RECREATION & TOURISM INITIATIVE

Proceedings: National Workshop on Recreation Research and Management

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Editors

Linda E. Kruger is a research social scientist, USDA Forest Service, Forestry Sciences Laboratory, 2770 Sherwood Lane, Suite 2A, Juneau, AK 99801. **Rhonda Mazza** was a science writer, USDA Forest Service, Forestry Science Laboratory, 620 SW Main Street, Suite 400, Portland, OR 97206. She is now a freelance science writer in Portland, Oregon. **Kelly Lawrence** is a social science analyst, USDA Forest Service, Pacific Wildland Fire Sciences Laboratory, 400 N 34th Street, Seattle, WA 98103.

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February 8-10, 2005
Portland, Oregon

Linda E. Kruger
Rhonda Mazza
Kelly Lawrence

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Abstract

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Given increasing need and decreasing capacity, the Forest Service outdoor recreation research program must strategize how best to address current and future priorities. The papers compiled here were presented at the National Workshop on Recreation Research and Management held in Portland, Oregon, February 8-10, 2005. Papers are organized around four themes: Understanding Forest Recreation Visitors, Recreation Planning & Monitoring, Recreation Management, and Special Issues in Recreation.

Keywords: Recreation, visitors, planning, monitoring, forest management.

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CONTENTS

Foreword

Today forests are more accessible than ever due to increasing populations, changing economies and technologies, and a growing trend in urbanization of rural places. One consequence is that demand for outdoor recreation opportunities on public and private forest and grasslands in the United States is skyrocketing. This demand is not only for more opportunities, but also for a more diverse array of recreational activities and facilities. As land managers struggle to meet visitor expectations, they also face the additional challenge of protecting ecological systems impacted by ever increasing numbers of recreation users.

Since the 1960s, recreation research has held an important place in the Forest Service Research & Development (R&D) portfolio. Over the last two decades, recreation research capacity has slowly diminished, due in part to increased agency attention to other critical natural resource issues such as timber harvest, endangered species, fire, and invasive species. However, as more and more people visit forests, and live adjacent to them, the agency is again turning its attention to recreation management and research.

The Forest Service Strategic Plan for 2004-2008 identifies provision of high-quality outdoor recreation opportunities as an agency goal. Research is identified as one means to achieve this goal. In addition, Chief Dale Bosworth has centered agency policy around four primary threats to forests: fire & fuels, invasive species, loss of open space, and unmanaged recreation. In 2005 Forest Service R&D identified recreation research as one of several strategically important emphasis areas.

Given increasing need and decreasing capacity, the Forest Service outdoor recreation research program must strategize how best to address current and future priorities. Towards that end, Forest Service R&D[1] sponsored a National Workshop on Recreation Research & Management. The Workshop was organized by a cross-deputy team of agency recreation managers and researchers, and took place in Portland, Oregon at the Hilton Hotel, on February 8-10, 2005. On the first two days, Forest Service researchers, managers, and university partners discussed issues that confront recreation managers, the current Forest Service R&D portfolio, knowledge gaps, and future needs. Discussions were organized around four themes: Understanding Forest Recreation Visitors, Recreation Planning & Monitoring, Recreation Management, and Special Issues in Recreation. On the third day, researchers and managers met separately to review what they learned on the previous days, and strategize how to address priority needs. These proceedings comprise the papers submitted to document the presentations and work sessions at the workshop.

[1] Funding provided by Resource Valuation and Use Research Staff, and the Pacific Northwest Research Station Recreation & Tourism Initiative.

Letter of Support From the, USDA Forest Service Washington Office

Forests are more accessible than ever due to increasing populations, changing economies and technologies, and a growing trend in urbanization of rural places. As our urbanized society continues to expand across rural landscapes, outdoor recreation is quickly becoming the primary means for connecting people to the land. Demand for outdoor recreation opportunities on public and private forests and grasslands in the U.S. is rapidly increasing. This demand is not only for more opportunities, but also for a more diverse array of recreational activities, facilities, and services. Today's land managers are struggling to meet visitor expectations, and face the added challenge of protecting ecological systems impacted by large numbers of recreation users.

Recreation managers need the best science-based information available to help them appropriately design and administer outdoor recreation opportunities, and address recreation use impacts in an increasingly complex management environment.

Between 2003 and 2005 discussions were held in the U.S. Forest Service national offices between recreation leaders in the agency's management and research staffs concerning the desire of recreation managers to have a better understanding of, and access to research information. To begin to address these needs, the Forest Service sponsored a Recreation Research & Management Workshop February 8-10, 2005 in Portland, OR. The workshop brought together agency managers, researchers, and university scientists to discuss issues confronting recreation managers, the current research available to address those issues, knowledge gaps and future needs.

As a result of the Portland workshop, several research products are currently under development. The first is this Collection of Papers, which documents key research findings about several topics of concern to recreation managers. We hope that you find these papers provocative, and more importantly, that they help answer questions you have about the exciting and dynamic world of outdoor recreation.

G. Sam Foster
Director
Resource Use Research
Research & Development
USDA Forest Service

Gail Van der Bie
Acting Director
Recreation & Heritage Resources
National Forest Systems
USDA Forest Service

Recreation and the Chief's "National Debate"

Dale J. Blahna[1], and Linda E. Kruger[2]

Introduction

The title of the Chief's now famous speech where he outlined the "the four great threats" to national forest health was "We Need a New National Debate." His point was that times have changed and the agency needs to change focus to reflect the newest threats: (1) fire and fuels, (2) unwanted invasive species, (3) loss of open space, and (4) unmanaged recreation. Two of these are directly related to outdoor recreation; all four have social science dimensions and implications for recreation on public lands. So if the Chief wants the agency to address these threats, the national debate needs to include the role of recreation and social science.

Although workshop sessions were designed around more traditional topics—understanding recreation visitors, recreation planning and monitoring, recreation management, and special issues—we will take this opportunity to relate what we heard at the workshop that relates to the Chief's call for a national debate. We provide an overview of some of the broad themes from the presentations and discussions that cut across all the workshop topics, and then relate the themes to the Chief's challenge. The broad themes we identified were (1) the use of partnerships, (2) the need for better information management and improved communications and research capacity, and (3) broader administrative changes in agency culture and recreation budgets and staffing.

Partnerships

The use of partnerships was discussed in many sessions. Not only are partnerships important for public involvement, they are important for implementing and funding tourism and recreation plans, communicating agency messages, reducing access barriers for underrepresented populations, identifying and gathering critical information, and managing recreation conflicts. For example, partnerships played a critical role in planning to link forest recreation and community development needs for tourism and recreation plans on the Humboldt-Toiyabe and the Green Mountain National Forests. Forest staff worked with local officials, community groups, and other stakeholders to identify opportunities for recreation, economic development, resource protection, and funding. Discussing a general model for linking tourism and community development, Linda Kruger and Kreg Lindberg said, "Tourism partners are the key," and the agency role is to provide leadership and be the "provider and catalyst." The role of research is to investigate the feasibility and desirability of such efforts and the link between tourism and agency goals.

The types of partners mentioned were diverse and included local and state officials and agencies, special

[1] Research Social Scientist, USDA Forest Service, Pacific Northwest Research Station, Pacific Wildlife Fire Sciences Lab, 400 N 34th St., Suite 201, Seattle, WA 98103. Email: dblahna@fs.fed.us

[2] Research Social Scientist, USDA Forest Service, Pacific Northwest Research Station, Forestry Sciences Lab, 2770 Sherwood Lane, Suite 2A, Juneau, AK 99801. Email: lkruger@fs.fed.us

interest groups, informal groups of residents, and representatives of private sector companies and nonprofit organizations. The forms of partnerships were also diverse; some were informal and others operated under formal agreements, some focused on management activities, others on decisionmaking, and others on generating joint funding. But what was clear, is that many go beyond traditional conceptions of collaborative planning or the use of volunteers. Several cases illustrated the potential for ongoing, seamless relationships between the agency and the public—an implicit ongoing collaboration in the business of managing the national forests.

Partnerships are not without problems, however, and an equal emphasis needs to be placed on studying the forms, purposes, and limitations of partnerships. So while managers need to be open and flexible to the many forms of partnerships that may help them address recreation issues, researchers need to evaluate the different uses, methods, and outcomes of partnerships.

Information Management and Technology Transfer

Information use and management was a common theme in both plenary and concurrent sessions. Some speakers addressed it directly, and others indirectly as they talked about problems that have been around for decades, such as managing visitor conflicts and inequitable access, and for which progress has been uneven at best. There are several dimensions to this theme, however. Like partnerships, information management has both research and management dimensions, but the link *between* research and management is especially critical.

In the opening plenary session, Roger Clark and Dave Cleaves argued that the lack of use of existing research is caused by differences in research and management cultures. Managers and researchers have different timeframes and analysis scales. Managers often have preconceived solutions, and scientists often do not investigate what managers perceive to be the "real" problems. Other hindrances in the use of research are lack of time and training of managers, public perceptions of science, and information overload. Peter Williams said "analysis paralysis" and other information management problems are cultural remnants of the agency's obsession with traditional rational planning. Steve McCool summarized by saying simply, "we need a better framework for accessing and using information."

We also heard many suggestions for improving information management. Successful examples of the use of research during forest planning included better use of websites, issue specific research, and the visible documentation of public input and agency responses. Improvements were offered for existing frameworks like LAC and ROS that tend to be too rarely or narrowly applied. And instructive examples of the use of specific data sources were presented, like the National Visitor Use and Monitoring Survey and the National Survey on Recreation and Environment. Better use of communication, management, and decision sciences were also discussed in various sessions.

Most speakers, however, addressed the need for improving the relations between research and management. Greg Super said research needs to address management concerns like decisionmaking in situations of uncertainty, issue identification, and generation of "case-based" knowledge. Although many presentations were based on management and planning successes, the synthesis, evaluation, and generalization of such knowledge is necessarily a research activity.

Rachel Kennon Franchina and Noelle Meier addressed the link more directly. They presented results of a manager survey indicating the need for better information flow both "upward" from the field to researchers and "downward" from researchers to managers. They recommended expanding the Recreation,

Information direction	Organizational focus: Internal	Organizational focus: External
Upward	Field experiences, cases, and monitoring results from forests and districts to research	Research synthesizes and evaluates research and monitoring results of other agencies and private lands
Downward	From research to forests and districts	Nonagency research, social assessments, and public participation to forests and districts

Figure 1—Four dimensions of Forest Service information management, learning, and technology transfer.

Heritage, and Wilderness Research Technical Guide, and developing an information clearinghouse to evaluate and communicate "recreation, scenery, and social science research."

And finally, Peter Williams argued for better information flow among scientists, managers, and the public. This effort needs to become part of a broader collaborative planning framework that blends communication, science, and public involvement in a manner resembling an accordion: working internally and then opening up to the public, and then repeating as often as needed to get an "appropriate mixture of expertise and participation."

These perspectives suggest a four-fold typology of learning and information—there is a need for improving the upward and downward flow of information between research and management, and the internal and external flow of information between the Forest Service and those outside the agency (fig. 1). This requires changing traditional roles of researchers, managers and organizational structures. To this end, Dan Williams made two specific recommendations. First, increase institutional capacity by developing a recreation "community of practice." This requires an active effort by agency scientists, managers, and administrators, as well as external partners such as universities and other agencies. He also recommended developing an "extension" function in the agency to improve information flow between researchers and managers. Based on the university extension model, staff in this role would need multidisciplinary training, academic qualifications, excellent communication skills, a passion for applied knowledge management, and the ability to work within and between all four of the learning-information sectors in figure 1.

The Administrative Picture: Budgets, Professionalism and Agency Culture

The themes discussed above, and many others discussed throughout the workshop, will require larger recreation budgets; better trained staff; increased capacity for conducting, communicating, and applying recreation and social science research; and a basic change in agency culture. These larger administrative themes were also addressed by workshop speakers.

Recreation Budgets

Over the years, recreation R&D budgets have remained flat or declined. If these trends continue as predicted

by several of our plenary speakers, the Chief's concerns for unmanaged recreation and open space cannot be adequately addressed.

It is not just the Chief's threats that highlight recreation concerns, however. The national forests have more than 200 million visitors annually, and in 2004, 56% of the Forest Service's contribution to gross domestic product was produced by recreation. Visitation has been increasing steadily, and forest plans increasingly focus on recreation issues. For example, four of the six planning issues on the Wasatch-Cache National Forest were directly related to recreation use or impacts. A fifth issue was wildlife protection, but in most cases, this issue reflects concerns that particular species may be threatened by recreation use.[3] Yet recreation budgets still lag far behind other program areas.

Figures presented by Dave Cleaves indicate that, of the total research budget, only 3% goes to economics, wilderness, heritage resources, and recreation research *combined*. That does not seem reasonable. In the National Forest System, Kimberly Bown said that recreation is expecting 30 to 50% budget cuts, continuing an inexplicable trend of reducing budgets for the agency program area seeing dramatically increasing use pressures and conflicts. For an agency whose motto is "Caring for the Land and Serving People," shouldn't there be a *bit* more balance in money allocated for recreation and social science research? In reality, recreation research and management actually address *both* halves of the motto; we are not just focused on providing access, but also protecting resources and generating revenue, all three parts of the three-legged stool of ecosystem management.

Recreation Job Series

The budget is not the only way that recreation is undervalued in the agency. Liz Close told us that there is still no professional job series for recreation professionals in the Forest Service. The Chief's office along with other federal agencies, have been working on a professional recreation job series for about 20 years. How is it possible this hasn't been accomplished? We can not help but think the effort is not a high administrative priority, and perhaps hampered by the biocentric cultural bias in the agency. We have no evidence for this claim; all we can offer is the following "thought experiment."

Consider that a district ranger would never allow a nonforester to administer a timber sale. To work in timber, one needs a four-year forestry degree, a six-week certification short course, and periodic certification updates. But for decades rangers have hired recreation staff without recreation degrees or related training. Are trees really that much more difficult to manage than humans? The authors of this paper have 20 years of college coursework and four graduate degrees between us, and each of us has worked on land management problems most of our careers. But neither of us would be allowed to lay out a timber sale. But foresters with no recreation education or training can do recreation management.

Humans are far more complex and difficult to predict and manage than trees, cattle, water, and wildlife—and in many ways the implications of poor people management are more extreme. But there is still no professional job series for recreation managers.

Liz Close made perhaps the most important statement of the workshop when she said there is a "lack of recognition of recreation as a professional discipline." Perhaps this is one reason why "people problems" are so prevalent, and why recreation objectives rarely have real decisionmaking impact, as Dale Blahna pointed out in his opening address. We agree with the Chief that a national debate about the primary threats to our

[3] Bonneville cutthroat trout (*Oncorhynchus clarkii utah*) spawning may be impacted by fishing, camping, and trail erosion; Canada lynx (*Lynx canadensis*) hunting may be impaired by snowmobiling; Townsend's big-eared bat (*Plecotus townsendii townsendii*) hibernation may be disturbed by caving; and Maguire's primrose (*Primula maguirei*) may impacted by rock climbing.

national forests is needed, but that debate needs to look deeper than the current symptoms of those threats to the ultimate causes of the threats.

Research Capacity: Recreation or Human Dimensions?

Here is an important question for linking research and management: How do we build research capacity to better reflect management needs? A conceptual issue researchers have been struggling with is whether to focus primarily on recreation, or shift more resources to study broader human dimension (HD) questions. We believe this is a false debate.

It is clear that all forest management problems have biophysical and social components, and recognition of social science is increasing in the agency. Because most agency recreation researchers are social scientists, the primary HD research effort has come from recreation scientists and programs. Many within the agency and in academia are asking if this shift from recreation to HD should continue—or should we return the social science emphasis to recreation research? In our opinion, the answer is neither—if research is to meet the needs of recreation and social science, there must be increased capacity in both areas.

As noted above, recreation is a major use of Forest Service lands. Recreation visitors use more acres than any other resource or use type, including timber and grazing. All one has to do is look at the uses of the land to see a dedicated recreation program is needed. It makes no more sense to ask if we should abandon a recreation program and replace it with HD research, than it does to ask if we should shift from separate fire, timber, grazing, water, and wildlife programs to a single "ecological dimensions" program.

Here is the real question: Since recreation problems have both ecological and social dimensions, why are there not more ecologists working on recreation issues? And since all management oriented research by its very nature has a human dimension, why are not half of the scientists in all research programs social scientists? What more could the social scientists do to engage with the biologists? These are critical research questions for the Chief's debate. Two of the four threats are specifically related to recreation and aesthetics, and all four have human dimensions components. Research does not seem to be structured in a way to respond effectively to the Chief's threats, because there are not enough recreation and social scientists for an integrative, interdisciplinary response to all four threats.

Communication and Agency Culture

Many of the broader themes, as well as many specific issues, are related to agency communication and culture. Many workshop topics addressed this indirectly: women and minority visitors are still underrepresented in many areas; information barriers exist between scientists, managers, and the public, and between social and physical scientists; new and as yet untested collaboration and partnership needs abound; recreation staffs and budgets are relatively low; and many others. We believe these challenges spring from the tradition of the agency to focus on physical resources and land management rather than the people who use, visit, or value the land and its resources.

An indication of the continuation of this traditional culture is that recreation visitors are considered a "disturbance factor" not unlike the Chief's other three threats: fire, invasive species, and encroachment. In fact, it is ironic that one of the philosophies that dominates even the outdoor recreation field—that recreation use and resource protection are incompatible—is also based on the assumption that visitors are disturbance factors. But there is a large difference between recreation and "unmanaged recreation." Properly managed recreation can lead to increased use and resource protection as several workshop presentations indicated. The source of the problem is not "too many people," but ineffective management resulting from

small budgets, staffing, and research relative to the size and complexity of the job.

Because the cause of the problem has been the tendency to undervalue and underfund recreation, only a change in agency culture and administrative priorities can address this basic causal factor. We must also address internal and external communication needs between research and management and among managers, scientists, and external publics.

Conclusion: Recreation, Social Science, and the Need for a National Debate

We agree wholeheartedly with the Chief's call for a new national debate, but we suspect that the form of that debate, based on this workshop, would be a bit different from his original conception. We believe the debate should address the organizational structure, capacity, and administrative changes needed to address the underlying causes of the threats to forest health, and recreation and social science need to play a more prominent role in the debate and in future restructuring. It is not enough to simply react to the proximate causes of the threats (such as miles of roads and number and behavior of visitors) without addressing the underlying ultimate causes (such as insufficient recreation budgets, staffing, planning, and research). Given the current focus and culture of the agency, the changes are likely to be difficult and contentious.

The workshop themes also suggest broad issues that recreation programs in both Research and National Forest Systems (NFS) need to address. These include the use of partnerships, information management, internal and external communication, building capacity and better links between Research, NFS, and the public. Also important is the need to improve the recognition and respect for recreation as a professional field, which will require collaborating with universities and other land management agencies. The first step is to focus on the developing a community of practice that will address some of the needs identified in this workshop, work with administrators and external professional groups and societies to meet those needs, and lay the foundation for future program development efforts. A culture of professionalism and respect needs to be earned as well as facilitated.

This is a difficult time to call for change. Funding in recreation, economics, heritage resources, and social science lag other agency program areas, and staffing and budgets agency-wide are in retrenchment. Expanding social science and recreation research capacity, information and technology transfer, the use of collaboration and partnerships, and other needs will not occur without shifting resources. Organizational change is always difficult, especially when it requires shifting resources from declining to growing program areas. But short of an infusion of new money, that is what is needed for the agency to better reflect the recreation management and research needs of the future—and to truly address the Chief's four threats.

In the coming years we need to respond to Liz Close's statement on the first day of the workshop that, "there is a lack of recognition of recreation as a professional discipline." Her observation implies an important goal: to make recreation a full partner in national forest management and research. How do we gauge progress against this goal? What do we do? How do we start? Perhaps these are the first issues that should be addressed by a community of practice and by future workshops.

Update 2006

Since the workshop was held in February, 2005, several agency changes have occurred related to recreation: some positive and some not so positive. On the up side, the decrease in recreation budgets was less than the anticipated 30 to 50% decrease. Also, after a 20-year effort, OMB finally approved the professional job series for recreation professionals. And retired recreation social scientist, Bev Driver,

published a new textbook on recreation management. Perhaps most importantly, in November 2005, a new travel management rule was approved, which is essentially a mandate for better recreation management through the designation "roads, trails, and areas" for improved access, off-highway vehicle use, and resource protection. All of these are certainly positive changes that seem to indicate the agency is more accepting of recreation as a full partner among agency programs.

On the downside, however, recreation budgets are still declining, and recreation and social science does not yet command an equitable share of research budgets. The travel management rule, which will be a huge effort, comes with no targeted funding. Implementing a new program without new funding was not expected of the fire initiative of the last several years, so why is it acceptable to underfund travel management activities? And finally, while the recreation job series was approved, positions in the professional Landscape Architecture job series have been significantly pared back. This reduction suggests an agency culture still unaware of the growing need for expertise in the recreation and social sciences. Landscape architects are especially important because many receive interdisciplinary training in biophysical and social sciences for the purposes of land planning and design. These employees possess critical skills for addressing the Chief's four threats and their underlying causes. Ironically, one of the leaders of the successful travel management project on the Cedar City Ranger District that Dale Blahna discussed in his opening address was Noelle Meier, the landscape architect for the Dixie National Forest. Noelle is also leading the current effort for forest-wide travel management planning on the Dixie.

So while 2005 was an important year for Forest Service recreation programs, the agency's commitment to organizational changes that reflect and ultimately address the root causes of forest threats remains unclear. Also unclear is where the vision and leadership to move the recreation program forward will come from. What is clear is the need for future recreation workshops like this one and the development of a community of practice to help guide the Forest Service and other land management agencies in the 21st century.

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Theme 1: UNDERSTANDING RECREATION VISITORS

Gary Paull, US Forest Service

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Introduction: Understanding Recreation Visitors

Jennifer Farnum[1], and Linda E. Kruger[2]

To achieve a better understanding of recreation visitors to public lands, the following papers address a host of different questions: What are the most pressing challenges that forests face in terms of providing recreation services and producing positive visitor benefits? Given changing national and forest demographics, what types of information are needed to determine visitor needs, preferences, and behaviors with such change? What are the real and perceived challenges of using scientific research to inform on-the-ground decisions? In Theme 1, "Understanding recreation visitors," these questions provided a foundation for presentations and discussion among workshop participants. These papers present timely insights into how managers can best provide a variety of visitor types with the recreation benefits they seek.

Managers and researchers alike are well aware that changing trends in the types of forest visitors necessitate provision of more varied and nontraditional services. In particular, forest use by Asian Americans and Latino groups is increasing and demonstrating different land-use preferences and recreational activities. This requires that managers find ways to accurately assess visitor needs, provide orientation to public lands, and determine satisfaction with services. Deborah Chavez, for example, describes ways Southern Californian forests have provided desired conditions for the Latino population, implementing outreach-type activities to orient visitors to the forest. Similarly, Cassandra Johnson and Don English, while advocating for better service provision to such user groups, also assert that unless recreation "push" and "pull" factors are identified for different user types and ethnicities, it is difficult to understand what users may be gaining (or still needing) from public lands. Understanding lack of use may be just as important as understanding current use.

Although integrating ethnic considerations into recreation planning is a pressing need, other authors are quick to highlight the dangers of applying ethnicity-based assumptions at the person-specific level. That is, realizing the uniqueness of the individual and her relationship to the land may be just as important as acknowledging macro-level influences such as ethnicity. Mary Noel, for example, notes that a benefits-based approach to recreation management needs to acknowledge that benefits sought (and achieved) vary from person-to-person and setting-to setting; ethnicity and other such umbrella variables may be only one factor in identifying recreation needs. Herb Schroeder discusses how in his research on special places, it is the phenomenological experience of place that drives the development of place attachment, a concept that, particularly in light of shifting demographics, is of

[1] Research Social Scientist, USDA Forest Service, Pacific Northwest Research Station, 400 N. 34th Street, Suite 201, Seattle, WA 98103. Email: jfarnum@fs.fed.us

[2] Research Social Scientist, USDA Forest Service, Pacific Northwest Research Station, 2770 Sherwood Lane, Suite 2A, Juneau, AK 99801. Email: lkruger@fs.fed.us

utmost concern in the management community. Dan Williams, in his analysis of human-environment interactions, champions the notion of the "individual/expressive," mode or the person-specific internalization of place meanings. All of these authors, then, address the interplay (and potential contradiction) between recognizing and accommodating for different user types while not allowing those generalities to supercede acknowledgement of individual considerations such as place attachment.

While authors agree that there are pressing reasons for gaining a more comprehensive picture of visitor types and needs, there is less decisiveness about how to successfully use research to do so. Authors acknowledge that sound management decisions require understanding visitor preferences, and benefits and that understanding this eclecticism can be challenging within the broad spectrum of activities and user types that exists. How to best produce these management decisions is less clear, although authors' do not subscribe to the belief that simply generating additional research is adequate. Indeed, Rachel Franchina and Noelle Meier's study of recreation managers revealed that managers' most salient concern was how to utilize existing research—not how to generate masses of new research. Better dissemination techniques, guidance for applying generalized findings to targeted locations and for utilizing existing research sources may be necessary components in balancing traditional recreation needs, ecological well-being and diversifying recreation interests.

Echoing the sentiment of Franchina and Meier, Williams also suggests that it may not be availability of research that prevents researcher-manager communication but rather the nature of research itself. Like other authors (e.g., Schroeder, Franchina and Meier), Williams hones in on the issue of site-specificity, and the inevitable barriers that arise from using grand scale research to make judgments about specific locations. Moreover, he suggests that, even given the availability of specific information, there are many occasions when available data sources do not reflect the true root of the problem; for instance, ecological data, while tangible and direct, will not solve value-based conflicts.

Another commonality in Theme 1 papers relates to expectations of the type of information that research will provide. Research is not a panacea that can provide unidirectional guidance. Management decisions and planning documents are facing increasing demands to be "science-based." Managers are being called on to understand and apply research findings under the assumption that recreation research, properly accessed and applied, can provide a single "answer." As Kennon and Franchina imply, expecting definitive standards to follow directly from social science-based recreation research is an inappropriate goal. Nonetheless, it is incumbent upon managers to do more than make "common sense" decisions; relevant lessons can be gleaned from existing research to aid in making educated decisions about how these lessons may (or may not) apply at the forest, district, or site-specific level. Providing managers with better training for locating research, quicker methods of using such research to conduct local assessments, and a more systematic way of continually infusing research into practice may be the most advantageous method of bridging research and managerial domains.

Several authors offer specific suggestions for bridging these domains. Kocis, for instance, calls for a better system of cataloging and assessing the variety of information types available. Franchina, Meier, and Williams all stress the importance of developing research-based protocols for adapting research for local, site-specific contexts. Williams also notes the importance of developing better techniques to understand the formation and implications of place attachment, and Schroeder speaks of the value of producing visitor narratives of place meanings.

Considered together, all authors point out that visitors to public lands are increasing in numbers and diversity, a reality that presents both opportunities and challenges for managers and researchers. As these papers illustrate, these opportunities and challenges may be met by recognizing several key points, namely that (1) diversity in user groups necessitates changes in recreation planning, (2) within-user group variability may be equally important as recognizing between-group variability, (3) better systems (e.g., training, databases, assessment tools) need to be in place to transfer research-based information to recreation managers, and (4) while better transfer systems will facilitate more science-based decisions, local, site specific knowledge held by managers is indispensable in reaching optimal solutions.

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Human Benefits of Outdoor Recreation

Susan M. Kocis[1]

Outdoor recreation opportunities on national forest lands provide both tangible and intangible human benefits. Tangible benefits include physical fitness and tourism dollars spent in local communities. Intangible benefits include psychological, spiritual, and other off-site benefits such as stress reduction. Public land recreation managers must be able to measure and understand these benefits to make sound management decisions, such as what types of recreation opportunities to expand or which facilities to close.

Within the federal government, researchers have developed many tools for measuring intangible and tangible outdoor recreation benefits. Benefits Based Management (BBM) focuses on effects of activities rather than on the activity itself. The six key measurement areas are physical, mental, emotional, social, economic, and environmental. However, it is difficult to apply these concepts to specific on-the-ground management actions.

USDA Forest Service recreation managers are skilled in applying more concrete measurement tools that focus on outputs, resource condition, and other tangible recreation opportunities. These include the Recreation Opportunity Spectrum (ROS), the Limits of Acceptable Change (LAC), INFRA, NSRE and the National Visitor Use Monitoring (NVUM) program. ROS is used to map and quantify the amount and type of recreation settings, facilities and services currently provided. ROS is also used to track changes over time. ROS identifies settings ranging from primitive (typically wilderness) to urban. Within each type of setting, facilities and services are offered that match the setting. By managing a diversity of outdoor recreation settings, managers hope to meet the broad spectrum of recreation demand, ranging from solitude and physical challenge to more urban picnic areas and motorized trails.

The Limits of Acceptable Change (LAC) is used primarily to manage and monitor changes in wilderness settings and character over time. It is a more focused tool, created to monitor specific resource conditions needed in wilderness settings. INFRA is another recreation management tool which lists the amount, type and condition of all recreation facilities, including buildings and trails. It also can assist in tracking how much money is needed to meet specific recreation conditions such as managing all facilities in excellent condition.

Another concept gaining momentum is the sense of place (SOP) philosophy. Using SOP, managers identify the forest recreation "niche," identifying how the national forest landscapes contribute to the sense of place and culture of the local community.

Most of the tools mentioned above use a core set of data that describes their existing customer base. There are two main sources for these data. One is the National Survey on Recreation and the Environment (NSRE), which is an on-going nationwide telephone survey of households. Information from NSRE helps paint the big picture of recreation use on all public lands (national, state, local). The other data source is the National Visitor Use Monitoring (NVUM) program.

[1] Social Scientist, USDA Forest Service, 1407 South Harrison Road, Suite 220, East Lansing, MI 48823. Email: skocis@fs.fed.us

NVUM on-site surveys provide managers with a baseline profile of existing visitors. The data are quantitative and reliable. Visitors are surveyed on-site at the end of their recreation visit, providing an accurate picture of what they did while on the national forest. The data describe existing customer satisfaction, the amount and type of recreation and nonrecreation use, length of stay, visitor origin, visitor spending in local communities, and other trip related information. The information is provided to forests and regions with statistical parameters. For example, at the 80% confidence level with a 2% error rate, there are 204 million national forest visitors nationally.

NVUM helps managers understand existing customer characteristics and resource needs. For example, nationally the most common recreation activities are viewing wildlife, hiking, driving for pleasure on forest roads, and relaxing. In all recreation sites combined (developed, dispersed, and wilderness), 77% or more of existing visitors are satisfied with the facilities and services offered. This varies by specific forest and helps managers identify where to focus on their forest to improve visitor satisfaction.

Once the available NVUM and NSRE data for a forest have been accessed, and the current ROS and INFRA inventory have been studied, the role of the national forest within the local, state, and regional tourism market is more apparent. With this understanding, managers can make more informed decisions about resource allocation and use.

Without sufficient time to digest it, the amount of information available can be overwhelming. Additional research is needed that connects management's decision needs with research inquiries. There is a need to synthesize the use of the many data sources and tools available. For example, do people with different demographic profiles seek different recreation opportunities and benefits? Is visitor satisfaction with facilities and services related to visitors' achievement of benefits? A process for ascertaining the intangible benefits of outdoor recreation is needed. Would managers make different decisions if the intangible benefits were better understood? For example, suppose visitors desire to seek "peak experiences" in nature. Peak experiences stretch a person's comfort zone by having them do things they thought were beyond their reach. Activities such as rock climbing, ropes courses, geo-caching, hang-gliding, paint-ball games, Rainbow Family and other large group events, and off-highway vehicle contests may help visitors reach a peak experience that may became a highlight in their life. If forest managers want to manage by creating experiences, this may best be done through partnerships with the private sector.

Finally, connecting the above research with applications to other resource area data should be integrated. Wildlife, soils, fisheries, and invasive species management all have data bases and management concerns to address. How does managing for outdoor recreation experiences integrate with management decisions in these other resource areas?

How Setting and Scenery Affect Visitor Experience: A Manager's Perspective

Rachel Kennon Franchina[1] and Noelle Meier[2]

Abstract

Visitor experience and satisfaction are complex constructs that interest recreation researchers and many outdoor recreation managers. The recreation setting contributes to visitor experiences and satisfaction. The managers that we surveyed want applicable, accessible research to help them manage these setting in a way that enhances the visitor's experience and satisfaction. We synthesize the ways managers approach their practice and how they apply tools and research. Our findings are based on informal interviews and a questionnaire answered by recreation managers, landscape architects, and others in related fields. We first presented this work at the 2005 National Workshop on Recreation Research and Management; this paper summarizes that presentation and discussion that followed. Respondents offered a variety of ideas for providing more agency and academic research to the field and for establishing better relationships between research and recreation management.

Introduction

Outdoor recreation participation is increasing on all national forests across the United States. Influenced by population growth, increasing urbanization, and the desire to "get away from it all," many visitors flock to national forests to have a more primitive, less developed recreation experience. Others, however, seek developed facilities such as electrical and sewage hook-up for recreational vehicles, showers, and flush toilets in a natural setting. Forest recreation settings are showing the effects, both positive and negative, of this demand. Conflicts are on the rise as more people want to use the same area for different reasons; communities and individual residences are built to the forest boundary, diminishing the buffer between urban and wild; and places that were once thought to be remote or difficult to reach are now easily accessible.

Salient to increasing use and urbanization is how visitor experience and satisfaction are affected by changes occurring within recreation settings. As forest visitors plan their trip, they often have expectations about the setting for their planned activity. If satisfaction is influenced by meeting those expectations, the setting is clearly an important factor.

Historically, the Forest Service has recognized the importance of setting in visitor experience, and thus, the idea of satisfaction. As such, the agency considers architectural and landscape design, integrated with natural scenery, to be essential in creating a memorable experience, consistently, for a multitude of visitors. Therefore, human intrusions into the natural environment require careful planning and application.

[1] Recreation Program Manager, Hahns Peak/Bears Ears Ranger District, Medicine Bow-Routt National Forest, 925 Weiss Drive, Steamboat Springs, CO 80487. Email: rfranchina@fs.fed.us

[2] Landscape Architect, Recreation and Travel Planner, Dixie National Forest, 1789 N. Wedgewood Lane, Cedar City, UT 84720. Email: nmeier@fs.fed.us

In response, managers frequently contemplate the following questions: What do visitors expect to see when they go to a national forest to recreate? Do they only notice dramatic changes to the recreation setting (e.g., wildfire), or are subtle changes also recognized? If the setting no longer provides the experience recreationists are looking for, do they go somewhere else or accept the new setting and adapt their expectations? How do degraded settings affect the Forest Service's public image?

But there are often more pressing issues that recreation managers deal with on a day-to-day basis. Recreation specialists speak of figuratively "putting fires out" when managing diverse recreation programs. They often do not have the time to read and disseminate current social science research related to recreation management and visitor satisfaction. Instead, they are consumed with budgets, work plans, National Enviromental Policy Act (NEPA) analyses, and getting projects done during the short summer season. "Big picture" questions related to how visitors experience recreation settings may surface during project planning, but they are rarely discussed or resolved in an indepth and proactive manner.

Social science research has provided managers with some of the information necessary to manage and improve recreation settings. This research includes visitor-use data, outdoor recreation participation trends, visitor preferences for different settings, and research on issues such as conflict, crowding, and visitor satisfaction. Additionally, agency tools such as the Recreation Opportunity Spectrum (ROS), the Visual Management System (VMS), the updated Scenery Management System (SMS), and Limits of Acceptable Change (LAC) were developed through extensive research to provide guidance to field managers.

In this paper we synthesize the ways managers approach their practice and how they apply tools and research. We also describe the difficulties managers have in accessing academic and agency research, gleaning the relevant findings, and finding time to keep up with research issues. This paper also discusses the lack of local data as a limitation to managers' use of research.

Background and Methods

These perspectives were presented at the 2005 National Workshop on Recreation Research and Management under the theme: *Understanding Recreation Visitors*. The presentation focused on the importance of recreation settings and scenery to visitor experiences. Consistent with the overall purpose of the workshop, the topic was presented in the context of the relation between recreation management and recreation research. To better understand and describe management issues, and how recreation managers use scientific research to inform their management decisions, we gathered information from our colleagues. To do this, we developed a questionnaire to help prompt opinions and anecdotes about our colleagues' experiences as recreation managers. We asked 18 recreation managers the following questions:

- Please describe a few of your local concerns affecting visitor satisfaction related to recreation settings and/or scenery.
- Do you use academic or agency research to help understand and describe the effect that settings and scenery characteristics have on visitor satisfaction? Please explain how you have used such research.
- Have studies on preferences for different types of settings and scenery played a part in your recreation management, analysis or decisions?
- Are there gaps in these areas of research that have limited your ability to complete your work?
- How do you define the experiences your visitors want or prefer? What tools do you use (e.g., ROS, LAC, SRM)? What tools do you wish you had?

Our method for collecting managers' feedback was informal. It was developed to provide us with an

orderly format for interviewing our peers. Several questionnaires were filled out and returned via email and some were completed as interviews over the phone. Respondents included employees in the Forest Service, as well as several recreation managers in the Bureau of Land Management and the National Park Service. They included practitioners at the district or field office and program managers up to the regional office level who also spent a considerable part of their career in the field. The 18 respondents had a range of backgrounds and experience managing recreation settings. Most respondents had an educational background in forestry, recreation, or other natural resources management, or had been trained as landscape architects. We found their opinions to be reflective of discussions that have been ongoing for many years.

Defining Visitor Experiences

We found that managers use a variety of resources to understand and define visitor experiences. These include agency-guided and local processes as well as agency and academic research. Respondents said they use the following agency tools when managing visitor experiences:

- Recreation Opportunity Spectrum (ROS)
- Scenery Management System (SMS)
- Visual Resource Management (VRM)
- Built Environment Image Guide (BEIG)
- Limits of Acceptable Change (LAC)
- Benefits-Based Management (BBM)
- Technical guides from Missoula and San Dimas Technology and Development Centers
- Specialist reports for NEPA analyses
- Forest Plan revisions
- Various historical documents
- Public involvement (meetings, focus groups, etc.)

Some agency and academic research is more commonly used than others. Managers extensively use trend and statistical data from surveys such as National Visitor Use and Monitoring (NVUM) and the National Survey on Recreation and the Environment (NSRE), as well as local social assessments where available. They also use technology and development reports published by the Forest Service's Technology and Development Centers in San Dimas and Missoula. Some agency and academic research is also used by recreation managers, including research on the following topics:

- Visitor preferences, motivations, and behavior
- Sense of place
- Visual effects of vegetation treatments and natural events
- Effects of recreation activities on natural resources
- Recreation crowding and conflict
- Collaborative planning

Much of the peer-reviewed research on settings and visitor experiences is not commonly used by recreation managers; however, our respondents indicated they most often used research that elaborates directly on tools they use, such as ROS. Research on social-psychology concepts, although a foundation in the development of such tools, is not commonly used by managers. Respondents cited several reasons for this: managers do not have time to read or keep up with current research, managers do not know where to find the most applicable research, and managers only use research when there is a problem to address (i.e., NEPA). As one respondent stated, "…much of what I do is common-sense based at this point, and attention to great detail in technical journals is a bit of a luxury I cannot afford, regretfully." This statement illustrates the difficulty in resolving recreation administrative challenges and workload capacity issues. It has been noted that other functions such as vegetation, wildlife, or fisheries management are not granted an allowance to operate on "common sense," and some recreation professionals expressed a need to increase rigor in their profession.

Management Issues, Concerns and Use of Research

Respondents articulated a range of problems and concerns related to settings and visitor experiences. Although many of these issues were specific to local situations, they fell into four general themes:

- Effects of natural processes and agency management actions
- Project effectiveness and public image
- Increasing and diversifying demand for recreation
- Increasing presence of humans reduces naturalness of settings

Each theme includes areas of cross-over, further exhibiting the complexity of these concerns. The four themes are discussed below, along with summarizing questions that were provoked by respondents' answers.

Effects of Natural Processes and Agency Management Actions

Natural processes such as wildfires and beetle epidemics, and agency management actions such as timber sales and facilities development are understood to affect scenery and recreation settings. Visitors do not always understand positive effects of natural processes; they may only see the dead trees or burnt forest. Similarly, visitors may be unaware that vegetation management activities are often deemed necessary to restore or maintain forest health. Therefore, managers ask, "What degree of change will people accept, and how much does the public understand about those changes?"

Ongoing public objection to vegetation treatment projects and greater attention to recreation and scenery in agency leadership have motivated managers to seek ways to meet ecological needs, while enhancing or protecting scenic resources. Many managers believe this is best accomplished by mimicking natural regimes, a concept also emphasized in other areas of forest management such as wildfire fuel reduction.

Many managers are hopeful that sustainable scenery management can come about by improving public understanding of what healthy, evolving ecosystems truly look like, versus the over simplified goal of maintaining some ideal of "natural-appearing" scenery. Instead of simply providing an assessment that reacts to a proposed project's visual effects, followed by a mitigation measure that attempts to mask those effects, design professionals are tasked as core team members to draw clearer connections between scenery and ecological objectives, helping to steer the early design of many projects. It is no longer acceptable for foresters to design harvest units with "buffer strips" to hide visual effects from roadsides and popular viewpoints. Many managers now find it preferable and effective to design projects to meet ecological objectives and subsequently provide a realistic, up-front disclosure of both short-term and long-term visual effects.

Paul Gobster (2001), in his foreword to *Forests and Landscapes: Linking Ecology, Sustainability and Aesthetics*, describes the history of vegetation treatment and landscape aesthetics. He refers to a first and second revolution in the way society thinks about the aesthetic dimensions of forest landscape management. The first revolution was driven by controversies related to clearcutting during the mid to late part of the 20th century. Interpreted through a romantic view of nature, the most scenic areas were usually protected from timber harvests. Where harvesting was allowed, the visual effects were mitigated by leaving vegetation screens along roadsides and by undulating the edges of clearcuts.

As public understanding of biodiversity issues increased during the 1980s and 1990s, a second revolution began to emerge that focused more on ecosystem health and sustainability values. It became conceivable that aesthetics could be compatible with biodiversity and sustainability goals and on-the-ground

activities. In the small space offered here, we run the risk of over-simplifying Gobster's explanation of societal perceptions and expectations, as well as the evolution of the Forest Service's policy on scenery under ecosystem management. Suffice it to say that several of the managers we contacted would concur with Gobster's point that a "greater emphasis put on understanding, measuring, and providing opportunities for people to learn about and appreciate sustainable ecosystems could lead to expanded ideas of landscape beauty" (Gobster 2001: xxv).

Many respondents spoke of a difficulty in assessing public preferences for scenery. Although several managers were aware of research that found preferences for highly managed landscapes that are natural-appearing, such landscapes generally take time to occur post-management. Managers most often struggle with public objection to visual effects that are in reality short term, even when proposed in the interest of greater ecological health. Managers want to know what types of settings visitors prefer, as well as the attraction and attachment to specific sites so they can better design projects and more effectively reach the public involved.

Some managers use studies conducted on people's perception and acceptance of various landscapes, vegetation treatments, or other human-made alterations. Although these managers have found such studies to be useful when analyzing the effects of management and in making recommendations for activities on the ground, perception studies typically focus on people's spontaneous assessment and reaction to landscapes presented in the form of photographs taken at one point in time. Gobster suggests "by eliminating the extra-visual and temporal dimensions of landscapes and by focusing on only the immediate perceptual component of people's aesthetic responses, researchers [have] helped to confirm scenic ideals of landscapes as showy and undisturbed by natural processes or human interventions" (Gobster 2001: xxii).

Unsettling to many managers is that these "undisturbed" landscapes, if judged as ideal and most acceptable by the public, almost never match the reality of actual vegetation treatments, wildfires, prescribed fires, or beetle kills. These studies do not reveal what is acceptable to the public, particularly when ecosystems, public perceptions, expectations, and relations with the Forest Service vary so much across the country. What is visually acceptable to the public in Minnesota may not be so acceptable to the public in Georgia, Idaho, California, or New Hampshire.

Individual beliefs and attitudes among the public also vary when it comes to ecosystem health and management. Some people question the mere presence of human activities, or if insect and disease epidemics and wildfire are truly natural events. Any management activity or development for visitor convenience is considered "unnatural" and therefore unacceptable. Other visitors are desensitized by their urban environments and think that any setting outside the city is wilderness. The site-specificity of research findings is of great interest to managers and is often deemed necessary to improve confidence in research applicability to real projects. Although many managers agree that perception studies provide thought-provoking findings, some have a legitimate concern that there is no proven, effective approach to managing for ecologic needs in a way that leads to greater public acceptability of their projects.

Project Effectiveness and Public Image

There are many examples of Forest Service facilities or other structures that were not designed with the natural setting in mind. Many administrative buildings, campgrounds, and visitor centers have been built without adequately considering the natural surroundings or local architectural vernacular. Moreover, little effort has been made to appropriately upgrade or replace aging facilities and infrastructure. The agency's image can be diminished when facilities appear neglected. Again, an

issue for managers is that social or cultural assessments are often too general, developed at the forest-level, to be directly associated with the design of site-specific projects. Thus, as managers address ecological and public needs, they ask, "How might we enhance visitor experiences, as well as our agency image?"

The Forest Service's Built Environment Image Guide (USDA 2001: 4) states,

> …we must make a visit to a national forest a legible experience—one that helps people understand the forces of ecology, the nature of the landscape, and the goals of the Forest Service. We can only achieve this by creating a legible built environment where buildings and structures complement the landscape, signs are clear and instructive, and minimal impact on the land is strongly evident. Even for a short stay, visitors will easily grasp the essence of the landscape and the Forest Service's role as stewards. The proper fit of Forest Service facilities into their natural, cultural, and economic contexts requires careful consideration of many aspects of design, including scale, proportion, and selection of materials.

Careful site design is essential for creating positive, meaningful space as a single component or as part of a larger picture that the visitor absorbs and interacts with in the forest setting. One respondent helped us clarify this point by verbalizing a common manager's belief that "when it comes to recreation settings, creating experiences is what we do. While we plan whole landscapes with ecological integrity in mind, it is important to consider the visitor experience we might create as well. Concepts from scenery management, local and regional niche, and ROS settings should be transferred to the public's understanding through high-quality interpretation, structures and facilities." He went on to lament a declining customer service approach to site design in the Forest Service. "We're losing our 'good host' principles. Attractive displays, proper maintenance, appropriate construction and friendly, helpful service speak volumes about who we are and our commitment to our mission of caring for the land and serving people; whether or not we care about the public's experience."

Managers want to know if the Forest Service is meeting visitor needs. Many we contacted voiced their desire for more research on the effect of the built environment on visitor experiences. There appeared to be two distinct reasons behind this desire: (1) to provide compelling justification for designs that best meet with public satisfaction, and (2) to develop better guidance and standards based on those designs for constructing a more appropriate built environment. Unfortunately, much of this need for justification comes from an ongoing struggle to convince some engineers, program managers, and line officers of the legitimate role that high-quality design plays in expressing social and cultural values, enhancing visitor experiences, and improving agency image.

Many managers falsely perceive that quality design, comprehensive master planning, and the use of better materials and fixtures will result in greater expense to an already thin agency budget. As a result, the necessary time often is not allotted to conduct good product research and to apply agency tools toward the better design of projects. Design professionals do the best they can, as efficiently as they can with what time they are given. Those we interviewed, however, hoped that future generations of the Built Environment Image Guide (BEIG) or other guidance might incorporate a recommended palette or catalog of furnishings (fire rings, tables, etc.) that are appropriate for the niche or architectural province while also meeting accessibility standards.

Like the National Park Service, the Forest Service has helped create a niche in historic architecture and outdoor design that many idealize as part of the American experience. Campgrounds, historic administrative sites, and other rustic structures help create

nostalgia and a sense of place for visitors and locals alike. In national forests, visitors can find a retreat from their busy work schedule, learn more about the cultural history and ecology of an area, and renew and strengthen their roots to the land. Such experiences are not only important for individual health, but they also help our society understand its reliance on and use of natural resources while promoting a greater concern for the natural world. Stephen Sheppard describes an ecological aesthetic of modified landscapes in terms of *visible stewardship* where "we find aesthetic those things that clearly show people's care for and attachment to a particular landscape; in other words, that we like man-modified landscapes that clearly demonstrate respect for nature in a certain place and context" (Sheppard and Harshaw 2001: 159).

This view of a working landscape, very much a part of the Forest Service icon, should "look as though real individuals care for the land or place: people who are actually linked to it, rooted in it, invested in it, working in it in a respectful, symbiotic, and continuously vigilant manner, perhaps even from generation to generation" (Sheppard and Harshaw 2001: 159). This philosophy connects ecological stewardship with sociocultural values and needs, all critical factors in improving the sustainability of agency management of the landscape. Many of the managers we contacted were concerned that little by little, degraded architectural quality, improper maintenance, and inappropriate design and development in national forests are casting a long-term negative shadow on a positive American image. If it does not appear that we care, how can we expect the public to care?

Increasing and Diversifying Demand for Recreation

Everyone wants to be in the same place, or so it seems. More and more people are participating in outdoor recreation activities, and different groups often want to use the same setting for different purposes. This leads to congestion, competition, and conflict over who has the "right" to be there. Managers are uncertain about how to manage "special places" that have unique social, cultural, or ecological values, as well as "undiscovered" places that are quickly becoming hot spots. Damage caused by recreation activities is a real concern, as areas that were previously undisturbed become playgrounds, particularly by motorized use. Managers ask, "How do we enhance experiences in a manner that reduces damage to natural resources and social settings?"

These problems are not imaginary. The National Survey on Recreation and the Environment 2000 (NSRE) showed that 97% of Americans participated in at least one outdoor recreation activity in the 12 months prior to the survey (Cordell et al. 2002 as cited in Thompson et al. 2004). That percentage translates into approximately 206 million people participating in one or more of the 77 outdoor activities listed in the NSRE survey (Thompson et al. 2004).

The Forest Service's National Visitor Use Monitoring Survey (NVUM) provides estimates of recreation and visitor use for the National Forest System, as well as a component on visitor satisfaction (USDA 2002). The report for forests surveyed during fiscal year 2002 shows approximately 214 million visits to national forests across the United States. Although not all forests are surveyed every year, NVUM was designed to provide a statistically valid way to monitor and track visitor use across the National Forest System.

Although NVUM, NSRE, and other types of visitor surveys provide valuable information on visitor use and satisfaction with facilities and services, alone they are not adequate tools for understanding the implications of specific management actions on visitor satisfaction. A body of literature exists on the expectations of forest visitors, effects on satisfaction, and the causes of conflict and perceptions of crowding, but many managers do not understand these findings nor can they readily apply those findings to their site-specific projects. They are concerned about relating research to local situations and are uncertain as to *which* research is the

right research to use. As research builds upon research, differences in findings, opinions, methodology, and purpose can make applicability more problematic for managers. Locating the most applicable research is a labor-intensive process for time-limited field managers. This uncertainty, recognized to be an intrinsic part of research, is often the reason many managers do not consistently dedicate precious time toward reading research.

Many of our colleagues wish there were some way to direct them to the best, most applicable research on a variety of topics. As one respondent stated, "The agency doesn't have a protocol for research use, nor does it provide good enough access to research." Managers feel intimidated by their lack of knowledge of the research system and are reluctant to spend time looking for research that may not be relevant or applicable. Better training in using research and combining it with their practical experiences might help managers interpret and address their place-specific situations.

Research can move management toward better understanding and more efficient project planning and implementation, but it rarely gives managers "the answer." But, neither do the agency-developed tools such as ROS or LAC. For example, many managers have tried to use ROS to assess and manage landscapes for occurring or potential conflicts, a much more difficult use of ROS than drawing a polygon derived from distance from roads or development. One respondent mentioned the idea of having an ROS setting for dogs. He said, "I realize we don't have an ROS category that addresses dog settings, but we probably should in light of the headaches I have here concerning this. Regardless, visitor satisfaction is greatly influenced in certain (cross-country) skiing areas by the presence or lack thereof of pooches." Dogs seem to be a manifestation of larger setting-experience issues. To many, bringing their dogs is what makes their recreation experience complete. To others, however, the mere evidence of dogs ruins their experience. How should managers provide for these differences in expectation, especially in high use areas? Is ROS being used effectively to outline desired conditions, leaving site-specific or problem-specific management actions to be dealt with through monitoring and adaptive management?

Research that deals with ROS and increasing and diversifying use are applicable to the management of special places. "A knowledge of places having high values to humans as well as an understanding of the significant meanings and images that places have to individuals within a community should allow planners, managers, and decisionmakers to better articulate standards and guidelines that will maintain the salient characteristics of those places" (Galliano and Loeffler 1995: 12). However, if significant meanings are not known or understood by managers, proper actions cannot be taken in special place management.

Population growth in the 1990s was also an illustration of the shift of population centers to previously rural areas. Growth in areas high in natural resource-based amenities, such as forests, mountains, rivers, lakes, and access to recreation sites and facilities demonstrated dramatic increases, primarily due to immigration (McCool and Kruger 2003: 2). Place attachment may be different for oldtimers than it is for newcomers.

> For the oldtimer, place attachment may be defined in terms of the network of friendship and family links for which small communities are known. Oldtimers may also be more attached to specific locations, places with fond memories of life events and meaningful experiences. Newcomers may be more attached to amenities in general and not so deeply embedded in the local social and political system or tied to specific places on the landscape (McCool and Kruger 2003: 9).

In some landscapes such as wilderness, expectations of appropriate behavior are well defined and generally well accepted by those who are familiar with

them. But in multiple-use landscapes or in urban-interface areas, conflicts emerge not only over competing uses, such as between nonmotorized and motorized recreation users, but also over place meanings and expectations of appropriate behavior assigned to the special place (Cheng et al. 2003: 91). "Although national forests have a federal land management mission, they are impacted by shifts in local population and in addition, must be responsive to community needs and desires" (McCool and Kruger 2003: 16). Associated with changing visitor demographics, many managers were frustrated by the lack of localized research or documentation. Without this information, it is difficult to determine the best management actions for protecting, interpreting, or even advertising various landscapes, including special places.

Increasing Presence of Humans Reduces Naturalness of Settings

More people want to live near national forests for the benefits they provide. But urban sprawl and vacation homes, as well as the infrastructure such as roads and utilities that are associated with these developments, are turning natural areas into urban playgrounds. Along with urban constituents come urban problems such as crime, vandalism, and a lack of respect for, or understanding of natural resources, and lack of knowledge or concern for expected recreation etiquette. When does an area go from being "unspoiled" to "unsaveable"? Does the public know what terms such as "natural," "untrammeled," and "wild" mean? Do we know? How much are we willing to sacrifice in the name of growth and providing opportunities to everyone? How much influence does the Forest Service have over this issue? Ultimately, managers ask, "Are visitor expectations changing due to the commonness of impacts and developments? As urbanization increases, do people expect less of natural settings, or do they seek a greater diversion to achieve higher satisfaction with their experience? How does this affect visitor use and behavior?"

A common lament among respondents was the increasing impacts associated with recreation, and the need to maintain primitive and undeveloped settings. As discussed above, the demand for recreation opportunities among various user groups is on the rise, and as more people vie for a limited resource base, problems are bound to arise. Even in areas that are not considered urban, wildland-urban interface issues are prevalent. According to Dwyer and McCaffrey, "The arrangement of natural resources, residences, and infrastructure has become increasingly important to critical management and policy issues (2004: 330)". People are attracted to wildland-urban interface settings because they offer respite from urban development. But these same people may not be aware of the unique interaction between natural resources and their residences. They may consider the national forest to be their private playground with little regard to what their actions mean to other users or the resource.

One of the most common concerns is if recreation management, or lack thereof, is creating a visitor base that expects to see impacts and increased development. Because the National Forest System was designed to accommodate multiple uses, visitors should expect to see some amount of impact in certain areas. However, wilderness and other areas are managed for primitive recreation experiences where evidence of human presence is not to be noticeable, a difficult objective to manage as popularity of these places increases. Many wilderness users do not necessarily require wilderness to achieve their recreation goals and are affecting the experience of those who do. Diminished etiquette and resulting impacts may permanently affect the wilderness visitor's expectation, displacing users and leaving successive generations to never know the experience once obtainable in the past.

Many recreation managers are dealing with increased off-road use and its impacts to the environment and to the experience of other recreationists. As one respondent explained,

> ATV use is an issue, as it relates to damage cause by off-road travel. [There is a] high concern that this increasing damage indicates a lack of understanding by the public of short- and long-term effects, not only to ecosystem health, but scenery and recreation settings. We need to better understand this behavior and motivations. How do we outreach to the public to help us with this and other similar issues? We can't keep up if the public continues to find new and better ways to create damage. The public needs to be involved in the responsibility of correcting this problem.

Impacts are not always immediate; they often develop slowly over time and when managers recognize there is a problem, it may be difficult to change the users' behavior. Many managers are quick to blame recreationists for being careless or spiteful, and they feel overwhelmed by the complexity or intensity of the impacts. However, as Knopf and Andereck (2004) point out, most impact problems and depreciative behaviors are our own fault. Some recreation settings are managed with negative environmental cues that actually promote depreciative behavior. As Christiansen and Clark (1979 in Knopf and Andereck 2004: 309) found, "The presence of litter triggers increased littering behavior, vandalism triggers increased vandalism, and off-trail impact triggers increased off-trail impact." It is the responsibility of recreation managers to understand the techniques for managing impacts as well as where to place the blame. Knopf and Andereck (2004: 311) assert, "As resource managers, we have a tremendous capacity to create change without operating under the assumption that individuals are inherently a problem and can only be shaped by confinement and direct coercion."

Benefits and Limitations of Research to Managers

Although managers stated that they did not often use research on settings and visitor experiences, they are likely benefiting from research used to develop the tools they do use, such as ROS and LAC. A few respondents said that research is a valuable tool for their daily recreation management. Those managers mentioned they use research to support NEPA analyses, to understand visitor's motivations and value of public land, and to aid on-the-ground recreation management such as wilderness management, trail design, facilities design, interpretive services, and dispersed use. Respondents believed that the direct use of research among recreation managers and design professionals is becoming more commonplace and expected in order to increase professional rigor.

Respondents listed several limitations to using agency and academic research related to settings and visitor experiences. First, most research is not specific enough for local issues. Managers also do not feel that research done in other areas will be accepted by local users because of the nuances of each management situation. Second, managers said that it is difficult for the lay person, referring to the nonacademic public and Forest Service managers, to understand peer-reviewed research. The results and implications of research projects tend to get lost in technical jargon and scientific explanations. Managers need clear and concise explanations of the issue, the action taken to resolve it, and the implications for future management. Finally, managers said that research is not clear about what management actions are acceptable to the public and why. For example, what degree of modification to a setting will visitors accept? What type of management actions will visitors consent to? What level of management will not negatively affect visitor experience? These are some of the issues that agency and academic researchers can work on with managers so research can be better incorporated with day-to-day Forest Service recreation management.

Conclusions

Respondents offered various solutions for getting more agency and academic research to the field. From conducting more site-specific research to establishing a network for sharing ideas, many managers had suggestions for establishing a better relationship between research and recreation management. Here is a summary of those suggestions:

- Provide tested methods for conducting local social assessments, coupled with academic research (i.e., rapid assessments).
- Promote the Draft Recreation, Heritage and Wilderness Resources (RHWR) Technical Guide for use in professional practice, along with forest plans, directives, and policy. The Guide provides a single source for describing planning concepts and information for RHWR programs and is intended to increase quality and consistency in those programs. Expand the guide to include a section on using research and bridging existing tools. (http:// fsweb.wo.fs.fed.us/rhwr/planning/index.shtml).
- Develop a centralized review and clearinghouse for recreation, scenery, and social research (and highlight implications for management).
- Formalize a pipeline for downward directives, national protocols for using tools, and research, and recommend research.
- Formalize a pipeline for upward reporting of field innovations, applications of tools and research.
- Utilize a national cadre of researchers and managers to review current research and the communication pipelines.
- Strengthen commitment by line officers to address social issues.

Many of these suggestions by recreation managers are not the responsibility of researchers; instead, their implementation depends on the commitment of Forest Service leadership in recreation at the national and regional levels, as well as the commitment of line officers, to provide the training and resources necessary to inform field recreation managers. Managers also have a responsibility to understand where their knowledge is lacking and pursue opportunities to increase that knowledge. In times of shrinking resources and budgets, this is increasingly more difficult. One respondent summed it up well when she said, “Managers need to be willing to manage visitors as needed to meet the goals we set for recreation settings, and we need to keep track of our success at meeting those goals. Through informed action, we can improve visitor experiences and resource conditions, but we have to be willing to manage.”

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Recreation Settings, Scenery, and Visitor Experiences: A Research Assessment

Daniel R. Williams[1]

Abstract

A core task of recreation research is to understand the relation between settings, scenery, and visitor experiences. This paper uses environmental psychology to describe four conceptual models underlying these relations: inherent/aesthetic, opportunity/goal-directed, symbolic, and expressive. The paper then describes some challenges to applying results to recreation resource management.

Introduction

Understanding the relation between the recreation setting and recreation experience, I would argue, has been the core theme in forest-based outdoor recreation research for over 35 years. This topic is at the heart of understanding recreation visitors. It has dominated the Forest Service's recreation research program from its founding in the late 1960s and is ensconced in the practice of recreation resource management by way of the Recreation Opportunity Spectrum (ROS) concept. Recreation resource managers administer recreation resources such as campgrounds, wilderness areas, rivers, and trails, and require specific information on how the resource functions to provide satisfying recreation experiences. In other words, managers require information on the relation between recreation settings (resources and their characteristics) and the psychological outcomes motivating recreation participation in that setting. Managers also need information on how management practices such as facility improvement, fees, use regulations, and interpretive services (all managerial features of the setting) promote or inhibit visitors' desired experiences.

The purpose of this paper is to provide a brief overview of the state-of-knowledge on settings, scenery, and visitor experiences, and to identify continuing and emerging research issues related to this topic. Although this topic overlaps somewhat with others at this workshop (e.g., benefits, environmental attitudes, cultural diversity), this overview is organized from the perspective of environmental psychology. In my view, environmental psychology is principally about understanding the relation between environments (settings) and user experiences (for the sake of simplicity, throughout this discussion I will generally use terms such as *setting* and *environment* to include scenery). As a field of research, environmental psychology looks at a range of environments (urban, indoor, institutional settings), but the core research agenda is very consistent with the theme of outdoor settings and recreation experiences. Environmental psychology takes an equally broad interpretation of experience.

Environmental experience as a psychological phenomenon is concerned with what happens to an individual cognitively, emotionally, and behaviorally, and how such behaviors and mental states are

[1] Research Social Scientist, USDA Forest Service, Rocky Mountain Research Station, 2150A Centre Avenue, Fort Collins, CO 80526. Email: drwilliams@fs.fed.us

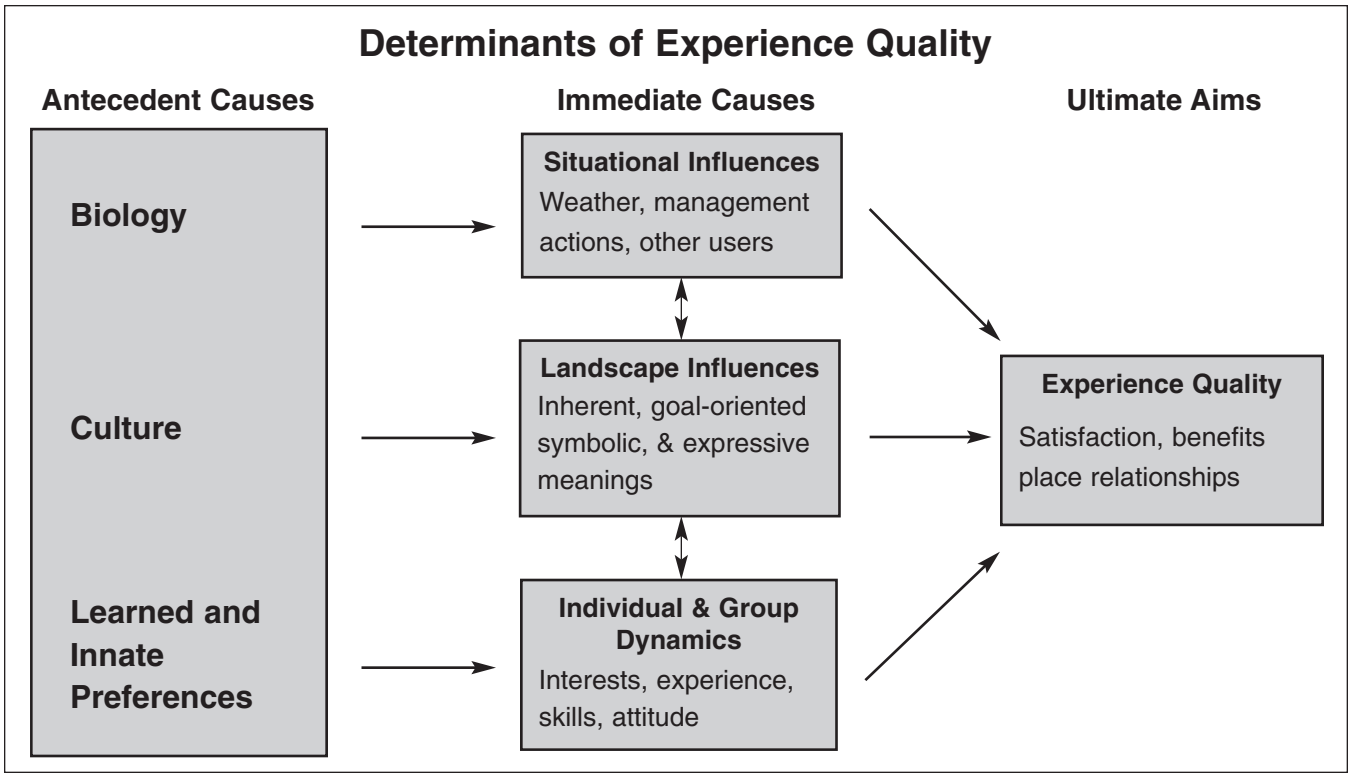

Figure 1—Determinants of Experience Quality.

influenced by environmental conditions and events. These experiences range from the immediate emotional reactions of joy and satisfaction in a setting to the enduring changes in an individual's well-being (what recreation researchers often refer to as benefits). Note these experiences are not always positive and may include such experiences as conflict, crowding, dissatisfaction, and even physical and psychological harm.

A key aspect of understanding the relation between settings and experience is recognizing that experience is not merely a psychological *reaction* to the setting (i.e., in a stimulus-response sense), but something *created* by the individual or group through active engagement with the setting. Figure 1 suggests that the quality of an experience is the result of three categories of immediate cause: situational influences such as weather and the actions of other people in the setting; individual and group characteristics (e.g., interests, skills and attitudes of the individual and significant companions) as well as the dynamics among group members; and landscape or setting influences that concern resource managers. In addition, how the participant reacts to these various conditions is influenced by deeper antecedent causes associated with culture, biology, learning, and personality. Among skilled participants, experience quality is not singularly dependent on environmental (setting) conditions. Rather, participants can use their acquired knowledge and skills to adapt their behavior to the circumstances they find in a way that enhances their experience (and successful adaptation may itself be part of the satisfaction that participants receive). As Ittelson (1976: 187) wrote, environmental experience is "that product of an active endeavor by an individual to create for himself a situation within which he can optimally function and

achieve his own pattern of satisfaction." This contrasts with much of the recreation and consumer behavior literature which has often conceived of satisfaction as mostly a one-time evaluation of the degree to which one received what one expected (Williams 1989). But research suggests that satisfaction is more a dynamic and fluid process (Patterson et al. 1998, Stewart 1998) and derived as much from the mere pursuit of goals as their attainment (Omodei and Wearing 1990).

The central task in setting-experience research is establishing the nature of the relation or link between the settings (objects, stimuli) and the psychological response of the subjects (i.e., visitors and their experience). Researchers employ a number of metaphors to describe relations between the environment and the subjects using them. For example, we might think of subjects as visitors, customers, stakeholders, community residents, or citizens. Each implies something different about the relation to managers and the setting. Visitors are only temporary guests. Customers pay and expect service, but incur no obligations to the provider. Stakeholders have interests that compete with other stakeholders. Community residents have intimacy, knowledge, and a sense of possession. Citizens may have competing interests like stakeholders but also duties to the greater good of society. Likewise we can employ various metaphors to describe the settings. Resources are tradable and fungible. Watersheds suggest spatially bounded natural units. Ecosystems are systemic, if not spatially bounded. Landscapes connote larger scale areas that are shaped by natural and social forces. Similarly, places imply areas with histories and meanings that are socially and culturally produced.

Although these metaphors are an aid to thinking, when using these or other various metaphors to establish setting-experience links, we risk missing important details. For example, when we work from the metaphors of resource and visitor/customer we get corresponding social and biophysical assessment that connect the two in terms of attribute and experience preferences that one could find in a variety of specific settings. They do not tell us what is endemic to a particular setting. For example, many areas could be said to possess naturalness, remoteness, solitude, and challenge. Using a place or community metaphor, recreationists experience and come to know and value actual places. Such places are experienced at a variety of scales from a site level (e.g., Brainerd Lake or the Black River) to a regional or landscape level (e.g., Boundary Waters, Bob Marshall Wilderness, or Black Hills National Forest). The significance of specific places, which people come to know through experience, is not easily captured in resource and social assessments such as ROS and Scenery Management System (SMS) that focus on their general attributes (e.g., remoteness, scenic beauty). Rather for people who know and use an area, its significance is more likely captured in narrative form (histories) as meanings, practices, and rituals. The challenge for recreation managers is to develop a more comprehensive understanding of the link between setting and experience.

Models of Environment-Experience Relationships

Environmental psychology as a discipline offers a range of approaches to help capture the different metaphors or modes of human-environment relationships. Each mode represents or captures some kinds of meanings and experiences better than others. I have described four such modes in detail elsewhere (see Williams 2004, Williams and Patterson 1999). Below I give a brief summary of each.

Inherent/Aesthetic Mode

Landscape aesthetics and scenic quality have been vigorous and important research topics within environmental psychology. Much of this research has followed an adaptive paradigm in environmental psychology

(Saegert and Winkel 1990). Human perceptions and preferences are seen as having adapted to facilitate functioning and survival in an uncertain information environment and to account for what were biologically inherent approaches and avoidance tendencies in reaction to environmental stimuli. One implication of this is that human responses to viewing natural landscapes are theorized to be more preferred, pleasant, and beneficial than responses to viewing highly modified or developed landscapes. As adaptive responses, aesthetic experiences are seen as determined by multiple stimulus properties (e.g., intensity, pattern or complexity, color, etc.). Knowledge about the underlying environmental determinants of aesthetic responses to the landscape is considered objective and highly generalizable across time and place (Daniel and Vining 1983).

From these assumptions, aesthetic meanings can be characterized as relatively tangible, commonly held, and emotionally evocative. First, aesthetic meanings are readily tied to on-the-ground (tangible) features of the setting that allow researchers to make generalizable predictions about the environmental factors that influence scenic quality (Daniel 2004, Hull 1989). Second, despite the common dictum that "beauty is in the eyes of the beholder," empirically-based scenic beauty research indicates that different observers generally make similar aesthetic judgments (Daniel and Vining 1983, Ulrich 1993). Third, scenic or aesthetic responses are associated with immediate feelings of pleasantness and interest that appear to be innate psychological reactions (i.e., involving minimal cognitive processing) to landscape properties (Ulrich et al. 1991).

Aesthetic models appear to describe important meanings of the setting with considerable reliability, sensitivity, and commonality (Daniel and Vining 1983). Aesthetics research at this point supports the notion that aesthetic meanings can be sufficiently isolated from other meanings of the landscape to warrant some attempt to inventory them. Further, aesthetic types of meanings are tangible (in that they can be mapped onto the landscape using formal, psychophysical, and psychological theories of beauty), emotionally potent, and provide a widely shared and valued basis for natural resource decisionmaking. Thus, a fully integrated assessment of a recreation resource should include some effort to map the aesthetic meanings or scenic values of the landscape under consideration. Still, recreation experience is about much more than scenery, which leads us to investigate additional modes of environment-experience relationships.

Instrumental/Goal-Directed Mode

The approach to instrumental/goal-direct mode closely follows what Saegert and Winkel (1990) identified as the opportunity structure/goal-directed paradigm within environmental psychology. Humans are viewed as rational planners who select the best options within a system of resource opportunities and constraints. Environmental appraisals are made based on the goal-fulfilling potential of the environment. This approach is conceptually similar to the utilitarian tradition that has historically guided resource management. Consequently, the social science of evaluating instrumental goals is quite well-developed, drawing from social psychology and microeconomics (see Williams and Patterson 1996).

Within the instrumental mode (and much like the aesthetic approach), setting experiences reflect tangible, goal-related properties of the environment. For the instrumental goal of producing timber, resource managers collect a wealth of data on the biophysical properties of the land to project or forecast yields of timber. Likewise recreation and amenity assessments such as ROS often assume an instrumental or goal-directed relation to the environment—a lake or stream affords fishing; remoteness affords solitude (Driver et al.1987). Although social and cultural groups often hold shared "theories" of meaning (e.g., that nature affords solitude), these are not universal across groups or constant over time. For example, in some cultures,

nature might be seen as facilitating social interactions. Regardless of social or cultural backgrounds, individuals often differ in the extent to which they value a particular culturally defined meaning (goal). Similarly, any given setting can potentially fulfill a wide range of competing goals. Consequently, conflict sometimes ensues over how to prioritize management goals.

Recreation management has greatly benefited from assessments based on goal-directed relations such as the ROS system. As noted in the introduction, however, this view builds on a consumer metaphor that assumes settings are theoretically interchangeable (fungible) when the replacement provides a similar combination of goal-fulfilling attributes. But resources are also places and ecosystems to which people assign unique (non-fungible) meanings. There is only one Yellowstone National Park. Some meanings associated with an environment do not derive so much from how it can be used but simply what it represents symbolically to an individual, family, or cultural group. Meaning reduced to utility to meet goals fails to adequately address the emotional, symbolic, and spiritual values of wildlands that people associate with specific places. Unfortunately these are much harder to identify, but often represent important sources of conflict among users.

Cultural/Symbolic Mode

Inherent/aesthetic and instrumental/goal-directed resource inventories represent important and widely used procedures for characterizing the meaning and value of natural resources for recreation. But to tap the more intangible meanings a third way of characterizing human-environment relations within environmental psychology involves identifying social, cultural or symbolic meanings (Saegert and Winkel 1990, Stokols 1990). From this sociocultural perspective, for example, the same forest stand can symbolize ancestral ways of life, valued commodities, recreational opportunity, or essential livelihood to different groups of people. Thus, an environment can acquire varied and competing social and political meaning through its association over time with particular activities or groups. The question is not merely what the setting can be used for now, but how has it been used and valued in the past (McAvoy 2002)?

Within the field of environmental design and management, Stokols describes the symbolic approach as one that views the environment as an end in itself rather than as a tool – "as a context in which fundamental human values can be cultivated and the human spirit can be enriched" (Stokols 1990: 642). From the sociocultural view, natural resources are valued not only for instrumental purposes, but also exist as *places* that people become attracted to and even attached to because such places possess emotional, symbolic, and spiritual meaning. Despite increasing recognition that symbolic meanings of the environment are important, managers lack available tools to represent them in resource assessments and decision-making. However, researchers and managers have been exploring new ways to map sociocultural meanings and special places (Eisenhaur et al. 2000, Hall et al. n.d., Kent and Preister 1999).

Individual/Expressive Mode

Like the sociocultural approach, interest in individual expressive meanings poses a large challenge for resource assessment as recreationists develop and assign intangible and relatively unique meaning to places (Eisenhaur et al. 2000). Unlike aesthetic and instrumental meanings, expressive meanings do not apply so much to abstract classes of environments or their separable features as they do to specific places, often as a result of personal history and familiarity accumulated over time. Interest in individually held meanings has often focused on concepts of place attachment. Place attachment can be thought of as an emotional dimension of meaning—as an indication of the intensity, depth, or extent of meaning—with symbolic and spiritual meanings associated with high levels of attachment (Williams and Vaske 2003). These

attachments can be distinguished from other emotional reactions (i.e., scenic beauty, subjective utility) by the emphasis of the former on enduring bonds, ties, and links. In contrast, scenic beauty research reflects the perspective of a temporary visitor reacting primarily on the basis of appearance and immediate, short-lived emotional responses. On the other hand, attachment refers to enduring feelings associated with a place which develop through interaction with the setting over time.

It is sometimes noted that individual meanings are difficult to consider in environmental planning and management because they are potentially unique to individuals. What is a manager to do if each person has his or her own meaning for a setting? Because past experience in a given setting is fairly unique to each individual, people may assign individualized meanings to environments and respond to resource management issues on the basis of these meanings. Still, just because meanings can, in theory, be different for each person, it does not indicate that meaning are different in all or even most cases. And even if the place means something different to different people, they often share a sense that the place is special. In any case, it may be important at times to recognize individual variations in meanings when making land-use decisions. People resist management actions that threaten their sense of self (Appleyard 1979).

Implications for Recreation Management and Planning

With this broad overview of research approaches for studying the environment-experience relationship, I now turn to the managerial issues that Rachel Kennon Franchina and Noelle Meier presented in this workshop session. Based on an informal survey of colleagues, they identified four basic management concerns pertaining to settings, scenery, and visitor experiences:

1. What degree of landscape change will people accept, and how much does the public understand about those changes?
2. How might we enhance visitor experience as well as our agency image?
3. How do we enhance experiences in a manner that reduces damage to natural resources and social settings?
4. Are visitor expectations lowering due to the commonness of impacts and developments? Does that affect use and behavior?

These appear to be issues managers have long struggled with; however, managers may sense new urgency to address them because of both increasing ecological disturbance and accelerating social change. In fact, these issues have been the subject of considerable social science research for over 30 years. That body of research has been reviewed and synthesized in numeous books and proceedings (see Glaspell and Puttkammer 2001, Hammitt and Cole 1998, Hendee and Dawson 2002, Manfredo et al. 2004, Manning 1999, Shelby and Heberlein 1986, Watson 1989). Thus, the interesting question may be why managers feel they still lack solutions to these problems? Has research produced answers to these questions? And if so, are managers unaware of potential solutions that research has to offer?

Research has indeed produced some answers to these issues, but not necessarily the answers managers were hoping for. Managers confront intractable problems that defy technical resolution, which is probably why the same problems keep showing up on lists of issues. Even though research rarely provides tidy solutions to such problems, that does not mean research cannot offer insights and strategies to deal with them. However, the way researchers and managers sometimes frame the research issues can be problematic. For example, by employing a consumer metaphor in an arena of public goods, we assume more responsibility for the quality of experience than

is reasonable. Or, by trying to find technical solutions to basically political problems, we give too little attention to how to bring citizens together and work out their differences. Below I offer a few comments about each of the four management questions in an effort to illustrate what I mean.

Regarding the first question, research shows that different people will accept different degrees of change. In fact, landscape changes are happening all the time, so at some level people must come to accept change. Further, the problem is one in which what people will accept varies by the kind of change (e.g., natural change, visitor impacts, or other nonrecreational uses) and what people will accept also varies from place to place. As Kennon Franchina and Meier note, it is this latter feature that really causes problems for managers because it is very difficult to generalize research findings from one situation to another. Perhaps the underlying question is how are various changes linked to the meanings people ascribe to the landscape? To illustrate the difficulty, some preliminary findings on a study of fire and recreationists' sense of place show that some anticipate that a wildfire would be devastating to their sense of place, but others see wildfire as inherent feature of that place and therefore something they accept as a possibility. Thus, the problem is that in each situation managers have to figure out what kinds of change will be resisted and what kinds of change, if any, are more acceptable and by whom. Broad guidelines can be found with respect to both visual quality research (see Hull 1989) and much of the wilderness management research (Hammitt and Cole 1998). But short of doing site-specific research on the specific populations involved, very general insights are the most we can offer. Over time, research may be able to refine these guidelines, but they will never replace site or population specific information.

The second question implies that managers take considerable responsibility for experience quality. Figure 1 suggests that the quality of an experience is influenced by many causes not directly controlled by management. Our tendency to think in terms of delivering visitor experiences, in part, reflects a prevailing consumer metaphor for recreation resource management—managers presumably provide the opportunities for visitors (consumers) to obtain certain experiences and are then judged by those consumers on the performance of the resource and management efforts in meeting consumer expectations. But unlike a consumer-oriented business, which gets to choose which customers it is most able to serve (and make a profit), government agencies by their nature must try to serve all the people, and not just by providing recreation but a wide range of "ecosystem" services that come from the area. Likewise, as citizens we have responsibilities to our government and fellow citizens that, in this case, might include a duty to protect and perpetuate the public values—as consumers we do not have responsibility to help a business succeed. Managers could employ other metaphors, such as *performance*, that would recognize the role of the visitors in creating their own experience (we call it re-creation for a reason).

Recreationists bring a variety of skills to the situation and have knowledge of the place and setting that may allow them to maximize the quality of their experience despite unexpected conditions. In fact, a quality experience may include a sense of overcoming conditions they did not anticipate (Patterson et al. 1998). Clearly the quality of experience is significantly influenced by the setting, but the problem is that the nature of this relationship varies from person to person and situation to situation. Thus, "within the boundaries set by the environment, recreationists are free to experience the world in highly individual, unique, and variable ways [which suggests a need] for a research approach capable of capturing unexpected variations" (Patterson et al. 1998: 445). As with the acceptability of landscape change noted above, research has produced some general guidelines and principles to follow, including the idea that recreation is a multiphase experience. Building on the general theme of the paper, the key to addressing this problem is to strive

to recognize the wide variety of relationships visitors have with settings in our resource assessments and to create more opportunity for people to participate in the decision process.

My assessment of the third question is closely related to the second. Some of the influences on visitor experience come not so directly from what mangers do with the resource but from growing competition and conflict among users. Competition for access and conflicts over uses need to be addressed through good public participation. People need information and skills that allow them to adapt to the social conditions they find. But with growing demand, there will always be crowding and conflict. This is another reminder that public recreation management is not like the commercial world where who gets to use the facilities can be controlled. Instead recreation management decisions are ultimately political. Who gets access and who does not is, in the end, a policy decision without a right or wrong answer that can be rendered by science.

Finally, the problem of lost naturalness is the same as the first question in many ways: it involves the acceptance of change. Some change is inevitable, and there is little that managers can do. Some changes harm some users more than others, and we are back to who gets to decide which changes we are going to try to limit. Here again we are talking about an intractable situation in which growing demands on a resource cannot be accommodated without change in that resource or severe restrictions on access and use. Again, the problem boils down to political conflicts between who gets to use what and how they use it.

Given these dilemmas, there are two persistent questions being asked at this workshop: (1) what is the role of research in management, and (2) how can managers make better use of what has already been studied? As I see it, there is something of a disconnect between what social science can do for management and what managers hope to get from research. So far I have emphasized that the problems managers face are often intractable policy dilemmas which research has limited potential to remedy. No doubt, research does help clarify the nature of these problems, and 35 years of research has produced important insights used by managers every day—managers may not even realize where those insights came from. Much of what constitutes the practice of recreation management has been built up through decades of management experience as well as interactions between researchers and managers. These insights reflect less formal practical experience as well as research and experience documented in various books (see Manning 1999) and technical guides (see RWHR, n.d.).

The problem of gaining access to research results was an important theme identified in the survey conducted by Rachel Kennon Franchina and Noelle Meier. In their presentation, they identified three perceptions managers have about utilization of research:

1. Research does not seem to support resolution of managerial problems.
2. Managers need improved access to what is already known.
3. Managers need greater access to decision-relevant and geographically specific information and insights.

I have already alluded to the first issue in stressing the politically intractable nature of recreation resource management problems. No amount of research can extricate managers from what are essentially social and political conflicts over meanings, values, and uses. But I think we can ease this problem by improving our assessment tools and decision approaches to make them more participatory, dialogic, and collaborative. In other words, the task here is to apply research not to finding technical solutions to what amount to “wicked” management problems, but to improving our decision and planning processes to make them more transparent, inclusive, and democratic.

Published research is often unhelpful because the task of management is fundamentally one of prescribing a course of action to fit inevitably unique situations.

To a certain extent, each place is different, yet what gets published tends to be those findings that have some relevance to a broader community of research. What managers often need is a set of practices that empower them to systematically explore the specific situation at hand and develop management prescriptions tailored to local conditions. What research can contribute is the development and evaluation of potential tools for case-specific analyses.

In the conclusions to their workshop presentation, Kennon-Franchina and Meier made similar recommendations for improving the interactions between research and management. The most crucial among the recommendations, in my view, is the idea of developing methods for conducting local social assessments. Specifically they identified the concept of rapid assessment as a tool with some potential. In fact such tools already exist and have even been applied to recreation management (Taplin et al. 2002). As a community of practice, however, we lack experience and training in their use. Until recently, the field has tended to avoid case-based, contextually tailored qualitative methods in a misguided belief that they did not reflect "sound science" and therefore were invalid and would not hold up under public scrutiny. But such attitudes are a lingering remnant of the discredited ideology of scientific management that still infuses the practice of natural resource management. As Hummel (1991) points out, this represents a failure to adequately distinguish between the conduct of science and the practice of management. In the realm of application and decisionmaking, the experience of managers is not only as valid as science, it is often more relevant because it focuses on the specific situation.

Second, access to existing knowledge is part of a broader knowledge management issue in any community of practice. The problem is more a matter of training than retrieval. The fact is researchers do not have ready access to existing knowledge. And, existing knowledge almost always requires synthesis and refinement to be applied to a given situation. Interpretation, synthesis, and application of the existing body of research, even for the scientist, requires three things: broad familiarity with the research domain, knowledge of basic theory and research methods, and time to identify the specific situation and synthesize the relevant knowledge. Moreover, scientists cannot generate an interpretation of research suitable to each situation in which managers might find themselves. Drawing again on Hummel (1991), the task of the scientist is one of taking reality apart to extract general insights. In contrast, the manager's world involves putting reality together and producing a synthesis of knowledge relevant to the situation at hand. Much of that knowledge is local and therefore outside of the systematized body of science. Managers need training in gathering and synthesizing both the relevant science and the relevant local knowledge. This requires an investment in research and management capacity.

Take one recent example: unmanaged recreation. There is no existing synthesis of research with that label, but given my experience and familiarity with recreation research, I know a few basic areas where we should probably look to begin to assess what we know and do not know about this problem. Two well-established research topics come to mind: (1) the research on interactivity conflict, and (2) research on recreation impacts on biophysical systems. Research on these two topics has been ongoing for decades, but it is only when managers begin to frame their problem as "unmanaged recreation" that a specific need arises to sort through the existing literature and figure out what lessons might be gleaned from it. Still, given basic theory and a very general knowledge of the research in this field, a researcher might suspect two basic principles that might be relevant to the problem. One very general principle is that most of the impacts to biophysical systems are generated at relatively light levels of use and then level off at higher levels of use. A second very general principle is that no amount of

education, persuasion, or other light-handed intervention will generate more than about 95% compliance (a statistic I made up on the spot!). What this suggests about unmanaged recreation is that, short of near total surveillance or closing an area, there is little one can do to reduce most of the damage because most of the damage will be caused by the 5% who are immune to almost all forms of persuasion. Anything more insightful regarding this general problem would require the time and effort to sift through and synthesize the research. And to develop anything approaching a site-specific set of recommendations (i.e., to test whether these basic principles hold in a given situation) would require a site-specific study in itself.

Managers are often looking for decision-specific and geographically-relevant information. As noted above, some of this is local knowledge that only managers would be able to generate using their own powers of investigation. But some information relevant to the situation on the ground can be anticipated in advance. Managers often are looking for already existing information relevant to the problem at hand, not research to solve some puzzle. Research is a relatively slow process that has difficulty responding to these immediate needs. Organizations need to invest in ongoing information systems that can collect, analyze, and produce timely and reasonably specific reports for managers. The National Visitor Use Monitoring (NVUM) effort is a beginning, but it may not cover some issues with enough depth and geographic specificity to meet local managers' needs. Because the usefulness of this type of information increases when comparisons can be made across time and space, these systems need to be ongoing and provide a reasonably high degree of geographic resolution.

Conclusions

In my review and synthesis of the research on the setting-experience relationship, I focused on environmental psychology as a way to frame and organize the body of work. In so doing, I highlighted four themes and challenged some conventional assumptions in recreation resource management. One challenge was to think beyond the consumption of landscape attributes typically inventoried in recreation assessments and view recreation experience as an active, creative process. On the surface, this may not seem to fly in the face of convention. But as a community of practice, we fall prey to the consumer metaphor, which suggests that the quality of experience is almost entirely a function of the extent to which the performance of the resource exceeds visitor expectations. Instead it is important to remind ourselves that people make their own experiences, they shape and adapt the situation, and they employ skills and knowledge to create their own satisfaction.

A second and related theme is that recreationists form meaningful relationships with specific settings (places), and these relationships often become ways to express a sense of identity. People form bonds with specific places and sites. Recreationists also develop intimate knowledge of those places and deploying that knowledge during their visit represents an important feature of their experience. As a consequence, recreationists may feel a sense of ownership for favorite places and will want a say in how they are managed. Our recreation resource inventories and assessment tools do a poor job of capturing the enduring relations visitors have with special places.

That leads to a third theme. Research on visitor experience is necessary but not sufficient to solve management problems. In fact no amount of research is sufficient to solve the kinds of political (wicked) problems managers often face. Thus, a greater appreciation is needed of the limits of a research approach to solving specific management problems in specific situations. In addition, most of our assessment and decision tools for management were developed in an era when expert knowledge dominated the process. In today's managerial environment, we need to rework

these tools to make them more amenable to multi-stakeholder collaboration, and there is a role for research to play in developing and evaluating these more participatory approaches to management.

Finally, we can do little to address the problems faced in recreation management if we fail to address the overwhelming need to strengthen institutional capacity for knowledge utilization and collaboration. One aspect of this is the development of an information system that serves the need of managers. Much of what managers look for from the research community is often not research per se, but information specific to a situation that can inform management decisions. Given limited human resources, there is no practical way researchers can provide situation specific answers in anything approaching a timely manner. But fundamental to all these problems is the need to build a vibrant community of practice in which managers receive education, training, and the benefit of organizational learning through the shared practical experiences of their fellow managers. Research plays a critical role in this by developing a professional literature and a wealth of expertise that practitioners can turn to for education, training, and advice.

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Ethnic Diversity and Recreation Preferences

Deborah J. Chavez [1]

Recreation research scientists provide information to public land managers about recreation visitors as well as recommendations for actions managers can take. This paper briefly describes some specific research findings and describes how the results and recommendations were implemented by recreation managers. These are examples of serving Latino visitors in southern California.

Relevance of Demographic Change to Recreation Management and Research

Demographic shifts in the United States indicate a rapidly growing Latino population. In 1900 there were approximately 500,000 Latinos in the United States. Today there are more than 35 million (Saenz 2004). In 2000 about 13% of the U.S. population was Latino. In 2100 they are projected to comprise 33% (Saenz 2004). This is a very large shift, making it important to know more about this population group.

Why are these demographics important to recreation management and research? The importance lies in what it means for recreation on public lands. Research indicates Latino groups may have different preferences, different expectations about public lands, different barriers to participation, and different site development preferences than other groups (Chavez 2001, Chavez 2002, Tierney et al. 1998). Also, differences may exist within activities. For example, picnicking for Latinos tends to be an all-day activity which includes the on-site preparation of several meals and includes nuclear and extended family members (Carr and Chavez 1993).

There are differences within Latino groups depending on state of residence, and differences within states of residence. In California, for example, Central Americans are different from Mexican Americans. Research conducted at national forests in southern California found differences between these groups on motivations to recreate and perceptions about recreation sites (Ewert and Pfister 1991, Simcox and Pfister 1990). These findings suggest using caution when referring to "Latinos," as there are in-group differences to consider. This paper addresses Latinos from southern California who recreate on national forests. These Latinos tend to be first generation, from Mexico, or recent immigrants. The results apply to only these Latinos.

The following are examples of how research findings on these Latino groups were used by recreation managers.

Communication Examples

One of the earliest studies of Latino visitors occurred on the Angeles National Forest in southern California by researchers from California State University, Chico (Ronald Hodgon and David Simcox) and California State Polytechnic University, Pomona (Robert Pfister). The study focus was communication (Hodgson et al.

[1] Research Social Scientist, Pacific Southwest Research Station, 4955 Canyon Crest Drive, Riverside, CA 82507.
Email: dchavez@fs.fed.us

1990). Based on study results, these researchers suggested communications between the agency and Latinos should be treated as intercultural communication because visitors have different values, experiences, and world views than managers. They found that mass media sources for communication to be ineffective and they suggested two-way exchange of information is better. They found a large percentage of Latino visitors on forests spoke only Spanish (45%).

Several programs were implemented by resource managers based on these suggestions. This paper highlights two of those programs.

Forest Information Van

The Forest Information Van (FIV) ran from 1994 through 2001 on the Angeles National Forest in southern California. The FIV was a small, movable visitor center that took messages to where Latino recreation visitors were (Absher et al. 1997). For example, if the visitors were in the East Fork of the San Gabriel Canyon, that is where the FIV went. The van itself had a pull-out canopy with panels decorated with brightly colored pictures of animals. These photos were used to attract the attention of Latino visitors. Visitors could acquire information about forest rules and regulations, and what to see and do in the area. Information at the FIV was available in English and Spanish, and the FIV staff was bilingual. The program ended due to decreasing budgets.

Eco-Teams

Eco-Teams were active from 1991 through 2001 on both the Angeles and San Bernardino National Forests in southern California. The forests worked with the California Environmental Project (a nonprofit organization) to hire youth from Los Angeles and train them to make public contacts in the forest. The Eco-Team members approached Latino recreation visitors to relay important messages (Absher et al. 1997). Often these messages related to litter, water safety, and fire. Team members also modeled behavior, such as picking up litter from the site. This program also ended due to decreasing budgets.

Both of these examples demonstrate two-way communication (interpersonal), the use of Spanish, and ways to reach out to recreation visitors fitting their communication styles and preferences as identified in the research studies. Other studies have also found that taking information to people and focusing on one-on-one communication was important for members of racial and ethnic groups (Crompton and Witt 1997).

Hawkins Natural Park

Results from the communications studies as well as others in southern California (Chavez 2001, Tierney et al. 1998) were instrumental management decisions for Augustus F. Hawkins Natural Park in South Central Los Angeles. It is an 8.5 acre park that was previously owned by the Los Angeles Department of Water and Power. It was best described as a pipe graveyard (Sorvig 2002) until it was purchased by the Santa Monica Mountains Conservancy.

The park that now exists is a result of a community endeavor where the local community (mostly Latino and African American) decided to turn the area into a natural park. Many members of the local community were hired to help clear the area and rebuild it. Some were retained to work in the visitor center or on the grounds after the park opened. The top floor of the visitor center is home to the park ranger, who also grew up in the local community.

Although the focus of the park has been on conservation education for local youth, entire families take advantage of the many opportunities offered at the park. These include walking, biking, picnicking, conservation education classes, and family nights (when movies are shown). On Saturdays the park offers transportation to nearby natural areas including beaches, deserts, and mountains. When the bus trips first began, a conservation educator went with the groups,

but with repeated trips there was less need for a "guide."

This is another example of how to fit the needs of southern California Latinos (and also African Americans) by addressing communication, education, and personal preferences, and concurrently addressing known barriers to outdoor recreation participation.

Development Research and Action

The second area of applied research relates to development preferences of Latino groups. A few studies reported this preference by Latino respondents (Chavez 1992, Chavez et al. 1993) at both forest recreation sites and desert recreation sites. What this means and how it is implemented is the subject of this section. Specifically, an example from the San Bernardino National Forest in southern California is described.

The site is the Applewhite Picnic Area (AWPA) on the Frontcountry Ranger District. The AWPA was first built in the late 1920s and was designed to serve 250 people (Chavez 2002). By the 1980s, most site visitors were Latino (80%) and use levels often exceeded 1,700 people. Managers of the site approached researchers to gather information about the visitors and their preferences for site renovation (Chavez et al. 1995). The biggest attraction at the site is Lytle Creek which runs the length of the picnic area.

Results indicated a clear preference by Latinos for development of the site (Chavez et al. 1995). Most Latinos wanted the site facilities and amenities to increase four-fold. Respondents expressed interest in additional picnic tables, larger-sized picnic tables, and grouping of tables (so that larger groups could sit together). Respondents also preferred trash cans near their picnic sites, barbecues nearby, increased parking, and flush toilets in the restrooms.

The managers took the results and developed the site based in part on those results. Also using the study results, site managers acquired funding for the renovation. Most of the preferences expressed by the Latino respondents were offered by the renovation including grouped picnic tables, larger tables, as well as trash cans and barbecues at each picnic site. Site managers did not provide flush toilets but installed "sweet smelling toilets" (citing cost and flooding potential as reasons).

AWPA is a demonstration of adaptive management (Chavez 2002), a process for continually improving management practices by learning from the outcomes of operational programs (Halbert 1993, Lee 1999). Follow-up studies at the site indicate that Latino visitors are satisfied with the development of the site.

Adaptive management at the site has resulted in a vastly changed site, partnership between Research and Development and management, a satisfied local community, and well-served visitors.

Conclusions

These examples illustrate how research findings were taken and implemented on two national forests in southern California. Some of the results (such as the development work) were a clear progression from research results to management actions and some (communications) represented innovative choices made by resource managers. Each resulted in better served recreating publics.

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Visitor Diversity on National Forests—How Should Managers Respond?

Cassandra Johnson[1] and D.B.K. English[2]

Historically, Anglo Americans have been the primary clientele at nature-based outdoor recreation areas in the United States (Chavez 2001, Dunn et al. 2002). Goldsmith (1994) highlighted the lack of racial and ethnic diversity among National Park visitors. Citing a Texas A&M study, Goldsmith (1994) reported that less than 1% of car visitors to Yosemite National Park were African American and less than 4% of bus riders to the park were African American. Visitation by Hispanics at Grand Canyon National Park in Arizona was similar to that for Blacks. Natural resource managers and policy makers also have been mostly Anglo. Not surprisingly, the resulting management "culture" has privileged traditional natural resource values and beliefs rooted in White, middle American culture (Deluca 1999, Chavez 2001).

The relative lack of natural resource use among minorities is not unique to the National Park System. Similar results have been found for recreation visitors to national forests. The U.S. Forest Service's inventory of national forest visitors (National Visitor Use Monitoring Survey [NVUM]) shows that the majority of visits (92.7%) to most national forests were made by Whites in 2004[3] (English et al. 2002, National Visitor Use Report 2004). However, these figures vary somewhat for forests located in the Pacific Southwest and Southwest regions of the country (California, Arizona, New Mexico), especially for urban forests adjacent to Los Angeles, California. In 2004, roughly one-quarter of all visits to the Los Padres National Forest were made by Hispanics, and close to one-fifth of visits to the San Bernardino National Forest were accounted for by Hispanics (NVUM 2004).

The relatively high percentage of visits made by Hispanics appears to reflect the large numbers of Hispanics in southern California. Hispanics make up about one-third of California's population and close to one-half (47%) of the Los Angeles County population. These numbers are consistent with the opportunity and demographic explanations of racial and ethnic differences in outdoor recreation participation (Huchison 1987, Lindsey and Ogle 1972). According to these theories, minorities are expected to visit outdoor areas or participate in activities in proportion to their presence in a given population near natural resources.

Hispanics are also showing up in greater numbers on the Chattahoochee-Oconee National Forest in Georgia. Again, these increases appear to be linked to demographic changes. The Hispanic population in Georgia increased from 1.6% in 1990 to 5.3% in 2000 (U.S. Bureau of the Census 1990, 2004a). The increase was especially noticeable in several north Georgia counties adjacent to the forest. Although visits made by Hispanics are still relatively low (3%), forest

[1] Research Social Scientist, USDA Forest Service, 320 Green Street, Athens, GA 30602. Email: cjohnson09@fs.fed.us

[2] Program Manager, Visitor Use Monitoring, USDA Forest Service, 1400 Independence Avenue, SW, Washington, DC 20250-1125. Email: denglish@fs.fed.us

[3] The exception is visits to the Caribbean National Forest in Puerto Rico where 58.8% of visits were made by Hispanics in 2004.

managers note the growing number of Hispanics, and that their recreation style differs from that of traditional Anglo visitors.

With respect to Asian American visitation, the NVUM also found that the proportion of visits accounted for by Asians on forests in the Southwest and Northwest appears to reflect the Asian presence in the Pacific population (California and Washington). Nine percent of visits to the Cleveland National Forest in southern California were made by individuals of Asian-origin in 2004. Close to 6% of visits to the Wenatchee National Forest (Washington) were made by Asians (NVUM 2004). Asians have higher than national average percentages in both California (10.9%) and Washington state (5.5%).

Demographic changes along culture and ethnic lines are causing managers to reconsider the way they manage natural resources and the types of amenities they offer recreation visitors (Chavez 2002). Past research shows both Hispanic and Asian outdoor recreation differs from Anglo behavior; Hispanics and Asians tend to emphasize collective, family-oriented activities. This contrasts with traditional Anglo recreation involving more individualistic, dispersed activities (Dwyer 1994, Irwin et al. 990). Also, Hispanics typically recreate in larger groups than Whites. Some national forest managers in southern California have responded to the Hispanic presence by adopting a grassroots "adaptive management" style that incorporates the opinions and preferences of nontraditional cultural groups (Chavez 2002).

To respond to nontraditional visitors, managers need the same kinds of information they would obtain from traditional user groups—for instance, who the visitors are—age, gender, group size, and place of origin. In addition, managers need to know what these visitors do when they visit—what kinds of activities and site amenities are preferred. Another important piece of information is knowing how to effectively communicate with groups whose first language is not English—for instance, what bilingual publications or signage is needed or when should bilingual staff be hired? These are very straightforward prescriptions that have been in place for a number of years in the Southwest, as indicated by Chavez's (2001, 2002) research on Hispanic recreationists.

Minorities Who Do Not Visit

Less information exists on racial and ethnic groups that make relatively little use of the national forests, for instance African Americans. Much has been written about the relative lack of African American participation in forest-based outdoor recreation activities (other than fishing) (Floyd 1998, Floyd 1999, Washburne 1978). NVUM results concerning Black visits to national forests are consistent with prior findings. According to the data, Blacks account for only 0.7% of visits to national forests across the country, yet African Americans represent more than 12% of the U.S. population. Particularly striking are the low visitation percentages for Blacks in the South, a region where Blacks are more highly concentrated. Roughly 30% of the population in six southern states—Alabama, Georgia, Louisiana, Mississippi, North Carolina, and South Carolina—are African American (U.S. Bureau of the Census 2004b). These numbers are even higher in specific sub-regions such as the Atlanta metropolitan area and the rural "Black Belt" which stretches from Virginia to East Texas.

The African American population in the South is similar to the Hispanic population in the Southwest in that both groups have comparatively high populations in their respective regions, and these populations are close to national forests. Still, African Americans contribute no more than 5% of the visits to any national forest across the South (NVUM 2004).

An obvious consideration for forest managers in the South is how to more effectively engage African

Americans in forest-based outdoor recreation. This could involve a regional assessment of African American outdoor recreation interests and constraints and comparing those with recreation offerings on the national forests. This could also involve determining the amount of forested land owned by African Americans, as private land ownership may contribute to differences between Hispanic visits in the Southwest and Black visits in the South. If a higher proportion of Black southerners own forested land, compared to Hispanics in the West, it may be that Blacks are recreating on privately held land rather than on public lands. Also, understanding the meaning that Blacks attribute to wildlands may be instrumental in deciphering differences between Black and Hispanic use of national forests. For instance, Johnson and Bowker (2004) maintain that Blacks may have developed an aversion to wildlands because of past associations with slavery, plantation agriculture, lynching, and harsh working conditions in the southern forest industry. Along similar lines, Martin (2004) maintains that many contemporary Blacks engage less with "the Great Outdoors" because they identify more with a sophisticated urban, cosmopolitanism than with rural nature because the former represents for Blacks achievement and success in American life.

Irrespective of past or present constraints, the Forest Service is directed by Executive Order 12898 to identify differential consumption of natural resources by minorities and low income populations. This includes addressing the issue of low Black representation on national forests. But most importantly, this task involves differentiating between those conditions or constraints internal to Black culture which may inhibit outdoor recreation, such as lack of interest, and those external to culture, such as lack of transportation or information about available resources.

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Understanding Forest Recreation Visitors: Special Places

Herbert Schroeder[1]

Over the last 20 years or so, the word "place" has become increasingly popular among researchers studying social aspects of natural resource management. A set of interrelated place-related ideas and concepts has emerged in the literature, including "sense of place" (Williams and Stewart 1998), "place attachment" (Low and Altman 1992), "place meaning" (Williams 1995), "place identity" (Hull et al. 1994), and "special places" (Eisenhauer et al. 2000, Schroeder 2002). In this paper I will not try to precisely define these terms. In fact, there is still not complete consensus on what some of them mean, or the distinctions between them. Instead, I will mention a few basic ideas that underlie and motivate the discussion of place-based recreation management, and then present some ideas about how research on special places can contribute to recreation management.

Basic Ideas About Place

Interest in the idea of place attachment with respect to recreation management arises from the basic observation that people sometimes develop strong personal attachments to places they use for recreation, and that these attachments involve more than simply the ability of the place to support their desired recreation activities. This has implications for the willingness of recreationists to substitute one recreation place for another (Williams et al. 1992). If a person values a place primarily because it provides opportunities to engage in their favorite recreation activities, then they should be equally happy to go to any other place that provides comparable opportunities. In the past, recreation research and management sometimes took this kind of substitutability based on activity opportunities for granted. But there are many instances in which a place takes on a significance that cannot be accounted for solely in terms of opportunities for recreation activities. For some people, a particular place may have a special meaning and a unique identity, and no other place could serve as a substitute.

Sometimes a place becomes special to people because it has obviously exceptional features, such as spectacular scenery or significant historical sites. These kinds of places are relatively easy to identify and can become focal points for travel and tourism. But places that do not have any obvious outstanding features may also become special to an individual or a group because of the particular experiences that they have there. In other words, places don't have to be spectacular to be special. Ordinary, everyday places can be special, and effective management is sensitive to that fact.

People's attachments to such places can be profound, and may be as important to them as their relationships with close family members. People are understandably very sensitive to any changes that may occur in these special places, whether due to natural

[1] Research Social Scientist, USDA Forest Service, North Central Research Station, 1992 Folwell Avenue, St. Paul, MN 55108. Email: hschroeder@fs.fed.us

causes or human activity. In particular, management actions that adversely affect features and qualities of special places may trigger a strong emotional reaction among members of the public. At the same time, management actions that create, protect, or enhance the characteristics that people value in a place may be an important part of what makes the place special.

The experiences and attachments associated with special places can be difficult for people to put into words. This may be especially true in a planning and public involvement context that emphasizes science and rationality. People may be reluctant to express the deeply felt and intuitive meanings that places have for them in a public setting where emotion seems out of place. Sometimes people may not even be fully aware of how important a place is to them until something happens to alter the place's character or to make it unavailable to them (Hester 1985).

The Contribution of Research

To manage outdoor recreation areas and other environments effectively, managers need to know what places and kinds of places are special to different groups of people and why. Research about special places (including surveys, focus groups, content analysis of publications, and other approaches) can provide several kinds of information that could be useful to managers. For example, research can lead to further understanding about the following:

- Specific locations of places that are special to particular people and groups.
- Environmental features, qualities, and characteristics that contribute to a place being special.
- The kinds of experiences, meanings, and values that people associate with special places.

Surveys on Special Places

Over 15 years, I have done a series of open-ended, qualitative surveys asking people to think of outdoor places that are special, memorable, or important to them personally; to describe what those places are like; and to write about the thoughts, feelings, and memories associated with them. Some of these surveys were done in the Chicago metropolitan area, and some in the Northwoods of Wisconsin and Michigan. From the responses to these surveys, I have identified some of the important kinds of experiences, feelings, meanings, and values associated with these places (Schroeder 2002).

The purpose of the special-places surveys was to help managers in particular locations understand why certain places in their areas are special to people. It quickly became clear, however, that some of the themes people were writing about were not unique to a specific location. A number of common themes recurred across diverse locations and respondents. Some of these themes had to do with people's experiences of the biophysical setting—experiences such as serenity, aesthetic enjoyment, feeling close to nature, awe, refuge, and escape from crowding and development.

Social connections and interactions also played an important role in many people's special places. Family members, friends, and historical figures were often included in descriptions of special places. Some people enjoyed meeting and getting to know the other people who came to their special place. The history and heritage of the area, both natural and cultural, were also important. Some special places acted like bridges in time, allowing people to imagine themselves in other historical periods. Special places often evoked personal memories of places, people, and events that were important to a person.

One interesting thing that came out of the comparison between Northwoods and Chicago was that many of the same kinds of experiences occur in both regions. Significant experiences of beauty, contact with nature, escape, refuge, and solitude do not only occur in the Northwoods. Many people seek and find such nature-based experiences in parks and forest preserves closer to home, sometimes in relatively small pockets of nature surrounded by major urban development.

Another interesting and unexpected outcome of these special-places surveys was that some of the people who responded to the surveys experienced a direct personal benefit from their participation in the research. Several survey respondents said they enjoyed writing about their special places, and expressed appreciation for the opportunity to tell someone about their experiences. A few people reported that while writing their responses, they had new insights into what their special places meant to them.

The survey method of open-ended, individually written, mail-in surveys seemed to work well for the people who participated in this research. In contrast to a public forum, the survey procedure allowed them ample time to reflect on their experiences and compose their response, and provided more privacy and anonymity than would be possible in a group discussion or even in an individual, face-to-face interview. It gave them a "safe" means to express feelings and meanings about places that they might have been reluctant to reveal in a more public setting.

At the same time, there may have been people who did not respond to the survey because they were not comfortable expressing themselves in writing. For this reason, when seeking public input on special places, it is a good idea to provide several different modes or channels through which people can respond.

In analyzing the responses to the special-places surveys, I tried to capture the recurring themes that people expressed and to summarize them in a way that stayed as close as possible to the original words of the respondents. I used many direct quotations from the survey responses in my reports and summaries to help give managers a vivid and accurate sense of what special places mean to people.

When recruiting survey participants I tried to include both residents and visitors, and when interpreting their responses, I tried to treat their experiences as equally valid. Some authors who have written about sense of place have tended to assume that "genuine" sense of place or place attachments can only develop through intimate experience and knowledge of a place over a long period of time. For that reason, they give the experience of long-term residents priority over that of visitors or newcomers to a place. But in the special places surveys that I did, there are cases in which people describe how a place became important and special to them on their very first visit. I also observed that long-term residents and visitors sometimes expressed similar reasons for why a place was special to them, so I do not believe that residents and visitors necessarily always have different or conflicting senses of place.

Besides residents and recreational visitors, another group that is important to consider in special places research is the people who manage such places. Natural resource managers have places that are special to them, too. One of the special-place surveys I did was with a group of professional woodland managers from a large paper company. Their special place descriptions included some of the forest areas that they had been responsible for managing. Not too long after I did my first special places survey on a national forest, the Forest Service Region 9 employee newsletter ran a series of theme issues on special places.

Employees were invited to send in descriptions of places on national forests in the Eastern Region that were special to them. Many employees responded, and their special-place descriptions were in many respects similar to the responses of members of the public on my surveys. These national forest employees, including managers and scientists as well as support staff, seemed to enjoy and benefit from identifying and sharing their own special places.

Conclusions

Research on special places and other aspects of place attachment and sense of place can increase recreation managers' understanding and appreciation of the importance of special places (including their own), but it does not provide easy answers to the difficult issues that must be resolved in deciding how to manage such places. Place meanings and attachments are often very personal and individual, and may be tied to very specific, small-scale settings. One of the biggest challenges confronting advocates of place-based management and research is to develop ways of incorporating information and understanding of place meanings and attachments into the broader scale, geographically-based planning and information systems now being developed and used for natural resource management.

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Opportunities for Researchers to Assist with Issues Facing Forest Service Recreation Managers in the Southern United States

Mary A. Noel[1]

Identifying the Problems

The Southern Region encompasses 15 national forest units spread over 13 states and Puerto Rico. We manage more than 13 million acres. These forests range from rural with low to moderate levels of recreation use to highly urban forests facing intense recreation pressures. The topography of the region also varies, including coastal plain forests, rolling piedmont hill country, and rugged terrain in the Appalachian and Ozark Mountain Ranges.

In June 2003, forest recreation managers on national forests in the Southern Region held their annual regional recreation meeting. One of the most interesting topics at this meeting was a discussion identifying the significant recreation issues facing national forests. The Forest Service Chief had recently identified unmanaged off-highway vehicle (OHV) use as one of the "four threats" to overall Forest Service management, and each forest representative was given an opportunity expand on this by identifying the top three or four challenges faced in managing recreation on their units. Despite the diverse clientele and recreation settings across the region, there are many common challenges. Here, I summarize the significant recreation issues identified by these managers and opportunities for recreation researchers to assist in providing meaningful solutions.

Common Issues and Challenges

Recreation impacts to riparian resources—
Ten national forests identified the cumulative impacts of different recreation activities in dispersed areas, making this the most significant resource concern among forest managers. Fishing, water play, picnicking, dispersed camping, and other activities combine to cause negative impacts to these areas on virtually all southern forests.

The next three issues were identified by six or more forests and accounted for 64% of all issues identified:

Equestrian impacts—
Equestrian use has been increasing on national forests. Trails in many areas were never designed to accommodate these users, and resource damage is occurring.

OHV impacts—
In line with the Chief's concern, OHV use is viewed as a significant "threat" to most southern forests – particularly the illegal use of OHVs and the creation of unauthorized trails connecting national forests to private land. All southern forests currently limit OHVs to designed trails or are implementing a designated system.

Trash dumping—
From recreational littering to the large-scale dumping of commercial debris, trash removal consumes a

[1] Recreation Staff Officer, National Forests in North Carolina, Box 2750, Asheville, NC 28704. Email: mnoel@fs.fed.us

significant amount of agency resources. This problem increases significantly after major storm events like hurricanes, when tons of storm-damaged debris somehow accumulate along forest roadsides.

These next seven issues were identified by two or more forests.

Cultural differences in outdoor use—
The numbers of Hispanic residents and forest users have increased. These users tend to prefer day-use activities and often gather in groups larger than many forest recreation areas were designed to accommodate, or in dispersed areas not improved to handle high use.

Illegal drug use and manufacture—
The Southern Mountain national forests have long been host to illegal marijuana cultivation, but a new problem—methamphetamine labs (and associated dumps)—is increasing on forest lands. Photo 1 shows "multiple use" in action—a combination of dispersed camping area and a portable meth lab.

Mountain biking impacts—
This sport's rapid rise in popularity over the past decade has caused conflicts with other users on some forests.

Overuse in wilderness—
Many eastern wildernesses are small compared to western areas, and they are located within a few hours of major population centers. Year-round use patterns, multiple access points, and private inholdings make restricting access difficult.

Recreation impacts to archaeological sites—
Significant archaeological and historical sites exist at many recreation areas. Recreation users today tend to favor the same sites used by early historic and prehistoric populations. High recreation use, illicit pot hunting, and vandals are damaging heritage resources at many significant sites.

Photo 1—Illegal manufacturing of methamphetamines on national forests is a new challenge for forest managers, posing both health and environmental risks.

Accommodating hunters and hunter impacts—
The intensive use of forest areas by dispersed hunting camps during some seasons of the year has led to resource damage and conflicts with other forest users.

Uncontrolled group use and partying—
From Rainbow gatherings to high school partying, many forests have to divert resources to repair vandalized facilities and pick up trash resulting from these activities.

Root Causes

There are several dimensions to these issues. In some cases, it is because the Forest Service has too few management resources. Actual use levels are not extreme, but there are not enough funds or people to maintain forest areas (repair infrastructure, pick up trash) and prevent degradation.

Another is too many users. Use levels exceed current site design or tolerances. To keep areas from degrading, managers must decide to limit use or make improvements that will allow for a greater number of users.

The area where research may be the most effective in assisting managers is modifying user behavior to cause fewer user conflicts and less resource damage. This is the area most pertinent to the issues

explored in this session and the problems associated with it. Options for research support will be examined in more detail.

For the sake of review, I've divided the origin of these "behavioral" user impacts into 3 broad categories:

- Lack of user knowledge regarding what causes environmental degradation (they don't know they're causing conflicts or damage).
- Lack of user interest or concern regarding environmental ethics (they don't care if they're causing problems—they're having fun).
- They have differing expectations regarding the management of public lands (they don't understand or they just disagree with the Forest Service management for an area).

Managing the Behavioral Dimension of Recreation Issues

Where the problem is users' lack of knowledge:

- Educate them in ways to limit damage to riparian and trail resources.
- Educate them regarding trail ethics and etiquette.
- Help users understand the purpose and uniqueness of federal wilderness.
- Educate users regarding overall environmental goals.

Users with lack of interest:

- Increase law enforcement presence at sites of concern—publicize consequences.
- Reach younger users who have not formed "life" opinions about environmental ethics with positive messages.

Disagreement with Forest Service policy:

- Increase public involvement in setting forest direction and policy—give them ownership in our decisions.
- Review Forest Service policies to make sure they reflect changing uses and conditions. What we as managers have planned for an area may not be the best way or the only way to successfully manage it—we need to listen to users.

How Can Researchers Assist?

- Help identify key user groups to contact with resource messages. (Who are they? Where do they live? What is the best way to make contact?)
- Identify successful methods and key messages to convey to change undesirable behaviors. (Are current tools such as Project Wild and Project Learning Tree effective? What else should we try?)
- Identify public involvement models that will garner meaningful feedback.
- Help forest managers determine the social carrying capacity for an area.
- Establish monitoring protocols to evaluate changes in user behaviors over time so we can gauge if our efforts have been successful.

How Do We Best Work on These Challenges Together?

To start, or expand on, this process, researchers can:

- Get to know their local and regional forest managers and their key resource issues and needs.
- Work with managers to identify the financial or labor resources they have available to support research projects on their units.

For recreation managers to more effectively use research:

- Get to know your local and regional researchers—become familiar with their areas of expertise and research interests.

- Identify opportunities for student projects on your unit.

Managing national forests (and national forest users) will continue to be a challenge. Researchers and managers working together to seek practical solutions can do much to address these needs.

Theme 1: Understanding Recreation Visitors Synthesis of Workshop Discussions

Demographic Changes

To maintain relevance, public land management agencies must understand their constituencies. Therefore, researchers and managers are interested in knowing who is visiting public lands, why they come, and why they don't come.

Use and nonuse by minorities

- Whites are still the dominate users of public land but Hispanic use is increasing.
- Minorities living in dense urban areas are least likely to visit.

Aging visitors

- As baby boomers retire, "Passport in time" opportunities may become more popular.

Attracting youth

- Camps and other environmental education activities shape children's views of the natural world.
- Jobs and volunteer opportunities help youth connect to the land.
- Research projects for college students cultivate the future workforce.

Gary Paull, US Forest Service

Organizatioed enviromental education programs engage youth in stewardship activities and shape their views of the natural world.

Maximizing Existing Research

Managers and researchers agree that the existing recreation-related research is not fully utilized. Managers want information relevant to a specific site and situation whereas researchers work at extracting generalities. Ways to better work together were suggested:

- Inform each other about existing online libraries and relevant discussion forums.
- Work together to synthesize existing research and case-based knowledge.
- Create an extension service for recreation issues similar to forestry and agricultural extension services.

New Tools and Frameworks

Bridging the gap between research and application requires tools and frameworks jointly developed by researchers and managers. Several different products were suggested during the workshop.

- Create decision frameworks for recreation managers.
- Develop mapping tools for place based planning using both social and ecological information.
- Develop an online forum to foster communication between managers and scientists.

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Theme 2: Recreation Planning and Monitoring

Gary Paull, US Forest Service

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Introduction: Recreation Planning and Monitoring

Greg Super[1]

How do we effectively incorporate recreation values and demands in forest planning and monitoring? Recreation use continues to increase in many areas and is a dominant use on many national forests. Many national forests are currently revising their forest plans. This theme is intended to show how existing planning efforts are using research results and to discuss the need for additional research to assist managers in making recreation an effective player in agency planning efforts.

The first concurrent session focuses on forest plan revisions and the need to account for the increasing role of recreation. Managers are challenged to balancing increasing, and often conflicting, recreation demands with resource protection. Concurrent session 2 addresses effective public communication and participation strategies that can help the agency address diverse recreation demands. Frameworks to help decisionmakers are the subject of concurrent sessions 3, 4, and 5.

Session 3 focuses on recreation planning systems such as Recreation Opportunity Spectrum (ROS) and Limits of Acceptable Change (LAC) and how they can be used in planning and monitoring. Session 4 examines place-based applications for planning, while session 5 looks at social and economic frameworks. All of these tools and application can help inform decisionmakers. Recreation managers increasingly appreciate the importance of place in shaping individual values and perceptions and are asking: What place-based applications are available?

The sixth concurrent session addresses monitoring. Monitoring recreation use and visitor satisfaction is critical in determining if recreation management strategies are having the desired results. Adaptive management concepts in the programmatic forest planning process require effective monitoring of all resources including recreation. Information from the National Visitor Use Monitoring (NVUM) system can be used to answer numerous management questions.

The Recreation Planning and Monitoring theme covers the recreation role in forest plan revisions; public communication and participation strategies useful in a planning context; various social, economic, and decision frameworks for successful recreation planning; and place-based planning.

Recreation research is important in forest and recreation planning and monitoring. Funding such work can come from many sources: Forest Service, other agencies, universities, international, etc. Managers often look to Forest Service researchers to guide them to the best information on any given topic. The agency needs to facilitate the dissemination of research resources to National Forest System (NFS) managers. It would be tragic to have great information available that no one knows about.

[1] Economist (Retired), USDA Forest Service, Recreation and Heritage Resources Staff, 1400 Independence Avenue, SW, MS 1125, Washington, DC 20250.

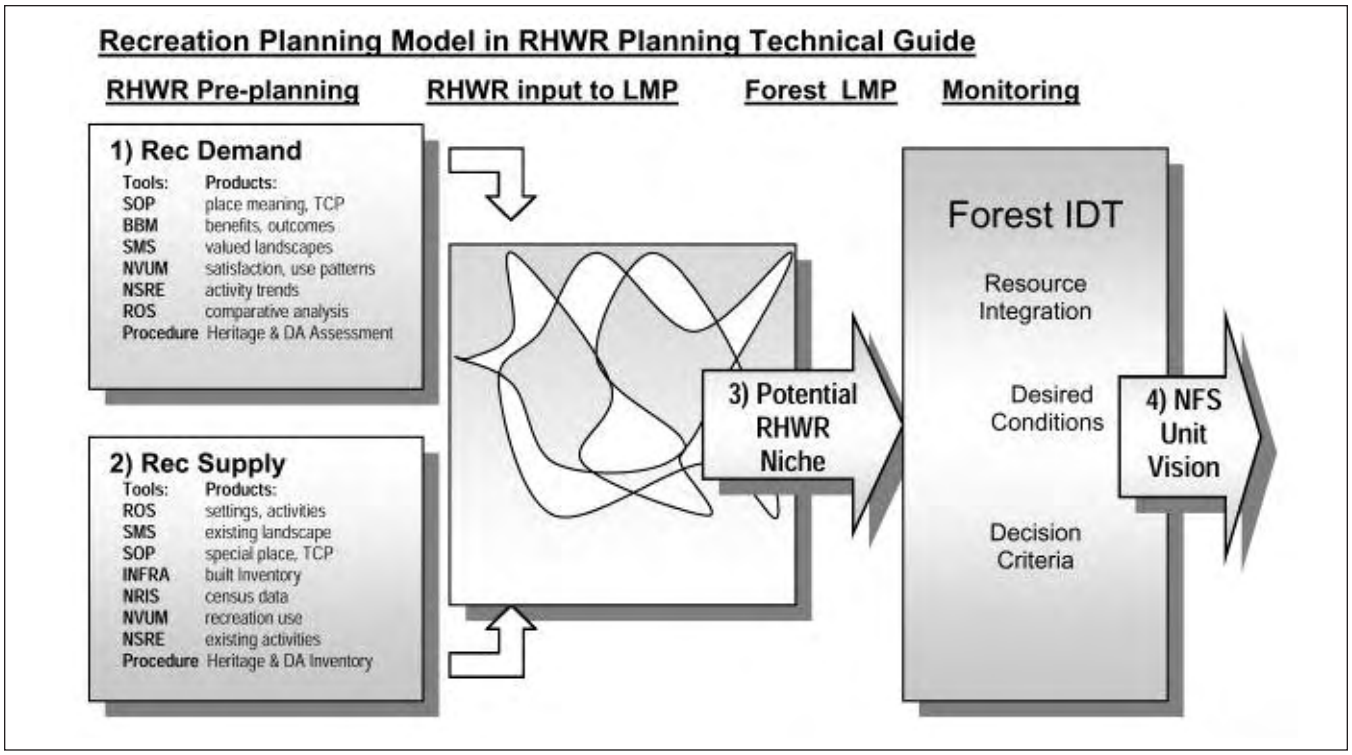

Figure 1—Shows the planning model suggested in the RHWR Planning Technical Guide for successfully including recreation in the forest planning effort.

We need to maintain the "bridges" built between Forest Service researchers and NFS managers. The NFS needs to continue the long-term relationships with Forest Service research that have successfully resulted in the National Survey of Recreation and the Environment (NSRE–Southern Station), the National Visitor Use Monitoring System (NVUM–Southern Station), Benefits Based Management (BBM–Rocky Mountain Station), Economic Impact Analysis (IMPLAN), Recreation Expenditures (NVUM and Dan Stynes from Michigan State University), among others.

Below are some web links to many of the tools and regulations that the agency is currently using in recreation and forest planning and monitoring.

Recreation Heritage and Wilderness Resources (RHWR) Planning Technical Guide: http://fsweb.wo.fs.fed.us/rhwr/planning/index.shtml

Forest Service access is required: email gsuper@fs.fed.us if you are not with the Forest Service.

To be effective players at all levels of planning, recreation planners and managers need pre-planning to fully understand the resources they manage (supply), and we need to understand who uses or might use those resources (demand). Planners and managers need to apply these concepts when revising land management plans (LMP) under the new 2004 Planning Rule: http://www.fs.fed.us/emc/nfma/index2.htm

Recreation is not always a key issue being addressed in LMP but other resource issues always impact recreation: fire, timber, wildlife, grazing, mining, clean air, water quality, off-highway vehicles, wilderness designation, etc. Understanding the complementary and tradeoff relationships can make a plan successful or an "objected to" nightmare.

Check out the Recreation Site Facility Master Planning web site for niche application examples: http://www.fs.fed.us/r3/measures/Prioritize/RS-FMP.htm

The RHWR Planning Technical Guide is intended to be a dynamic document that grows and evolves as new insights and methods are developed to improve pre-planning and planning interactions: Much of the material in the guide was developed in conjunction with Forest Service research, e.g., ROS, NVUM, Scenery Management System (SMS), and NSRE. Wilderness, heritage, and special designations (wild and scenic rivers, national recreation areas, etc.) are also covered.

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Public Communication and Participation Strategies Relevant to Wildland Recreation Management and Research

Peter Williams[1] and Dale J. Blahna[2]

Abstract

Public land management agencies often base public communication and participation strategies on one of two communication frameworks combined with one of two decision models. This paper describes the two frameworks and the two models together with apparent strategic implications of each for wildland recreation managers and researchers. It also presents four strategic tools associated with collaborative public land management and eight potential traps, which practitioners might think of as "watch-outs." Managers may find the conceptual tools and the set of potential traps useful in practice, just as researchers may find them useful topics for inquiry. The paper concludes by proposing a set of plausible research opportunities that might serve as the basis for a research agenda that bridges theory and practice.

Introduction

Wildland recreation challenges evolve constantly. That has never been truer than today as expectations continue to grow regarding collaborative approaches to public land management. Wildland recreation challenges—nostalgically only about what visitors do on public lands—are now widely recognized as also being about how decisions are made to manage recreation and about how agency employees work with folks who care about recreation or the effects of recreation. For these reasons, as wildland recreation challenges evolve, our public communication and participation strategies must evolve too.

Yet, strategies that change for the sake of change are as problematic as those that remain stable for the sake of stability: neither change strategy is more than superficial at best. Why change a strategy? Why keep one stable? Does the whole strategy need changing? Answering these questions requires deliberate thought and careful deliberation. Good answers require attention to lessons learned from managers and practitioners as well as from researchers and theoreticians.

Perhaps, then, what we need is a coherent effort to bridge management and research so that good answers continue to emerge as challenges evolve. Such an effort might help lead to strategies anchored as much by insights from managers as by insights from researchers, strategies that change when appropriate because they contain embedded learning strategies that aim at recognizing "appropriateness" from the perspectives of managers as well as researchers.

In other words, perhaps we do not need merely to capture lessons available today. Perhaps we need a strategy for continuous learning, a strategy that allows

[1] Collaborative Planning and Multiparty Monitoring Specialist, USDA Forest Service, Ecosystem Management Coordination, Inventory and Monitoring Institute, 2150A Centre Avenue, Ste. 300, Fort Collins, CO 80526. Email: peterwilliams@fs.fed.us

[2] Research Social Scientist, USDA Forest Service, Pacific Northwest Research Station, Pacific Wildlife Fire Sciences Lab, 400 N 34th St., Suite 201, Seattle, WA 98103. Email: dblahna@fs.fed.us

researchers to tap the intuitive, experience-based insights of managers better at the same time that it allows managers to better tap the empirical insights and methodological skills of researchers.

This brings us to an overarching strategic question: Is there a need to change either our management or research efforts related to public communication strategies? Addressing that question thoughtfully would seem to require exploring communication models that have informed managers and researchers and of the bases of public participation strategies. It also would seem to require discussing strategic conceptual tools applicable to collaborative public land management.

Most of all, however, addressing that question would seem to require searching for indicators of appropriateness, for ways to tell when a strategy suits a situation and when a change appears appropriate. One way to do this is by looking for signs of "fit" between competing strategies and the challenges we face. Indicators of fit might serve as the basis for a research agenda that builds theory while responding to manager needs, a research agenda that leads to broad insights while retaining contextual sensitivity. This paper explores that possibility. It provides conceptual models of interest to practitioners as well as researchers, potential traps related to collaborative public land management, and suggested elements of a plausible research strategy.

Simple Frameworks and Conceptual Models: Ladders and Influence

Generically, a communication and participation strategy is a plan for communicating and working with participants during a planning or management effort. Either of two simple frameworks or conceptual models of communication tend to provide the basis for Forest Service communication strategies (see figs. 1 and 2). The first is the Ladder model, where communication strategies aim for a particular rung, and higher rungs have more citizen participation (Healey 2003). The second is the Degrees of Influence model, where

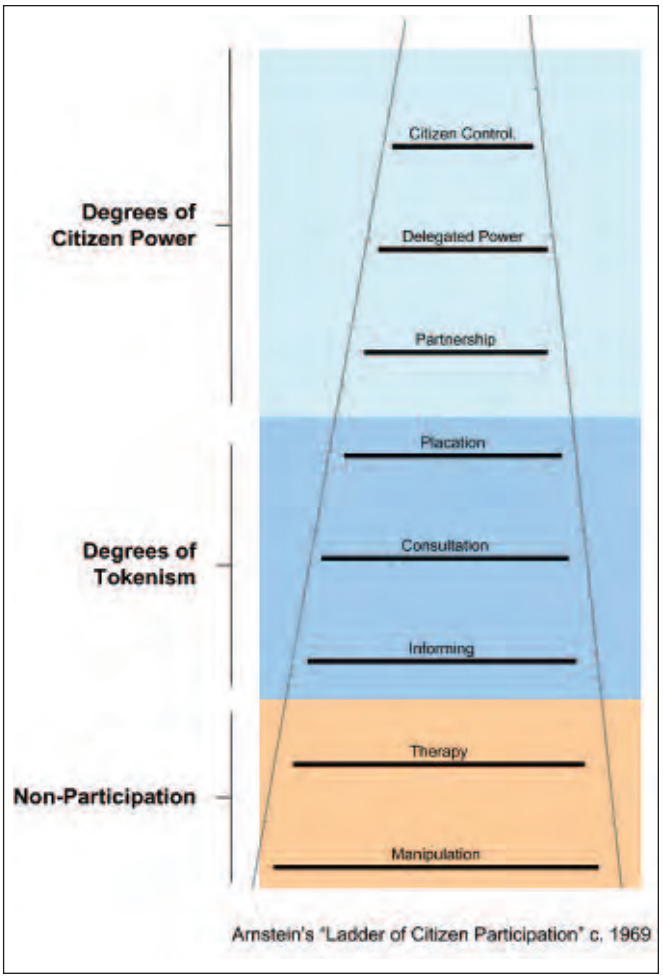

Figure 1—Ladder communication model.

communication strategies fit with different expectations regarding internal and external influence (Decker et al. 1996).

The two models are similar, but they have very different strategic implications. Ladders imply an ethical or normative interpretation: higher rungs are better than lower rungs. In that sense, the ladder model is quite prescriptive because the higher up the ladder, the more citizen participation and citizen power. The model encourages a management prescription regardless of specific local circumstances. It has an implicit "should" associated with it that encourages selection of communication strategies that are more participatory simply because they are so.

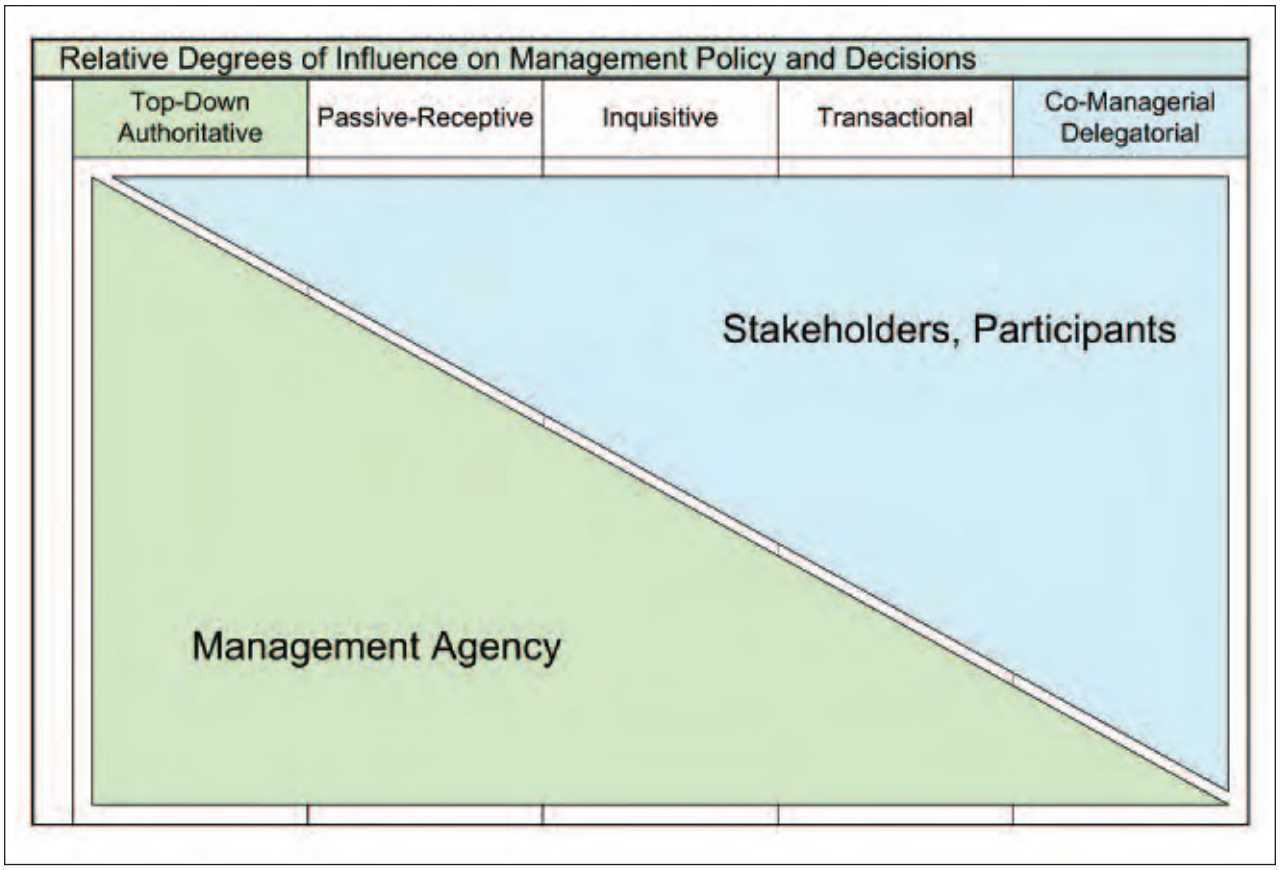

Figure 2—Degrees of Influence communication model.

The Degrees of Influence model, however, is more descriptive in that there is no implicit rightness or wrongness associated with any particular position along the continuum. The strategic implication is that the position of a communication strategy along the continuum must suit the situation, the context, the facts, and the needs of the participants. There is no implicit or prescriptive "should" associated with a specific strategy choice, only with how the strategy choice occurs and if the chosen strategy suits the situation. Greater degree of citizen influence is appropriate for certain situations, but not necessarily all.

The lack of an implicit "should" suggests that the Degrees of Influence model is more useful than the Ladder model for both research and management purposes. As a descriptive tool, it is well suited for comparing traditional approaches and collaborative approaches to public land management. It is also well suited to serve as the basis for assessing appropriate fit between a communication strategy and the challenges of public land management.

Most importantly, the Degrees of Influence model is well suited because an implicitly normative and prescriptive model, such as the ladder model, encourages belief that more participation will help address any challenge. Yet, that belief, unless tested, is at odds with an open-minded approach to the question about appropriate fit. As an untested belief, it leads researchers, managers, and other participants toward the biased conclusion that more participation is always more appropriate than less. Regardless of whether more participation is preferable, a scientifically valid

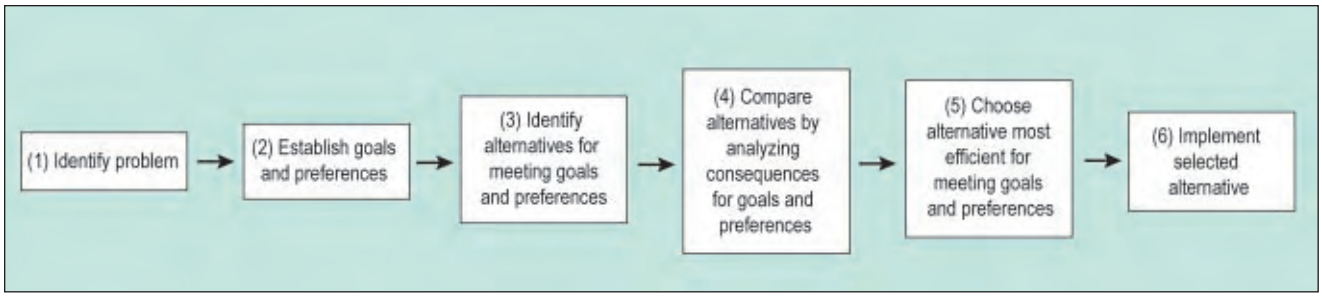

Figure 3—Traditional rational planning process.

exploration of appropriateness must avoid beginning with an implicitly biased conceptual model. Questions of appropriateness are difficult enough as part of a research agenda without beginning with a biased research frame.

Process Models: Two Bases for a Public Participation Strategy

A conceptual model typically provides a way to organize understanding of a challenge, like a communication challenge, whereas a process model typically structures an approach to a challenge. Conceptual models describe immediate challenges; process models describe ways to address those immediate challenges. A good, deliberate strategy often explicitly describes conceptual models and process models because communication is easier, measures of appropriateness or progress are more possible, and learning is more likely.

Communication and participation strategies seen in the Forest Service usually have one of two process models as part of their theoretic foundations: traditional rational planning (fig. 3) or collaborative public land management (fig. 4). The former has been the long-standing preference of managers and researchers, generally because it presumably avoids the perceived problem of endless debate and, thus, no decision. The latter, however, is emerging as an increasingly common and popular alternative, in part because it avoids the perceived problem of reaching a decision prematurely based on inadequate deliberation. Understanding these foundations can help when selecting a strategy appropriate for local circumstances.

Traditional rational planning emphasizes a rapid systematic progression through problem diagnosis (steps 1 through 3 in fig. 3) to consequence analysis (step 4) and preference-based choice (step 5). Decisions are supposed to occur more efficiently because of the rapid movement through these steps with little time or effort spent on reflection. The theoretic basis for traditional rational planning is empirical science, especially hypothetico-deductive methods, and instrumental rationality, which is associated with scientific engineering more than scientific inquiry (Lawrence 2000, Sager 1999). Hypothetico-deductive methods are scientific methods that search for universal truths and general laws, instead of searching for answers appropriate for specific circumstances (Faludi 1998). Instrumental rationality refers to reasoning focused on finding the single best way or instrument to accomplish a goal, not if accomplishing the goal is appropriate (Tribe 1973).

The theoretic basis of traditional rational planning encourages a search for universal truths and single best answers. That search is as problematic as it is familiar. It encourages moving quickly to the step of consequence analysis (step 4) because, in conjunction with instrumental rationality, that is when determination of the single best way of accomplishing the goal can occur. That is also when the tools of empirical science are most obviously applicable. For many, that step

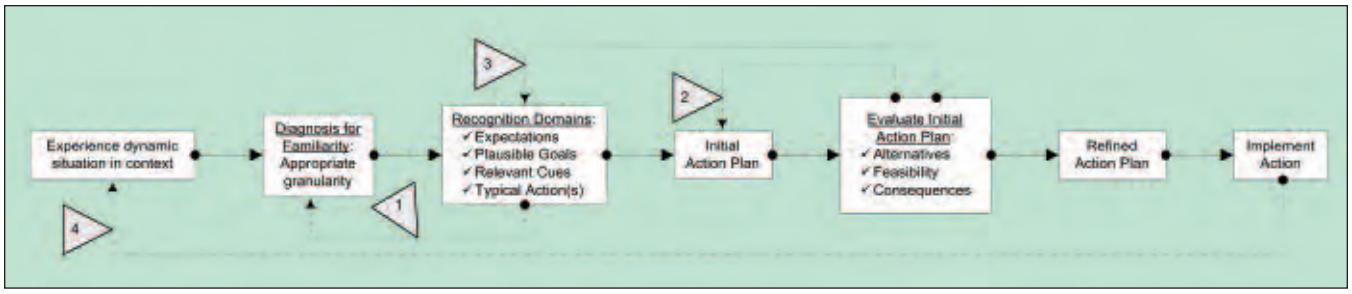

Figure 4—Collaborative public land management process.

appears as friendly and familiar territory during any effort to make a challenging decision. Under this model, decisions occur efficiently because of a rapid series of process steps that search for the single best option for meeting goals based on known preferences. The model assumes that a single best answer exists and the traditional rational planning process can find it. Unfortunately, rapidly diagnosing a problem means that only a limited understanding of preferences is possible. Often, only the preferences of deciding officials mattered, but as expectations of more participation have grown, more preferences have entered the discussion. Even so, the preferences are usually pre-existing ones that serve as positions from which participants negotiate, not preferences that might evolve as participants learn more from each other about the situation or as understandings of the situation change. In such circumstances, assessments of the "best" way of accomplishing the goal reflect a limited or a stale understanding of preferences.

The hope of finding a single best solution based upon an inadequate understanding of preferences seems unreasonable; yet, that is exactly what the Traditional Rational Planning model assumes. It also has such a strong focus on analysis of consequences that it may contribute to process predicament and analysis paralysis, problems the USDA Forest Service has made an agency priority to address in recent years. The model, for reasons described here and for many others, seems less appropriate for meeting current challenges than many managers and researchers still assume. Testing those assumptions, at a minimum, would seem an appropriate start.

Collaborative public land management is emerging as an alternative to traditional rational planning, in part because expectations are changing. Models of this emergent process are rare and, therefore, largely unfamiliar to public land managers and wildland recreation researchers. This paper draws from naturalistic decisionmaking research to introduce the recognition primed decision process as a model of collaborative public land management (Beach et al. 1997, Klein 1999, Lipshitz 1997). That literature suggests three decision models are common: simple match, unclear situation, and unclear course of action. For the purposes of collaborative public land management and planning, however, an integrated version of model appears more promising because it can address descriptive, prescriptive, and diagnostic needs and allow for iterative processes (fig. 4).

Like the Traditional Rational Planning Process model, empirical science is the basis for the Collaborative Public Land Management Process model, but instead of the hypothetico-deductive methods that look for universal truths, it applies abductive methods that look for plausible ways to address specific circumstances unique to any planning challenge (Faludi 1998; Khisty 2000; Willson 2001). In addition, instead of

instrumental rationality that looks for the one best way to accomplish a goal, the Collaborative Public Land Management model applies social and political rationality that combines the objectivity of scientific methods with the subjectivity that is inherent to any decision. A hallmark of instrumental rationality is an effort to reduce subjectivity in favor of the objectivity prized by scientific methods, an exercise often seen as a naïve application of methodological convenience (Bartlett and Baber 1999, Cortner 2000, Perrow 1999).

The collaborative public land management process emphasizes continuous framing of the challenge by understanding it from various perspectives (loops 1 and 4) and crafting of a strategy (loops 2 and 3). Instead of steps, the process emphasizes iterative loops that produce timely and deliberate decisions based upon the right science and the right people (Stern and Fineberg 2003).

Under this model, situation-awareness and sense-making (loops 1 and 4) are at least as important as analyzing consequences and probabilities (loops 2 and 3) (Endsley 1997, Weick 1995). Decisions occur based upon plausibility that selected actions will lead to desired outcomes while retaining system resiliency just in case. Instead of a supposed universal truth and a single best answer, the model seeks to produce continuous learning so that timely adjustments can occur as challenges evolve.

Careful review of public communication and participation strategies associated with wildland recreation and other challenges of public land management suggests that insufficient appreciation of the differences between traditional and emergent strategies is common. Managers are perhaps too quick to assume that traditional strategies are appropriate for new or evolving challenges; researchers are perhaps too quick to assume that decision process models are not ripe for research. Material reviewed in this section suggests neither set of assumptions should go untested.

Contrasting Traditional and Emergent Strategies: Case Study

Traditional and emergent strategies have different implications for strategic communications. One way of exploring those implications is to compare each strategy beginning with its organizing question. An organizing question is the implicit, generic question that underlies a strategy. The following case study describes key differences between traditional and emergent strategies seen in a situation that occurred in Logan Canyon, northern Utah, when land managers discovered an endangered plant in a popular rock climbing area (table 1).

For a traditional planning strategy, the organizing question is some version of the following: What is the most effective instrument to achieve desired ends efficiently given available means and known preferences? In the example from Logan Canyon, those who preferred a traditional strategy believed that regulation would be the most efficient instrument to protect a rare plant called Maguire's primrose (*Primula maguirei*). They believed that closing the popular climbing area would meet the known preference of protecting the plant.

The traditional strategy led to a strategic communication strategy that emphasized one-way or unidirectional communication, with some negotiation through bi-directional communication, which just means taking turns with one-way communication. The resulting strategy led to positional bargaining and monotonic reasoning, meaning that participants were encouraged to learn about the positions of others but never questioned whether there was more to learn about the assumed facts about the plant or the single known preference of protecting it. Monotonic reasoning assumes that a fact, once determined, remains fixed or constant for the duration of a decision process, a common and problematic assumption of traditional rational planning (Lundberg 2000).

Table 1—Case study comparison of traditional and emergent communication strategies

Organizing question	Traditional strategy What is the most *effective* instrument to achieve desired ends *efficiently*, given available means and known preferences?	Emergent strategy What is the most *appropriate* way of working together to plan, decide, and act toward desired outcomes, given *plausible* resources, power, responsibilities, and accountability?
Example: Maguire's primrose, Logan Canyon, Utah	• Most efficient instrument: regulation • Available means: close climbing area • Known preferences: protect endangered species • Strategic communications implication: emphasis on unidirectional or bi-directional to communicate existing ideas (positional, monotonic)	• Most appropriate ways of working together: emerged from process • Plausible resources: FS, climbers, US Fish and Wildlife Service (a.k.a. available means) • Desired outcome: project primrose through active engagement of climbing community (a.k.a. emergent preferences) • Strategic communications implication: emphasis on dialog to share *and* create ideas (non-monotonic)

The traditional strategy applied first did not go well because the climbing community rejected the premise that they and their activity were solely to blame. Instead, they pushed for a different decision model that was more similar to the Collaborative Public Land Management model and the Forest Service responded. For the emergent collaborative strategy, the organizing question is something like this: What is the most appropriate way of working together to plan, decide, and act toward desired outcomes given plausible resources, power, responsibilities, and accountability?

The most appropriate way of working together is not a predetermined state; it emerges from the process. Instead of rapidly closing in on available means to protect the plant, the process sought to identify plausible resources, including the climbing community itself. Instead of a single preference, the emergent strategy sought a more robust desired outcome that protected the plant through active engagement of the climbing community. The emergent strategy led to a strategic communication strategy that emphasized dialog to share understanding and create new ideas. It was explicitly non-monotonic because the strategy assumed that interpretations of facts were as important as the facts, that no single interpretation was the "truth."

As a result, compared with the earlier traditional effort, the emergent strategy led to a more workable decision that allowed the climbing community to share responsibilities with the land management agencies for protecting the plant. No compromise of decision authority occurred; yet, the tasks of land management that were appropriate to share were shared in a way that all the participants could agree was fair and equitable. Instead of focusing on regulation, the focus was on protecting the plant and the climbing opportunities of Logan Canyon. Regulation remained a tool to consider, but only one of many instead of the preferred or best option. The situation continues to change because, as with all wildland recreation challenges, it is never solved, only managed.

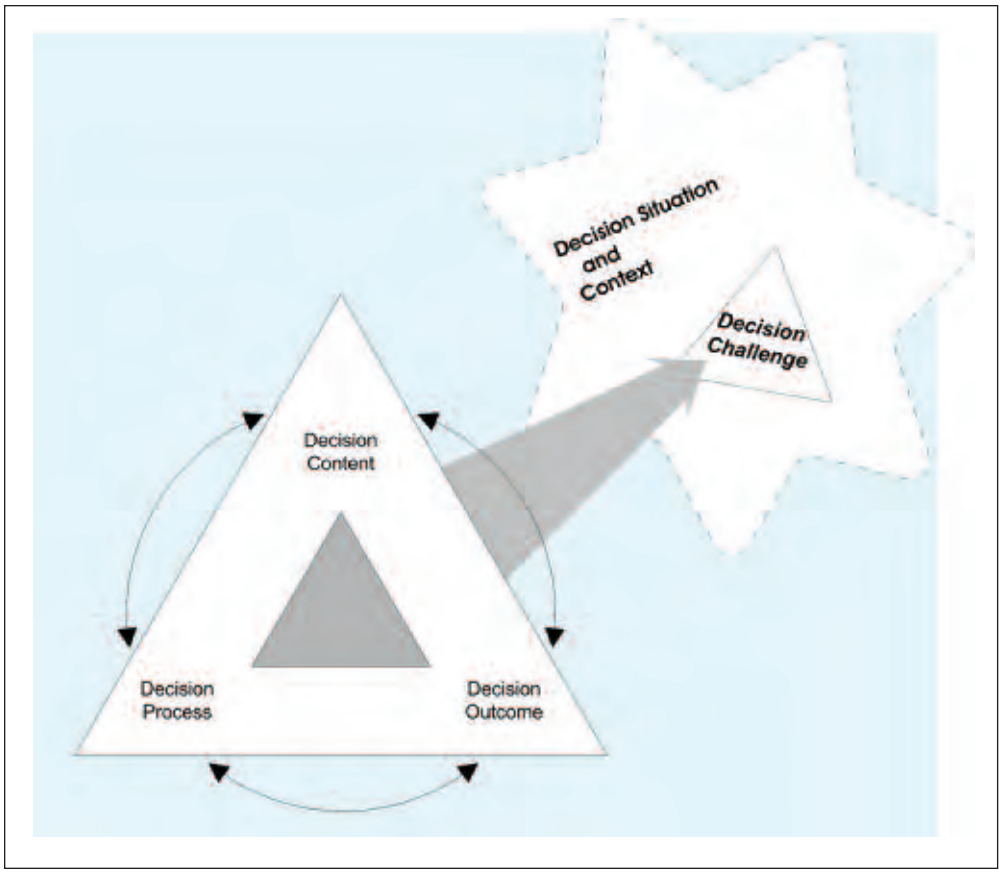

Figure 5—Decision Process conceptual framework.

Strategic Tools Useful for Collaborative Public Land Management

Is there sufficient evidence to suggest a need to change our management and research efforts related to strategic communication? It appears so. The emergent strategy of collaborative public land management requires different tools than the strategy of traditional rational planning. Four specific ones appear useful to managers as part of a public communication and participation strategy and useful to researchers as possible conceptual frameworks worth study.

The first tool is a conceptual framework anchored in the decision process (fig. 5). As depicted, there are three decision elements common to any decision, and every decision aims at a decision challenge that has some context (March 1994). The focus of this tool is on the immediate planning challenge, which leads to communication strategies also focused on the challenge.

The key point about this tool is that the structure of the decision process contrasts with the "wickedness" of the planning challenge and its context. Wildland recreation managers and researchers do not work on simple problems and nice, neat challenges. We work on wicked problems that have multiple interpretations and no simple answers. Yet, those who have written about wicked problems reassure us that we can still apply a structured decision process as long as we never assume that the problem is neatly structured (Checkland 1994).

A second tool is a diagnostic framework for understanding the planning challenge and opportunities (fig.

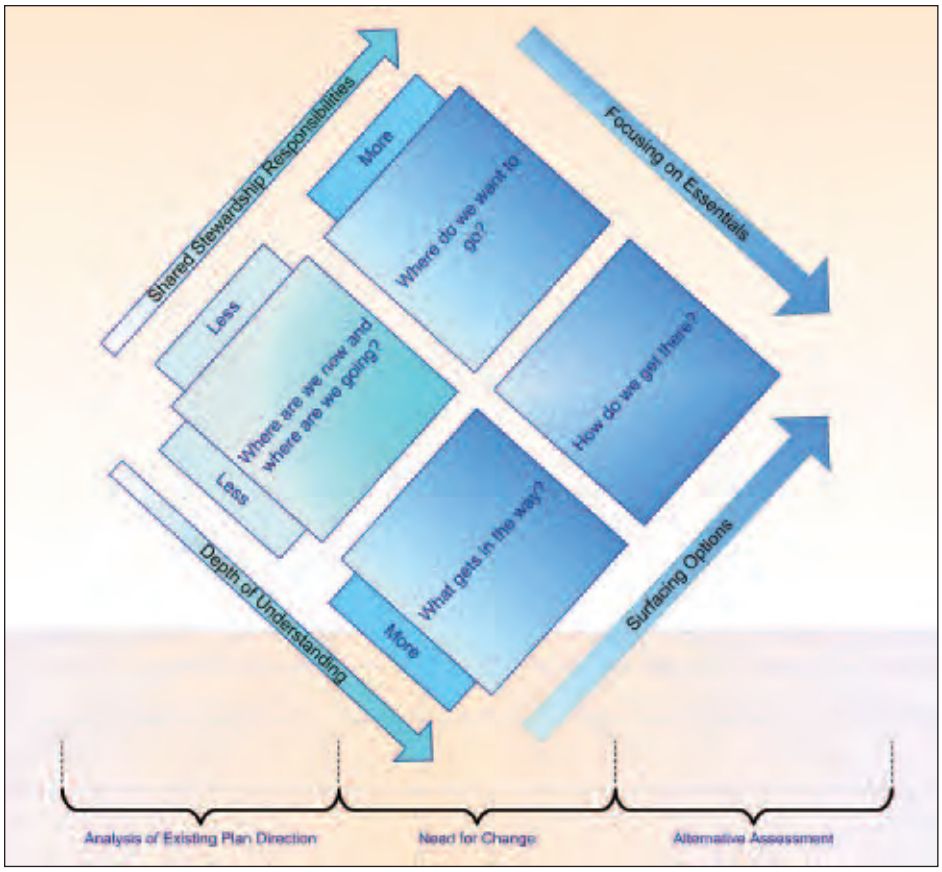

Figure 6—Open-Narrow-Close diagnostic framework.

6). The particular framework shown here is a variation of the Open-Narrow-Close framework described by Russo and Schoemaker (2002).

During the open part of the diagnostic framework, participants seek to understand the situation from various perspectives, including science and management, to establish a robust understanding of the planning problem and the need for change, if any. In addition to understanding the problem, they can grow a greater understanding of shared stewardship responsibilities, an understanding critical for successful implementation of the eventual decision. During the narrow part, they try to surface options for meeting those needs for change while focusing on what is most important. During the close part, they move to decision based on managerially relevant criteria established collaboratively and on shared responsibilities for getting the job done.

A communication and participation strategy anchored with this framework is less likely to result either in a premature decision because of inadequate deliberation or in no decision because of never-ending debate. It is also less likely to produce a limited or stale understanding of preferences. Moreover, the diagnostic framework is consistent with the collaborative public land management process introduced earlier because it focuses on understanding the situation and crafting a strategy iteratively, not through a wishful step model.

A third tool is a way of communicating or designing a communication strategy based upon key strategic questions. Key questions, perhaps embedded in the

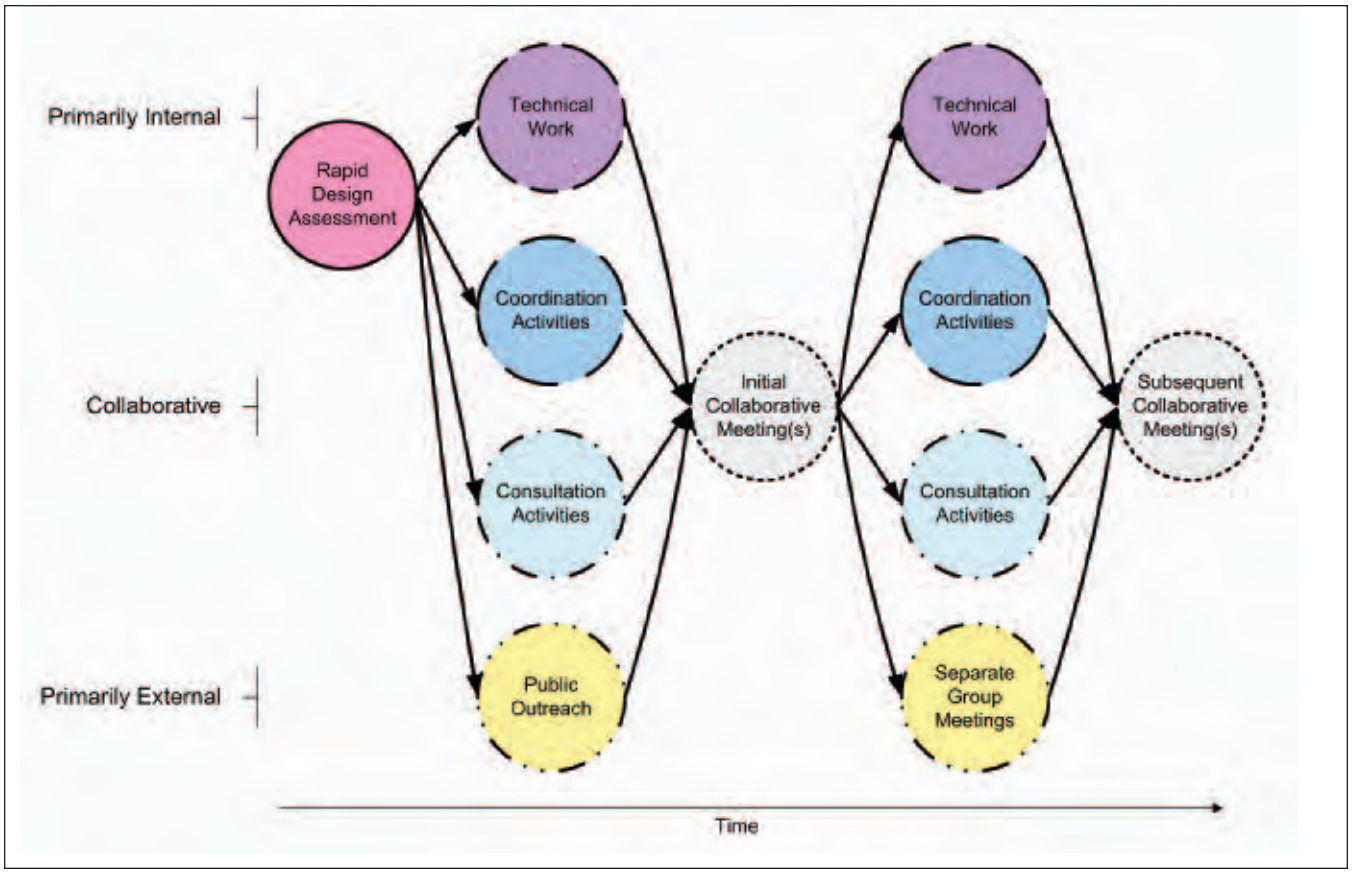

Figure 7—Accordion planning model.

Open-Narrow-Close framework, can guide inquiry, focus meetings, and move to an appropriate management decision. The following four questions have proven useful during numerous applications over the past decade:

- Where are we now?
- Where do we want to go?
- How might we go where we want?
- What gets in our way?

A fourth tool is the Accordion Planning model (fig. 7) through which a planning process cycles back and forth from break-out meetings to coming together for integration and discussion, each cycle leading to the next (Straus 2002). These iterations are about getting the science right and the right sciences, while simultaneously getting the participation right and the right participants (Stern and Fineberg 2003). The process seeks appropriate mixtures of individual expertise and group interactions, recognizing the need for constant adjustments. This model reflects dynamic complexity of time (x), internal and external orientation (y), expertise (circles), and interactions (arrows).

Potential Traps

Many lessons have been learned about collaborative public land management. Some are common decision traps learned the hard way, but in sharing these experiences, others may be able to avoid those (Russo and Shoemaker 1990). Based upon available literature and

personal experience, eight seem to stand out as traps to watch out for, much like the list of "watch-outs" that wildland firefighters often cite. The following list describes the traps and some possible treatments to consider:

- **External Bias:** Internal collaboration is often missing, which can send conflicting message to internal and external participants.
  - Treatment: Look for ways to tap internal knowledge and experience without over-burdening folks.
- **Power Sharing vs. Power Leveraging:** Participants bring different power bases; how you address power is important.
  - Treatment: Allow power sharing to emerge by focusing on power leveraging first; do not start a process by aiming to share power because that readily encourages positional bargaining.
- **Agency Capture:** Land management agency may cross from responsiveness to patronage toward some participants, leading other participants to lose trust.
  - Treatment: Establish clear principles and priorities to check on as process unfolds. Make these part of explicit situation awareness criteria that you look for during process to ensure everyone understands the principles you are applying.
- **Lack of Substance:** Forgetting that good science is as important as good participation; implementation is as important as planning (i.e., confusing collaboration with "abracadabra collaboration").
  - Treatment: Collect quality data regarding managerially and decision relevant questions; meaningful products and events throughout.
- **Infeasibility:** Resources to move toward desired outcomes may not be feasible (i.e., over-promising).
  - Treatment: Make feasibility and part of dialog.
- **Ballistic Behavior:** Assuming actions will produce desired outcomes without unintended or unanticipated consequences (i.e., creeping determinism).
  - Treatment: Practice continuous learning, sensemaking, and situation awareness.
- **Political "Cow-Pies":** Interference with traditional budgetary and political processes can lead to backlash (e.g., "stepping in it").
  - Treatment: Develop conceptual frameworks that integrate social, political, and ecological aspects and focus on big picture.
- **Technical Blinders:** Too much structure early in a process can produce blind spots with substantive consequences (i.e., methodism).
  - Treatment: Use adaptive design, perhaps applying the Open-Narrow-Close or Accordion models, anchored with principles and priorities jointly developed with participants.

Plausible Research Opportunities

The material reviewed here suggests numerous research opportunities. Seven stand out as especially promising. A unifying theme is the need for a coherent bridge between management and research, a bridge that would seem likely to benefit from greater attention to decision process and strategic tools.

The first opportunity is to pursue the topic of collaborative learning. The Collaborative Public Land Management model rises from several premises that researchers might empirically test either locally or more broadly, if appropriate designs are developed. For example, diagnosing a local situation collaboratively likely means different things in different situations, yet some degree of commonality may also be present. The need for research appears clear, perhaps oriented toward the process, content, and outcome elements of

a decision process and perhaps applying an abductive research model that goes beyond the more common hypothetico-deductive models.

Another research opportunity is to pursue the two promising topics of sensemaking and situation awareness (Endsley 1997, Perrow 1999, Weick 1995). Both topics are important to the Recognition Primed Decision model, but they are also important for managers because the topics get at indicators or appropriateness, a need identified early in this paper. A key research question is this: Can we develop methods for establishing locally meaningful indicators that allow timely recognition of need for change or of a normal accident before it reaches crisis-level?

A third research opportunity addresses the apparent need for action research, an approach to empirical science that seeks to break out of the descriptive rut and produce more prescriptive work without compromising needs of researchers and Forest Service Research Stations. Description of planning efforts, for example, tells little about the viability of more creative or inventive ideas, instead only reinforcing previous efforts and leading to conservative research and occasional moments of incremental progress.

Similar to action research is the opportunity to pursue actionable knowledge, perhaps by investigating whether we can adapt tools from organizational learning and other promising areas to produce actionable knowledge as opposed to descriptive rote knowledge. Rote knowledge, like descriptive knowledge, is fundamentally uncreative and conservative because it is oriented toward repeating what others have done regardless of whether the situations are comparable. Good examples of actionable knowledge are the potential traps listed in this paper—they seek to transform lessons available from a wide range of disciplines into ones applicable to wildland recreation and public land management.

Because emergent strategies, as described in this paper, seek to respond to evolving circumstances, such strategies are fundamentally about producing new knowledge and sharing that knowledge with others. Accordingly, another research opportunity is to pursue questions related to knowledge management such as how managers, responsible officials, planners, and technical experts might better collaborate with researchers, academics, consultants, and scientists to respond to changing expectations more rapidly and more innovatively. Pursuit of this opportunity requires a willingness to confront organizational challenges in an empirically valid manner.

Similarly, there are research opportunities related to bridging theory and practice. Perhaps one of the more important questions is whether researchers and managers can focus on managerially relevant aspects of the challenge as the basis for bridging theory and practice for collaborative public land management. Addressing this question would seem to require deliberate effort to identify managerially relevant aspects, perhaps as the basis for assessing “success.”

Lastly, researchers and managers would benefit equally to greater research attention to measuring success from multiple perspectives, including those of managers and researchers. A specific research question of interest might be along the lines of the following: Can we develop methods for producing contextually specific meaningful measures relevant to local, regional, and national needs?

The seven research opportunities described appear likely to serve as a solid basis for a research strategy that would bridge theory and practice for the purposes of improving communication strategies associated with wildland recreation management. In addition to improving communication strategies, pursuing these opportunities is likely to improve planning strategies by providing empirically defensible resources to managers and leading to better public land management efforts as measured by a broader set of perspectives than relied on traditionally.

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Recreation Site—Facility Master Planning Process Overview and Summary

Kathy Ludlow[1]

Introduction

The Chief of the Forest Service is requiring forests to examine their entire facility infrastructure and determine how to operate those facilities more effectively and in a financially efficient way. Recreation Site—Facility Master Planning (RS-FMP) is the process being used nationally to help recreation programs meet the Chief's requirement. It helps forests align their developed recreation site program with the recreation niche for the forest and the anticipated budget. It looks to the future and is expressed through Action Items for the next 5 years that will help the forest meet the RS-FMP goals (listed below).

Why

Many factors contribute to the urgency to review and align our developed recreation site program:

- The current recreation capacity owned by the Forest Service on the national forests is 342 million People at One Time (PAOT) days. In fiscal year 2004, fewer than 84 million PAOT days (25%) were funded to be managed to national quality standards.
- Deferred maintenance costs for recreation sites have reached $346 million.
- Recreation fee authority has created higher visitor expectations.
- The new fee authority is more restrictive than fee demo was and will result in fewer dollars available for recreation sites.
- New operating standards from the Environmental Protection Agency will increase the number of recreation site water systems failing to meet standards without additional expenditures.
- Fire, Administration and Other (FA&O) facility master planning resulted in the recreation program having a large number of "left-over" facilities to consider managing, primarily as primitive rental cabins.
- FSM ID 2310-2003-1 requires facility master plans be developed for all facilities. The Deputy Chief's 7310/2300 letter, of March 4, 2005, (Due Date July 1, 2005) requests each Regional Forester to provide the Director of RHR RS-FMP completion dates for FY06 and FY07.

Goals

Goal 1: Provide recreation opportunities consistent with the forest recreation "niche."

Goal 2: Operate and maintain a financially sustainable recreation sites program to national quality standards.

Goal 3: Eliminate deferred maintenance at recreation sites.

Goal 4: Improve customer satisfaction.

Objectives

Objective 1: Focus resources on sites that best fit the forest recreation niche.

[1] Forest Service Landscape Architect, Retired. Email: kludlow@fs.fed.us

Objective 2: Operate and maintain sites to regional required quality standards with available revenue stream.

Objective 3: Reduce deferred maintenance backlog by 90% by 2020.

Objective 4: All customer satisfaction factors will be equal to or greater than the customer importance rating for that factor (as reported through National Visitor Use Monitoring customer satisfaction surveys).

The Recreation Site Facility Master Planning product is a 5-year action plan outlining proposed steps to move from the current situation to the desired future condition. The 5-year action plan describes the forest's desired recreation site inventory, function, and operational strategy and satisfies the requirement for recreation site facility master planning.

Before initiating the Recreation Site Facility Master Planning analysis, each region identifies regionally required Operation and Maintenance quality standards.

Process Summary

Step 1: Prepare Inventory and Financial Data	**(Forest/RO)**
Step 2: Develop Unit Recreation Program Niche	**(Forest)**
Step 3: Identify Operational Efficiencies	**(Forest)**
a. Verify inventory and financial information	
b. Develop management options	
c. Establish expenditure commitments	
Step 4: Rank Recreation Sites	**(Forest/RO)**
a. Rank sites to unit criteria	
Prioritization criteria	
Facility conformance with the forest niche	(35%)
Facility cost and operational efficiency	(35%)
Facility effects on environmental sustainability	(20%)
Facility effects on community stability	(10%)
b. Recommend site management priority	
Step 5: Develop Proposed Forest Actions	**(Forest)**
a. Determine operations and maintenance actions	
b. Determine sustainable inventory level	
c. Determine programmatic actions	
Step 6: Produce Final Products	**(Forest)**
a. Develop 5-year RS-FMP proposed action plan	
1) Completed rank tool	
2) Table of actions	
i. Site-specific	
ii. Programmatic (includes scheduling communication plan and monitoring plan development)	
3) Recreation site priority report	
4) Final niche documents	
5) Niche map	
6) Programmatic results	
7) Forest Supervisor signature	
Step 7: Conduct Regional Forester and Stakeholder Review	**(Forest/RO)**
a. Obtain Regional Forester concurrence on draft proposed action plan	
b. Review draft proposed action plan with Marke Zone stakeholders	
c. Incorporate stakeholder improvements and finalize proposed action plan	

Place and Place-based Planning

Linda E. Kruger[1] and Daniel R. Williams[2]

Abstract

Place-related concepts are factors in public involvement, conflict, recreation management, recreation displacement, landscape planning and design. This has captured the attention of researchers and managers. We posit that planning and management of public lands requires an understanding of what it is about the lands that people value and care about. In this paper we discuss multiple uses of the term "place" and the various place-related concepts that have emerged, and how these concepts are used to inform public land planning and management.

Interest in Place

Place-related concepts are factors in public involvement, conflict, recreation management, recreation displacement, landscape planning, and design. This has captured the attention of researchers and managers. The concepts of sense of place, attachment to place, place meanings, place dependence, place identity, and place-based planning are appearing more frequently in academic literature, agency publications, and the popular press. Place-oriented approaches to natural resource and community issues are receiving more attention from academics, policymakers, citizens, and resource managers. In academia, place is a topic in landscape architecture, environmental ethics, environmental psychology, rural sociology, anthropology, human geography, and the humanities.

Academic and agency researchers and resource managers are using various methods to explore the meanings, experiences, and actions that enable us to understand place and the relations between people and their environments. There is a sizable literature on place and related concepts so we will not spend much time defining them in this paper. Farnum et al. (2005) review the literature on sense of place in recreation and tourism, and an edited collection of papers on place-related concepts applied in recreation and tourism studies (Kruger et al. (in press)) is in process.

At a basic level, place concepts generally recognize that understanding emotional ties and symbolic meanings of environments is critical to understanding the implications of environmental change and why conflicts over resource management become so contentious (Brandenburg and Carroll 1995, Greider and Garkovich 1994, Kemmis 1990, Krannich et al. 1994). Also embedded in these ideas is the recognition that traditional market-based decision frameworks (Galliano and Loeffler 1999) and western approaches to science (Entrikin 1991; Orr 1992; Sagoff 1992a,b) have led to an under-representation of certain meanings and values that people often associate with nature, place, or

[1] Research Social Scientist, USDA Forest Service, Pacific Northwest Research Station, 2770 Sherwood Lane, Suite 2A, Juneau, AK 99801. Email: lkruger@fs.fed.us

[2] Research Social Scientist, USDA Forest Service, Rocky Mountain Research Station, 2150A Centre Avenue, Fort Collins, CO 80526-1891. Email: drwilliams@fs.fed.us

landscape (Bengston 1994, Wilkinson 1992, Williams and Patterson, 1996). Economic values and narrowly defined empirical variables have been counted and measured while other, less tangible values and meanings have been discounted or disregarded as non-empirical.

Slowly planning processes are recognizing the importance of meanings and values people ascribe to places and the emotions, experiences, benefits, and satisfaction people experience in places (Galliano and Loeffler 1999). Place-based planning processes provide a venue for managers to interact with people who live, work, and play in a place and care about it. This is important because planning in itself is a place-making or meaning-creating process (Galliano and Loeffler 1999, Williams and Patterson 1999, 1996). Place-based planning that engages the public enables an understanding of what Clarke (1971, quoted in Galiano and Loeffler 1999) calls "the interactive unity of people and place."

Multiple Uses of the Term "Place"

Place is used three ways in social science (Agnew and Duncan 1989). As *location*, place can mean "the spatial distribution of social and economic activities" that results from different costs of doing business in different places (Agnew and Duncan 1989: 2). Place as *locale*, on the other hand, provides the setting or backdrop for everyday activity. *Sense of place*, the third definition, involves individual or group identification with a place that comes from interacting with it. These conceptions demonstrate the multidimensionality of place but have also led to confusion. Place, according to Agnew and Duncan (1989) simultaneously encompasses all three aspects; however, the emergence of place as a social science topic reflects increasing recognition of the importance of this sense of place dimension.

The multiple uses of the word have led to two distinct orientations to sense of place. Landscape architects often view sense of place as inherent in a place—a quality of the landscape that can be physically identified and mapped by a trained observer, what the Forest Service Scenery Management System refers to as *landscape character*. In contrast, a social-experiential orientation emphasizes meanings that are created as people interact with a place and with each other in a place, developing connections to the place. These meanings are not inherent in the landscape but are emergent. They are said to be *socially constructed* through experience. Some researchers suggest that this experience need not be direct, but can be developed vicariously, asserting that a sense of place can exist for places a person has never visited but cares about.

In line with Agnew and Duncan's definition for sense of place, Pred (1984) views place as a *social process* of transforming and appropriating nature and space, simultaneous with and inseparable from the transformation and reproduction of society. Thus place is not something "out there" separate from, or that can be separated from, the people who create and define it through their day-to-day experiences. Despite common conceptions to the contrary, places are always changing and evolving and have multiple and often conflicting meanings.

In addition to sense of place, people sometimes talk about "special places." The most important aspect of the "specialness" of places is a holistic character that involves past experience and social and cultural meanings identified with the place such that the place "elicits an appreciation and attachment beyond the observable features of the landscape" Petrich (1984: 67). Thus, to know or understand place requires us to look at place from a perspective that can illuminate meaning and action. Meanings can be difficult to detect (they cannot be identified and counted like trees or fish); however, meanings expressed through enactment and engagement are observable and can be accounted for using "interpretive" methodologies,

which elicit and analyze narratives (stories and histories) about a place.

Place Meanings

In natural resource management, the place concept is often used to bring greater recognition to certain (usually intangible) kinds of place meanings variously described as social, cultural, symbolic, historical, emotional, and even spiritual. But it is important to note that traditional resource assessments have always attempted to identify and map potential uses and meanings of a landscape. The emergence of the place concept is mainly about expanding what counts as legitimate meanings of a place or resource beyond its tangible uses. The difference in a place approach is that meanings are not limited to widely recognized potential uses of a resource. They also characterize something of the relationship between the place and the people who use, occupy, or otherwise care about it. In contrast to the resource-utility approach, the notion of relationship implies past experience or history with the site as well as personal or group connectivity or identification with the place.

As managers, if we think of our traditional tasks of inventorying as efforts to identify and map landscape meanings, the place perspective argues for a wider conception of meaning. Resource maps, in effect, describe how certain kinds of meaning are spatially distributed. Natural resource management has successfully mapped certain tangible forms of meaning (e.g., commodity and amenity uses). We have inventory tools such as the Recreation Opportunity Spectrum and the Scenery Management System to capture some of these meanings. But as intangible (e.g., cultural, symbolic, and spiritual) meanings are recognized within ecological/systems approaches to resource management, the scope of resource mapping needs to be similarly expanded.

Although in theory, meaning can be mapped like other spatial properties, there are at least two problems identifying and mapping intangible meanings. First, by definition, intangible meanings leave few if any, physical indicators, behavioral evidence, or cultural markers in the landscape to tell us they exist. Second, places typically do not have a single set of meanings held by everyone. Thus, for managers to identify the full range of meanings requires not only an expanded set of inventory techniques capable of identifying intangible meanings, but these techniques must also be sensitive to the social or group differences in identification with these meanings.

As a relational concept, meaning can be likened to stories about places rather than physical properties of places. The job of the resource manager is to learn these stories and to recognize when different groups of people have different and sometimes conflicting stories. Relatively passive approaches to gathering these stories includes identifying narratives, documents, and histories about a place or consulting key informants including long-time managers. More active approaches include engaging the public in identifying, constructing, and negotiating their various stories though various forms of collaborative planning (Farnum and Kruger, n.d.) or civic science (Kruger and Shannon 2000).

Place-based Planning

"Knowledge of places having high value to humans as well as an understanding of the significant meanings and images that places have to individuals within a community should allow planners, managers, and decisionmakers to [develop management guidelines] that will maintain the salient characteristics of those places" (Galiano and Loeffler 1999: 9). This is the goal of place-based planning. Place-based planning is a grassroots movement founded on the belief that understanding the identity, meanings, and images of places will

help design management actions and predict the effects of management alternatives on the people who use and care about a place. There are many methods, orientations, experiences, and levels of complexity of processes. Most place-based planning activities are participatory and collaborative, although not always.

Managers and scientists are recognizing the importance of understanding the attachments people have to places that are special to them and are designing ways to incorporate this knowledge into resource planning and management. This is important because people create "bonds with a locale based on a sense of place that involves sentiments extending beyond the use value of the land" (Eisenhauer et al. 2000: 438). More attention is being focused on the role of place and how it influences people's recreation and tourism choices and the acceptability of resource management decisions, for example. Researchers and managers are designing ways to map local knowledge and meanings of places and other social and cultural information. Place-based planning recognizes planning as a social process with cultural, social, economic, and political components.

An essential idea behind place-based planning is that caring about places is important and different from caring about resources. There is a difference between valuing a resource (or even what some might call a type of place such as wilderness) and valuing a place that might contain that resource or has a certain classification (e.g., wilderness). To value the wilderness resource or the collection of national parks is to value an ideal. To value the class of places that possess wilderness qualities is similarly to value certain fungible qualities – qualities that can be found in multiple locations with one substituting for another. But to value Yellowstone National Park or the Bob Marshall Wilderness is to value the one and only instance. Place-based planning brings to bear the meanings, values, and attachments associated with that specific piece of ground, in addition to any meaning it might have as a kind of place or container of a resource. Traditional forest planning was relatively disinterested in the forest as a place; it was mostly structured to recognize and assign meaning and value to its fungible resource properties.

Place-based planning is an opportunity to do the following:

- Empower community members and build community.
- Engage the community in inventory activities.
- Build relationships and trust; regain credibility.
- Engage in mutual learning.
- Explain policies and rationale.
- Raise awareness of and mitigate conflict.
- Plan holistically.
- Incorporate a broader range of meanings into planning.

Although there are multiple approaches, place-based planning includes mapping, sometimes by staff and sometimes collectively with the community. It also often involves a visioning process. Place-based planning is "an effort to create a more equitable, democratic way of defining, expressing, and valuing places" (Cheng et al. 2003: 101). It is seen as a way to build relationships and share power. A "one-size-fits-all" template does not work because the process recognizes the uniqueness of each landscape and situation.

Research has focused on shared meanings and using place-based approaches to achieve common ground, but there can be multiple and conflicting meanings and many senses of place for the same place. Knowledge of the politics of place can help managers understand natural resource conflict and better evaluate potential effectiveness of decision-making processes (Cheng et al. 2003). Understanding contested meanings of place is important for managers because sense of place and place meanings are often connected to attitudes and expectations about appropriate and inappropriate management or use. Paying

attention to both shared and contested meanings may lead to more productive dialog.

Research Needs

Tools, processes, and conceptual frameworks are needed that allow managers to access, assess, inventory, and monitor sociocultural meanings of places and incorporate socially relevant meanings into social inquiry and planning processes. These new tools would supplement current approaches, accommodating participation by diverse interests and inclusion and integration of a variety of types of knowledge. They would provide a venue for expressing and negotiating meanings. Managers are leading the way in exploring a variety of processes, activities, and forums to access meanings people hold for places. We lack an understanding of place-based processes. What processes work in what situations and why?

Planning and managing public lands requires understanding what it is about the lands that people value and care about. The following are two of the questions that have not received adequate attention: How can managers consider place attachment and place meanings when making management decisions and when conducting large scale planning efforts for an entire system of places such as a national forest, national or metropolitan park? What processes work at different geographic scales?

Additional research is also needed to further understanding of place attachment, factors that influence attachments, and how attachments influence attitudes toward land management and participation in planning processes. Understanding the connections between quality of life, sense of place, place attachment, and satisfaction would also help managers cope with the high levels of human migration to high amenity areas near public lands including forests, parks, and other protected areas.

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Recreation Monitoring

Susan M. Kocis [1]

Monitoring recreation use helps forest managers check assumptions, measures progress toward management goals, and can assist in management decisions. The National Visitor Use Monitoring (NVUM) program provides baseline visitor information including visitor demographics, satisfaction, origin, activity participation, spending, visit duration, and other trip characteristics.

NVUM data are gathered by trained interviewers directly from the visitors exiting the national forest. Data collected are valid at the forest, regional, and national level. Visitors are interviewed throughout the year; therefore data include activities during all seasons. Forests conduct NVUM monitoring every 4 to 5 years. The scale of NVUM is forest level, aggregating data to the regional and national level. Following are some highlights from the first round of data collection. Detailed reports for each national forest and grassland in the country can be found at www.fs.fed.us/recreation/programs/nvum. Economic analysis reports are also available at www.prr.msu.edu/mgm2/econ.

During the first round of NVUM recreation monitoring from January 2000 through September 2003, many long-held management assumptions were confirmed and some were corrected. Visitor use is at least half of what managers had been reporting. Traditionally the Pacific Northwest (PNW) and Pacific Southwest (PSW) regions reported the highest use. NVUM results show that the Rocky Mountain Region and Southern Region have the highest use, with the PSW and PNW regions are a bit less (fig. 1). Downhill skiing greatly influenced the number of national forest visits, accounting for over half of all national forest use in the Rocky Mountain Region. There is little racial diversity among visitors to national forests, even when measured on forests near larger, more diverse urban populations. Developed overnight use in national forest campgrounds accounted for only about 12% of national forest visits; dispersed recreation use accounted for almost half of all national forest visits.

Seven market segment shares for each national forest were developed by using visitor origin information (Stynes and White 2005). The main market segments were local, nonlocals, and those whose primary reason for their trip was not recreation. The local and nonlocals categories were then further divided into day use, overnight use on the national forest, and overnight use off of the national forest. Details for each national forest and summary information can be found at the web sites mentioned earlier. Table 1 shows how different the market share can be between forests. This information is extremely useful to local tourism providers and the forest recreation planners as they estimate the value of national forest recreation visits. Nonlocal visitors spending the night in private lodging off the national forest spend more money in the local community than local day visitors.

National forest visitors were asked to rate their satisfaction with a variety of facilities and services in

[1] Social Scientist, USDA Forest Service, 1407 South Harrison Road, Suite 220, East Lansing, MI 48823. Email: skocis@fs.fed.us

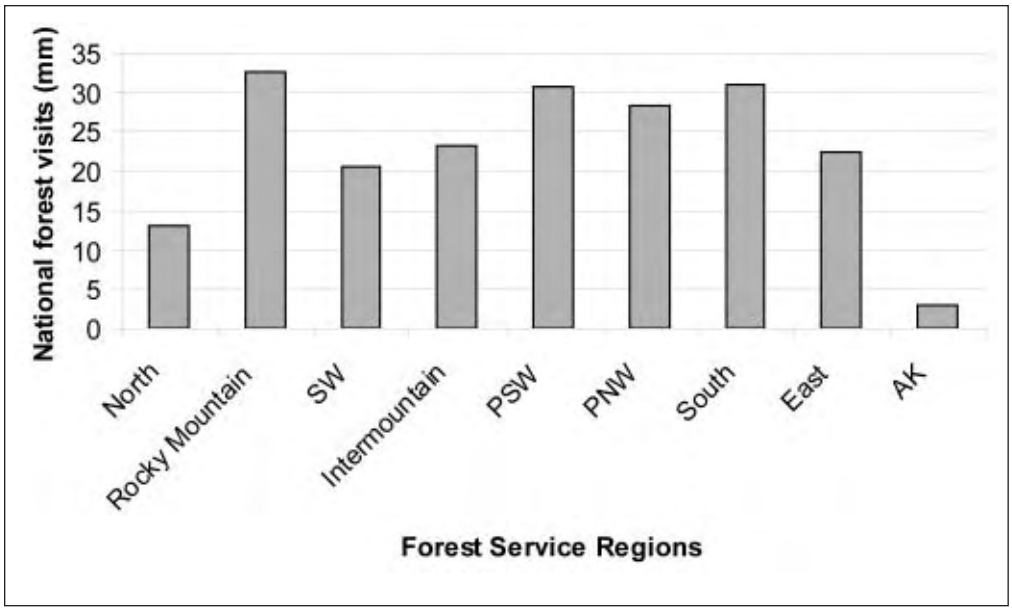

Figure 1—Number of visits to national forests per Forest Service Region.

Table 1—National forest visitor market shares

	Chippewa NF	Huron-Manistee NF
	Percentage of market	
Nonlocal day	5	19
Nonlocal overnight on forest	17	5
Nonlocal overnight off forest	2	46
Local day	50	22
Local overnight on forest	3	2
Local overnight off forest	4	5
Not primary recreation visit	1	1

developed sites, dispersed forest and grassland areas, and in congressionally designated wilderness. These ratings are available for individual national forests as well as aggregate ratings by region and nationally. About 78% of visitors rated their satisfaction with all recreation sites and areas as good or very good (fig. 2). Ratings varied somewhat by forest, thus helping managers identify areas for improvement.

NVUM data can also be used in conjunction with other recreation information such as the National Survey on Recreation and the Environment (NSRE) to identify the activity market area. The NSRE showed that in the Colorado outdoor recreation market there were 5.3 million annual days of downhill skiing, 2.5 million of hunting, and 59.2 million nature center visits (table 2). NVUM data show that on the White River National Forest in Colorado there were about 3.9 million annual days of downhill skiing and about 200,000 days each of hunting and visiting nature centers. It can be deducted (somewhat roughly) that the White River

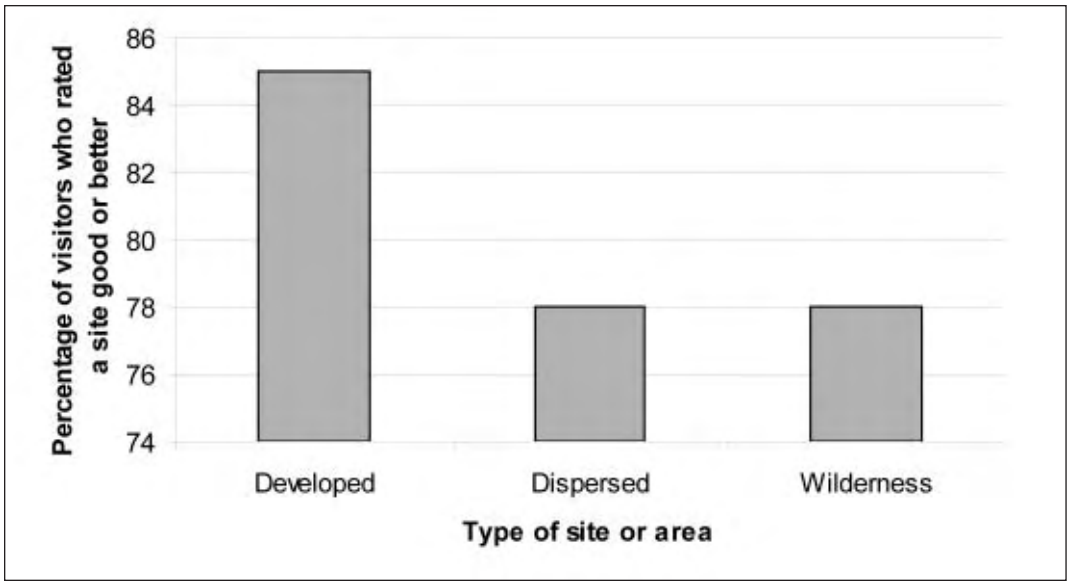

Figure 2—Visitor satisfaction ratings of good or very good by type of site or area on the national forests.

Table 2—Market share of selected activities on the White River National Forest

Activity	NSRE annual days participation	NVUM annual days participation	Market share
	Million	*Million*	*Percent*
Downhill skiing	5.3	3.9	73.0
Hunting	2.5	.2	7.0
Visiting nature centers	59.2	.2	0.3

National Forest provides about 73% of the market share for downhill skiing in Colorado but plays an insignificant role in providing hunting and nature center visits.

Quality Control and Assurance

NVUM continually works on improving the methodology, survey instruments, training, and analysis used in the program. The extensive interviewer training program includes videos, handbooks, and workbooks. An interviewer certification process is currently under consideration. A "secret shopper" program and field inspections are used to monitor the quality of the data and adherence of interviewers to sampling protocols. Secret shoppers are volunteers who are trained in the basic field procedures, then sent to various interview locations to pose as the general public and be interviewed. The shoppers then report back to the NVUM field manager about their experience. This program alone has led to many changes in both the training and the survey instruments.

Once interview forms are received at the data processing center, additional quality control checks are used to ensure all information scanned is as complete

and accurate as possible. Additional statistical tests are performed to identify any "unreasonable" data. Once the data are cleaned, additional statistical tests are performed. The final set of data is then analyzed using the SAS® [2] analysis system to provide forests, regions, and the national office with detailed visitor use information.

Future Research Needs

Many aspects of the NVUM process need additional research. These include the following major sampling issues.

Urban Interface Issues

Many homes are now located adjacent to national forest lands. Homeowners and guests access the forest and grassland through nontraditional access points, making their use very difficult to capture. In some areas such as Missoula, Montana, areas of Colorado, Tuscan and Phoenix, Arizona, many areas in southern California, and other urban areas this use may be significant and may not currently be included in NVUM estimates.

Nonresponse Bias

Many visitors reported visiting their local national forests 20 or more times per year. This may lead to "trap shy" behavior. Visitors may stop for an NVUM interview once, maybe even twice, but are unlikely to stop on their 20th visit. This may lead to some bias in the data reported.

Sampling Along High Speed Roads

A variation on the nonresponse bias, sampling along high speed roads tends to have a low interview response rate. Sometimes these roads are the only major access points to the national forest, yet provide unsafe and unproductive survey locations.

Traffic Counter Reliability

Two types of traffic counters are used in the NVUM sample protocols. The reliability of these counters varies by temperature, road surface, interviewer ability, vehicle speed, and other factors. These factors need further study, and correction factors may need to be developed for specific conditions.

Winter Sampling

Interviews occur whenever recreation use on the forest occurs, including very cold, snowy winter days. Both the interviewer and the visitor may find it difficult to participate in a 15 minute interview under adverse conditions. Yet, obtaining winter visitor use information is critical to many forests. How can the NVUM sampling methodology be improved to yield higher interviewer rates in winter?

Nonsample Year Visitor Use Estimates

National forests participate in the NVUM process only once every 5 years. Forests may desire more current visitor use information. Some types of double sampling techniques need to be developed that could predict non NVUM sample year use.

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[2] The use of trade or firm name in this publication are for reader information and does not imply endorsement by the U.S. Department of Agriculture of any product or service.

Relationship Monitoring: Benefits of Developing a Relationship Between the U.S. Forest Service and a Consortium of Universities

Robert Burns[1], Alan Graefe[2], and Charles Frayer[3]

Resource managers in Region 6 of the U.S. Forest Service have identified a need to better understand the customers who currently visit or may potentially visit the recreation areas within the Region's national forests. Over the past 6 years, the primary sources of data for this monitoring effort have been the National Visitor Use Monitoring (NVUM) study and the Region 6 Fee Demonstration and Northwest Forest Pass monitoring programs.

By using experts in natural resource management, Region 6 resource managers have gained substantial knowledge and a consistent product over an extended period of time. The region has been able to use NVUM and Fee Demo program dollars as a platform to leverage many smaller studies over the past 4 years—with little or no additional cost for the original project incurred by the government. These spin-off studies have provided forest and district resource managers with an extremely cost-effective method of using the best science available in making resource decisions.

Data collected for both the NVUM and Recreation Fee studies were linked from the outset of this monitoring effort by cooperating universities around the country. The cooperating universities (West Virginia University, Penn State, Oregon State, and the University of Florida) have been involved in the NVUM process in Region 6 since the outset of this nationally mandated monitoring project in 1999. In addition, research monitoring assistance has been rendered from the U.S. Forest Service Southern Research Station, co-located with the University of Georgia, in Athens, Gerogia, and the Southwest Research Station, located in Riverside, California. This partnership has enabled investigators from the universities and the federal government to merge the data and further examine trends and issues that would not be readily identifiable to the region.

The relationship that has grown between the various federal and university cooperators and the resource managers of Region 6 epitomizes a model land-grant university/agency relationship. A land-grant college or university is an institution that has been designated by its state legislature or Congress to receive the benefits of the Morrill Acts of 1862 and 1890. The original mission of these institutions, as set forth in the first Morrill Act, was to teach agriculture, military tactics, and the mechanic arts as well as classical studies so that members of the working classes could obtain a liberal, practical education. There is now at least one land-grant institution in every state and territory of the United States, as well as the District of Columbia.

Working closely with key Forest Service resource managers, the primary investigators have been able to

[1] Assistant Professor, Recreation, Parks, and Tourism Resources Program, Division of Forestry, West Virginia University, Morgantown, WV 26505. Email: Robert.Burns@mail.wvu.edu

[2] Associate Professor, Recreation, Park, and Tourism Management, Penn State University, 201 Mateer Building, University Park, PA 16802. Email: gyu@psu.edu

[3] Data Coordinator, Region 6, USDA Forest Service, 333 SW First Avenue, Portland, Oregon 97204-3440. Email: cfrayer@fs.fed.us

Table 1—Value-added studies in Region 6 stemming from the National Visitor Use and Monitoring study and fee-related programs

NVUM-related monitoring studies

- Examination of Urban-Forest Interface Issues: Seattle WA (2005)
- Winter Use at Diamond Lake Recreation Area (2004)
- Recreation at Diamond Lake: An examination of user characteristics, behaviors, and attitudes between 2001—2003 (2004)
- Recreation at Waldo Lake: An examination of user characteristics, behaviors, and attitudes (2004)
- The role national forests in central Oregon: Results of four focus group interviews (2004)
- Recreationists on the Deschutes National Forest: user characteristics, behaviors, and attitudes of Lavalands National Volcanic Monument (2003)
- Ochoco National Forest recreation survey results (2003)
- Recreationists on the Willamette National Forest: user characteristics, behaviors, and attitudes of the Santiam Pass recreation areas (2002)
- Recreationists on the Umpqua National Forest: a survey of user characteristics, behaviors, and attitudes (2002)
- User characteristics, behaviors, and attitudes of Diamond Lake and South Umpqua River corridor users, Umpqua National Forest (2002)
- Recreationists on the Siuslaw National Forest: crowding and conflict at the Oregon Dunes National Recreation Area (2002)
- Recreationists on the Umpqua National Forest: National Visitor Use Monitoring results (2002)
- Recreationists on the Gifford Pinchot National Forest: a survey of user characteristics, behaviors, and attitudes (2002)
- Recreationists in the Columbia River Gorge National Scenic Area: National Visitor Use Monitoring results (2001)

Fee-related monitoring studies

- Evaluation of Pacific Northwest Recreation Fee Program Sites (2004)
- Region 6 Golden Passport benefits focus group analysis: Spring 2003 (2003)
- Evaluation of the Pacific Northwest recreation fee program: Portland metropolitan area survey (2003)
- Region 6 recreation comment card analysis: February 2003 (2003)
- An examination of the Pacific Northwest Region recreation fee program (2002)
- Region 6 employee survey on the Pacific Northwest Region recreation fee program (2002)
- Evaluation of the Pacific Northwest Region recreation fee exchange program (2002)

provide invaluable information to Region 6 and forest-level resource managers. This information has been used in management plans and as supporting information in environmental impact statements in locations such as Waldo Lake and Diamond Lake, Oregon.

Simultaneously, over 30 students have had the opportunity to work on a Region 6 forest at the district level in support of the NVUM and Fee Demo monitoring programs. As a result, students have obtained valuable field experience while providing quality work for the NVUM and Fee Demo monitoring programs. Over the past 4 years, several students have used the region's data collection efforts to write their doctoral dissertations or master's theses. Many of the undergraduate students have used the NVUM monitoring process to complete required internships. In addition, Forest Service researchers, combined with the primary investigators and their students, have presented the findings of Region 6 studies at conferences across the United States and abroad. As a result, the region's

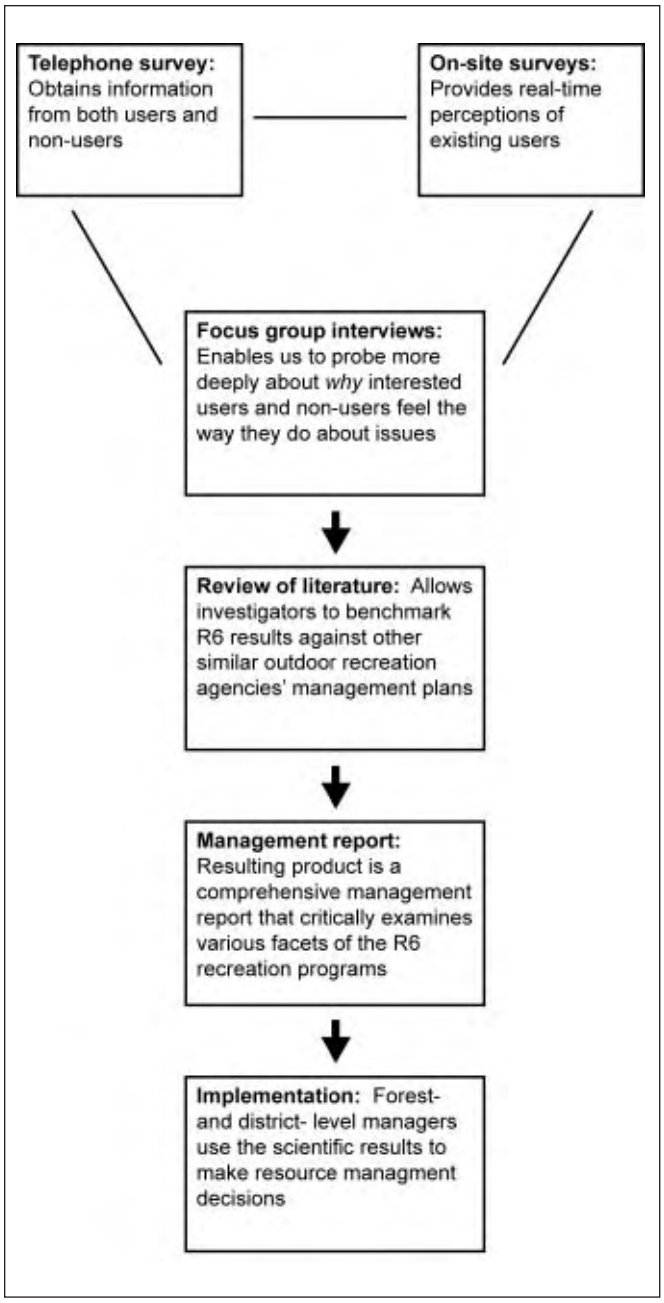

Figure 1—Triangulation approach to recreation monitoring.

name is known at the forefront of outdoor recreation monitoring in the nation, which in turn demonstrates the commitment of Region 6 managers to use the best science available to make resource decisions.

Region 6 resource managers have made use of the cooperators' expertise to conduct "value-added" studies at several Region 6 national forests over the past 6 years (see table 1). Value-added studies are investigations that are incorporated with or enhance the basic NVUM or fee-related projects. They address topics of concern to local managers by using additional questions or sampling at designated locations. These studies provide quick feedback to managers and can be conducted very cost effectively when added to the basic infrastructure and funding provided by the NVUM initiative. The value-added studies have been mutually beneficial to both the university cooperators and Region 6 resource managers: students have had opportunities to learn in a field environment and resource managers have received unbiased field reports that use the best science available. The data collected in these monitoring efforts have been invaluable to resource managers at the region, forest, and district levels.

An example of a recent value-added study was a detailed examination of the forest-urban interface in Region 6. This study examined the critical link between residents of the Seattle metropolitan areas and the "urban forest" that is within an easy driving distance. The primary investigators examined the role of race/ethnicity, income, and disability on use preferences and patterns. Another recent effort examined the use patterns of winter visitors near Diamond Lake, Oregon. This study built on a series of monitoring efforts at Diamond Lake and focused on understanding the use patterns and potential conflicts between motorized and nonmotorized recreationists in both developed and dispersed recreation areas during the 2004-2005 winter recreation season.

The recreation fee program also has allowed the cooperators to collect data that are more relevant at the regional level. The data have focused on constraints to visiting national forests, opinions about the

management of the Forest Service fee program, opinions about the best methods of communicating the successes of the fee program, and the impacts of fees on nontraditional users, such as racial and ethnic minorities and people in low-income categories.

Methods

This monitoring effort has included on-site surveys, focus group interviews, and telephone surveys. One of the frequent criticisms about recreation research is that often only existing recreationists are queried about their perceptions of the management of a recreation area. Through the use of a triangulation method (fig. 1), we have been able to understand the perceptions of not only existing users, but also potential users and even those who may have stopped recreating on Region 6 national forests for some reason.

Conclusion

The partnership between the universities and the Forest Service in this monitoring effort has provided a significant benefit to all parties involved in the process. Region 6 resource managers have gained a substantial amount of information from valid and reliable data collection methods and use it on a regular basis in decisionmaking. Concurrently, many students have been able to collect and analyze data, and then use it in partial fulfillment of their academic requirements.

Working closely with key resource managers, the primary investigators have been able to provide information to regional and forest-level resource managers. This information has been used in management plans, as supporting information in environmental impact statements, and is being modeled for future decisionmaking processes.

Theme 2: Recreation Planning and Monitoring Synthesis of Workshop Discussions

Serving diverse and growing numbers of visitors, while being aware that future needs and demands may not be the same as current ones, makes effective planning a necessity for agency success and relevance. Some challenges identified during this session included:

- Getting recreation acknowledged as a key issue in forest planning.
- Reconciling recreation demands with the needs of endangered species, communities, and conflicting uses.
- Balancing local politics with national politics.

Place-based planning is one way to capture what is important to people. Several challenges associated with it were discussed:

- Managing for multiple senses of places.
- Evolving values. For example, newcomers may form different place attachments than those held by long-time residents.
- Determining who is "local".

Legislation has created a role for the public in resource planning, but this brings its own set of obstacles. One of which is turnover among working group participants. Some pointers were given to enhance public input and make working groups an effective part of the planning process:

- Set a time line.
- Have a neutral facilitator select the group.
- Identify overlapping interests.
- Leave a paper trail.
- Create an observer role for the public with time for comments.
- Have maps available (printed copies and on the Web) of the area under consideration.

Decision frame works and other planning tools were also discussed. A valuable tool was described as one that it is easily taught, applied, portable, and can document decisions. A common refrain was the need to make existing knowledge more available and to translate specific findings into broad applications.

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Printed maps are useful aids to involve public working groups in resource planning.

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Theme 3: Recreation Management

Gary Paull, USDA Forest Service

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Introduction: Recreation Management

Dale J. Blahna[1]

Thank you for inviting me to speak today. Bringing recreation managers and social scientists together to address mutual needs and chart a future course is a great idea and long overdue.

As a scientist at a land grant university, my primary research goal has been making social science relevant for land management and policy. Most of my research has been with the Forest Service and Bureau of Land Management (BLM), but I have also worked with the Park Service and several state agencies. In research discussions with recreation managers, I often hear them say, "We don't get the research we need!" And a common lament I hear from agency scientists is, "Why don't they use our research?" Now that I have you all in one room, I can give you my take on the issue: I think you are both right, and hopefully this workshop will be a step toward bridging the gap.

Managers and Research

First, I will address the managers' perspective. Chief Bosworth recently called "unmanaged recreation" one of the four great threats to forest health (Bosworth 2003). He was referring primarily to motorized uses but also dispersed uses in general. No offense to the Chief, but this is not exactly news. When I first moved to Utah in 1990, Dave Baumgartner, our local District Ranger, told me that roads, OHV use, and dispersed camping were the main problems facing the Logan Ranger District and most national forests in the West. So it has been an issue for many years, and although there is a huge literature and excellent textbooks on wilderness and scenery management, there are many fewer publications related to the management of dispersed recreation. Dispersed activities affect more acres, have more social and ecological effects, and are more complex to understand and manage than wilderness use, yet there is less research—a *lot* less research. The managers have an excellent point.

From the scientists' perspective, I also agree that existing research is underutilized. Studies have identified some reasons for this: managers' lack of social science training, less emphasis on the social aspects of management compared to physical resources, and social science data may not be as directly relevant for management as biophysical data. It takes time to review and synthesize research results, and some managers feel this takes away from the job of managing resources. I also believe that managers want a level of specificity or direct application of research findings that is not possible with general social science research. As a result, recreation research may be viewed as complicating what appear to be straight forward *land* management issues. This attitude is paradoxical, however, because managers often complain that "people problems" are their primary barriers. And it seems Chief Bosworth agrees.

[1] Research Social Scientist, USDA Forest Service, Pacific Northwest Research Station, Pacific Wildlife Fire Sciences Lab, 400 N 34th St., Suite 201, Seattle, WA 98103. Email: dblahna@fs.fed.us. A the time of this workshop Blahna was an associate professor at Utah State University.

So barriers exist between recreation research and management. Research programs do not always address critical management problems, and existing data are not always used by managers. To address this gap, the recreation management theme for this workshop poses four important questions: (1) What are the barriers to achieving management objectives? (2) Which management strategies are the most effective? (3) How can those strategies be implemented? (4) What is the role of research? First, I will give my perspective on the first three questions. The needs I discuss may seem self-evident to some, but to many managers they may appear impractical, impossible, or simply idealistic. Thus, I will also present two case studies that illustrate how the needs were met in applied situations. Finally, I briefly will discuss the specific workshop topics that address the recreation management theme, and I will close with future research needs.

Barriers to Achieving Management Objectives

The main barrier to achieving recreation management objectives is often the lack of objectives, or objectives that are so "broad or vague," they are useless for guiding management decisions (Borrie et al. 1998, McCool and Lime 2001: 377, Haas 2003). I'm sorry if this sounds flippant, but when managers ask us to do visitor-use or attitude surveys, there are usually no objectives to help design the study or recommendations, and in most forest plans I have reviewed through the years, recreation objectives are missing or vague and not very useful for decisionmaking.

This does not have to be the case. The Recreation Opportunity Spectrum (ROS), for example, can be used as a basis for developing objectives, but it is rarely used that way (Manning 1999, Stankey 1999). ROS has been used to identify objectives for California's water-based state parks (Aukerman et al. 2004) and wildlife viewing opportunities for Alaska's Kodiak Island National Wildlife Refuge (Allen and Collins 2002). But in most Forest Service and BLM applications, ROS was simply used to inventory areas, and the ROS inventories rarely influenced management decisions (Stankey 1999).

For example, the landscape architect for the Dixie National Forest recently completed the ROS mapping for the second round of forest planning. He also did the ROS for the first round of planning, and although there had been a variety of ROS classifications in the 1980s, this year he found that roads now crisscross the entire forest and that "all ROS distinctions have been lost" (Mollineaux 2004). Which begs the question: Was *that* the recreation management objective? What was the reason for mapping recreation opportunities in 1986? Was it to encourage management activities to reduce the "spectrum" of opportunities?

Other managers tell me the Dixie is not alone, and in fact, it may be typical. I believe there has been a widespread "loss" of primitive and semi-primitive opportunities and unroaded acres on national forests since the mid 1980s. If so, that would be strong evidence that ROS inventory maps and recreation objectives had little or no influence on forest management decisions.

I realize that most of this is based on anecdotal evidence, which begs another question: Where *is* the research? We have forest type and range condition inventories for every forest and region in the United States—why not recreation? Why do we not know what change in recreation opportunities has occurred in the last 30 years? How about studies of the way ROS and other recreation management tools have been used in forest decisionmaking? In workshops and seminars, recreation managers often complain about the lack of consideration for recreation values in management team meetings, especially when recreation appears to conflict with wildlife or traditional extractive activities. Agency manager surveys could easily tap

questions related to the existence and role of recreation management objectives.

The lack of objectives, or the disconnect between objectives and forest decisionmaking, may explain why "unmanaged recreation" is now one of the four major threats to forest health. Although roads were built for resource extraction or range development, they became key aspects of the recreation infrastructure, yet funding and administrative authority for roads stayed in Engineering. Roads were built without well-designed objectives to guide future uses, impacts, and management. Then people used the roads. Now use of the roads is a problem, and the Forest Service and BLM are implementing difficult processes for designating road systems. Given the loss of semi-primitive recreation settings, this can also be viewed as trying to reinstate some of the recreation opportunity diversity that was lost because either recreation objectives did not exist or were ignored by line officers. And ironically, recreation access was used to justify building many of the roads.

The problem of road proliferation and need for recreation objectives are inextricably linked—you should not designate a road system without explicit recreation objectives in place first, otherwise decisions are arbitrary. Why did it happen in the first place? Again, I've not seen research on the topic, but managers tell us that recreation programs have less funding, staff, and political clout than timber, grazing, wildlife, and fire. These are basic structural problems that I fear administrators will not address; it is likely they will focus on proximate issues (existing roads and OHV drivers) and ignore the ultimate causes of the problem: a lack of recreation objectives and necessary staff, funding, and decision impact to meet the objectives.

The conceptual basis for ROS meets the criteria for setting management objectives: it is science-based, interdisciplinary, mapable, and provides variables for indicators and standards, but more guidance and research are needed to use ROS for developing objectives. In particular, recreation management objectives should (1) integrate resource use and protection goals; (2) incorporate ecosystem management decision-making criteria (i.e., decisions should be ecologically sustainable, socially acceptable, and economically feasible); (3) take a regional perspective of existing and potential recreation opportunities; (4) identify indicators and standards of experience and resource quality; and (5) provide indicators for monitoring and adaptive management.

Which Management Strategies Are Most Effective?

There are many different management tools: use zoning, information and education, site and facility design and hardening, site closure or use limits, partnerships, informal social control, and law enforcement, to name a few. What worked in one area may not work in another, and it may even exacerbate the problem in yet another. The effectiveness of specific strategies depends totally on the issue, situation, and management objectives. Visitor education, for example, may reduce use levels in rattlesnake or grizzly bear habitat, but similar information may increase impacts in endangered plant or small mammal habitat, as curious visitors look for rare species.

So to answer the question above, no specific recreation management strategy is the most effective; or conversely, any of them could be most effective, depending on the situation. I am concerned that attempts to prioritize management tools in the abstract can lead to overuse and misuse of certain strategies. A thorough problem analysis and pilot testing is needed to evaluate effectiveness of different strategies, and even doing a thorough analysis is meaningless if management objectives are unclear or nonexistent.

My favorite example of an overused, and often misused, tool is recreation carrying capacity (RCC). Over the years, analysts have identified problems with

both the underlying conceptual assumptions and the scientific basis for RCC (Borrie et al. 1998, McCool 2001, McCool and Lime 2001). Despite these cautions, interest in setting visitor capacities seems to be increasing. I get about a call a month from a manager who wants help identifying visitor capacities. I believe this is fueled by some research analysts who still describe RCC as a planning "framework" (Manning 1999, Manning and Lime 2000) rather than a specific management tool that should emerge at the end of a planning process. To address the criticisms in the literature, some of the same analysts argue that broader planning frame-works, like Limits of Acceptable Change (LAC) and Visitor Experience and Resource Protection (VERP), should be used to set RCC, not realizing this is committing the same error: putting the management tool cart before the planning horse. Other analysts point to the RCC criticisms and argue that using empirically driven planning frameworks is impossible, so management *judgments* be used to set visitor capacities (Haas 2003). This approach, taken by the Federal Interagency Task Force on Visitor Capacity on Public Lands (2003), commits exactly the same error; intended or not, these treatments reify one visitor management tool over all others.

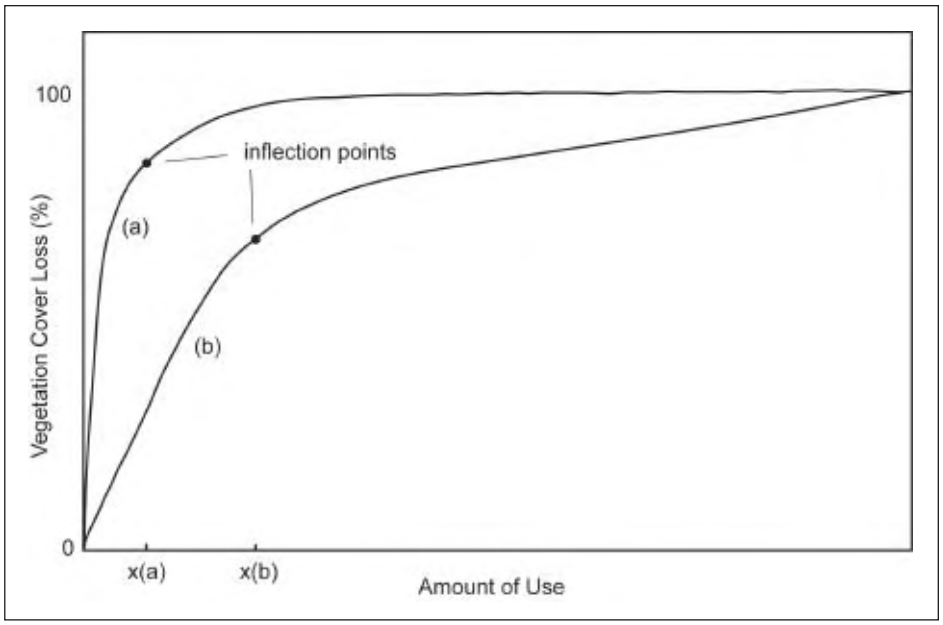

Figure 1—The general relationship between amount of use and loss of vegetation cover for (a) a fragile vegetation type and (b) a more resistant type. (Source: D.N. Cole)

So what's the problem? Besides being just one of many management tools, and dependent on just one of many potential indicators of quality (number of visitors), capacities are applied most often in high-use settings. This may actually *increase* both the ecological and social impacts of recreation when capacities are reached and use limits kick in, especially if visitors are displaced from high- to low-use areas (Blahna and Reiter 2001, McCool and Cole 2001). The relation between use levels and impacts is curvilinear (fig. 1); most impacts in high-use areas have already occurred, and the incremental impact of additional visitors is very low, whereas low-use areas are more sensitive to impacts (Hammit and Cole 1999, McCool and Lime 2001). Studies Doug Reiter and I conducted in Utah suggest a similar relationship exists for crowding (Blahna and Reiter 2001, Reiter and Blahna 2001). Visitors in low-use areas are more interested in experiencing solitude and sensitive to crowding at relatively low-use levels, compared to visitors in high-use areas.

This suggests several RCC paradoxes: when viewed in a regional context, use limits may exacerbate impacts, homogenize available experiences, and often make more sense in low-use, relatively pristine areas (Blahna and Reiter 2001, Borrie et al. 1998, McCool and Cole 2001). Additionally, spending time and political capital trying to set visitor capacities may distract managers from applying more effective management tools like site design and hardening, visitor education, and others.

Although misuse of RCC and use limitation is rarely documented, the BLM's South Fork of the Snake River in Idaho is an example. The South Fork is a blue ribbon trout fishing stream that is also popular for boating and camping. In response to increasing use levels and "crowding" complaints, the river manager funded an RCC study for a 30-mile segment of river in 1991. By 2000, impacts at several campsites indicated capacity had been reached, and the plan required several areas to be closed for rehabilitation. This concerned Monica Zimmerman, the new river manager, because she suspected campers would simply move to other sites, including areas that are more sensitive to use. And if BLM closed *all* sites on the segment, boaters would probably shift to less heavily used stretches lower on the South Fork or on the Henry's Fork, the next closest river segment with similar opportunities. As fate would have it, Monica also managed the Henry's Fork.

Monica was also concerned about crowding, so she asked us to conduct a survey to investigate crowding and displacement. We found camper perceptions of crowding to be low, and what was interpreted as crowding *on* the river was not due to use numbers, but conflicts over prime fishing spots (Reiter et al. 2002). As Monica predicted, over 90% of the campers said they would camp even if their sites were closed, and most said they would simply shift to other sites on the segment or go to the Henry's Fork. This demonstrates the RCC paradox: use limitations and ecological restoration policies would probably displace use and *increase* impacts regionally and have little effect on crowding.[2] Instead of closing sites, we recommended limiting the expansion of existing campsites by improving site design and signage.

So why are managers and analysts calling for visitor capacities? Steve McCool calls RCC a "seductive tool"; it seems so obvious that it becomes the default, and without regional analyses and explicit objectives, potential counterintuitive effects are not obvious. I also believe the emphasis on visitor numbers reflects a biocentric bias; high-use areas are defined as "problems" rather than "opportunities" to provide preferred experiences, constrain impacts, and protect surrounding landscapes from shifting use. These all strike me as symptoms of a discipline that is still in its infancy; one that has not had the research or administrative attention needed to evaluate management effectiveness that is on a par with the level of both benefits and impacts resulting from recreation use.

So if we cannot rank management tool effectiveness in the abstract, how should we go about selecting strategies? After clear objectives are in place, my advice is (1) identify key management issues or problems, (2) evaluate all possible strategies systematically for the extent that each tool helps address specific problems and meet management objectives, (3) evaluate the regional implications of each strategy, (4) select a few indicators for evaluating effectiveness, (5) monitor outcomes. I know this sounds like a standard planning model and to a certain extent it is, but the selection of management tools is driven strategically by objectives and issues rather than a predetermined focus on tools or outcomes. The framing of such questions and processes is an important area for future research.

How Can We Implement and Fund Recreation Management?

Implementation and funding are linked; you can be aware of the most effective management strategies and it will not matter a whit if there is no funding. So the simplest answer to this question is that the agency must fund recreation programs at levels commensurate with the Chief's other three challenges. Perhaps

[2] Ironically, there is also a threatened plant, the Ute lady's tresses orchid (*Spiranthes diluvialis*), along the river that prefers disturbed sites and is growing on the edged of campsites that were slated for closure. The restoration strategy might have negativly impacted the plant.

some day, but the immediate need is more complicated.

One way of funding and implementing recreation management is through the integrated use of science and collaboration. I know these sound unrelated, but I believe linking them is the wave of the future. The key dilemma is matching appropriate data to the management problem or issue. The data should be interdisciplinary, but not highly detailed, fine-filter data that are difficult and costly to collect. This is true of all management areas, however, not just recreation.

A key difficulty in ecosystem management is matching the data and analysis scales to the management needs or problems (Driver et al. 1996, Kaufmann et al. 1994). Agency planning, environmental documents, and ecoregional assessments often contain detailed data that have little impact on decisions or adaptive management (Lee 1993, Stankey et al. 2003). Data should be issue specific, coarse-filter data, and detailed data should address specific management issues and objectives (Driver et al. 1996, Kaufmann et al. 1994). This approach not only allows for more efficient use of time and data, it also makes monitoring and adaptive management manageable.

A similar perspective is provided by ecologist Michael Rosenzweig. In his book *Win-Win Ecology: How the Earth's Species Can Survive in the Midst of Human Enterprise*, Rosenzweig (2003: 1) argues that rather than concentrating on "restoration ecology" or "reservation ecology," which are very data driven and politically difficult perspectives, we should take a more problem-oriented approach. He advocates for greater emphasis on "reconciliation ecology," which "seeks environmentally sound ways for us to continue to use the land for our own benefit." This approach also reflects Aldo Leopold's "human-harmony-with-nature" philosophy where management focuses on human use and "ecosystem health" rather than on restoring native ecological conditions (Callicott 2000: 11-12).

In this view, adaptive management is not evaluated against an ideal and often arbitrary set of conditions (e.g., pre-Columbian vegetation), but rather the extent to which a specific situation or problem is improved based on an ecological health goal, which may be more attainable, measurable, and politically palatable. While all three approaches have a role in different situations (e.g., reservation ecology in wilderness areas), a problem-oriented, reconciliation ecology model seems more defensible, monitorable, and scientifically practical in most management situations.

So what does this have to do with collaboration? Working collaboratively with key stakeholders can have benefits for science, implementation, adaptive management, and funding. Stakeholders can help provide and collect data, raise funds, and even help implement management actions. But this requires a different conception of collaboration. We often think of collaboration as being a time-bound activity done to support a specific plan or decision. However, collaborative *stewardship* suggests the need for ongoing partnerships to help implement, enforce, and even fund management strategies that have been jointly identified as important. This is a collaborative management leadership style rather than a public involvement activity.

Steps Forward

So my pre-workshop analysis indicates managers and scientists need to address the following:

1. Develop recreation management objectives that seek to integrate resource protection, uses, and opportunities, and that have a real impact on forest decisions.
2. Conduct systematic analyses of management tools for the extent to which they address problems and management objectives in a regional context, rather than focusing on a particular management approach, and monitor the tools for effectiveness and changes needed for adaptive management purposes.

3. Use science, stakeholder collaboration, and adaptive management to implement and fund recreation management decisions that address specific problems or issues.

In the abstract, there are probably two responses to these suggestions. The first, probably held most strongly by researchers in the audience, is that the list is old news. The other response, probably more common among managers, is sure they *sound* good, but they are too broad, idealistic, and impractical. Some of you may hold both opinions.

I agree the suggestions are old news, but do not agree they are idealistic or impractical. The primary barrier is a lack of administrative support for recreation programs. Not only is it possible to meet all of the recommendations, I believe it is the essence of ecosystem management (see, Clark et al. 1999, Cortner and Moote 1999; Gilmore 1997). To illustrate, I will present two examples of Forest Service reconciliation-based recreation management: a landscape-level, threatened plant protection program on the Wasatch Cache National Forest and a watershed-level motorized travel plan on the Dixie National Forest.

Case 1: Maguire's Primrose Protection in Logan Canyon

Maguire's primrose (*Primula maguirei*) is a threatened plant found only in northern Utah's Logan Canyon. The primrose grows primarily on rock faces and ledges, so wildlife officials and environmentalists asked the Forest Service to close Logan Canyon to rock climbing in the early 1990s. Predictably, local climbers opposed the action. Rather than forcing a trade-off between ecological protection and human use, Mead Hargis, a staff member on the Logan Ranger District, invited rock climbing groups to participate in a collaborative effort to create a plan they could support. The objective of the plan was to protect the primrose and to allow rock climbing to continue.

Forest staff agreed to close only the climbing routes where the primrose was found, but because there had never been a complete survey of the primrose, rock climbers agreed to map the plant's locations on all routes. In the years following the plan, the climbers designed and printed an informational brochure that identified closed routes, explained the climbing policy, and discussed low impact climbing techniques. Climbers also helped enforce the policy by talking to violators themselves and reporting violations to district staff. The climbers also agreed to help remap primrose locations after 5 years to monitor the policy. If monitoring found the primrose on other routes, those routes would be closed.

This case shows it is possible meet social *and* ecological protection goals if they are included in management objectives. Several management strategies were combined to meet the goals, and the strategies were based on empirical data and collaborative stewardship. Simply closing the canyon to climbing would meet only the plant protection goal. Likewise, setting a visitor capacity would make no sense. Although use limitations were used, they were minor and had nothing to do with the *number* of climbers. Through zoning, education, and enforcement, the primrose would be protected even if many more climbers used the canyon.

This project also met the ideal ecosystem management decision criteria: it was ecologically sustainable, socially acceptable, and, with rock climbers helping collect data and enforce the closures, it was economically feasible. Monitoring and adaptive management were also part of the initial decision, but unfortunately, they were never implemented. Several years after the plan was developed, Mead Hargis[3] left the ranger district, and current staff members say they do not have the budget or staff to continue the collaborative effort. Later, differences of opinion arose and new climbers moved to the area, and there has been a breakdown

[3] Mead Hargis is currently the wilderness manager on the Kamas Ranger District.

in both the implementation of the agreement and level of trust between the agency and the climbers.

Case 2: A Tale of Two Road Plans

Two different road designation plans in the same region of southern Utah illustrate differing orientations toward recreation objectives, management strategies, and implementation and funding. In 2002, the Grand Staircase-Escalante National Monument (GS) approved a road plan that was very contentious and has never been implemented. The plan called for closing 1,200 miles of roads, and it has fueled angry meetings and confrontations, editorial wars, and lawsuits. Local officials have torn out BLM road closure signs, and posted their own road signs, essentially trying to "designate" their own road system. The "resolution" of this conflict appears to be years away. While this may sound like the inevitable result of an inherently contentious, county rights/road ownership issue, it was not inevitable; it was the product of a top-down process driven by traditional conceptions of public involvement rather than collaboration.

In contrast, the Dixie National Forest, just to the north of the Grand Staircase, developed a motorized travel plan for the two most heavily used watersheds on the Cedar City Ranger District: the Duck Creek and Swains Creek watersheds (Carter and Meier 2005). While the plan required closing 60% of the road miles, it was approved in fall 2003 with no appeals or lawsuits, and the first phase was implemented in summer 2004. The planning region included many of the same officials and stakeholders as the GS, but the Dixie plan followed a more scientific and collaborative process, and some of the *staunchest opponents of the GS plan became active proponents of the Dixie plan*. One Garfield County Commissioner who was ripping up signs on the GS, even helped implement the Dixie plan by writing letters and contacting OHV leaders and asking for their support.

So what was different? For one, the scale of the Dixie's plan was smaller and more manageable, and some of the final decisions were made by officials in Washington DC (Thomas 2006). But the public involvement processes and the implicit objective of the travel plans also differed dramatically. Based on very broad public input obtained during the GS management planning process and a very spotty road analysis, the GS staff identified the road system internally and then tried to implement it by closing routes. This was perceived as a top-down road *closure* plan, and intended or not, a closure plan implies ecological protection is the sole objective. The objective of the Dixie plan was to designate a system that "addressed concerns for access, recreation experiences, wildlife, and resource protection" (Carter and Meier 2005). Both recreational and ecological protection objectives explicitly drove the plan and its implementation.

Dixie staff also made better use of data. They mapped all road segments, collected recreation use and impact data for each segment, and used a special places data set as a starting point for understanding important visitor destinations. District staff developed a detailed but user-friendly map of existing routes, including social and spur trails, which they used as both a public involvement and educational tool. The map was used in public meetings to identify key destinations, route preferences, and confusing and redundant routes. Forest staff also analyzed wildlife and trail and stream erosion issues and collected targeted data to help prioritize the environmental problems. Collaboration also played a key role as stakeholders reviewed the science results, and on-the-ground field trips allowed stakeholders to understand current conditions and make useful recommendations for closures, rerouting, and rehabilitation alternatives (Carter and Meier 2005, Thomas 2006).

Rather than simply closing roads, the Dixie project used a variety of implementation strategies. New maps, route identification and mileage signs, new road segments, and road rehabilitation work were implemented *first*, so people could see the tangible benefits of the road system. Barriers and closure signs went in

last, after visitors were used to the idea of a designated system and saw that the maps and signs made access and ATV use easier and more enjoyable. By January 2005, over 500 signs had been installed, and none had been removed or defaced (Carter and Meier 2005).

Collaboration also played a role in implementation. District staff worked with county officials and ATV groups to generate over $100,000 in grants to implement the project (Carter and Meier 2005). So while the BLM has lost years fighting against county commissioners and local and state officials, Dixie staff worked *with* some of the same people to design, fund, and implement a motorized travel plan that is already protecting resources *and* providing improved recreational opportunities. The Dixie project was expanded to link to the broader state ATV system for the entire Markagaunt Plateau, and now Dixie staff are attempting to build on the existing collaboration to expand the motorized plan to the entire forest.

The Dixie project was a truly collaborative effort. Collaboration requires "joint decisionmaking" (Gray 1989), and although the Forest Service had decision authority, they also provided several iterations of public participation, map revisions, and strategy meetings that showed how stakeholder input was used. These steps provided evidence of *informal* power sharing—showing people their input had real impact on decisions—without turning over *formal* decision authority. This requires trust, and trust requires tangible evidence that it is deserved. Designating a road system that protects resources *and* enhances recreation can provide that evidence—designing a road system that just closes roads may not, no matter how well it is designed or defended.

Application to Ecosystem Management and Recreation Research

Both cases meet the seemingly elusive ecosystem management criteria that decisions should be ecologically sustainable, socially acceptable, and economically feasible (c.f., Gilmore 1997). It is not necessary to focus management primarily on ecological protection to enhance ecological sustainability. And because recreation management can meet social and environmental objectives simultaneously, the cases provide evidence that the "dual mandate" of use and protection is not as contradictory as we have been taught; in fact, it is possible to meet both goals.

The cases also meet new forest planning regulations that call for increased emphasis on science, collaboration, and adaptive management (Clark et al. 1999, Stankey et al. 2003). In short, it is possible to meet seemingly idealistic planning and management goals. But to do so requires explicit recreation objectives, addressing specific management problems, and using multiple management tools and ongoing collaboration.

Science is both part of the answer and part of the problem of ecosystem management. Ecological and social science often focus too narrowly (e.g., a species is impacted, so we must limit use) or too broadly (e.g., generate all data and information about a landscape) in an attempt to meet ecological restoration objectives. The cases I describe did not attempt to collect all relevant social and biophysical data and then focus on biological diversity or restoration of ecological conditions. Yet both cases improved environmental conditions and met social goals by using relatively simple data and decision processes that were appropriate for the problem, and they demonstrate Rosenzweig's (2003) problem-oriented, reconciliation ecology approach.

Workshop Theme Topics

So how does this relate to the rest of the workshop? Workshop topics cover a variety of traditionally important management concerns such as use conflicts, special areas management, tourism and community development, financing, and communication. Given the

Chief's emphasis on recreation threats and new national road policies, there are a couple of missing topics that need to be added to our arsenal of management and research issues, such as road designation and implementation strategies and dispersed and other "unmanaged" uses.

Other workshop themes also include topics important for recreation management, such as special places, recreation preferences and preference diversity, public involvement, decisionmaking frameworks, experiences and benefits, to name a few. Some of these topics are in the "planning and monitoring" theme area and some are in "understanding forest visitors." But the cases I presented indicate all of these topics apply to management to some extent. In fact, it is hard for me to identify "management" specific topics. Instead, it is important to look at the relation of all these topics to specific issues; that is, how to apply principles from all these topics to management problems with different environmental and administrative situations, stakeholders, and regional settings. The case studies show that planning principles, such as public involvement, morph into management through collaborative stewardship, which morph into joint funding, monitoring, and adaptive management. That is why, besides the standard site specific visitor behavior and preference research, we also need research on topics that are not considered traditional recreation topics, like decision processes, appropriate science, and approaches for integrating these topics in management situations.

Which brings us back to the questions for this session: (1) What are the barriers to achieving management objectives? (2) Which management strategies are the most effective? (3) And how can these strategies be implemented? (4) What is the role of research? These are all critical questions, but perhaps most critical is to study how to combine principles from all four in applied management decisions.

Future Research Needs

I have already touched on a number of important research topics, such as motorized travel management, "unmanaged" activities, and changes in recreation opportunity classifications. A broader topic for research is identifying methods to help managers and analysts frame visitor management issues. Currently, we tend to focus on simplistic questions such as, "How many is too many?" We need methods to help identify objectives and appropriate conditions and evaluate and select management and implementation tools in general. We also need tools for identifying the most relevant empirical information to aid recreation decisionmaking and monitor management effects. In short, we need research on framing issues and management approaches to provide long-term sustainability and diversity of opportunities in a regional context.

The analysis also indicates that research needs to address questions of integration, like blending use and protection objectives, integrating social and biophysical science, and collaborating at all stages of planning, management, and monitoring. In short, we need more research on what Stankey and McCool (2004) call "integrative decisionmaking processes." Some specific questions include the following: How and at what level do recreation decisions get made? What constitutes collaboration or "joint decisionmaking"? How do we merge collaboration and science in practice? And, how do we link objectives, strategies, monitoring, and adaptive management? An important goal is to extract general guidelines from positive field cases.

Finally, recreation research and management are both primarily focused on site-specific applications. Ecosystem management, recreation diversity, and the evaluation of management effectiveness all require larger scale analyses (Grumbine 1994, McCool and Cole 2001, Stankey 1999). Looking at recreation in a regional context presents a different perspective than site-level analysis, but there are few guidelines for

doing regional analysis or the interagency collaboration necessary for doing regional management.

I recognize this is a strange list of future research topics, and certainly different from traditional research focusing on topics like visitor experiences and preferences, special places, or crowding. This research still needs to be done, but the list reflects the broader need for interdisciplinary research that has direct management and policy implications. And finally, most of the questions identified above have been with us for decades, so perhaps the real question for future research is why are we not providing better answers to important, longstanding questions? But that is a topic for another paper.

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Managing Recreation in Wilderness: Special Areas and Specialized Research

David N. Cole[1]

Abstract

About one-fifth of Forest Service administered lands consist of congressionally-designated wilderness. Recreation management on these lands is unique, stressing high levels of protection for both the land and visitor experiences, as well as minimal development and regimentation. Management is challenged by both the difficulty of this task and minimal investment of resources. Research has made significant contributions to wilderness recreation management. It has developed frameworks for planning and working through management issues. It has informed the development of management objectives, provided protocols for monitoring, and identified cost-effective management techniques. Progress would most likely have been much slower if the Forest Service had not devoted a small portion of its research program exclusively to wilderness management.

Introduction

The Forest Service is responsible for managing recreation in different types of special areas and situations. Some of these special areas are congressionally designated, for example, as national monuments or wild and scenic rivers. Other areas are administratively designated as geological areas, botanical areas, and so on. The Forest Service also is responsible for managing heritage resources and for contributing to better care of forests in urban areas.

Wilderness areas are the most abundant of these special areas. More than 400 congressionally-designated wilderness areas are located on the national forests. Wilderness areas are located in every region and on virtually every national forest. They cover about 35 million acres, which constitutes about 18% of all Forest Service lands. Wilderness management, consequently, is a significant responsibility for many Forest Service managers, and recreation management is a substantial portion of the wilderness management job.

Wilderness Recreation Management Is Unique

Wilderness anchors one end of the recreational opportunity spectrum (Driver et al. 1987). That end is characterized by natural, primitive, largely undisturbed conditions, as opposed to urban, developed, highly altered conditions. Access is generally difficult and there are few comforts and conveniences. There are outstanding opportunities for solitude. As with most Forest Service recreation management, objectives stress protection of the natural environment. Recreation use is managed such that it does not excessively disturb plants, animals, soil, or water. Objectives also stress the protection of opportunities for visitor experiences. What is unique in wilderness is the extreme degree of protection that is desired. Impacts on both biophysical

[1] Aldo Leopold Wilderness Research Institute, Rocky Mountain Research Station, Forest Service, U.S. Department of Agriculture, P.O. Box 8089, Missoula, MT 59807. Email: dcole@fs.fed.us

resources and the visitor experience are to be minimal. Moreover, wilderness management objectives also stress lack of development and regimentation.

Managing recreation is unusually difficult in wilderness. By definition, wilderness areas are remote and access is difficult. Travel is by foot or on horseback, and many wildernesses are large, requiring days or even weeks to traverse. Standards for protection are stringent and many potentially effective management strategies, such as facility development and regimentation, are considered to be inappropriate or a last resort. Finally, financial and personnel resources allocated to wilderness are minimal. Although 18% of Forest Service lands are designated as wilderness, only about 1% of the Forest Service budget is allocated to wilderness management. Only about 0.5% of the Forest Service research budget goes to wilderness research.

Progress in Wilderness Recreation Research

Substantial progress has been made in developing scientific knowledge that can contribute to improved recreation management in wilderness. A major contribution of research has been development of frameworks for wilderness planning and management. The Limits of Acceptable Change process, developed by Forest Service research in the early 1980s (McCool and Cole 1997, Stankey et al. 1985) has been highly influential. It clarifies the three primary tasks of management: (1) establishing management objectives, (2) monitoring conditions in relation to objectives, and (3) identifying effective strategies for maintaining or restoring conditions (where conditions are out of compliance with objectives). In this paper, I will use these three tasks to organize a highly selective overview of what we have learned and prominent additional information needs. I will also divide the material among the two primary protective goals of management: minimizing biophysical impacts and providing quality visitor experiences.

Developing Good Management Objectives

Recreation researchers have conducted numerous studies of both wilderness visitors and the impacts those visitors cause. This work provides a strong foundation for developing management objectives. It provides the basic descriptive information needed to inform the decisions that managers must make. We know a lot about wilderness visitors—who they are and where they come from. We know much about why they come, what they do, their evaluations of their experience, and their opinions about management options—both those currently in place and alternatives that might be implemented. Much of this research is nicely summarized in several sources (Hendee and Dawson 2002, Roggenbuck and Lucas 1987, Manning 1999). A recent compilation of baseline recreation studies contains a wilderness-by-wilderness list of all the individual studies of wilderness visitors that have been conducted (Cole and Wright 2003).

One consistent finding of these studies is that most visitors are highly satisfied with their experience, regardless of the character of that experience. Trip quality ratings are typically just as high for trips where many other people are encountered as they are for trips where few other people are encountered (Hendee and Dawson 2002, Manning 1999). Moreover, little research has been conducted that is capable of describing in much detail what people actually experience and the dimensionality of their experiences during a wilderness visit. Consequently, managers can feel good about the fact that their visitors positively evaluate management, but they cannot be certain that visitors are obtaining the kinds of experiences that are most appropriate in wilderness. Recent research is attempting to address this knowledge gap, often using qualitative techniques and a focus on individual visitors. This approach differs from (and complements) the quantitative, survey-based approach that characterized earlier research (Borrie and Birzell 2001) and that is still productively going on.

The impacts of recreation use in wilderness also have been widely studied. Most of the focus has been on trails and campsites where we have learned much about the extreme degree of alteration to vegetation and soil that occurs on highly-used sites. Ecosystems that are repetitively used for recreation experience intense alteration compositionally, structurally, and functionally. We have learned that small quantities of use can cause substantial impacts in short periods of time. This knowledge is critically important to developing management objectives that are attainable rather than unreasonably idealistic. Much of this work is nicely synthesized in several sources (Buckley 2004, Hammitt and Cole 1998, Hendee and Dawson 2002).

As with basic visitor research, there are some substantial knowledge gaps regarding recreation impacts. Basic descriptive knowledge about biophysical impacts is particularly inadequate regarding (1) impacts to soil biological attributes and (2) impacts on animal populations. Although we know that soils are often compacted and deprived of organic inputs when subjected to recreation use, we know too little about how such changes affect soil biology and disrupt the functioning of soil processes (Zabinski et al. 2002). Most notably, we do not understand how those disrupted processes can be reestablished if recreation use is removed. Consequently, attempts to restore disturbed sites are often unsuccessful. Hundreds of studies of recreation impacts on animals have been conducted. But most studies document short-term changes to individuals. Little is known about longer term effects and effects on populations of animals (Knight and Gutzwiller 1995). This makes it difficult to determine the seriousness of these impacts.

While descriptive knowledge informs the development of objectives, setting objectives is fundamentally a prescriptive process. It requires decisions about the way things ought to be—about how much impact is acceptable and about the types of experiences that ought to be available. These decisions are based more on values than on facts, an arena where science is not at its most powerful. However, wilderness recreation managers, uncomfortable with making subjective decisions about objectives, increasingly seek a scientific basis for such decisions. Some scientists argue that their research (for example, the normative research of Shelby et al. 1996) can provide an empirical foundation for prescriptive decisions. Others disagree (Stewart and Cole 2003), arguing that progress in setting good management objectives is limited more by the willingness to make hard decisions than by lack of information.

Monitoring

Once objectives are established, it is important to monitor conditions to assess trends and determine if objectives have been met. The fundamental descriptive studies mentioned above provide the basis for many useful monitoring protocols. Varied techniques are available for collecting different types of information on visitors and their recreational visits (Watson et al. 2000) and new innovations are constantly being developed (Cessford and Muhar 2004). Similarly, efficient and effective protocols have been developed for monitoring the conditions of trails and campsites (Cole 1989, Marion and Leung 2001). Not surprisingly, effective protocols are less developed for those phenomena still not very well described. Where objectives have been established for impacts on animal populations or for visitor experiences, effective protocols are still needed.

Computer simulation models of recreation use have substantial potential as monitoring tools. In wilderness, managers are often concerned with levels of interaction between visitors in the interior of large wilderness areas. Attempting to assess levels of interaction across a large wilderness at various times is prohibitively expensive. However, building on wilderness simulation work begun in the 1970s (Schechter and Lucas 1978, van Wagtendonk 2003), new computer software is being applied to this task. This

approach may make it possible to monitor hard-to-measure parameters (such as encounters between groups in the interior of a wilderness) based on easy-to-collect data such as number of people entering at trailheads (Cole and Daniels 2004). These models also have potential for other purposes. For example, the spatially and temporally explicit nature of the data could be very helpful for assessing human-wildlife interactions, which are most problematic at specific times and places. They also can be used predictively to identify management actions that are likely to be effective.

Identifying Effective Management Strategies

Progress in identifying effective management strategies has advanced in at least two ways. First, research has identified and described the functional relationships between various characteristics of use, environment, and management that largely determine the resulting impact. For example, substantial work has identified a curvilinear relationship between amount of use and most biophysical impact (Hammitt and Cole 1998). At low levels of use, even small differences in amount of use can result in substantial differences in amount of impact. Conversely, at high levels of use, even large differences in amount of use typically result in minor differences in impact. This finding has profound implications for management, especially regarding the effectiveness of dispersing or concentrating use at varied spatial scales. Other research shows that two different vegetation types growing next to each other can vary in durability by more than an order of magnitude (Cole and Monz 2002). If visitors could be taught the difference between durable and fragile vegetation—and if they were able to find durable routes—use levels could be increased many times without any increase in impact.

Many of the same factors—use, location, management—influence the nature and magnitude of impact on visitor experiences. Substantial research suggests that, in wilderness, evaluations of experience quality declines as the number of other visitors encountered increases. The magnitude of decline in quality is not that great, however; seeing lots of other people is seldom enough to make a good trip a bad one (Stewart and Cole 2001). Many studies suggest that who is encountered and where can have more of an effect on experience than number of encounters (Manning 1999). Observing visitors behaving in ways that are considered inappropriate can be particularly troublesome. In contrast, encountering visitors perceived to be just like oneself may be enjoyable.

A second way in which research has contributed to the development of effective management strategies is by experimenting with management techniques or evaluating the success of management programs. Many examples of this type of research exist. For example, Roggenbuck and Berrier (1981) showed that information and education could reduce congestion at a popular camping destination. Marion and Farrell (2002) documented the success of a confinement strategy in minimizing campsite impacts in the Isle Royale Wilderness. Spildie et al. (2000) showed how packstock damage in a high elevation lake basin could be reduced through a program of education, behavioral restriction, designated sites, and restoration.

Although much has been learned about the strategic options for managing wilderness recreation, there is much more to learn about the details. For example, we know that education is a critical management tool, but how can visitors be persuaded to adopt recommended practices? When using bulletin boards as the primary communication medium, Cole (1998) showed that visitor attention to messages could be doubled simply by asking visitors to read the messages. Harding et al. (2000) provide a good overview of many factors that management might manipulate in an attempt to influence human behavior. Use limits are often implemented with little knowledge about their

effectiveness, efficiency, or equity consequences (McCool 2001).

Conclusion

In conclusion, despite a rather meager investment, research has contributed substantially to improved management of wilderness recreation. Much of the progress that has been made is because much of this research has been conducted by scientists who specialize in wilderness research. Wilderness specialists have unique knowledge of wilderness issues and the implications of their research. They know better how to frame problems and interpret results. Research is more efficiently focused and can be more cumulative. This suggests that there is value in continuing to structure at least a small portion of Forest Service research around special areas and situations for which the Forest Service is responsible. This is particularly true for wilderness management which constitutes such a large portion of Forest Service responsibility.

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Managing Special Areas: Urban Forest Recreation

Herbert Schroeder[1]

The term "urban forest" covers a broad range of resources and settings located in and around cities, suburbs, and towns. It includes urban and suburban parks and preserves, street trees, utility and transportation corridors, backyards, cemeteries, and so on. Since about 80%of the population of the United States lives in urban or metropolitan areas, urban forests are the type of forest resource with which most Americans have the most frequent contact in their daily lives. The Forest Service does not directly manage these resources in most cases, but has provided significant support for urban forestry in the form of funding, technical assistance, and scientific research. In particular, since the 1970s, the Forest Service has established several research work units in different parts of the country to study various aspects of urban forestry.

There are many reasons why urban forests are important, and some of these reasons involve uses and experiences that fall within the domain of recreation. In 1978, the North Central Forest Experiment Station began a research work unit in Chicago under the leadership of John Dwyer, with the mission researching how urban forests could help meet the recreation needs of urbanites. A research unit focusing specifically on management of urban forests for recreation was seen as necessary because existing research on wildland recreation could not always be directly applied in an urban context.

There are several reasons why managing urban forests for recreation merits special attention in the Forest Service's recreation research program. Many of these reasons were laid out in publications by John Dwyer and others that accompanied the initiation of Forest Service urban forestry programs in the 1970s and 1980s (e.g., Dwyer 1982, Dwyer et al. 1983), and have been further developed in more recent publications (e.g., Dwyer 1995, Dwyer and Stewart 1995). The discussion below draws on many of the ideas in these publications, as well as on the many scientific studies carried out by urban forestry researchers since the 1970s.

Differences Between Urban and Non-Urban Forests and Recreation

The urban forest environment is different in important ways from the environments where most other Forest Service recreation research has been done. In general, urban forest environments are more heavily influenced by humans than is the typical rural or backcountry recreation setting. Human-made structures and artifacts are more prevalent, management is more intensive, and the configuration of vegetation is more likely to be the result of human design. Urban forest environments also are generally more heavily impacted by pollution, heavy use, and anti-social behavior. At the landscape scale, urban forests are often highly fragmented, consisting of small patches and corridors of

[1] Research Social Scientist, USDA Forest Service, North Central Research Station, 1992 Folwell Avenue, St. Paul, MN 55108. Email: hschroeder@fs.fed.us

vegetation or even isolated trees embedded in a matrix of urban development.

The ways in which urban forests are used for recreation also differs significantly from the traditional image of a forest recreation site. In urban forests, there is a greater intermingling of people and forest resources. People do not just visit the urban forest; they live in it. Tree-lined residential streets and yards immediately outside people's homes, businesses, and workplaces are important sites for many urban recreation activities.

The publics who use urban forests for recreation are typically more diverse than those encountered in more rural areas, and include some groups of people, such as racial/ethnic minorities and new immigrants, who rarely, if ever, visit remote wildland recreation areas. The ways in which diverse publics use urban forests for recreation are also distinctive. In urban parks, short, frequent visits are the norm (Dwyer et al. 1985) rather than the extended vacation trips that are more common in remote parks and forests. Urban forest recreation is also more likely to involve large groups of people, for example picnics organized by companies, churches, or extended families.

In urban forests, the line between "recreation" and everyday activities and environments is less distinct than in more remote recreation areas. The commute to work may double as a recreational interlude for walking or biking along a forested route, or for scenic enjoyment when the road or commuter rail line borders a natural area. The workday may include brief breaks to walk under the trees or observe birds through office windows. This kind of ongoing, daily contact with urban forests has multiple impacts on quality of life that go beyond simple recreational enjoyment. For example, in a well-known study Roger Ulrich (1984) found that having a window view of trees from a hospital room helped patients recovery more quickly from surgery; and Frances Kuo and Bill Sullivan (Kuo and Sullivan 2001a, 2001b) have found that having trees around inner city housing projects may help reduce crime and domestic violence.

The management context of urban and non-urban forest differs in important ways. Urban forest resources are often distributed over multiple public and private ownerships and jurisdictions, including properties owned and managed by all levels of government, private citizens, businesses, and utility and transportation firms. Urban land is often of high value for other uses and is highly priced, making it challenging to acquire new land for recreation and to protect land used for recreation from development for other uses. Urban forest management is highly visible to a lot of people and arouses a lot of public interest and scrutiny. The term NIMBY ("not in my back yard") takes on special relevance when managing trees in cities. Urban forest management literally takes place in many people's backyards, as well as their front yards, neighborhood parks and schoolyards, and so on.

Compared to the rest of forestry, urban forestry has often involved a greater emphasis on managing individual trees including planting, trimming, and removal. Recently, however, there has been increasing recognition that urban forests also need to be viewed and managed in their totality as ecosystems and at a landscape scale.

Urban forests are not just found in big cities. Small cities, towns, and villages also have urban trees that are important to their residents for many reasons, including their role in settings for recreation. In many smaller communities, the people making decisions about managing public trees have very limited experience, knowledge, and skills relevant to caring for trees. This is a major obstacle to sustaining the urban forest and the benefits it provides to residents of these communities (Schroeder et al. 2003).

Similarities and Linkages

Despite the differences I have been pointing out, urban forests and urban recreation are not completely different or separate from the types of settings and recreation that are found in more rural areas. There are also many similarities and linkages between urban and non-urban forests and recreation, so it would be a mistake to compartmentalize urban forest recreation as if it had no relation to non-urban forests and recreation.

A wide range of settings and recreation experiences can be found in and near cities; many may resemble more remote areas, even wilderness. Within a short drive from home, some urbanites find pockets of nature where they can escape from urban development and crowding and experience at least some measure of solitude within a largely natural setting.

Urban people do not always stay within the city. Many of them travel to and use recreation sites in rural, primitive, and wilderness areas. Even managers of very remote and undeveloped recreation areas are likely to have urbanites among the visitors to their sites.

With use levels and the diversity of users in many non-urban recreation sites increasing, insights gained from managing urban forest recreation areas are becoming more and more applicable to a range of other Forest Service recreation settings. As urban areas expand across the landscape, they have a significant influence on many national forests and other areas used for recreation. A growing number of national forests are designated as "urban national forests." Lessons learned by urban forest recreation managers are helping managers of these national forests and other exurban sites devise strategies to deal with issues such as traffic control, regulation of large groups and potentially disruptive activities, protection of resources from vandalism and heavy use, maintaining safety, and serving visitors from diverse cultures and ethnic groups (Dwyer 1989, Wendling et al. 1981).

Urban forest recreation sites may also provide opportunities for natural resource agencies such as the Forest Service to reach out to and communicate with urban people about recreation opportunities, resource management, and conservation on non-urban public lands. Management of urban trees and forests is the most direct contact that most urbanites have with forestry and natural resource management, and it could be used as a starting point for information and discussion about managing resources and environments in exurban areas (Dwyer and Schroeder 1994).

Conclusions

Urban forests are one part of the entire spectrum of forest environments that ranges from inner city streets to backcountry wilderness areas. The relations among the resources, residents, and users found in various segments of this spectrum are complex and have far-reaching implications for the provision of recreation opportunities and other natural resource management goals. The unique nature of urban needs, resources, and people makes a research program directed specifically at urban forests as important and relevant today as it was in the 1970s. At the same time, we need to look at the broader picture to understand the links and synergy between urban and non-urban forest management.

Over the 27 years since its inception, the mission of the North Central Research Station work unit in Chicago/Evanston has broadened from urban forest recreation to include social science research on a wider range of environments and a wider range of resource management issues. We have maintained an emphasis on urban populations, however, and have continued to do some research specifically focused on the management of urban forests. Embedding a research program on urban forests within a broader program of social science research on natural resource management has been an effective strategy for addressing both the differences that set urban forests

apart from other forest resources and the links and similarities that connect them.

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Tourism, Rural Economic Transition, and Resource Management

Kreg Lindberg[1] and Linda E. Kruger[2]

Introduction

In recent years, many rural communities in the western United States and elsewhere have experienced declines in natural resource-based sectors such as forestry, mining, and fishing (Helvoigt et al. 2003, Power and Barrett 2001). In search of alternative economic opportunities, many individuals, communities, and agencies have embraced tourism and amenity in-migration (Kline 2001, Ritchie and Crouch 2003: 3). Such a focus is logical because tourism, construction, and related sectors may be relatively well suited to the location, rural character, and labor pool characteristics of many resource communities. For example, these communities may be near high-quality recreation and visual amenities but far from urban centers and primary transportation networks. Thus, communities and their residents may have a much stronger comparative advantage in tourism than in other sectors.

Nonetheless, there has been little systematic analysis of tourism's contribution to employment in resource-dependent communities, and even less analysis of the extent to which tourism employment opportunities have benefited displaced resource workers. Tourism development can be constrained both by exogenous factors, such as lack of access or attractions, and by endogenous factors, such as lack of entrepreneurial and market skills. In addition, tourism jobs may not be attractive to those coming from highly paid resource jobs, even when resource jobs are no longer available. Because of these and other factors, displaced workers may lack the interest or ability to enter the tourism sector.

This paper reviews tourism's contribution to rural economies in general, and its contribution to employment transition for displaced workers in particular. These contributions may be complex because tourism may provide not only direct opportunities for displaced workers, but also direct opportunities for others in the household, indirect and induced opportunities in other sectors, and opportunities via tourism-induced in-migration. This assessment of tourism's role in economic transition facilitates informed decisionmaking by land management agencies and others involved in tourism development. For example, if agencies support tourism development on public lands for the benefit of displaced workers, it is important to assess whether such development will achieve that objective, and, if so, in what ways (e.g., will benefits be direct or indirect?).

A secondary focus of the paper is on the interplay between public land management and tourism development. Assuming that tourism does generate economic opportunities, what is the role of natural resources in attracting tourists and what role can land

[1] Associate Professor, Oregon State University – Cascades Campus, 2600 NW College Way, Bend, OR 97701. Email: Kreg.Lindberg@osucascades.edu

[2] Research Social Scientist, USDA Forest Service, Pacific Northwest Research Station, 2770 Sherwood Lane, Suite 2A, Juneau, AK 99801. Email: lkruger@fs.fed.us

management agencies play in tourism development? What are the positive and negative effects of such development? A full discussion of such effects is beyond the scope of this paper, but the issue of recreation competition is addressed (see Wall and Mathieson 2005 for a review of effects generally and Hammitt and Cole 1998 and Knight and Gutzwiller 1995 for ecological effects).

The geographic focus of this paper is the western United States As used here, resource workers, communities, or industries refers to those historically dependent on wood products, fishing, mining, and other extractive uses of natural resources. Recreation refers to outdoor recreation. Tourism refers to nonlocal visitation, with nonlocal typically reflecting either a minimum distance traveled (e.g., 50 miles, one way) or an overnight stay. Many of the following employment statistics are based on standardized industry sectors, notably the lodging sector and the restaurant sector. The names and numbering schemes for these sectors changed in the transition from the Standard Industrial Classification (SIC) system to the North American Industry Classifiation System (NAICS) system in 2001. More importantly, (1) not all tourism employment falls within these sectors and (2) not all employment in these sectors reflects tourism. For example, figures for the commonly used SIC 58 and 70 sectors do not reflect outfitter guide employment and not all restaurant spending, and thus restaurant employment, is due to tourism. For these and other reasons, the data reported here should be viewed as indicative rather than definitive.

Rural Economic Transition

Although the specific figures vary across and within states, there has been a general decline in the wood products and other resource sectors in the western United States, particularly relative to total employment. Power and Barrett (2001) report that the wood products sector in the Mountain West lost 13,500 jobs, or 26% of the sector total, between 1978 and 1991. In Oregon, employment in lumber and wood products (SIC 24) declined from a high of 81,376 in 1978 to 49,046 in 2000. Conversely, the lodging and restaurant sectors combined (SIC 58 and 70) increased from 62,328 to 129,864 in the same period, while construction (SIC 15 to 17) increased from 36,647 to 84,247. These trends are shown in figure 1. Figure 2 shows employment trends across illustrative western states using U.S. Bureau of Labor Statistics data from the Current Employment Statistics survey. Although there have been plateaus, including in 2001, in general tourism employment has grown.

Tourism Transitions for Displaced Workers?

The employment data above reflect employment in tourism-related sectors at the state level. Like all industries, tourism also generates economic opportunities in other sectors. As in a “timber town” where a job at the clothing store likely is dependent on clothes purchases by timber industry employees and their families, in a “tourism town” that same job might depend on expenditures by tourism industry employees. Employment and other economic benefits can arise not only from the direct impact of tourist spending (e.g., jobs in a restaurant), but also from the indirect impact of tourism sector purchases from other local businesses (e.g., a restaurant purchasing food produced locally), and the induced impact of employee purchases from other businesses (e.g., a restaurant employee shopping in the local supermarket). As discussed below, tourism may also stimulate in-migration, leading to additional purchases (e.g., from the retail and construction sectors). Such migration may be thought of as an induced impact of the tourism experience rather than of the tourism expenditure.

This categorization can facilitate assessment of the extent to which displaced workers, or others in their household, have benefited from tourism. Table 1 illustrates benefit mechanisms for workers displaced from the wood products sector.

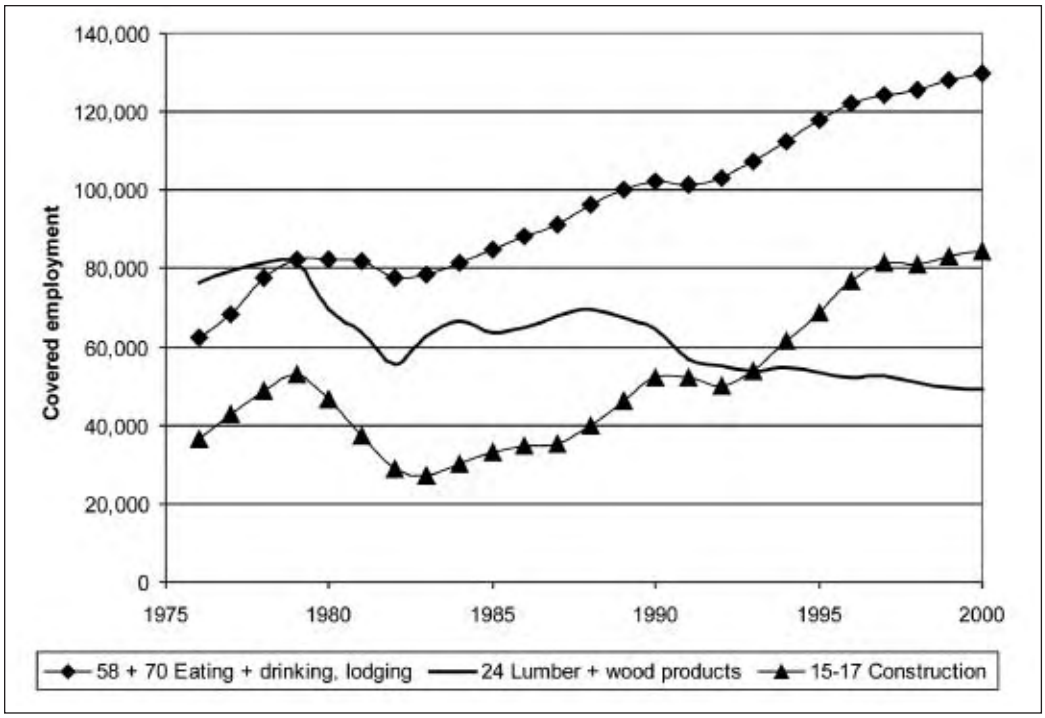

Figure 1—Employment trends in Oregon (1976 to 2000). Source: U.S. Bureau of Labor Statistics.

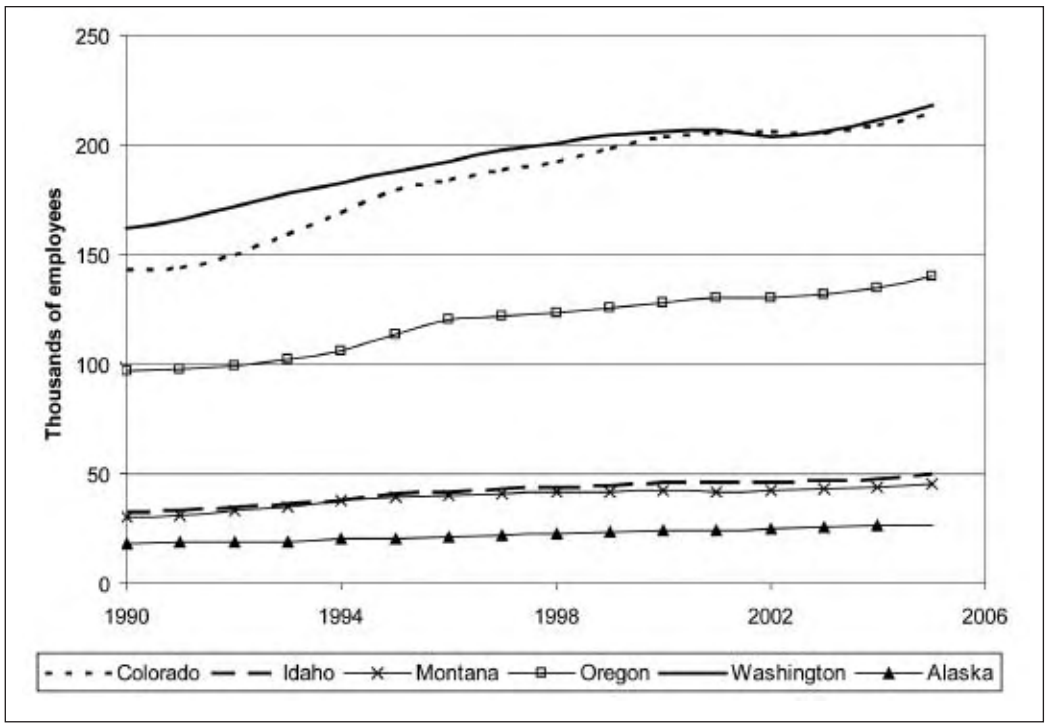

Figure 2—Tourism employment trends in selected states (1990 to 2005). Source: U.S. Bureau of Labor Statistics.

Table 1—Pathways and illustrative jobs for displaced wood products workers and their households shifting to tourism-related employment

	Employment due to tourism expenditure			Employment due to tourism experience
	Direct	**Indirect**	**Induced**	**Migration-induced**
Displaced worker	Sawyer turned outfitter guide	Mill mechanic turned vehicle mechanic	Most other jobs in a "tourism community"	Logging truck driver turned asphalt truck driver
Household member	Spouse working in a restaurant	Spouse employed by farm that sells to local restaurants	Most other jobs in a "tourism community"	Spouse works in the office of an entrepreneurial in-migrant

The extent to which displaced workers and their households have benefited from tourism is rarely and only partly quantified. Table 2 indicates the extent to which there are sufficient tourism jobs in resource dependent regions to absorb displaced workers through direct employment. For each state listed, the 10 counties with the highest percent of wood products (SIC 24) employees in 1980 are listed (except in Oregon, with only 9 counties listed). This is followed by the percent of employment in that sector in 2000 and availability of tourism employment (NAICS 71 + 72) in 2002.

The 2002 tourism percentage is approximately equal to the loss in wood products percentage in Washington (15% versus 34 minus 18 equals 16%), Oregon, and Idaho. It is noticeably higher than the loss in Montana. This macro analysis is limited to the set of ten counties for each state, is dependent on the sectors included in the percentages (they do not include all sectors affected by wood products or tourism, respectively), and does not account for nondisplaced workers in tourism employment. It does suggest that tourism has at least the potential to absorb some of those displaced from the wood products sector.

County-level employment trends over time provide a more detailed picture and highlight the inevitable variability that exists across counties. In Deschutes County, Oregon, the lumber and wood products sector (SIC 24) has fluctuated but not declined dramatically in absolute terms. Conversely, both the eating and drinking (SIC 58) and the lodging (SIC 70) sectors have increased, with the potential to absorb displaced wood products workers (fig. 3).

In Linn County, just west of the Cascades Range, the wood products sector has experienced a more dramatic decline, and the tourism sectors a less dramatic increase (fig. 4). Keeping in mind the macros level of this analysis, tourism is therefore less able to provide employment opportunities in Linn County than in Deschutes County.

Turning to assessments at the individual level, Barrett (1998) and Barrett and Power (1997, 2001) report on their analysis of 200,000 Montana workers during the period 1988 to 1996.[3] Workers were defined as "attached" to an industry if they completed eight quarters (2 years) of continuous employment in that industry alone. Three years after being attached to an industry, only 17% had shifted to a different industry.

[3] In their analysis, the wood (forest) products industry included SIC 811-851, 2411-2499, and 2611-2631. The tourism (travel) industry included SIC 4512-4581, 5541, 5812-5813, 7001-7041, and 7514-7549.

Table 2—Wood products and tourism employment in timber-dependent counties

	1980	2000	2002		1980	2000	2002
	SIC 24[a]	SIC 24	NAICS 71 + 72[b]		SIC 24	SIC 24	NAICS 71 + 72
			Percentage of county employment[c]				
Washington				**Idaho**			
Skamania	58	13	44	Clearwater	57	33	10
Wahkiakum	57	40	12	Benewah	56	44	4
Ferry	33	33	17	Boise	50	12	15
PendOreille	35	15	13	Boundary	42	24	12
Mason	31	14	9	Lewis	39	36	12
Klickitat	29	14	8	Gem	36	20	10
Gray's Harbor	27	16	12	Idaho	34	17	11
Lewis	26	14	10	Adams	30	11	35
Asotin	22	9	14	Bonner	22	12	12
Okanogan	21	9	8	Lemhi	17	3	16
Average	34	18	15	Average	38	21	14
Oregon				**Montana**			
Crook	33	24	8	Mineral	25	10	16
Douglas	25	17	9	Lincoln	25	16	11
Klamath	23	11	12	Meagher	24	2	21
Grant	21	12	6	Sanders	18	8	10
Curry	21	10	19	Broadwater	16	19	10
Tillamook	19	7	15	Flathead	12	5	15
Linn	18	8	7	Lake	11	3	10
Lake	17	13	10	Ravalli	10	7	11
Wallowa	17	7	15	Missoula	10	2	13
Average	22	12	11	Powell	8	14	10
				Average	16	9	13

[a] SIC 24 measures employment in lumber and wood products jobs.

[b] NAICS 71 + 72 measures employment in tourism.

[c] From the Covered Employment & Wage (ES-202) program and County Business Patterns.

In other words, there was considerable stability for individuals despite substantial change in the structure of the Montana economy during this period.

Interestingly, the 17% of workers who changed industries often changed from growing industries like tourism: 26% of workers originally attached to the tourism industry changed to a different industry. Workers in industries like wood products and mining changed less frequently than the 17% average.

Of those leaving relatively highly paid jobs in wood products, only about a fifth moved into lower wage industries like tourism and retail, and many of those later moved on to higher paying jobs in other sectors. In other words, tourism jobs served as stepping-stone or filled a gap between jobs for many. Wood products workers were more likely to move into construction, with jobs in other manufacturing, transportation, government, and businesses services as the next most likely.

Using a similar methodology, but with a less restrictive concept of "attachment," Helvoigt et al. (2003) tracked 60,000 workers employed in SIC 24

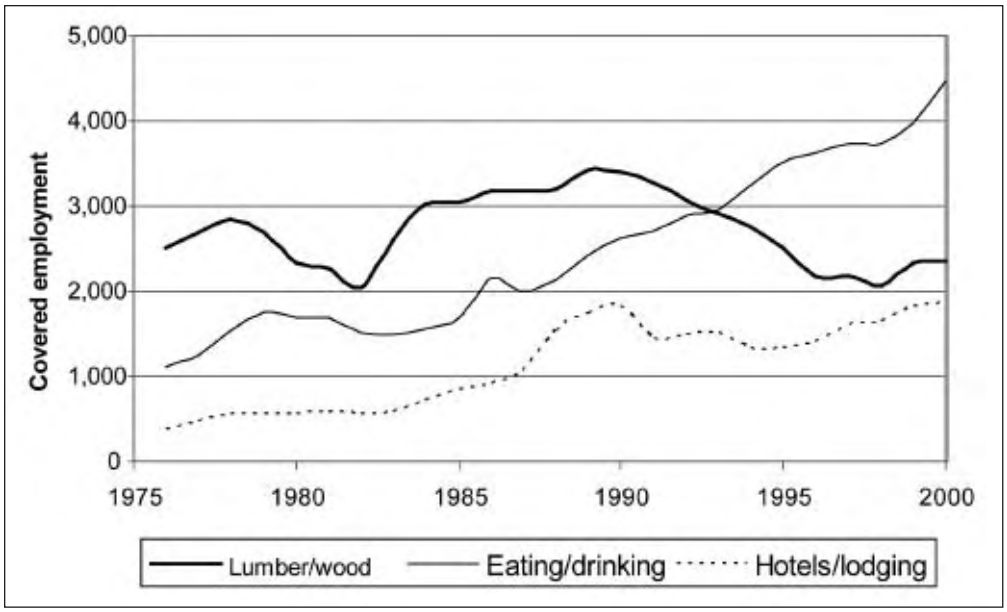

Figure 3—Industry change in Deschutes County, Oregon. Source: OR Employment Dept. http://www.qualityinfo.org/olmisj/CEP

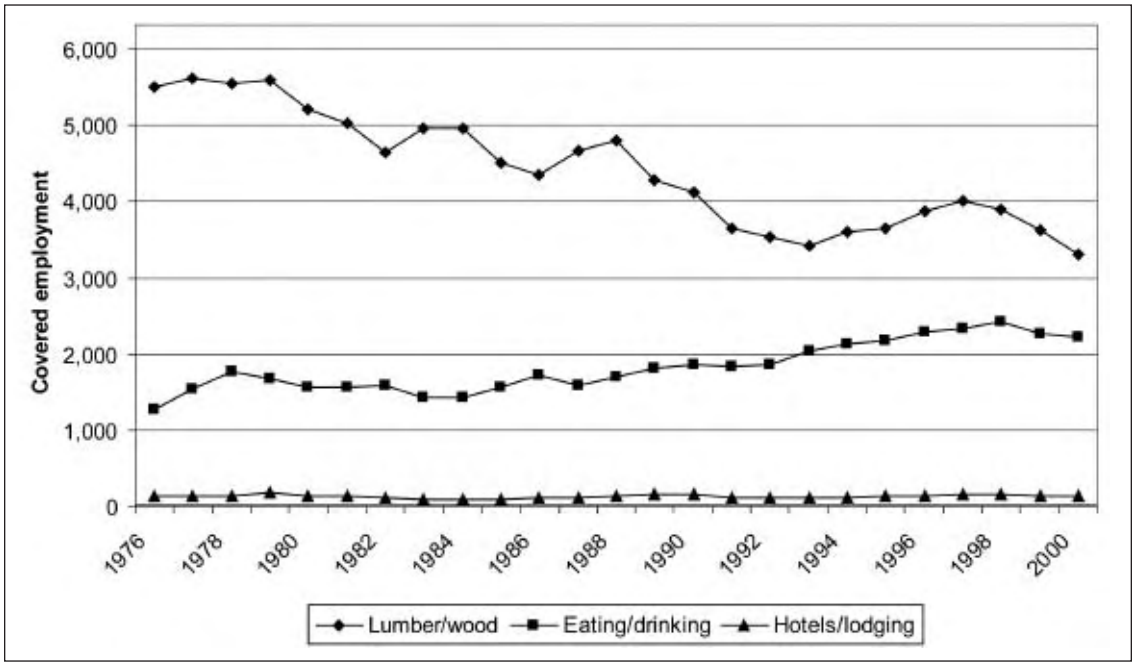

Figure 4—Industry change in Linn County, Oregon. Source: OR Employment Dept. http://www.qualityinfo.org/olmisj/CEP

(lumber and wood products) in Oregon during the base period from the fourth quarter of 1989 to the third quarter of 1991. Of these, only 25,000 (42%) were still employed in SIC 24 as of the fourth quarter of 1998; 18,000 (30%) were employed in a different sector, and 17,000 (28%) were no longer in covered employment. The 18,000 in new sectors worked in a range of different sectors, with services being the most common.

Preliminary analysis of similar data from Oregon provides greater detail on the role of tourism in particular.[4] Approximately 53,905 Oregon workers in covered employment received the majority of their summer (third quarter) 1990 income from the forestry sector. Of these, 14,895 (28%) still had the majority of their income from that sector in the summer of 2000. Most (22,345, or 42%) were no longer in Oregon covered employment by summer 2000, while 15,446 (29%) had moved to sectors other than tourism or natural resources. Only 415 (0.8%) had moved into non-forestry natural resource sectors. Several had moved into tourism, but this transition was modest in percentage terms: 290 (0.5%) were working in the restaurant sector and 514 (1%) working in other tourism sectors.[5]

These statewide longitudinal analyses of workers are complemented by quantitative and qualitative analyses of case study communities or regions. In their survey of residents in eight coastal Oregon communities, Lindberg et al. (1994) found that 18% of employed respondents had their primary job in the tourism industry. Of these, only 2% worked in the wood products industry immediately prior to moving to the tourism industry (an additional 2% worked in agriculture and 7% in commercial fishing). The plurality (33%) had always worked in tourism, with others coming to tourism from retail (14%), professional and business services (13%), and other sectors.

In their case studies of employment transition of wood products workers, Carroll et al. (2000) and Kusel et al. (2000) found that most workers did not transition to tourism—although results from such site-specific studies are dependent on the nature of the study regions, their level of tourism development, and the availability of employment in nontourism sectors. Conversely, in her analysis of southeast Alaska, Cerveny (2004) found that many workers who lost their timber industry jobs turned to tourism for economic survival. In former mill towns like Sitka and Ketchikan, tourism was a key ingredient to economic survival after the mills shut down. Commercial fishermen also turned to charter fishing to supplement their income amid declines in fish prices.

These studies indicate that tourism can be an important source of direct employment for displaced resource workers in some locations, but in general, few displaced workers enter the tourism industry. Tourism may play a more important role in providing indirect and induced employment opportunities, as well as employment for other household members. For example, displaced workers may work in nontourism sectors that benefit from tourism in the region or family members may work in tourism or nontourism sectors. Though not focused on tourism per se, Carroll et al. (2000:108) found that loss of displaced worker income often was compensated, at least in part, by an increase in the spouse's income. It is difficult to track the prevalence or importance of indirect and induced benefits; regional economic impact analysis can track inter-industry linkages, but not the extent to which indirect and induced employment is specifically filled by displaced workers.

The likelihood of displaced workers entering tourism employment may be influenced by several exogenous factors, including the availability of jobs

[4] This unpublished analysis is available from the first author.

[5] The forestry sector is defined here as SIC 08, 24, and 2611-2631. Non-forestry natural resource sectors are SIC 01, 02, 07, 09. The restaurant sector is SIC 58, while other tourism is SIC 45, 5541, 70, 7514, 7922-7929, 7948, 7992-7996, 7999.

in their original sector and in tourism, which in turn depends on the level of tourism development in the region.[6] However, it may also be affected by endogenous factors, including occupational, place, or community attachment.

Occupational attachment, as used here, refers to the psychological, cultural, financial, and other reasons for resisting transition to employment in other sectors. Place attachment entails the effective or emotional connection a person has with a particular location that may include a component of social bonds but emphasizes connection to the natural environment. Community attachment refers to the psychological, cultural, and familial bonds that lead workers to resist leaving their community to seek employment opportunities elsewhere; this overlaps with the concept of place attachment, but the "community" wording is used to stress the importance of bonds to people in addition to place. Community attachment is used here to refer to affiliation with a specific community or region, but there may be broader affiliation to a rural lifestyle that hinders movement to urban areas in search of employment. Individuals may exhibit all three types of attachment, which, when combined with other factors (including the type and location of available employment), would determine employment strategies.

The role of occupational identity and corresponding occupational attachment in the wood products sector is discussed in Lee et al. (1991), Carroll (1995), and Carroll et al. (2000: 98). There appears to be a distinction between loggers and sawmill workers, with the former having strong occupational attachment and the latter strong community attachment. Indeed, independent (gyppo) loggers often are very mobile as they search for contract employment opportunities.

For stability and transferability of skills, one would expect workers generally to seek re-employment in the same industry. Moreover, loggers in particular appear to have a strong occupational identity, one often reinforced through generations of family members working in logging. This identity may cause resistance to switching from the independent, outdoors, manual labor of a sawyer to service-oriented employment in tourism. However, loggers also may resist even apparently related work, such as employment in a sawmill (Kusel et al. 2000: 121).

Not surprisingly, financial considerations reinforce occupational attachment in wood products. Interviewees in the Carroll et al. (2000: 108) study asked, "What else can I do and make as much money?" Nonetheless, research indicates that those who stayed in the wood products industry suffered wage declines, at least in real (inflation-adjusted) or relative (to other workers) terms (Helvoigt et al. 2003: 44, Kusel et al. 2000).

Despite the financial and other motivations for displaced workers to seek similar employment elsewhere, many resist doing so. In their analysis of Idaho wood products workers, Carroll et al. (2000) found that only 2 of the 84 workers in their panel had left their home area in search of employment within a year of being laid off. As the authors note (2000: 103), the "attachment to place, family, and friends was so strong that many of those interviewed would be willing to take a lower paying job or even to change occupations in order to remain in northern Idaho [the study region]." Kusel et al. (2000: 129) found a similar result.

This place and community attachment often is strong enough to overcome economic disparity and sometimes hardship associated with staying in one's home community. One measure of this disparity comes from Helvoigt et al. (2003) who found that more than 60% of those in rural southwestern and eastern regions

[6] There may not be a clear distinction between exogenous and endogenous factors (with endogeneity referring to a factor being inherent in, or able to be influenced by, a community and its residents). For example, a region may have limited access or visitor attractions, but these hurdles may be overcome with transportation improvements and the creation of new attractions.

of Oregon who remained in covered employment[7] stayed in their home region. Most of the others moved to the urban northwest region. Those who stayed had a 1998 median wages of $18,967, noticeably lower than the $24,413 median wage of those who moved. It is not known why some individuals moved and other stayed, nor whether underlying factors might account for both wage rates and willingness to move. However, results are consistent with the idea that residents are willing to forego a significant salary premium to remain in their home communities.

These results indicate a "stickiness" in labor mobility, due to community attachment, that may hinder geographic transitions and lead to localized areas of high un- or underemployment and resulting poverty. This stickiness undercuts traditional theories of migration in response to economic decline (see Berck et al. 2003: 765 for a brief review). For example, neoclassical theory hypothesizes migration as an equilibrating mechanism, with displaced workers seeking jobs elsewhere in response to local economic declines. The data confirm that some workers do move, but also that many stay, so neoclassical and other theories only partially explain worker behavior and economic change in these contexts.

Tourism and In-migration

The previous sections focused on how tourist expenditure creates job opportunities in the tourism sector and, indirectly, in other sectors via the spending of tourism businesses and employees. Tourism can also generate economic opportunities by being a catalyst for in-migration, particularly of entrepreneurs. In-migration in general can increase activity in construction, retail, and other sectors. In-migration of entrepreneurs creates additional opportunities as the entrepreneurs hire employees for their businesses.

It is difficult to distinguish the role of tourism as a catalyst for in-migration from the role of natural amenities and other factors (including access and human-made amenities) as a catalyst for both tourism and in-migration. Research reinforces the intuition that amenities do affect migration patterns (Duncombe et al. 2003), and that tourism can expose potential migrants to these amenities. In their survey of 420 businesses in the Greater Yellowstone region of Montana, Snepenger et al. (1995) found that 105 (25%) were owned by migrants who first experienced Montana on vacation; an additional 60 (14%) first traveled to Montana on business. In their survey of residents on the Oregon Coast, Lindberg et al. (1994) found that 78% of respondents agreed that "newcomers bring skills and business opportunities that contribute to the local economy." In the sample of residents, 28% had moved to their coastal community within past 5 years, and 68% of these had visited the coast before moving there. As illustrated in figure 5, the majority of these respondents indicated that their tourist visit was at least part of the reason for their decision to move to the coast.

The above studies used individual-level reported behavior to link tourism and in-migration. Reeder and Brown (2005) illustrate a broader approach. They found that nonmetropolitan "recreation" counties in the United States experienced a 20.2% population growth rate between 1990 and 2000, whereas other nonmetropolitan counties experienced a 6.9% rate. The relationship between tourism and in-migration is complex, with underlying factors such as high quality amenities and adequate transportation links potentially explaining both phenomena. However, combined with

[7] Covered employment and wages data, also referred to as ES-202 data, are based on quarterly reports from businesses to state employment departments. The data include nonfarm civilian wage and salary employment but do not include self-employment. The data reflect the number of jobs, not the number of workers. The number of jobs and workers is not equal since workers may be employed in multiple jobs either simultaneously or over the course of a year.

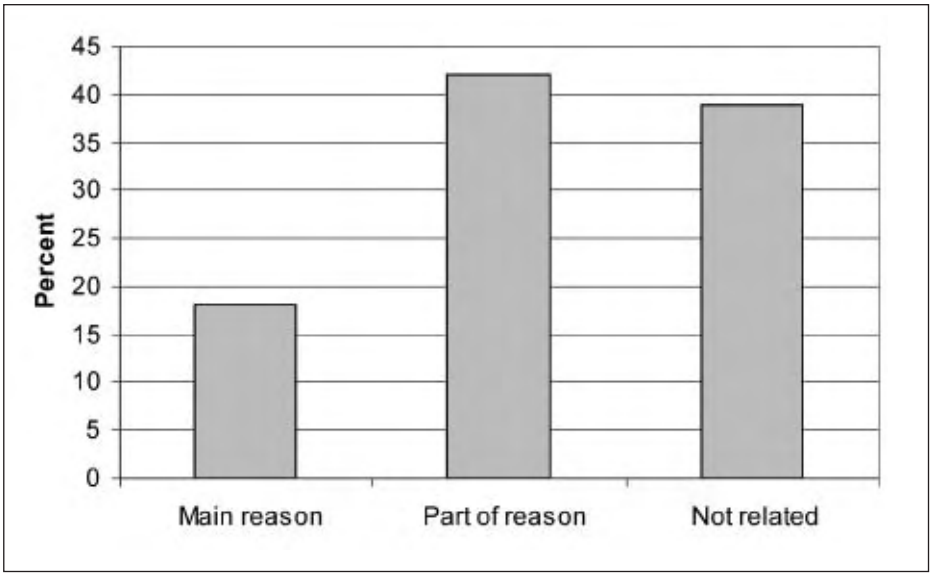

Figure 5—Importance of tourist visit as reason to move to the Oregon coast. Source: Lindberg et al. (1994).

the individual-level results from Oregon and Montana, Reeder and Brown (2005) suggest that tourism does contribute to in-migration and population growth in rural areas.

Moreover, "permanent migration" is complemented by "seasonal migration" associated with second homes. Tourism and migration, whether permanent or seasonal, is often due at least partially to environmental quality and recreation opportunity, thus illustrating the importance of public lands to local amenity economies. Indeed, respondents in the Montana business survey noted above cited "proximity to public lands" as a more important location value than business climate variables.

Tourism, Natural Resources, and Agencies

The analyses noted above indicate that tourism and associated in-migration does provide employment opportunities in the western United States. Tourism does not appear to provide substantial direct employment benefits to displaced workers, but it may provide more significant indirect and induced benefits and benefits at the household level. A different perspective on tourism and natural resources focuses on the role of natural resources in attracting tourists, the role land management agencies can play in tourism development, and the effect of tourism development on competition for natural resource recreation opportunities.

There have been several assessments of visitor expenditures in individual natural areas and the resulting economic contribution in adjacent communities. Stynes and Sun (2003) provide impact estimates for several national parks, while Hovee and Company (2005) estimate that forest-related tourism in Oregon contributes $800 million annually to the state's economy. This represents 12% of the statewide estimate of $6,903 million annually in direct tourism spending (Dean Runyan Associates 2006).

However, a methodological challenge is measuring the role of natural areas as catalysts for expenditure. For example, a national park may have a gateway community with several golf courses. If a tourist plays golf and visits the park, should her expenditure be treated as attributable to the park? Some analysts use motivation or related items to allocate visitors and their

expenditure to a destination's specific natural areas or general natural qualities. In Missoula, Montana, Yuan and Christensen (1994) found that 60% of sampled visitors reported fishing, hunting, camping, or viewing scenery or wildlife as the attraction that brought them to the state; using this attraction-based criteria, they found that "wildlands tourists" spent more than "non-wildlands tourists." An alternate approach is to ask visitors to report how the absence of a natural area would affect their trip, in a with-and-without framework. For example, Lindberg and Denstadli (2004) asked Australian national park visitors to report their expenditure and itinerary, with the latter broken down into region and state. They were then asked to report whether their itinerary would change if the park did not exist and, if so, how. Based on itinerary changes, Lindberg and Denstadli (2004) found that the proportion of park visitor expenditure that was dependent on the park's existence varied from 35% to 77% across the four parks studied. This variation reflects differences in the availability of alternative attractions near each park (see also Johnson and Moore (1993) for a similar approach).

Roles for Public Land Management Agencies

Although the role of natural areas as tourism attractions will vary across destination regions, they often are important, so one obvious tourism role for public land management agencies is as provider of aesthetic and activity settings for tourists. Given the importance of this role, agency decisions regarding recreation and tourism management, including trail development, access, permitting, and pricing (e.g., user fees) can have significant positive and negative effects on the local tourism industry. The National Park Service policy for snowmobiles in Yellowstone is an example of this effect, with concomitant pressures on the agency. Although less apparent, management decisions in other areas, such as timber harvest and fire and game management, can also significantly affect tourism.

Beyond managing tourism resources, agencies also play complementary roles. In some rural areas, agencies provide the leadership that catalyzes tourism development and provide connections within and between the public and private sectors. Agencies may also directly fund some tourism-related projects and are involved in various committees that affect local planning and project funding. For example, the U.S. Forest Service participates in the Montana Tourism and Recreation Initiative (MTRI), a multi-agency committee that plans and funds tourism and recreation projects that "serve the needs of residents and visitors, both national and international." The Bureau of Land Management (BLM) was a co-sponsor of the 2005 Oregon Governor's Conference on Tourism, and both the Forest Service and BLM are members of the Oregon Scenic Byways program.

Likewise, agencies often engage in collaborative websites to market recreation and tourism opportunities to visitors.[8] Agencies often provide interpretive and educational opportunities, thereby potentially enhancing the visitor experience and instilling land stewardship ethics. Lastly, agencies often monitor tourism-relevant parameters such as visitor satisfaction, economic impacts, and ecological impacts.

By serving in these roles, agencies help visitors access and enjoy public lands, as well as contribute to rural development. Moreover, tourism can help agencies achieve goals relating to revenue generation and public education. However, the positive and negative effects, and thus managerial decisionmaking, in this area are complex. For example, recreation user fees may generate revenue, but resulting funding may simply cover the cost of providing the visitor experience, and thus not generate a net benefit to agencies. To achieve goals relating to resource management and provision of diverse visitor opportunities, agencies may

[8] www.naturenw.org/ is an example of such a site.

need to make unpopular decisions that limit visitor access in general or for certain user groups.

Tourism and Competition for Outdoor Recreation Resources

Rural areas containing public lands generally are rich in outdoor recreation opportunities, and local residents may feel a sense of ownership toward recreation sites, especially of special places to which they feel strong attachment. Given this attachment, and, for some, motivations of solitude and escape, it is natural for some residents to dislike the increased nonlocal use of these sites that can stem from tourism. In other words, there may be competition for outdoor recreation resources, and longtime users may resent newcomers associated with tourism or amenity in-migration.

For example, Cerveny (2004) found that residents of southeast Alaska curbed their use of some high-volume areas and shifted to less desirable sites to escape tourists. Those who continued to use high volume areas reported a diminished experience. Manning and Valliere (2001) found that nearly all (94%) residents surveyed near Acadia National Park in Maine adopted one or more behavioral or cognitive coping mechanisms in association with increased use of carriage roads in the park. Behavioral mechanisms include temporal and spatial displacement, with 65% of resident using the roads in the off-season and 46% using different sections of the roads. Cognitive mechanisms include product shift, with 50% saying that the nature of the recreation experience had changed.

The above findings primarily focus on increased demand for an activity common to both local residents and visitors. Tourism also may lead to increased participation in different activities in the same resource setting; kayaking and motor boating or snowmobiling and cross-country skiing are examples. Visitors may prefer one activity while residents prefer another; this can cause conflict and lead to calls to restrict resident activities. Lastly, residents may be concerned about visitor behavior on aesthetic or environmental grounds. For example, Johnston and Payne (2005) report that residents of the north shore of Lake Superior in Canada felt that litter and human waste at campsites was caused by visitors. Likewise, residents in the Manning and Valliere (2001) Acadia National Park study reported an increase in problem behaviors along carriage roads, though these were not directly tied to nonlocal visitors.

The tourism literature stresses that tourism development may increase competition for recreation resources and lead to new urbanized development (restaurants, theme parks, etc.), but tourism may also help catalyze and potentially fund new outdoor recreation opportunities as well. The net effect of competition for existing recreation opportunities and stimulation of new ones can be an important predictor of resident attitudes toward tourism development (Gursoy and Rutherford 2004, Lankford and Howard 1994).

Conclusion

To varying degrees, individuals, communities, and land management agencies in the western United States have embraced tourism as a means to generate employment, partly in response to declining resource sectors. Statewide data show that tourism has grown, but county-level data provide a more variable picture. More importantly, individual-level data from Montana and Oregon suggest that, in general, tourism has not directly generated employment for displaced workers. Tourism may have provided indirect or induced employment for these workers or employment for household members; unfortunately, systematic data on the extent of this occurrence are lacking in the literature. If employment generation for displaced workers or their households continues to be a motivation and rationale for investing in tourism development, additional analysis of these linkages is warranted. There is also empirical support for tourism facilitating in-migration, but the employment benefit of such migration, and particularly the extent to which it benefits displaced workers, is not well documented.

Tourists often have multiple motivations and visit multiple attractions in a destination region, and it is difficult to identify the proportion of all expenditure, and thus employment, that is due to natural areas in particular. Nonetheless, existing analyses document the substantial role that natural areas can play as tourism attractions, particularly for gateway communities near "iconic" national parks and forests. As stewards of these areas, land management agencies can significantly affect the local tourism industry through their policies and actions. These effects may be more complex than they seem. For example, some might argue that user fees reduce natural area visitation and thus local tourism business opportunities. However, the price increase may have little negative effect on quantity demanded, and it may enhance demand insofar as revenues are used to improve the visitor experience (e.g., expanded interpretation or improved maintenance). Land management policies affecting tourism will be driven by many factors, including management goals for the area in question, as well as broader legislative, policy, and budgetary considerations. Indeed, budgetary constraints may increasingly limit agency roles in the tourism context. For example, recreation facilities on public lands may increasingly require external funding if they are to be developed and maintained. Nonetheless, agency decisions do have significant implications for the economic, ecological, and sociocultural health of rural regions, and opportunities exist for agencies to become more actively and explicitly involved in tourism to the extent that policy and funding allow.

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A Framework for Sustainable Recreation Funding

Jerrell Ross Richer[1]

Introduction

Finding appropriate and adequate sources to fund recreation management on national forests is a challenge. Taxpayers have traditionally funded recreation programs through congressional appropriations, supplemented in some cases by user fees. In the last decade, federal land management agencies have extended the use of recreation fees to new places and new activities, developing fee demonstration programs to test their viability as authorized by the U.S. Congress in 1996 (Rescissions and Appropriations Act of 1996). This authority was recently amended by Congress (Federal Lands Recreation Enhancement Act of 2004).

This essay offers a sketch of the conceptual framework I presented at the National Workshop Recreation Research and Management in February 2005. The purpose of the framework is to identify where user fees may or may not be appropriate to fund recreation programs on national forests and other public lands. I begin by describing the concept of "total economic value" as applied in a national forest setting. I use this along with other ideas from the fields of environmental, resource, and public economics to identify ten criteria useful in deciding where to implement user fees. I conclude by describing a simple model that could be used to integrate all ten criteria into a rudimentary scoring system to gauge the viability and appropriateness of user fees in a particular area. This basic model is intended to inspire further thought and refinement among researchers and managers who are challenged with the task of developing sustainable funding mechanisms to support recreation activities on public lands. I invite comments, criticism and suggestions for improving the framework sketched below.

Types of Economic Value

National forests generate numerous benefits to recreational visitors and the general public. These benefits are of considerable value, both economic and otherwise. Environmental and resource economists have developed a range of categories to identify and describe the different types of value people might place on a natural area. Proper management of a natural area can enhance these values. Poor management diminishes them.

Table 1 shows the different types of value that might be placed on a natural area. Anderson (2004), Field and Field (2006), Harris (2006), Kahn (2005), Tietenberg (2006), Turner et al. (1993), and others provide basic, nontechnical descriptions of these types of value for readers without a background in economics. My intention here is to offer a concise description of each type in the context of national forest recreation.

[1] Assistant Professor, Department of Economics, Sonoma State University,1801 East Cotati Avenue, Rohnert Park, CA 94928. Email: richer@sonoma.edu

Table 1—Types of economic value

Category	Type of value	Recipient	Period	Nature of use
Current use	Consumptive use	Self	Current	Known, consumptive
	Non-consumptive use	Self	Current	Known, non-consumptive
	Indirect use	Self	Current	Known, indirect
Future use	Option	Self	Future	Known
	Quasi-option	Self	Future	Unknown
	Bequest	Descendents	Future	Known and unknown
Non-use	Existence	Self	Current & future	Unrelated to use
Others' use and non-use	Altruistic	Other people	Current & future	Known, unknown, & unrelated to use

1. Current use values

Millions of people benefit from visiting the national forests each year. Their uses of the forest can be divided into three types:

A. Consumptive use value

This is the value today of managing a forest for *current, known, consumptive* uses. These include fishing, hunting, panning for gold, and gathering forests products such as mushrooms, firewood, rocks, and plants. The recreational activity consumes, or uses up, natural resources found in the forest.

B. Non-consumptive use value

This is the value today of managing a forest for *current, known, non-consumptive* uses. Examples include hiking, photography, camping, mountain biking, backpacking, catch-and-release fishing, target shooting, and off-highway vehicle use. The recreational activity does not use up the resource.

C. Indirect use value

This is the value today of managing a forest for *current, known, indirect uses*. These include flood prevention for downstream residents and water supply for nearby municipalities. These items are of indirect value to the many who benefit from them, but people do not actually visit the forest to enjoy these benefits.

2. Future use values

Many other people will benefit from national forests in the future. The value today of preserving opportunities for future use can be divided into three types:

A. Option value

This is the value today of managing a forest for *future*, known uses, such as fishing, hiking, or flood prevention at a later date. The idea here is that people may place a value on maintaining a forest now so that they will have the option to use it at a later date. Option value represents a potential visitor's willingness to pay at this moment to preserve the possibility of using a forest sometime in the future.

B. Quasi-option value

This is the value today of managing a forest for *future, unknown* uses. Examples of uses that are unknown today but may be valuable in the future are, by definition, impossible to describe. The concept can be illustrated, however, in hindsight. Consider the recently-discovered medicinal value of Pacific yew trees (*Taxus brevifolia*) previously considered to be of little economic value or the newly-emergent recreation values caused by

changes in preferences and development of new technologies (e.g., mountain biking). Quasi-option value represents a person's willingness to pay at this moment to preserve the possibility of using a forest in the future for a purpose that is not yet determined.

C. Bequest value

This is the value today of managing a forest so that *one's descendents* may use it for both known and unknown uses. In this case, someone alive today values the idea of maintaining the option for use by future generations. Bequest value represents a person's willingness to pay at this moment to preserve the possibility of future use by one's descendents.

3. Non-use value (existence value)

Many people value forests for reasons other than the uses it may provide. "Existence value" is the value today of managing a forest simply to know that *it will continue* to exist, unrelated to any pos-sible uses people may have for it. For example, people may value the protection of viable habitat for grizzly bears and gray wolves even if they never expect to observe these species in the wild. They simply benefit from the knowledge that the species and its habitat continue to thrive in a natural state.

4. Others' use and non-use value (altruistic value)

People may also value the benefits that *other people* receive from forests. "Altruistic value" is the value today of managing a forest for the benefit of others, including both use and non-use values. Altruism extends to those outside of one's self or one's descendents. The idea is that people may personally benefit from simply knowing that others benefit from their use of a forest or knowledge of its existence. That is, my neighbors' enjoyment of the forest, whatever form it may take, makes me better off.

Total Economic Value

Total economic value (TEV) is simply the sum of all the values described above, or

TEV = Current use value + Future use value + Existence value + Altruistic value

Note that some authors (e.g., Tietenberg 2006) refer to this concept as "total willingness to pay."

Maintaining or increasing the TEV of a forest requires careful management. Before I consider the implications of this concept on the question of how best to fund forest management, it is useful to identify the values that are not taken into account by the concept of TEV.

First, TEV does not include the "primary value" of the forest as part of the life-support system for the planet. For example, the value of the oxygen produced by living plants or the nutrient cycling provided by a healthy ecosystem are typically not included as components of TEV because of the difficulties in accounting for and estimating the monetary value of these benefits.

Second, TEV does not include the benefits of a forest to members of future generations. To be sure, the interests of future generations are partially accounted for in the calculation of bequest value and altruistic value. However, these two types of value are based on the preferences of today's generation, as seen through our eyes and our wallets. Bequest and altruistic value represent the willingness to pay of people alive today for the preservation of a forest for the benefit of those in the future. The value that members of future generations themselves might place on the forest, however, cannot be measured today and therefore are not included in the TEV calculation.

Third, TEV does not include the "intrinsic value" of a forest. Rather, it represents an anthropocentric understanding of value. A non-human species or habitat or ecosystem is only assigned value when humans perceive it to be valuable. Like members of a future

generation, non-human species have no economic standing in this type of analysis.

For these reasons, forest managers must recognize that TEV is not a complete measure of the true "total value" of a forest. It merely represents the sum of all the economic values placed on the forest by those who are alive today.

Funding Forest Management

Now that the groundwork has been laid, the following question can be posed: "Which of these values can be supported by on-site recreation fees?" Recreation fees may be well-suited for funding two types of values, consumptive use and non-consumptive use, depending on a range of other factors as discussed below. However, recreation fees would not be well-suited for the purpose of supporting the other types of values identified in the previous section.

With consumptive and non-consumptive uses, the value is derived from visiting the forest, so it is conceivable to require visitors to pay money in exchange for their recreation experiences. Those who benefit from visiting the forest could fund the recreation management programs that make their visit possible, thus reducing or eliminating the need for taxpayers to provide the necessary funding. The appropriateness of these fees depends on other criteria, as shown below.

With future, or non-use values, however, the values are not derived from current visits to the forest. For example, those with indirect-use values do not actually visit the forest to enjoy the indirect benefits (e.g., flood protection, water supply). It is necessary, therefore, to find sources of funding other than recreation fees to finance forest management that supports indirect, future, and non-use values. Simply stated, collecting fees from current visitors cannot provide an adequate basis of funding to support the other values provided by a forest. Instead, funding can be generated from other sources, including appropriations, partnerships, donations, voluntarism, or fees assessed on other activities.

Criteria for Evaluating if Recreation Fees Are Appropriate

The notion of assessing user fees to help finance public land recreation has spawned a small but growing literature among researchers engaged in the study of outdoor recreation, economics, and related fields. Interested readers are encouraged to consult the annotated bibliography compiled by Puttkammer (2001) and to examine the special issues of the *Journal of Leisure Research* (1999) and the *Journal of Park and Recreation Administration* (1999) guest edited by Alan Watson.

Establishing recreation fee programs to support consumptive and non-consumptive uses of a forest may seem appropriate in some applications and inappropriate in others. The challenge is in making the determination. The Federal Lands Recreation Enhancement Act of 2004 restricts where fees can be assessed; it limits fee collection to developed sites and high-impact areas. Other criteria, however, deserve consideration when evaluating the appropriateness of collecting recreation fees in a particular context. Ten possible criteria are listed in table 2.

A brief description and rationale for each criterion follows:

1. Consumptive use

Concept: If use is consumptive, then fees are more appropriate.

Rationale: Users consume part of the resource, which must be replaced (e.g. fish restocking) or regenerated (forest products). Fees require users to pay compensation for their withdrawals of the resource and provide funds for its replenishment. Fees also provide an economic incentive to not overuse the resource.

2. Rival use

Concept: If use is rival (it excludes others), then fees are more appropriate.

Rationale: Users occupy a space which prohibits others from using that same space. The use of campsites, picnic tables, and other developed facilities is rival, for example. Only one party can use the site at a time. In a sense, the occupying party has exclusive use of the site. Fees require users to pay compensation for this exclusive use and provide funds for production and maintenance of these facilities. Fees can also provide an economic incentive to not overuse the facility.

3. Cost recovery

Concept: If the cost of servicing the use is high, then fees are more appropriate.

Rationale: Equity demands that visitors who engage in activities requiring greater expenditures on the part of the agency should contribute more to the agency's budget. Examples include risky activities that result in high-cost rescues or uses that require considerable capital and maintenance expenditures.

4. Revenue generation

Concept: If the revenue potential is high, then fees are more appropriate.

Rationale: Fees are assessed in order to generate revenue, so the higher the revenue the better. In simple terms, the revenue generated by a recreation fee equals the dollar amount of the fee assessed per visit multiplied by the number of visits, or

Revenue = (Fee per visit) (Number of visits)

There are four items to consider when estimating fee revenues:

A. Willingness to pay

Concept: If users have a high willingness to pay, then fees are more appropriate.

Rationale: A high willingness to pay implies that fees can be set relatively high, which increases fee revenue directly. This could be the case for users with strong preferences or high incomes, or for uses without many available substitutes.

B. Number of visits

Concept: If there are many visits, then fees are more appropriate.

Rationale: High usage implies high revenue since it increases the fee base. The number of visits is high if there are many visitors in a given year or the average number of visits per visitor is high.

C. Growth of visits

Concept: If users are growing in number, then fees are more appropriate.

Rationale: An increase in the number of visitors (or their average number of visits per year) implies that the fee base will grow, which increases revenue over time.

D. Price elasticity

Concept: If users are price sensitive, then fees are less appropriate.

Rationale: Fees can discourage use and reduce the fee base (number of visitors) if use is price sensitive. A decrease in the base implies lower revenue.

Table 2—Ten possible criteria for assessing the appropriateness of recreation fees

Consumptive use	Rival use
Cost recovery	Revenue generation
Collection costs	Ability to pay
Visitor diversity	External costs
External benefits	Niche markets

5. Collection costs

Concept: If fees can be collected at low cost, then fees are more appropriate.

Rationale: Collection costs are subtracted from fee revenue to calculate net revenue. Net revenue equals

the new funding available to support recreation programs. If collection costs are low then a greater proportion of fee revenues can be allocated to programs, making the fees more worthwhile.

6. Ability to pay

Concept: If users have low incomes, then fees are less appropriate.

Rationale: Fees may create an economic barrier to forest recreation. Willingness to pay a recreation fee depends on a person's income or "ability to pay." For low-income visitors or those without much discretionary income, a recreation fee may be unaffordable. Visitors for whom fees are a financial hardship may visit less often, eliminate short visits, or stop visiting entirely.

7. Visitor diversity

Concept: If users represent underserved populations, then fees are less appropriate.

Rationale: Underserved populations include racial or ethnic minorities and other groups. Assessing fees in areas with high concentrations of these populations might be perceived as discriminatory if similar fees are not assessed in areas with low concentrations.

8. External costs

Concept: If use generates external costs, then fees are more appropriate.

Rationale: Some uses cause harm to others (e.g., noise, pollution, erosion). Fees generate revenue to repair or mitigate damages. They can also provide an economic incentive to not engage in the damaging activity.

9. External benefits

Concept: If use generates external benefits, then fees are less appropriate.

Rationale: Some uses and activities provide significant benefits to the rest of society. Assessing fees for these uses could discourage them and cause unintended harm to others. Examples of external benefits include contributions to local economies, the promotion of physical and mental health among the population, environmental awareness, and constituency building.

10. Niche market

Concept: If a particular use is at the core of a forest's mission, then fees are less appropriate.

Rationale: Some managers believe that uses that represent a forest's primary purpose should be provided at no cost to users. According to this view, if a forest is known for a particular type of recreation activity, it should promote the activity and make it available to all at no cost. In this case, fees might be collected elsewhere to support periphery, or secondary, uses of the forest.

Choosing the Best Criteria

The ten criteria described in the previous section cover a range of issues but certainly do not exhaust the possibilities. Readers are encouraged to develop additional or alternative criteria that are equally compelling in their own contexts. Once a suitable list has been developed, the relevant question becomes, "Which criterion should be chosen?" Which criterion is the most informative, the most enlightening, the most important?

Unable to provide a definitive, universally-applicable answer, I propose that managers use several relevant criteria in a systematic fashion when choosing where and when to implement recreation fees. There are many ways to do this. As an example, I will outline a model that employs all ten criteria, weighting each one as deemed appropriate and yielding a single overall score that can be used to compare one proposed fee project against another.

Step 1: Identify the criteria.

Add and subtract from the list above as appropriate. For the sake of illustration, consider the ten I have proposed.

Step 2: Establish weights for each criterion.

There are many ways to do this. I suggest the following as a plausible and intuitive approach. Beginning with 100%, assign a weight ranging from 0% to 100% to each of the criteria, making sure that the weights sum to 100%. For example, the weights could be equal (10% for each of the ten criteria). Or, all the weight could be placed on one criterion (100%), with none for the rest (0% for the other nine). Or, one criterion could receive half the weight (50%), a second criterion 10%, and the rest (eight others) 5% each. The idea is simply to place a greater weight on criteria that seem more important and a lower weight on those that seem less important. This requires good judgment and careful thought. Note that all the weights must sum to 100% and that different weightings will generate different overall scores below.

Step 3: Apply the criteria.

Identify the particular location where a fee is being considered. For each of the criteria, assign a number from 0 to 10 that reflects the appropriateness of a fee based on that criterion. The highest rating (10) represents "extremely appropriate," whereas the lowest rating (0) represents "not appropriate." For example, consider a day-use developed site (e.g., picnic area) in a typical forest. For the "rival" criterion, the area might receive a 10 because visitors have exclusive use of their picnic sites. For the "cost-recovery" criterion, the area might receive a 7 because servicing the site is fairly time-consuming and expensive. For the "ability to pay" criterion, the area might receive a 2 because many users have low incomes.

Step 4: Calculate the overall score.

Multiply each rating by its respective weight and sum the products. To do this, convert the weighting percentages into proportions (10% = 0.10) and multiply each by its respective rating. Then sum these products to generate the overall score. The maximum possible overall score is 10, while the lowest is 0. The projects that receive the highest overall scores are those where recreation fees may be most appropriate.

Step 5: Reassess and Evaluate.

The process outlined in steps 1 through 4 represents one plausible and systematic way to begin evaluating where recreation fees may be most appropriate. But this process is only a first step. After the overall score is calculated, it is useful to go back and consider what would have happened had the weights been assigned differently. Changing the weighting will change the overall score. It is also crucial to evaluate if all the relevant factors were considered before making a determination. The scoring process developed here is no substitute for good judgment. Rather, it provides a tool that can be useful when making difficult decisions. Like any tool, it should be part of a toolkit, used alongside others to help guide a clear, transparent, and mindful decisionmaking process.

Conclusion

I conclude by summarizing the main points of this essay:

1. Concepts from environmental, resource, and public economics can be useful in assessing if fees are appropriate for a particular recreation area or activity.
2. These concepts should be considered alongside other normative criteria.
3. Assessment frameworks that incorporate multiple criteria in a systematic manner can be developed in principle.
4. By their nature, on-site recreation fees do not generate revenue from those who value forests for purposes other than consumptive

or non-consumptive uses (e.g., option, quasi-option, bequest, existence, and altruistic values).

5. Fees can provide a useful source of revenue to support recreation programs when they are deemed appropriate and are part of a sustainable funding mix that includes appropriations, partnerships, volunteer time, donations, and other sources.

User fees can provide an important source of revenue for recreation budgets, but by themselves they cannot provide an adequate and sustainable source of funding. While fees can finance programs that support current direct uses of a forest, tax dollars and other sources of funding are necessary to provide the broad base of support required to manage forests in a way that promotes "total economic value," not to mention non-economic values.

A single-minded application of user fees to generate revenue runs the risk of focusing too much attention on maximizing the value of current direct uses – those uses that generate fee revenue – while losing sight of the range of other values provided by well-managed public lands. A mindful application of user fees as a supplement to a robust mix of funding that includes appropriations, partnerships, volunteerism, donations and other sources of support is the key to securing funding that is both appropriate and sustainable.

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Communicating with Recreation Visitors: A Brief Synthesis of Findings

Patricia L. Winter[1]

Abstract

This paper reviews some key research findings on communication that are applicable to recreation management. Research on persuasive communication provides a valuable background for understanding the best approaches to communicating with recreation visitors. The source of a message, medium of a message, aspects of the audience, and aspects of the message have all been examined in persuasion research and are briefly summarized. Research regarding sources of information accessed by recreation visitors and general publics, and their trust in these sources, is discussed. Once visitors arrive onsite, signs are an important means of communication in recreation management. Research that examined the wording of messages in signs is reviewed. When addressing a diverse public, international signage is sometimes recommended. But studies show comprehension of international symbols varies among visitors. Innovations that met the communication needs of ethnically and racially diverse publics are briefly discussed to present alternative means of communicating with recreationists. Finally, key lessons from these reviewed areas are presented for management application. As the nation's population becomes more diverse, successful communication strategies are essential to public land management.

Persuasive Communication Research

Persuasion research has focused on several aspects of communication that influence effectiveness, including the source of a message, medium of the message, aspects of the audience, aspects of the message, and the target behavior or attitude. The source of a message, including expertness, trustworthiness, and attractiveness can all influence effective delivery of a persuasive communication (Ajzen 1992, Oskamp 1991, Winter and Koger 2004). For example, communicators who are known experts, or introduced as experts on the topic of the message, are more influential than nonexperts (Cialdini 2001, Oskamp 1991). Perceived similarity between the communicator and the receiver of the message also influences persuasion (Cialdini 2001, Zimbardo and Lieppe 1991). Trust of the managing agency as a message source appears to be essential in how information is perceived (Cvetkovich and Winter 2002, Cvetkovich and Winter 2004, Winter et al. 1999).

The medium of the message (for example, comparing the effectiveness of spoken versus written messages) also influences its effectiveness. For example, when comparing mass communication versus personal communication, researchers have found that face-to-face, or personal communication, is superior to other methods of information dissemination (Oskamp 1991).

Aspects of the audience (including their attention to the message, for example see McCool and Cole (2000)) also affect the effectiveness of a message.

[1] Research Social Scientist, USDA Forest Service, Pacific Southwest Research Station, 4955 Canyon Crest Drive, Riverside, CA 92507-6099. Email: pwinter@fs.fed.us.

Some personality characteristics, such as self-esteem and intelligence, seem to have a curvilinear relationship with persuasibility. Those with self-esteem that falls to the lower or higher ends of the population distribution for this characteristic tend to be less easily influenced by persuasive messages than those in the mid-range of the normal curve. Personality characteristics may also influence recall of a message and the likelihood of yielding to the message (Oskamp 1991). For example, having high intelligence may greatly improve the retention and understanding of a message, and at the same time, make one less likely to change one's behavior (Oskamp 1991).

Aspects of the message itself (for example, the relative effectiveness of fear appeals versus other types of messages) have been examined. Fear appeals seem most effective when paired with a specific behavioral instruction on how to avoid a negative consequence (Oskamp 1991).

The target behavior has also been examined in persuasion research, with a focus on the persistence of attitude change and how that influences action (Oskamp 1991). Finally, messages are most effective when attitudes are weak or nonexistent about a particular topic (Oskamp 1991). (For a summary of research on the use of persuasion in recreational settings to effect behavior changes see Roggenbuck (1992).)

Communication and Diversity

Communication techniques are linked to issues of equity in recreation access for potential and actual recreation visitors. People of color have reported a lack of information about recreation opportunities as a constraint to recreation participation (Crano et al. 2005, Scott et al. 2004, Tierney et al. 1998). A lack of information onsite has also been reported as a constraint in outdoor recreation participation among ethnic minorities (Winter et al. 2004, Winter and McCollum 2002).

Information Sources Used and Trusted

Information sources that recreationists and potential recreationists rely on and trust often differ among ethnic and racial groups. In several studies, onsite recreationists reported family and friends as their primary source of information about recreation opportunities and the recreation setting where they were contacted (Chavez et al. 1993, Chavez et al. 1994, Parker and Winter 1998, Simcox and Hodgson 1993). Hispanics/ Latinos typically rely more on their family and friends for information than do Whites and other ethnic/racial groups. A similar reliance on family and friends as the primary source of information about recreation opportunities was found in a telephone survey of residents in the Los Angeles basin (Crano et al. 2005). Again, the proportion of Latinos relying on family and friends was higher than for other ethnic/racial groups. Reliance on other sources showed greater variation by ethnic/racial group. For example, Blacks were more likely than other groups to rely on church as a source of infor-mation. In that same study, respondents were asked which source of information they trusted the most. The greatest proportion of respondents chose the Internet and computers as their most trusted source. However, in the Crano et al. (2005) study, as with primary sources used, some variations in trusted source by ethnic/racial group were found. The second most-trusted source among all groups except Whites was family and friends.

Trust in the Internet, found by Crano et al. (2005), corresponds with a national survey on Internet users and nonusers that suggests that importance of the Internet is higher than other forms of media as an information source (Lebo 2004). Results of that same survey found that much of the information on government web sites was thought to be reliable and accurate (Lebo 2004). A cautionary note should be added here about the Internet as a primary and trusted

source of information. Research on access to the Internet across the United States and within certain ethnic/racial groups suggests that people of color are less likely to use the Internet (particularly Hispanics and Blacks) than Whites (Spooner 2003). Education and income are also linked to Internet use; those with less education and lower household incomes are less likely to use the Internet (Spooner 2003). The bulk of non-Internet users report that they do not use the Internet because of a lack of a computer, or lack of a computer good enough to access the Internet (Lebo 2004). Findings are inconsistent regarding actual levels of use of the Internet and access to the Internet. Lebo (2004) reported that over three-fourths of Americans use the Internet, whereas Spooner (2003) suggested that number is just over half of American adults (59% males and 54% females used the Internet in 2001). Only a portion of Internet use is for travel information purposes; the primary use is related to email.

Other work has demonstrated the reliance on ethnic media within some communities of color (Winter et al. 2004). When a type of media source is reported as common among groups, such as newspapers, one cannot assume that the primary newspaper in an area is the one most likely to be used by all groups. In other words, tailoring the outlet to meet the needs of a diverse audience is advisable.

Signs in Recreation Settings

Even though visitors and potential visitors rely on family and friends for information about recreation opportunities and about specific sites, natural resource managers rely heavily on signs for onsite communication. Signs are not necessarily the most preferred mode of information dissemination among managers, nor are they always assumed to be the most effective (Johnson et al. 1994, Roggenbuck et al. 1997, Winter et al. 1998, Wirsching et al. 2003). However, signs serve an important function in resource management. Signs have the potential to make acceptable behaviors more salient in a setting, which is particularly important to new site visitors unfamiliar with an area. From a law enforcement standpoint, signs help assure that visitors are informed of rules, regulations, safety concerns, and other matters of import related to management and visitor safety.

Research has been conducted on the effectiveness of signs, including aspects related to visitor awareness of signs, comprehension of signs, and the impact of messages in signs on visitor behavior, attitudes, and opinions. Signs that are constructed in keeping with the findings from research for effective messaging are more valuable than those that are not. For example, research suggests that placing too many messages on trailside bulletin boards may lead visitors to spend more time at the location, but visitor retention of those messages is lessened (Cole et al. 1997).

A series of studies was conducted to explore what might make a sign's message more likely to have the desired influence on visitor behavior. Part of the interest was in ascertaining if messages had to be negative to be effective. After all, is it not far more welcoming to post when a site is open for picnicking than when it is closed? In the first study in this series, messages in signs in two states, covering an array of site types, were classified (Winter et al. 1998). Number of signs, likelihood of being viewed by visitors and comprehended, and type of message were coded. Coding of messages focused primarily on message framing, from a normative perspective. Norms (the implicit or explicit expectations for behavior) can be powerful activators of behavior because of their potential sanctions such as through fines or threats of social disapproval. They can be presented as either rules and regulations (injunctive) or statements about the actions of others (descriptive). Descriptive norms, or information about the actions of other people, help define what is appropriate in a setting (Cialdini 2001).

Both rules/regulations and statements about actions of others can be presented either positively (prescriptive) or negatively (proscriptive). A preponderance of negatively worded rules and regulations was found, particularly in urbanized locations. The second step in the series was to explore what interpreters (people who are experts in a specialized form of communication and messaging that can be applied to signage) would consider as the most effective message types (Winter et al. 2000). The results of that nationwide survey showed that respondents felt positively worded messages (prescriptive) would be most effective. Because statements about the actions of others were not found in very many signs in the first study in the series, interpreters were only asked to rate statements about rules and regulations. In the final study of the series, an onsite experiment was conducted at the Petrified Forest National Park (Cialdini et al., n.d.). The targeted behavior was theft of petrified wood, which although infrequent has been sufficient over the life of the park to have a dramatic impact on the number, variety, and quality of the Petrified Forest collection. In this study, it was clear that the most effective message in reducing theft of petrified wood was the negatively worded sign (proscriptive-injunctive). It should be noted that the sign was not rudely stated, as it included "please" as well as a short justification for the rule ("Please don't go off the established paths and trails, in order to protect the Sequoias and natural vegetation in this park"). The most ineffective sign, that is the one where the incidence of theft was the highest, contained the proscriptive-descriptive message ("Many past visitors have gone off the established paths and trails, changing the natural state of the Sequoias and vegetation in this park"). Researchers suggest this difference was a reflection of the power of the norm of theft being so clearly stated.

The series of studies discussed above and many others reflect the complexity of selecting sign wording and messages. Part of this complexity rests in trying to present information to a diverse recreating public that speaks and reads different languages. The challenge to resource management has been to gauge which segments of the population are, or could be coming to recreation settings, and devise strategies to best communicate with them. In areas where visitation is diverse, the use of international symbols has been adopted. Ideally, signs containing international symbols can surpass language barriers and offer a simple representation that eases comprehension. However, research on comprehension of international symbols suggests that not all symbols are equally effective. A series of studies found that while most international symbols presented to recreationists were correctly understood, others were either only partially, or poorly understood (Chavez et al. 2004; Chavez et al. 2003a,b). Most troublesome is the finding that the visitors who had the least difficulty comprehending the symbols tended to be college-educated, White, and repeat visitors. This finding suggests caution in adopting international symbols as a means to address a diverse audience, particularly those new to an area. Researchers suggest that textual messages may need to be combined with the symbols to clarify the intended message. However, if textual messages are presented, they need to be in languages appropriate to the user groups most in need of the information. Drawing from research by Marin (1994), populations that speak a primary language other than English may be unaware of the existence of signs and messages in a setting unless they contain messages in their primary language. New symbols developed for an area or unique purpose may need to be developed in adherence to International Organization for Standardization (ISO) methods for standardization. It may also be necessary to use other methods to communicate essential messages, such as face-to-face communication, and educational programs on- and offsite. (Chavez et al. 2004).

Innovations that Served a Diverse Audience

Although this paper has focused on sources of infor mation, and particularly on signs and aspects of effectiveness, innovations in communication approaches that were designed to meet the needs of diverse recreationists are also of interest. The innovations included the Forest Information Van and the Eco-Teams (Absher and Winter 1997, Absher et al. 1997). Both programs were developed in response to a documented gap between Forest Service communication strategies and the needs and interests of diverse visitors, particularly Hispanics and Asians. Areas of the forests in southern California were seeing a dramatic increase in visitation by Hispanics and Asians. Resource managers recognized a need to provide information and education that would address their unique needs. The Forest Information Van was a traveling display that was moved throughout the Angeles National Forest to locations that had a high minority visitation (Absher et al. 1997). Personnel who staffed the van were Spanish-English bilingual, as were the colorful displays attached to the van. The van involved taking the information directly to the sites and presenting it in a format that was personable and respectful of culture. As such, it was an innovative way to improve communication between the managing agency and the recreating public.

The Eco-Teams was another innovation in communication (Absher and Winter 1997, Absher et al. 1997). Eco-Team members were urban youth, hired to come out to forest settings that tended to see a high level of minority visitation. The youth were people of color, many who were Spanish-English bilingual. Eco-Team members walked through sites, including along riparian corridors, and would visit face-to-face with recreationists. Conversations were brief and friendly, and Eco-Team members would relay bits of information provided to them at the start of the workday in a daily briefing. Information was focused on safety, fire regulations, and other important matters for the site. Team members also handed out trash bags to assist with proper disposal of garbage. Both innovations have disappeared from the forest landscape for a variety of reasons, primarily a lack of adequate resources to continue them.

Conclusions

This paper started out with the idea that communication about outdoor recreation opportunities on and off-site is needed to fill the interests and desires of visitors and potential visitors. Various modes of communication were discussed. The use of ethnic media by some groups of color was also noted. Signage onsite that relays rules and regulations, or seeks behavioral change, was examined. One series of studies suggests that signs are most effective when messages state the prohibited act negatively (but politely). Another set of studies suggests that international symbols may need to be constructed through ISO development procedures, paired with textual messages, and possibly other means of communication. A brief description of two innovations in communication shows the range of possibilities in addressing the need for effective communication with a racially and ethnically diverse recreating public.

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Theme 3: Recreation Management Synthesis of Workshop Discussions

In the current era of shrinking budgets and workforce, volunteers can accomplish task that other wise go undone. And, volunteers often become advocates of the Forest Service. However, some issues to consider were mentioned:

- Volunteers are not free—there is still a cost in supervision and liability.
- A staff position dedicated to managing volunteers is needed.
- A good work plan is essential for using volunteers effectively.

Managing wilderness areas comes with its own challenges, especially when the wilderness is near an urban area and many potential visitors. Discussion about management brought up the following questions:

- How do we define the Forest Service's niche and move forward in a responsible way?
- Do people prefer highly regulated experience or less regulated but a limited number of people?

When does tourism take over a community? Discussion addressed how the Forest Service could better work with the host communities. Points included the following:

- Tourism is not static.
- Planning with the stakeholders needs to be a continuous process.
- Engage in discussion at all levels, from the community, to the state, to the nation.

Management need: Synthesize existing research on tourism and its affects on communities. Make it accessible to managers and communities so they can make reasonable leaps about out comes based on the existing research.

Tom Iraci, USDA Forest Service

Tourism research helps communities and managers understand and plan for potential outcomes of large and small scale tourism.

Visitors are a more varied group today than 50 years ago, and more varied forms of communication are needed to reach them effectively.

- Know the market to determine what approach works best to support overall purpose.

Management need: Translate the research for best practices to support decisions. Show how recreation research is used to help funding.

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Theme 4: Special Issues in Recreation

Tom Iraci

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Introduction: Special Issues in Recreation

Deborah J. Chavez[1]

In the first three themes, the roles of research and management and bridging that gap, understanding forest and recreation visitors, recreation planning and monitoring, and thoughts about recreation management were discussed. What remains are special issues in outdoor recreation. I was given the task of taking what amounts to "other" topics and somehow bringing it altogether for you. One of the topics to be discussed is fire. I'll also touch on equity in access to recreation opportunities, crime on national forests and grasslands, the commercialization of public lands, and the effects of urban sprawl on recreation management.

National forests belong to the American public; forests are places to be active, places to learn, places to discover, places to connect to the land and to other people. This introduction addresses serving Americans by way of these special issues in outdoor recreation.

I was honored to attend the Centennial in January (2005) in Washington, DC. As many have heard, it was a chance to reflect back on the last century and look ahead to the next. Recreation was mentioned often and seen as important to forest management; research was also important and was highlighted at the meeting. This meeting is a bit like that meeting – we're looking at what has been done, and where we need to head.

One hundred years ago the average life expectancy was 47 years; only 14% of homes had a bathtub; there were only 8,000 cars and only 144 miles of paved roads; the average worker made between $200 and $400 per year; Alabama, Mississippi, Iowa, and Tennessee were each more heavily populated than California; only 8% of homes had a telephone; and only 6% of all Americans had graduated high school.

In 1905 there were 76 million people in the U.S. and 760 million acres of forests. In 2005 there are more than 270 million people and 750 million acres of forests. As Secretary Veneman said at the Centennial Congress, there is a 100-year history of conservation success in holding onto forest land but significantly more pressures on forests due to population growth.

What a difference a century makes! It makes a difference too for recreation. We can use the Internet (for example, to acquire information on what to do and where to go); we can use global positioning system units (used to geocache, fish, hunt, etc.); we have access to high-tech ready to wear clothing (so visitors can stay out longer and in more comfort), and now instead of relying on spotty cell-phone reception we have personal identification devices (upgrades the use of cell phones to satellites). We're also seeing some new activities in this century. Examples include rocket luge (www.fastlanerocketluge.com), rough terrain vehicles (new generation of extreme motorized sports; www.off-road.com), snowmobiling steep climbing (www.idahoparks.org), power paragliding (www.jojowing.com), and zorbing (also called gerbaling because you move over the landscape inside a big ball; www.zorbsouth.co.uk). Some of these changes are fads,

[1] Research Social Scientist, Pacific Southwest Research Station, 4955 Canyon Crest Drive, Riverside, CA 92507.
Email: dchavez@fs.fed.us

some will last longer. We are living life in the fast lane, and there are important implications for research to assess impacts of changes and for management when we may not have the tools necessary to manage for these changing recreation activities.

Chief Bosworth, at the Centennial, said that the projections are for 571 million Americans by the turn of the next century. Changes are everywhere. Change is constant. Let's consider one example, changing demographics in the U.S., specifically the increase of racial and ethnic minority populations—it impacts each of the special issues in recreation including equity issues, urban sprawl, the way people perceive fire and fire management, how we serve constituents, and perceptions about law enforcement and feelings about safety on our forests. Of course, that is only one change; the reality is that there are myriad changes happening simultaneously. It is complex. It's a lot to manage and there are no silver bullets, no easy answers. Forest lands provide a place for people to recreate and an opportunity for management and research to work together on these special issues.

As I thought about these special issues, I realized I had more questions than answers, so much of the introduction to the topics will be in the form of questions. The first of these issues is equity in access to recreation opportunities.

Equity in Access to Recreation Opportunities

Ed Brannon, recently retired from Grey Towers, reminded people at the Centennial Congress that forests are for use, and use bonds people to the lands. He also highlighted the importance of social equity issues. We have an obligation to the Americans who own the land, including access to outdoor recreation opportunities.

How do we serve and engage increasingly diverse publics? This is very complex because diversity can be realized in gender, race and ethnicity, age, abilities, and other variables.

Part of the answer is to better understand diverse groups and recognize that the changing demographic profiles probably mean changing perceptions and preferences. This may result in different recreation patterns, perhaps an emphasis on day use like we find for Latinos in southern California (Chavez 2002).

What are the perceptions and use of forest environments by these various groups? How do they learn about outdoor recreation opportunities? What barriers exist to outdoor recreation opportunities and how do we overcome them? Most people mention time and money, others also mention few workers who look like them, few visitors who look like them, they feel unwelcome, they lack information about what to see and do, or they can't find information in their language (Tierney et al. 1998). Who is responsible for addressing these things? Some of these may be easier to manage for than are others (i.e., there is not much we can do about time and money, but we can make the forests more welcoming to diverse groups).

In some ways, access relates to the ability to get information. Do we need to broaden information and education to make it more relevant to diverse populations? It may mean we need to embrace some new technologies and how people use them.

Should we foster involvement of diverse groups? How do we facilitate more outdoor recreation participation by people of color? Should we mentor recreation managers and volunteers to better serve people of color?

People have different abilities and we need to address those – perhaps requiring development and rethinking some of our built environments. We have to ask whether we are really ready for shared governance. Can we be inclusive of all? How do we do that? Remember, we provide places for people to connect with the land—all people.

Wildland Fire and Recreation Management and the Effects of the Healthy Forests Restoration Act on Recreation Management

Another special issue relates recreation to another functional area in the Forest Service – fire management. Chief Bosworth, at the Centennial Congress, said that many of our most pressing problems are related to fire and fuel in forested landscapes, and reminded us that the Forest Service is responsible for stewardship. A key issue, especially in the West, is fire.

Is there an acceptable amount of fire? How do recreation visitors feel about burned landscapes? How long after a fire does it take before recreation visitation and tourism resume?

Will the recreating public accept smoke? Should we develop visibility standards? How do recreation visitors react to area closures? What are the effects of seasonal closures or restrictions on recreation activities? Are there social barriers to fire management?

We know that people come to public lands for the landscapes, for renewal, escape from the city, etc. How does fire relate? Fire and recreation is a new area of research. One of the first questions we were asked was, "How many recreation visitors are impacted by fire and fire management activities?" The quick answer is that we don't know, nor are the data out there that we can gather to provide an answer. Perhaps we should develop an instrument to measure number of recreation visitors impacted. We should also examine recreation visitor perceptions about fire and fire management as we have limited information on this (Hendricks et al. 2003).

We should examine fire manager perceptions about recreation visitor impacts. In comparing two studies we found some key differences between visitor and manager perceptions (Bricker et al. 2005). Managers thought recreation visitors would be most constrained by recreation activity restrictions, while visitors were more constrained by any fire deemed to be "out of control." Additional work needs to be done on this.

How do we get important fire related information to non-English speakers and readers? Who should be the messengers? Would this provide possible common ground with publics? What about our volunteers?

How do we provide visitors the high-quality recreation experiences they want without compromising the health of the land or future use?

Crime on National Forests and Grasslands

High-quality recreation experiences are also a concern in the next special issue—crime on national forests and grasslands. This is another relatively new area of research with a lot of interesting questions to address.

One of the first questions I was asked on this topic was, "How much crime is there?" Law Enforcement and Investigations (LE&I) have a system for getting counts, but even this system does not track all kinds of crime and violence—some of these are captured in local and county law enforcement counts. Consequently, it is not easy or even possible to get good data to respond to this question. Again, an interesting question, but other questions may also be valuable.

Another question asked about this topic is, "Am I safer on national forests than I am in the city?" We have to ask, what is "safe"? Do they mean personal safety, physical safety, or what? We need to define it. Once we define safety, what are adequate or acceptable levels of safety? How much public safety should we provide? What are our liabilities?

How does crime and violence on national forests impact recreation visitation and management? We don't have good measures yet on visitor perceptions, and we have limited information based on manager perceptions.

What do we know about law enforcement and management of crime and violence on national forests and grasslands? Again we have limited information.

We know that some managers perceive crime and violence as increasing on public lands, and having a mixed impact on recreation visitation (Tynon et al. 2001). We also have some preliminary information on how to mitigate crime and violence on national forests (Chavez et al. 2004) that suggest personalities, resources, persistence, communications, and collaboration may be key characteristics of success. Should forest service law enforcement deal mainly with resource crime or people crime?

Many current law enforcement officers (LEO) come from other functional areas of the Forest Service, but newer LEOs don't necessarily have natural resources backgrounds. What impact might that have?

What are effective approaches to changing destructive behaviors? Can we learn about successes in management that can inform other managers? How do we measure success? There is a lot of work to be done here in partnership with LE&I.

Commercialization of Public Lands

The next topic also addresses working with others – the commercialization of public lands. In this session we'll address partnerships, privatization, user fees, business orientation, and commercialization of public lands.

Does privatization or commercialization promote customer service or does it lead to social inequality? Do private needs match public needs? Does privatization meet the public need? What is the public interest?

The public sector is thought to be necessary to accomplish tasks that the private sector cannot or will not do. Or at least ideally the public sector does those tasks. Perhaps some outdoor recreation tasks can be realized through contracting out for services, such as maintenance of recreation facilities. Contracting services may encourage competition and innovation.

What is right for our national forests and customer service? Perhaps it is a continuum of privatization/commercialization and public services.

Effects of Urban Sprawl on Recreation Management

The next topic also touches on customer service and how we go about it. It addresses the effects of urban sprawl on recreation management. At the Centennial Congress, Chief Bosworth told us that we lose 4,000 acres of open space per day as sprawl continues. Sprawl appears to be a broad scale trend with implications for recreation management.

Also mentioned numerous times at the Centennial Congress were the large numbers of urbanites. More and more of the U.S. population live in urban, not rural, settings. What are the impacts of migration, urbanization, and sprawl on recreation management? Do recreation resources drive migration? Which natural amenities drive migration?

What are the implications for the increased distribution of people over the landscape for future demand on outdoor recreation? Being close to forests may mean quick access time. Will it result in less planning for outings? Will it result in short trips, of fewer days duration or increased day use? Will it result in more trips because people are closer to the forests?

What pressures are added? Will more people use the land and forests as a backyard? Will more people use the land and forests as regional parks?

The need to connect with urban populations was another Centennial Congress topic. Will it be easier to show the relevance of the agency with so many people living nearby national forests? Is conservation and environmental education important here?

As with all the special issues, there are upsides, downsides, complications and complexity.

Concluding Remarks

The task of introducing this theme area on special issues in recreation was to provide thoughts about ideas that might be discussed within the associated talks. The five topic areas were (1) Equity in access

to recreation opportunities, (2) Wildland fire and recreation management and the effects of the Healthy Forests Restoration Act on recreation management, (3) Crime on national forests and grasslands, (4) Commercialization of public lands, and (5) Effects of urban sprawl on recreation management. Each presentation was a collaboration of management and scientists.

Steven Wright, the oft quoted scientist, said things like, "42.7% of all statistics are made up on the spot", and "A conclusion is the place where you got tired of thinking" (http://www.weather.net/zarg/ZarPages/stevenWright.html). To address the special issues in recreation, we need to strive for credible science and sound implementation of that science. Research and management collaborating together can achieve this.

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Equity in Access to Recreation Opportunities: A Synthesis of Research and Management Implications

Patricia L. Winter[1]

Introduction

This paper briefly examines selected issues surrounding equity in access to recreation opportunities. General considerations addressed include a conceptual framework for considerations of equity, cognitive biases that make equity issues complex to address, compelling reasons to address inequity, and the reality of inequity. Next follows a discussion of Forest Service business and equity issues of informing and engaging publics. Recreational service delivery is a major focus of the paper, and constraints specific to persons with disabilities, women, and people of color also are presented. A series of solutions designed to address inequity are offered, including changes in policy, recruitment and training, methods of involvement and engagement, and site design and service delivery. Considerations of equity continue to be of utmost importance in public land management, given the Environmental Justice mandate.

A Conceptual Framework for Considerations of Equity

Equity can be considered what is "fair" and "just." Justice is generally broken down into two types: procedural and distributive. Procedural justice addresses the fairness of decision processes, whereas distributive justice surrounds fairness in the distribution of rights and resources (Floyd and Johnson 2002, Maiese 2003, Winter and Koger 2004). Both are essential to a discussion of equity in access to recreation opportunities. The elements of procedural justice have been further explained as involving consistency, neutrality, representation, and transparency (Maiese 2003). Consistency as a part of procedural justice would be present when decisionmaking processes demonstrate that cases or circumstances that are similar are treated as such (Maiese 2003). Procedural justice also requires that decisionmakers are unbiased and neutral in their decisionmaking roles (Maiese 2003). Representation of affected parties, particularly those who have been traditionally marginalized, is an essential characteristic of procedures that are just (Floyd and Johnson 2002, Maguire and Lind 2003, Maiese 2003). Finally, decisionmaking procedures that are transparent, lacking secrecy and deception, are more likely to be procedurally just (Maiese 2003, Winter and Koger 2004). Cultural variations in the perception of justice are only beginning to be explored (for example, see Jasso 2005). Examining equity and justice are key toward actually arriving at equity in access.

Biases in Thought Processes

Although considerations of equity may be potentially contentious to address, there are some biases in thought processes (Oskamp 1991) that make issues of equity even more complex to address. Each of

[1] Research Social Scientist, USDA Forest Service, Pacific Southwest Research Station, 4955 Canyon Crest Drive, Riverside, CA 92507-6099. Email: pwinter@fs.fed.us

these may impede the ability to make accurate assessments of agency efforts to address equity, as well as impeding the efforts themselves. The first of these is the "fundamental attribution error," or the tendency to overestimate the importance of personal characteristics as the cause of other people's behaviors, and to underestimate situational influences (Oskamp 1991). If questions of equity are relegated to preferences of individuals who are members of underrepresented groups for example, then managing agencies are absolved from further concern. Another bias, "overlooking nonoccurrences" involves the tendency to overlook things that do not occur because they are less salient and less easily remembered (Oskamp 1991). People who are absent from the members of the recreating public, for example, may be less of concern just because they are not present in the day-to-day issues management needs to address. However, what is not happening may be just as important as what is happening in our recreation settings. Finally, humans tend to ignore base-rate information or to overlook relevant data on large groups of cases (Oskamp 1991). Instead, there is a strong preference for vivid information such as anecdotes or case studies. The risk here is in the increased probability that very prominent issues or trends get overlooked or ignored. Each of these factors may play a part in the perceived lack of relevancy of environmental justice issues expressed by some managers (Padgett and Imani 1999). These complexities can present barriers themselves, but equity remains an important issue.

Why Address Inequities in Recreational Opportunities and Participation?

There are several reasons for natural resource managers to concern themselves with potential inequities in recreational opportunities and participation. One reason is a legislative concern, involving the Environmental Justice mandate (Executive Order 12898, Floyd and Johnson 2002, McAvoy 2000, Padgett and Imani 1999). Another reason is centered in issues of health and well-being. The recreating public gains psychological and physical health benefits that should be available at a broad scale (Aitchison 2003, Audley 2002, Fine 1996, Howard and Peniston 2002, McAvoy 2001, Transportation Research Board 2005). Publics who are disadvantaged might be viewed as especially in need of natural resource-based recreational benefits. There is also a political benefit to be gained because committed outdoor recreationists represent a supportive constituency for maintaining and acquiring recreational resources (Kyle and Mowen 2004, McAvoy 2000, Sasidharan 2002). Finally, the overall moral and ethical responsibility of agencies comes into consideration. It has been suggested that "…inaccessible contexts are evidence of how society has accepted an institutionalization of exclusion" (Devine and Wilhite 2000: 49). Public land management agencies need to make consistent efforts to included rather than excluded, and to reflect the public service mission (Zuefle 2004).

The Centralization of Constraints – The Reality of Inequity

There is solid evidence that some publics are excluded from natural resource-based recreation. Americans who do not participate in outdoor recreation are more likely to be female, older, more ethnically diverse, and less affluent (Floyd 1999, Lee et al. 2001, Outdoor Industry Association 2004).

Constraints to outdoor recreation among underrepresented publics has been centered around gender, income (including poverty in inner city), literacy, disabilities, rural residence, race, ethnicity, culture, and age. Although each of these factors has an individual influence on recreation participation and constraints that individuals face, combinations of them have compounding effects (Henderson et al. 1998).

These constraints are important to understand and address where possible. Societal trends suggest that each of these factors has the potential to become more important to recreation management. The centralization of the poor in urban centers, the increased gap between the affluent and the poor, the increasing median age of the overall population, and the increased ethnic/racial and cultural diversity in the United States are all projected to continue (Dwyer and Chavez 2005, Struglia et al. 2003). The ever-present gaps in access to forms and quality of technology add an additional concern regarding the multilayered digital divide in an era of e-government (Carvin et al. 2004, Stripling 2004).

The Business of the Forest Service

The Forest Service has many roles, but those related to issues of equity are centered on keeping visitors and potential visitors informed about recreational opportunities. The process of informing comes through a number of routes including the Web, media outlets, and other routes. The agency also has the role of engaging interested and affected parties when decisions about natural resource-based recreation are being made. The actual delivery of recreational opportunities and services is also of concern. Each of these aspects of agency business will be addressed.

Informing Visitors and Potential Visitors Through the Web

Numerous concerns related to equity have been raised in discussions regarding the Web and reliance on the Internet to inform publics. People of color (particularly Blacks and Hispanics) and those from lower income and educational groups are less likely to use the Internet than the public at large (Spooner 2003). Access to the Web may be limited or nonexistent, particularly among lower income groups who may not have the discretionary income to invest in a computer and Internet service. Although more than half of the U.S. adult population is reported to have Web access (between 59 and 76%, depending on source of the data, Lebo 2004, Spooner 2003), those who do not use the Internet frequently cite lack of a computer or lack of a computer sophisticated enough to access the Web (Lebo 2004, U.S. Department of Commerce 2004). Capability to access the Internet also hinges on available Internet service. In some areas Internet service is nonexistent or too slow to function reasonably. Lower speed service and nonexistent service are issues that are particularly pressing in rural areas and among those who cannot afford the monthly service charges for high speed service, such as DSL and broadband (U.S. Department of Commerce 2004).

Computer literacy and familiarity are other issues that arise as a concern regarding Web communications and accessibility. The elderly may have had less opportunity to become familiar and comfortable with computers and the Internet. People of color, more likely to be from lower income groups and schooled in systems with less access to high-quality technology, may have had less of a chance to learn how to confidently use the Internet.

Language on websites can present an additional barrier among those who have limited English skills, or who have lower levels of literacy even in their own language (Carvin et al. 2004). Sites that do invest in translations may miss some of the cultural texture and richness needed for full appreciation of the information presented. One route to increase the quality of translations is to use back-translation methods, where the English text is first translated into the alternate language, and then a second translator takes the alternate language version and translates it into English (Marin and Marin 1991).

Finally, website design can be a concern when accessibility for the disabled has not been imbedded into the layout and information presentation (Carvin

et al. 2004). Fortunately, the advent of sites that provide tips to improved design, and some that even screen website design to point out barriers, promise tools for improved Web access (for example booboo.webct.com).

As with any communication tool, other routes to gain the information also should be offered as insurance against exclusion (Carvin et al. 2004). This principle has been demonstrated in the recent recreation reservation program used by the Forest Service and other agencies. Potential recreationists can make reservations online, or call an 800 number to do so. Additionally, although websites tend to rely on credit card purchases as a main basis for financial transactions, this same system offers alternate means of payment.

Informing Visitors and Potential Visitors Through the Media and Other Routes

Popular mass media is one route open to informing visitors and potential visitors; for example, notices in newspapers regarding public input sessions regarding a recreation site are possible. Radio spots and public service announcements are another method of informing recreation visitors and other forest users about forest closures or other matters of interest. Recent research suggests that among ethnic and racial minorities; however, ethnic media may be more used and trusted than mainstream sources (Anderson et al. 2000, Crano et al. 2005, Winter et al. 2004). Therefore, to effectively inform a diverse public, ethnic media has to be included in communications.

Media outlets used and trusted by diverse ethnic/racial groups were recently examined in the Los Angeles basin in California (Crano et al. 2005). Findings revealed that across all respondent groups, friends and family served as the primary source of information about outdoor recreational opportunities. However, sources beyond that included types of media that varied significantly by ethnic/racial group. Furthermore, among respondents that reported reliance on forms of popular media, ethnic venues were frequently reported.

The sources most relied on were different from the sources that respondents reported trusting most for information about outdoor recreation opportunities. The Internet was the most trusted source for information, while family and friends were reported as the second-most trusted source among all groups except Whites, who trusted the Internet first and then newspapers. However, the concerns mentioned earlier in this paper about the Internet should be kept in mind when designing communication plans incorporating media outlets.

Given the heavy reliance on, and trust in, family and friends as an information source, use of community networks for “getting the word out” has been recommended (Crano et al. 2005). However, links to those networks would vary by ethnic/racial group. For example, use of churches for information flow within the Black community could be one recommendation based on findings from the study by Crano et al (2005).

Engaging Interested and Affected Parties

Public interest and the expectation of involvement and being informed of land management decisions have continued to increase (Dwyer and Chavez 2005). Given the consideration of ensuring representation and a voice in decisionmaking, particularly among marginalized groups, it is important to discuss who participates in an agency’s primary modes of gathering public comment, input, and collaboration. Public meetings and workshops are routes frequently used, although individuals with disabilities may not have adequate transportation to get to a location for a meeting, the site may not be accessible, or the meeting itself may be conducted without translators for the deaf (Coco-Ripp 2005, French and Hainsworth 2001). Residents in rural locations may have more difficulty getting to a site, so unless meetings and workshops are held in

close proximity, they may be excluded (Rast 2004). People of color may not be comfortable participating in meetings and workshops held and participated in by a White majority, and may fear the risk of being an assumed representative of their ethnic or racial group rather than bringing their own opinions to the discussion. Differences in language are also a concern, in that if meetings and workshops are held only in English, publics whose primary language is other than English may not attend or may remain silent because of discomfort in effectively voicing their opinion. Language is a particularly complex issue in some regions of the United States, such as Sacramento County, California, where more than 5% of the population in public school districts speaks Spanish, Hmong, Vietnamese, Cantonese, and Mien (Struglia et al. 2003).

Gathering public comments online is another avenue of collecting input and concerns from a diverse and geographically dispersed public; however, constraints to Internet access suggest other avenues should also be used (Carvin et al. 2004).

Finally, cultural variations in social exchanges, relationships, and public dialog mandate that, as much as possible, styles of working with diverse publics shift according to these differences to ensure that our business practices respect diversity (Anderson et al. 2000, Raish et al. 1999). For example, face-to-face communication, an established rapport, and taking the message to the "home territory of the affected group" increase in importance within communities of color.

Some General Observations about Recreational Opportunities and Services

A few informal observations are offered regarding recreational opportunities and services.

The first of these is that "If you build it, it does not mean that they will come." Offering recreational opportunities and services that fit a conceived business niche, without considerating the already served and potential markets, can present implicit barriers to participation and feelings of being unwelcome. For example, some locations may have large concentrations of Latino visitors, who tend to recreate in larger family and extended family groups. Yet the built amenities, such as tables, may be designed for seating six to eight individuals and situated in a solitary configuration. There are occasions when one has to sit back, observe what is going on, and ask why.

The second of these informal observations is that "actions speak louder than words." Approaches to communication, developed site and program offerings, and characteristics of management staff are routes to impart a message of being welcome, and just as likely, of being unwelcome (Allison and Hibbler 2004, Devine and Broach 1998, Roberts 2003, Tierney et al. 1998). How an agency does business provides information about who is viewed as important and unimportant.

And lastly, "If they don't come, it does not mean that they do not care or are not interested." Broader values based in the importance of protecting natural places may be present among a wider public than those drawn to recreation settings on forest lands (Roberts 2003). Furthermore, individuals may have an interest in recreation opportunities, but may not be aware of the range of opportunities available to them. Increasing awareness through communication approaches that suit a diverse public may result in increased diversity among recreationists.

General Constraint Concerns

Several general concerns have arisen specific to constraints in recreational opportunities, which will be briefly reviewed. An indepth discussion of constraints specific to persons with disabilities, women, and people of color follows.

Concerns about safety have been reported among groups of color, particularly in settings that are perceived as being frequented primarily by Whites (Floyd

1999, Johnson et al. 2001). Since leisure is a discretionary activity, this discomfort is likely sufficient to drive individuals to select other recreational pursuits. The built environment can speak volumes about who is welcome and the activities that they may engage in safely.

Communication and information dissemination is an important part of recreation service delivery. But literacy levels vary in the United States, and this can be a constraint when attempting to communicate with those who have limited English proficiency and those who are not literate, or are marginally literate, in their own language.

Charging fees is a relatively new role for the Forest Service as an agency and concerns linked to administration of fee programs and equity has been discussed in the literature (Baker et al. 2000, Martin 1999, Winter et al. 1999). Although individuals with low income may not seem adversely impacted by fees based on on-site recreationist surveys (Bowker et al. 1999), other studies suggest that in the lives of those with severely limited income, any fee would present an additional constraint to recreational opportunities (Scott et al. 2004). In one study of public concerns about the Forest Service's proposed fee program, the individuals raising concerns about individuals with low income did not tend to come from low-income households themselves (Winter et al. 1999). A similar finding was reported by Bowker and colleagues (1999).

Constraints Experienced by People with Disabilities

Disability research has been marginal to what is otherwise a well established discourse addressing issues of social exclusion (Aitchison 2003). In spite of the paucity of information on constraints to recreation among people with disabilities (Aitchison 2003), the research that has been done points to some distinct constraints specific to this population. Constraints are of three main types: (1) administrative (for example a lack of qualified staff to administer programs for people with disabilities), (2) physical (such as environmental and architectural barriers), and (3) attitudinal (including stereotypes that recreation personnel have of people with disabilities, such as lowered expectations for physical performance, Devine and Broach 1998). In spite of these constraints, it is important for recreation managers to recognize that people with disabilities are just as interested in recreation as populations without disabilities (McAvoy 2001). Furthermore, the interest in the range of recreational opportunities and preferences for outdoor environments, are also similar (McAvoy 2001).

Time constraints are common to the majority of publics, including persons with disabilities, but other constraints are more likely to be reported by people with disabilities than by those without. These constraints include lack of transportation, health-related concerns, someone to recreate with, and a lack of awareness of opportunities (Audley 2002; Beart et al. 2001; Burns and Graefe, n.d.; French and Hainsworth 2001; Rimmer et al. 2004). These constraints move beyond concerns related to accessibility in built and natural environments, another issue of concern to people with disabilities (Audley 2002). Recreationists with disabilities may not view sites as accessible, even though managers perceive them to be. A mismatch between agency perception of accessibility and the experience of people with disabilities was reported in Bedini and Henderson (1994). As sites are modified, the perception of recreationists on-site would be important to assess and monitor. Attention to communication delivery is also essential to addressing the needs of persons with disabilities (for example those who are deaf or hard of hearing), as identified by Coco-Ripp (2005).

Constraints Experienced by Women

Constraints experienced by women include a lack of time, common to survey and interview respondents

in general. However, the lack of time seems to be of special concern to women given their social roles and the ethic of care assigned to their gender-roles (Henderson et al. 1989, Lee et al. 2001). In addition, similar to people with disabilities, women report that the lack of someone to recreate with is a constraint to their participation in recreation. Women mention a lack of discretionary funds more often than men (Johnson et al. 2001). Part of this has been explained in terms of a lower median income among women than men, and the ethic of care that suggests family needs and other priorities should be covered before leisure pursuits (Henderson et al. 1989). As mentioned before, women are also more likely to express concerns about safety as a constraint to recreation than are men (Henderson et al. 1989, Johnson et al. 2001, Lee et al. 2001). Concerns about safety appear to be well-founded, based on research regarding crime and violence on forestlands (Chavez et al. 2004; Tynon et al. 2001). Each of these constraints is further increased in its impact when combined with other sociodemographic characteristics also frequently associated with the experience of constraints such as women with disabilities, women of color, and women in older age groups.

Constraints Experienced by People of Color

People of color experience a number of constraints to recreation participation. This knowledge leads to an improved understanding of the documented underparticipation of groups of color in outdoor recreation. These constraints have been reported as agency culture (Roberts 2003, Tierney et al. 1998), historical context (Roberts 2003), perceived and actual discrimination (McDonald and McAvoy 1997, Tierney et al. 1998), language barriers (Allison and Hibbler 2004, Winter et al. 2004), concerns about safety (Johnson et al. 2001, Scott et al. 2004), awareness of opportunities (Roberts 2003, Scott et al. 2004), lack of discretionary funds (Scott et al. 2004; Tierney et al. 1998, Winter et al. 2004), lack of transportation (Scott et al. 2004, Tierney et al. 1998), lack of someone to recreate with (Johnson et al. 1998, Scott et al. 2004, Tierney et al. 1998), cultural variations in preferences for activities and what is available at recreation sites, difference in outdoor recreation opportunities (Johnson et al. 1998), and cultural preferences for the built environment and what is found in natural resource recreation settings (McDonald and McAvoy 1997, Floyd 1999). Groups of color do not need to experience discrimination themselves to have concerns about and be impacted by racism. Vicarious racism has been found to impact stressors related to race (Alvarez et al. 2004), and can influence recreation choices. Although some cultural variations may in fact dissipate through the acculturation process, it is important to understand that other aspects of culture are maintained. Acculturation is the process of adapting to a new host society in terms of its language, customs, laws and regulations, and lifestyles (Organista et al. 2003). That is, acculturation is multidimensional rather than one-dimensional (Huynh et al. 2004).

Agency culture is seen as a barrier for multiple reasons including the underrepresentation of people of color as employees delivering and managing recreational opportunities, an unwillingness to work with people of color, communication and education methods that are a poor fit with the needs and preferences of communities of color, planning for a “traditional white” visitor experience, and a general lack of feeling welcomed (Allison and Hibbler 2004, Roberts 2003, Tierney et al. 1998).

A complex history of relationships, with many negative undertones, has been reported. The history of slavery among Blacks in the United States influenced a negative relationship with the natural resource base (Johnson et al. 1998). Among Native Americans, the loss of land and limitations on traditional uses on lands has fostered a troubled and sometimes negative view of natural resource recreation (McAvoy 2002, McAvoy et al. 2003, Roberts 2003). Furthermore, the view of

the land shared by Native Americans suggests a different relationship with the land than experienced within the traditional recreation context, often resulting in conflict regarding recreation management (McAvoy 2002). Very little has been done on Asians' recreational experiences and motivations (Anderson et al. 2000). The limited research that has been done indicates that views of the land, as well as recreational uses and interests, are distinct from the White, Euro-American cultural tradition (Glover 2005, Winter et al. 2004). In addition, there is great variability among subcultures sharing the same racial background (Glover 2005, Winter et al. 2004).

Given that leisure is a discretionary activity, it makes sense that individuals choose to recreate in places where they feel most comfortable or welcome. Research evidence suggests that groups select areas that reflect enclaves, or areas where ethnic and racial groups are homogeneous (Chavez 2000). Recreating with similar others may help assuage some of the concern over possible experiences of discrimination (McDonald and McAvoy 1997).

Tierney et al. (1998) found that Blacks, Latinos, and Asians were more likely than Whites to agree that they would travel to and recreate in natural areas if more workers of their own ethnicity were employed there.

It is important to note that members of the same racial group should not be viewed as homogenous, given the relative diversity within each ethnic and cultural subgroup (Alvarez et al. 2004, Glover 2005, Sasidharan 2002, Winter et al. 2004). The variations within ethnic/racial groups require greater understanding.

Strategies to Address Inequity

A number of solutions have been presented in various literatures aimed at addressing inequity in recreational opportunities and services. These solutions include ones related to agency policy; strategies related to recruitment, hiring and training; public engagement and involvement; recreational site design, design of communications, and recreation service delivery.

Solutions at the Policy Level

To arrive at equity, agency policy must be specifically aimed toward eliminating existing barriers, such as those outlined above (French and Hainsworth 2001, Westland 1985). A firm commitment to equity and removal of the constraints identified above requires a specific agency intent, as well as action identification including who will carry out each action, partnered with accountability, commitment of resources, and follow-up (Rimmer et al. 2004, Westland 1985, Wilderness Inquiry 2000). An active commitment to equity paired with a specific action plan may help address some of the unintentional exclusions (McAvoy 2000) that occur.

Solutions in Recruitment, Hiring and Training

The active recruitment and hiring of people of color, women, and individuals with disabilities is frequently recommended as one approach to addressing equity in access to recreation opportunities (Wilderness Inquiry 2000). Benefits can include a diverse perspective on recreation planning and service delivery, communication and engagement approaches, and an implicit message of welcome to other members of these groups. In addition, active training programs that focus on diversity have value in improving awareness of subtle and overt discrimination, modes of rectifying those, and paths to improving services and approaches that serve a diverse populace. The end result is expansion of an organization's social capital in ways that help build rather than stagnate future development (Leana and Van Buren 1999). Organizational social capital is a resource reflective of the setting that is based on a collective goal orientation and shared trust, leading up to effective action (Leana and Van Buren 1999).

Recruitment and placement of an ethnically diverse staff comes with the responsibility to avoid placing staff in the position of spokesperson for a group

(Allison and Hibbler 2004). Training is essential to continued success, and should focus on equipping all staff with cultural competence that cuts across the groups of concern discussed above (Allison and Hibbler 2004, Chavez 2000, Devine et al. 1998, McGovern and Hermann 1998, Rimmer et al. 2004, Wilderness Inquiry 2000).

Solutions Through Engagement and Involvement

Engagement and involvement of those affected by recreation decisions is essential to developing and maintaining recreation opportunities that fit a diverse public (French and Hainsworth 2001, Westland 1985). Involvement may take the form of surveys, interviews, or focus groups, assuming that agencies act on the information gathered to help plan and deliver recreational services as appropriate (Bedini and Henderson 1994, Chavez 2000). Ideally this research would involve the affected communities in its design, implementation, and interpretation (McAvoy et al. 2000). Simple messages of engagement are sent through adopting communication techniques that fit the recreating public, such as providing information in languages other than English (assuming a high quality translation has been ensured, Chavez 2000), including images that reflect diverse cultures (Chavez 2000), using communication approaches that increase awareness of opportunities (Bedini and Henderson 1994), and using formats accessible to all people (Wilderness Inquiry 2000).

Establishing and maintaining partnerships with groups and other organizations that have an interest in affected communities, or in outdoor recreation in general, is another form of involvement. It may be a key route to the provision and support of services that otherwise would be lost due to a lack of resources. Such partnerships are also important vehicles for "inviting" in the groups of concern discussed above (Wilderness Inquiry 2000).

Engaging the affected publics during planning of recreation services and modes of delivery is important to reducing constraints that limit recreation participation (Chavez 2000, Sasidharan 2002). As Bedini and Henderson's interviewee (1994: 29) advised, "Make sure they (people with disabilities) are participating in the planning process, because lots of times people (parks and recreation planners) make plans for you that you can't use. So they give you ideas that they think are feasible and…when people with disabilities get there, they can't use it."

Solutions in Design and Service Delivery

Given the power of implicit messages in site design and broader service delivery, it is important to address recreation site design and approaches to service and communications that demonstrate cultural competence and an awareness of universal design (Devine and Broach 1998, Rimmer et al. 2004).

One example of design modification that met the needs of a diverse recreating public involved the renovation of the Applewhite picnic area on the San Bernardino National Forest (Chavez et al. 1995). Scientists and managers collaborated on an inquiry of recreationist needs and interests, and these were reflected in the site renovation, paired with resource and ecosystem limits. The recreating public was surveyed on site in a way that gained a high level of participation, thus giving the public a voice in the renovation. Community members surrounding the recreation site were involved through face-to-face dialog with the managers. Follow-up inquiries have served as a crosscheck to explore impacts of the renovation and approaches to further improve fit with the needs of recreationists paired with improved protection of the built and natural environment (Chavez 2002). While specific in its application, the techniques surrounding this renovation provide a desirable model for other efforts.

Conclusions

Equity in recreation opportunities and services will only come about through a force of will, adoption of policies that encourage and mandate equity, and personal commitment among agency personnel to actively seek and support actions that make up the building blocks of equitable service delivery (Westland 1985). Application of environmental justice principles to management of outdoor recreation opportunities may be the best measure against which to evaluate equity. According to Floyd and Johnson (2002), this would involve ensuring that resources are allocated through fair procedures, benefits and costs of resource management are distributed fairly, and equal access to public resources is granted for all citizens. Given the transformation needed and the various steps agencies, including the Forest Service, have taken, it is helpful to be reminded that "inclusion is an ongoing process requiring constant evaluation and modification" (Devine et al. 1998: 76). Therefore, follow-up and monitoring need to be imbedded in programs focused on inclusion (Devine and Broach 1998).

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Crime on National Forests and Grasslands: Research Perspective

Deborah J. Chavez[1]

This paper describes results from two completed studies as well as ongoing work on crime and violence and its management on national forests. Work on this topic area began collaboratively in 1997 between the Pacific Southwest Research Station (PSW) and Dr. Joanne Tynon at Oregon State University. All the study results and ongoing research are a result of these joint efforts. This relatively new line of research can only be accomplished by working closely with Law Enforcement and Investigations (LE&I) in the Washington Office of the Forest Service and with law enforcement officers (LEO) and their supervisors across the United States.

When we began the studies, we found scant scientific literature related to outdoor recreation and law enforcement. There was some work that suggested public lands were increasingly experiencing problems more typically associated with urban settings (such as robbery) (Pendleton 1996, Shore 1994). Research by Westover and others (Chubb and Westover 1981, Westover et al. 1980) suggested that visitor use levels off if there is crime. They also found that crime can reduce visitor enjoyment of the recreation experience, although research by Fletcher (1983) suggested only a small proportion of visitors perceived crime to be a problem. There was also some work related to tourism. Pizam (1999) created a tourism crime typology to classify the attributes of acts of crime and violence at tourism destinations around the world.

Our work started by investigating the kinds of problems found on national forests and the impacts of those crime and violent events and activities. Additional studies evaluated successful management of crime and violence. A third study (actually a series of studies), currently in process, examines management as perceived by current LEOs and expands on the second study of successful management tools. The goal here is not to describe these studies in great detail as that level of detail is presented elsewhere (Chavez and Tynon 2000, Chavez et al. 2004, Tynon et al. 2001), but to introduce the type of working being conducted by PSW and Oregon State University with LE&I.

Case Study on Types of Crime and Violence

The first study, completed in 1999, was developed to learn more about crime and violence on national forests, as well as the impacts of crime and violence on recreation visitation and management of those national forests. The work was qualitative in nature and thus cannot be overly generalized.

We specifically looked at the types of crime and violent events, perceptions about trends in these activities, the impacts to management (time, personnel, budget), and perceptions about impacts to recreation participation (Chavez and Tynon 2000, Tynon et al. 2001).

[1] Research Social Scientist, Pacific Southwest Research Station, 4955 Canyon Crest Drive, Riverside, CA 92507.
Email: dchavez@fs.fed.us

In all, there were eight research sites; half were forest-level and half were district sites. We selected two sites (one urban, one rural) in each of four regions in the western United States. The regions were Intermountain, Pacific Southwest, Pacific Northwest, and Southwestern. We used a case study format that included interviews of law enforcement personnel, public affairs officers, and recreation personnel (interviews averaged 3 hours), and these were followed by a site visit or a site tour (led by a law enforcement officer). Six of the sites were selected because we heard about a particular issue at the site (such as a threat against a Forest Service employee), and two were control sites (we had no information about crime or violent events at those sites).

In the study findings below, I have included some direct quotes from those interviewed (sources of quotes are not identified).

Types of Crime and Violent Events and Activities

Crime and violent events and activities were found in both urban-proximate sites and urban-distant (rural) sites. Our findings suggest that most problems were more prevalent in urban areas. In an urban site we heard, "Murder is fairly frequent," whereas in a rural area we heard, "Murders happen maybe a couple of times a year."

These crime and violent events and activities were categorized by using the words of those interviewed as follows:

- Urban-associated crime. These included arson (which consisted of the typical "fire bug" but also stealing cars in the city and "torching" them on the forest), domestic violence, thefts, gang activity, body dumping, shooting, suicides, murder, rape/sexual assault, and drive-by shooting. In one case interviewees said it was not the wildland-urban interface but "urban-in-your-face," and several called their work "city law enforcement."
- Assaults. These included criminal damage, threats against personnel, and threats against property. We were told, "You see more road rage and intolerance," resulting in more assaults.
- Drug activity. This category included marijuana cultivation, methamphetamine labs and chemical dumping, as well as armed defense of crops.
- Extremist and nontraditional groups. This included satanic cults, white power groups, and survivalists.
- Other. This category included dumping of household waste or chemicals and trespassing by undocumented workers.

Impacts to Recreation Visitors

Respondent perceptions were that there was little impact to recreation visitors. We were told, "Urban crime activities don't seem to bother recreationists," and, "We had a gang stabbing in a parking lot and the next day we had the same amount of people come out," and, "People are usually unaware of drug activities, it does not even get into the media here." Also, respondent perceptions were that recreation visitors are not as alarmed as they ought to be. One respondent said that smuggling "is an extreme threat to recreationists."

Impacts to Management

In the interviews, before asking any other questions, we asked about the top five management issues on the forest or district. Criminal activities were one of the top five management issues at all eight sites. Respondents described increased costs in time, personnel, and other ways (such as personal stress). They also described funding issues. One said, "There are phenomenal costs to replace equipment and facilities, and this has a negative impact on having money available for services."

They also told us that there are often so many things going on at one time that they have to conduct "triage law enforcement," that is, figure out which is the biggest threat and work on that first before going on to the other issues. Another management problem concerned communication. At some of the study sites we found that nonlaw enforcement employees did not know the extent of the problems and were concerned about that lack of knowledge.

Overall, the perception was that crime and violence was on the increase.

Issues for Data Collection

One item that comes up in conversations and in publication efforts is the "how much" issue (How much crime is there?). At each study site we had requested hard data from the Law Enforcement Management Attainment Reporting System (LEMARS). It was rare to have the data available, and mostly the problems were with lost data or the inability to correctly run the program. More recently, we have relied on the new database called Law Enforcement and Investigations Attainment Reporting System (LEIMARS). Unlike LEMARS, LEIMARS includes geographic information System (GIS) data as well as investigative information. Information at some later study sites was permanently lost during the transfer process. The problems with the new system (i.e., some data were either not recorded or disappeared after being entered into the program) are being corrected.

Crime data gets collected in several ways. The Forest Service collects data and so do the local and county law enforcement agencies. The problem is that in most cases, these other entities do not differentiate Forest Service lands from county lands so there is no way to separate what occurs on Forest Service lands. Taken together, this makes accurate counts difficult. The cumulative effect of all these forces is that a firm assessment of level of crime is not available.

Implications from the Study

Results are limited to the sites studied. Management of these forests and districts is impacted by crime and violent events and activities, and the types of activities may represent a law enforcement change from natural resources law enforcement to "city law enforcement." The data collection issues need to be addressed; particularly refinement of processing LEIMARS data is needed. Also, there are some communication gaps that need to be addressed at some of these sites.

Case Study on Successful Management of Crime and Violence

For this second study we examined successful cases of managing crime and violence. The purpose was to develop a toolbox of key characteristics of success. This study would not have been possible without the support of LE&I in the Washington Office.

This was another qualitative project in which two case studies were selected (Chavez et al. 2004). The criteria for selection were sent to law enforcement officers and supervisors nationwide. Each potential site could self-nominate, and case selections were based on fit with the selection criteria. One site was successful in taking the area back from criminal elements (Rocky Mountain Region), and the other was a success in crime prevention (Pacific Northwest Region).

Site and Problem Descriptions

The first site was a 15-mile river corridor where each side of the river was in a different county. There was a dam proposed along this river; because of the potential for flooding the site managers were not interested in site development. Law enforcement officers at this site reported rapes, assaults, and a race riot that resulted in the murder of one person. Turning this around required partnerships within the Forest Service and outside the Forest Service with other law enforcement agencies, local communities, and a water department.

The second site consists of a resort area with a lake that turned into an out-of-control "party" atmosphere with an estimated 15,000 people. There were fights, public drunkenness, and an Earth First! march. Circumstances were made more difficult by the underrepresentation of law enforcement (there were only a handful of LEOs and sheriff deputies). It turned a traditional "family" Fourth of July outing into a very unpleasant experience resulting in many complaints to the resort and to the Forest Service. To turn this around, a "no alcohol policy" and "saturation" law enforcement was implemented (45 officers). A decision was made soon afterward to make changes and also to communicate those plans. There were several communication efforts including public service announcements, public meetings, internal newsletters, and meetings among law enforcement agencies.

Key Characteristics of Success

We found some key characteristics for success:

- Force of personalities (who and how they are involved). It really was a case of individuals not policies. For example at one site the LEO took personal responsibility to put up overly large script signs. This individual also moved rocks and placed fencing during nonwork hours.
- Resources (time, money, people). There were also comments related to resource hardening (to protect the natural resources) and the need for site development (campgrounds, picnic areas, etc.).
- Persistence (planning, consistent in actions). It was described as a slow process.
- Collaboration (internally and externally). These included the community, volunteer groups, recreation groups, and law enforcement (internally and externally).
- Communication. This included the development of a communication plan, getting the word out to the public, being reliable and being consistent. One law enforcement officer said, "I communicated very clearly and very often to the point where people got tired of hearing it."

Implications from the Study

Even though this involved two case studies some of these tools can be used elsewhere—both the actual management techniques (such as checkpoints and development) and the key characteristics. There is enough information in the report for managers to locate places that have similar problems where they can use the same actions. We recognize the need to further study these key characteristics of success.

Credibility Through Accountability and Successful Management

In 2005, we are contacting more than 400 LEOs on national forests across the United States to further examine successful management of crime and violence on public lands. We are testing the key characteristics of success, measuring opinions about recreation visitor and public safety, and evaluating impacts to natural resources. This study would not be possible without the support of LE&I in the Washington Office, and officers and supervisors nationwide.

We are asking about recreation visitor safety, looking at both personal safety from other visitors and physical safety from site features. And we are asking LEOs to share any law enforcement success story they would like.

The survey also includes questions that will help drive the measures established in the Credibility Through Accountability/Performance Accountability System (CTA/PAS) process for law enforcement. We are asking questions about the most common activity during public contacts (i.e, violation notices, public

relations, public assistance) and if there are enough Forest Service or other law enforcement officers available at their site. We are also asking LEOs to rank their highest priority (protecting forest users, protecting resources, protecting national forest employees, or protecting public property), and we are asking their opinions about support from line officers, and others. Following the LEO study, we will continue the CTA process by surveying law enforcement supervisors and National Forest System line officers.

Conclusions

The two completed studies as well as the proposed one are efforts to provide more in-depth knowledge about crime and violence on national forests in the Unites States. In one study we found that law enforcement officers are increasingly involved in crimes against people versus crimes against the resource. This is being tested in ongoing research efforts. Another study resulted in a toolbox for managers to use for successful management of crime and violence on outdoor recreation lands, which is also being tested in ongoing efforts. We are also measuring successful performance of the Forest Service public safety law enforcement mission. Future research efforts will focus on visitor perceptions of crime and violence.

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Demographic Trends in National Forest, Recreational, Retirement, and Amenity Areas

Kenneth M. Johnson[1] and Susan I. Stewart[2]

Abstract

Those who live near national forests are both potential forest visitors and neighbors who feel the impact of many forest management decisions. This paper provides some insights about those proximate populations. It does so by measuring the proportion of national forest land within each county and then combining that with an analysis of the patterns of demographic change over the past several decades. Because there is considerable overlap between counties that contain national forests and those designated as recreational, high amenity, and retirement destination counties, demographic trends in such counties are compared. A total of 757 of the 3,141 U.S. counties contain national forest land. More than 66.1 million people resided in these counties in 2000, some 24% of the U.S. total. The population in national forest counties grew by 19% between 1990 and 2000 compared to 13% for the nation as a whole. Most of the population gain in national forest areas resulted from net in-migration. Population gains in national forest counties were slightly smaller than those in recreational and natural amenity counties and significantly less than those in retirement destination counties; however, the gains were considerably larger than those in other counties. National forest counties that are metropolitan have significantly more Hispanics than other metropolitan counties but fewer Blacks and Whites. Nonmetropolitan national forest counties contain a much larger proportion of non-Hispanic Whites than their metropolitan counterparts, a finding consistent with that for nonmetropolitan counties in general. Knowledge about the changing size and demographic structure of the population in national forest counties has particular relevance to Forest Service planners and policymakers.

Introduction

The Forest Service and other land management agencies serve the needs of both users and nonusers of the resources they manage. Some of those they serve reside near the resources while others live at some distance from them. Whether they use the forests or not, those who live near the forests are often affected by their day-to-day management. Current and complete information about the population residing near the national forests enhances resource planning and management by clarifying who will be impacted by forest management. It also provides a profile of some of the forest's potential visitors.

Knowledge of the changing size and demographic structure of the population has particular utility to forest managers and policymakers, in part because population growth in the vicinity of national forests over the past decade has significant implications. Population

[1] Professor of Sociology, Loyola University-Chicago, Lake Shore Campus, Damen Hall-933, 6525 N. Sheridan Chicago, Il 60626. Email: kjohnso@luc.edu

[2] Research Social Scientist, USDA Forest Service, North Central Research Station, 1033 University Place, Suite 360, Evanston, IL 60201. Email: sistewart@fs.fed.us

growth is known to increase population density along the forest edge. This puts additional pressure on riparian and environmentally sensitive areas, increases the use of recreational facilities, and complicates forest management and fire suppression (Gobster et al. 2000, Radeloff et al. 2001, Wear and Bolstad 1998, Wear et al. 1998). Changes in the structure of the population within and immediately surrounding the national forests is also significant for forest management and planning. For example, recent research suggests that recreational areas are receiving a net influx of people 30 years old and over (Johnson and Fuguitt 2000). Increased retention of young adults or an influx of this age group is likely to impact the natural environment and local infrastructure differently than would an exodus of this age group, or an influx of retirement age migrants. Young adults are in a phase of the lifecycle that emphasizes family formation and labor force participation, and as a result are likely to consume more land, generate more highway trips, and use recreational and natural areas differently than senior citizens.

The relation between demographic change and natural resources has been explored in some detail since the rural turnaround of the 1970s focused attention on migration patterns in the United States (Fuguitt 1995, Johnson 1998). This rural turnaround marked a shift in net migration patterns, from a predominantly rural-to-urban flow of people to a net urban-to-rural flow (Johnson and Beale 1998). Beginning with the turnaround of the 1970s and continuing after a brief lull in the 1980s with the rural rebound of the 1990s, rural areas attracted and retained more migrants than they lost. This pattern was especially strong in areas with attractive scenery and abundant recreational opportunities. Retirement trends also played a role in the rural rebound because retirees made up a significant number of those leaving urban areas to settle in rural places. Because the presence of national forests, amenity resources, and recreational opportunities influence migration (the most important component of demographic change), our analysis classifies counties using these characteristics and describes the changes occurring in each type of county.

This paper highlights changes over time in the population size and composition (i.e., the relative size of age groups and racial/ethnic groups) in areas of particular relevance to the Forest Service. Areas to be examined include those containing national forests, those where recreational activity is high, those that serve as destinations for retirement migrants and those with significant natural amenities. Although there is considerable overlap among these county types, previous research suggests there are distinct differences among them as well. Population gains have been substantial in recreational, retirement, and natural amenity areas in recent years (Johnson 1999, McGranahan 1999). Less is known about population change in areas containing national forests, but our analysis shows that they are also experiencing both population growth and changing demographic structure.

The U.S. Census Bureau provides a wealth of detailed data about the population. However, additional analysis of census data is always necessary when it is used to address resource management questions because the boundaries of public resources rarely coincide with the standard geographic units used for demographic reporting. For example, national forests do not correspond directly to states, counties, or any other geographic unit used by the Census Bureau to report data. Furthermore, many population characteristics useful in recreation management, such as racial and ethnic group membership, are available only in the decennial censuses (i.e., 1990, 2000). Thus the release of data from the 2000 decennial census offers a unique opportunity to examine demographic characteristics that are particularly relevant to resource managers, and to determine how these characteristics have changed between 1990 and 2000.

Objectives

Our goal is to give resource managers an updated portrait of the population living near the national forest. To accomplish this we focus on four objectives:

- Identify counties with national forest land and measure the proportion of national forest land within each of these counties.
- Summarize the patterns of demographic change between 1990 and 2000 in counties containing national forest land.
- Compare the distribution of national forest counties to that of counties designated as recreational, high amenity, and retirement.
- Compare the patterns of demographic change between 1990 and 2000 in national forest counties to those in counties designated as recreational, high amenity, and retirement.

Methods

This project makes extensive use of data from the 2000 census to produce an overview of the demographic structure in the relevant county groups. The 2000 data are combined with 1990 census data to document demographic change between 1990 and 2000.

Counties are the unit of analysis and are appropriate for this purpose because they have historically stable boundaries and are a basic unit for reporting fertility, mortality, and census data. Counties are delineated as metropolitan or nonmetropolitan by using criteria developed by the Office of Management and Budget. Generally, a county is classified as metropolitan if it contains a city of at least 50,000 or if it is contiguous to a county containing a city of at least 50,000 and is socially and economically integrated with it. For example, a county made up of bedroom communities surrounding an urban center is considered integrated with that urban area and is classified as a metropolitan area. Because metropolitan reclassification complicates efforts to compare nonmetropolitan areas across time, a consistent 1993 metropolitan definition is used for the analysis. The United States contains 3,141 counties or county equivalents. As of 1993, 837 counties were defined as metropolitan with the remainder defined as nonmetropolitan. The terms rural and nonmetropolitan are used interchangeably here, as are the terms metropolitan and urban.

Recreational, natural amenity, and retirement destination counties are delineated by using existing classification systems (see below). These classification systems are applied just to nonmetropolitan areas. This allows trends in metropolitan counties (as a separate category) to be compared to trends in recreational, natural amenity, and retirement destination counties, and to those in all other nonmetropolitan counties.

Identification of Recreational, Amenity, Retirement, and Forest Counties

Johnson and Beale (2002) identified 329 recreational counties using a classification procedure combining quantitative analysis of indicators of recreational activity (high earnings and employment from recreational businesses, high spending on hotels and motels, high proportion of seasonal housing) with a contextual analysis of travel literature. This recreational county classification updates their earlier effort to identify recreational counties (Beale and Johnson 1998). Research using their earlier index documented substantially higher population gains in counties designated as recreational (Johnson and Fuguitt 2000).

McGranahan (1999) created a natural amenity index using data on natural and scenic amenities (lakes and water, elevation, temperature and climate variation, etc.). The amenity index focuses on the physical attributes of a county. As such, it does an excellent job of identifying counties with attractive viewscapes, riparian areas, and scenic and natural amenities. The amenity index assigns a score to each county based on its relative position on the various natural amenities. McGranahan documented a substantial positive relationship between population growth and high scores on his amenity index.

Retirement counties are defined as those in which the population 60 and over in 1990 increased by 15% or more between 1980 and 1990 through the net in-movement of older people (Cook and Mizer 1994). There are 190 retirement destination counties in nonmetropolitan America. There is considerable overlap between the recreational and amenity counties discussed above and the retirement destination counties. In part, this is because those moving at retirement age are attracted to the same natural amenities and recreational opportunities that appeal to the rest of the population. Prior research suggests that counties that were both recreational and retirement destinations gained more population between 1990 and 1999 than any other group of counties (Johnson 1999). Most of the population gain in such counties came from migration. Such migration often represents the culmination of a chain of events commencing with vacationing in the area and progressing to second home ownership and migration (Stewart and Stynes 1994).

There is considerable overlap between the recreation and amenity classification systems, but there are also important differences. The amenity index was designed to identify amenity-rich areas nationwide and is, therefore, relatively insensitive to modest local variation in physical surroundings. Thus, a county which has several lakes, in a region where lakes are uncommon, or attractive viewscapes, in a relatively flat area of the country, would likely receive only a moderately high score. This is despite the fact that the county may be the most attractive site within a considerable distance. The amenity index is also insensitive to the proximity of population centers to amenity areas. This is a particular concern for researchers examining how urban populations use recreational and scenic areas. These weaknesses in the amenity index are most evident in the Midwest. In this region, minimal elevation changes and substantial climate variation limits the index scores for many recreational areas. In contrast, the recreational typology developed by Johnson and Beale identifies counties with high recreational activity levels, but does not directly measure the physical attributes of the area. The recreational typology is certainly sensitive to natural amenities because lakes, forest, and topography all generate considerable recreational activity. It is also acutely sensitive to local recreational activity levels because it measures usage rather than physical amenities. Because the proximity of large population concentrations increases the amount of recreational use in areas with significant natural amenities, the recreational typology is more likely to capture the recreational activity sphere of large urban areas. In addition, because the recreational typology is more sensitive to recreation and tourism activity levels than to the physical attributes of an area, it is more likely to identify recreational areas in the Midwest. Using both typologies maximizes the probability that areas where the natural environment produces significant recreational activity will be identified.

An important objective of this study is to delineate counties in which national forests represent a significant local feature. The starting point for identifying national forest counties is the inventory of counties containing national forest land included in the Forest Service land area reports (www.fs.fed.us\land\staff\lar\nfsmap.htm). From this report and census data on the total land area of each county, the percentage of a county's land area that is in a national forest is determined. We calculate the percentage of national forest land as of 2001. If the national forest county designation is to have analytical utility and be consistent with the recreation, amenity, and retirement designations used here, a county must contain a significant amount of national forest land. For purposes of this analysis, counties with at least 10% of their land area in national forests are considered separately from those with less of their land area in national forests. The utility of this distinction and the relation between the proportion of land in national forests and demographic change are examined in more detail below.

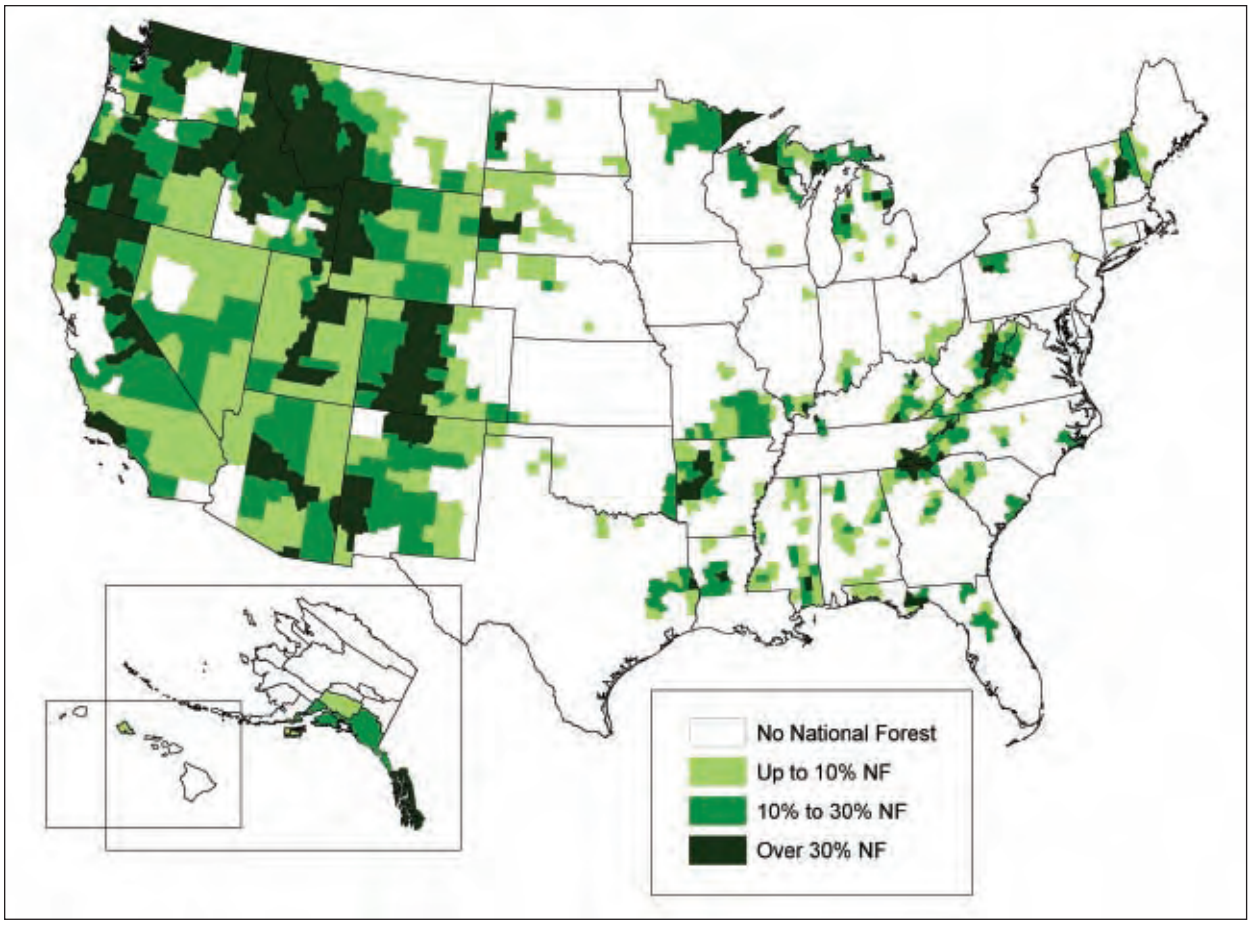

Figure 1—National forest counties, 2001. Source: Forest Service land area reports, 2000 Census.

Results

National forests are widely dispersed across the nation. Forty-four of the fifty states contain national forests. Although national forests are widespread, the distribution of these lands is uneven. The largest concentrations of national forest lands are in the West, the Upper Great Lakes and in the Southeast and South Central regions of the country (fig.1).

In all, 757 of the 3,141 U.S. counties (24%) contain national forest land. The proportion of its land area that any county has in national forests varies greatly. Some 192 (25%) of the 757 counties with national forests have 5% or less of their land in national forests. Another 111 (15%) have between 5 and 10% of the county in national forests. National forests make up between 10 and 20% of the land area in 157 (21%) of the counties with national forests. Another 110 counties (15%) with national forest lands have between 20 and 30% of their land area in national forests. In some 69 counties (9%) national forests make up between 30 and 40% of the land area. Finally, 116 counties (16%) have more than 40% of their land area in national forests. The 757 national forest counties contained 66.1 million Americans, or 24% of the U.S. population in 2000.

Population Growth

There appears to be a fairly strong link between demographic change and the presence of national forests. Most counties with national forests (84%) are

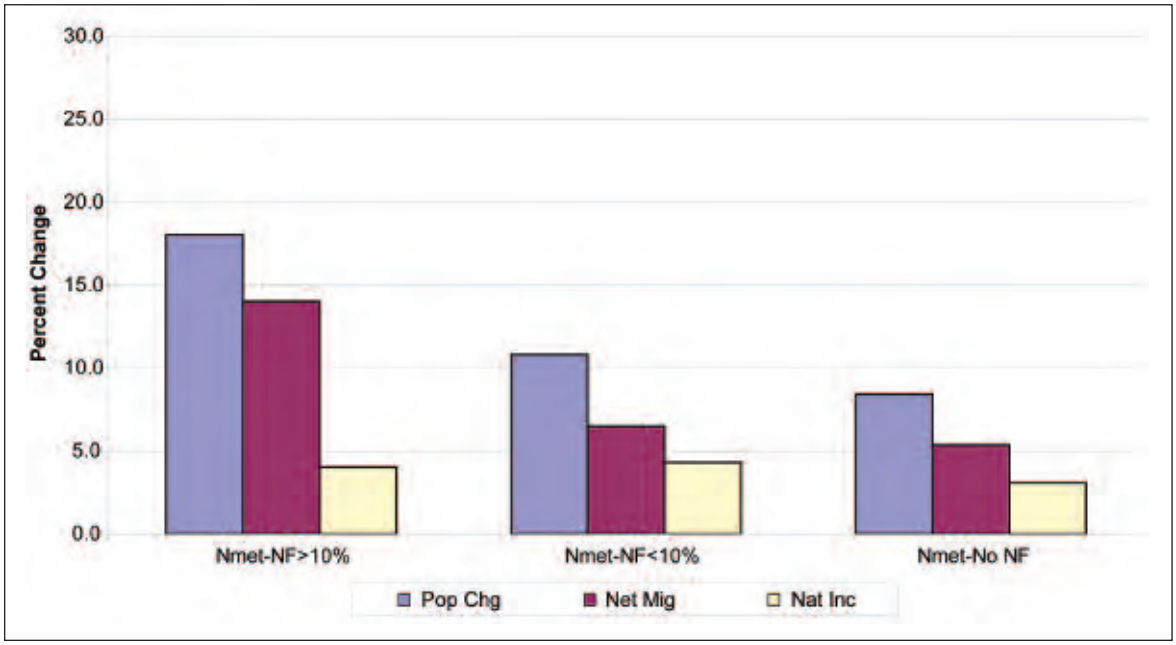

Figure 2—Demographic change, 1990-2000, in nonmetropolitan areas, by national forest status. Source: 1990 and 2000 U.S. Census.

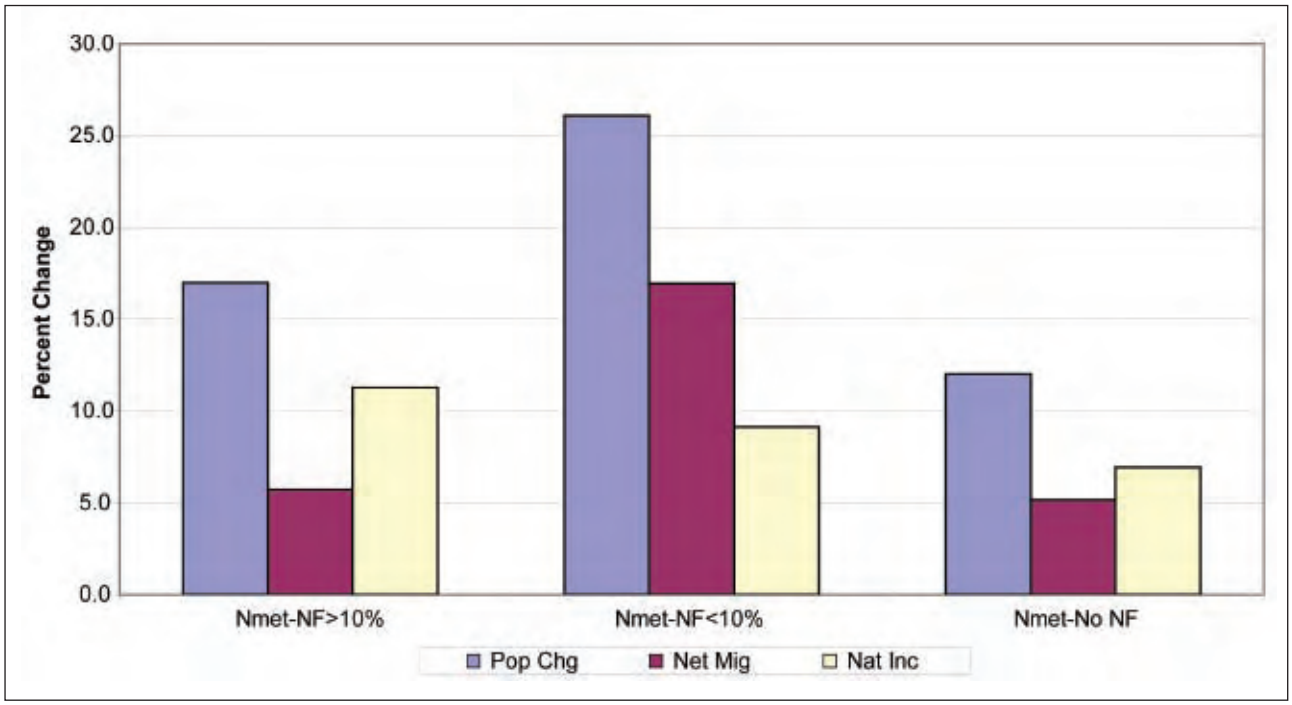

Figure 3—Demographic change, 1990-2000, in metropolitan areas, by national forest status. Source: 1990 and 2000 U.S. Census.

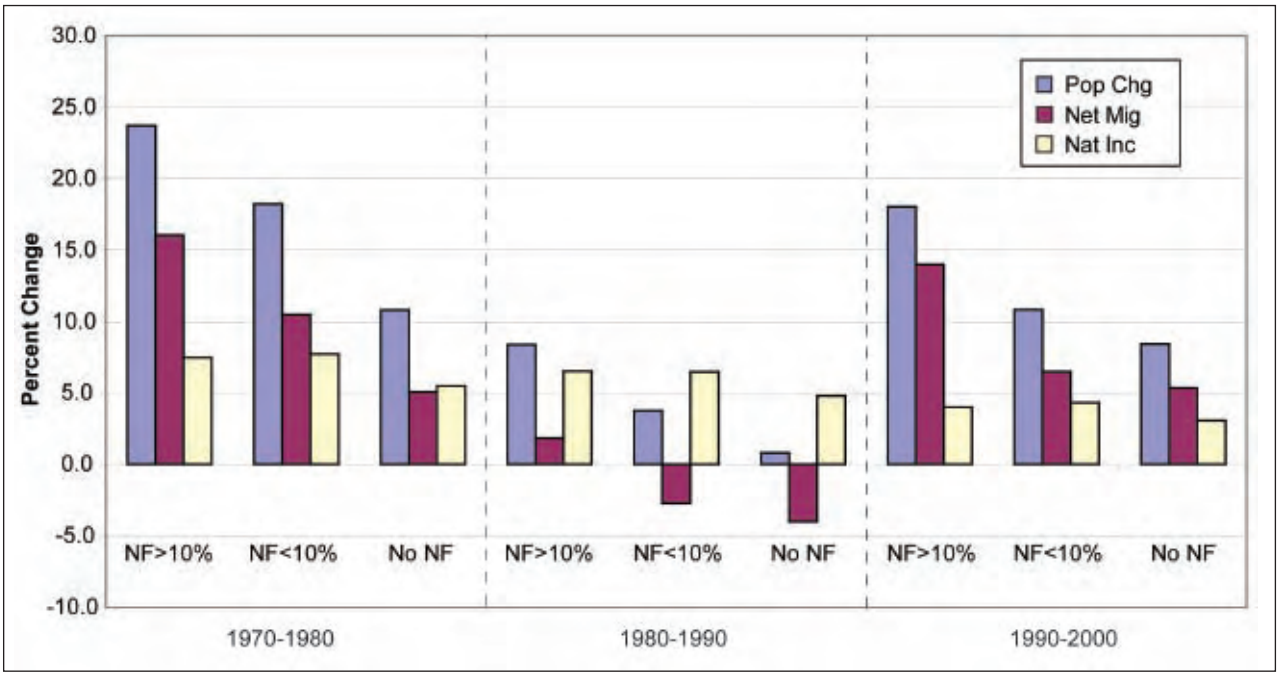

Figure 4—Demographic change by national forest status, 1970-2000, for nonmetropolitan counties. Source: 1970 to 2000 U.S. Census.

nonmetropolitan. In all, 27% of all nonmetropolitan counties have at least some national forest land within them. In nonmetropolitan areas, the populations in counties with more than 10% of their land in national forests grew by 18% between 1990 and 2000 (fig. 2). Most of this growth was fueled by net migration gains. Counties with less than 10% of their land in national forests grew by 10.8%, with both natural increase and net migration making significant contributions to the population gain. Population gains were considerably smaller in nonmetropolitan counties that did not contain any national forests.

National forests are also present in 118 (14%) metropolitan counties. Such national forests are associated with population gains in metropolitan counties, although the association here is more complex. Metropolitan counties with national forests within them did grow more rapidly than metropolitan counties without a national forest. However, the growth rate was greatest (26%) in counties with less than 10% of their land in national forests (fig. 3). Migration fueled most of this rapid population increase. Among metropolitan counties with more than 10% of their land in national forests, the population grew by 17%, whereas those with no national forests grew by 12%. Natural increase accounted for most of the growth in two of these metropolitan groups.

Rapid population gains in counties containing national forests are not a recent phenomenon. In nonmetropolitan areas, counties with more than 10% of their land in national forests grew by significantly larger margins than other counties in each of the last three decades (fig. 4). Even during the 1980s, when most nonmetropolitan counties experienced minimal population gains and migration losses, counties with significant amounts of national forest land continued to grow. Counties with substantial national forest holdings grew primarily through net inmigration. Net inmigration is a function of the ability of an area to attract new residents and the ability of the area to retain existing residents. Clearly national forest counties have achieved this during each of the last three decades.

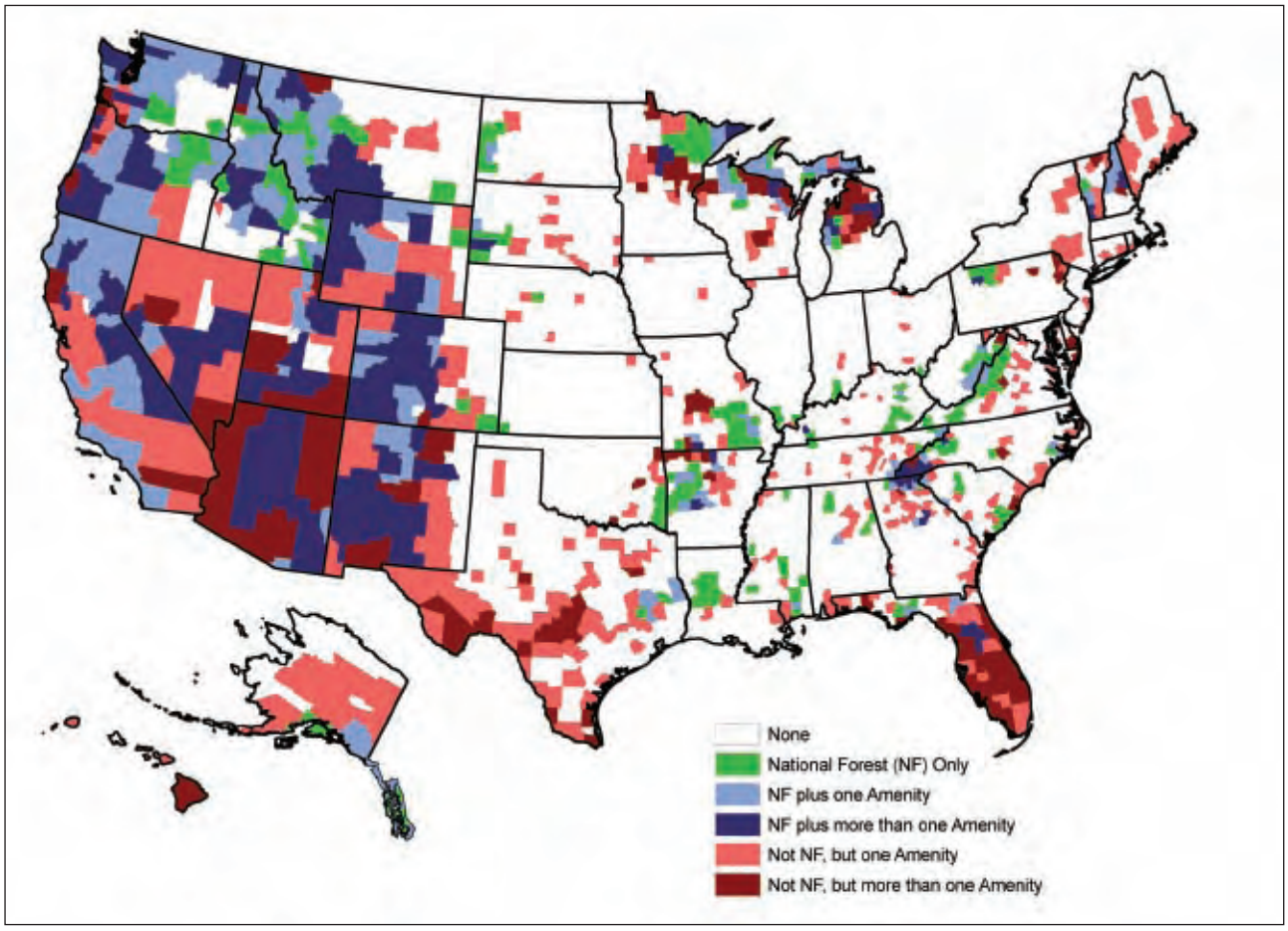

Figure 5—National forest, recreation, amenity, and retirement counties. Data: USDA Forest Service; USDA Economic Research Service; Johnson and Beale (2002)

National forests represent one of several factors that make an area attractive to current residents and appealing to migrants. Other factors include the natural amenities of an area, the recreational opportunities it provides, and the appeal of the county as a retirement destination. There is considerable overlap between these factors because areas with many natural amenities are likely to have numerous opportunities for recreational activities, such as hiking, swimming, boating, and fishing, that might also attract retirement migrants. Counties with national forests also tend to have other favorable characteristics. For example, there are 386 counties that are nonmetropolitan and have at least 10% of their land area in national forests. We will refer to these as national forest counties. In all, 205 counties classified as national forest counties also rank very high on the natural amenity index (McGranahan 1999). There is also considerable overlap between the national forest and recreational county groups. Some 150 national forest counties are also among the recreation counties delineated by Johnson and Beale (2002). And, 77 of the national forest counties are also classified as retirement destination counties by the Economic Research Service (Cook and Mizer 1994). In many cases, a national forest county may fall into more than one of the other three groupings. The overlaps are evident in the accompanying map (fig. 5), which clearly shows concentrations of multifactor counties in the West, the Upper Great Lakes and in portions of the Southeast.

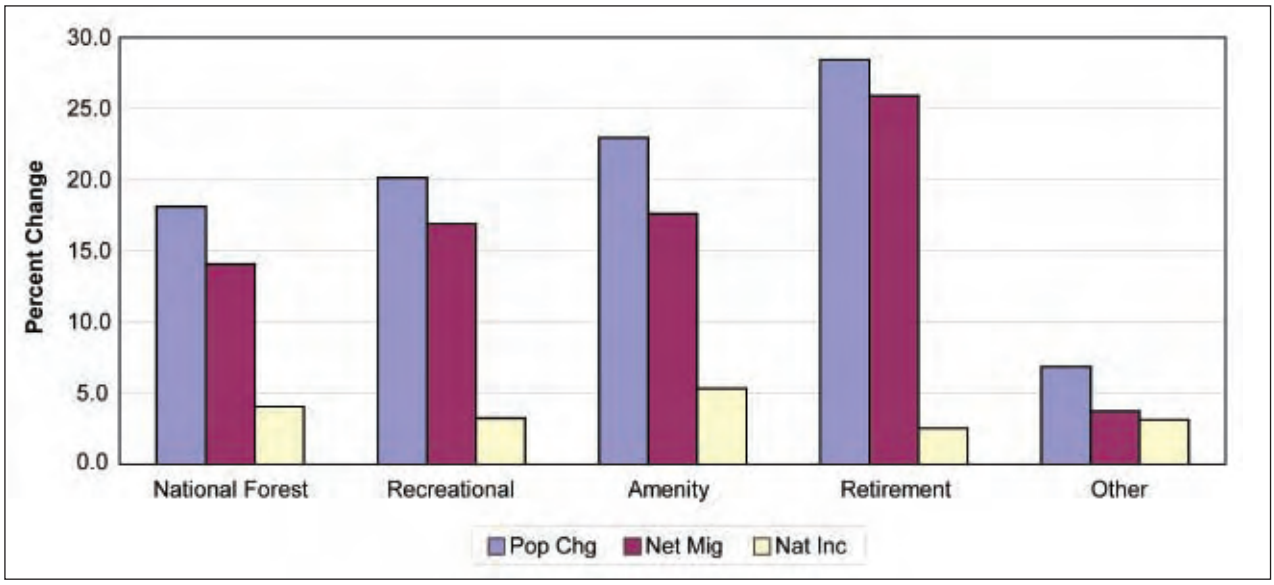

Figure 6—Demographic change, 1990–2000, by county type. Source: 1990 and 2000 U.S. Census; USDA Forest Service; USDA Economic Research Service; Johnson and Beale (2002).

The population gain of 18% in nonmetropolitan national forest counties during the 1990s was considerably higher than the overall nonmetropolitan gain of 10% (fig. 6). It was slightly lower than the gain in recreational (20%) and amenity counties (23%), and considerably less than that in retirement destination counties (28%). Though smaller in magnitude, the population gain in national forest counties was fueled primarily by net migration just as it was in recreational, retirement, and amenity counties. Some 86% of all national forest counties grew by net inmigration, and the overall gain from net inmigration was 14%. Thus, national forests appear to be attractive destinations for migrants just as recreational, retirement, and amenity counties are. Because migration can stimulate rapid population gain and alter the landscape of an area, the rapid population and migration gains in national forest areas have significant implications for the future development of the area.

Racial and Ethnic Composition and Change

The racial and ethnic structure of counties containing national forest land differs to some degree from that of other counties. Non-Hispanic Whites account for 66% of the population in the 757 counties containing national forests compared to 70% of the population in the other 2,384 counties (fig. 7). Counties with national forest land contain fewer Blacks (6%) than do other counties (14%). In contrast, counties containing national forests have considerably more Hispanics (19%) than do other counties (10%). Counties with national forest land also contain a larger proportion of individuals in the “other minorities” category (Asians, Native Americas, etc., subsequently termed “other minorities”) than do other counties (9% compared to 6%). Overall, the population of counties with national forests is slightly more diverse than the population elsewhere in the Untied States. A comparison of metropolitan and nonmetropolitan areas provides additional insights into the racial and ethnic structure of the population. Metropolitan

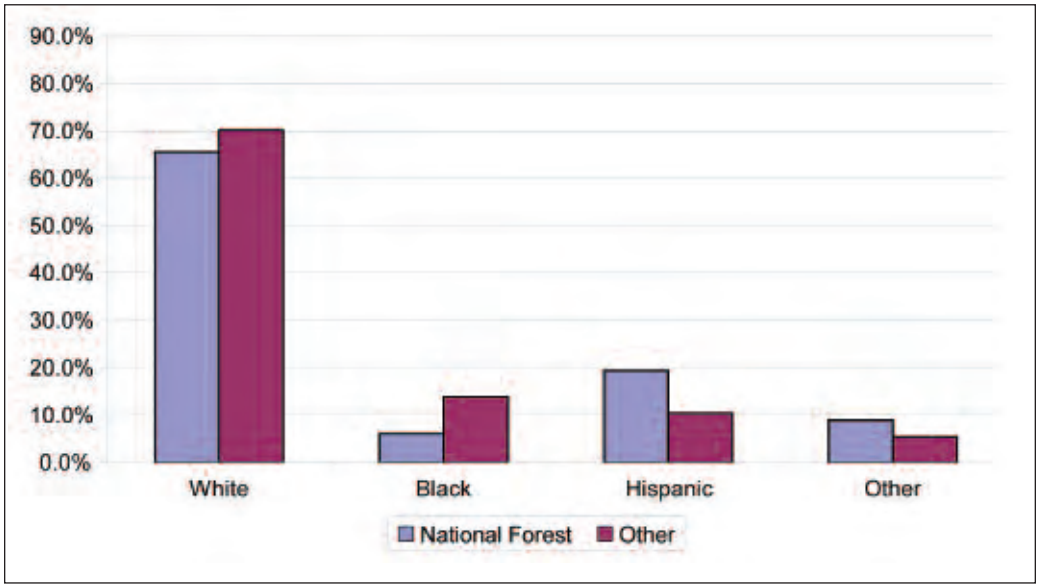

Figure 7—Race and ethnic structure, by national forest status, 2000. Source: 2000 U.S. Census. Note: Hispanics of any race are included in the Hispanic category. All other categories are non-Hispanic.

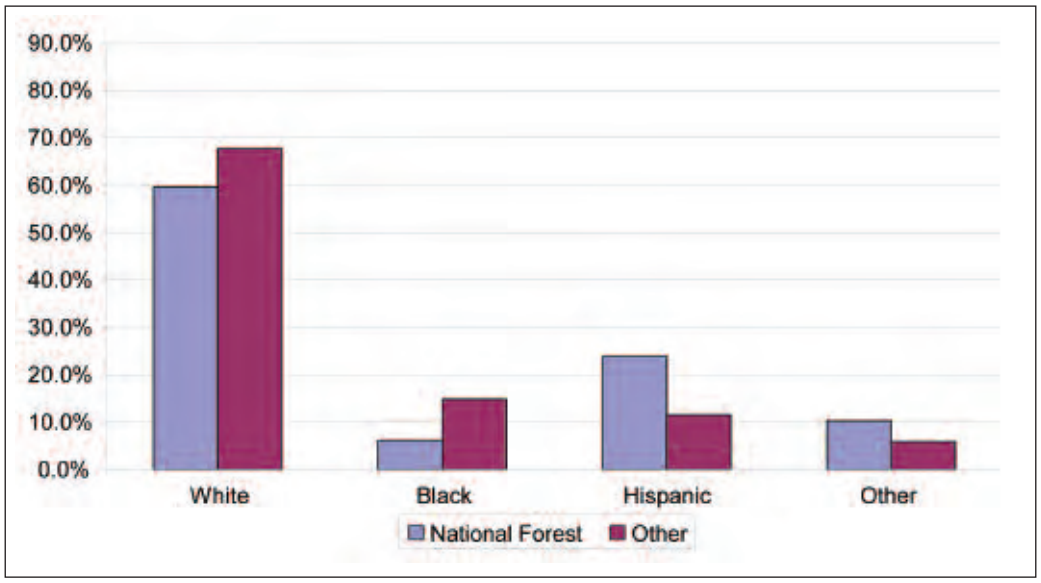

Figure 8—Race and ethnic structure in metropolitan counties, by national forest status, 2000. Source: 2000 U.S. Census. Note: Hispanics of any race are included in the Hispanic category. All other categories are non-Hispanic.

counties that include national forests are more diverse than other metropolitan counties (fig. 8). The proportion of Hispanics in metropolitan counties with national forests (24%) is more than twice that in metropolitan counties that do not contain national forests (12%). Metropolitan counties containing national forests also contain a larger proportion of other minorities (10%) than do their non-national forest counterparts (6%). In

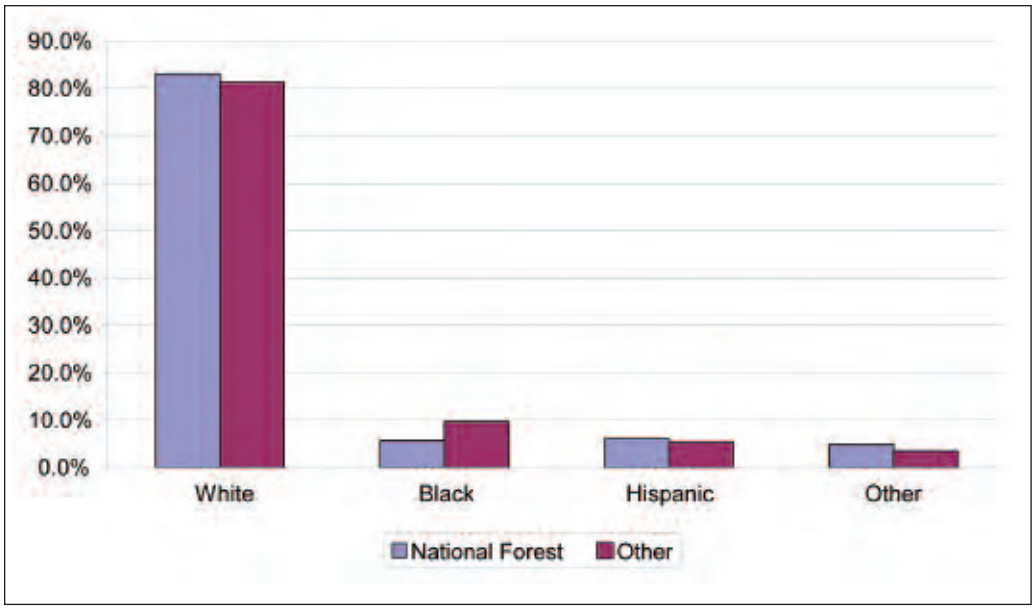

Figure 9—Race and ethnic structure in nonmetropolitan counties, by national forest status, 2000. Source: 2000 U.S. Census. Note: Hispanics of any race are included in the Hispanic category. All other categories are non-Hispanic.

contrast, the proportion of Whites (60%) and Blacks (6%) in metropolitan counties with national forest is less than in other metropolitan counties (68% and 15%, respectively).

In nonmetropolitan counties, the racial and ethnic differences between counties containing national forests and those that do not are much less pronounced. In fact, nonmetropolitan counties with national forests are slightly less diverse than those without national forests (fig. 9). Non-Hispanic Whites make up 83% of the population of nonmetropolitan counties containing national forests compared to 81% in counties without national forests. Counties with national forest in nonmetropolitan areas do contain a larger proportion of Hispanics and other minorities than their nonforest counterparts, but the differences are more modest than in metropolitan areas. The proportion of Blacks in nonmetropolitan counties containing national forests is also lower than for those nonmetropolitan counties without national forests.

The racial and ethnic differences between counties with national forests and other counties stem, in part, from the geographic distribution of the two types of counties. Most metropolitan areas that contain national forests are in the West, where the Hispanic population represents a larger proportion of the overall population. (Los Angeles County alone contains 4.2 million Hispanics, nearly 12% of the U.S. total). To a lesser extent, this also accounts for the larger proportion of other minorities in metropolitan counties with national forest land because most of the other minority population is Asian. Asians are also more concentrated in western metropolitan areas than elsewhere in the country. Blacks represent a smaller proportion of the population in the metropolitan West than they do elsewhere. The overall effect is that metropolitan counties with national forests have more Hispanics and other minorities and a smaller proportion of Whites and Blacks than elsewhere. Counties containing national forests are spread more widely through nonmetropolitan areas. As a result, the differences between national forest and non-national forest counties in nonmetropolitan areas are smaller. In addition, a greater proportion

of the population in nonmetropolitan areas is non-Hispanic White (82%) than in metropolitan counties (66%). So, it is not surprising that counties containing national forests in nonmetropolitan areas have a much higher proportion of Whites residing in them than do their metropolitan counterparts. Fewer Blacks are also evident in nonmetropolitan counties containing national forests because such counties are clustered in areas where Blacks did not originally settle and to which they have not migrated. The slightly higher proportion of Hispanics in nonmetropolitan counties containing national forests reflects the influence of the West. The higher proportion of other minorities in nonmetropolitan counties containing national forests is, at least in part, due to the presence of Native Americans in many national forest areas in rural America. Thus, counties containing national forests reflect patterns of race and ethnic diversity at least as complex as those in the nation as a whole.

Conclusions and Implications

Changes in the size, structure, and distribution of the population are among the most powerful forces impacting the natural environment. Thus, resource managers need a clear understanding of the links between the population and the natural environment based on a detailed analysis of population growth and change. Recreational and natural amenity areas are experiencing dramatic demographic changes (Frey and Johnson 1998, Johnson and Beale 2002). The rate of population increase in such areas is among the highest of any identifiable group of counties. Recreational areas in close proximity to large urban concentrations appear to be particularly prone to rapid population growth, so those landscapes are potentially most prone to impacts related to that growth. Recent research suggests that nearly 100 million urban Americans reside in metropolitan areas adjacent to such recreational counties (Johnson 2001). Some of these amenity counties contain national forests; others have significant concentrations of lakes and coastal areas, and almost all have environmentally sensitive areas. To protect the forests, riparian areas and natural amenities in such areas, while providing public access for recreation and commerce, requires a current, detailed knowledge of the changing demographic structure of these areas.

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Theme 4: Special Issues in Recreation Synthesis of Workshop Discussion

Equity in Access to Recreational Opportunities

Finding effective communication styles to involve a variety of people in decision processes is challenging. Developing relationships is an ongoing process, requiring more than a one-time invitation to participate in a meeting. Other discussion points included:

- Engaging the silent majority and minorities. If the minority will be the majority in 20 years, the Forest Service has to continue engaging the changing public to remain relevant.
- Acknowledging the cultural bias in the Forest Service about "correct" forms of recreation.
- The dual challenge of protecting the resource and providing recreation opportunities.

Crime on the National Forests

Forest Service managers perceive that crime is increasing, although reliable data is scarce. It is not clear if crimes are on the rise because of increased population or fewer officers due to downsizing and flattening of the budget since 1994. Multiple needs were identified:

- Incorporating public safety into management standards.
- Developing meaningful ways to measure law enforcement.
- Changing public's mindset about what constitutes acceptable behavior on forests.
- Improving communication between law enforcement and forest managers.

General questions raised were:

- What is an acceptable level of crime on the national forest?
- Should Forest Service law enforcement focus on resource crime or people crime?

Roger Ottmar, PNW Research Station

A fire treatment on a national forest can be used to inform the public and media about the effect of fire on recreation.

Effects of Fire and HFRA on Recreation Management

Though the Healthy Forest Restoration Act does not reference recreation wildfire has numerous impacts on recreation: areas are closed, facilities can be destroyed, air quality is impeded, use levels on unburned areas may increase, and others. Additional points were also made:

- Include recreation needs and concerns in fuel treatment plans.
- Fires and fire treatments are "teachable moments" and can be used to inform the public and media.

Questions about acceptable vegetation management have been addressed with timber management. Apply the approach to fire research, and avoid unnecessary repetition.

Commercialization of Public Land

Discussion about the general role of the Forest Service in providing recreational experiences, its niche, and its relationship with concessionaires identified multiple research needs:

- How does the public feel about for-profit concessionaires vs. government run facilities?
- Does commercialization lead to privatization?
- Does commercialization out price low-income families? Does it promote customer service or does it lead to social inequality?
- Does commercialization have an effect on eco--logical systems or the agency's land management role?

Gary Paull, USDA Forest Service

Are concessionaires able to manage public lands for all recreationists?

Effects of Urban Sprawl on Recreation Management

As housing developments push the urban-wildland interface further into the wildland, the management of public land is affected, as are recreational opportunities. Human safety and fire management is arguably the most pressing issue, but there is also the permanent loss of habitat, lost access, and increasing pressure on public land to compensate for these losses. How should national policy address urban encroachment on national forests? Other discussion points included:

- Global climate change and the links to land use change.
- Communicating with new neighbors, engaging the mainstream who may not be used to being engaged in land management.
- Wilderness and the growing rarity of solitude.

Kelly Lawrence, PNW Research Station

Forest Service scientists and managers discuss past recreation use and the future of resource protection.

Theme 5: Extra Attendee Requested Discussion Discussion Synthesis

Recreation Monitoring Tools

Managers and scientists both identified a need for better recreation monitoring and monitoring tools. One manager described the ideal monitoring tool as national in scope yet adaptable to specific needs of a particular forest, and with adequate technological support to facilitate its use.

Challenges with current tools included:

- Difficulty in getting data from agency databases.
- Difficulty in converting data systems and updating them.
- Not meeting managers' needs.
- Developing a forum for sharing problems and solutions.

History Informs

History provides context for today's decisions. Human stories and ideological history can explain the physical characteristics of the current landscape. Preserving historical places, structures, and data has multiple challenges and requires a dedicated effort. Specifically:

- Heritage sites are increasingly popular with older visitors.
- Historical data are lost through poor record management and changing storage systems.

Management and Research Collaboration

Management and research were seen as needing to work together to address the following issues:

- Defining questions. What needs to be monitored over time? This question is not limited to recreation.
- Integrating people who use the tools into the tool development process.

Tom Iraci, USDA Forest Service

Collecting accurate visitor data is only one monitoring challenge Forest Service managers face.

Market Research and the Forest Service

Should the Forest Service do marketing research? This question was discussed in the context of relationships and public trust. Benefits mentioned included:

Greater legitimacy for the agency.

- A better understanding of visitor behavior and commitment to place.

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USDA FOREST SERVICE RECREATION RESEARCH AND MANAGEMENT WORKSHOP PROGRAM

February 8-9, 2005
Portland, Oregon

February 8, 2005

7:00-8:00	Registration
8:00-8:15	*Welcome* **Kimberly Bown**, Pacific Northwest Region **Jamie Barbour**, Pacific Northwest Research Station USDA Forest Service, Portland, OR *Meeting Logistics* **Richard Zabel**, Western Forestry and Conservation Association Portland, OR
8:15-8:30	*Opening Address:* **Dave Cleaves**, Resource Valuation and Use Research Washington, DC
8:30-9:15	*Panel: Building bridges between recreation research and management* Moderator: **Marcia Patton Mallory**, Rocky Mountain Research Station USDA Forest Service, Fort Collins, CO Panelists: **Dave Holland**, Recreation and Heritage Resources **Dave Cleaves**, Resource Valuation and Use Research USDA Forest Service, Washington, DC **Liz Close**, Intermountain Region, Ogden, UT **Roger Clark**, Pacific Northwest Research Station USDA Forest Service, Seattle, WA
9:15-9:45	*Break*
9:45-11:30	*Intro to Workshop Themes (overview 9:45-10:00)* **Denny Bschor**, Alaska Region, USDA Forest Service, Juneau, AK *Theme 1: Understanding forest/recreation visitors (10:00-10:20)* **Don English** *Theme 2: Recreation planning and monitoring (10:20-10:40)* **Greg Super**, Recreation and Heritage Staff USDA Forest Service, Washington, DC *Theme 3: Recreation management (10:40-11:00)* **Dale Blahna**, Utah State University Logan, UT *Theme 4: Special issues in recreation (11:00-11:20)* **Deborah Chavez**, Pacific Southwest Research Station USDA Forest Service, Riverside, CA

11:30-1:00	*LUNCH*
1:00-2:30	*Theme 1: Understanding forest/recreation visitors* *Concurrent Sessions*
Session 1	Human benefits related to recreation Moderator: **Neil Hagadorn**, Alaska Region USDA Forest Service, Juneau, AK Research: **Mike Bowker**, Southern Research Station USDA Forest Service, Athens, GA Management: **Sue Kocis**, Recreation and Heritage Staff USDA Forest Service, East Lansing, MI
Session 2	Recreation settings, scenery, and visitor experiences Moderator: **Greg Super**, Recreation and Heritage Staff USDA Forest Service, Washington, DC Management: **Noelle Meier**, Dixie National Forest, USDA Forest Service, Cedar City, UT **Rachel Kennon**, Medicine Bow-Routt National Forest USDA Forest Service, Steamboat Springs, CO Research: **Daniel Williams**, Rocky Mountain Research Station USDA Forest Service, Fort Collins, CO
Session 3	Cultural/ethnic/racial diversity and recreation preferences Moderator: **Jeff Bailey**, Inyo National Forest USDA Forest Service, Bishop, CA Research: **Deborah Chavez**, Pacific Southwest Research Station USDA Forest Service, Riverside, CA **Cassandra Johnson**, Southern Research Station USDA Forest Service, Athens, GA Management: **Joe Meade**, Chugach National Forest USDA Forest Service, Anchorage, AK
Session 4	Special places Moderator: **Linda Kruger**, Pacific Northwest Research Station USDA Forest Service, Juneau, AK Research: **Herb Schroeder**, North Central Research Station USDA Forest Service, Evanston, IL Management: **Terry Slider**, Pacific Northwest Region USDA Forest Service, Portland, OR

Session 5 — Understanding environmental attitudes and behaviors

Moderator: **Don English**, Recreation and Heritage Staff
USDA Forest Service, Washington, DC
Research: **Gary Green**, University of Georgia, Athens, GA
Management: **Mary Noel**, National Forests in North Carolina
USDA Forest Service, Asheville, NC

2:30-3:00 *Break*

3:00-4:30 *Theme 2: Recreation Planning and Monitoring*
Concurrent Sessions

Session 6 — Recreation role in the forest plan revision process

Moderator: **Greg Super**, Recreation and Heritage Staff
USDA Forest Service, Washington, DC
Management: **Don Palmer**, Monogahela National Forest
USDA Forest Service, Elkins, WV
Lisa Freedman, Pacific Northwest Region
USDA Forest Service, Portland, OR
Vivan Kee, Tahoe National Forest
USDA Forest Service, Nevada City, CA
Research: **Troy Hal**l, University of Idaho. Moscow, ID

Session 7 — Public communication and participation strategies

Moderator: **Susan Charnley**, Pacific Northwest Research Station
USDA Forest Service, Portland, OR
Management: **Tony Erba**, Ecosystem Management Coordination Staff
USDA Forest Service, Washington, DC
Pete Karp, Uinta National Forest
USDA Forest Service, Provo, UT
Research: **Dale Blahna**, Utah State University, Logan, UT
Peter Williams, Inventory and Monitoring Institute
USDA Forest Service, Fort Collins, CO

Session 8 — Decision frameworks for recreation planning

Moderator: **Tom Christensen**, Land Between the Lakes
USDA Forest Service, Atlanta, GA
Research: **Steve McCool**, University of Montana, Missoula, MT
Management: **Kathy Ludlow**, Pacific Northwest Region
USDA Forest Service, Portland, OR

Session 9 — Place-based applications for planning

Moderator: **Terry Slider**, Pacific Northwest Region
USDA Forest Service, Portland, OR

Management: **Trini Juarez**, Pacific Southwest Region
USDA Forest Service, Vallejo, CA
Tom Quinn, Stanislaus National Forest
USDA Forest Service, Sonora, CA

Research: **Linda Kruger**, Pacific Northwest Research Station
USDA Forest Service, Portland, OR
Daniel Williams, Rocky Mountain Research Station
USDA Forest Service, Fort Collins, CO

Session 10 — Social and economic frameworks for planning

Moderator: **Gary Green**, University of Georgia, Athens, GA
USDA Forest Service, Athens, GA

Management: **Mike Retzlaff**, Rocky Mountain Region
USDA Forest Service, Lakewood, CO
Cynthia Manning, Northern Region
USDA Forest Service, Missoula, MT

4:30 Adjourn

February 9, 2005

8:00-9:30 — *Theme 3: Recreation Management*
Concurrent Sessions

Session 11 — Recreation use conflicts

Moderator: **Liz Close**, Intermountain Region
USDA Forest Service, Ogden, UT

Research: **Alan Watson**, Aldo Leopold Wilderness Research Institute
USDA Forest Service, Missoula, MT

Management: **Jerry Ingersoll**, Recreation and Heritage Staff
USDA Forest Service, Washington, DC

Session 12 — Managing special areas

Moderator: **David Cole**, Aldo Leopold Wilderness Research Institute
USDA Forest Service, Missoula, MT

Research: **Herb Schroeder**, North Central Research Station
USDA Forest Service, Evanston, IL
David Cole, Aldo Leopold Wilderness Research Institute
USDA Forest Service, Missoula, MT

Management: **Jill Osborn**, Recreation and Heritage Staff
USDA Forest Service, Boise, ID
Jonathan Stephens, Recreation and Heritage Staff
USDA Forest Service, Washington, DC

Session 13 — Recreation tourism and community development

Moderator: **Floyd Thompson**, Recreation and Heritage Staff
USDA Forest Service, Washington, DC
Research: **Linda Kruger**, Pacific Northwest Research Station
USDA Forest Service, Juneau, AK
Kreg Lindberg, Oregon State University, Bend, OR
Management: **Christie Kalkowski**, Humboldt-Toiyabe National Forest
USDA Forest Service, Reno, NV
Steve Kimball, Salmon-Challis National Forest
USDA Forest Service, North Fork, ID

Session 14 — Financing options for recreation management

Moderator: **Gail van der Bie**, Recreation and Heritage Staff
USDA Forest Service, Washington, DC
Management: **Gail van der Bie**
Research: **Patricia Champ**, Rocky Mountain Research Station
USDA Forest Service, Fort Collins, CO
Jerrell Richer, Sonoma State University
Rohnert Park, CA

Session 15 — Communication with forest visitors

Moderator: **Elizabeth Grinspoon**, Pacific Northwest Region
USDA Forest Service, Portland, OR
Management: **Kristen Nelson**, Recreation and Heritage Staff
USDA Forest Service, Washington, DC
Research: **Patricia Winter**, Pacific Southwest Research Station
James Absher, Pacific Southwest Research Station
USDA Forest Service, Riverside, CA

9:30-10:00 — *Break*

10:00-11:30 — *Theme 4: Special Issues in Recreation Management*
Concurrent Sessions

Session 16 — Equity in access to recreation opportunities

Moderator: **Cassandra Johnson**, Southern Research Station
USDA Forest Service, Athens, GA
Management: **Francisco Valenzuela**, Rocky Mountain Region
USDA Forest Service, Lakewood, CO

Research: **Patricia Winter**, Pacific Southwest Research Station
USDA Forest Service, Riverside, CA

Session 17 — Wildland fire and recreation management and effects of HFRA on recreation management
Moderator: **Leslie Weldon**, Deschutes National Forest
USDA Forest Service, Bend OR
Management: **Jeff Bailey**, Inyo National Forest
USDA Forest Service, Bishop, CA
Research: **Jim Absher**, Pacific Southwest Research Station
USDA Forest Service, Riverside, CA

Session 18 — Crime on the National Forests and Grasslands
Moderator: **Jeff Waalkes**, Law Enforcement and Investigations
USDA Forest Service, Washington, DC
Management: **Jonathan Herrick**, Alaska Region
USDA Forest Service, Juneau, AK
Research: **Deborah Chavez**, Pacific Southwest Research Station
USDA Forest Service, Riverside, CA

Session 19 — "Commercialization" of public lands
Moderator: **Tom Quinn**, Stanislaus National Forest
USDA Forest Service, Sonora, CA
Management: **Mark Christiansen**, Deschutes & Ochoco National Forest
USDA Forest Service, Bend, OR
Research: **Tom More**, Northeastern Research Station
USDA Forest Service, Burlington, VT

Session 20 — Effects of "urban sprawl" on recreation management
Moderator: **Anne Hoover**, Resource Valuation and Use Research
USDA Forest Service, Washington, DC
Management: **Tom Klabunde**, Tonto National Forest
USDA Forest Service, Phoenix, AZ
Research: **Susan Stewart**, North Central Research Station
USDA Forest Service, Evanston, IL

11:30-1:00 — *LUNCH*

1:00-2:30 — *Concurrent Sessions*

Session 21 — Recreation Monitoring
Moderator: **Don English**, Recreation and Heritage Staff
Management: **Sue Kocis**, Recreation and Heritage Staff
USDA Forest Service, East Lansing, MI

Kristi Cottini, Shasta-Trinity National Forest
USDA Forest Service, Redding, CA
Research: **Susan Charnley**, Pacific Northwest Research Station
USDA Forest Service, Portland, OR
Robert Burns, West Virginia University, Morgantown, WV

Concurrent Sessions 22 through 25 were left open so that workshop participants had the opportunity to organize sessions to either follow up on earlier sessions or address topics that were not covered previously.

Session 22	Open
Session 23	Open
Session 24	Open
Session 25	Open
2:30-3:00	Break
3:00-4:00	Conference Panel: Lessons Learned from the Workshop **Dave Cleaves, Dale Blahna**
4:00-4:30	Closing Remarks – **Denny Bschor**

February 10, 2005: Post-workshop sessions

8:00-12:00	NFS Session
8:00-5:00	R&D Session: Building a recreation research agenda

National Workshop on Recreation Research and Management Summary Paper, NFS Managers' Session

Held February 10, 2005

Building a Community of Practice By: Noelle L. Meier

Introduction

The National Workshop on Recreation Research and Management was held to explore the integration of research as a tool in effective outdoor recreation management. This workshop brought together dozens of professionals and researchers from across the country, with the third day set aside for managers and researchers to hold separate meetings. At the National Forest System (NFS) managers' session, a free-flowing discussion atmosphere allowed participants to discuss problems and suggest remedies, which is summarized here.

A variety of topics were covered over the course of the three-day workshop and the need to simplify recreation management surfaced repeatedly as participants framed their discussion with words such as "streamline, organize, and clarify". Managers defined themselves as dedicated, hard-working professionals, but many feel increasingly less effective as practitioners due to increasing demands that fragment their time. Dealing with administrative tasks, managing increasing visitor numbers and diverse expectations, conserving natural resources, and complying with statutory and policy requirements has become complex and overwhelming. The constant struggle to accomplish these responsibilities has resulted in much less time available to "sharpen the axe".

Access to collective knowledge, innovations, and experience is inefficient. Keeping current is difficult. Management complexities have overrun the capacity of the traditional structure of the Forest Service. Managers have become extremely isolated in their practice. This situation must be reversed through a professional community motivated to improve communications, and provide ongoing education and mentorship. Perhaps the most important purpose of the community is to inspire and support its members.

Problems Experienced by Recreation Managers

Participants at this session identified and discussed a variety of problems within the agency, many of which are not unique to recreation managers:

- The flow of information is not strategic and seems unfocused. Related programs are fragmented, efforts overlap, and redundancy is common.
- E-mail inboxes are too full. Employees cannot keep up with housekeeping and filing of useful information. However, few are asking to be removed from mailing lists and even more are joining. People have a need for information, but they need help managing it.
- Discussions on new programs/rules/regulations begin before development is complete. These provide opportunities for early dialog and exchange of ideas, but can lead to confusing interpretations and improper application.
- Agency work involves too many systems, with accompanying passwords, making access to useful information difficult.
- Information exchange between agency employees and outside parties is difficult. Certain intranet content should be accessible by outside parties.

- Many program websites are not kept up-to-date.
- Poor ability to move directives and goals from upper levels of the agency to the field.
- Poor ability to advance goals, needs, applications, and innovations from the field to upper levels of agency.
- No comprehensive links or libraries exist to easily locate useful tools for recreation management.
- Most practitioners are operating individually, using their formal education and experience to guide them.

Many mangers believe that a "disconnect" lies between agency programs and the systems required for implementing them. Linkages across disciplines, organizations and agency levels are either non-existent or ineffective. However, if systems were made more accessible and applicable in the field, they would be better utilized by community members. Greater use would mean greater exposure. One manager highlighted the problem by asking "If we don't use and promote our available tools, might we give the impression that they are not a good investment of the agency's time and money?" Improved awareness of recreation issues and professional activities could result in greater attention by agency leadership, when it comes to setting priorities.

Defining a Community of Practice

Early on in the workshop, a concept emerged that may offer a solution to problems described by recreation managers. Professionals and technicians in related disciplines can work together to better inform and create efficiencies by forming a dynamic society called a *community of practice*. Etienne Wenger, renowned expert, author and consultant on knowledge management and communities of practice, defines these societies as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (2005). The term community of practice is relatively new, but people have been working this way for some time. Organizations, governments, and private industry are using this idea to systematically improve professional performance.

Very few presenters and only a handful of people in the audience knew of the community of practice concept. Many managers talked in the hallways between sessions and during after-hours gatherings about the community of practice idea. Peter Williams, of the Forest Service Inventory and Monitoring Institute (IMI) in Fort Collins, Colorado, helped to shed light on how the concept might improve Forest Service work. To paraphrase Williams, a community of practice is comprised of several stovepipes representing individual but related organizations, but a conduit cuts across those stovepipes which represents a common interest. Three components essential to the community include:

1. **People** who are members of the community.
2. **Technology** that serves the members.
3. **Interaction** that occurs among community members (phone and electronic communications are part of this, but face-to-face meetings are probably the most important).

Wenger (2005) further identifies three principles that are crucial for a community of practice to be effective:

1. The community must have a **shared domain** or focus of the community. Membership implies a commitment to that domain, where members value their collective competence and learn from each other, even though few people outside the community may value or even recognize their competence.
2. Members must **engage in joint activities and discussions**, assist each other and share information. Learning occurs through these outgoing relationships. Members must interact and seek to learn from each other.
3. Members are **practitioners, sharing their resources with the community**. These resources include experiences, stories, case studies, tools and methods for addressing recurring problems. A

concerted effort to collect and document people's lessons is ongoing. Reciprocity of practitioners is an essential understanding among community members and amounts to a code of conduct.

Williams expanded upon this statement by emphasizing that the community is a "dynamic society", where the members determine what is needed to best support their practice. Therefore, the support systems continually evolve according to community needs and as innovations continue to shape the community.

This concept and subsequent discussions helped the group define and illuminate the gaps between managers' desires and how things might improve. The group was encouraged to envision and describe a community of Forest Service recreation managers that could improve on the job efficiency and quality and increase professional rigor and skills. Community of practice became the focus of the NFS session. Because the discussion was free-flowing and circular in nature, this summary has been organized within the context of building a community of practice. A few references are provided for further consideration and flip chart notes of the NFS managers' session are also available.

What Should a Recreation Management Community Look Like?

Several disciplines are directly or indirectly involved in outdoor recreation management, therefore the NFS managers group spoke of the need to be broadly inclusive for the community's membership. Integral to the goal of self-improvement (the foundation of any community of practice), recreation managers must connect with a variety of professionals such as NFS social scientists, cultural heritage specialists, landscape architects, engineers, agency researchers, and law enforcement. Partnering with private industry and academic research would also strengthen the community's knowledge base.

Constituency building and networking was also identified as critical to meeting community needs. Therefore, the community's conduit would be most effective as an internet-based system; a convenient portal through which members can connect. Multiple parties would be necessary to maintain the community of practice system although exactly who was not determined.

Five Potential Objectives of a Recreation Management Community

1. Improve Knowledge Management

It doesn't matter where practical information originates; good information, should be maximized for available use. Community members, at any location and at various levels of experience should be able to access the portal for the exchange of knowledge. Managers at this session expressed that an internet-based portal that includes a searchable electronic system would be an asset in helping to mentor new employees and improve the knowledge base for existing professionals. This interface capability currently exists at the Inventory and Monitoring Institute (IMI). The IMI provides technical consultation to the Forest Service and facilitates interaction and information sharing associated with inventory, monitoring, and planning problems. As part of this responsibility, the IMI offers a discussion forum where practitioners can log in and participate in ongoing dialogue on relevant issues located at http://www.fs.fed.us/institute/PAG/Communities_of_Practice.shtml (USDA, Forest Service 2005).

A knowledge management system useful to the recreation professionals' community would need to be efficient and could borrow features from existing systems. One example would be an internet search engine. A search engine provides a service similar to a library or an archive, acting as a repository for information and each search becomes increasingly more comprehensive and efficient when queries are layered.

A community of practice can act as a multi-dimensional clearinghouse for channeling information, applications, and innovations rapidly to-and-from the field levels, the Washington Office, research stations, technology/ development centers, and entities of other related disciplines. Knowledge management is driven by the need for rapid technology transfer across two or more pipelines. It essentially becomes a researchable question regarding "actionable knowledge" with a goal of creating a new model for communicating knowledge. This is a philosophy of science, a distinct area of research, subject to peer review. As part of this research, the community can provide case studies of work that bridges theory and knowledge.

Most managers have access to resources such as Recreation Opportunity Spectrum (ROS), the Scenery Management System (SMS), and the Built Environment Image Guide (BEIG). Research, agency directives, and program websites are also currently linked to the USDA Forest Service Recreation, Heritage and Wilderness Resources (RHWR) Intranet website (USDA, Forest Service 2005). The difficulty lies in pulling these tools together for practical application. Many managers expressed that these various tools, guidelines, and directives are valuable, but disjointed in terms of comprehensive application. This problem was blamed on ineffective communication.

The draft document *A Technical Guide for Integrating Recreation, Heritage and Wilderness into Land and Resource Management Planning* currently provides the best means to instruct managers in practical applications of these and other tools and is available at the website noted above. However, a community of practice is needed as an information hub for assembling all crucial elements including informal discussion of context and methods of practice. The community can provide new employees, line officers, and seasoned practitioners a means to develop a more replete concept of how multiple aspects of a practice are tied together.

2. Streamline Communications/ Technology Transfer

Managers expressed a need for one-stop shopping, a centralized, searchable library for accessing current and historic research. Attendees concluded that employees in the field would utilize this library if it were organized to include plain language abstracts of research involving practical applications for management. This would allow interested managers to focus attention on the most applicable research.

One manager pointed out that the Forest Service is already paying to support several research organizations and programs at the regional or national level. However, it is not believed that these resources are utilized widely by the workforce. The RHWR Intranet website currently links to several internal and external research websites, including:

- Aldo Leopold Wilderness Institute
- Wilderness.net
- Technology Development centers: San Dimas TDC, Missoula TDC
- USFS Research Stations

The managers suggested that a recreation community of practice website could also include links to Digitop (the National Digital Library for the Department of Agriculture), and Agricola (USDA's Agricultural Online Access). Additional suggestions included networking capability such as discussion forums to enhance or replace extensive recreation mailing lists and the useful Rec Talk list serve email forum.

Other suggestions for possible incorporation to the community website included:

- Academic journal links and annotated bibliographies with keyword search capability (subscription required).
- Professional white papers, case studies, student papers and theses.
- Ability to rate the usefulness or applicability of articles, papers and other resources. This may be something similar to the customer book review

capability offered by online bookstores (five-star rating with commentary for opinions).
- Links to human dimensions/communities of practice pilot projects.
- News announcements and status of initiatives and budget, with links to related web sites. (Examples might be Fee Demo, partnerships, the OHV rule, budget reports).
- Charters of organizations like San Dimas and Missoula Technical Development Centers, and the Inventory and Monitoring Institute (IMI).
- Annual calls for projects, with instructions for submittals in order to fit the respective charters.
- Advertisements of grants and other funding opportunities, scholarships, training.
- A directory of "Master Performers" of field practitioners, researchers, and academics available for consultation.
- Distribute a periodic e-mail newsletter as a reminder of the community of practice, website and current topics.
- A suggestion box for continued improvement.

3. Develop Professional Skills/ Provide for Ongoing Education

Evolution of the Discipline- Outdoor recreation work involves the cooperation of many disciplines, and the community of practice must be inclusive to maximize the knowledge base. Traditionally, other professionals such as landscape architects have filled the role of managing recreation programs, a point of concern for some recreation professionals. It was explained that historically, landscape architects were one of the few disciplines trained to consider the human environment while managing for natural resources.

Over time, academic programs have been developed to provide specific training in outdoor recreation and social psychology. The Forest Service has not yet developed a suitable professional recreation series. Agency downsizing and shifting of positions continues to result in the placement of some recreation managers who lack proper training and sometimes the aptitude for dealing with difficult "people problems". Oftentimes, they are required to obtain additional credits in disciplines such as forestry in order to qualify for agency recreation jobs especially when they are advertised under the forester position series. The Forest Service is looking into several academic curricula to better understand whether or not agency series requirements align with graduation requirements.

Attendees voiced a concern that variable training, experience, and education may be related to problems with inconsistent writing and analysis quality in environmental documents. This was thought to be the root of inappropriate managerial attitudes, as well. It was noted that some recreation managers unfortunately exhibit a shut-down and shut-out approach to controlling visitors, while others use knowledge of design and social psychology to manage for diverse visitor expectations and recreation use.

The 401 series has been adopted as a flexible way to place employees in outdoor recreation positions. Although it requires positive education credits, it tends to be too generic to provide the rigor expected of other professions such as forestry, hydrology, and wildlife biology. Managers stated that high levels of rigor exist in ecologic and social academic science and agency positions in those sciences should reflect that rigor.

Professional Society Membership- Enhanced credibility and professionalism through professional society membership were also discussed in this session. There was a concern that there is little encouragement for recreation professionals to maintain professional memberships. Certifications and registrations through organizations such as the Society of American Foresters and the American Society of Landscape Architects lend greater professional credibility and again, rigor, to individuals who complete the examinations and take the oaths that make them worthy of membership. The following list of professional

societies open to recreation professionals is not comprehensive:

- National Association of Recreation Planners (NARP)
- International Symposium on Society and Resource Management (ISSRM)
- Environmental Design Research Association (EDRA)
- American Society of Landscape Architects (ASLA)
- Society of American Foresters (SAF)
- World Wilderness Congress (WWC)

Live Gatherings- Conferences or workshops can breathe inspiration and motivation into an individual's work, build professional skills, and develop a better sense of quality. Managers thought that live meetings have been instrumental in strengthening the network of professionals and exposing good role models. Yet, recreation gatherings in the agency are currently too infrequent to accomplish these goals. Many conferences and consortiums are no longer held due to demands on time and budget, common constraints to bringing professionals together.

Professional gatherings can greatly improve managers' awareness and use of research, but advertisement of gatherings must improve. For example, since 1986 there has been a meeting of social scientists and resource managers that has evolved to become the annual International Symposium on Society and Resource Management (ISSRM). This is a gathering that practitioners should consider attending periodically throughout their careers, but very few seem aware of it. Conversely, the Clemson and Utah State Universities-Forest Service Recreation Shortcourses are fairly well-known among recreation managers. These courses are continually evolving and could be advertised through the community of practice website. Every-other-year could be reserved for a one-week refresher for these shortcourses, so that they are not just once-in-a-career events.

Live gatherings are perhaps the most powerful form of knowledge transfer in a community of practice. The community can promote events and help make attendance a regular part of the professional practice. The value of live gatherings could be better understood by practitioners and their supervisors if community members were talking about the meetings, presentations, and following up in the community forums.

Mentorship- The Student Career Experience Program (SCEP) and other education/apprentice programs offer tremendous benefits through on-the-job training during an employee's college years. Many students have grown into skilled employees with a well developed understanding of the agency's recreation programs, issues, and mission. As a result of this formative exposure to real-life work experiences, many summer employees have modified their academic curriculum to better prepare for a career with the Forest Service.

The development of human capital is weak in the recreation management structure. There are no formal channels to facilitate live or virtual cross-training as part of ongoing employee training. Furthermore, opportunities to shadow a professional are unknown even though they would be beneficial to new employees, especially as the agency's master performers retire.

4. Assist with Hiring/Outsourcing/Contracting

Managers discussed the issue of the Forest Service's aging workforce, hiring freezes and near-freezes, decreasing budgets, and increasing responsibilities. Given these circumstances, individual units find it difficult to place new positions on their organizational chart, especially considering the fixed-costs that accompany the decision. If a decision is made to postpone hiring a qualified recreation professional, the unit struggles in the meantime. This situation is hard on existing employees who must fill in the gaps while positions sit vacant. Consequently, less time is available for mentoring new or training existing employees.

A community of practice can help provide the knowledge and resources to illustrate the expectations of the profession and support new and fill-in employees.

Contracting for professional recreation, design, and research services is becoming more common, but there are problems with this approach. If agency employees are closely involved, the quality and applicability of contracted research can be very good. Asking the right research questions ensures relevance and quality. Forest Service managers and researchers must be involved to avoid unmet expectations and avoid costly and wasteful contract research.

Agency and academic researchers can help to supervise and review contracted research. This oversight maintains research standards and ensures that requested products are delivered. Managers must request such assistance well in advance but many are unaware of this valuable service. The community of practice could serve to advertise available contractors or reviewers and to improve contracting skills.

Contracting too many services may lead to a decline in the agency's image, especially services that interface with the recreating public. It is difficult to promote a particular image without being present. Several managers agreed that it is nearly impossible for most contractors to grasp the sense of tradition and dedication that Forest Service employees typically embrace. Many Forest Service employees chose a lifestyle that includes volunteering in the community. Characteristics not commonly found among contractors. Such characteristics are part of an ethic, handed down from mentors and are critical to "growing" good agency employees. A community of practice could be very effective in passing along this land and work ethic to agency employees and perhaps even to contractors, if aspects of the community were accessible to people outside the agency.

5. Bridge Recreation Research, Development and Management

Managers identified several areas of needed research and development (R&D), hoping to bridge management and research:

- Assess tools such as the Recreation Opportunity Spectrum (ROS), the Scenery Management System (SMS), and the Built Environment Image Guide (BEIG). Improve applicability and operationalize them for use in the field. Include considerations for lands outside forest boundaries.
- National Fitness, link the Forest Service and outdoor recreation to the national health agenda.
- Describe cumulative effects of recreation projects, within and beyond forest boundaries.
- Link site-specific projects to national and forest-level plans; effects of the new planning rule.
- Effectiveness of recreation management in meeting the needs of forest visitors.
- Identify the diverse expectations of forest visitors.
- Effects of commercialization in the forest setting and on recreation satisfaction.
- Address the high-consumptive visitor (i.e. extreme sports, need for increased amenities).
- GIS applications as a modeling tool for social science.
- Using NFS lands as memorials to loved ones, as places to scatter ashes. (How much of this is occurring? What are the implications? How to deal with it?)
- The Healthy Forests Restoration Act: how new actions affect recreation activities? (i.e. is opening the understory resulting in increased cross country motorized travel?)
- Links between recreation and law enforcement.
- Public acceptance of newer uses of forest lands and the effect of technological changes in traditional sports (i.e. mountain biking).
- Equity in forest access.
- Capacity for forest uses.
- Who is the Forest Service? What is acceptable use of NFS land and what should be transferred to private lands?

- Historical perspectives on recreation resources (i.e. skiing, off highway vehicle use, hunting). Provide baseline understanding to better measure and understand changes.
- Methods of inventorying and monitoring dispersed camping and other dispersed recreation. Use Global Positioning Systems (GPS) to inventory and monitor special places and incorporate Limits of Acceptable Change (LAC).
- The evolution of recreation impacts on cultural and natural resources.
- Use of partnerships. Stewardship of rivers, trails, and facilities. Develop multi-affiliate teams, using "meet and greet" programs and other communication to better inform and educate visitors.
- Tools for managing dispersed camping, avoiding "reactive development" and "development creep". Implement gradual degrees of development such as site hardening, vehicle control, and garbage pick-up. When are these appropriate actions to take?

Technology transfer must move ideas and needs from the field, to R&D. Management and R&D could work together within a community of practice to strategize and construct an evolving set of research emphases. These could help inform decisions to conclude less relevant areas of research and development and to develop new tools and applications.

During the National Workshop on Recreation Research and Management, managers learned that Forest Service research is an organization with multiple functions and clients. The NFS represents only one of R&D's clients. Requesting work of R&D can be competitive and project needs can be better met if the field units are prepared well in advance. Research requests take time and must be placed on a schedule 6 to 12 months in advance. A directory of agency researchers and a list of their past and current work could be linked to the community of practice enabling managers to quickly find the most appropriate research assistance.

Budget allocation for recreation research is very low, but field units can apply for grants and improve a potential project's readiness. Short term program items (site specific projects or social assessments) are not as desirable as long-term research and often are not highly prioritized by R&D. Well-funded programs such as wildfire and fuels reduction, often dictate the issues that come down the research pipeline, but spin-off opportunities for other needed research may become available. The community of practice could be used as a venue for ongoing communication between managers and researchers to increase awareness of current problems that should be reflected in research charters.

There are incentives for researchers to publish in academic journals. If researchers focus on extension services or technical transfer activities, it's possible they won't advance well in their careers. Serving the needs of the NFS is unfortunately much less of an incentive for researchers. To alleviate this problem, a research enterprise team could be created to deal with short-term research needs and assist with technology transfer to the community. Also, R&D is connected to a network of cooperators who are able to help accomplish what the agency cannot. Connecting managers with cooperators could be an appropriate application of the community of practice.

Conclusion

Recreation managers and social scientists struggle to defend their work and receive a reasonable portion of the budget, despite the fact that many environmental issues are ultimately people issues. It is often difficult to explain to line officers the best approaches to manage visitors. Social science results are often much harder to clearly explain, then in many other scientific disciplines such as fhe biophysical sciences. Managers and researchers can strengthen their partnership through a community of practice.

Knowledge and communication do indeed "sharpen our tools" and recreation managers know that some of our tools desperately need sharpening. Constrained budgets and too many demands on our time have diminished the effectiveness of the recreation practice. Employees feel worn down and have deflated enthusiasm for their work because of these demands. New life and inspiration are needed in the profession. The development of a community of practice would foster a collective effort of ingenuity and pooled skills to solve common problems. This community of practice would be based on the reciprocity of mutual benefits and an obligation of service to fellow professionals, the agency, and the public.

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Creating a Community of Practice for Outdoor Recreation

Summary of the USDA Forest Service Recreation R&D Meeting February 10, 2005

Introduction

At the conclusion of the Workshop, Forest Service researchers met as a group to review and discuss recreation research needs. We focused our attention on two broad questions:

- What outdoor recreation R&D priorities emerged in the workshop sessions and informal discussions over the last two days?
- What actions can we take to address those priorities?

Discussions were wide-ranging and fruitful. By the end of the day a number of ideas surfaced that will be used in the future to build strategic direction for the Forest Service Recreation R&D Program. Researchers spoke repeatedly of the need to build a "community of practice" among researchers and users, where scientists, managers, other stakeholders and ordinary citizens work together to gather, apply, benefit and learn from, and revise knowledge needed to address current and future recreation-related issues. Participants recognized that building a Community of Practice for Outdoor Recreation (CPOR) requires changes in behavior, at both the individual and institutional levels. Most of the day's discussions focused on how to achieve these changes, and identification of the foundational building blocks for a CPOR. At the conclusion of the day, several scientists volunteered to form a team to follow-up on the ideas generated at the meeting.

Defining Outdoor Recreation

What is meant by the term "Outdoor Recreation"? Many scientists asked this question during our discussions. Discussants felt that the answer is quite different today than it might have been 10 or 20 years ago. Understanding what outdoor recreation is today and what form it might take in the future is critical to building a successful CPOR. Many scientists expressed a concern that the agency is not in sync with what is happening on the ground. Participants felt that our management and research practices are not keeping up with the rapid changes in recreational behavior and preferences of our visitors. In addition, the context in which recreation is taking place is more complex. Such complexities include the U.S. population becoming more diverse and technology-oriented, and housing developments competing for space adjacent to recreation lands. Discussants felt we must re-adjust our notion of outdoor recreation research to one that is more integrative and holistic, one that can accommodate these emerging complexities. A more integrative outdoor recreation research program would address a broader array of topics, in addition to the traditional information we are currently providing. A more holistic approach to our work will require the use of new and under-utilized tools and methods, ones that cross disciplines, theoretical approaches, and comfort zones. The new recreation sciences may not be called recreation at all, and might place greater emphasis on areas of research such as: outdoor experience, knowledge

building and learning, human uses of nature, community development, economic, social, and ecological impacts of outdoor activity, and human conflict behavior. Some of the research topics participants suggested as foundational to the new recreation sciences and key to development of a CPOR are:

- Describing and communicating values, tradeoffs, and benefits
- Describing and understanding our users
- Movement of people and tourism implications
- How to collaborate and communicate with communities, visitors, and other stakeholders
- How to manage where conflicting uses exist
- Effects on outdoor recreation from housing and physical infrastructure growth on adjacent lands
- Environmental justice/effects of outdoor recrea-tion activity and development on different socio-economic groups

Institutional Change

A second area of discussion focused on the institutional or structural changes needed within Forest Service R&D and National Forest Systems to facilitate the creation of a CPOR. Although these discussions touched on a number of subjects, they can generally be narrowed to five topics:

- Understanding the work environment of the "other"
- Research and management capacity
- Improving information access
- Integration through reorganization
- Strategic planning

Participants expressed a concern that they did not have a clear understanding of managers' daily work environment. Researchers can develop useful tools, models, and other applications of research findings only when they understand the managers "milieu". This means not only the circumstances in which a particular research product will be used, i.e. for forest planning or recreation monitoring, but also generally how decisions are made, the nature of external pressures managers face, and the kinds of communication and networking strategies managers rely on. This kind of information will allow researchers to better tailor a product to the managers' needs, and also help the researcher determine what other research may be needed in the future. Likewise, it was observed that managers could benefit from understanding the research process, especially the timelines, reward system, and sources of research findings. Based on earlier discussions during the workshop, participants agreed that there was a need for recreation management positions to be "professionalized" so that employees in those positions might better capitalize on and use research findings.

A number of comments were made about the declining capacity of Forest Service R&D, and recreation research in particular. Although recreation participation has increased dramatically over the last decade, recreation research capacity has remained flat or declined. Some participants remarked that there seems to be a lack of interest in recreation research at the agency leadership level, despite growth in recreation participation and impacts. It was suggested that an assessment be conducted to evaluate the factors contributing to capacity declines, the current and future recreation research needs, and what organizational changes may improve capacity. It was agreed that building a CPOR could help expand the constituency for recreation research, and result in further support and growth in capacity over the long-term.

A successful Community of Practice requires easy access to information so that community participants can routinely exchange ideas and knowledge, and put into practice what they have learned. Discussants proposed that the CPOR sponsor the development of an information delivery system about outdoor recreation. This information system would be web-based, and may include for example, a synthesis of current recreation research available by topic, sources of information and expertise, and tools to analyze data. Development of the information delivery system would be preceded by an assessment of customers and their needs. During

and after development, a marketing effort would ensure that users know how to use and access the information system. A periodic evaluation of customers will be conducted to determine relevancy and user-friendliness of the system. Discussants felt there was a need to ensure that the knowledge transmitted to managers by the new information delivery system, or by other means, becomes "actionable knowledge" used on the ground, in real management scenarios. Some type of application monitoring may be necessary to determine if our science has been transformed into actionable knowledge. Other ways to make our science more accessible to users were proposed, such as bringing knowledge to our customers where they live and work by centralizing our recreation research expertise in service centers across the U.S. Other suggestions included incorporating more research into recreation management training modules, and improving managers' direct access to scientists by omitting requirements to contact Stations first.

Participants agreed that taking an integrated approach to recreation research was fundamental to the successful development of a CPOR. Although new formal mechanisms for working across Stations would be helpful, discussants observed that opportunities exist to self-organize and that scientists should take advantage of these opportunities more often and use informal teams where appropriate. In addition, there was strong recognition that expanding the customer base beyond NFS recreation managers was essential for success. Reorganizing in ways that enable relationship building with new and different customers such as state Fish & Game departments, other federal agencies, recreation and tourism industries, volunteer organizations, and NGOs may further strengthen a CPOR. Some steps have already been taken towards reorganization to accomplish integration. For example, the North Central Station reorganized recently to accommodate the increasingly complex, integrated research questions facing them. Currently, the R&D Washington Office (WO) is reorganizing into teams to enhance integration across disciplines, help align and consolidate administrative functions, and expand relationships with customers. Although there are many barriers to institutional change, discussants agreed that some changes will be essential as we develop a CPOR.

Participants suggested that given the number of actions needed to develop a CPOR, the Recreation R&D Program should develop a strategic plan to guide future efforts. The plan should assume an integrative approach and R&D reorganization, include priority cross-cutting research questions, and involve partners and other customers in the development process. In other words, the goal of the strategic plan should be to create a Community of Practice for Outdoor Recreation.

WORKSHOP Participant List

February 8-10, 2005
Portland, Oregon

Jim Absher
Research Social Scientist
PSW Research Station
4955 Canyon Crest Drive
Riverside, CA 92507
951-680-1559
jabsher@fs.fed.us

Susan Alexander
USDA Forest Service
PO Box 21628
Juneau, AK 99802
907-586-8809
salexander@fs.fed.us

Berneice Anderson
USDA Forest Service
626 E. Wisconsin Ave.,
Suite 101
Milwaukee, MI 53202
414-297-3841
banderson06@fs.fed.us

Christine Arrendondo
Rec, Lands and Planning Staff
Officer
USDA Forest Service
16400 Champion Way
Sandy, OR 97080
503-668-1795
carrendondo@fs.fed.us

Jeff Bailey
USDA Forest Service
351 Pacu Lane, Suite 200
Bishop, CA 93514
760-873-2550
jbailey@fs.fed.us

Jamie Barbour
USDA Forest Service
Forestry Sciences Lab
620 SW Main Street, Suite 400
Portland, OR 97205
503-808-2542
jbarbour01@fs.fed.us

Dale Blahna
Research Social Scientist
PNW Research Station
400 N. 34th St. Suite 201
Seattle, WA 98103
206-732-7833
blahna@fs.fed.us

Kimberly Bown
PNW Research Station
333 SW First Avenue
Portland, OR 97204
kbown@fs.fed.us

Nancy Brunswick
USDA Forest Service
2113 Osuna Rd. NE
Albuquerque, NM 87113
505-346-3851
nbrunswick@fs.fed.us

Denny Bschor
USDA Forest Service
709 W 9th Street
Juneau, AK 99801
907-586-8863
dbschor@fs.fed.us

Robert Burns
West Virginia University
PO Box 6125
Morgantown, WV 26505
304-293-2941
robert.burns@mail.wvu.edu

Trisha Callaghan
USDA Forest Service
Willowa-Whitman National
Forest
PO Box 907
Baker City, OR 97814
541-523-1333

Lee Cerveny
Research Social Scientist
PNW Research Station
400 N. 34th St., Suite 201
Seattle, WA 98133
206-732-7832
lcerveny@fs.fed.us

Patty Champ
Economist
Rocky Mountain Research Station
2150 Centre Avenue, Bldg A, Suite 350
Fort Collins, CO 80526
970-295-5967
pchamp@fs.fed.us

Susan Charnley
PNW Research Station
620 SW Main #400
Portland, OR 97205
503-808-2011

Deborah Chavez
PNW Research Station
4955 Canyon Crest Dr
Riverside, CA 92507
951-680-1558
dchavez@fs.fed.us

Tom Christensen
USDA Forest Service
100 Van Morgan Dr.
Golden Pond, KY 42211
270-924-2010

Mark Christiansen
Recreation Program Manager
1645 Highway 20 East
Bend, OR 97701
541-383-5571
mchristiansen@fs.fed.us

Roger Clark
PNW Research Station
400 N. 34th St. Suite 201
Seattle, WA 98103
206-732-7833
rnclark@fs.fed.us

Dave Cleaves
USDA Forest Service
1601 North Kent St., RPC-4
Arlington, VA 22209
703-605-4880
dcleaves@fs.fed.us

Elizabeth Close
USDA Forest Service
324 25th St.
Ogden, UT 84401
801-625-5164
lclose@fs.fed.us

David Cole
USDA Forest Service
PO Box 8089
Missoula, MT 59807
406-542-4199
dcole@fs.fed.us

Kristi Cottini
USDA Forest Service
14225 Holiday Rd
Redding, CA 96003
530-275-1587

Adam Daigneault
USDA Forest Service
620 SW Main St, STE 400
Portland, OR 97205
503 808-2005

Jorgina Daly
USDA Forest Service
HC 01 Box 70
White Bird, ID 83354
208-839-2211

Terry DeGrow
USDA Forest Service
21905 64th Ave. West
Mount Lake Terrace, WA 98043
425-744-3400
tdegrow@fs.fed.us

Annice Ellis
USDA Forest Service
4701 N. torrie Pines Dr.
Las vegas, NV 89130
702-515-5407

Don English
USDA Forest Service
201 14th St. SW
Washington, D.C. 20250
202-205-9595
denglish@fs.fed.us

Tony Erba
USDA Forest Service
MS 1104, 3 Central, EMC
1400 Independence Ave. SW
Washington, D.C. 20250
202-205-1547
aerba@fs.fed.us

Ellen Eubanks
USDA Forest Service
444 E Bonita Ave.
San Dimas, CA 91773
909-599-1267 ext 225
eeubanks@fs.fed.us

Lisa Freedman
Director, Resource Planning & Monitoring
USDA Forest Service PNW
PO Box 3623
Portland, OR 97208
503-808-2271
lfreedman@fs.fed.us

Brian Garber-Yonts
USDA Forest Service
3200 SW Jefferson Way
Corvallis, OR 97331
541-758-7756
yonts@cof.orst.edu

Evan Glenn
USDA Forest Service
906 SE 71st Ave.
Portland, OR 97215
503-808-2698
evergreenevan@fastmail.fm

Nicholas Glidden
Recreation Forester
USDA Forest Service
1789 North Wedgewood Ln
Cedar City, UT 84720
435-865-3747
hglidden@fs.fed.us

Alan Graefe
Associate Professor
Penn State University
201 Mateer Building
University Park, PA 16802
814-863-8986
gyu@psu.edu

Gary Green
University of Georgia
Warnell School of Forest Resources
Athens, GA 30602
706-559-4269
ggreen@forestry.uga.edu

Elisabeth Grinspoon
USDA Forest Service
333 SW First Ave.
Portland, OR 97204
503-808-2207
egrinspoon@fs.fed.us

Neil Hagadorn
USDA PNW Forestry Sciences Lab
PO Box 23096
Juneau, AK 99802
907-586-9336
nhagadorn@fs.fed.us

Troy Hall
Associate Professor
University of Idaho
Conservation Social Sciences
Moscow, ID 83844
208-885-9455
troyh@uidaho.edu

Todd Harbin
USDA Forest Service
PO Box 10607
Eugene, OR 97440
541-225-6304
tharbin@fs.fed.us

Michael Harvey
Siuslaw National Forest
4077 SW Research Way
Corvallis, OR 97333
541-750-7046
mharvey@fs.fed.us

Jonathan Herrick
USDA Forest Service
PO Box 22189
Juneau, AK 99802
907-586-8820
jherrick01@fs.fed.us

Stanley Hinatsu
USDA Forest Service
902 Wasco Ave., Suite 200
Hood River, OR 97031
541-308-1708
shinatsu@fs.fed.us

Dave Holland
Director, Recreation, Heritage and Wilderness Resources
USDA Forest Service
201 14th St. SW
Washington, D.C. 20250
202-205-1706
dgholland@fs.fed.us

Anne Hoover
USDA Forest Service
1601 N. Kent St. RPC-4
Arlington, VA 22209
703-605-5119
ahoover@fs.fed.us

Jerry Ingersoll
USDA Forest Service
1400 Independence Ave. SW, MS 1125
Washington, D.C. 20250
202-205-0931
jingersoll@fs.fed.us

Cassandra Johnson
Research Social Scientist
USDA Forest Service
320 Green Street
Athens, GA 30602-2044
706-559-4270
cjohnson09@fs.fed.us

Cathy Kahlow
USDA Forest Service
PO Box 948
Glenwood Springs, CO 81602
970-945-3242
ckahlow@fs.fed.us

Christie Kalkowski
Humboldt-Toiyabe National Forest
1200 Franklin Way
Sparks, NV 89431
775-355-5311
ckalkowski@fs.fed.us

Peter Karp
USDA Forest Service
88 West 100 North
Provo, UT 84601
801-342-5101
pkarp@fs.fed.us

Vivian Kee
Natural Resources Staff Officer
USDA Forest Service
631 Coyeote St
Nevada City, CA 95959
530-478-6245
vkee@fs.fed.us

John Kelly
Assistant Director-Research
USDA Forest Service
200 Weaver Blvd.
Asheville, NC 28804
828-257-4306
jkelly@fs.fed.us

Rachel Kennon
Medicine Bow-Routt National Forest
925 Weiss Dr.
Steamboat Springs, CO 80487
970-870-2144
rkennon@fs.fed.us

Steve Kimball
District Ranger
USDA Forest Service
North Fork Ranger District
North Fork, ID 83466
208-865-2731
skimball@fs.fed.us

Tom Klabunde
USDA Forest Service
2324 E. McDowell Rd.
Phoenix, AZ 85006
602-225-5203

Susan Kocis
USDA Forest Service
1407 S. Harrison Rd., Suite 220
East Lansing, MI 48823
517-355-7740 ext 119
skocis@fs.fed.us

Elaine Kohrman
USDA Forest Service
Wallowa-Whitman National Forest
PO Box 907
Baker City, OR 97814
541-523-1331

Linda Kruger
PNW Research Station
2770 Sherwood Lane, Suite 2A
Juneau, AK 99801
907-586-8811 X240
lkruger@fs.fed.us

Henry Lachowski
USDA Forest Service
2222 West 2300 South
Salt Lake City, UT 84119
801-975-3750
hlachowski@fs.fed.us

Linda Langner
USDA Forest Service
1601 N. Kent St.-4RPC
Arlington, VA 22209
703-605-4886
llangner@fs.fed.us

Kreg Lindberg
Oregon State University
2600 NW College Way
Bend, OR 97701
541-322-3126
kreg.lindberg@osucascades.edu

Kathy Ludlow
Recreation Analyst
USDA Forest Service
333 SW first Avenue
Portland, OR 97204
503-808-2128
kludlow@fs.fed.us

Cynthia Manning
Human Dimensions Staff Leader
USDA Forest Service
PO Box 7669
Missoula, MT 59807
406-329-3240
cmanning@fs.fed.us

Steve McCool
University of Montana
School of Forestry
Missoula, MT 59812
406-243-5406
smccool@forestry.umt.edu

Joe Meade
Forest Supervisor
USDA Forest Service
3301 C Street Suite 300
Anchorage, AK 99503
907-743-9500
jmeade@fs.fed.us

Dexter Meadows
USDA Forest Service
444 E Bomita Ave.
San Dimas, CA 91773
909-599-1267 x 276
dmeadows@fs.fed.us

Noelle Meier
USDA Forest Service
1789 N. Wedgewood Lane
Cedar City, UT 84720
435-865-3225
nmeier@fs.fed.us

Marsha Moore
Travel Planner
USDA Forest Service
1935 3rd Ave. E.
Kalispell, MT 59901
406-758-5325
memoore@fs.fed.us

Tom More
Social Scientist
Northeastern Research Station
PO Box 968
Burlington, VT 5402
802-951-6771
tmore@fs.fed.us

Kristen Nelson
USDA Forest Service
1400 Independence Ave. SW
Washington, D.C. 20250
202-205-1406
christennelson@fs.fed.us

Mary Noel
USDA Forest Service
PO Box 2750
Ashville, NC 28802
828-257-4259
mnoel@fs.fed.us

Jill Osborn
USDA Forest Service
1249 S. Vinnell Way
Boise, ID 83709
208-373-4162
josborn@fs.fed.us

Don Palmer
USDA Forest Service
200 Sycamore St.
Elkins, WV 26241
304-636-1800 ext 280
djpalmer@fs.fed.us

David Parsons
USDA Forest Service
790 E. Beckwith
Missoula, MT 59801
406-542-4193
djparsons@fs.fed.us

Marcia Patton-Mallory
Rocky Mountain Research Station
2150 Centre Ave., Building A
Fort Collins, CO 80526
970-295-5926
mpattonmallory@fs.fed.us

Daniela Pavoni
USDA Forest Service
HC 73 Box 320
Mill City, OR 97360
503-854-4208
dpavoni@fs.fed.us

John Pierce
USDA Forest Service
118 S. 4th Ave. E
Ely, MN 55731
218-365-7606
jpierce@fs.fed.us

Tom Quinn
Forest Supervisor
USDA Forest Service
19777 Greenley Rd.
Sonora, CA 95370
209-532-3671
tquinn01@fs.fed.us

Mike Retzlaff
USDA Forest Service
PO Box 25127
Lakewood, CO 80225
303-275-5157
mretzlaff@fs.fed.us

Jerrell Richer
Sonoma State University
685 Bloomfield Road
Sebastopol, CA 95472
707-236-0688
jerrell@greenmba.com

Clare Ryan
University of Washington
College of Forest Resources
Box 352100
Seattle, WA 98195
206-616-3987
cmryan@u.washington.edu

James Saveland
USDA Forest Service
2150 Centre Avenue, Bldg. A
Fort Collins, CO 80526
970-295-5944
jsaveland@fs.fed.us

Herb Schroeder
USDA Forest Service
1033 University Place, #360
Evanston, FL 60201
847-866-9311

Barb Severson
USDA Forest Service
10600 NE 51st Circle
Vancouver, WA 98682
360-891-5278
bseverson@fs.fed.us

Laurel Skelton
USDA Forest Service
PO Box 490
Prineville, OR 97754
541-416-6530
lskelton@fs.fed.us

Terry Slider
Regional Landscape Architect
USDA Forest Service
333 SW First Aveneu
Portland, OR 97204
503-808-2128
tslider@fs.fed.us

Vladimir Steblina
USDA Forest Service
215 Melody Lane
Wenatchee, WA 98801
509-664-9319
vsteblina@fs.fed.us

Jonathan Stephens
USDA Forest Service
1400 Independence Avenue
Washington, D.C. 20250
202-205-1701
jstephens02@fs.fed.us

Susan Stewart
USDA Forest Service
1033 University Place, #360
Evanston, FL 60201
847-866-9311

Greg Super
USDA Forest Service
1400 Independence Ave. SW,
MS 1125
Washington, D.C. 20250
202-205-1398
gsuper@fs.fed.us

Floyd Thompson
USDA Forest Service
11 Grinnel Ct.
Rockville, MD 20855
202-205-1423
fthompson02@fs.fed.us

Amy Tinderholt
USDA Forest Service
215 Melody Lane
Wenatchee, WA 98801
509-664-9367
atinderholt@fs.fed.us

William Tremblay
USDA Forest Service
PO Box 309
Petersburg, AK 99833
907-772-5877

Francisco Valenzuela
Rocky Mountain Region,
Recreation Planner
USDA Forest Service
7040 Simms Street
Golden, CO 80401
303-275-5045
fvalenzuela@fs.fed.us

Chad VanOrmer
USDA Forest Service
231 N. Main Street
Rutland, VT 5701
802-747-6722
cvanormer@fs.fed.us

Jon Vanderheyden
USDA Forest Service
801 State Route 20
Sedro-Woolley, WA 98284
360-856-5700 ext 201
jvanderheyden@fs.fed.us

Jeff Waalkes
Senior Special Agent
USDA Forest Service
1621 N. Kent St. Room 1015
Arlington, VA 22209
703-605-4730
jwaalkes@fs.fed.us

Jennifer Wade
USDA Forest Service
4480 Hwy. 101
Florence, OR 97439
541-902-6968
jenniferwade@fs.fed.us

Kathleen Walker
USDA Forest Service
70220 E. Hwy 26
Zigzag, OR 97049
503-622-3191x 641
kwalker@fs.fed.us

Alan Watson
Aldo Leopold Wilderness
Research Institute
Box 8089
Missoula, MT 59807
406-542-4197
awatson@fs.fed.us

Leslie Weldon
Forest Supervisor
USDA Forest Service
1645 Highway 20 E
Bend, OR 97701
541-383-5562
lweldon@fs.fed.us

Cynthia West
USDA Forest Service
PO Box 3890
Portland, OR 97208
503-808-2123
cdwest@fs.fed.us

Debbie Wilkins
USDA Forest Service
315 North Warren
Newport, WA 99156
509-447-7322
dwilkins@fs.fed.us

Martha Willbee
Outdoor Recreation Planner
USDA Forest Service
444 East Bonita Avenue
San Dimas, CA 91773
909-599-1267 ext231
mwillbee@fs.fed.us

Peter Williams
USDA Forest Service
2150A Centre Ave. #300
Fort Collins, CO 80526
970-295-5740

Gerald Williams
USDA Forest Service
1400 Independence Ave. SW
Washington, D.C. 20250
202-205-0958
gwilliams02@fs.fed.us

Daniel Williams
Social Scientist
Rocky Mountain Research Station
2150 Centre Avenue, Bldg A, Suite 350
Ft. Collins, CO 83843
970-295-5970
drwilliams@fs.fed.us

Patricia Winter
Pacific Southwest Research Station
4955 Canyon Crest Drive
Riverside, CA 92507
951-680-1557
pwinter@fs.fed.us

Gail van der Bie
USDA Forest Service
1400 Independence Ave. SW, MS 4CEN
Washington, D.C. 20250
202-205-1756
gvanderbie@fs.fed.us

English Equivalents

When you know:	Multiply by:	To find:
Centimeters (cm)	0.394	Inches
Meters (m)	3.28	Feet
Square meters (m^2)	1.20	Square yards
Hectares (ha)	2.47	Acres
Kilograms per hectare (kg/ha)	0.893	Pounds per acre
Liters (L)	1.057	Quarts
Celsius (°C)	1.8 and add 32	Fahrenheit

The Forest Service of the U.S. Department of Agriculture 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.

Pacific Northwest Research Station

Web site	http://www.fs.fed.us/pnw
Telephone	(503) 808-2592
Publication requests	(503) 808-2138
FAX	(503) 808-2130
E-mail	pnw_pnwpubs@fs.fed.us
Mailing address	Publications Distribution Pacific Northwest Research Station P.O. Box 3890 Portland, OR 97208-3890