. Transient populations
9. Civil rights

Methods of data collection—Information about community population, age, gender, and education is available from the decennial U.S. Census. Law enforcement officials and school personnel often are sources of information about changes in demographics, including the growth of transient populations. Chambers of commerce often keep data on voluntary organizations like churches and service or social organizations. Telephone directories will list such organizations. Attitudes toward transient populations and civil rights may be available through more systematic quantitative and qualitative telephone surveys, mail-back questionnaires, or individual and group interviews.

Outside Linkages

Indicators—Whether decisions about community investment, resource distribution, and new projects are made by people within the community or by others is useful information when preparing a social assessment. The extent to which such decisions are linked to outside interests and how those decisions influence community autonomy will say a lot about the social and natural resource management environment.

Linkages may bring both positive and negative effects (Branch and others 1984). Ties to State, regional, national, and international groups can enhance a community's ability to get financial and informational assistance in the form of government grants, loans, and political support. For example, in the Western States, communities or regions often are strongly affected by management of Federal lands. Strong links of the community to appropriate agencies and political power bases can help forestall potential problems. As the population of a rural community or region grows, there usually follows a demand for development. The community leaders' ability to establish effective links to outside organizations enhances their capacity to draw in outside resources. However, too many links may bring overdevelopment and limit the local residents' ability to make decisions regarding their governance and livelihood. Factors important to assessing the nature of outside linkages include:

1. Local ties to the State and Federal Governments
2. Previous Federal/State grants and other programs
3. Nature of regional, national, or international businesses/ agencies in the area
4. Proportion of local residents who are relative newcomers to the area

Methods of data collection—Because outside linkages can be formal or informal, positive or negative, assessing and interpreting their beneficence can be difficult. The type and number of businesses, agencies, and organizations representing outside interests are available in the classified section of most telephone directories. Information about individual and group ties to outside agencies and interests may be available through personal interviews with community leaders. Local government officials may have experience with gathering financial and informational assistance from outside agencies.

Distribution of Resources and Power

Indicators—Resources and power usually are distributed among various stakeholders. For the purposes of identifying such individuals, agencies, and organizations, the term stakeholder means any individual or group whose environment, economy, or social organization is connected to ecosystem management processes or outcomes, and those who could be affected by ecosystem management decisions (Branch and others 1984). It is important to identify all stakeholders. Some individuals or groups may be unprepared to speak for their specific interest, and some may be unaware that they have a stake. Nonetheless, the manager or planner must ensure equitable treatment of all. Economic equity, especially in employment opportunities and environmental justice, are important considerations. In some areas, unique cultural groups may be affected by environmental development, or even hazards, to a greater degree than others. Such environmental injustice not only is unfair; it also may adversely affect the very fabric of life within an entire community. A social assessment that discovers such social inequities must present evidence of environmental injustice in as unbiased a manner as possible. Other factors, including the size and structure of local government, the presence of private organizations and stakeholder groups, and the community's behavioral norms, can also provide significant clues about how resources are distributed and who influences their distribution. Factors useful in assessing resource distribution and power include:

1. Equity
2. Environmental justice
3. Size and structure of local government
4. Presence of stakeholder groups
5. Norms

Methods of Data Collection—Data about economic, employment, and housing equity are available in U.S. Census Bureau statistics. Such data consider income, occupation, and housing characteristics for the whole population and for major ethnic groups. Similar information is available in other public files. Driving through a geographic area can provide insights about resource distribution; but, one must keep in mind potential problems with such subjective assessment. Personal interviews with service providers can help identify the extent to which various groups use resources. Planning and zoning laws are

available at government offices. Identification of formal stakeholder groups should be relatively easy because their ties are directly with the natural resource base. Identification of informal stakeholder groups, whose ties to the natural resource are more personal and less obvious, may be more difficult. Interviews with key personnel in the community, reviews of local newspapers, and intuition may be the most helpful ways to identify persons who are connected informally to natural resource management. Focus groups with persons of color, or personal interviews with the potentially disenfranchised can be particularly useful in examining perceived inequity.

Community Resilience

***Indicators*—**Resilience is the ability to adapt to change. Termed coordination and cooperation by Branch and others (1984), community resilience is a population's ability to coordinate efforts and resources in a way that establishes cooperation among individuals, stakeholders, and government officials. It is a particularly important component of social assessment because it can be used to measure the possible special effects of proposed specific management actions. A community's ability to coordinate its efforts and resources depends on its social, economic, and governmental complexity; the character of its community leaders; the extent of its outside linkages; and characteristics of the issue(s) at hand. Factors to consider when assessing community resilience include:

1. Coordination in recently initiated projects
2. Existing coordinative mechanisms
3. Persistent conflicts or issues

***Methods of data collection*—**Information about a community's coordinative mechanisms and cooperative processes can come from personal and group interviews with citizens and their leaders. Those individuals who are active in community affairs and decision making at various levels are important sources of such information. Previous community response to projects will help identify general patterns. It is especially important to ensure that information is gathered from a broad cross-section of people.

Dimension V—Public Perceptions and Well-Being

An important part of social assessment is the examination of public attitudes towards the issues and the public's connection to the affected resources. In addition, concepts related to general perceptions of the community and its quality of life are important components of a community's sense of well being. Important concepts in this dimension include perceptions of natural resources, connection to natural resources, and perception of well being.

Perceptions of Natural Resources

***Indicators*—**The ways community residents perceive their relationship to the natural world is an important aspect of the social environment. The manager or planner can measure perceptions of management issues and agency credibility. Measurements will illustrate attitudes toward specific issues, support for policies, and actual behavior. Information about perceptions towards ecosystem management issues should come from individuals or groups other than opinion leaders or important stakeholder groups. Efforts should be made to hear from all affected publics. The forest planner or manager must decide how to weigh the perceptions of different groups or influential individuals, and to consider the positions not only of individuals but also of organizations supported by stakeholder groups. Citizen groups often will have well-formed opinions on ecosystem management issues. Whether they are formally organized or not, a group's opinions may be highly influential within a community. General perceptions about ecosystem management issues can be inferred from measures of attitudes and the reasons for those attitudes (related to both cognitive beliefs and emotions) and issue-related behaviors, as well as personally held values relevant to natural resources. These factors include:

1. Values and beliefs related to natural resources
2. Attitudes towards natural resource issues
3. Values and beliefs related to natural resources supported by stakeholder groups
4. Attitudes towards natural resource issues supported by stakeholder groups

Methods of data collection—A variety of methods may be used to collect information about attitudes; but primary data collection methods are the most prominent. When attitudes representative of a larger population are important to the assessment, quantitative techniques such as telephone surveys and mail-back questionnaires are effective. These tools are especially useful when significant policy decisions may be at stake and public opinion is particularly important, as well as when issues of interest are particularly contentious or controversial. In those instances, the researcher will want to hear from less-vocal segments of the population. Qualitative methods, although often sacrificing the representative nature of attitudes, allow the researcher to obtain rich, in-depth information about issues. Individual interviews or focus groups will provide a variety of information about the individual's or stakeholder's values and opinions. When possible, the researcher should use multiple sources of attitudinal data to ensure the reliability and validity of the information.

Connection to Natural Resources

***Indicators*—**A community's connection to natural resources is based on public perceptions, attitudes, and values. It

reflects the individual's feelings about the natural world, as well as the community's. Those feelings will be derived from participation in outdoor activities, pursuit of income, and resource uses that support community and family traditions. Factors to consider in assessing personal connections to natural resources include:

1. Importance to recreation and tourism
2. Importance to livelihood
3. Importance to customs and traditions
4. Sense of place

Methods of data collection—Quantitative and qualitative data collection methods both can be used to collect information about an individual's connection to the resources. Telephone surveys and mail-back questionnaires will provide general, representative information. More in-depth information will require open-ended personal or group interviews.

Perception of Well-Being

Indicators—Analyzing the sense of well-being in communities is an important part of the social assessment; and the social scientist must look at both behavioral and situational conditions. Quality-of-life perceptions are reflected in crime and divorce rates, unemployment, and similar data. The perceived quality of and access to community facilities and services also are important. Finally, an assessment of community satisfaction should be obtained by examining aspects of the community that are most important in contributing to such satisfaction; e.g., satisfaction with community services, interrelationships among residents of the communities, satisfaction with schools. Factors to consider in assessing perceptions of community well being include:

1. Behavioral and situational conditions
2. Perception of access to facilities, services, and resources
3. Community satisfaction

Methods of data collection—Behavioral and situational conditions can be assessed by a variety of methods. Crime rates are available in community, county, and State records. A first step in assessing this component is to conduct personal interviews with local law enforcement officials. Information about divorces and suicide are available from U.S. Vital Statistics and from similar compilations of data at the State level. Information about public assistance and welfare is available at local service agencies and the State's Department of Social Services. Perceptions of access to facilities, services, and resources (see Dimension III), as well as assessments of community satisfaction; i.e., individual perceptions of well being within the community, are attitudinal components. These may be assessed using a variety of quantitative and qualitative data collection techniques, including telephone surveys, mail-back questionnaires, and personal interviews with citizens and community leaders.

Part II

Data Collection

Chapter 4

Collection and Use of Secondary Documentary and Historical Data

Prior to developing and administering studies to collect primary data, the researcher should determine whether additional information collection is necessary. Data that already have been collected are called secondary. Secondary data can be used to complement and validate primary data and to cover topics about which it is not possible to collect primary data. Secondary data also may reduce or eliminate the need to collect primary data. This chapter discusses the nature of three types of secondary data: (1) statistical and nonstatistical documentary data, (2) historical data, and (3) literature from previous research. These types of data may not be mutually exclusive. For example, statistical and nonstatistical documentary data may be important components of an historical analysis. Also, use of either primary or secondary data will require literature search.

The Identification and Collection of Secondary Documentary Data

Secondary documentary data may have been collected for a purpose other than a social assessment; they may, however, provide information that is highly relevant. Secondary documentary data can be used descriptively and analytically (Branch and others 1984). They may describe characteristics of the social environment in terms of historical trends and current conditions. For example, census data can identify specific characteristics of a community and the stability or variability of those over time (trends). Secondary documentary data also can be used to determine what information is likely to be important, what types of social impacts are likely to occur, and what meanings such impacts might have on citizens and the community.

Several sources of secondary documentary data will help the social scientist to discern the social make-up of a community, as well as its propensity for change. Such data sources will help describe a community's historical context, its economic and demographic characteristics, its institutional structure, and the level of infrastructure and services that support it. Although secondary data sources do not provide direct information about community attitudes and values, the social scientist can make inferences through careful analysis.

Sources of Secondary Documentary Data

The range of potential secondary sources of social assessment data is very broad and will differ from site to site. Secondary documentary data are either statistical or nonstatistical. Statistical data may come from documents that provide numerical descriptive information about the region, such as statistical reference books and voting records—documents that lend themselves to quantitative analysis. On the other hand, nonstatistical secondary data are narrative and therefore not generally useful in quantitative analysis. Nonstatistical data are found in autobiographies, minutes of meetings, legal documents, newspapers, local histories, maps of the area, telephone directories, and other sources. Some of the most useful sources of secondary documentary data are described below.

The U.S. Census

The United States has the most comprehensive recent and historical data about its population in the world. Available in the census and other secondary data sources are demographics, employment, occupation, income, leisure, health, migration, and many of other population and individual characteristics. Information about income distribution, employment by sector, education, and housing type, and other social factors is available at the regional, State, and county levels. Below is a description of some statistical source books now available. These sources were adapted from Cordell and others (1999) and Miller (1991). For a more detailed discussion of the use of U.S. Census information in research, see R.E. Barrett's (1994) Using the 1990 U.S. Census for Research, published by Sage Publications in Thousand Oaks, CA.

U.S. Bureau of the Census; Statistical Abstract of the United States—Decennial data for the U.S. are arranged in over 30 sections that include information about population; vital statistics, health and nutrition; immigration and naturalization; education; law enforcement; area, geography, and climate; public lands, parks, recreation, and travel; labor force, employment, and earnings; social insurance and welfare services; income, expenditures, and wealth; communications and power; forest and forest products; fisheries, mining, and mineral products; construction and housing, and a variety of other categories. In addition, an annual statistical abstract is available on CD-ROM. It is a valuable statistical reference and guide to more than 250 government and private statistical publications.

In the 1980 census, the U.S. Census Bureau began increasing the number of geographical areas covered.

Governmental units:

1. The United States, Puerto Rico, and outlying areas under U.S. sovereignty or jurisdiction
2. States, counties, and county equivalents

3. Incorporated places such as cities and villages
4. Minor civil divisions (MCD) of counties such as townships
5. Congressional districts and voting districts
6. American Indian reservations, associated trust lands, and Alaska Native Regional Corporations

Statistical units:

1. Four U.S. census regions and nine census divisions, all of which are groupings of States
2. Metropolitan areas census county divisions (where MCD boundaries are not satisfactory)
3. Census designated places
4. Urbanized areas
5. Alaska Native village statistical areas
6. Tribal designated and jurisdictional statistical areas
7. Census tracts (statistical subdivisions of metropolitan counties having an average population of about 4,000)
8. Block numbering areas (BNA; statistical subdivisions of counties without census tracts having an average population of about 4,000)
9. Block groups (groupings of census blocks within census tracts and BNAs having an average population of about 800)
10. Blocks (the smallest census geographic area normally bounded by streets or other physical features having an average population of fewer than 100)

U.S. Census of Population by States—Contains decennial information about urban populations = 2,500. Includes population size by gender, major occupation groups by gender, family income, industry groups, ethnicity and racial statistics, age of population, formal education completed, and marital status.

U.S. Bureau of the Census; Historical Abstracts of the United States: Colonial Times to 1970—This publication provides historical information about data found in the U.S. Bureau of the Census statistical abstracts.

The City and County Data Book—Lists information about employment, income, elections, banking and finance, business enterprises, and education for each county in the United States and cities = 25,000. Published by the Bureau of the Census, it is available on CD-ROM.

Other Federal Publications

In addition to census data, various Federal agencies and bureaus provide useful information. The Department of Housing and Urban Development, the Department of the Interior, the Department of Education, the Environmental Protection Agency, the Bureau of Labor, and the Department of Energy all provide information that may be useful in social assessment. Use of many of these information sources will require active search processes, especially those not published by the U.S. Government Printing Office. The best approach is to contact any agency office and ask what information they provide.

State Publications

State governments maintain a significant amount of information about schools, taxes, and social services that are important in a social assessment. Generally available at the county level, some information is available in State offices. A State's annual vital statistics report, which provides information on marriages, divorces, county population, infant mortality, among other things, is a useful information source. Counties often will provide crime statistics; and FBI Uniform Crime Reports provide both State and national information. The States often will release employment and other economic data at various geographic scales.

Other Sources of Secondary Documentary Data

The Municipal Yearbook—This annual publication serves as a reference to municipal governments. It provides facts about the role of city governments in education, housing, welfare, and health, among other things.

U.S.A. Counties—Available on CD-ROM, data in 33 major socioeconomic categories are available for each county in the U.S. This electronic format allows the user to summarize in tabular form, export to spreadsheets, or map using LandVIEW software.

Regional Economic Information System—Available on CD-ROM, this publication presents estimates of personal and per capita income for metropolitan areas and counties. A two-page summary of economic information for each State, metropolitan area, and county is updated in mid-May by the Bureau of Economic Analysis and may be obtained by contacting the Department of Commerce, Bureau of Economic Analysis.

Where to Find Government Information

Most college and university libraries have census reports and other up-to-date statistical information. In addition, many public libraries carry the principal statistical reports relevant to their communities. City planning offices, city government libraries, mayor's offices, chambers of commerce, and other private and public agencies also often have relevant census records and other reports. State and Federal offices have information about where to find additional data. Order forms for census materials may be obtained by writing to the Publications Services Division, Social and Economic Statistics Administration, Washington, DC 20233. A description of products available from the U.S. Census

Bureau can be found in the Census Catalogue & Guide, which is published annually by the U.S. Department of Commerce. That document provides a comprehensive reference for anyone using census data. Below are the regional offices of the U.S. Census Bureau, as well as telephone numbers and States covered (Salant and Dillman 1994).

Regional office and telephone number	Region covered
Boston, MA (617/565-7200)	Maine, New Hampshire, Vermont, New York (selected counties), Massachusetts, Connecticut, Rhode Island
New York, NY (212/264-4730)	New York City, Nassau, Orange, Rockland, Suffolk, and Westchester counties, Puerto Rico
Philadelphia, PA (215/597-8313)	Pennsylvania, New Jersey, Delaware, Maryland
Charlotte, NC (704/371-6144)	District of Columbia, Virginia, North Carolina, South Carolina, Kentucky, Tennessee
Atlanta, GA (404/730-3833)	Georgia, Alabama, Florida
Kansas City, KS (913/236-3728)	Kansas, Oklahoma, Arkansas, Missouri, Iowa, Minnesota
Detroit, MI (313/226-7742)	Michigan, Ohio, West Virginia
Chicago, IL (312/353-0980)	Indiana, Illinois, Wisconsin
Denver, CO (303/969-7550	North Dakota, South Dakota, Nebraska, Wyoming, Utah, Arizona, Colorado, New Mexico
Los Angeles, CA (818/904-6393)	California
Seattle, WA (206/728-5314)	Washington, Montana, Idaho, Oregon, Nevada, Hawaii, Alaska

Other Secondary Sources

In addition to statistical source books, a variety of other relevant secondary data sources are available.

National Survey on Recreation and the Environment (NSRE)—This is the most recent, up-to-date collection of data on recreation participation, attitudes toward wildlife and wilderness, preferences for selected management options, recreationist demographics, and profiles of outdoor recreational trips. For copies, contact the USDA Forest Service, Recreation, Wilderness, and Urban/Wildland Research, 320 Green Street, Athens, GA, 30602-2044, or go to the Web site http://www.srs.fs.fed.us/trends.

National Survey of Fishing, Hunting, and Wildlife Associated Recreation (NSFHWAR)—This publication provides records of an ongoing Federal study about trends in fish- and wildlife-based recreation. The last release was in 1996, and it is updated every 5 years. It provides information about participation, demographics, and a wide range of other wildlife-oriented questions. Survey data are available on CD-ROM from the U.S. Fish and Wildlife Service.

1995-96 National Private Land Ownership Survey—Available from Forest Service offices in Athens, GA, or on the Web site http://www.srs.fs.fed.us/trends, this publication includes information from a survey of rural private landowners. Surveyors asked participants about their reasons for owning land, management practices they use, recreational access their property provides, their posting and leasing practices, and their attitudes about environmental issues. They also recorded owner demographics. The USDA Forest Service has developed descriptions of private ownership for several regions of the country.

Previous primary data collection efforts—Primary data collection within a region and about a population of interest already has been conducted; and such data will preclude the need for additional surveys. Sometimes surveys from another geographic region can shed light on issues and concerns that the researcher will need to address when assessing his or her own region.

Records of Public Meetings, Scoping Sessions, Public Comments, and Surface-Owner Consultations, Other Bureau or Agency Plans or Data Sets on the Community or Region

Comprehensive county plans—Many counties have comprehensive plans that provide valuable background information about the area of interest, the institutional structure, and forecasts for future development. These plans usually are available in the local library or area planning board.

Environmental impact statements and socioeconomic studies—State or Federal agencies or private companies may have prepared environmental impact statements or other socioeconomic studies within the geographic region that is to be assessed. Such documentation may provide important background information about an area's social environment. Local chambers of commerce also may have commissioned socioeconomic studies. The National Forest System routinely collects and analyzes data directly related to recreational use within natural areas, which describe the demographics, preferences, attitudes, values, and economic impacts of recreation visits.

Local histories—Local authors often will have published histories of a local area. While such publications may appear rich with information about the area, the researcher must carefully consider potential author biases.

Maps—A researcher should review accurate maps of towns and counties in the area. Sources may include local highway departments as well as atlases produced commercially.

Lists of public officials—Lists of locally elected and appointed officials, agency directors, and their primary duties provide important information about an area's institutional structure. State agencies, chambers of commerce, or city and county administrators usually will be helpful when compiling such a list.

Local newspapers—In their coverage of most major, controversial issues, current editions of local newspapers can help identify stakeholder groups, as well as related conflicts among various groups and individuals, and how the community deals with these issues. Past issues of newspapers can provide corroborating information about issues and events described in local histories.

Local telephone directories—A local calling radius often defines the extent of a community. A directory's divisions, by community, often will identify the major settlement and all of its satellite communities, which may not be listed in other sources. It also will provide information about businesses and services, especially in small towns.

Business credit ratings—Business credit ratings can provide information about community power relations. For example, Dun and Bradstreet reference books describe local economies, using information about business types in the region, the date of their establishment, tenure of their current management, estimated financial strength, and business credit rating. Such information is helpful in determining predominant businesses types, whether they are locally owned, and their relative stability.

Conducting an Historical Analysis

An historical analysis of a community or region constitutes one type of secondary data. Such a history may be useful in framing the context in which residents will experience or react to ecosystem management policies and practices. The analysis may broaden our understanding of the community structure and social attitudes that have evolved over time, relative to a given ecosystem management issue.

The Use of Historical Documents

Historical information usually includes secondary data that describe human uses of natural resources in a geographic region. Generally, historical analysis will explore community origins, past and present responses to natural resource planning issues, and the distinctive community characteristics that directly or indirectly affect local resources.

Steps in an Historical Analysis

Because an array of historical documents may be available, it is appropriate to take several steps in pursuing historical analysis:

1. Assess the availability of documents and select those most relevant
2. Select sources, and read and analyze them closely
3. Identify data sources that may be controversial
4. Select documents that provide information useful in social assessment

Step 1. Assess the availability of historical documents and select those most relevant. Tasks might include:

1. List potential sources of useful documents
2. Identify readily available sources and identify specific documents
3. Select sample documents from each source
4. Study documents for useful information
5. Develop a systematic process for analyzing the contents of each record
6. Determine the data's usefulness in social environment
7. Evaluate whether future analysis of each data source will be necessary and worth additional time and effort

Step 2. Select sources and read and analyze them closely. The researcher should consider what the documents reveal about population groups, lifestyles, and leadership roles in the area of study; the type of and interrelationships among current social institutions; the interdependence of socioeconomic and interest groups; and how the community or individual citizens cope with problems and address issues.

Step 3. Identify data sources that may be controversial. What is the best source of important information? What types of statistical source books would have such information? Would newspapers or interviews with longtime local residents provide better historical information than other sources?

Step 4. Select documents that provide information useful in social assessment**.** The researcher must now identify or choose a sample of items appropriate for further analysis. Many historical documents might be incomplete, and the researcher must take several factors into account when selecting a historical document for review:

1. The availability of other comparable sources. Having more than one source of the same information increases its reliability

2. The records completeness
3. Cost and other practical considerations

Conducting a Literature Search from Previous Research

It is unlikely that the social scientist will be addressing a problem so unique that previous research has not been done. Literature-search resources are extensive. They fall into four basic categories (Miller 1991): (1) indices to periodical literature, (2) computer-assisted reference services, (3) microfilm-microfiche media, and (4) specialized indices. Each is available in most university libraries. For a more detailed discussion of these resources, see Miller (1991).

Indices to Periodical Literature

A variety of indices to social science periodicals are available:

Social Sciences Index—This is a cumulative index to English-language periodicals. It contains the latest information available in anthropology, area studies, economics, environmental sciences, geography, law and criminology, medical sciences, political sciences, psychology, public administration, sociology, and other related subjects. It is published quarterly and contains author and subject entries. For a list of periodicals indexed there, see Miller (1991).

Sociological Abstracts—This author and subject index briefly describes every research article published in 24 areas: methodology and research, sociology, social psychology, group interactions, culture and social structure, organization management, social change and economic development, mass phenomena, political interactions, social differentiation, rural sociology and agricultural economics, urban structures and ecology, sociology of the arts, sociology of education, sociology of religion, social control, sociology of science, demography and human biology, the family and socialization, sociology of health and medicine, social problems and social welfare, sociology of knowledge, community development, and planning, forecasting, and speculation. In addition, abstracts of papers presented at annual meetings of the American Sociological Association are included each year as a supplement. This information is available on CD-ROM as Sociofile.

Social Sciences Citation Index (SSCI)—This is a calendar-year index that covers items in more than one thousand social science journals from around the world. The SSCI provides specific information about where and by whom a paper has been cited in the literature. It is also a helpful aid in following particular articles and identifying researchers working on special problems.

Current Contents: Social & Behavioral Sciences—This is a weekly listing of the contents of selected journals and some books in the social and behavioral sciences. It includes an index of authors and title key words.

Psychological Abstracts—Similar to Sociological Abstracts, this journal contains subject and author indices of general psychology, psychometrics, experimental psychology, physiological psychology and intervention, communication systems, developmental psychology, social processes and issues, experimental psychology, and personality, among others.

Resources in Education—This is a monthly abstract journal published by the Educational Resources Information Center (ERIC) of the National Institute of Education (NIE). Catalogued by author, subject, and responsible institution, it provides the educational community with research reports and other nonjournal literature.

Computer Assisted Reference Services

Hundreds of university libraries in the U.S. provide online search access to bibliographic citations. These are useful in accessing many of the indices to periodical literature discussed previously.

Microfilm-Microfiche Media

Such media include books, newspapers, magazines, scientific journals, and doctoral dissertations on microfilm. In addition, indices such as Sociological Abstracts are available on microfiche.

Specialized Indices

Published indices provide descriptions of demographics of interest across a variety of social dimensions. Such indices include: (a) Population Index, which provides a bibliography of demographic research; (b) Population Bibliography, the world's largest single computer data base for monographs, journals, technical reports, etc., maintained at the University of North Carolina Population Center; (c) International Population Census Bibliography: Revision and Update, which contains citations of reports from population censuses from 1945 to 1977; (d) American Abstracts, which is a comprehensive index of statistical publications from more than 400 central or regional issuing agencies of the U.S. Government; and (e) Statistical Reference Index, offering information on State government publications, statistical studies by universities, independent research organizations, and business organizations.

Advantages and Disadvantages of Secondary Data

Like every source of data used by researchers doing social assessments, secondary data have both advantages and disadvantages:

Advantages	Disadvantages
Data collection takes less time, money, personnel, and travel than primary data collection, especially when data are gathered continuously.	It may be hard to identify biases in historical records.
Use of most documentation does not require author permission.	It is hard to determine the reliability and validity of some secondary data.
It increases the researcher's familiarity with the study area's social climate.	Interpretation of secondary data, especially historical data, is often subjective, and will differ from reviewer to reviewer.
It provides baseline data, which give the researcher an ability to analyze trends.	Secondary data records may be incomplete or out-of-date.
It may offer unique and socially colorful information that field research methodologies cannot.	

The diversity of secondary data sources and the likelihood that study results are available give the reviewer an opportunity to compile, review, prepare a bibliography, and look for additional reports.

A World Wide Web Tool for Collecting Secondary Information

We have developed a World Wide Web site to aid the forest planner in collecting some important social assessment data. The site also provides information about the development and use of an HDF for conducting social assessments. It allows retrieval of secondary social information through direct and guided access to the Social, Economic, Environmental, Leisure, and Attitudes (SEELA) data set (Betz 1997). SEELA is a nationwide collection of social information at the county level, providing both direct and guided access. Direct access allows immediate, online retrieval of any variable in the SEELA data set by economic, social, and demographic categories. Guided access is consistent with the HDF matrices presented in chapter 3. It provides immediate online retrieval of variables in the SEELA data set framed within and driven by the eight social assessment and forest planning questions. Guided access is useful to those unfamiliar with many of the social dimensions, indicators, and variables used in the site.

Chapter 5

Developing and Administering Survey Research

This chapter describes methods of data collection using survey methodologies. Three are discussed: self-administered questionnaires, telephone surveys, and personal interviews. Self-administered questionnaires and telephone surveys primarily are used to collect quantitative data, although it also may be possible to collect qualitative data with them. Using personal interviews, it is possible to collect both. We first examine general factors that influence the decision on which survey methodology to use. We then discuss each of the survey methodologies, considering the advantages and disadvantages of each, and use several factors to compare the three. We provide a bibliography of publications about conducting self-administered, telephone, and personal interview surveys.

Factors Affecting the Survey Method Decision

Decisions about which method to use will depend on a number of variables that the researcher must consider (Fowler 1995); e.g., sampling, type of population to be surveyed, structure of the questions to be asked, content of questions to be asked, survey organization, pretesting the survey, desired response rates, cost, facilities available, and length of time for data collection.

Sampling

How the researcher will draw a sample will depend on the data that are available; e.g., if one is going to draw a sample from a list of potential respondents, available information about the respondents. If the list has no current addresses or telephone numbers, data collection using a mail-back questionnaire or a telephone survey would be impossible. When the sample is based on a set of addresses, mail-back procedures would appear to be the most logical method, although personal interviews taken at those addresses may provide better data. Telephone surveys may be made using commercially published telephone directories that list numbers by address rather than surname. If telephone numbers are not available for all addresses, it may be feasible to use another method of data collection too. When using a list with street addresses, it is important to make sure that apartment unit designations are available in order to differentiate among residents of a multiunit dwelling. For a more specific discussion of sampling techniques, see chapter 8. Also, there are now private companies that will provide random and nonrandom samples of names, addresses, and telephone numbers.

Type of Population

Two characteristics of a population will influence the choice of data collection methods; the ability and the motivation to complete a survey. When deciding which data collection methods to use, it is important to consider abilities such as the respondents' reading and writing skills. Obviously, self-administered approaches; e.g., mail-back and household surveys, place a greater burden on respondents who may be either relatively uneducated or, although they can speak English, have low reading and writing skills. People who do not see well probably would find a personal interview easier than a self-administered survey.

Motivation to complete a survey is generally highest among those who have an interest in the subject of study. For them, the mail-back procedure is well suited. On the other hand, low ability or low motivation suggests that a personal interview technique would more effectively draw responses from the interviewee.

Question Structure

The structure of questions asked will influence and be influenced by the data-collection method used. The structure may be open-ended, close-ended or fixed item, or partially close-ended.

Open-Ended Questions

Open-ended questions invite respondents to express themselves freely and in their own words. Generally, such questions are used when the researcher expects a broad range of responses to a question; they allow the researcher to explore a broad base of information about an issue. They also encourage respondents to explain their positions, giving the researcher a more in-depth view of public opinion. However, open-ended questions ask the respondent to articulate his or her position, and communication skills vary widely among the individuals surveyed. In addition, the broad range of responses to open-ended questions makes systematic analysis difficult.

Close-Ended Questions

Close-ended, or fixed-item questions are multiple-choice and may be of two types: ordered or unordered. Ordered choices are increasing or decreasing steps or grades of a concept; and the response given will represent position along a continuum. Examples include Likert (1967) scales, semantic

differential scales, ranking scales, and rating or self-assessment scales. Unordered choices typically are checklists requiring categorical response(s).

Partially Close-Ended Questions

Partially close-ended questions provide fixed-responses choices but invite respondents to answer for themselves or provide additional information. Among the choices listed with this type of question will be one allowing the respondent to elaborate on his or her response to a question or questions.

Question Structure and Data Collection Method

Self-administered questionnaires most commonly use the close-ended question structure. Because there is no interviewer present to probe the respondent who provides incomplete answers, such questionnaires may not produce data that are highly useful. However, open-ended questions may be used on a self-administered questionnaire to supplement responses to a variety of close-ended questions.

Although close-ended questions may be used in telephone or personal interviews, they are best used in self-administered surveys. For example, when a large number of questions are posed similarly or offer the same response choices, it is easiest to have the respondent read them. This is especially true of telephone interviews. In personal interviews, the researcher can hand interviewees a card with the response choices listed on them. If visual aids are necessary, the self-administered or personal interview is probably best. The connection between question type and the most appropriate data collection method is largely an issue of common sense.

Writing Questions

Previous research and researcher intuition are useful when writing questions. Although wording will depend on the issue being researched and the information desired, several points should be considered carefully when building the questionnaire.

Consideration	Explanation
1. Use language the respondent will understand.	Use special terminology for respondents with expertise in the subject issue(s); common language for the general public.
2. Use words with common meanings.	Slang or provincial language may not be understood in the same way by all people.
3. Avoid long questions.	Long questions may be ambiguous and confusing.
4. Do not assume respondents know or have opinions about the issue.	Respondents may not admit they don't know something the researcher assumes they do.
5. Avoid ambiguous wording.	Responses to ambiguous questions may not be addressing the right issues.
6. When using a close-ended question structure, include only those questions for which you can list all possible alternative responses.	Suggesting only some of the possible responses will reduce the quality of gathered information.
7. Avoid biased or leading questions.	Biased questions suggest that only one is appropriate.
8. Phrase questions so they are value-neutral.	Do not include personal or incriminating questions.
9. Avoid the negative voice.	Questions in the negative voice may be confusing.
10. Frame questions about a single idea.	Combined questions are ambiguous.
11. Ask simple questions.	Questions requiring extended effort are often not answered.
12. Make sure answer choices are separate and distinct.	Similar questions yield ambiguous data.

Question Content

The effectiveness of methods used to collect data about sensitive subjects will vary. Fowler (1993) offered the following generalizations about sensitive issues and data collection methods:

1. The perception of anonymity probably makes self-administered surveys at least as good as telephone and personal interviews.
2. More than other survey methods, telephone interviews may elicit socially biased responses; i.e., respondents are likely to give answers they think are socially acceptable.
3. Regardless of data collection method used, personal contact with the respondent prior to data collection improves chances of getting his or her reaction to sensitive issues.

Question content may also make it hard for the respondent to provide information, particularly when such information is about behaviors or other complex and long-term human phenomena. Generally, self-administered questions work better in this case because they give the respondent time to contemplate his or her response.

Organizing the Survey

Survey organization is important. Often, little attention is given to the order of questions. To assuage concerns that respondents might not complete a survey, researchers traditionally have begun by asking the easiest questions first. Although that tradition is generally sound, there is more to consider in ordering questions than ease of response. The following list provides basic principles of ordering questions.

Principles for Ordering Questions on a Survey

1. Questions about the respondent's age, occupation, education, income, or marital status may extinguish any interest in completing a questionnaire.
2. Decide whether one or several questions are necessary to obtain the needed information.
3. Questions should be presented in descending order of importance to maintain respondent interest in completing the questionnaire.
4. Questions about the same general subject should be grouped.
5. Open- or close-ended questions about a subject should be by question structure.
6. Potentially objectionable questions about a subject should follow non-objectionable ones.
7. Open-ended questions about a subject, which require the most thought and writing, should be placed at the end of a questionnaire.

Pretesting the Survey

Pretesting is one of the most important elements of survey developing, yet it seldom is done sufficiently. Pretesting gives the researcher one more opportunity to improve a questionnaire's quality. Several questions should be posed during pretesting: Is each of the questions measuring what it is intended to measure? Are all the words understood? Do all respondents interpret questions similarly? Does each close-ended question have an answer that applies to the respondent? Does the questionnaire create a positive impression, one that motivates people to answer it? Are questions answered correctly? (Are some not answered, and do some elicit vague or peculiar answers?) Does any aspect of the questionnaire suggest bias on the part of the researcher (Dillman 1978)?

A pretest should be designed not only to examine the questions, but also the entire survey. The latter is necessary because a respondent's general impressions will influence his or her decision to complete the questionnaire. The pretest should use a form of the survey that is as fully developed as possible. It should be reviewed by three groups of people. First, it should be seen by colleagues—individuals who will understand the study purpose and be able to evaluate it on that basis. Second, it should be given to those who might use the data that are being collected. This group also should be familiar with the issue(s) and capable of evaluating the questionnaire for the usefulness of the data it will provide. When these two groups have evaluated the questionnaire and appropriate changes are made, it should be administered to a representative sample of the population to be tested, using the survey method that will be used in actual data collection (self-administered, telephone, or personal interview). All in this group should be encouraged to ask questions as they complete the questionnaire. This portion of the pretest will help identify areas that might be objectionable or cause misunderstanding. Once all three groups have examined or completed the pre-test instrument, the social scientist can make the appropriate changes to the questionnaire and prepare to administer it to the target population.

Desired Response Rates

Response rate is among the most important considerations when choosing a data-collection method. Low response rates introduce biases in the sample that provides the data. This section describes who might not respond and why, and suggests ways of reducing nonresponse rates for telephone and personal interviews and mail-back questionnaires.

Who are Nonrespondents?

Three categories of people in a sample typically do not respond to any survey method (Fowler 1993):

1. Those the data collection procedure does not reach
2. Those who are asked to respond but decline
3. Those who are asked to respond but cannot due to language barriers, difficulty of questions, literacy, and other reasons.

A social assessment that has low return rates may only be getting information from one segment of the sample, in which case the results probably will not be representative of the population surveyed. Bias will be introduced when participants include only those with a high interest in the study's subject or a higher education. Nonresponse to telephone and personal interviews will introduce bias by excluding hard-to-reach or handicapped persons. If interviews are conducted only between 9:00 a.m. and 5:00 p.m., available respondents may only include domestic spouses, the unemployed, and retired persons (Fowler 1993). The handicapped often live in metropolitan areas, where high-rise or multiple-dwelling residences predominate; and such individuals may be hard to find or reside in neighborhoods where interviewers are unwilling to go. Any or all bias may be reduced by using a telephone interview (Fowler 1993).

Reducing Nonresponse in Mail Surveys

In developing a mail-back questionnaire, the social scientist tries to contact as many respondents as possible. Generally, response rates will be low, often under 50 percent. However, carefully developed questionnaires that are administered by strict procedures, and which address issues of public importance, often elicit significantly higher response rates. Miller (1991) presented basic steps to improve response rates.

Successive steps for achieving high response rates for mail questionnaires

1. Prepare the questionnaire as a booklet, through photo reduction and multilithing.
2. Make the cover page attractive and eye-catching.
3. Use straightforward, unambiguous questions, carefully ordered and presented in a visually attractive manner. Questions on the first pages should attract respondents' interest and increase the likelihood that important questions of limited interest and appeal will be answered.
4. Prepare a cover letter emphasizing the social usefulness of the study and the importance of each individual respondent to the success of the study.
5. Make full use of personalization procedures. Address respondents by name—that is, do not use Dear Sir or Dear Madam as a salutation—and sign your name.
6. Send questionnaires via first-class mail.
7. Use postcard follow-up 1 week later to remind respondents to complete the questionnaire.
8. Prepare letters with replacement questionnaires and send to nonrespondents after about 3 weeks, possibly including a reminder postcard in the period between the questionnaire mailings.

Reducing Nonresponse in Telephone and Personal Survey Research

Two problems must be solved to increase participation in telephone and personal interviews. Access to potential respondents should be increased. The interviewer must effectively enlist cooperation. In order to decrease nonresponse due to availability, the researcher should:

1. Make several calls, including in the evening and on weekends. It is common to make four or five callbacks to a household.
2. Arrange interviews at the convenience of the respondent.

To enlist the cooperation of respondents once they are contacted:

1. Send potential respondents a letter, expressing the desire to interview them.
2. Effectively and accurately present the purpose and the importance of the interview.
3. Work to ensure that respondents are comfortable with the interviewer.
4. Make sure the interviewer understands the need for a high response rate and has been sufficiently trained (Fowler 1993).

A popular text that more specifically addresses procedures for increasing response rates and explores other survey administration issues is "Mail and Telephone Surveys: The Total Design Method" by Donald A. Dillman (1978).

Costs of Survey Administration

Mail and telephone surveys usually will cost less than personal interviews, but the professional expertise necessary to effectively administer a survey is always money well spent. The researcher may want to hire outside consultants for survey planning, design, and administration. Other cost factors include the geographic dispersion of respondents, the availability of trained staff, and the cost of printing, mailing, and telephone calls. Self-administered (especially mail) and telephone surveys are relatively inexpensive.

Available Facilities

The availability of staff and facilities will help determine which survey method to use. It is difficult and costly to hire and adequately train an interview staff, and attrition among interviewers usually will be high.

Length of Data Collection

The data collection timeframe will vary by survey method; e.g., a mail-back survey will take about 2 to 3 months, a telephone survey maybe only a few days. It is harder to estimate the time needed to conduct personal interviews because staff availability and desired sample size often vary widely.

Description of Survey Methodologies

The Self-Administered Questionnaire

The self-administered questionnaire includes questions designed to elicit information or opinions. It is given to potential respondents who have been selected as representative of a larger population. Respondents are asked to complete it on his or her own, and either to mail it back to the researcher or, if the situation warrants, return it in person. This is a popular method because it can return a lot of information quickly and at a relatively small expense. Generally, it provides quantitative data, although qualitative

information also may be obtained. It allows the researcher to analyze information from a representative sample. Because the self-administered questionnaire is so commonly used, social scientists must try to raise public interest in its content. It is most helpful to make the purpose of the study clear and relevant to the respondent, consider the time necessary to complete it, and focus on visual appeal and readability.

Advantages and Disadvantages of the Self-Administered Survey

The list below presents some of the potential advantages and disadvantages of using a self-administered survey.

Advantages and disadvantages of using self-administered surveys

Advantages	Disadvantages
• Easier than telephone interviews when visual aids can be used to clarify questions	• Low response rate, requiring intense follow-up efforts
• Allows more time for considered answers	• Good reading and writing skills are needed by the respondent
• More uniformity in questions	• Difficult to elicit thoughtful answers using open-ended questions
• Gives respondents a greater sense of privacy and confidentiality	• Respondent's identity is not confirmable
• Interviewer encouragement absent	• Interviewer is not available to answer questions
• Minimal staff and facilities are necessary	

Self-administered surveys may be returned by mail or retrieved by the interviewer. Some potential advantages and disadvantages of using the mail-back procedures are:

Advantages and disadvantages of using mail-back procedures

Advantages	Disadvantages
• Mail surveys are inexpensive	• More difficult to enlist cooperation than methods with personal contact
• Need minimal staff and facilities	• Good mailing addresses are not assured

continued from previous column

• Opportunity for thoughtful answers and to consult records or other family members	
• Provides access to broad samples and hard-to-reach individuals	

Advantages and disadvantages of using household drop-off and pick-up

Advantages	Disadvantages
• Interviewer can explain the study and answer questions	• Costs as much as personal interviews
• Response rates are higher than mail-back procedures	• A field staff is required
• Opportunity available to give thoughtful answers and consult records or family members	

The Telephone Survey

For several reasons, telephone interviewing is an increasingly popular means of conducting many types of survey research. Roughly 90 percent of the U.S. population can be reached by telephone; and personal interviewing costs about twice as much. Only 5 to 10 percent fewer people respond to telephone surveys than to requests for personal interviews. On average, response rates for telephone surveys have been found to be more than 15 percent better than for mail-back questionnaires. Finally, there are sampling techniques that simplify access to both unlisted and published telephone numbers.

Often, researchers will assume that mail-back questionnaires can be converted to telephone interviews by composing verbal introductions, pulling names out of a directory, and calling and asking questions. In fact, a good mail-back questionnaire probably will not make a good telephone questionnaire. Telephone interviews depend entirely on verbal communication; where it is important to make a mail-back questionnaire look good, a telephone interview must sound good. The telephone interview must link the respondent to carefully worded questions by means of his or her voice and be able to clarify wording and meaning. The telephone interview allows the researcher to gather data quickly and ensure considerable consistency of question delivery.

Advantages and disadvantages of the telephone interview

Advantages	Disadvantages
• Lower costs than for a personal interview	• Requires the use of trained interviewers
• Sampling techniques, such as random digit dialing (RDD), make it easy to obtain published and unpublished telephone numbers	• Eliminates people without a telephone from the sampling frame
• Ability to cover a broad geographic area	• Limits on the types of questions that can be asked
• Data can be collected quickly	• Visual aids not an option
• Greater control over the data-collection process	• Contact is time-dependent
• Multiple attempts to reach an individual are possible	• Personal or sensitive questions may not be appropriate
• Response rate probably better than mail-back questionnaire	
• Lower respondent literacy required than for mail-back questionnaires	

The Personal Interview

A personal interview may be conducted virtually anywhere. It may be highly structured with planned questions or informal and based on only a few general topic areas. Personal interviews give the social scientist an opportunity to explore intensively any number of subjects. Certain skills, talents, or technique are especially useful when conducting an interview. The interviewer may have to rephrase questions in a context that the interviewee can understand. The interviewer also must be objective and empathic, not judgmental or inordinately affected by any of the responses given. At the same time, an interviewer must be both persuasive and attentive. Generally, there are three types of personal interviews; the structured interview; the focused interview; and the unstructured or free-story interview.

The structured interview

A structured interview presents the respondent with a set of carefully worded and arranged questions. Questions are generally close-ended; open-ended questions are rarely used in a structured format. A structured interview's strengths include: simple data analysis, ease of comparison among respondents, and the ability to ask many questions in a relatively short time. On the other hand, although personal contact is made, the interviewee may find the process impersonal and mechanistic. As with the mail-back questionnaire, the structured interview's questions always are somewhat inflexible. Denzin and Lincoln (1994) provided the following instructions to the interviewer:

1. Never provide long explanations of the study; use a standard explanation for all interviewees.
2. Never deviate from the study introduction, sequence of questions, or question wording.
3. Never let another person interrupt the interview; do not let another person answer for the respondent or offer his or her opinions.
4. Never suggest an answer or agree or disagree with an answer; do not reveal your own personal values.
5. Never interpret the meaning of a question; simply repeat the question and give standard instructions.
6. Never improvise by adding answer categories or making wording changes.

The focused interview

Distinguishing characteristics of the focused interview are:

- The persons interviewed are familiar with issues about which the questions are framed.
- The researcher has analyzed significant elements, patterns, and processes surrounding the issue and developed a set of hypotheses about what information the focused interview will provide.
- On the basis of issue analysis, the researcher has developed an interview guide, which describes major topic areas and the hypotheses that will help determine the relevance of collected data.
- The interview is focused on subjective experiences of subjects who have been exposed to the pre-interview situation.

The focused interview is designed to invite the respondent to offer his or her opinions and perceptions. Prior to the interview, the researcher will provide an outline of topics and issues. In developing and using the interview guide, the interviewer can calibrate the sequence and wording of questions to fit the respondent's frame of reference. Open-ended questions are the primary tool for this type of interview. Strengths of this type of interview are that it provides comprehensive data and a means of comparing responses. Nonetheless, because the interviewer has less opportunity to tailor the interview to individual respondents, important and salient topics could be passed over. Four criteria must be met when using the focused interview process:

1. Range—Questions should be structured to reach the widest range of potential respondents.

2. Specificity—The questions should elicit very specific reports of the respondent's experience.
3. Depth—The interviewer should try to determine the various ways a respondent might experience or interpret issues.
4. Personal context—The interviewer should identify the personal characteristics of potential respondents that will shape their answers. A person's responses may either be based on highly personal and unique experiences or on a role that person plays in society.

The unstructured interview

The unstructured, or free-story personal interview, is an informal conversation that encourages the respondent to talk freely about subjects to be explored in an assessment. Interview questions emerge from the context of such conversations; there are no predetermined question topics or wording. Because questions are framed in the context of informal conversation, they are likely to be highly salient. The unstructured interview invites self-expression, although the inherent variety of questions asked may yield disparate information. Data organization is therefore harder than it is in structured interviews, and at least some responses will be irrelevant.

Advantages and disadvantages of the personal interview

Advantages	Disadvantages
• High response rate likely	• Tend to cost more due to travel, training, and staff
• Can obtain a highly representative sample of the total population	• Highly trained interviewers are necessary.
• Misinterpreted questions can be clarified, resulting in more accurate data	• Difficult in urban areas where crime is an increasing problem
• Supplementary personal information aids in interpreting results and evaluating the sample	• Difficulty in scheduling times with potential respondents
• Can use visual materials	• May take more time
• Spontaneous responses possible	• Interviewers bias may be reflected in questions
• Interviewer can control who responds	
• Allows respondent to offer more information	

continued from previous column

• Lends itself to delicate situations and sensitive questions
• Interview language adaptable to individual respondents
• Interview length does not affect refusal rates

Comparing Self-Administered Surveys, Telephone Surveys, and Personal Interviews

Although the self-administered survey, telephone survey, and personal interview all have advantages and disadvantages, the researcher must decide which will best address the social assessment's goals and objectives. A ranking of each method on aspects of several factors is listed in table 1.

Table 1—Comparison of mail questionnaires, telephone surveys, and personal interviews[a]

Performance characteristic	Mail questionnaire	Telephone survey	Personal interview
Cost	1	2	4
Personnel requirements—interviewers	NA	3	4
Personnel requirements—supervisors	2	4	3
Implementation time	4	1	4
Sample coverage	3	1	1
Response rate—general public	4	2	2
Refusal rate	Unknown	3	3
Noncontact/nonaccessibility	2	2	3
Ability to obtain a response from an elite	4	2	1
Control over who is respondent within household	4	2	2
Interviewer control over data collection	4	1	3
Likelihood of socially desired response	1	3	4
Item nonresponse	3	3	2
Length of questionnaire—impact on response	3	2	1

(continued)

Table 1—Comparison of mail questionnaires, telephone surveys, and personal interviews[a] *(continued)*

Performance characteristic	Mail questionnaire	Telephone survey	Personal interview
Confidentiality/anonymity	4	4	4
Ability to ask sensitive questions	2	2	1
Ability to probe	4	2	1
Ability to clarify	4	2	1
Complex questions	3	3	1
Open-ended questions	4	1	1
Visual aids	2	4	1

[a] Ranking: 1= major advantage; 2 = minor advantage; 3 = minor disadvantage; 4 = major disadvantage.

Source: Frey (1983).

When deciding which method to use, the researcher may want to refer to some or all of these comparisons. His or her decision will require a subjective comparison of rating elements pertinent to the study. For example, if the most important parameter to consider is keeping costs down, a self-administered mail questionnaire may be best. If getting timely results is the most important, a telephone survey may suffice. If significant and thoughtful information from key stakeholders is important, a personal interview process will work best.

Bibliography for Conducting Survey Research

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

This very popular publication focuses on how to conduct mail and telephone surveys using Dillman's Total Design Method. It has generated a significant amount of research on ways to increase response rates and eliminate all types of errors associated with survey research.

Fowler, F.J.; Mangione, T.W. 1990. Standardized survey interviewing. Newbury Park, CA: Sage Publications. 151 p.

This publication discusses recruiting, training, and supervision of interviewers, rapport with respondents, and questioning techniques. There is a strong focus on limiting errors attributable to the interviewing process.

Frey, James H. 1989. Survey research by telephone. Newbury Park, CA: Sage Publications. 289 p.

This publication reviews telephone sampling, questionnaire construction, question writing, and interviewing. It compares telephone, mail-back, face-to-face, and intercept surveys by cost, response rate, and data quality.

Gorden, R.L. 1992. Basic interviewing skills. Itasca, IL: Peacock. 236 p.

This publication reviews all stages of the interview process—from designing relevant questions to establishing a proper atmosphere for interviewing. It explores ways of listening to the respondent, probing responses, and recording information.

Merton, R.K.; Fiske, M.; Kendall, P.L. 1990. The focused interview: a manual of problems and procedures. 2d ed. New York: The Free Press. 200 p.

This publication is the second edition of a classic manual on conducting focused interviews. Topics include the purposes and criteria necessary, procedures for gathering information of the appropriate range, depth, and specificity, as well as the use of focused interview techniques in group interviews.

Salant, P.; Dillman, D.A. 1994. How to conduct your own survey. New York: John Wiley. 232 p.

This up-to-date reference describes the basics of developing, planning, and conducting research using a variety of survey methods.

Schuman, H.; Presser, S. 1996. Questions and answers in attitude surveys: experiments on question form, wording, and context. Thousand Oaks, CA: Sage Publications. 392 p.

The authors use more than 30 national surveys conducted over several years to experiment with the open- versus closed-question formats, as well as strategies for wording questions, ordering questions, and response-order variations.

[Different editors for each volume]. The survey kit. Thousand Oaks, CA: Sage Publications. 9 vols.

This series of nine publications (available separately) describes various aspects of planning, designing, and administering surveys. Listed below are titles and authors of each.

Volume number and title	Author
1. The Survey Handbook	Arlene Fink
2. How to Ask Survey Questions	Arlene Fink
3. How to Conduct Self-Administered and Mail Surveys	Linda Bourque and Eve Fielder
4. How to Conduct Interviews by Telephone and in Person	James Frey and Sabine Oishi
5. How to Design Surveys	Arlene Fink
6. How to Sample in Surveys	Arlene Fink
7. How to Measure Survey Reliability and Validity	Mark Litwin
8. How to Analyze Survey Data	Arlene Fink
9. How to Report on Surveys	Arlene Fink

Chapter 6

Developing and Administering Group Interviews

The mail-back questionnaire, personal interview, and telephone survey presume a sample or population of individual responses will represent perceptions of the whole group. An alternative to this approach is the group interview, which is the systematic questioning of several individuals simultaneously in formal or informal settings. This form of interviewing, which can be implemented in a structured, semi-structured, or unstructured format, is increasingly popular among social scientists. Although the group interview is not intended to replace individual interviewing or surveying, in many situations it can be used to collect data within any social context. Used in conjunction with or instead of other field research techniques, the group interview may provide the researcher with additional data or a perspective not available through individual interviews. Group interview techniques hold important implications for ecoregional and forest social assessments.

Even though it is the most common type of group interview, the focus-group interview is only one of several. Brainstorming, consensus building, and natural and formal field interviews are three other popular types. In this section we will look at the first three, then provide a more detailed discussion of the focus group.

Brainstorming

Brainstorming is a popular means of generating new ideas. The interviewer presents an idea or thought, which group members interactively and openly evaluate and consider. The interviewer's role is passive, and the questioning has no structure; his or her role is to defer the group from focusing on trivial matters. Some have found, however, that whereas sometimes responses are insightful, they are often superficial. It is best to use brainstorming during the initial stages of a group interview.

Consensus-Building Techniques

Consensus-building techniques are structured methods for reaching general agreement, including identification of appropriate future direction. Here we look at the Nominal Group and Delphi techniques.

The Nominal Group Technique

The nominal group technique includes all group members. A six-step process for the nominal group technique follows (Delbecq and others 1975):

1. Topic is introduced.
2. Participants write down responses on a card or sheet of paper.
3. Responses are listed on a board that is visible to all.
4. Listed responses are clarified.
5. A vote is taken.
6. Votes are tabulated.

The Delphi Technique

The Delphi technique is used when participants are separated geographically. It relies on the informed judgment of knowledgeable persons assembled in a preselected panel. The technique is done anonymously with controlled feedback provided until a consensus is reached. This technique is especially time-consuming. Its basic steps include:

1. A panel of "experts" on the topic is selected.
2. An open-ended questionnaire is sent to the participants.
3. Responses are grouped and tabulated.
4. A second questionnaire asks the panel to rate the importance of initial responses.
5. The second questionnaire is tabulated and a third questionnaire is sent for additional rankings.
6. This is repeated until a consensus is reached on the issue.

Natural and Formal Field Interviews

Group interviews can take place in two different ways. First, the interviewer may approach a group as it casually forms; e.g., at a campground, a popular trailhead, or highly used canoe-launch site. There, the interviewer may first just observe individual and group behavior and interactions. The interviewer can approach the group and pose questions. One disadvantage of this technique is that the interviewer's entrance will alter the group dynamic. This method is particularly useful when evaluating earlier data interpretations and when trying to identify biases within other studies (Frey and Fontana 1993).

Often the natural setting is not conducive to probing interviews, although the interviewer may still gather valuable information. He or she may arrange for group members to meet in a nearby field setting that is free of distractions. For instance, a group or groups of boaters who use a popular boat dock might agree to meet at a campground later in the

day. A formal field interview will allow the researcher to direct the group interview process and lend legitimacy to his or her role in the field setting (Frey and Fontana 1993).

Focus-Group Interviews

The use of focus groups is increasingly common. Five primary characteristics of this technique are the use of multiple respondents, interaction among participants, the presence of a moderator, the use of qualitative data, and the predetermined nature of questions initiating the discussion.

The use of multiple respondents—First the focus group is characterized by simultaneous involvement of multiple respondents, generally ranging from 8 to 10 individuals. Whereas the ideal number may vary from situation to situation, the focus group should be small enough to allow all participants an opportunity to share their insights, but large enough to ensure diversity of perceptions. Some brief guidelines about the composition of a focus group are:

1. Participants should be a reasonably homogeneous group. Depending on the purpose of the study, respondents should represent both genders and vary by age, education, and occupation. Nonetheless, each participant should have an interest or stake in the issue(s). If the social scientist wants to hear from several different types of individuals or groups, multiple focus-group sessions should be considered.
2. Ideally, focus groups are composed of people who do not know each other. Although such composition may be difficult, it is appropriate for social assessments done at relatively small geographic levels such as a community. There, close friends and work colleagues should not be included in the same group. Familiarity tends to inhibit social interchange and often will allow an individual of authority to take over the discussion.

Participant interaction—In many interview situations, discussion among respondents may distort the purity of responses. However, a focus group's effectiveness depends on participant interaction. It presents a natural environment where participants influence—and are influenced by—others.

Presence of a moderator—Focus-group sessions should be moderated by a competent person who is able to manage the process. He or she will help focus discussions and ensure that the goals and objectives are met.

Use of qualitative data—The focus-group moderator typically uses a questionnaire designed to elicit qualitative data that reflect participant attitudes, perceptions, and opinions. He or she presents results to the group which encourage participants to respond in their own words.

Predetermined questions—Focus-group topics are logically predetermined and sequenced to make them understandable. The moderator asks open-ended questions that are prepared before the meeting, although he or she should memorize and ask them conversationally. Unlike the brainstorming, nominal group, and Delphi techniques, the focus group is not designed to achieve consensus but, rather, to understand the participants' thought processes as they consider the issues discussed.

The basic philosophy behind the focus-group technique is that group dynamics efficiently generate more useful, in-depth information. People may feel more secure talking about a subject when they are involved in a group discussion; human interaction sometimes generates information that might not come from a one-on-one interview; and focus-group dynamics might give valuable insight on the role of peer pressure in participant interaction and acceptance of ideas (Greenbaum 1988).

Use of the Focus-Group Interview

Increasingly, social scientists are recognizing the value of qualitative information provided by focus groups. The researcher may use the focus-group technique to better understand public thinking on the issue(s) and thereby develop more effective surveys for gathering quantitative data. Focus groups also may help sequence questions more logically, identify additional response choices, and better understand critical questions and relationships.

Focus groups also may be used while quantitative data-collection procedures are underway. Called triangulation, two or more research methods are used simultaneously and expanded to address the same issue(s) in both the breadth and depth of information.

Nonetheless, focus groups often are used alone, particularly when public insight, perception, and feedback are more important than any numerical tally.

When to Use and Not to Use a Focus-Group Interview

Depending on the interview's purpose, the moderator usually will decide how much process structure is necessary. Moderator skills required include flexibility, objectivity, empathy, persuasiveness, and an ability to listen. He or she also must be able to discourage and prevent group domination by individuals or smaller groups by inviting even the most reserved to participate. Third, the interviewer must be able to balance obtaining information with managing group dynamics. The following situations illustrate appropriate and inappropriate uses of the focus-group technique.

Focus groups should be considered if:	Explanation
1. Decision makers are thought to have disenfranchised the publics they serve.	An individual may be encouraged to participate more openly.
2. There is a communication gap between professionals and their target audiences.	Communication may be constrained by language, education, culture, or expertise.
3. There are complex attitudes, motivations, and behavior to investigate.	Quantitative methods describe human attitudes, motivation and behavior in the simplest terms. The focus group will produce qualitative data based on points of view.
4. You need a research method that is respectful and not condescending to the target audience.	Forums that evenly consider tensions and mistrust provide valuable information about public opinion.
Focus groups should not be considered if:	
5. The primary intent is something other than research; e.g., to resolve conflicts, increase communication, obtain consensus, or make decisions.	The primary purpose of focus groups is to collect qualitative data.
6. Group discussion is not appropriate.	Focus groups that discourage any participants from voicing their views are not appropriate.
7. The topic is not appropriate for the participants.	Focus group participants must intelligently discuss the topic.
8. Statistical data are required.	A focus group typically will not be representative of the population.

Source: Morgan, D.L. ed. 1993. Successful focus groups: advancing the state of the art. Thousand Oaks, CA: Sage Publications.

Preparing for a Focus-Group Interview

Greenbaum (1988) identified 10 key steps that should be taken before conducting a focus-group interview. Although all may not be necessary or possible in every situation, they suggest the importance of preparation.

1. Define the situation.
2. Secure agreement to the research plan.
3. Select a moderator.
4. Get a detailed proposal from the moderator.
5. Brief the moderator.
6. Define parameters for starting the group.
7. Discuss preparation of the moderator guide.
8. Determine the nature and scope of the moderator report.
9. Develop a flowchart for the focus-group implementation process.
10. Agree on rules and parameters for the session.

Step 1. Define the Situation.

The first step is to prepare a 1- or 2-page document stating the purpose of the research and what you expect to achieve. It should (a) outline information used in choosing the focus-group method, (b) briefly describe your primary goals and objectives, (c) describe how information from the focus group will be used, (d) describe the types of people who would be included in the focus group, and (e) estimate the focus-group implementation costs.

Step 2. Secure Agreement to the Research Plan.

The second step is to ensure that everyone involved with the social assessment agrees on all aspects of the focus-group process, including its objectives, participants, and use of the results. This step is important because it invites input from a broad range of people, improving the quality of the product and ensuring unilateral agreement on the scope of research. Input from one's peers increases the likelihood they will accept your results.

Step 3. Select the Moderator.

Careful selection of a moderator will help ensure the gathering of quality information. He or she should be selected relatively early in the process. A moderator must have an ability to manage the dynamics of a focus group. Many private research companies have workers experienced in this technique. However, whomever you select should be very familiar with the subject of your research; i.e., able to steer the discussion in useful directions.

Step 4. Get a Detailed Proposal from the Moderator.

Written, detailed proposals from potential moderators often are useful in the selection process. The selected proposal should confirm that the moderator understands the issues and objectives of your research. A thorough moderator proposal should include (a) a statement describing the need for a focus group, (b) a statement of focus-group objectives as the moderator understands them, (c) a timeline for focus-group implementation and completion of the moderator report, (d) a discussion of the implementation process

including selection of participants and facility and equipment needs, (e) a description of the final report format, and (f) an itemized analysis of costs.

Step 5. Brief the Moderator.

To ensure that a focus-group interview provides as much useful information as possible, the moderator must have sufficient background materials. Although he or she need not be an expert on the issue(s), the moderator must be able to guide the discussion in useful directions.

Step 6. Define Parameters for Starting the Group(s).

The moderator should be involved in preparing a specific outline of the focus-group interview. Primary questions to be answered are

1. How many group interviews will be conducted and in what time frame? Several focus groups often are necessary to reach a broad population.
2. How many people will be in each group session? Focus groups generally range from 8 to 10 people; fewer will limit the quality of information, reduce group dynamics, and may make participants feel they were chosen as experts rather than representatives of a larger group. On the other hand, a group of more than 10 is harder to control; the moderator's ability to stimulate interaction among group members probably will be less effective; and probing individual participants for more in-depth responses will be more difficult.
3. Where will group interview(s) be held? The facility used and the geographic region in which the focus group is held are important, especially when a social assessment is to cover a broad geographic scale.
4. What will be the group's composition? The researcher must establish criteria for determining who will be in the focus group. What are participants' relationships to resources within the ecosystem; e.g., commercial, recreational. Ideally, focus-group members will share, making it easier to evaluate information from a single session, encouraging useful group dynamics, and allowing the moderator to invite discussion rather than mediate disagreements. Multiple focus-group sessions should be conducted when diverse stakeholder groups are identified.
5. What stimuli will be used to elicit responses from respondents? Visual aids may help encourage participants to offer opinions.

Step 7. Discuss Preparation of the Moderator Guide.

The moderator guide is an outline of material to be covered by the group. It is the primary implementation vehicle for a group, in much the same way that a questionnaire is the primary data-collection vehicle for survey methods. It will help determine how the discussion should be directed to cover the topic(s) and ensure that priorities are maintained. The moderator's guide also may serve as an outline for the focus-group report.

Step 8. Determine the Nature and Scope of the Moderator Report

The moderator's report may be a summary of the session or a more comprehensive report. A summary will be relatively short (5 to 10 pages) and describe only the group's main points. However, a more detailed report may be desired—one that provides not only the key points, but also minor points that help explain the nature of the group's discussions. A comprehensive report is not useful to those who may not have been directly involved with focus-group planning and administration.

Step 9. Develop a Flowchart for the Focus-Group Implementation Process.

Once details of the focus groups have been determined, the researcher will prepare a flowchart showing a timeline that includes all stages of the process. It will identify important steps the moderator will take and estimate the time necessary to complete each step.

Step 10. Agree on Rules and Parameters of the Session.

In the final preparation step, the moderator and others involved in the research will identify what administrative personnel will be necessary; who, in addition to the focus-group participants, will be invited to attend; and which lines of communication among research personnel will be used.

Steps for Conducting a Focus-Group Interview

Greenbaum (1988) identified several steps to be taken when conducting a focus-group interview. They are taken before, during, and after the participants are gathered:

Step 1. Presession Arrangements

This involves ensuring the facility is ready; e.g., appropriate equipment (video cassette players, tape recorders, and easels), chairs and tables, refreshments, and nametags are provided. The moderator should also ensure that the room is quiet enough so that participants are not distracted.

Step 2. Introduction

This step will be taken in two phases.

Phase 1—The moderator welcomes participants and tells them about available refreshments. Each participant is

provided a nametag and told the general rules and procedures that should be followed during the session; e.g., breaks.

Phase 2—The moderator introduces him or herself and describes session objectives and specific rules of discussion. The moderator also will describe any use of audio/video equipment and acknowledge the presence of any observers.

Step 3. Warm-up

A warm-up is designed to make the participants feel comfortable with the process. The moderator asks participants to introduce themselves and describe where they live, as well as any familiarity or connection they have with the focus-group topic(s). A general discussion of the topic(s) then begins. The moderator helps more participants into the focus-group process and gets them to begin thinking about the issue(s).

Step 4. Specific Topic Discussion

Depending on the nature of the issues, the discussion proceeds in several phases. The following can serve as a guide to coordinated discussion:

1. Issue introduction phase—The moderator provides more specific description of the issue(s), including specific goals and objectives.
2. Issue presentation—If several issues are to be discussed, each is presented; and the moderator poses questions that will stimulate discussion.
3. Presentation of the second (and subsequent) issue(s)—Respondents are encouraged to disregard discussions of the first issue before moving on to the next.
4. Wrap-up section—When the last issue has been discussed, the moderator will describe how the issues are connected.

Step 5. Close

This step is intended to send the participants away with positive feelings about the process, as well as the agency that conducted the focus group. Although it is a relatively short step (a few minutes), it is a very important part of the session. The moderator will thank everyone for coming, stressing the importance of their participation. When appropriate, the moderator should ask participants to avoid discussing their experience with those who will be participating in future focus groups.

Step 6. Postgroup Discussion

Many consider postgroup discussion the most important part of the focus-group process. It gives the moderator and others on the research team an opportunity to discuss what they learned at the session and the implications of the views expressed. The postgroup discussion also may help the moderator report on issue(s) that the research team thinks are especially important.

Bibliography for Conducting Group Interviews

Gorden, R.L. 1992. Basic interviewing skills. Itasca, IL: Peacock. 236 p.

The book provides a review of all stages of the interview from designing relevant questions to establishing a proper atmosphere for interviewing, listening to the respondent, probing responses, and properly recording information.

Greenbaum, T.L. 1998. The handbook for focus-group research. 2d ed. Thousand Oaks, CA: Sage Publications. 262 p.

The handbook provides information about conducting effective focus groups, including discussions about common mistakes, moderating focus groups, controlling the costs of focus groups, and using technology in focus groups.

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

This guide provides information about planning and conducting focus groups including conducting focus groups for special situations.

Merton, R.K.; Fiske, M.; Kendall, P.L. 1990. The focused interview: a manual of problems and procedures. 2d ed. New York: The Free Press. 200 p.

It is the second edition to a classic manual on conducting focused interviews. Topics include the purposes and criteria necessary for using focused interviews, procedures for obtaining information of the appropriate range, depth, and specificity, and use of focused interview techniques for group interviews.

Morgan, D.L., ed. 1993. Successful focus groups. Newbury Park, CA: Sage Publications. 271 p.

The book has contributions from leading authorities in the use of group interviewing with an emphasis on focus groups and includes the advantages and disadvantages of this type of research as well as specific accounts of how the group interview can be used to augment survey implementation.

Templeton, J.F. 1994. The focus group. Chicago: Probus Publishing Co. 308 p.

This book offers a comprehensive guide to organizing, conducting, and analyzing the focus-group interview.

[Different editors for each volume]. 1998. The focus group kit. Thousand Oaks, CA: Sage Publications. 6 vols. Series of six publications (available separately) describing the various

aspects of planning, designing and administering focus-group interviews is listed below with the titles and authors of each publication.

Volume Number and Title	Author
1. The Focus Group Guidebook	David Morgan
2. Planning Focus Groups	David Morgan
3. Developing Questions for Focus Groups	Richard Krueger
4. Moderating Focus Groups	Richard Krueger
5. Involving Community Members in Focus Groups	Richard Krueger and Jean King
6. Analyzing and Reporting Focus Group Results	Richard Krueger

Chapter 7

Selecting a Sample of Respondents from the Population

One of the researcher's first tasks is to determine which people are to be sources of data suitable for the social assessment. The process of determining who will be surveyed or interviewed is called sampling. This chapter describes two general types of samples, probability and nonprobability, and discusses several specific sampling techniques for each.

Probability Samples

Probability samples are based on random selection. The researcher uses statistical techniques to draw such a sample—techniques that give every individual in a population an equal chance of being selected. Such a sample is therefore likely to be representative of an entire population. Typically, probability samples are used in survey research. The purposes of probability sampling are to:

1. Compare characteristics and responses among various groups
2. Identify characteristics that may be associated with specific responses
3. Estimate characteristics of the total population from the sample selected
4. Identify changes in characteristics within groups or a total population at two or more different times (Branch and others 1984).

Steps in Selecting Probability Samples

The researcher must follow several steps in identifying the optimal make-up of the sampling frame (list of study population). These steps include:

1. Define the study population
2. Determine the unit of analysis
3. Establish a sampling frame
4. Select a procedure for drawing from the sampling frame
5. Determine the sample size
6. Draw the sample
7. Define the study population.

The sampling process begins when the researcher defines the study population. He or she identifies the nature of the population from which the sampling units will be drawn. This sampling could represent all residents in a watershed, or all residents and visitors present during a given span of time.

Determine the Unit of Analysis

The second step is to determine whether individual persons, households, organizations, or other social groups will be studied.

Establish a Sampling Frame

A sampling frame is as comprehensive a list of a population as possible and will be the source of potential study respondents. Sampling frames include public telephone directories, voter-registration lists, city directories, platted maps or county tax roles, organizational directories, public utility customers, residences in a particular zip code, and specific groups within a population; e.g., all elected officials. Although such sources are generally adequate, they all may be limited by inherent omissions of potential respondents; e.g., telephone directories do not include individuals with unlisted telephones or no telephones. Statisticians often can determine the best method of selecting a sampling frame for an assessment. Some private companies provide a variety of random samples, although such samples also may have limitations. An adequately selected sample will infer characteristics of an entire population.

Select a Sampling Procedure

The researcher can choose from several types of probability samples, depending on identified needs. The next section provides a detailed list and description of several probability sampling techniques.

Determine the Sample Size

There is not one correct sample size for a social assessment. The appropriate size will be a compromise among sampling technique, research goals and objectives, size and variability of the population, and resources available (Branch and others 1984). Statistical or research consultants can weight these factors and determine an appropriate sample size.

Draw the Sample

Although a relatively straightforward task, actually drawing a sample may be time-intensive; and the effort should be carefully organized beforehand.

Probability Sampling Procedures

There are several types of probability samples, and each is capable of randomly selecting respondents from a sampling frame. Here is a brief description of the most common methods of probability sampling:

Simple Random Sampling

In this common technique, a sample is drawn in a way that gives all subjects an equal chance of being selected. It is assumed that the sample drawn is statistically representative of the total population.

Stratified Random Sampling

In this technique, a population first is divided into two nonoverlapping groups, or strata. A simple random sample is selected from each stratum. It is assumed that the sample drawn from each stratum is statistically representative of the strata from which the sampling unit was drawn. This technique often is used when the researcher wants to break a sample into two or more convenient subgroups; e.g., urban and rural residents, males and females.

Systematic Sampling

In systematic sampling the researcher randomly chooses an element from the sampling frame; e.g., registered voters, and then selects every nth element. For instance, if a sampling frame included 100,000 names and the researcher wanted to select 500 of those individuals, he could select the first name and then every 200th person on the list. This type of sampling technique is superior to simple random sampling when the sampling frame is an ordered list. When the elements are random, a systematic sample would be the same as a simple random sample.

Cluster Sampling

A cluster sample is a probability sample in which each sampling unit is a group, or cluster, of elements. For example, in a statewide survey the researcher may decide that rather than taking a simple random sample of all State residents, he or she wants to cluster the sample. To create the cluster, the researcher might take a random sample of counties within the State and randomly select individuals from each. This method is common when a good sampling frame for a large population is not available, but a sampling frame for smaller components of that population is. It also may be used when elements of the sampling frame are widely dispersed geographically.

Nonprobability Samples

In nonprobability sampling, the researcher does not necessarily need a large statistically representative sample of the population, but, rather, wants a sample that is purposefully biased toward information-rich subjects. One such technique often is used when data collection is primarily qualitative rather than quantitative. The best method to use will depend on the type of information sought and the resources available.

Nonprobability Sampling Procedures

Here are some brief descriptions of the most common nonprobability sampling methods:

Maximum-Variance Sampling

Maximum-variance sampling is conducted when the researcher wants to ensure that the sample represents a broad range of relevant characteristics; e.g., every rural female with red hair. In this method, subjects are selected successively; i.e., after interviewing one subject, the researcher selects the next one from those within the population who has characteristics that the first interviewee did not have. This procedure gives the researcher flexibility to ask questions in one interview that are based on information from a previous one. For example, after interviewing an individual who had lived in the community for 50 years, the researcher may purposely seek out an individual who moved into the area within the last 5 years.

Snowball Sampling

In snowball sampling, one individual is the source for locating others who also may have the desired information. As its name suggests, the sample selection increases over time enabling the researcher to find potential interviewees with knowledge of or concern about the issue(s). It also provides a view of relevant social networks. The researcher can select respondents from those who are most often mentioned in the interview process.

Expert Sampling

Also called judgment sampling, the researcher's informed opinion is the basis on which a population is sampled. Ample justification of making such selections is essential.

Quota Sampling

In this technique, the researcher identifies a characteristic of the population to be studied, then selects a sample that will represent that characteristic to the same extent. For example, if 40 percent of the population is older than 65 years, the

researcher will select a sample that includes the same proportion of persons over 65 years. In quota sampling, it is important to choose a characteristic that somehow relates to the type of information sought.

Convenience Sampling

Convenience sampling is the most informal and probably the least useful type. The researcher simply selects the most convenient subjects in terms of accessibility or willingness to participate; and the sample probably will not represent the larger population.

References

Berg, Scott; Gufstafson, Earl; Miley, Elizabeth. 1993. State forest practices throughout the United States: a review of forest laws, practices, acts, and best management practices. Washington, DC: American Forest & Paper Association. 74 p. + appendix.

Betz, Carter J. 1997. SEELA 1997: social, economic, environmental, and leisure assessment database codebook and documentation. [Number of pages unknown]. On file with: USDA Forest Service, Southern Research Station, Recreation, Wilderness, Urban Forestry and Demographic Trends Research, 320 Green Street, Athens, GA 30602-2044.

Bitterroot Social Research Institute. 1994. Social assessment of the Bitterroot Valley, Montana, with special emphasis on national forest management.[Number of pages unknown]. On file with: USDA Forest Service, Missoula, MT.

Branch, K.; Hooper, D.A.; Thompson, J.; Creighton, J. 1984. Guide to social assessment: a framework for assessing social change. Boulder, CO: Westview Press. 322 p.

Brown, Greg; Harris, Charles C. 1992. The U.S. Forest Service: toward the new resource management paradigm. Society and Natural Resources Journal. 5: 231–245.

Clark, R.N.; Stankey, G.H.; Brown, P.J. [and others]. 1999. Toward an ecological approach: integrating social, economic, cultural, biological, and physical considerations. In: Sexton, W.T.; Malk, A.J.; Szaro, R.C.; Johnson, N.C., eds. Ecological stewardship: a common reference for ecosystem management. Kidlington, Oxford, UK: Elsevier Sciences Ltd.: 297–318.

Cleland, David T.; Avers, Peter E.; McNab, W. Henry [and others]. 1997. National hierarchical framework of ecological units. In: Boyce, Mark S.; Haney, Alan, eds. Ecosystem management: applications for sustainable forest and wildlife resources. New Haven, CT: Yale University Press: 181-200.

Cordell, H.K.; Thompson, H.; McDonald, B. [and others]. 1999. Shifting values and public expectations: management perspectives. In: Sexton, W.T.; Malk, A.J.; Szaro, R.C.; Johnson, N.C., eds. Ecological stewardship: a common reference for ecosystem management. Kidlington, Oxford, UK: Elsevier Sciences Ltd.: 59–84.

Cortner, H.J.; Moote, M.A. 1992. Sustainability and ecosystem management: forces shaping political agendas and public policy. In: American forestry—an evolving tradition: Proceedings of the Society of American Foresters national convention. Bethesda, MD: Society of American Foresters: 310–316.

Cortner, H.J.; Shannon, M.A.; Wallace, M.G. [and others]. 1996. Institutional barriers and incentives for ecosystem management: a problem analysis. Gen. Tech. Rep. PNW-GTR-354. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 35 p.

Decker, D.J.; Brown, T.L.; Knuth, B.A. 1996. Human dimensions research: its importance in natural resource management. In: Ewert, A.W., ed. Natural resource management: the human dimension. Boulder, CO: Westview Press: 29-47.

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

Driver, B.L.; Manning, C.J.; Peterson, G.L. 1996. Toward better integration of the social and biophysical components of ecosystems management. In: Ewert, A.W., ed. Natural resource management: the human dimension. Boulder, CO: Westview Press: 109-127.

ECOMAP. 1993. National hierarchical framework of ecological units. Washington, DC: U.S. Department of Agriculture, Forest Service. [Not paged].

Everett, Richard; Hessburg, Paul; Jensen, Mark; Bormann, Bernard. 1994. Executive summary. Gen. Tech. Rep. PNW-GTR-317. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 61 p. Vol. I.

Ewert, A.W. 1996. Human dimensions research and natural resource management. In: Ewert, A.W., ed. Natural resource management: the human dimension. Boulder, CO: Westview Press: 5-12.

Force, J.E.; Machlis, G.E. 1997. The human ecosystem, part II: social indicators in ecosystem management. Society & Natural Resources. 10(4): 369–382.

Forest Ecosystem Management Assessment Team. 1993. Forest ecosystem management: an ecological, economic, and social assessment. Portland, OR: U.S. Department of Agriculture; U.S. Department of the Interior [and others]. [Irregular pagination].

Fowler, F.J. 1993. Survey research methods. 2d ed. Newbury Park, CA: Sage Publications. 156 p.

Frey, J.H. 1989. Survey research by telephone. Newbury Park, CA: Sage Publications. 289 p.

Frey, J.H. 1983. Survey research by telephone. Newbury Park, CA: Sage Publications. 208 p.

Greenbaum, T.L. 1998. The handbook for focus group research. 2d ed. Thousand Oaks, CA: Sage Publications. 262 p.

Grumbine, R.E. 1994. What is ecosystem management? Conservation Biology. 8: 27–38. [Interior Columbia Basin Ecosystem Management Project].

Keystone Center. 1996. The Keystone national policy dialogue on ecosystem management. Keystone, CO: The Keystone Center. 43 p. + appendices.

Lang, R. 1986. Achieving integration in resource planning. In: Lang, R., ed. Integrated approaches to resource planning and management. Calgary, AB: The University of Calgary Press: 27-50.

Likens, G. 1992. An ecosystem approach: its use and abuse. In: Excellence in ecology. Oldendorf/Luhe, Germany: Ecology Institute. 166 p. [Book 3].

Likert, R. 1967. The human organization: its management and value. NY: McGraw-Hill. 258 p.

Manfredo, M.J.; Vaske, J.J.; Sikorowski, L. 1996. Human dimensions of wildlife management. In: Ewert, A.W., ed. Natural resource management: the human dimension. Boulder, CO: Westview Press: 53-72.

Miller, D.C. 1991. Handbook of research design and social measurement. 5th ed. Newbury Park, CA: Sage Publications. 704 p.

Mitchell, B. 1986. The evolution of integrated resource management. In: Lang, R., ed. Integrated approaches to resource planning and management. Calgary, AB: The University of Calgary Press: 12-26.

Moote, M.A.; Burke, S.; Cortner, H.; Wallace, M.G. 1994. Principles of ecosystem management. http://wildlife.wisc.edu/courses/379/readings/moote1994.htm. [Date accessed unknown].

Morgan, D.L., ed. 1993. Successful focus groups: advancing the state of the art. Newbury Park, CA: Sage Publications. 271 p.

Morrissey, Wayne; Zinn, Jeffrey; Corn, Lynne. 1994. Ecosystem management, Federal agency activities. Rep. 94-339. Washington, DC: Congressional Research Service Reports. 124 p.

Overbay, J.C. 1992. Ecosystem management. In: Taking an ecological approach to management. Publ. WO–WSA–3. [Location of publisher unknown]: U.S. Department of Agriculture, Forest Service: 3-15.

Quigley, T.M.; Haynes; R.W.; Graham, R.T., eds. 1996. Integrated scientific assessment for ecosystem management in the interior Columbia Basin. Gen. Tech. Rep. PNW-GTR-382. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 303 p.

Schlager, D.B.; Freimund, W.A. 1997. Legal and institutional obstacles to implementing ecosystem management. In: Cordell, H.K., ed. Integrating social science and ecosystem management: a national challenge. Gen. Tech. Rep. SRS–17. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station: 57-72.

Society of American Foresters. 1993. Task force report on sustaining long-term forest health and productivity. SAF Publ. 93-02. Bethesda, MD: The Society. 83 p.

Stankey, G.H.; Clark, R.N. 1992. Social aspects of new perspectives in forestry: a problem analysis. Milford, PA: Grey Towers Press. 33 p.

Stewart, S.I.; Jakes, P.J.; Monson, P. 1997. Emergent issues in forest plan revision: a dialogue. In: Vogelsong, H., ed. Proceedings of the 1997 northeast recreation research symposium. GTR-NE-241. Newton Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station: 220-224.

The Ecological Society of America. 1996. The report of the Ecological Society of America committee on the scientific basis for ecosystem management. Ecological Applications. 6(3): 665–691.

U.S. Department of Agriculture, Forest Service. 1994. Implementing the concepts of ecosystem management in the USDA Forest Service. Washington, DC: Ecosystem Task Team Report. 97 p.

U.S. Department of Agriculture, Forest Service. 1996. Status of the Interior Columbia Basin: summary of scientific findings. Gen. Tech. Rep. PNW–GTR–385. Portland, OR: U.S. Department of the Interior, Bureau of Land Management. 144 p.

Wood, C.A. 1994. Ecosystem management: achieving the new land ethic. Renewable Natural Resources Journal. 12: 6–12.

Appendix

Description of Dimensions, Concepts, and Indicators

Dimension I		Historical Background
Concept Ia.		Record of a community's past and present dependence on the natural resource base will reflect important social attitudes and the structures supporting them. Problems and opportunities stem from historical experience.
Indicator 1		Community origin
	Description of indicator	Communities are born of and evolve from key industries, migrating peoples, social attitudes, and common human behavior.
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and ecosystem managers? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records
Indicator 2		Recent or current experience with ecosystem management (EM) issues
	Description of indicator	Information about public response(s) to EM policies, practices, and planning is dynamic. It is important to recognize how EM issues have been addressed in the past, what political controversy surrounds those issues, which prominent individuals or major groups seem to influence management (as well as public opinion), what other events in the community are related to EM issues, and what recurrent or unresolved problems must be addressed?
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data research
Indicator 3		Names and characteristics of influential persons, groups, or families
	Description of indicator	Individuals, families, and other important groups influence the evolution and development of a community.
	Related social assessment question(s)	2. Who are users of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data research

Dimension I (cont.)		Historical Background
Concept Ia. (cont.)		
Indicator 4		Distinctive characteristics of the community, which are strongly valued locally
	Description of indicator	Community characteristics that serve as accepted identifiers of the personality and nature of the community. These characteristics address general values held by the community as a whole and may be manifested in the work and leisure of its residents.
	Related social assessment question(s)	2. Who are users of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources?
	Method of measuring indicator	Analysis of historical and archival records and survey data research
Indicator 5		Prominent stakeholder groups with a history in the area
	Description of indicator	Prominent groups who have a stake in management of the assessment area's natural resources
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data research
Dimension II		**Population Characteristics**
Concept IIa.		Increasingly, America's regions and communities are home to diverse racial, ethnic, religious, and occupational populations. Because such diversity often will foster a variety of values, forest planners must address ecosystem management (EM) issues within several frames of reference.
Indicator 1		Ethnicity and race
	Description of indicator	Ethnicity and race of the population
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 2		Language diversity
	Description of indicator	Analysis of primary languages spoken in the homes of the various ethnic groups

Dimension II (cont.)		Population Characteristics
Concept IIa. (cont.)		
Indicator 2 (cont.)	**Related social assessment question(s)**	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Survey data (personal interviews) research
Indicator 3		Religious affiliations and practices
	Description of indicator	Beliefs and unique religious and cultural practices
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 2. Who are the users of natural resources in the assessment area? 3. What are social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data research
Indicator 4		Property ownership
	Description of indicator	Land and resource holdings of ethnic groups in the community
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 2. Who are users of natural resources in the assessment area? 3. What are social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data research
Indicator 5		Length of residence
	Description of indicator	General assessment of the time that an ethnic group has been present in the area.
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data research
Indicator 6		Cultural based values
	Description of indicator	Values assigned to natural resources based on ethnicity, race, and culture.

Dimension II (cont.)		Population Characteristics
Concept IIa. (cont.)		
Indicator 6. (cont.)	**Related social assessment question(s)**	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 6. What are the relevant stakeholder and public perceptions related to EM issues driving the social assessment? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data research
Concept IIb.		Population size and demographics are practical descriptors of a community or region. They can be used to identify trends towards change and how communities are affected by EM policy, planning, and practices. They provide the forest planner with a view of how social relationships based on age, gender, educational achievement, and other factors are changing over time.
Indicator 1		Total population
	Description of indicator	Number of people in the region of interest
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 2		Changes in population size
	Description of indicator	Enduring trends in population changes
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 3		Residential distribution
	Description of indicator	Spatial distribution of residents within the region
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 2. Who are users of natural resources in the assessment area? 3. What are social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?

Dimension II (cont.)		Population Characteristics
Concept IIb. (cont.)		
Indicator 3 (cont.)	**Method of measuring indicator**	Analysis of statistical data
Indicator 4		Age distribution
	Description of indicator	Age categories of residents
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 5		Gender distribution
	Description of indicator	Population by male and female
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 6		Education
	Description of indicator	Education levels of population
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 7		Household composition
	Description of indicator	The presence, number, and ages of children; single-parent households, and other domestic factors.
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 8		Population and demographics by ethnicity/race
	Description of indicator	Breakdown of population and demographic characteristics within ethnic group
	Related social assessment question(s)	2. Who are users of natural resources in the assessment area? 3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?

Dimension II (cont.)		Population Characteristics
Concept IIb. (cont.)		
Indicator 8 (cont.)	**Method of measuring indicator**	Analysis of statistical data
Concept IIc.		Economic and employment characteristics—It is important to note whether a community continues to depend on or is moving away from a natural resource-based economy. Current employment levels by sector will identify the size of populations by occupational categories; e.g., forestry, farming, or tourism. More specifically, the planner should understand the extent to which management of local ecosystems contributes or detracts from a region's economy.
Indicator 1		Employment levels
	Description of indicator	Rate of unemployment in the region
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 2		Occupational diversity
	Description of indicator	The variety and range of occupations in a region; e.g., managerial, administrative and clerical, blue-collar.
	Related social assessment question(s)	2. Who are users of natural resources in the assessment area? 3. What are social and economic characteristics of the geographic region surrounding the assessment area? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 3		Distribution of employment by sector
	Description of indicator	Proportion of residents employed in industrial and commercial occupations
	Related social assessment question(s)	2. Who are users of natural resources in the assessment area? 3. What are social and economic characteristics of the geographic region surrounding the assessment area? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 4		Labor force participation by groups
	Description of indicator	Distribution of labor force by age, gender, and ethnicity

Dimension II (cont.)		Population Characteristics
Concept IIc. (cont.)		
Indicator 4 (cont.)	**Related social assessment question(s)**	2. Who are users of natural resources in the assessment area? 3. What are social and economic characteristics of the geographic region surrounding the assessment area? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 5		Household income
	Description of indicator	Mean household income of the general population
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 6		Poverty
	Description of indicator	The statistical index of the level of poverty in a region
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 7		Wealth
	Description of indicator	The statistical index of the level of wealth in a region
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 8		Public assistance and welfare
	Description of indicator	Proportion of residents receiving social security and welfare payments.
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data

Dimension II (cont.)		Population Characteristics
Concept IIc. (cont.)		
Indicator 9		Economic and employment characteristics by ethnicity
	Description of indicator	Breakdown by ethnicity and race of the economic and employment characteristics described in Indicators 1 through 8.
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data

Dimension III		Community Resources
Concept IIIa.		Facilities and Services—Demand for facilities and services directly related to population level. Changes in population, resources, economic activity, and income influence the supply of both facilities and services. The cost, quality, and availability of public and private services are ultimately connected to the public's sense of well-being and satisfaction with the community.
Indicator 1		Current levels of public facilities and service
	Description of indicator	The presence and number of public facilities and services; e.g., schools, health care and emergency services, public utilities, social services, law enforcement, emergency services, parks, and recreation
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 2		Current levels of private facilities and service
	Description of indicator	The presence and number of private facilities and services; e.g., housing, medical care, mental health, household services, and recreation
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Concept IIIb.		Spatial relationships and ecosystem dependency—Land use patterns range from developed to undeveloped; humans depend on and use ecological resources in various ways. Over the short term, communities heavily dependent on traditional, extractive uses of forest resources experience significant changes in the distribution of economic and noneconomic activities. Knowing the type and extent of these distributions provides the forest planner with important information for managing sustainable ecosystems. Such knowledge will require identification and promotion of forest economics, employment opportunities, and community education.

Dimension III (cont.)		Community Resources
Concept IIIb. (cont.)		
Indicator 1		Ecosystem classifications
	Description of indicator	Description of natural resources based on Bailey's classification of terrestrial and aquatic ecoregions
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data
Indicator 2		Water resources
	Description of indicator	Nature of and allowed uses of water resources
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data
Indicator 3		Energy and mineral resources
	Description of indicator	Extraction or exploitation of natural resources
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data
Indicator 4		Wildlife abundance
	Description of indicator	The nature, abundance, and management status of wildlife species living within a region
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data, historical and archival records, and survey data (personal interviews) research
Indicator 5		Recreation resources
	Description of indicator	Demand for and availability of recreation resources
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?

Dimension III (cont.)		Community Resources
Concept IIIb. (cont.)		
Indicator 5 (cont.)		5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data, historical and archival records, and survey data (personal interviews) research
Indicator 6		Public land classifications
	Description of indicator	Federal, Native American, municipal, State, or county
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data
Indicator 7		Private land classifications
	Description of indicator	Land and forest
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data
Indicator 8		Resource uses
	Description of indicator	Uses of public and private resource lands
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data
Indicator 9		Population density
	Description of indicator	Persons per square mile
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data

Dimension III (cont.)		Community Resources
Concept IIIb. (cont.)		
Indicator 10		Migration
	Description of indicator	Change in population
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data
Indicator 11		Settlement patterns
	Description of indicator	Urban and rural
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Historical and archival records and survey data (personal interviews) research
Indicator 12		Land tenure
	Description of indicator	Nature of ownership of rural land
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of statistical data
Dimension IV		**Social Organization Structures and Processes**
Concept IVa.		Economic Organization–Job creation has significant effects on a community's economy just as the economic health of a community affects the number and types of services that are provided. The diversity of available economic opportunities available is an important factor in the economic health of a community. In small communities, where economic diversity is often limited, growth is generally limited to one, or, at most, two industries. In such cases, economic growth is often masked by the fragile nature of a one-dimensional economy. This is especially important when an aggressive regional population center exists nearby.
Indicator 1		Economic diversity
	Description of indicator	Range of commercial sectors providing employment opportunities in the region
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 2. Who are users of natural resources in the assessment area?

Dimension IV (cont.)		Social Organization Structures and Processes
Concept IVa. (cont.)		
Indicator 1 (cont.)		3. What are social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data and survey data (personal interviews) research
Indicator 2		Export dependency
	Description of indicator	The extent to which local businesses produce goods that are sold outside the immediate region
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of survey data (personal interviews) research and historical and archival records
Indicator 3		Small businesses
	Description of indicator	The presence of small, family-owned businesses
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data and historical and archival records
Indicator 4		Shopping patterns
	Description of indicator	The extent to which residents can acquire goods and services within the local community.
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research; group interviews
Indicator 5		House values
	Description of indicator	Mean and median values of homes
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data

Dimension IV (cont.)		Social Organization Structures and Processes
Concept IVa. (cont.)		
Indicator 6		Land values
	Description of indicator	Mean and median values of land
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 7		Retail sales
	Description of indicator	Receipts on retail goods and services
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Concept IVb.		Governmental structure—In a small community, administrative tasks often are done by officials who serve without pay and earn their living elsewhere. When the complexity of local government increases, those officials experience unmanageable demands on their time and personal commitments. A need for paid officials and professional staff often results. An increasingly complex local government must deal with corporations, State and Federal agencies, and other organizations. Compliance with outside demands, in addition to the enforcement of local regulations, inevitably establishes formal and structured decision-making processes that often are difficult and unpopular.
Indicator 1		Local government positions
	Description of indicator	The nature of local government positions, including full-time vs. part-time and paid vs. unpaid
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 2		Formalization of planning department
	Description of indicator	The presence of formal planning in a community or region
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 3		Connections to outside agencies
	Description of indicator	The connections of local officials to outside government and nongovernmental agencies and organizations

Dimension IV (cont.)		Social Organization Structures and Processes
Concept IVb. (cont.)		
Indicator 3 (cont.)	**Related social assessment question(s)**	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 4		Relationships among officials of local jurisdictions
	Description of indicator	Formal and informal nature of relationships among officials of local governmental jurisdictions
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Concept IVc.		Social Diversity—An increase in population and economic diversity will change the social complexity of a community or region. Ethnicity, culture, religions, and other demographics often will drive such change and may actually diversify accepted norms of behavior. Long-time residents of a community may blame increasing populations for loss of community and shared values. Increases in natural resource-based tourism, changes in the kinds and sizes of local industries, and a growing transient population contribute to changes in community perception.
Indicator 1		Gender distribution
	Description of indicator	Distribution of population by male and female
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 2		Ethnic, religious, and cultural diversity
	Description of indicator	The diversity of ethnicities/races as well as cultural practices and behaviors. Particular attention should be given to situations where there is a dominant or a subordinate group or both.
	Related social assessment question(s)	3. What are social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research

Dimension IV (cont.)		Social Organization Structures and Processes
Concept IVc. (cont.)		
Indicator 3		Residential stability
	Description of indicator	Estimation of the proportion of life-long residents in the community and a general assessment of the level of migration
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data
Indicator 4		Voluntary organizations and membership
	Description of indicator	The presence of voluntary organizations in the region, their membership patterns, and recent trends
	Related social assessment question(s)	2. Who are users of natural resources in the assessment area? 3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of survey data (personal interviews) research
Indicator 5		Factions and special interest groups
	Description of indicator	The presence of (or perception of) factions within a community; e.g., townspeople, ranchers, newcomers
	Related social assessment question(s)	2. Who are users of natural resources in the assessment area? 3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 6		Values and beliefs related to natural resource issues
	Description of indicator	Specific public perceptions about natural resources that may influence attitudes towards EM issues.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 6. What are the relevant stakeholder and public perceptions related to EM issues driving the social assessment? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources?

Dimension IV (cont.)		Social Organization Structures and Processes
Concept IVc. (cont.)		
Indicator 6 (cont.)	**Method of measuring indicator**	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, group interviews, and historical and archival records
Indicator 7		Attitudes toward natural resources
	Description of indicator	Public attitudes towards past and present EM issues, policies, and procedures; the diversity of attitudes held and by whom.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, group interviews, and historical and archival records
Indicator 8		Transient populations
	Description of indicator	The presence and influence of transient populations, including military personnel, tourists, and public attitudes toward them.
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 9		Civil rights
	Description of indicator	Relationships among various racial and ethnic groups, especially as reflected in behavior and expressed opinion about minority access to community resources.
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records, personal interviews, and group interviews
Concept IVd.		The social processes of a community or region are driven by decisions made about community investment, resource distribution, and new projects. Such processes may be linked to outside interests affecting a community's autonomy and its ability to respond to changes in the social and natural environments. Links to State, regional, national, and international groups can enhance a community's ability to get assistance in the form of political support, as well as government grants and loans. In the Western U.S., communities often are strongly affected by management of Federal lands. Forest planners throughout the West have found that strong links to other agencies and political interests can help reduce potential problems.

Dimension IV (cont.)		Social Organization Structures and Processes
Concept IVd. (cont.)		As rural populations grow, so does the demand for additional development. Community leaders' ability to establish effective links with outside organizations may help them draw outside resources to facilitate development. However, too many such links may result in too much development, which can both reduce a community's autonomy and limit its ability to make decisions about local governance. Overdevelopment also may limit a citizen's work opportunities.
Indicator 1		Local ties to State and Federal Governments
	Description of indicator	How individual citizens relate to and are affected by State and Federal officials; e.g., employees, neighbor, school board member.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 2		Previous Federal/State grants and other programs
	Description of indicator	Public record of funding through State and Federal grants; selection as a site for State institutions and programs (schools, fairs).
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 3		The presence of regional, national, or international businesses or agencies
	Description of indicator	National or international businesses or agencies; e.g., retail chains, financial institutions, State or Federal agencies, or national voluntary organizations.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 4		Newcomers to the area
	Description of indicator	The proportion of local residents who have lived in the area 5 years or less.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of statistical data

Dimension IV (cont.)		Social Organization Structures and Processes
Concept IVe.		Distribution of resources and power—Ultimately, any EM policy, planning effort, or project will affect human society. The resources and power held by individuals, institutions, and user groups determine how economic and employment opportunities are distributed. That distribution determines the extent to which there is equity and environmental justice among stakeholders. In the past, many ethnic, cultural, or socially disadvantaged groups have been disproportionately affected by development or environmental hazards. Environmental justice will help bring employment opportunities, economic and ecological health, and social equity to all such groups.
Indicator 1		Economic equity
	Description of indicator	How economic resources and employment opportunities are distributed, and what effects management decisions have had on various residents or groups.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 2		Environmental justice
	Description of indicator	How management decisions affect residents or groups
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 3		Size and structure of local government
	Description of indicator	The number and nature of positions within the local government, the ratio of temporary-to-permanent positions, and the relationship that individuals and groups have with officials.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of statistical data and historical and archival records
Indicator 4		Presence of stakeholder groups
	Description of indicator	Involvement in and relative influence of local, regional, or national groups that have a stake in land-management decisions
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 2. Who are users of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research

Dimension IV (cont.)		Social Organization Structures and Processes
Concept IVe. (cont.)		
Indicator 5		Legal constraints
	Description of indicator	Rules, regulations, agency mandates; and local, State, and Federal laws related to EM issues.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	
Concept IVf.		Community resilience—A community's ability to adapt and control change is reflected in the way it coordinates efforts and resources to establish cooperation among individuals, stakeholders, and government officials. Community resilience is a measure of social, economic, and government complexity; the ability of officials to lead; links to resources; and the nature of management issues to be addressed.
Indicator 1		Coordination in current projects
	Description of indicator	Assessment of how the community worked together in previous projects
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of historical and archival records, and survey data (personal interviews) research
Indicator 2		Coordinative mechanisms
	Description of indicator	Mechanisms such as special-purpose boards, task forces, and councils and the process or processes by which those mechanisms have been established.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of historical and archival records and survey data (personal interviews) research
Indicator 3		Persistent conflicts or issues
	Description of indicator	Enduring conflicts between or among influential stakeholder groups and how newcomers are received by the community.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem?
	Method of measuring indicator	Analysis of historical and archival records, and survey data (personal interviews) research
Dimension V		**Public Perceptions and Well-Being**
Concept Va.		Perceptions of natural resources—A community's perceptions of the natural world are many and various. Any approach to ecosystem management (EM) will include careful consideration of the nature of specific management issues, the managing agency's credibility, and the tenor of public opinion as reflected in local, regional, or national media. Any information about public perceptions should be representative of

Dimension V (cont.)		Public Perceptions and Well-Being
Concept Va. (cont.)		people throughout the affected area, not just of opinion leaders. The forest planner's responsibility is to decide what weight to give the expressed views of any individual, influential or not. He or she also must consider the opinions of those supported by stakeholder groups; they often will have strong opinions about the issues.
Indicator 1		Values and beliefs related to natural resource issues.
	Description of indicator	Specific perceptions the public holds about natural resources, which ultimately may influence attitudes related to specific issues.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 6. What are the relevant stakeholder and public perceptions related to EM issues driving the social assessment? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources?
	Method of measuring indicator	Analysis of survey data (personal interviews and mail and telephone questionnaires) research, group interviews, and historical and archival records
Indicator 2		Attitudes toward natural resource issues
	Description of indicator	Expressed public opinions about specific management policies, issues, or actions
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 6. What are the relevant stakeholder and public perceptions related to EM issues driving the social assessment? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, group interviews, and historical and archival records
Indicator 3		Stakeholder views and beliefs
	Description of indicator	Stakeholder views and opinions that may affect public attitudes towards EM policies and practices
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 6. What are the relevant stakeholder and public perceptions related to EM issues driving the social assessment? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, group interviews, and historical and archival records

Dimension V (cont.)		Public Perceptions and Well-Being
Concept Va. (cont.)		
Indicator 4		Attitudes toward natural resource issues
	Description of indicator	Public opinions about the management policies, issues, or actions espoused by stakeholder groups.
	Related social assessment question(s)	4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 6. What are the relevant stakeholder and public perceptions related to EM issues driving the social assessment? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, group interviews, and historical and archival records
Concept Vb.		Connection to natural resources—Public perceptions, attitudes, and values are reflected in individual and community uses of natural resources; e.g., recreation, livelihood, and the extent to which these resources support community and family traditions.
Indicator 1		Tourism and recreational uses
	Description of indicator	How individuals and groups use natural resources for recreation
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, group interviews, and historical and archival records
Indicator 2		Resource-based employment
	Description of indicator	How natural resources support employment and productivity in the region
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, group interviews, and historical and archival records

Dimension V (cont.)		Public Perceptions and Well-Being
Concept Vb. (cont.)		
Indicator 3		Traditional uses
	Description of indicator	How the values, customs, and traditions of individuals and groups are tied to the natural resources
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, group interviews, and historical and archival records
Indicator 4		Sense of place
	Description of indicator	The psychological importance that individuals and groups find in the natural world or specific locations within it.
	Related social assessment question(s)	1. What are human uses of natural resources in the assessment area? 4. What conflicts exist among various uses, users, stakeholders, and managers of the ecosystem? 5. What is the nature of relationships between nearby communities, the forest or other ecosystem, and the larger encompassing ecosystem? 7. What do stakeholders and the public value about the natural environment, its resources, and various uses of those resources? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, and group interviews
Concept Vc.		Sense of well-being—An important aspect of a social assessment is an analysis of the general well-being in the community and the related perceptions that people have about their community. This includes an assessment of both the actual well-being within a community measured by specific indicators as well as resident perceptions about the quality of life in the community and the extent to which they have access to community facilities and services.
Indicator 1		Behavioral and situational conditions
	Description of indicator	Crime rates, divorces and suicides, unemployment, public assistance, and welfare
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of statistical data

Dimension V (cont.)		Public Perceptions and Well-Being
Concept Vc. (cont.)		
Indicator 2		Access to facilities, services, and resources
	Description of indicator	The extent to which a person feels he/she has the same access to community resources as anyone else
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, and group interviews
Indicator 3		Community satisfaction
	Description of indicator	A general measure of the public's satisfaction with the community or region they live in.
	Related social assessment question(s)	3. What are the social and economic characteristics of the geographic region surrounding the assessment area? 8. What recent social and economic trends relevant to management of the ecosystem are occurring in the region?
	Method of measuring indicator	Analysis of survey data (personal interviews, mail and telephone questionnaires) research, and group interviews

Current Contents: Social & Behavioral Sciences. Philadelphia: Institute for Scientific Information.

Psychological Abstracts. Washington, DC: American Psychological Association.

Resources in Education. Washington, DC: Department of Health, Education, and Welfare, National Institute of Education, Superintendent of Documents, U.S. Government Printing Office.

Social Sciences Citation Index. Philadelphia: Institute for Scientific Information.

Social Sciences Index. New York: H.W. Wilson Co.

Sociological Abstracts. San Diego: Sociological Abstracts, Inc.

Bright, Alan D.; Cordell, H. Ken; Hoover, Anne P., Tarrant, Michael A. 2003. A human dimensions framework: guidelines for conducting social assessments. Gen. Tech. Rep. SRS-65. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 83 p.

This paper provides a framework and guidelines for identifying and organizing human dimension information for use in forest planning. It synthesizes concepts from a variety of social science disciplines and connects them with measurable indicators for use in analysis and reporting. Suggestions of analytical approaches and sources of data for employment of the identified social indicators are provided.

Keywords: Forest planning, human dimensions, social indicators.

The Forest Service, United States Department of Agriculture (USDA), is dedicated to the principle of multiple use management of the Nation's forest resources for sustained yields of wood, water, forage, wildlife, and recreation. Through forestry research, cooperation with the States and private forest owners, and management of the National Forests and National Grasslands, it strives—as directed by Congress—to provide increasingly greater service to a growing Nation.