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February 23-25, 1994 **San Diego, California**

Abstract:

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Examination of natural resources often leaves out one important component-the human element. To enable resource managers and researchers to exchange information and ideas about the human dimensions of natural resources, the second Symposium on Social Aspects and Recreation Research was held February 23-25, 1994, in San Diego, California. The format of the symposium offered various opportunities for interactive communication among attendees. The proceedings contain abbreviated versions of 29 oral presentations, and summaries of sessions covering poster presentations, simulated field trips, and round table discussions. Issues addressed include these: conflicts, ecosystem management, multicultural groups, land ethics, protection and safety, partnership and service delivery, pilot project and new paradigms, economic issues and resource management case studies.

Retrieval terms: conflict, conflict resolution, ecosystem management, human dimensions, land ethics, multicultural groups

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Proceedings of the Second Symposium on Social Aspects and Recreation Research

February 23-25, 1994 **San Diego, California**

Deborah J. Chavez, *Technical Coordinator*

Contents

CONTENTS

CONTENTS

Wednesday Evening Session

Third Concurrent Session: Friday Morning

CONTENTS

Friday Afternoon

Appendixes

Preface

The second Social Aspects and Recreation Research (SARR) Symposium was held February 23-25, 1994 in San Diego, California. The theme was the human dimensions of natural resources. Sponsors were the Pacific Southwest Research Station of the Forest Service, U.S. Department of Agriculture; the Social Aspects of Resource Management Institute at California State Polytechnic University at Pomona; the California State Office, Bureau of Land Management, U.S. Department of the Interior; and the Society of American Foresters.

The idea for the symposium was first proposed in a meeting of the Wildland Recreation and Urban Culture Research Work Unit of the USDA Forest Service's Pacific Southwest Research Station in late 1990. In several meetings we refined what we wanted to get out of the symposium and what we wanted others to get from it. The first SARR Symposium was held February 19-22, 1992, in Ontario, California.

Our vision for the SARR Symposiums was interaction. We viewed them as a golden opportunity for communication between and among resource managers and researchers. We expected participants to gather social and recreational information and share their thoughts about that information. We offered many ways for this communication to take place, including these: (1) keynote addresses on the human dimensions of natural resources; (2) concurrent sessions of extended length allowing for questions and responses; (3) an educational poster session; (4) round table sessions where up to 10 participants could discuss a topic of mutual interest; (5) simulated field trips where resource managers could describe their resource area to participants and answer questions about that area; and (6) an actual field trip where participants could visit one of two natural resource areas to learn about it directly from the site resource managers.

Keynote addresses at the second SARR symposium were given by Anne Fege, USDA Forest Service, and Mark Nechodom, University of California at Davis. There were 52 concurrent session speakers and session topics included these: social issues and conflicts in multiple use; human dimensions of ecosystem management; land ethics; protection, safety, and use issues; partnership and service delivery strategies; pilot projects and new paradigms; economic issues in policy formation; and resource management case studies. In these Proceedings you will find copies of the presentations made available to us by the keynote and concurrent session presenters.

Summaries of presentations at the educational poster, round table, and simulated field trip sessions are also included. Educational posters were presented by 19 people, 9 people presided over round table discussions and 5 people gave simulated field trips.

The volume of abstracts including all of the symposium sessions are available from the Wildland Recreation and Urban Culture Research Work Unit, Pacific Southwest Research Station, 4955 Canyon Crest Drive, Riverside, CA 92507.

Two groups were responsible for planning and running the symposium. From the Wildland Recreation and Urban Culture Research Work Unit of the Pacific Southwest Research Station, Project Leader Deborah J. Chavez served as Program Chair, and unit staff members Victor Caro, Sarah Ellinger, Arthur Magill, Robert Pfister, Steven Sanchez, Linda Tocco, and Patricia Winter provided valuable support. Special thanks go to Technical Editors Laurie Dunn and B Shimon Schwarzschild, Editorial Assistant Lola Thomas, Visual Information Specialists Kathy Stewart and Esther Kerkmann, Photo Scientific Technician Anthony Gomez, and Maintenance crew member Warren Hanna-all from the Pacific Southwest Research Station-and Anthony Martinez of the Angeles National Forest. Special thanks also go to the Cleveland National Forest for its support, in particular Anne Fege, Forest Supervisor. The Department of Social Science, California State Polytechnic University at Pomona, Professor Sidney Blumner and staff of the Social Aspects of Resource Management Institute, Lisa Caro, K.C. Cheung, and Bruce Hoffman all provided technical assistance before and at the symposium. We also thank Robert Chin, graduate student at San Francisco State University for volunteering his services at the Symposium.

Most importantly, thanks go to every presenter and attendee at the SARR Symposium. The 130 attendees represented the the Forest Service, U.S. Department of Agriculture; the Bureau of Land Management and the National Park Service, U.S. Department of the Interior; the California Department of Forestry and Fire Protection, and the Department of Fish and Game; and various state offices, regional parks and open spaces. The attendees also represented the following universities and colleges: Arizona State University; Auburn University; California State University at Chico, Pomona, Sacramento, San Diego, and San Luis Obispo; Colorado State University; Indiana University; Metro State College; Northern Arizona University; Ohio State University; Oregon State University; Pennsylvania State University; San Francisco State University; Southwest Texas State University; University of Alabama; University of Alaska; University of Arizona; University of Calgary; University of California at Berkeley and San Diego; Utah State University; Virginia Polytechnic Institute; and West Virginia University.

We hope to see you again in 1997, when the third SARR Symposium is planned.

Deborah J. Chavez
Technical Coordinator

Welcoming Address

I Live in a City and I Like to Recreate Outdoors[1]

Anne S. Fege[2]

Welcome to San Diego! We are delighted to share our sunshine and warm weather, our beaches and mountains and deserts with you. Tomorrow the Cleveland National Forest is proud to invite you out of this hotel room on two field trips to the mountains and to places along the ocean. On behalf of all 200 Cleveland National Forest employees, I welcome you and invite you to stay and enjoy the 1/2 million acres of chapparal and forest land we manage in urban Orange, Riverside and San Diego counties.

Today we begin 3 days of learning about and experiencing the social aspects of recreation. I invite you to look at these from a personal perspective, and to think about your values about outdoor recreation in the urban setting. I invite you to recognize different values between yourself and others as you learn more about recreation this week.

Yesterday was Thinking Day, a day when Girl Scouts and Girl Guides around the world recognize their international connections and community. The Girl Scouts of San Diego-Imperial Counties, where I'm an active volunteer-asked girls and adults to celebrate it by wearing different shoes to demonstrate differences. I'm celebrating it today with two different shoes and I offer the following agreement for Thinking Day to value differences:

To those who are different from me, I promise: to learn about you, to understand you, to befriend you, to value you and your differences, and to appreciate that our similarities are larger than our differences.

In the next 20 minutes, I invite you to participate in valuing differences in our interests in outdoor recreation. And then I invite you to connect personally to your outdoor recreation experiences.

For the following questions, I ask you to stand up to answer them, and look around you to see who answered the same and who answered differently, so you can value similarities and differences.

Our values and interests are shaped by where we were raised and where we live. Please stand up if you were raised in a city or town of 100,000 or more. You have many urban values, and your colleagues who remained seated have many rural values from their upbringings.

Now, please stand up if you live in a city of 1,000,000 including suburbs. Also stand up, if you live in the city limits of a city of 100,000. You have urban values and needs, and your colleagues who remain seated have more rural needs. Most of us here at this conference are urban residents. We live in cities. This conference relates personally to us.

Our values are expressed in how we choose to spend our time. Think about how you spend time in the outdoors, within an hour of your home. Do not include your daily exercise, jogging, bicycling to work, etc. Stand up, if you spend most of your outdoor time alone. Stand up, if you spend most of it with one other person. Stand up, if you spend most of it with two or more people. Look around, see who has similar values about outdoor recreation time, and who has different values.

We also express our values in the activities we choose. What activities have you enjoyed in the outdoors in the past 2 years, within an hour of your home? Stand up, to answer each question, then sit down again.

Did you hike or walk?
Ride a bicycle?
Ride an off-highway vehicle?
Ride a horse?
Go on a picnic?
Go target shooting?
Go skiing?
Camp overnight?
Drive for pleasure with out-of-town guests?
Go with international or non-English speaking guests?

Stand up if you have enjoyed any other activities, and stay standing. Please tell us what these activities were.

Now I'm inviting you to recall a recent personal outdoor recreation experience. I am inviting you to bring the outdoors into this room. Please close your eyes. Sit comfortably, relax your arms, relax your legs, relax your neck. Breathe deeply.

You're going to go to your favorite outdoor recreation place within an hour of home. Decide on the destination. Put on the clothes you need for the activities there. Decide who will be going with you. Pack your lunch and any gear and equipment. Get all the gear and people together outside your home. Get in your car or bicycle or walk to the bus stop. Now you are traveling to this destination. Enjoy the scenery along the way.

You are now at your favorite nearby recreation spot. Get out of the vehicle and get all the gear and supplies you packed for the excursion. Start doing the outdoor activity. You're having a good time. You're enjoying yourself. Now notice the people around you, others enjoying the same place. Notice how they are dressed and how they talk within

[1]This address was presented at the Second Symposium on Social Aspects of Recreation Research, February 23, 1994, San Diego, California.

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their group. Notice those doing the same activities. Notice those doing something different.

If you've been enjoying the activity in a group, go off by yourself for a minute, back to a quiet place or down a trail. Take a look around you. Breathe deeply. Remember the last time you were here. Smell the air and plants and soil. See the bright colors, the greens and blues and browns, maybe some small flowers next to where you're sitting. Reach out and touch the plants. Feel the sand or rock or soil. Listen. Do you hear wind in the trees or the surf, or birds singing, or water rushing? Or do you hear complete silence? Breathe deeply. The outdoors is speaking to you.

Go back to your group. Finish your activity and pack up to go home. Get back in your car or on your bicycle or the bus. Drive back home. Listen to others talking about the day and the activities. Enjoy the scenery and the late afternoon sunlight. Now you are home. Slowly open your eyes and look around you. You are back in San Diego. You are back at a conference on Social Aspects and Recreation Research.

As we share the papers, posters, field trip, other experiences and hallway talk this week, let us remember that outdoor recreation is a very personal experience. It is one of the activities that gives our lives a sense of quality and joy.

In choosing recreational activities, we reflect our individual values. Let us honor and celebrate the differences among us here, but more importantly among recreation visitors and the public. Please join me in the spirit of the Girl Scout agreement to value these differences. I'm delighted to welcome you to San Diego, and learn with you this week.

First Concurrent Session: Wednesday Morning

Social Issues and Conflicts in Multiple Use

Chair: Michael A. Schuett
Southwest Texas State University

Transforming Controversy into Consensus: The Steens Mountain Initiative[1]

Steven W. Anderson[2]

Abstract: Even bitterly disputed management issues can be tempered or eliminated. Agency outreach efforts in conjunction with the media, working groups, effected interests, field trips, and "open house" social events can result in unified management efforts. In addition, distortions or misconceptions can be clarified. Recurrent efforts are required to build good working relationships among varied interest groups.

The Steens Mountain rises to 1 vertical mile above the Alvord Desert and stretches horizontally for over 30 miles. This fault block mountain is located in sparsely populated southeastern Oregon. The Steens possess remarkable opportunities to view glacially carved canyons and gorges, abundant wildlife, and the Donner and Blitzen National Wild and Scenic River. Abundant, uncrowded open space, and outstanding natural features, have contributed to the heightened sense of public awareness and concern over the management of the Steens.

Controversy

To the uninformed public it appears that there are two bifurcated, intolerant camps. One camp consists of the historic users of much of the Steens, the cattle ranchers, and area residents who hunt, fish and often value the land as their own. The other camp is composed of preservation minded individuals and groups. The management agency, in this case, the USDI Bureau of Land Management, often appears to be in a third camp, attempting to be empathetic, and in some instances attempting to placate everyone.

In recent years almost all proposed management actions by the Bureau have been questioned, protested or appealed. Trust was almost nonexistent. If the Bureau published a brochure, some area residents felt it was "advertising." Preservation groups would issue newsletters stating, "Human activities are threatening this fierce, yet fragile land and its inhabitants." Yet in the same newsletter, members would be encouraged to "Visit the high desert. Take some friends. Take pictures. Write about what you have seen. Tell others about it."

Dialectic Outreach

Bureau personnel recognized that in many cases both camps were often desiring the same future for the Steens. A review of numerous letters, appeals and protests showed that no one wanted to impair the land. The goal, by all parties was to achieve sustainability. Sustainability for some meant maintaining their way of life on a ranch; for others it meant continued good fishing or a hike in the pristine backcountry.

Historically, public outreach was conducted in compliance with National Environmental Policy Act (NEPA) regulations or in order to share a management initiative. Bureau personnel felt a new approach was needed. Not unlike a department store finding an excuse for a sale, the Bureau found excuses for having non-traditional meetings. The Bureau also recognized that studies had established that more than 80 percent of visitors to the Steens came from outside the region. Therefore, outreach efforts would include distant areas such as Portland, Oregon which is more than 200 miles from the Steens.

A Steens video was produced that detailed the Bureau's management practices. A Visitor Use Study was conducted and the results shared with the media and numerous groups to discuss the findings and management implications. Open house events were held simply to bring people together and answer questions. These non-NEPA type meetings stopped the spread of distorted information. Working groups were formed from diverse interests to bring all groups to the table in the decision-making process. Follow-up meetings showed the Bureau's commitment to public involvement and good communications. Guest speakers from outside the agency shared their opinions. Finally, field trips and individual tours were conducted.

Results

The results of this outreach effort are positive and ongoing. Early reactions from some interest groups were that the Bureau's attempts were merely a public relations scheme. In subsequent meetings some of these same critics defended the Bureau to newcomers, thereby showing a desire to work together. In a few cases those who enjoyed vilifying the Bureau were annoyed that the Bureau would go beyond the required NEPA meetings, and questioned, "Why are you having these meetings anyway?" Critics often found that, realistically, issues were more complicated than they had assumed. Detractors were disarmed by meetings aimed at information sharing, or at working in a group that required exposure to divergent views.

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

[2]Project Manager, Human Resource Development Committee, USDI Bureau of Land Management, Washington, D.C.

Outreach efforts are not without cost; they are time consuming and labor intensive. Initially, some staff members were wary of any type of outreach based on past formal NEPA public involvement meetings. Finally, too many working groups can be counterproductive. It may be more beneficial to tackle one or two high priority concerns rather than the top four or five.

Conclusion

- Building trust, once it has been lost, is very difficult.
- Creative tools such as video's and studies, allow the agency to show it is willing to lead.
- Private opinion creates public opinion; agencies cannot simply hope that people will understand.
- Guest speakers such as county officials, researchers, and interest groups show that there are many beliefs and that the agency will listen.
- Autocratic management will fail (one must be able to modify plans, etc.)
- Being timid will also result in failure (one must be able to express why a management action is needed).
- Legitimacy is earned, not given (actions, in this case on the land, speak louder than words, or more rules and regulations).
- Reasonable opinions will most often prevail.

The Urban Wilderness Park: An Oxymoron?[1]

Susan P. Rust[2]

Abstract: The concept of wilderness in an urban context is explored by using Friedrich Wilderness Park in San Antonio, Texas, as an example. The issue of how natural resources protection and environmental education can be accomplished in spite of inadequate public funding is addressed.

In her will conveying a tract of undeveloped land to the city of San Antonio in 1971, Norma Friedrich Ward specified that "... insofar as possible, the natural vegetation and native trees and shrubs be protected, and that native birds and wildlife be protected and encouraged to use the park as a sanctuary." These stipulations provide the definition of "wilderness" as it applies to the park today.

Commonly known as Friedrich Wilderness Park, the park is comprised of 232 acres of wooded hills and drainages, in a relatively natural condition. It is the most environmentally sensitive land in the inventory of the city's Department of Parks and Recreation and is the only city park land on which traditional recreational development is restricted. It provides critical habitat for two endangered bird species and numerous locally rare plant and animal species. It accommodates ecological research, environmental education, primitive hiking, and other passive recreational opportunities.

When it first became city property, the park was located several miles north of the San Antonio metropolitan boundary within a rural landscape. At that time, because of its relatively low visibility and public use, the lack of perceived threats to its ecosystem, the legal restrictions on its development, and a chronically low Departmental budget for parks, the most reasonable course for the city was to fence it off and construct a primitive trail system to provide some minor amenities for public day use, and essentially leave it alone. Thus, the designation of the park as a wilderness seemed reasonable even by the United States legal definition as "an area where the earth and its community of life are untrammeled by man, where man is himself a visitor who does not remain."

Unfortunately however, this park is located in the most rapidly urbanizing region of central Texas, at the edge of the Nation's tenth largest city, along a major growth corridor, within a half mile of a major interstate highway. In the past 10 years, land speculation in this area has reached epidemic proportions. A major university, world-class theme park, numerous thoroughfare expansions and all the typical urban residential and commercial development associated with them is resulting in an explosive conversion of the landscape, and the amoeboid boundary of the city has reached the park. A large upscale subdivision is located near the park's south boundary, a destination resort hotel and residential complex is under construction adjacent to the park on the north and west, and commercial development is anticipated along the park's east side.

As the park becomes a wild island in an urban sea, the natural community that it was intended to preserve and the species for which it provides sanctuary have become increasingly 'trammeled' by man. Noise, lights, pollution, domestic and introduced species, vandalism and trespass are now eroding the park's wildness. In addition to this activity around the park, public visitation to the park has grown from several hundred annual visitors in the 1970's to more than 78,000 last year, and the demand for the passive recreational opportunities the park offers has increased almost exponentially.

This scenario has been repeated in urbanizing areas throughout the country, and may be painfully familiar to many. The loss of the rural environmental context of nature parks such as Friedrich will result in permanent alterations of natural ecosystems and a severe compromise of the traditional wilderness character. But does this loss mean that the designation "wilderness" is no longer appropriate?

"Relative" Wilderness

Fortunately, wilderness is a relative concept, and the less rigid the perspectives of an urban public about wilderness, the greater the importance of urban nature parks and the critical role of such parks in addressing wilderness preservation and conservation objectives at a different scale.

Although a 232-acre patch of undeveloped land in an otherwise urban matrix cannot provide sanctuary to all the native plants and animals that once called it home, it can continue to provide a close approximation of a wilderness experience for many urban dwellers. Therefore, the "relative" wilderness of such nature parks can be regarded as no less real than if it were "true" wilderness in the biological sense. The most important role for Friedrich Park in the future is not its ability to preserve endangered species or natural ecosystems, but rather its ability to educate an urban public about the wonder and fragility of the natural world...using itself as the model.

Parks as Education Centers

Although we can acknowledge the changing role and growing value of a park like Friedrich, providing the necessary

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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methods to ensure that the park fulfills its new mandates is not an easy task. The city of San Antonio, like many other communities, lacks experience with parks as education centers. Given the severe social problems facing most cities today, this type of park is often perceived as merely undeveloped, under-utilized, low maintenance land of little importance. Therefore, quite reasonably, most nature centers and low-impact recreation parks receive the lowest funding priority within parks department budgets, and typically parks departments receive the lowest budgetary allocations of a city's major departments. Because of the increasing urban impacts, growing public use, and continually declining public dollars, how can parks like Friedrich hope to preserve any remnant of wilderness character and, at the same time, begin to realize their educational potential?

Is the situation hopeless? No! Of course not. Typically, as in the case of Friedrich Park, once certain concerned segments of the general public come to understand both the tremendous significance of the urban natural area and the limitations of the city's budget, they are often galvanized into action. In the early 1970's, volunteers from the local Sierra Club chapter helped the city define and construct an initial trail system. In the mid 1980's, the local chapter of the National Audubon Society adopted the park as part of its conservation and education outreach program and organized service outings, educational programs, and environmental research there. At various times, scouting groups and other service organizations have provided manpower and funds for projects that could not have been accomplished without their help.

During the past 10 years, volunteers have contributed more than 1,500 hours of research, over 2,800 hours of public education, more than 2,100 hours of physical labor, and more than 1,500 hours of planning, fundraising and public relations. Billed at $20.00/hour these efforts have effectively augmented the city Parks Department's meager budget by approximately $160,000.00.

Friends of Friedrich Wilderness Park

In 1990 a private volunteer support group, the Friends of Friedrich Wilderness Park (FOF), was formally incorporated. FOF's mission is to work cooperatively with the city to promote ecosystem conservation and environmentally sensitive park management, and to increase public understanding and appreciation of the natural environment through the development of educational and scientific programs at the park.

FOF now sponsors and coordinates a broad range of environmental education programs, organizes fundraising and public relations campaigns, lobbies decision-makers on behalf of the park, contributes time and expertise to park planning and maintenance, and works with the city to address a variety of resource management issues. In cooperation with local academic institutions, audubon groups and the park's naturalist, FOF supervises a number of nationally significant science and research projects. FOF has received support from the San Antonio Junior League to develop and implement a first-rate docent training program, and with the help of local scout troops and service organizations and the park naturalist, FOF coordinates a variety of stewardship and maintenance projects. In addition, in its short life, FOF has successfully raised more than $20,000.00 in grants, and public and private donations.

FOF has recently founded the Norma Friedrich Ward Center for Education and Research, which currently operates out of the park's only building—a horse stable and maintenance garage. The Center umbrellas the usual activities of FOF and has added several ambitious initiatives including the acquisition of additional land, development of a park master plan, and the construction of a "real" headquarters and nature center. Most recently, FOF has successfully lobbied the mayor and city council to earmark $300,000.00 of an impending bond package for the nature center development.

Preserving the Park and the Wilderness

This type of two-pronged approach is the key to cultivating an appreciation of wilderness in the larger context: it simultaneously preserves the park's natural community and wilderness quality so that the public has an opportunity to personally experience a sense of the wild, while also reinforcing and expanding the wilderness experience with strong environmental education programs.

Growing evidence shows that the more separated a person becomes from the natural world, the less likely he/she will value and conserve it. Wilderness approximations such as those preserved at Friedrich Wilderness Park may provide a growing urban population with the only tangible connection between their intensely developed environment and the rural or natural environment that supports it. This critical connection is one on which the future of all wilderness may ultimately depend.

Conflicts and Issues Related to Mountain Biking in the National Forests: A Multimethodological Approach[1]

Steven J. Hollenhorst Michael A. Schuett David Olson[2]

Abstract: One of the key reasons for the tremendous increase in mountain biking on the National Forests is the myriad of opportunities available for off-road cycling enthusiasts. The issues of land access, trail maintenance and conflict are reinforced as complex problems that will need to be resolved through the cooperation of land managers, user groups and clubs/organizations. Quantitative and qualitative methods for sampling, data collection, and data analysis were used to explore issues and problems related to mountain biking on the National Forests. The problems and issues uncovered in this study should not be allowed to develop into "win or lose" situations, but should be pursued through a community decision approach.

Increased participation by mountain bikes on multiple use trails and off-road areas is an issue that has seen continued attention (Hollenhorst and others 1993). Concerns about increased participation have resulted in much controversy surrounding the problem of conflict affecting users and land managers. Contention on trails among various users (e.g. equestrians and hikers) have led to concerns about participation dissatisfaction, displacement, resource impacts, and safety (Chase 1987, Jacoby 1990, Watson and others 1991, Viehman 1990). The issues and problems involving the use of mountain bikes on public lands needs to be studied.

According to the Sporting Goods Manufacturing Association (SGMA), participation levels for mountain biking have increased by 114 percent between 1987 and 1989, from 1.5 million to 3.2 million total days (SGMA 1991). Frequent participation (52+ days a year) rose by 153 percent between 1987 and 1989 from 216,000 to 546,000. The core of participation has been centered in the western United States where 59.7 percent of all participants live. California has the highest rate (25 percent) of all participants, and Colorado had a high rate as well (8.1 percent) (SGMA 1991). Sales of mountain bikes has experienced considerable increases in the last 10 years. The number of mountain bikes have increased from 200,000 in 1983 to over 11 million in 1989 (Keller 1990).

The heightened popularity of this activity is of considerable concern to land managers because of the increased interest of off-road uses of mountain bikes on multiple use trails and roads on public lands, especially those on state and National Forests. Considering the attractiveness of the National Forests for mountain biking and current participation rates, the potential for increased use of public lands could reach high levels, resulting in greater demands on resource managers.

Increased participation in off-road areas is an issue that has seen continued attention. Concerns about increased participation have led to much controversy. Potential conflicts on trails with other users (equestrians and hikers, for example) have led to concerns about participant dissatisfaction, displacement, resource impacts and safety for other user groups (Chase 1987, Jacoby 1990, Watson and others 1991, Viehman 1990). Watson and others (1990) found that conflict existed between hikers and mountain bikers at the Rattlesnake Recreation Area in Montana. More than one quarter of the bicyclists thought hikers were a problem compared to almost two-thirds of the hikers who thought cyclists were a problem. This lack of acceptance of hikers towards mountain bikers was unclear because the reasons for this objection to the bikers was not specified. In a related study of readers of Backpacker magazine, Viehman (1990) found that over two thirds of magazine readers thought that the use of mountain bikes on trails was objectionable. Similarly, Chase admits "... many people will piously declare that mountain bikers are bad for trails, when they really just don't like them" (Knize and Chase 1987).

Additional concerns of land managers have involved resource impacts of mountain bikes on trails and enforcement of rules (Keller 1990). The studies on environmental impacts show that "minimal" if any observable differences were reported when comparing the results of resource impacts of mountain bikes and hikers (Santa Clara County Parks and Recreation 1986, Seney 1990). In examining the impacts of mountain bikes on trails, this issue will continue to be debatable until more research is done, "...on a variety of soils and under different conditions" (Keller 1990).

Because mountain biking is one of the fastest growing outdoor activities on public lands, the issues of conflict should be examined so that potential areas of concern can be identified for our land managing agencies. This participation trend is likely to continue and further investigation is needed about educational material, conflict with other user groups, and guidelines for land managers and users in determining how to effectively manage federal lands. Therefore, the

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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purpose of this study was to identify issues, conflicts, and problems related to mountain biking in the national forests.

Method

This study used quantitative and qualitative methods for sampling, data collection, and data analysis. The project was conducted over a 9-month period from the summer of 1992 through the spring of 1993. The method section is detailed in terms of data sampling, data collection and analyses.

Data Sampling and Collection

Questionnaires were collected on-site from a sample of 750 mountain bikers. The survey was administered in National Forests in California, West Virginia and Texas to both mountain bikers on informal rides and to participants and spectators at mountain bike competitions. The information collected assessed the demographic characteristics, patterns of participation of mountain bikers on selected National Forests, information and communication opportunities and barriers, and an analysis of conflict issues involving mountain bikes. The format of the questionnaire included both scaled items and open-ended items.

Focus groups were used to obtain a more thorough perspective about the phenomenon of mountain biking. Focus groups consisted of 6 to 10 persons who were interviewed by a group moderator. As a data collection technique the value of this approach lies in the researcher's ability to explore information more thoroughly and examine individual insights (Morgan 1991).

Three focus groups were conducted for this study. Two were done in Texas, one in Houston (N=9) and one in Austin (N=8), and the third in Morgantown, West Virginia (N=8). The focus groups consisted of willing participants made up of mountain bike riders, retailers, employees, and general enthusiasts from the mountain bike community. The age of the group members ranged from 17 to 18 years to the late 40's with levels of formal education varying from no college to those with several years of graduate school. Interviews were tape recorded and transcribed verbatim.

Data Analyses

The open ended items of the on-site survey and the transcripts of the focus groups were analyzed by triangulating the qualitative data analysis techniques of typological analysis, clustering (Goetz and LeCompte 1984), and enumeration (Miles and Huberman 1984). Typological analysis involves dividing the information into groups or categories on the basis of some criterion for disaggregating some phenomenon (Goetz and LeCompte 1984). Enumeration allows the researcher to tabulate the frequency of key words or phrases which are the units of analysis (Miles and Huberman 1984). Enumerative techniques augment attempts to generate, refine or verify hypotheses (Goetz and LeCompte 1984). Clustering is used when information acquired through data sources does not fit into previously identified themes or categories (Miles and Huberman 1984).

Validity and reliability were addressed through the use of external reviewers (Goetz and LeCompte 1984, Lincoln and Guba 1985). These external reviewers included researchers familiar with qualitative research techniques, participants within the focus groups, key informants, and mountain bikers. The use of these confederates was planned in order to validate the outcomes of the analysis and verify the concepts in the study as a way to establish consensus and consistency (Glancy 1988, Goetz and LeCompte 1984, Henderson 1991).

Results

Of the approximately 750 surveys distributed, a total of 696 (92.8 percent) were usable. Most of the survey respondents were male (85 percent). The mean respondent age was 29.8 years, and the mean level of formal education was 15 years.

Open-Ended Items

After analyzing and interpreting the open-ended items, response categories (Pugach 1985) were created for each question. The responses to the item "Important issues and problems facing mountain biking in the National Forests" included "access" (n=244), "impacts" (n=199), "conflict" (n=189), "education/rules/etiquette/ethics" (n=101), and "trail maintenance" (n=86). Thus, dominant focus for mountain biking was access, impacts, conflict and education of the users.

Focus Groups

Results from data reduction techniques showed that concerns did exist about the problems and issues facing mountain biking in the National Forests. The responses were very specific and focused on these areas: access, trail maintenance, impacts, conflict, education/ etiquette/rules, information dissemination, management, and practices/policies.

Examples of comments:

"...they should be issued a handbook with their bicycle if they are going to ride it ...like a motor vehicle handbook. They should know the rules."

"The hikers don't interfere with your experience (mountain bikers), the bikers interfere with the hiker's experience."

The comments put forth by these riders are indicative of the information that has been reported by other users in numerous locations. Mountain bikers are very concerned about access, conflict with other users, and impacts (e.g., resource and psychological impacts to other users). According to focus participants, these problems are complex and will be addressed most effectively within the context of a cooperative, "community" approach including users, land managers, club/organizations and policy makers.

Discussion

From a management perspective, the issues and problems that are facing mountain biking in the National Forests are real and very specific. Mountain bikers are troubled about continued trail access in the National Forests. Mountain bikers are even more concerned by the effect of future increases in usage as it relates to trail access. In the brief history of mountain biking, participants have strongly advocated the use of trails on many tracts of public land. These concerns have been one of the foci of mountain biking clubs. These clubs and other bicycling organizations, i.e., Bicycling Federation of America, have been instrumental in working for continued access on public lands. Both resource managers and riders will also need to become more conscious of the access issue in dealing with other trail other users.

This study showed that mountain bikers are concerned about conflict with other users but are tolerant of other users, such as equestrians or hikers. This conclusion partly supports the findings of Watson and others (1991) showing that mountain bikers are tolerant of hikers. In the focus groups however, it was found that mountain bikers feel that other trail users, e.g., hikers and equestrians, need to change their outlook and maintain a less "possessive" attitude about the trails and become more understanding of increases in trail usage by mountain bikers. The issue of separate trails for various trail users was discussed in the focus groups but was not regarded as a plausible solution by any of the participants.

Additional concerns that surfaced in this study pertained to educational programs and rider etiquette. These types of issues could be resolved through an integrated approach. Rider education by way of a minimum impact trail strategy is essential but may have limitations unless this philosophy is adopted by all users. Inconsiderate behavior by individual users is a possibility, but education is an integral part of minimizing the shortcomings caused by carelessness and ignorance. As suggested by respondents, the mountain bike manufacturers and bicycle retailers are a critical link in educating the user and should take a leadership role.

Lastly, respondents expressed concern about the maintenance and construction of trails. The problem of trail maintenance may be handled differently depending upon the terrain, rate of usage, region, and trail type, but it is one issue that will need to be addressed by land managers. Federal dollars for new trails may be difficult to acquire, but the modification of present trail systems through the assistance of all interested trail users may be a partial answer. More involvement by volunteers from mountain bike clubs may reduce the need for public resources for trail expenditures. Organized networks of volunteers on a state or regional basis should be promoted by clubs. This type of system has been effective for hiking organizations such as the Green Mountain Club, Inc. or Appalachian Mountain Club. In addition, improved communication between land managers and mountain biking clubs can aid in the development and maintenance of specific trail features that are desired by riders such as trail head information. Multiple use trails, however, may not be modified for mountain bikers because these trails are used by a more diverse group of trail users.

Conclusions

If mountain biking on the National Forests continues to grow at its current rate, it will require continued investigation and will necessitate that all trail users, club members, and land managers remain in constant communication. All parties connected by mountain biking will need to take a community approach to the development of policy and management guidelines. We recommend a national conference, attended by representatives from all affected user groups, clubs, and land managing agencies, to address the issue of mountain biking and trail use conflicts.

Acknowledgments

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Conflicting Goals of Wilderness Management: Natural Conditions vs. Natural Experiences[1]

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Abstract: Beliefs and attitudes underlying wilderness visitors' support for use restrictions were studied. Some evidence shows that in overused places visitors cite both protection of the resource and the wilderness experience as reasons for supporting restrictions. The research reported here provides the opportunity to assess the relative contribution of each of these reasons, and others, to visitor support for use restrictions at three wildernesses in Oregon. Support for reducing the total amount of use was best predicted by crowding measures for day visitors and by a combination of crowding and physical environment impact (dominated by physical impacts) for overnight users. This knowledge has implications for other situations involving conflicting demands on natural resources.

To manage our great wealth of natural resources in the United States, managers often face conflicting goals and difficult decisions in the allocation of resources because of competing interests. These conflicting goals may be related to conflicting consumptive uses of a resource, such as using wood fiber for building material or for firewood. Or this conflict may be between consumptive and nonconsumptive values of the resources, such as between use of the trees for building or for firewood versus the value of those trees to recreation or watershed protection.

As the USDA Forest Service implements a strategy for ecosystem management, conflict and compromise are going to be integral components of decisions about resource management. Ecosystem management practices have continuously been described as those practices that are socially acceptable. While the components of acceptability have been outlined by Brunson (1993), the method of determining acceptability and how social acceptability will be incorporated into specific decisions is not clear.

One previously unrecognized value of the National Wilderness Preservation System is the idea of a laboratory within the context of ecosystem management. The scientific and educational value of wilderness preservation should provide substantial returns for our public servants' forethought to create such a system. It provides a means in which management goals can be clearly specified within the authorizing legislation; and the American people substantially recognize the values of those goals. The values have been clearly specified: substantial investment has already been made to provide understanding of visits, visitors, and attitudes toward wilderness; and substantial discussion has already occurred about how to handle necessary compromises.

The Wilderness Act, which was enacted in 1964, posed a challenge to those eventually responsible for administering the more than 500 units of the current National Wilderness Preservation System. The need for compromise was set in motion by specifically mandating conflicting goals for wilderness management. Several statements in the Act mention preserving and protecting lands in their natural condition. Yet, in most of these same sentences it is also emphasized that these areas are for use and enjoyment by people for recreation participation.

In section 2(c) of the Wilderness Act, the recreation potential for wilderness is more specifically defined as "outstanding opportunities for solitude or a primitive and unconfined type of recreation." Hendee and others (1990) interpret the Act's elaboration on preservation and recreation values as an indication that the criteria of naturalness and solitude are the distinguishing qualities of classified wilderness. They also believe naturalness and solitude to be the principal criteria to guide the management of wilderness.

This interpretation presents a dilemma for managers. One of the primary threats to both naturalness and solitude in wilderness is the number of people. Their behavior in the wilderness and interactions with various biological elements and other visitors affect impact levels. In addition, visitor traffic volume along trails, at campsites, and at other heavily used sites poses a severe threat to providing wilderness conditions. In these high-use cases, restrictions of numbers of visitors may serve to protect the resource and the solitude aspect of the experience. To many, however, these restrictions reduce feelings of primitiveness, spontaneity, freedom, and unconfinement.

The Limits of Acceptable Change (LAC) planning system was developed in response to the need to balance the conflicting goals of recreational use and maintaining natural conditions (Stankey and others 1985). A fundamental premise of the LAC process is that primary attention is focused on wilderness conditions and the actions needed to protect or achieve acceptability for key parameters (Stankey and others 1985). Cole (in press) clarifies that two conflicting goals cannot be maximized, but through the LAC process the compromise between goals is optimized. Adopting a limited use permit system is one resource management technique used to protect wilderness conditions and experiences, with optimal cost to visitor experiences.

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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The purpose of this paper is to examine visitor acceptance of a new permit system and the potential of limiting recreational use at three Oregon wildernesses, even though these limits will compromise available recreation opportunities. Understanding how visitors decide on acceptability of a management technique based on compromise is likely to provide insight into other conflicting demand situations.

Background

In 1980, a total of 69 wildernesses had permit systems. Of these 69, only 17 limited the number of permits available (Washburne and Cole 1983). Today, only about 50 wildernesses issue permits. The number of wildernesses with use limits has increased from 17 to about 25.

Permits for wilderness use may vary in the following ways: (1) they may be self-issued or issued only by agency personnel or their representatives; (2) they may be limited (as part of a use limitation system) or unlimited; and (3) they may be required for all users or only some visitors (e.g., overnight users only, or overnight users only during high-use times, such as summer weekends).

Despite personal disagreement among scientists on the value of use limitation systems (Behan 1974, Hendee and Lucas 1974), results of previous research on visitor reaction to permit systems that limit use has suggested that restricting numbers when an area is being used beyond its capacity is strongly supported by visitors (Lucas 1980). In a 1972 study of visitors to the Desolation Wilderness in California, 90 percent of respondents supported restrictions if capacity was exceeded (Lucas 1980). In a 1990 study, 93 percent of a sample of those acquiring permits to the Desolation Wilderness found restrictions desirable if capacity was exceeded. Even 67 percent of a sample of those in the wilderness without permits supported use restrictions in 1990 (Watson 1993). Similarly, Stankey (1979) found 81 percent of unsuccessful permit applicants supported restrictions at the San Gorgonio and San Jacinto Wildernesses in California. In eight other study areas, Lucas (1980) found about 75 percent of respondents felt it was desirable to limit use if capacity was exceeded, while only 10 or 12 percent said it would be undesirable. Lucas (1985) also found a high level of support for limiting use in studies conducted in 1970 and 1982 at the Bob Marshall Wilderness in Montana. Interestingly, he also noted that the question would be hard for visitors to disagree with; but, the more interesting question would be to understand visitors' definition of "beyond capacity."

Few studies have examined why visitors support use restrictions. In a study of why visitors supported use restrictions at the San Gorgonio and San Jacinto Wildernesses in 1973 (82 percent did support it), Stankey found that "protecting the resource" and "protecting experiences" dominated visitor responses. Neither these findings, nor subsequent research, however, suggest why visitors so readily support limiting use given the potential of a personally costly compromise. Some visitors appear willing to relinquish some positive wilderness experiences, such as unconfinement, spontaneity, and freedom, to maintain naturalness and solitude opportunities for those who are fortunate enough to obtain access. The research reported here was intended to further understand the strength of the relationship between support for use limitation systems and visitor perceptions of threats to naturalness and solitude.

Methods

This study was conducted in 1991 at three Forest Service wildernesses in Oregon--Three Sisters, Mt. Washington, and Mt. Jefferson. That year marked the reintroduction of a permit system that had existed before 1982, but had been dropped during the intervening years. Beginning in 1991, permits were again required for both day and overnight users. While day-use permits could be obtained at trailheads, overnight permits had to be obtained from agency offices or other designated outlets. The number of permits was not limited, though it is anticipated that in 1995 use limits will be applied for at least some heavily impacted areas.

A sample of 1,450 permit holders (1,096 day, 354 overnight) was obtained through a stratified (based on strata of entrance points varying in use intensity), systematic sample of permits. The mail survey assessed users' reactions to the new permit requirement and their attitudes toward potential use limits implemented through restrictions on the number of permits issued. An overall response rate of 82 percent was obtained for the 11-page mailback questionnaire after three mailings.

The possibility of limiting use was introduced in a slightly different way than previously discussed by Lucas (1980, 1985) and Watson (1993). Still hypothetical, the question more closely approximated the questioning Stankey (1979) posed to unsuccessful permit applicants. The exact question posed to visitors in the current study was: "Do you feel that a limit is needed on the number of people using this wilderness, recognizing that your own opportunity to visit this wilderness may be limited in the future?" Responses related to future visits to the specific area, and they related to conditions previously witnessed by the visitors to that area. Visitors could respond that they supported limiting use immediately, to either (1) reduce use or (2) to hold use at the current level. They could also respond that they (3) supported limiting use, but only at that time in the future when overuse occurred, or (4) that they felt limits would never be appropriate at any time.

Analysis

To statistically identify independent variables that explain support of a use limitation system, discriminant analysis was used to classify respondents into two categories: those that believed overuse had occurred and those that believed use limits were unacceptable. Initial efforts with four separate categories found little discriminant ability between those

who supported immediate limits to hold use at the current level and those that supported limits in the future when overuse occurred. For that reason, only two categories of users were used in the discriminant analysis.

Seven independent variables were entered into the discriminant analysis. Three variables measured how present conditions compared to what they expected. Specifically, the items dealt with expectations about number of encounters with others, number of places impacted by previous visitors, and number of managers' strategies to correct impacts by previous visitors. Another variable measured whether the visitor generally felt crowded during the trip. Two variables measured how enjoyment of the visit was influenced by numbers of people and amount of physical damage from other visitors. The number of years since a visitor first visited the wilderness was also entered as a potential predictor variable.

A bootstrap approach was used in preliminary model building to better understand the stability of the model specification and the classification results. The bootstrap process involved randomly generating five sets of data for model building and five sets of data for model testing. For all users, and then for overnight visitors only, the following four-step process was used:

1. A stepwise discriminant analysis (PROC STEPDISC) (SAS 1987) was conducted to identify model specification.

2. From the stepwise results two model specifications were identified--one consisting of variables which were found to be statistically significant in each of the five stepwise models, and another consisting of variables which were found significant in at least three of the five stepwise models.

3. The model specification leading to the best classification results when applied to the model testing data was chosen to be the best model specification (both a good predictor and identifier of consistent variables).

4. Coefficients and classification results (PROC DISCRIM) (SAS 1987) were generated from the five model-building and five model-testing databases for each of the models chosen from #3 above.

Based on the information derived from the bootstrap analysis, final model specifications and classification results were generated for all users (day use and overnight) and for overnight users separately.

Results

Nearly two-thirds (63 percent) of day hikers and 44 percent of overnight campers did not consider the permit requirement inconvenient, with overnight campers more likely than day users to consider the permit requirement a slight or major inconvenience (*table 1*). Even though a substantial number thought the requirement of a permit only to learn about use levels and use distribution was an inconvenience, only 10 percent of day users and 12 percent of campers thought it was not justified (*table 1*).

Twenty percent of campers supported restrictions—even though they may be refused access at some point in the future—to reduce use from current levels; 20 percent supported maintaining use at its current level; 47 percent supported limits at some time in the future if overuse occurs; and 14 percent felt there should never be use limits (*table 1*). Day users were slightly less supportive of lowering the current level of use, with only 11 percent supporting a forced decrease in use; 21 percent supported limits to maintain use at its current level; 52 percent supported limits at some time in the future if overuse occurs; and 16 percent felt there should never be use limits (*table 1*).

These results are comparable to those compiled by Lucas (1980, 1985). For overnight users, for example, 87 percent indicated support of limits if overuse occurs. This percentage can be broken down into three groups: (1) those who believe overuse is already occurring (lower immediate use); (2) those who believe overuse is near occurrence (maintain use at this level); and (3) those who believe overuse may occur at some time in the future (limit use at that time).

Not only did support vary between day users and overnight campers, but discriminant analysis produced different results when day and overnight users were examined

Table 1—*Response of Oregon wilderness visitors to new permit system and potential for use limits*

Response	User	
	Day hiker	Overnight
	----------*percent*----------	
Permit no inconvenience at all	63	44
Permit is not justified to learn about use	10	12
Initiate use limits:		
To reduce use from current level	11	20
To hold use at its current level	21	20
At some time in the future if overuse occurs	52	47
Never	16	14

together or when overnight users were analyzed separately (*tables 2, 3*). For all users (dominated by day users), perceptions of crowding (CROWDED) during the visit was the only significant predictor to emerge from the stepwise discriminant analysis (*table 2*). The discriminant function enabled correct classification of more than two-thirds (69 percent) of all respondents into supporters or opponents of use limits.

When only overnight users were included in the discriminant analysis, crowding (CROWDED) was again a significant predictor ($p<0.004$) (*table 3*). However, perception of physical impacts to trails and campsites (IMPACTS) also made a significant contribution ($p<0.0009$). The overall classification of overnight visitors into the two response categories was 78 percent. Considerable improvement in classification was achieved within the group that advocated immediate reduction of use; correct classification increased from 47.5 percent to 75.5 percent.

Discussion

A large majority of wilderness visitors indicated they support limiting use to maintain the qualities of the wilderness. Day users and overnight users differed about when they thought use limits should be applied. Twenty percent of overnight campers felt use restrictions should be initiated immediately. Only 11 percent of day users, however, supported immediate reduction of use. The majority of all visitors believed that overuse had not occurred at these sites, indicating they supported use levels when capacity was reached.

The methods we used could not discriminate between the two groups who supported use limits but did not think capacity had been met or exceeded. None of the measures explained differences in these responses. Given these results, it may be difficult for managers to convince visitors that setting use limits to reduce use from the current level is the right action. In all cases, it appears that the most prevalent reason for supporting use limits is when visitors express general feelings of being crowded.

The amount of visitors' experience at the wilderness was not a significant predictor of support for use limits in this study. In contrast, results of an earlier study (Frost and McCool 1988) found familiarity with Glacier National Park related to support for restrictions on visitor behavior during eagle migration. Discrepancies between visitor expectations and what they encountered was another set of variables that were not significant predictors of support for use limits. This difference is somewhat contrary to some research on recreation

Table 2—*Discriminant model and group-level classification results for all users of the three Oregon wildernesses*[1]

Variable	Coefficients		Final F-value	Level of significance
	Group 1[2]	Group 2[3]		
CROWDED	.89	.45	65.071	0.0001
Constant	-2.49	-1.05	--	--

[1]Wilks' Lambda = 0.824; F= 65.0709; Level of significance = 0.0001; Overall predictive power = 68.7 percent.
[2]Initiate immediate use limits to reduce use.
[3]Never limit use.

Table 3—*Discriminant model and classification results for overnight users of the three Oregon wildernesses*[1]

Variable	Coefficients		Final F-value	Level of significance
	Group 1[2]	Group 2[3]		
CROWDED	.71	.35	8.727	0.0040
IMPACTS	1.37	.40	11.902	0.0009
Constant	-2.93	-1.27	--	--

[1]Wilks' Lambda = 0.705; F = 18.5904; Level of significance = 0.0001; Overall predictive power = 78.3 percent
[2]Initiate immediate use limits to reduce use.
[3]Never limit use.

visitor satisfaction which suggests that for nonconsumptive recreationists, satisfaction with a visit is higher for those with more readily achievable goals (Williams 1989).

The best predictors of whether campers support use limits to reduce use or do not support use limits are a combination of general feelings of being crowded and perceptions of impacts along trails and at campsites by previous users. Physical impacts appear to be the most important predictor when considering only overnight users, though it is the combination of feeling crowded and physical impacts that allows high classification success. When the entire sample of users (dominated by day use) was examined, only the crowding perception variable predicted whether or not someone supported use limits. For the entire population of users, most thought that simply the numbers of other visitors was the factor to determine support for use limits. If visitors felt crowded, they were more likely to support limits to reduce use.

Increasing use of some wildernesses will pressure managers to consider adopting permit systems as a use restriction tool. The type of research reported here can help managers anticipate visitor responses to management tactics aimed at maintaining ecosystem integrity and minimizing conflict. However, this approach will necessitate human value compromises. Support for use limitation systems that reduce recreational access appears to be dependent upon a combination of visitor perceptions that the area has too many people and that visitor impacts have reached unacceptable levels. However, beliefs underlying support vary by the user type. Support of overnight campers for reducing use depended on their extended stay and exposure to physical resource impacts. Day users were more influenced by numbers of people.

Conclusion

The study results offer insight into the challenges of managing wilderness as well as other resource areas where conflicting goals are common. Although visitors overwhelmingly accepted a technique that would compromise their ability to recreate in the wilderness, the majority of respondents did not think overuse had occurred yet. Researchers were unable to predict support based on various potential predictors that had previously been identified as important to the wilderness experience. This provides important insight into how public opinion on other important resource issues may evolve. A minority of the visitors consider current conditions unacceptable and support immediate action to provide balance to the conflict. The majority, however, do not perceive the constraining variable a problem to the extent that movement to protect conditions is warranted. This research failed to provide much information about this group and possibly a similarly positive, yet reluctant, public response will likely be a serious challenge to policymakers in other resource management issues. If future research could offer a better understanding of this "cautiously supportive" group, managers could better predict their response to future management activities.

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Human Dimensions of Ecosystem Management

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Human Dimensions in Ecosystem Management: A USDA Forest Service Perspective[1]

Deborah S. Carr[2]

Abstract: For many decades, the natural resource profession has approached the management of public lands as exclusively a natural science endeavor requiring purely technical solutions. With the adoption of an ecosystem management philosophy, the USDA Forest Service has acknowledged the centrality of people in land management policy and decision-making. This paper explores the human dimension of ecosystem management, with emphasis on the role of social science research in the implementation of ecosystem management.

> *At its very heart this debate is about people...it's about people who care deeply about their communities and a way of life passed from one generation to the next, rich in tradition, strengthened over time. It is about people who care about the forests, water, and fish.*
>
> Vice President Albert Gore
> Forest Conference (1993)

> *The needs of people drive the use and misuse of the forest. Our efforts to understand how people think about and act on forests have been minimal, and yet most controversies and shortages ultimately arise from human activity.*
>
> National Research Council (1990)

Most of the critical issues facing the natural resource profession—including global change, endangered species, commodity production, wilderness preservation, wildfire, and forest health—share a common bond: they are all inherently human issues. These issues arise from human activity, are brought to light because of human concerns, and are addressed through human ingenuity.

For many decades, the natural resource profession has approached these issues as if they were exclusively natural science questions requiring technical solutions. Recently, however, because of changing expectations about the steward-ship of public lands and perceptions of the "problem," a different understanding of the nature of these issues has emerged.

This paper examines these changes and their implications for social science research within the realm of natural resource management.

Changing Expectations

Several changes have occurred in the American public's expectations related to the stewardship of public lands. Specifically, environmental protection has become more central to the concerns of the American public (Dunlap and Mertig 1992). Consequently, citizens have become increasingly aware of and involved with the stewardship of public lands. The impact of this change is compounded by a society-wide decrease in willingness to allow professionals the exclusive right to make policy value judgements on issues of concern (Probst and Crow 1991). As concern about the environment grew, a wider array of publics and values have been involved in the stewardship of public lands (Bullard 1993).

These many changes have come together to present natural resource professionals with a startlingly (some might say shockingly) different social context in which to do their jobs. Decisions about caring for the land that were once viewed as straightforward must currently be evaluated from a seemingly endless set of perspectives. The best natural science and technical expertise used to manage forests has been questioned by citizens who are reacting from the range of their experiences and concerns for the environment; thus, natural resource professionals are uncertain about the needs of the American public.

During this climate of change and uncertainty, in 1992 F. Dale Robertson, former Chief of the USDA Forest Service, announced the Agency's shift to a new management philosophy of ecosystem management. After much work and interagency coordination, the Forest Service has defined ecosystem management as "the use of an ecological approach that blends social, physical, economic, and biological needs and values to assure productive, healthy ecosystems" (USDA Forest Service 1994).

Ecosystem management offers a significantly different view of the goals of land stewardship: from single value commodity production to a more holistic sustaining of natural and social systems (Mrowka 1993). By using this definition of ecosystem management, the Agency has shifted toward a much different conceptualization of natural resource issues—it has moved into the realm of wickedness.

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[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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From Innocence to Wickedness: Is this Really Progress?

In their article "Complexity, Wickedness, and Public Forests," Allen and Gould (1986) detail the differences between "innocent" and "wicked" problems and relate these problem types to the management of public forests:

	Problem type	
	Innocent	Wicked
Approach	Tactical	Strategic
Worldview	Complex	Holistic
Arena	Science	Politics
Solutions	True/False	Good/Bad
Tools	Analytical	People

Innocent problems represent a more traditional view of problems. They are seen as complex, but solvable, eventually yielding one correct solution. Many of the natural science aspects of ecosystem management would be characterized as complex—needing extensive scientific and technical expertise in order to operationalize an ecological approach to management.

Wicked problems are those that have no right or wrong answer, only more or less useful solutions. They do not simplify into a system of inputs and outputs, but rather are an intricate grouping of interwoven factors that cannot be separated from one another. Solutions are seen as good or bad rather than true or false. People, rather than analytic methodologies, are the tools for resolving a wicked problem. Once a solution is chosen, the problem frequently decomposes into a series of innocent problems. For example, ecosystem management contains many wicked problems arrayed around a series of questions related to a desired future condition within a range of sustainable ecological conditions that will be selected and managed. Questions about what will be sustained (e.g., rural economies, biological diversity, recreation opportunities, commodity production, etc.) are not inherently right or wrong and must be resolved before the complex, but solvable, task of managing for the chosen desired future condition can begin.

The issues associated with ecosystem management put people and the social sciences at the center of Agency concerns.

The Human Dimension of Ecosystem Management

The importance of people within an ecosystem management framework was recognized early in the implementation of the new policy. For many this recognition was more an intuitive acceptance than a professional understanding of the role of people within ecosystems or the social sciences. Through the work of many individuals, as well as regional and national human dimension task teams, the human dimension is defined as:

> An integral component of ecosystem management recognizes that people are part of ecosystems, that people's pursuits of past, present, and future desires, needs and values (including perceptions, beliefs, attitudes and behaviors) have and will continue to influence ecosystems and that ecosystem management must include consideration of the physical, emotional, mental, spiritual, social, cultural and economic well-being of people and communities (USDA Forest Service 1994).

This definition contains two important points. First, it recognizes that people are an inextricable part of ecosystems. Human desires, needs, and values have impacted ecosystems and the need for management. Second, it establishes ecosystem management as an inherently human endeavor, seeking the well-being of people and communities as well as the health of ecosystems. Within this human dimension both wicked and innocent problems should also be addressed.

Wickedness Within the Human Dimension

Much of the wickedness in ecosystem management is within the realm of the human dimension and tough social and political choices have to be made. Competing and conflicting values are healthy symbols of the diversity of the many publics who care about their public lands. The wicked challenge to the natural resource profession is in devising processes and policies that integrate this diversity into the solutions.

A significant component of understanding and incorporating any phenomenon into ecosystem management is the ability to predict the future. Although no subject area is perfectly predictable, the future as it relates to the human dimension is, perhaps, less "knowable" than that of the natural sciences. This problem arises in part from less information available about the human dimension (an innocent problem that is discussed below), but is also attributable to the seemingly more volatile nature of the human dimension relative to the physical and biological dimensions. But although physical and biological phenomena are not unchanging and absolutely knowable and human phenomena are not absolutely unknowable or unpredictable, the range of predictability is currently greater within the natural sciences compared to the social sciences.

The changeablity of the three dimensions of ecosystem management leads to short-lived solutions. Optimal solutions (if they can be found) are fleeting achievements. This changeability is recognized and addressed within an ecosystem management framework by the adoption of adaptive management strategies (Bormann and others 1993).

In addition to these wicked problems, implementing and practicing ecosystem management is an information intensive endeavor because of the complexity involved. This is particularly true for the human dimension where work in the social sciences lags behind that in the natural sciences (National Research Council 1990).

Complexity Within the Human Dimension

Two primary factors add complexity to the consideration of the human dimension. First, ecosystem management requires the consideration and incorporation of information at varying geographic and temporal scales representing both human and ecological units of measurement. The complexity of working within this framework is obvious and requires the incorporation of a much broader array of information as well as new analytical and visual tools.

The second factor is the development of the information necessary to fully integrate the human dimension into an ecosystem management framework. Several recent national reports addressing future information needs of the natural resource profession (National Research Council 1990, Society of American Foresters 1993, Bormann and others 1993) recognize both the need for and lack of social science information. These reports provide only a brief, but useful, beginning to identifying human dimensions research needs.

The National Research Council's (NRC) report, *Forestry Research: A Mandate for Change* (1990), perhaps provides the most detailed account of "human/forest interactions" research needs. The report identifies six areas of research to be pursued:

(1) *Community Systems*—Research focusing on "social structure, the network of institutions providing order to human affairs" is needed to understand the linkages and interactions between human and ecological systems. Research within this area represents a wide variety of subject matter and academic disciplines examining actual geographic communities as well as the communities created through social ties (Stowkowski and Lee 1990).

(2) *Urban Forests*—Research focusing on the urban environment and its residents is crucial to ecosystem management. The majority of people in the United States reside in urban environments. Consequently, the majority of political influence also resides in urban areas. Understanding and integrating urban dwellers' relationships to the country's wildlands is of key importance to the successful implementation of ecosystem management. Equally important is gaining an understanding of what urban dwellers need and want from their urban forests—frequently their only contact with the natural environment. Research in urban forestry incorporates many issues including those of land use (e.g., expanding urbanization and issues of the wildland/urban interface), the relationship of urban dwellers to urban and wildland areas (e.g., the role and benefits of urban forests and ethnic/racial minority's relationship with public lands), and urban influences on public land policy (Dickerhoof and Ewert 1993).

(3) *Regional Resource Systems*—Research in this area is critical to developing and incorporating geographic scale into ecosystem management. Research focusing on the human and ecological context of ecosystem management policies and decision-making is needed. This includes developing an understanding of the human ecology of areas and integrating human and ecological units of scale. Additionally, successful implementation of ecosystem management requires integration and cooperation across numerous administrative boundaries, which also requires a more thorough understanding of institutional structure and function.

(4) *Recreation and Aesthetics*—Much of the existing human/forest interaction research has focused on recreation and aesthetics and will continue to be an important aspect of human dimensions research. The NRC report (1990) suggests that the focus of this research needs to shift toward understanding recreation experiences in a wider array of recreation settings and developing basic research programs to supplement the problem-driven research that is currently more prevalent.

(5) *International Context*—The logical extension of the philosophy behind ecosystem management is the extension of concern to the global environment and its people. Research in this area would add diversity of cultures and a global context. Additionally, research in developing countries within the realm of social forestry contributes greatly to the quality of life and conservation of local resources for local peoples and provides information, theory, and methods to further human dimensions research in developed countries.

(6) *Extension Services*—A significant barrier to the implementation of the human dimension within ecosystem management is the gap between social science data and information useful for the policy development and decision-making process (Ewert and Carr 1994). Within the physical and biological sciences, the current extension service network in large part fills this void. Given the limited number of individuals with social science expertise currently employed by land management agencies, a social science extension service is critically important for the implementation of ecosystem management.

The preceding categorization of human/forest interaction research needs is presented as a starting point for further elaboration of human dimension research needs. The research examples are meant to be illustrative, rather than an exhaustive listing of research topics.

Rather than focusing on the specific content of research, Baerwald (1990) lists characteristics of what he deems successful human dimensions of global climate change research. Although the reader should define the quality of successful research, this listing provides a useful set of characteristics by which potential human dimension research program options (including those not focusing upon global climate change) can be compared. Baerwald's characteristics are:

(1) *Research must be both basic and applied*—Basic and applied research are not mutually exclusive.

(2) *Research should evaluate processes and phenomena across the globe*—Understanding the interaction of human systems with physical and biological systems requires comparison across diverse human systems.

(3) *Research should pay more attention to the role of location as a factor affecting the human dimension*—Frequently social science research is conducted with no reference to or understanding of the geographic space in

which people are found; it is as if the social phenomena being studied occur separately from the physical world.

(4) *Research must make stronger connections among analyses at different scales of inquiry.*

(5) *Research should focus on the direct links among different human, natural, and physical systems*—Developing both conceptual and mathematical models that elaborate the linkages among these three dimensions will yield significant advances in policy development and decision-making capabilities.

(6) *Research should also examine the indirect links among different systems*—Given the complexity of the interactions among the systems, indirect linkages need to be considered and incorporated in policy development and decision-making as well.

(7) *Research will require more "industrial-style" efforts rather than the "craftwork" projects in which social scientists usually have participated*—Social science information requires participation in large-scale, multi-disciplinary efforts that have not been traditionally undertaken in the social sciences.

Conclusion

This paper has attempted to present ecosystem management, particularly the human dimension, as both an innocent and wicked problem. The ideas that wickedness is good and science and technology are but a tool for resolving problems both tend to contradict the typical notions about natural resource management. We do not like to accept that problems and their solutions can be messy. Schroeder (1993) addresses this issue:

> Like it or not, we are all active participants in an ongoing and acrimonious debate over values, in which no one group can force others to accept its views. We can only try to play our role responsibly in this debate, by encouraging open and respectful discussion of diverse views, trying to understand the views of others, and identifying and questioning our own values as an agency [referring to the Forest Service]. Social science can help a great deal in this human process of understanding and dialog but there are no data or models, social or otherwise, that can calculate the "right" answers for us. There is no easy way out, no formula, no research, no technology that will free us from the responsibility, uncertainty, and pain of being in conflict with other people over some of our most deeply held values.

The wickedness Schroeder describes so well clearly makes our job as natural resource professionals more difficult than it has been in the past, but the wickedness can, to a degree, be tamed. If we persevere, we will be rewarded with a more diverse and vibrant profession and a strengthened relationship with the publics we seek to serve.

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Technology Transfer for Ecosystem Management[1]

Tim O'Keefe[2]

In many parts of our country today, forest health and sustainability are important management questions. Some individuals and groups have observed that during the past century the emphasis in American forest management on commodity production has, in many cases, contributed to a unhealthy forest landscape. For example, the forestland in eastern Oregon has considerably declined because of the overharvest of commercially valuable ponderosa pine because of over-intensive fire control.

In addition to this forest decline problem, public concern has grown about lack of sustainability in traditional (clearcut and replant) timber management. It is increasingly evident that even successful timber management is essentially a systematic conversion of both public and private forest land to a "tree-farm," fiber-production system. This commodity approach to forestry has also decreased natural biodiversity, and replaced the diverse forest ecosystem with a monoculture, highly susceptible to insects/disease, and fire.

The Thomas report (1992) on the conservation of the spotted owl habitat, and the Endangered Species Act (ESA) introduced wildlife as a significant forest management element. In addition to the biological aspects of that report, the socio-economic implications were also highly significant. Throughout the northwest, that report resulted in prolonged controversy, reduced timber harvest, and most recently Option 9, the Presidential Preferred Alternative (PPA).

In response to the Thomas report, and growing public pressures for a diverse, sustainable management system, the USDA Forest Service developed a program originally called "New Perspectives" that has now evolved into the "ecosystem management" program. This new program is a belated effort to redirect public forest management away from commodity timber harvest towards a more diverse, sustainable forestry system. Ecosystem management is composed of both biological (ecosystem sustainablitily and diversity) and sociological (public participation and collaboration) elements. For years, most traditional forest managers have concentrated on timber production, at the expense of both biological and sociological elements. Thus, ecosystem management is an attempt to integrate the biological with the human dimension to build a sustainable forestry system on a long-term basis. Ecosystem management represents a significant departure from traditional forestry, primarily because most professional forestry training has been and continues to be, directed at timber production alone. As a new forest management philosophy, the Forest Service ecosystem management program will force managers to be more responsive to a wide array of both biological, and social forestry issues.

The process of redirecting traditional forest management to an ecosystem forestry approach requires both short-term, immediate, and long-term, sustainable action. Long-term ecosystem management will require a major change in professional forestry training. The addition of some new hardware, or some minor curriculum changes, are insufficient to redirect the training focus from the traditional timber emphasis. Thus, an effective ecosystem forestry education will require removal of the old standard timber courses like mensuration, regulation and economics,and replacement with new conservation forestry courses like habitat restoration, and social forestry.

Short-term ecosystem implementation requires a significant shift in management emphasis from commodity to non-commodity forest resources. In addition, successful and meaningful public participation is a critical element in effective ecosystem management. Thus, from an area, regional or forest basis successful short-term ecosystem management requires application of sound technology trasfer (TT) programs. As a focal point for this TT effort, the Forest Service ecosystem management program has supported the development of a network of specialized Learning Centers. In the Pacific Northwest Region, the Learning Center concept has been very effective as a productive technology transfer effort for external and internal ecosystem management.

Forest Service Technology Transfer

Since the early 1980's the Forest Service has pioneered effective TT programs aimed at shifting the focus of research information from the laboratory to field application on the National Forest Ranger District level. In those early years, Hal Marx, of the Agency's Washington office staff, emphasized the importance of TT as a coordinated outreach effort to encourage public participation. Since that time, the Ecosystem Learning Center concept has been developed as an effective vehicle to inform forest managers about Ecosystem Management and to focus public participation. In addition, adaptive management as a basis for ecosystem collaboration, has also been directed from some Learning Centers. Adaptive management is an integrated system of applied research that attempts to combine management and

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research skills, in a forest area that will also have long-term demonstration (TT) value.

Although the Learning Center concept is still relatively new (since 1991), two Centers in the Pacific Northwest Region have made good progress. The Blue Mountains Learning Center, directed by Jim McIver, Blue Mountain Natural Resources Institute, and the Olympic Learning Center, directed by Kathy Snow, Olympic National Forest have both been effective in developing a wide variety of ecosystem, technology transfer projects. Some of the most successful TT projects have included public information and participation, and the development of demonstration areas to show-case ecosystem management.

Last year, at the Olympic Learning Center, a special technology transfer project was developed to provide information about ecosystem management for the general public. The basic idea of this Olympic East Demonstration Project was to develop a series of ecosystem demonstration sites, accessible from a main road, on the east side of the Olympic Peninsula. Most of the specific demonstration sites were located on two districts, the Quilcene and the Hood Canal, as well as on State forest lands, and some private lands. Thus, initial Project planning, and later implementation, required close collaboration between both public and private forestland owners. The planning phase of this Project was completed in a series of three steps:

1. Preliminary site location/evaluation
2. Network discussionst view and evaluated each site on-the-ground.
3. Draft plan/report preparation, and implementation scheduling.

Each demonstration site was selected to illustrate some aspect of ecosystem management, such as "green-tree retention," or habitat improvement for wildlife. Main road accessibility was a key aspect in site selection, and eventually all sites will be tied into a single visitor network. The purpose of this network of ecosystem demonstration sites is to provide the general public with a good visual demonstration of selected aspects of the ecosystem management concept. Each demonstration site will be marked along the main road, and interpreted on-site with appropriate signs, brochures, and audio. This demonstration site network can be used as part of an individual auto tour, or as a guided group tour, where staff is available. In addition, these demonstration sites may be used off-site, in the form of video and/or slide-tape products for groups in urban locations.

Many of the demonstration sites selected will illustrate not only biological aspect of ecosystem management, but frequently they will also illustrate some social element, such as participation and/or collaboration. In terms of collaboration, local sections of larger organizations, such as the USDA Cooperative Extension Service (CES), the Society of American Foresters (SAF), and local Resource Conservation Districts (RCD) have all been directly and indirectly involved in site selection and planning. Other State and Federal agencies, such as Washington State Forestry (DNR) National Park Service (NPS), and State Fish and Game were also very helpful with many aspects of this project.

In general, this initial site selection and planning seemed to be successful. During the planning process, the wide array of contacts with local forest land owners, industrial foresters, and community organizations provided a very substantial degree of public exposure, and involvement with this initial planning process. Thus, this technology transfer effort was a valuable way for the Learning Center to focus community attention on the ecosystem management process. In addition, the Forest Service staff, both National Forest and Ranger District level, also developed some additional awareness about ecosystem management and the technology transfer process. At this point, pending further resource allocation, this ecosystem management, technology transfer project is now ready for implementation.

But although the Olympic Peninsula landscape has a rich diversity of natural beauty, unfortunately during the past century, a large part of this forest landscape has been heavily cut for timber, and replanted. In addition, significant wildfires and wind throw have also shaped the visual appearance of forest stands in this area. During the past few decades increased use of clearcutting to harvest timber, and subsequent replanting, has decreased diversity, reduced wildlife habitat values, and most recently threatened valuable shellfish beds by siltation from logging. Clearcutting on ridges separating narrow east side Olympic valleys may also promote genetic isolation of elk herds that have recently migrated from the west side of the Peninsula. These problems have been more common on both public and private forest lands.

More recently, in the last 5 or 6 years, there has been a very rapid rate of residential development, particularly on the east side of the Peninsula. This has resulted in all the management problems associated with parcelization, including the fact that many private forest land owners are now most interested in land speculation. Almost any management activity that could result in more attractive wildlife habitat is frequently considered to be a professional invitation for expensive litigation, and lost profits under the ESA or similar environmental regulations. In many cases, this intense rapid residential development has also resulted in local water pollution because of septic system failure.

The most significant obstacle for effective ecosystem management technology transfer included:

- A division between forest landowners/timber managers and the environmental community
- A rapidly growing public interest, accompanied by a lack of knowledge, about forest resources
- Growing public pressures on traditional (clearcutting) timber management systems
- A lack of understanding (distrust) of ecosystem management by professional foresters
- Some private forestland owners lack of stewardship, replaced by greed for high short-term profits

- Some small community feelings of "right to Federal timber," for jobs; limited understanding of biodiversity and sustainability
- Limited forest landscape that was suitable for ecosystem demonstration.

Clearly, most of these technology transfer problems were socio-economic in nature. However, from a practical viewpoint, the limited number of forest sites suitable for visually clear ecosystem demonstration areas was undoubtedly the greatest obstacle. Most of the road accessible forest sites on the east side were managed on a traditional clearcut/replant even-age timber system. A few medium-age stands were treated by selective thinning, and other natural stands were harvested by a type of seed-tree system, that was locally called "green-tree retention." Some of this cutting called green-tree retention was the result of a professional misunderstanding, or an outright attempt to misrepresent the ecosystem management process.

In terms of the socio-economic technology transfer problems, the deep division between the commodity (timber production/utilization) management programs, and non-commodity (environmental) groups is still significant. Of course, the relatively rapid reduction in timber/mill related jobs in small single-industry towns was also a significant factor. Families that had enjoyed generations of forest/mill employment and rural, small town lifestyle, were forced out of this traditional system. The resulting unemployment caused an increase in social/community problems and family discord throughout this area. Thus, locally, the ecosystem management concept is frequently viewed as another government/environmental plan to further curtail timber harvest--and community jobs.

During most of the planning stage of this technology transfer project, formal public participation was a relatively weak element. Only a few years ago, on the Quilcene District, the Spenser Project was a good example of active, public participation. Unfortunately, this participation has not continued. On a short-term planning process, public participation was not given any high priority, so only a limited amount of informal participation occurred, mainly through the local RCD councils. On a long-term basis, any successful ecosystem technology transfer effort had to be developed on a strong program of formal public participation.

Another significant socio-political problem has been the lack of understanding about ecosystem management by professional foresters. Many timber managers, by training and inclination, favor only a traditional clearcut/replant harvest system. Professional reluctance to consider ecosystem management results in a TT effort that is much more difficult, time consuming, and expensive. On many forest districts, ecosystem management seems to be considered as a public relations means to reduce public pressure about management issues such as clearcutting. Of course, under such circumstances, it is difficult to develop any meaningful ecosystem TT plan. For example, on one district, the ranger wanted to cut 20 mm feet from a sales area to keep the local mill in operation, and to maintain local jobs. However, on the same site, when the SO staff forester suggested reducing this Annual Sales Quantity (ASQ) for ecosystem considerations, the ranger implemented the full cut. On the other hand, in 1990 on Pine District, Wallow-Whitman National Forest, the ranger initiated a very productive Consensus Project for ecosystem public participation.

The Ecosystem Learning Centers have also developed successful demonstration projects to illustrate ecosystem techniques like improved wildlife habitat, riparian cattle exclusion and rehabilitation, use of large woody debris (LWD) in streams and forest, and green tree retention. Demonstration projects can be established on very specific, physical sites, or as an ecosystem process, such as public participation. Thus, some TT demonstration projects will be easier to view, while other projects will require more video to illustrate the process.

Both industrial forest landowners and woodlot owners have also been important positive and negative elements in ecosystem technology transfer. Many industrial forest companies, such as Paper Resources, were very supportive and offered forest areas as potential demonstration sites. However, some companies preferred to avoid any association with ecosystem management, based on the concern that this was another type of environmental plot to completely close timber harvesting on private as well as public lands. Similarly, woodlot owners often supported ecosystem management, especially if land stewardship was a major management goal. However, where the woodlot was held for land speculation, most landowners were hostile to the ecosystem concept. In eastern Oregon, the Consensus Program and other similar public participation programs have been used to develop a productive ecosystem management technology transfer process. Some local organizations, like the Extension Service, and RCD can be very effective community links to facilitate public participation and closer cooperation with woodlot owners.

Ecosystem technology transfer has also been hindered by a "fortress attitude." Some environmental groups see ecosystem management as a cynical effort at public relations, while traditional timber harvest (clearcutting) continues unchanged. At the other end of the spectrum, some local landowners maintain a "frontier mentality," where "unlimited" resources were exploited by pioneers without any concern about sustainability. Any attempt to change this traditional pattern of cheap, unrestricted resources—"welfare resources" according to some—is considered an "unAmerican environmental plot." Ecosystem technology transfer must be developed on a basis of mutual understanding and trust.

Discussion

Successful ecosystem management requires a continuing commitment to a strong technology transfer effort. At present, ecosystem management is a poorly understood program that

has also produced some heated reactions in both the public and the professional communities. Urban and rural populations are divided concerning ecosystem management. As a result of these conditions, a detailed technology transfer program is essential for more productive ecosystem management.

Because of this continuing controversy, ecosystem technology transfer will continue to be difficult, time-consuming, and expensive. Successful ecosystem technology transfer will require some significant changes, such as:

- Increased public participation, both short and long-term.
- Clearly defined ecosystem demonstration projects.
- Sound field examples of correct ecosystem management techniques, such as green tree retention.
- Focus timber management on a more diverse non-commodity, ecosystem program.

In addition, successful ecosystem management should also require a major change in professional forestry education. At present, most forestry programs continue to focus on commodity, timber management training. The present traditional timber related courses like mensuration, regulation, and economics must be replaced with training in habitat restoration, conservation forestry, and social forestry.

Technology transfer is a production tool that can stimulate public participation and understanding about ecosystem management. Long-term successful ecosystem management will require a new system of forest regulations or an incentive system such as the new Stewardship Incentives Program (SIP). Ecosystem management also requires a shift from the traditional stand-level management system. Another important aspect of ecosystem management is development of a sound forest health program, including an active system of forest restoration. A complete ecosystem program will also require a major shift silviculturally from the traditional even-age, clearcutting system to an uneven-age selection system.

Conclusions

Technology transfer for ecosystem management will continue to be a major forestry challenge, both biologically and socially. Full implementation of ecosystem management will force a complete reconstruction of traditional American, commodity-focused, forestry. The era of free, welfare resources is over, and the pioneer, frontier mentality is a relic.

In addition to technology transfer, a new system of ecosystem forestry education and research will be required to implement effective ecosystem management. A complete ecosystem management program will require a balanced approach, for sustainable and ethical forest land use. As Aldo Leopold once observed: “The first rule of sound tinkering is to save all the parts.” Thus, technology transfer, as one important part of ecosystem management, provides another tool that helps us “save all the parts.”

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Impact of Multicultural Groups on Resource Management

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To Be Or Not To Be a Park: That Is The Question[1]

Deborah J. Chavez Janna Larson Patricia L. Winter[2]

Abstract: The Applewhite Picnic Area of the San Bernardino National Forest is a site of change. This has been evidenced by the user groups who have visited the site, and the activities engaged in during the early 1990's. Because the picnic area is scheduled for renovation in fiscal year 1995, resource managers desired input from their user groups prior to renovation. A questionnaire was distributed to gather information from visitors about their preferences for the picnic site amenities and facilities. Overall, the respondents to this study specified preferences for developing the area.

To be, or not to be a park, —that is the question:
Whether 'tis nobler as a resource professional to
suffer the crowding and conflict by overdemand,
Or to take arms against a sea of troubles,
And by redesigning end them?
-To survey, -to change, -Once more;
and by a change to say we end
The heart-ache and the thousand natural shocks
That visitors fall heir to, -'tis an experience
Devoutly to be avoided.
To survey, -to plan; -to change
To change! Add flush toilets, grass and swingsets:
ay there's the rub;
For in those changes what other visitors may come
When we have shuffled off this wildland appearance
Must give us pause: there's the decision
That makes our job a challenge.
(After Shakespeare's "Hamlet")

The Applewhite Picnic Area of the San Bernardino National Forest is a site of change. This has been evidenced by the user groups who have visited the site, and the activities they have engaged in on the site during the early 1990's. Statistics show that part of this change is because of the reshaping of the population in southern California as the Hispanic population increases. Applewhite has experienced a concurrent change in users because more Hispanics are recreating there than ever before, and they are recreating in larger groups than previous user groups. These users are also engaging in "different" activities than prior users. For example, although picnicking remains the primary activity, the new user groups make meals from scratch that can take several preparation hours, in contrast to the methods of prior picnickers.

Another pending change in the area is the renovation of the picnic site. Currently, the site contain more that 100 parking spaces and about 30 picnic tables. And although the area was designed for about 250 people, actual visitation levels are commonly as high as 1,200 people (*fig. 1*).

This paper reports a study to gather information from visitors about their preferences for the picnic site amenities and facilities. This information will be used in the site development plan for renovation of the picnic area.

Our research objectives included obtaining information about:

- The socio-demographic background of site visitors, their patterns of visitation and the activities in which they engage;
- Visitors' favorite recreation areas within the picnic site, and their preferences for site features and facilities;
- Visitor opinions about potential changes in the picnic area; and
- New and repeat visitors' picnic site preferences.

Methods

The questionnaire used in this study to determine user preferences was based on a U.S. Office of Management and Budget approved document that addresses part of the day-use series emphasis of the Pacific Southwest Research Station's Wildland Recreation and Urban Culture Research Work Unit. The approval designates issues that are expressed in specific questionnaire items. The terminology of the items was determined in cooperation with resource managers of the Cajon Ranger District.

Data were collected on-site using a self-administered questionnaire format. A field team member approached a group, described the purpose of the study, and asked visitors who were 16 years of age or older to participate. Participation was voluntary.

Data were collected on weekends from July 3-18, 1993. During that period, 334 respondents completed an English or Spanish version of the questionnaire. Of the 761 adults approached, 44 percent participated and completed the questionnaire. This is a high percentage, despite that a Spanish version was not available at the beginning of the survey season.

[1] An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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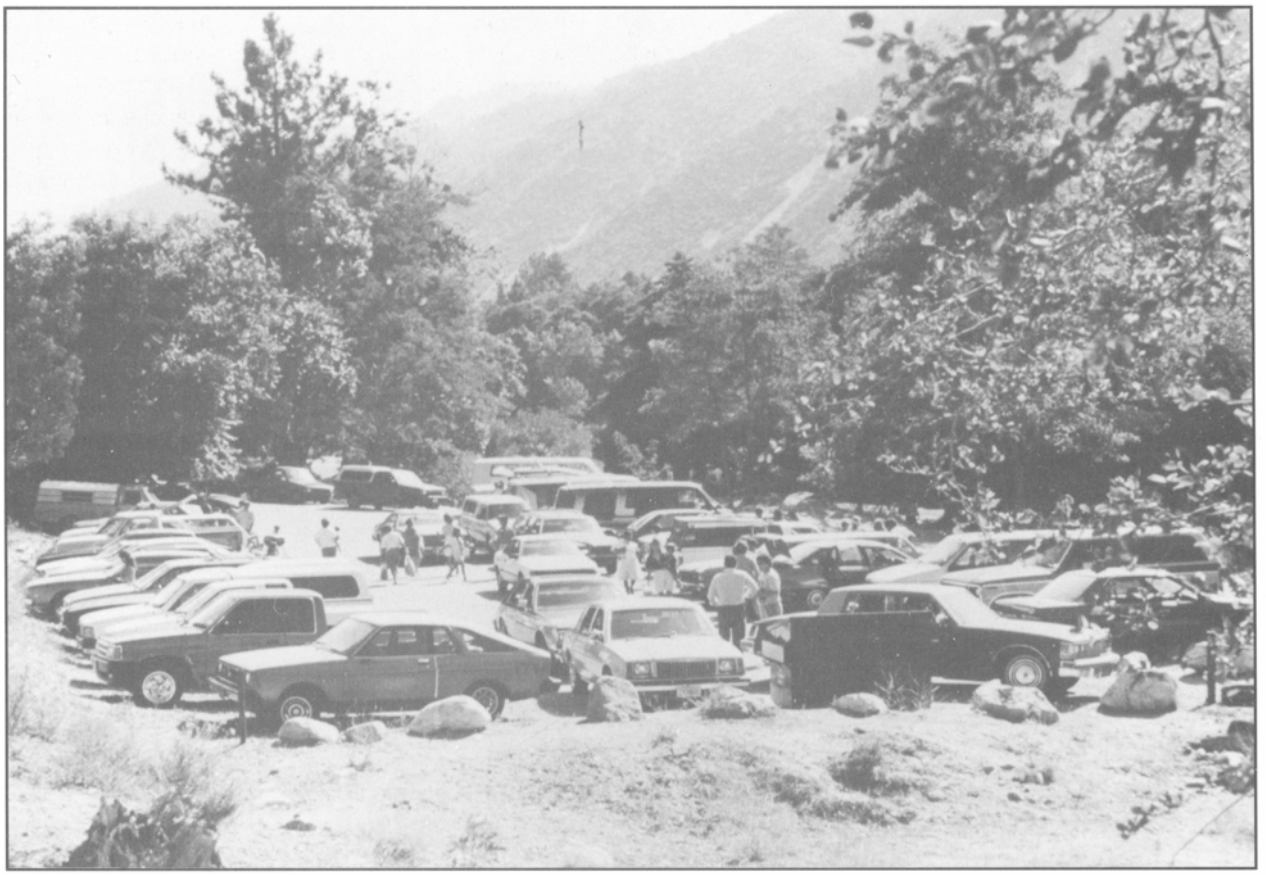

Figure 1—The San Bernardino National Forest's Applewhite Picnic Area was designed to accommodate 250 visitors, but commonly it has held as many as 1,200.Forest Service, 4955 Canyon Crest Drive, Riverside, CA 92507.

Results

Socio-Demographic Profile

More than three-quarters (78 percent) of the visitors to the Applewhite Picnic Area were of Hispanic descent (40 percent were Hispanic American, 36 percent were Mexican American and 2 percent were Central American). Another 7 percent were Anglo-American. Less than half of the sample (43 percent) were born in the United States, with Mexico being the most common (50 percent) birthplace. Respondents had resided in the United States for an average of 22 years (with a standard deviation of 13).

More than half (54 percent) were female and the average age was 32 (with a standard deviation of 11). Respondents had an average of 11 years of education. More than 6 of 10 primarily speak and read English (3 of 10 speak and read English exclusively while another 3 of 10 speak and read English and Spanish; one-third read and speak Spanish only). Groups were comprised of an average of eight adults (standard deviation of 1) and seven children (standard deviation of 5).

Patterns of Visitation

Almost three-quarters of the visitors (72 percent) were repeat visitors to the Applewhite Picnic Area. Repeat visitors have been to the site an average of five occasions in the past (with a very large standard deviation of 9--which suggests that there were very wide ranges in responses), and they have been coming to the site for 6 years (with a standard deviation of 7).

Most respondents (71 percent) had plans to stay at the site the entire day. Another 16 percent had plans to stay for 2 to 4 hours. Only 2 percent had plans to stay for less than 2 hours. When asked about the level of crowding, on a scale of "not crowded" to "extremely crowded," visitors perceived a "moderately crowded" condition.

Activities Engaged In

Respondents enjoyed a variety of activities at the Applewhite Picnic Area. The highest ranked activities were picnicking, relaxing, playing in the creek, wading, hiking and visiting with others; among these the most favorite

activities were picnicking (28 percent) or relaxing (26 percent). In addition, 8 of 10 respondents (79 percent) reported that their group had enough space for their activities. Those visitors reporting a need for more space wanted playgrounds, volleyball courts, a baseball field or other sports areas.

Favorite Recreation Areas and Preferred Features

Most respondents (70 percent) reported that they prefer to picnic in the shade while 9 percent preferred to picnic in the sun. Given the choices of picnicking near water, on or near the parking lot, on rocky areas or grassy areas, most respondents (76 percent) expressed a preference for picnicking near the water. Only 17 percent of the visitors said they were able to picnic at their favorite place all the time. A cross-tabulation of sun/shade preference and duration that people picnicked at their preferred area was not significant--78 percent of those preferring the sun recreated there some or most of the time, and 79 percent of those preferring the shade recreated there some or most of the time. The features most often desired by picnickers included creeks, trees, picnic tables, rocks/boulders, and easy access to the road.

Site Facility Preferences

Picnic Tables

Eight in ten respondents (81 percent) desired more picnic tables at Applewhite. About half the respondents (49 percent) thought that the picnic tables should be moved close to the water while about one-third (31 percent) thought the tables should not be moved.

Almost all the respondents (95 percent) preferred tables in a large group configuration (52 percent chose 10 foot tables that seat eight people and 43 percent chose side by side tables for large groups).

Trash Containers

Most of the respondents (90 percent) preferred trash cans near the picnic tables; and although more than half (63 percent) desired trash dumpsters in the parking area, another 31 percent did not prefer trash dumpsters in the parking area.

Other Amenities

About 8 of 10 respondents (79 percent) reported a lack of barbecue grills available at Applewhite. Although 30 percent reported a sufficient number of restroom facilities at Applewhite, 68 percent disagreed. And most respondents (88 percent) preferred flush toilets available at the picnic area.

Parking Preferences

A series of questions elicited information about parking preferences. More than one-third (36 percent) of the respondents reported that they prefer to pay nothing to park at the Applewhite picnic area. Another 4 in 10 (40 percent) reported they would pay $3 per day.

About half (54 percent) reported that they would return to Applewhite if a fee was charged for parking, but 28 percent said they would not, and 18 percent said they were uncertain. Most of the respondents (83 percent) said they would be willing to walk one-quarter mile or less from an overflow parking area to the picnic area (67 percent said less than one-quarter mile and 16 percent said one-quarter mile). Although 44 percent reported they would prefer to pay nothing, another 44 percent report they would be willing to pay $3 or less to park some distance away from the picnic area.

Opinions About Change

Visitors were asked about their opinions regarding changes to the picnic area. Although about one-third (36 percent) stated that the changes was unnecessary, other respondents reported that changes should be made to the restrooms (26 percent), tables (12 percent), parking (7 percent), and the barbecues (2 percent). Respondents then indicated the improvements they desired at Applewhite. The most frequently listed improvements were adding more parking spaces and a playground.

When asked to choose the most important improvement, about one-fourth (26 percent) asked for the addition of parking spaces; others asked for lawn (16 percent), a playground (14 percent), shade trees (13 percent) and picnic area information on bulletin boards (6 percent).

Janna Larson, Recreation Planner for the Cajon Ranger District of the San Bernardino National Forest, provided renderings of three development options. The field team displayed the three choices, outlining the main features of change for each, and told respondents that choice number 4 was Applewhite in its current condition.

Choices 1, 2 and 3 displayed varying degrees of development. Choice 1 maintained the existing design capacity of 120 parking spaces, 33 picnic tables (all single, none clustered), no grassy lawn, and some additional shade trees. Choice 2 doubled the design capacity with 240 parking spaces, 60 picnic tables, lawn/gravel and rock in the main picnic area, and half clustered, half single tables. The greatest degree of development was depicted in choice 3: this choice tripled the existing design capacity with 480 parking spaces, 120 picnic tables (most clustered), lawn, shade trees, and playgrounds. Choice 3 was the most preferred (53%) when compared to the picnic area as it presently exists, and development options 1 and 2. A preference for more development was also demonstrated in visitors' second preference: Choice 2, the second greatest degree of development (30%) also received a high preference rating.

Another question relating to current and preferred management strategies queried visitors about management preferences for the picnic area. The highest percentage reported was for current management by the Forest Service (53 percent), but 10 percent preferred management by picnic area hosts and another 5 percent favored an outside group or concessionaire. Less than one-third (31 percent) reported no preference.

Another question asked visitors about their interest in hosting the picnic area, but only 1 percent replied affirmatively.

Socio-Demographics and Activities

No statistical differences were found between new and repeat visitors regarding socio-demographic characteristics.

Preferred Features and Favorite Recreation Areas

A statistically significant difference ($p<.05$) was discovered between new and repeat visitors regarding indications of their favorite place at Applewhite; new visitors showed a greater preference for places in the sun than did repeat visitors. No significant differences were found between new and repeat visitors regarding geographic preferences, e.g., grassy versus rocky areas.

A significant difference between new and repeat visitors was found regarding the perception of crowding (Chi-square, $p<.05$): a greater percentage of repeat visitors were likely to rate the picnic area as moderately or extremely crowded.

No other differences were found between new and repeat visitors about site features and indicated preferences. Only repeat visitors responded to the majority of these items, precluding any comparisons.

Opinions About Change

No significant differences were found between repeat and first time visitors regarding development options, willingness to pay for parking, or most preferred improvement.

Discussion and Management Implications

Socio-Demographic Profile

Average visitors to the Applewhite Picnic Area are of Hispanic descent—United States or Mexico born—and had resided in the United States for 22 years. These visitors on the average were 32 years old, had some high school education, and primarily spoke and read English. Average groups of visitors were comprised of eight adults and seven children.

Most respondents were repeat visitors to the Applewhite picnic area who had visited the site an average of five times in the past 6 years. On average, Applewhite visitors did not consider the site to be crowded. And although the highest visitation occurred after midday, most respondents reported plans to stay at the site all day.

Favorite activities at the Applewhite Picnic Area area included picnicking, relaxing, playing in the creek, wading, hiking and visiting with others. The favorite activity question revealed the two most popular activities—picnicking and relaxing.

Resource managers should be prepared to continue serving the Hispanic population at the Applewhite area and plan for large size groups. People have been using the area for the intended purposes-- picnicking and relaxing. Visitors have not been concerned about the numbers of other visitors at the site; this suggests that managers can redesign the area to match current use or possibly expand to include even more visitors. However, given that repeat visitors are more concerned about crowding, an optimal to design for Applewhite would not include more space for many more visitors than are currently recreating at Applewhite.

Favorite Recreation Areas and Preferred Features

Visitors' favorite places to picnic at Applewhite are in the shade, near the water. The features respondents liked most at Applewhite were the creek, the trees, the picnic tables, the rocks/boulders and a picnic area that was close to the road.

Most respondents thought that there were not enough picnic tables at Applewhite. About half the respondents thought that picnic tables should be moved close. Most respondents wanted tables in a large group configuration, and they preferred more barbecue grills at Applewhite.

Although most of the respondents preferred trash cans near the picnic tables, they seemed to have no strong preferences about the location of trash dumpsters in the parking lot. More than half the respondents preferred more restroom facilities at Applewhite and most expressed a preference for flush toilets.

The responses to questions about parking lots also reveals a mixed preference. Many respondents did not want to pay to park at Lytle Creek although many others said they might pay up to $3 per day to park there. About half reported that they would return to Applewhite if a fee was charged for parking, although many said they would not. Overflow parking responses suggested that visitors would walk one-quarter mile or less from an overflow parking area to the picnic area. Many respondents did not want to pay to park at an overflow area although many others said they might pay up to $3 per day to park there.

Overall, the respondents to this study have preferences for developing the area. They prefer shade, more picnic tables (particularly in large group configurations), trash cans near those tables, more barbecue grills and more restrooms (especially flush toilets). All these items suggest that renovation of the site will be favorably considered by the current user groups. Their preferences also provide a guide to resource managers about the specific items that the visitors prefer at the site.

Because trees and bushes are favored by respondents, a site designed for a larger capacity of visitors should include these, which could serve as privacy regulators and perhaps give the impression of fewer, not more, visitors at the site.

Opinions About Change

Visitors' opinions about changes to the picnic area included about one-third who stated that change was not necessary, but other respondents reported that changes should be made to the restrooms, tables, parking, and the barbecues. Improvements they would like to see at Applewhite included adding more parking spaces and a playground. Parking spaces were considered the most important improvement needed at Applewhite. Several respondents also mentioned that they might like to have information available on bulletin boards.

Respondents who were shown sketches of potential site development preferred a high level of development.

Although many expressed no management preference for the site, about half preferred the current management by the Forest Service. Few supported the idea of a picnic area host and almost no one expressed an interest in hosting the picnic area.

Thus, more than two-thirds preferred development of the site, and parking lots and playgrounds were prioritized as the most important items in need of change. The respondents also expressed a desire to continue with Forest Service management of the area—even though this may not be feasible under a high development design.

Comparison Between New and Repeat Visitors

Few significant differences were found between new and repeat visitors to the Applewhite Picnic Area, although these groups did differ: new visitors showed a greater preference for places in the sun than did repeat visitors, and a greater percentage of repeat visitors were more likely than new visitors to rate the picnic area as moderately or extremely crowded.

But the overall lack of significant differences suggests that design planning of the picnic area does not need to focus on one particular user group--except that repeat users were more sensitive to crowding.

Management Plans

The final site development plan for the area has been developed. This design includes 100 picnic tables total--with 50 picnic tables in family clusters and longer tables and bigger grills. Trash cans will be placed near the picnic tables. Flush toilets will be installed in the picnic area. Two play areas are planned along with two creekettes (small, gravity-fed creek extensions) with boulders and shade. Half the site will have lawn and additional shade trees will be provided. The area will be managed by a concessionaire who will oversee 200 parking spaces and charge a fee at the entrance to the parking area. There will be fencing around the perimeter of the picnic site and efforts will be made to provide use to a maximum capacity 800 people.

Conclusions

The goal of this research was to gather information from visitors about their preferences for amenities and facilities for the picnic site that would be incorporated into the site development plan for the renovation of the site.

Results from the self-administered questionnaire suggested that resource managers should be prepared to continue serving the Hispanic population at the Applewhite area and plan for large size groups. Although visitors did not seem concerned about the numbers of other visitors at the site, repeat visitors were more concerned about crowding, so it would not be optimal to design for many more visitors than are currently recreating at Applewhite.

Overall, respondents to this study have preferences for developing the area. They preferred shade, more picnic tables (particularly in large group configurations), trash cans near those tables, more barbecue grills and more restrooms (especially flush toilets). Respondents considered parking lots as the feature in most need of change. Each of these items suggested that renovation of the site would be favorably considered by the current user groups.

Finally, given that there were few differences between new and repeat visitors to the site, the design of the picnic area should not focus on one particular user group--with the caution that repeat users showed more sensitivity to crowding. Management plans for the area incorporated most of the preferences of the respondents as measured by the survey.

Differences in Behavioral Conventions: A Comparison of United States-Born and Mexico-Born Hispanics, and Anglo Americans[1]

John L. Heywood **Raquel L. Engelke[2]**

Abstract: Past research on ethnicity in outdoor recreation has focused on park use and participation in recreation activities. Explanations of differences in park use and participation rates by minorities and non-minorities have emphasized the marginality and ethnicity hypotheses. A different approach can be used that emphasizes visitor's expectations and preferences for appropriate behaviors at an urban proximate forest recreation site. Four social regularities are identified based on birth place and ethnic identity: cross cultural, United States indigene, Mexican born Hispanic, and Hispanic. The complexity of social regularities means that managers must maintain a high degree of familiarity with different visitor groups and the problems they encounter.

With a few recent exceptions (Carr and Williams 1993, Floyd and Gramann 1993, Floyd and others 1993), previous recreation studies on ethnic groups have focused on differences in participation rates and activity preferences between the minority ethnic groups and the dominant social group, usually Anglo Americans (McMillen 1983). Earlier studies focused particularly on differences in recreation usage by African-Americans and whites. In these studies the Hispanic population was largely ignored. However, research recently has expanded to include Hispanic populations recognizing the possible differences in recreation styles due to cultural influences not present in the dominant Anglo-American culture. As before, these studies generally compare participation rates and activity preferences of Hispanics to Anglo Americans and occasionally to other minorities.

The two hypothesis most often used to explain underparticipation of minorities in recreation activities are the marginality hypothesis and the ethnicity hypothesis (Allison 1988, Carr and Williams 1993, Floyd and Gramann 1993). The marginality hypothesis attributes differential rates of participation to socioeconomic barriers against minorities that prohibit them from taking advantage of recreation opportunities available to others. These barriers are the results of discrimination practices that keep minorities at lower income levels and segregated from the recreation opportunities available to the dominant social group (McDonald and Hutchison 1987; Kelly and Godbey 1993). The ethnicity hypothesis attributes differences in recreation participation and style to cultural differences that exist between ethnic groups and the dominant social group. According to this hypothesis, minority groups use recreation to maintain their ethnic identity and re-establish cultural ties that differentiate them from the dominant social group (Washburne 1978).

More recently, some researchers have become interested in how assimilation and acculturation of minority groups affects recreation participation. Yinger (1985) defined assimilation as "... a process of boundary reduction that can occur when members of two or more societies, ethnic groups, or smaller social groups meet." One aspect of assimilation is acculturation. Acculturation occurs when the minority group adopts the dominant group's cultural characteristics such as diet, language, and religion (Yinger 1985; Floyd and Gramann 1993; Negy and Woods 1992). Floyd and Gramann (1993) found least acculturated Mexican-Americans participated in significantly fewer activities than Anglos and concluded that higher levels of acculturation in Mexican-Americans result in more similarities in recreation style with Anglos.

Another aspect affecting recreational choices and behavior is the generational status of the minority group (Carr and Williams 1993). Generational status refers to the number of generations that have lived in close contact with the dominant social group. Socialization is affected by generational status as a cumulative effect from one generation to the next (Kelly and Godbey 1993). Carr and Williams (1993) found the "primary dimension contributing to similarities and differences in outdoor recreation preferences and behavior is ancestral group membership." As generational status increased, so did the similarities in recreation styles and preferences between Hispanics and Anglos.

Research to determine differences in behaviors and recreation styles is needed to understand more fully diversity within ethnic groups. Ethnic groups are not homogeneous entities but they are typically treated as such by most researchers. Recently, however, recreation research has recognized differences within the Hispanic culture. Carr and Williams (1993) found significant differences between Central-Americans and Mexican-Americans and their generational status. Social and cultural processes can result in behavioral differences between minority ethnic groups and Anglo Americans participating in recreation. Social conventions and norms establish patterns of social regularities that arise and are maintained through social interactions within groups. An important Hispanic social regularity is simpatía, the maintenance of harmonious interpersonal relations

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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characterized by dignified and respectful behavior (Triandis and others 1984). Simpático behavior would be different than the more individualistic, self-centered behavior characteristic of Anglo Americans,and such differences could express themselves in dissimilar social conventions and norms.

The purpose of the research reported here was to describe differences in behavioral expectations and preferences among Hispanics and between Hispanics and Anglo Americans for a number of behavioral problems encountered in a high density, day use, urban proximate forest recreation setting. Studying behavioral expectations and preferences can provide information on behavioral conventions (Heywood 1993). Behavioral conventions are found in situations that have two or more equally acceptable solutions to a behavioral problem. Lewis (1969) defines convention as a regularity in the behavior of the members of a population when they are agents in a recurrent situation in which some fraction of everyone prefers and expects some fraction of everyone else to prefer and expect some fraction of everyone to conform to the regularity.

Methods

Respondents' expectations and preferences for behaviors were determined through a series of two part questions. The respondent was first given a problem situation and then asked to think about what other users would expect to happen. The respondent was asked to estimate the percent of other users who would expect him or her to behave as suggested in the problem. For example:

- When you visit Lytle Creek, what percent of other users do you think would expect you to use a picnic site having a table and grill, if you bring food to cook?

The respondent was then instructed to mark a scale showing percentages from zero to 100 percent in 10 percent increments.

The second part of the question determined strong personal preference associated with the behavior by presenting an either/or statement that could be answered affirmatively, negatively or ambivalently. For example:

- When visiting Lytle Creek should you always use a picnic site having a table and grill to cook food?

If the response is "YES" or "NEVER" the respondent held a strong preference towards behaving consistent with or contrary to the behavior suggested in the problem situation. An ambivalent response, "MAYBE," "NO OPINION," or "MAYBE NOT" indicated the lack of a strong personal preference towards the suggested behavior.

Because the preference items used the normative term "should," the measures of expectations and preferences can not be considered to be valid operationalizations of conventions. Respondents expectations and sense of obligation, from the normative preference items, can be combined to determine whether social regularities exist for the problems under study. Social regularity results from social interactions where actors consider the situation and the other person's expectations and definitions of the situation (Kelly 1983).

We developed a questionnaire to assess the expectations and normative preferences of visitors to the Applewhite Picnic Area on Lytle Creek in the San Bernardino National Forest, in southern California. On the basis of previous studies and the knowledge and experience of USDA Forest Service researchers and technicians, a number of problem situations were identified that were relevant to conditions at the Applewhite picnic area. Expectations and preferences were measured concerning: (1) the use of formal picnic sites to cook food or to eat prepared food; (2) the disposal or recycling of trash from food and drinks; (3) whether visitors should be able to walk into or through other visitor's formal picnic sites, or informal picnic sites located on the stream bank or in the stream; (4) the appropriate volume for Spanish language audio programs (music or talk programs played on a radio, cassette or CD player); (5) the appropriate volume for English language audio programs (music or talk programs played on a radio, cassette, or CD player); and (6) whether large, medium and small dogs should be kept on a leash.

The questionnaire was translated into Spanish, and both English and Spanish versions were field tested over the July 4, 1992 holiday weekend. Minor changes were made in question format and wording, particularly in the Spanish language version, and the final Spanish and English language versions were distributed on-site over four weekends in late August and early September 1992. A team of bi-lingual interviewers from California State Polytechnic University, Pomona selected respondents and collected data as part of a number of studies funded through the USDA Forest Service's Wildland Recreation and the Urban Culture Research Unit. The data collection team canvassed all groups present on sampling days and attempted to get one adult to respond from each group. A total of 341 groups were contacted and in 215 one adult responded.

Using data on place of birth and ethnic identification, we classified respondents as United States-born Hispanics, Mexico-born Hispanics, or Anglo Americans. Using Chi-square and T-tests, ethnic classes were compared for proportions completing Spanish language questionnaires, mean years lived in the U.S., and mean age.

Respondents expectations were analyzed to determine if differences existed in the distributions for each of the 16 variables. The median and skewness were determined for each variable, and then the median was used to split the respondents for each variable into two approximately equal categories which had expectations above or below the median. The above and below median categories normative preferences for each variable were then compared, using Chi-square. Non-significant Chi-squares indicate that normative preferences were similar for those above and below the median, whereas significant Chi-square indicate that normative preferences were different.

The normative preference profiles for the ethnic classes were then compared for visual and proportional similarities. Normative preference profiles were plotted as bar graphs showing the percentages with YES, Ambivalent, or NEVER normative preferences for those above and below the medians for each variable. Similar visual and proportional patterns were grouped into several different categories showing agreement or disagreement between ethnic categories, and between those above or below the median expectations within ethnic categories.

Results

The comparisons of U.S.-born Hispanics, Mexico-born Hispanics, and Anglo Americans showed differences between the ethnic classes and the percent completing Spanish language questionnaires, mean years lived in the U.S., and mean age (*table 1*). The completion rates of Spanish language questionnaires were significantly different for each ethnic class. A very small proportion of Anglo Americans completed Spanish language questionnaires. A higher proportion of U.S.-born Hispanics, about one-fifth, completed Spanish language questionnaires, while a substantial majority of Mexico-born Hispanics, about three-quarters, completed Spanish language questionnaires. Even though Mexico-born and U.S. born Hispanics reported similar ages, Mexico-born Hispanics had lived in the U.S. about half as long--an average of 14.9 years—as U.S.-born Hispanics (27.5 years). Both U.S.-born and Mexico-born Hispanics were younger on average than Anglo Americans and consequently both U.S.- and Mexico-born Hispanics reported fewer years in the U.S. than Anglo Americans.

The median and skewness were determined for each of the expectation variables. Three patterns were evident: (1) variables with very high medians (70 to 90 percent) and relatively large negative skewness values, such as leashing large and medium size dogs, disposing of trash in a trash can, and cooking food at formal picnic sites; (2) variables with very low medians (15 percent) and relatively high positive skewness values, such as playing English and Spanish language audio programs at their loudest volumes; and, (3) variables with medians in the low-middle range (35 to 55 percent) and relatively small positive or negative skewness values, such as playing English language audio programs at moderate volumes, eating prepared food at formal picnic sites, and entering other's formal picnic sites or informal stream bank picnic sites.

The appropriateness of splitting the results for each variable into those above and below the median was justified through the results of Chi-square tests. Significant differences were found in the normative preferences of those above and below the median expectations for each variable except trash disposal.

Based on similarities and dissimilarities between the ethnic classes in the normative preferences of those above and below the medians, four ethnically based social regularities were identified plus one grouping characterized by no agreement ethnically or expectationally. The four social regularities identified were: (1) cross cultural social regularities with a sub-group of consensus only for those above the median expectations; (2) U.S. indigene social regularities; (3) Mexican-born Hispanic social regularities; and (4) one Hispanic social regularity.

Cross cultural social regularities included disposing of trash in a trash can, recycling trash, leashing large dogs, playing English language audio programs at their lowest volume, leashing medium and small size dogs, and always entering in-stream picnic sites if consensus was above the median expectations. The bar graphs for the first four cross cultural social regularities—consensus for both those above and below the median expectations—are shown in *figure 1*. As the bar graphs illustrate, substantial majorities of almost all ethnic classes have positive normative preferences for disposing of trash, recycling and leashing large dogs. The only exceptions were the relatively high proportions of Mexico-born Hispanics who were ambivalent about leashing large dogs (below the median), and playing English language audio programs at their lowest volumes (both above and below the median). Yet majorities did express positive normative preferences for leashing large dogs and playing English language audio programs at their lowest volumes.

In the sub-group of cross cultural social regularities substantial majorities above the medians (more than 60 to 90 percent) from all ethnic classes had positive normative

Table 1—*Comparison of U.S.-born and Mexico-born Hispanics and Anglo Americans*

Population	Percent completing Spanish language questionnaire	Mean years lived in U.S.	Mean age
U.S. Born Hispanics	[1]19.6	[2,3]27.5	[5]29.8
Mexico Born Hispanics	[1]75.4	[2,4]14.9	[6]31.6
Anglo Americans	[1]0.4	[3,4]34.5	[5,6]36.5

[1]p = 0.000; [2] & [4]p = 0.000; [3]p = 0.037; [5]p = 0.025; [6]p = 0.050

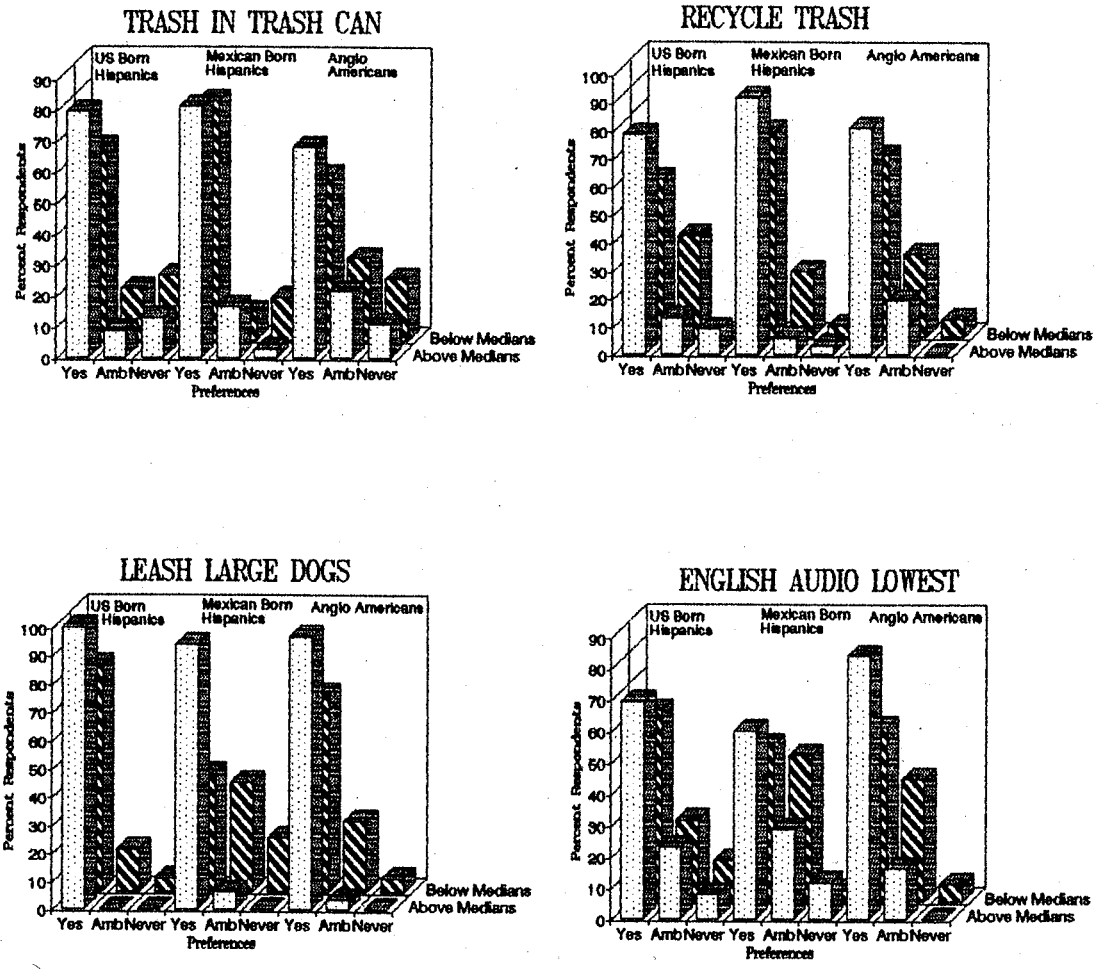

Figure 1—Cross cultural social regularities

preferences for leashing medium and small size dogs and always entering others' in-stream picnic sites. Pluralities or majorities of those below the medians were ambivalent but there were three exceptions. Majorities of U.S.-born Hispanics and Anglo Americans had positive normative preferences for leashing medium size dogs, and a majority of Mexican born Hispanics had positive normative preferences for entering others' in-stream picnic sites.

U.S. indigene social regularities were characterized by substantial majorities (70 to 90 percent) of U.S. born Hispanics and Anglo Americans above or below the median expectations who had positive or negative normative preferences for leashing medium size dogs, listening to Spanish language audio programs at their lowest volume, and never listening to Spanish or English language audio programs at their loudest volumes (*figure 2*). U.S. born Hispanics and Anglo Americans above and below the medians had positive preferences for leashing medium size dogs, but U.S. born Hispanics below the medians were ambivalent about lowest volumes for Spanish language audio programs and loudest volumes for English and Spanish language audio programs. T-tests showed significant differences in the ages of U.S.-born Hispanics above and below the median expectations for lowest Spanish ($T=2.26$, 31.1 d.f., $p=0.031$), loudest English ($T=2.19$, 30.2 d.f., $p=0.036$), and loudest Spanish ($T=2.30$, 27.4 d.f., $p=0.029$) audio volumes. For each audio volume, U.S.-born Hispanics whose expectations were below the medians were eight to nine years younger on average than those whose expectations were above the medians.

Mexico-born Hispanic social regularities were characterized by majorities or pluralities of both those above and below the medians having positive normative preferences for entering other's formal picnic sites and informal sites in the stream and on the stream bank. In all cases, however, substantial proportions (30 to 49 percent) were ambivalent about entering others' sites.

Hispanics, both U.S.- and Mexico-born, and above and below the medians, had positive normative preferences (54 to 94 percent) for always cooking food at formal picnic sites. This Hispanic social regularity was supported by a majority (63.3 percent) of Anglo Americans above the median, but a majority (57.9 percent) below the median were ambivalent.

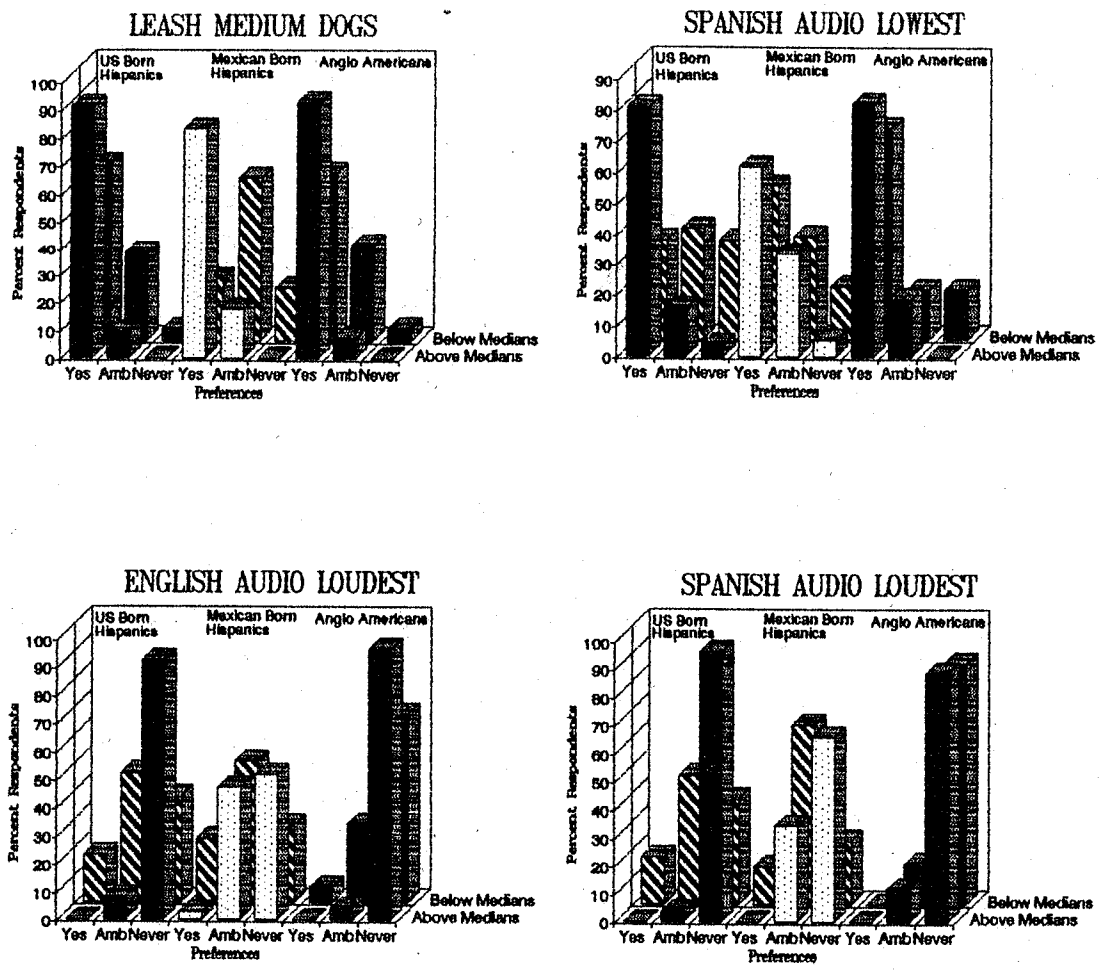

Figure 2—U.S. indigene social regularities

Consensus was not found ethnically or expectationally about eating prepared food at formal picnic sites and listening to Spanish or English language audio programs at moderate volumes. All ethnic groups, both above and below the medians, were ambivalent about eating prepared food at formal picnic sites. Majorities of U.S.- and Mexico-born Hispanics above and below the medians were ambivalent about listening to Spanish language audio programs at moderate volumes. Although a majority (81 percent) of Anglo Americans below the median were ambivalent about moderate volume Spanish language audios, a majority (64 percent) above the median had negative normative preferences. Majorities of U.S.-born Hispanics (56 percent) and Anglo Americans (52 percent) above the medians had negative normative preferences for listening to English language audio programs at moderate volumes, but larger majorities below the medians (72 percent of U.S.-born Hispanics and 82 percent of Anglo Americans) were ambivalent. Majorities of Mexico-born Hispanics both above and below the medians were ambivalent about moderate volume English language audios.

Discussion

A diversity of social regularities were found: some showed little or no ethnic variation while others were characterized by differences in place of birth and/or ethnic identity. A consensus thought that trash should be disposed of properly or taken home to recycle later and that dogs should be leashed. Visitors born in the U.S., regardless of ethnic identification, generally agreed that audio volumes should not be intrusive, while Mexico-born Hispanics expressed more general agreement about entering other users sites regardless of the type of site or its location. Hispanics, whether U.S.- or Mexico-born, generally agreed that food should be cooked only at formal picnic sites with tables and grills.

The cross cultural consensus about trash disposal and recycling does not appear to be consistent with the findings of Carr and Williams (1993), who, in a study of southern California National Forest recreation sites, found that when asked about their definition of respect for the forest, Anglos and Hispanics born in the United States expressed support for anti-littering and clean up behaviors, while Hispanics

born outside the U.S. did not express such sentiments. Their open ended question format found different forest meanings for U.S. natives than for non-natives. The meaning of the forest recreation setting is the combination of thoughts, feelings, memories and interpretations the place evokes (Schroeder 1991), which is not the same as the expectations and preferences for particular behaviors in that setting. When specifically asked to rate their expectations and preferences for trash disposal and recycling in this study, Mexico-born Hispanics strongly supported these behaviors. Although the forest means different things to natives and non-natives, the results of this study indicate that both natives and non-natives have high expectations and strong preferences for behaviors that should result in a litter free and clean recreational setting. Carr and Williams' caution--that their findings do not reveal the respondents' actual behavior--also applies to the present study. The findings concerning expectations and preferences, however, do indicate that a behavioral standard for trash disposal and recycling could exist for most users regardless of ethnicity. Such a standard could provide the basis for management actions to enhance these behaviors.

Anglos and Hispanics born in the U.S. generally agree that audio programs, whether Spanish or English, should not be played at their loudest volume. For half of the U.S. born Hispanics whose expectations are below the median, however, majorities are ambivalent about audio volumes. This finding is similar to the preferences of Mexican-born Hispanics. Because these U.S.-born Hispanics are significantly younger than those whose expectations are above the median, younger U.S. born Hispanics may identify more strongly with Mexican social regularities than they do with Anglo social regularities. Ambivalent preferences about a behavior that intrudes on many other picnickers experiences does not seem consistent with the respectful behavior prescribed by simpatía, however.

In a different context, Mexican born Hispanics were the only respondents in which majorities or pluralities, regardless of their expectations, preferred that all use sites be open for others to enter. In the stream and on the stream bank this can result in site occupants splashed with water, while at formal picnic sites other users can stir up dust or track wet feet over ground covers. Such preferences would not seem to be consistent with simpatáco behavior. Perhaps simpatía is not associated with recreation in this wildland-urban setting.

Consensus about cooking food only at formal picnic sites was only found among Hispanics, whether U.S.- or Mexico-born. The question was worded to specify sites with tables and grills, but even so this may not have been understood by many respondents. Casual observations at Lytle Creek show that some Hispanic users bring portable tables and charcoal grills with them. The strong cooking preference, regardless of expectations, does not seem to be consistent with findings from other research on southern California National Forests that showed that two of the most appealing environmental conditions were nearness to water and shade (Simcox and Pfister 1990). The formal picnic sites, located on a flood plain between Lytle Creek and Lytle Creek Road, are at some distance from the creek and generally have little or no shade.

Conclusion

The findings from this study show similarities and differences between Hispanics and Anglo Americans and confirm previous research findings that Hispanic social regularities are not unidimensional. Hispanic's expectations and preferences differ depending on place of birth, age, and the type of behavioral problem considered. Although all users--both Hispanics and Anglos—generally agree about certain behavioral problems, other behavioral problems are much more complex. The complexity of expectations and preferences for some behavioral problems means that managers must maintain a high degree of familiarity with the various constituent groups who visit areas like Lytle Creek and the types of problems they encounter. Periodic surveys that observe and measure social regularities are also needed to confirm behavioral trends as recreation settings and visitor populations evolve and change.

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Development and Testing of a Cultural Identity Construct for Recreation and Tourism Studies[1]

Patrick T. Tierney[2]

Abstract: A cultural identity construct for use in recreation research was developed. Findings from a survey of 233 university students in San Francisco, suggest that ethnic identity can be quantified and is an important factor influencing differences in vacation travel participation, motivations and barriers. The method used can be applied in diverse multi-cultural settings.

Recognition of the need to assess the motivations, barriers and recreation use patterns of our country's increasingly diverse cultural and ethnic population is growing. Carr and Williams (1992) and Floyd and others (1993) have suggested that differences in minority recreation participation are due to: (1) marginality differences or socio-economic status and access; (2) ethnic identity; and (3) behavioral reception (discrimination). Much of the research on ethnic influences in recreation participation has been designed to show differences between ethnic groups. Dwyer and Gobster (1992) found that African Americans had lower participation rates in dispersed outdoor recreation activities, such as camping and hiking, than did whites. While intra-group comparisons are important, their usefulness in predicting recreation behaviors is limited due to the tremendous variation in social and economic variables that can occur within an ethnic or cultural group. In addition, a survey respondent often is classified as Hispanic or Asian, regardless of how strongly she/he identifies with that ethnic group. Research that combines divergent segments of an ethnic group can present misleading results, reinforce ethnic stereotypes and ignore the evolving inter-cultural boundaries and relationships (Allison 1992).

This paper describes how a cultural identity construct was developed for recreation and tourism studies.

Ethnic Identity

A promising area of investigation into the underlying reasons for differences in recreation patterns within ethnic groups is the construct of ethnic identity. Phinney (1990) defined the term ethnic identity to mean "that part of an individual's self-concept which derives from his knowledge of his membership in a social group together with the value and emotional significance attached to that membership."

Almost all studies using ethnic identity have incorporated self identification as a key component. However, self-labeling alone is not sufficient, as it does not provide an idea of the importance associated with ethnic membership. We propose a model suggesting that ethnic identity is composed of four components: self identification of one's ethnic group; sense of belonging to the ethnic group; attitude toward the group; and a persons level of ethnic involvement. Ethnic identity then influences intention to participate and actual recreation behavior.

Sense of belonging to the identified ethnic group is critical to provide an idea of the level of membership in the group. Operationalization of sense of belonging is proposed through use of the key phrase "attachment to my group," as suggested by Parham and Helms (1985). In addition to attachment, an individual can have both positive and negative attitudes towards their own group. Driedger (1976) and Phinney (1989) incorporated the concept of pride in one's group as a measure of attitude towards it. Respondents in this study were asked to agree/disagree with a statement about pride in belonging to their group.

Ethnic involvement refers to the degree of participation in the social life and cultural practices of one's ethnic group. Studies have measured involvement by determining friendship (Garcia 1982), religious affiliation (Phinney 1990), and political ideology (Parham and Helms 1981). In the present study, ethnic involvement is introduced by asking respondents if their friends are mostly from their own ethnic group. The proposed model and ethnic identity construct were tested in an exploratory study of vacation travel.

Method

Data for the study came from a written questionnaire given to a non-random sample of students in classes at San Francisco State University in May 1992. All students were asked to return the completed questionnaire before they left class, and response rate was over 95 percent. A total of 233 completed surveys were returned.

Vacations were defined as work-free periods of 4 or more consecutive days where most of the time was spent in leisure activities. Survey questions asked students to describe how frequently they expected to take a summer vacation and the expected duration of it. It also asked them to choose their expected vacation from eight vacation types. The identification of motivations associated with this leisure activity used items taken from studies by Driver (1976) and Jacobs (1985), while barriers were similar to those from Tierney (1988) and Norman (1991).

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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Each of the four components of ethnic identity was measured. Individuals were grouped, based on self-labelling, into one of seven ethnic groups; Native American, African American, Hispanic, Asian, Middle Eastern, and European Americans or white. Each of the three remaining ethnic identity components, sense of belonging, attitude toward group and ethnic involvement were summed to produce an ethnic identity scale. A high total score on the one to seven point scale suggested a high degree of ethnic involvement. The Reliability program in Statistical Package for Social Science, Personal Computer (SPSS PC) was used to assess the performance of the ethnic identity scale.

Determination of differences in frequency of taking a vacation and the type of vacation was accomplished using one-way analysis of variance and chi-square programs in SPSS PC. Because of low numbers of respondents in some ethnic groups, only Asian, African and European American groups were included in detailed statistical analysis.

Results

Because of the exploratory nature of this model test, findings are based on a limited sample of ethnically diverse San Francisco State University students, which may not be representative of other segments of the public or other areas. Respondents were 46.6 percent Asians, 24.9 percent European, 14.3 percent African Americans, 9.8 percent Hispanic, 4.5 percent Middle-Eastern and less than 1 percent Native American.

Mean scores for the three components of the ethnic identity construct, for the total sample, ranged from 5.73 for attitude towards group (pride), 4.17 for sense of belonging (attachment), to 3.83 for ethnic involvement (friends). Crohnbach's alpha for a scale incorporating all three variables was 0.512. One variable—ethnic involvement—did not appear to contribute to the reliability of the scale and was removed. If the ethnic identity scale consisted of only sense of belonging and attitude towards group, the alpha increased to 0.770.

Levels of ethnic identity varied considerably between the three ethnic groups. Black respondents indicated the highest level of ethnic identity with 83.3 percent showing either high or very high levels, 48.8 percent of Asians, and 14.3 percent of European Americans.

Significant differences were not found between African-, Asian-, and European-Americans in their expected frequency of taking a summer vacation during 1992, or in the number of days they planned to vacation. In addition, respondents with high and low levels of ethnic identity differed significantly regarding their expected frequency to take a vacation. Significant differences in the type of summer vacation that different student ethnic groups planned to take were derived. African Americans were more likely to plan to take a vacation to visit friends and relatives (47.1 percent) than were European Americans (33.3 percent). Asian Americans were more likely to plan to take a resort (16.4 percent) or cruise vacation (7.3 percent) than were European Americans (3.7 and 0.0 percent, respectively). European Americans were more likely to plan to take outdoors (37.0 percent) and touring vacations (14,8 percent), than were African Americans (11.8 and 5.9 percent, respectively). European Americans were also much less likely to plan to take a city trip (3.7 percent) than were African (17.6 percent) or Asian Americans (21.8 percent).

Respondents with a high level of ethnic identity were more likely to plan to take vacations in which they visited friends and relatives (34.1 percent) than were those with a low level of identity (2.4 percent). This finding may represent a desire--especially by African Americans--to be with others of similar ethnic composition and values. Significant differences were also found in respondent motivations for taking a summer vacation. Blacks were significantly less likely to vacation in order to view scenery and seek solitude and quiet, compared to Asian and white groups. Whites were less concerned about going to a safe area or impressing others with their travels, than were Asian and black respondents. Although not significant, blacks were more likely to go on a vacation to maintain ties with their culture and family roots (4.62 on a 7 point scale) compared to whites (3.52) and Asians (4.16).

Significant differences in vacation participation barriers between ethnic groups were also present. African Americans were more likely limited by a lack of transportation options (3.11), information on where to go (3.06), and interest in vacations (2.05) compared to Asian (2.77, 2.75 and 1.62) and European Americans (1.89, 1.78 and 1.14). Whites were significantly less likely to cite others taking advantage of them while traveling (1.89), and being discriminated against when traveling (1.42) than were African (2.82 and 2.52) and Asian Americans (2.50 and 2.37).

Ethnic identity scores illustrated significant between-group variation in vacation motives and barriers. Findings showed that respondents with a high level of ethnic identity had a significantly higher rating (5.27) to the vacation motive of "maintaining ties with their culture and family roots," than did those with lower ethnic identity (1.66). Respondents with a high level of ethnic identity were more likely to identify "I am discriminated against when traveling" as barriers to travel (2.62), versus those with low ethnic identity (1.01). Although the difference was not significant, it tends to support findings by Floyd and others (1993) that discrimination is a part of recreation decision-making of ethnic populations.

Another measure of intragroup variation is provided by comparing respondent's level of ethnic identity with vacation motives and barriers. Results for Asian Americans showed that the importance of the vacation motive of maintaining ties with their culture and family roots increased significantly as the respondents level of ethnic identity increased.

Summary

This exploratory study provides some preliminary findings and suggests areas for additional research. The model of ethnic identity proposed appears to characterize an important factor influencing differences in recreation use and the underlying motives and barriers to participation. It seems applicable to a variety of ethnic populations, not just those with unique languages or those with large numbers of recent immigrants. However, further work is needed with a larger, more representative sample to complete verification of the model.

Overall, level of ethnic identity varied significantly between African and Asian Americans who had significantly higher levels of identity, attachment, and sense of belonging, than European Americans.

Although there are few differences in planned frequency of vacation travel between African, Asian, and European American student groups, significant differences were found regarding the type of vacation sought, why different groups vacation, and the barriers that limit vacation pursuits.

However, to generalize differences between ethnic groups can lead to stereotyping: considerable variation exists within ethnic groups. The level of ethnic identity is one of many variables that influences vacation motives and barriers.

And finally, the findings imply that as the population in the United States becomes more ethnically diverse, and groups continue to identify strongly with their ethnic group, the potential is considerable for a tremendous change in the types of vacation products and services that will be demanded.

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Ethnic Use of the Tonto: Geographic Expansion of the Recreation Knowledge Base[1]

Denver Hospodarsky **Martha Lee**[2]

Abstract: The recreational use of the Tonto National Forest, Arizona was investigated by using data on ethnic and racial subgroups. The Tonto is a Class 1 urban proximate forest adjoining the large, culturally diverse population of the Phoenix. An on-site survey of 524 recreating groups found sufficiently large numbers of Anglos (n=425) and Hispanics (n=82) who participated in our study. Analyses indicated Anglos sought more equipment-oriented experiences, while Hispanics sought experiences centered around basic site services and facilities. The marginality hypothesis and ethnic assimilation perspectives suggested a causal basis for observed differences. Despite differences, the two groups were quite similar on many other characteristics. Management and research implications are discussed.

Urban-proximate lands, including National Forests, present among the most profound challenges in resource management (Bradley 1984). A special challenge to recreation managers arises from huge and growing numbers of users bringing myriad expectations, desires, and behaviors with them to the forest (Ewert 1991). In this urban-forest environment, "the" visitor can appear to the manager as a distorted, composite reflection of the complex, culturally diverse, urban populations from which he/she comes. One way to comprehend this complexity is to analytically decompose use by assessing the attributes of ethnic and racial sub-groups of forest recreation users. Considerable research of this kind has been done in southern California (Baas and others 1993, Carr and Williams 1993, Chavez 1993, Chavez and others 1993, Chavez 1992), but much less is known about recreational diversity on urban forests elsewhere (with the exception of a study of Phoenix area households by Floyd and others [1990]).

In an effort to extend the generalizability of ethnic recreation research, the geographic information base on ethnic use was expanded to describe ethnic and racial minority use on the Tonto National Forest, Arizona. The Tonto is a USDA Forest Service Category 1 urban proximate forest located within 50 miles of 2 million people in the Phoenix metropolitan area. About 30 percent of the Phoenix population is non-white, comprised of about 300,000 Hispanics, 100,000 African-Americans, 29,000 Native Americans, and 180,000 other non-whites (US Bureau of Census 1991). The Phoenix population's influence upon the Forest is most profound especially in its southern half, while the northern part of the Forest is perhaps more influenced by local residents of small towns and other rural areas.

Prior to the study's inception, Forest managers had little quantitative information about recreational use by racial and ethnic sub-populations. Moreover, knowledge was limited regarding recreational use of the Tonto as a whole, and of specific areas throughout the Forest. This dearth of information left managers to largely speculate about the recreation opportunities desired by their diverse clientele.

Thus, research was conducted to address the goal of providing Tonto's resource managers with information on forest-wide recreation use, and on the recreation activities and preferences of ethnic minority users. A second goal was to expand existing knowledge about ethnic forest users to forest environments in geographic areas outside California. These goals were addressed by the following research objective:

> To determine the kind, extent, and location of summer recreation use on the Tonto through an on-site survey des-cribing the behavior, preferences, and social-demographic characteristics of the forest user population, including racial and ethnic sub- populations of forest recreationists.

Methods

On-site, face-to-face interviews were conducted of recreating groups during July, August, and September 1992 at 25 interview locations identified by district recreation staff as representative of recreation use on the Tonto's six Ranger Districts. The sample was stratified by time-of-day and day-of-week. Out of 542 attempted, 524 group leader interviews were completed for a response rate of 96 percent. An evaluation of the survey sample indicated that the sample was similar to the populations of Maricopa County and the State of Arizona as a whole with regard to race or ethnic affiliation, age, education, and household income. Because prior information was unavailable with which to describe the Forest's user population, the sample's representativeness of the user population could only be inferred from the sample results.

Results

The survey results contained sufficient numbers of observations with which to compare Anglo (n=425) and Hispanic or Mexican (n=82) forest visitors. Although

[1] An abreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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affiliation as either Hispanic or Mexican was asked as a separate category in the questionnaire (Carr and Williams [1993] found differences in recreation behavior and preferences between Hispanics and Mexicans), too few Mexican individuals (n=21) were contained in the sample to allow separate analysis of the Hispanic and Mexican groups. The small numbers of individuals representing other racial and ethnic groups similarly prohibited their separate consideration in the analysis of the data.

The Hispanic and Anglo groups were found to be very similar on most preference and behavioral items. Some noteworthy areas of apparent agreement between the two groups were: proportion who were first-time visitors (10 percent); length of stay (mode=1 to 4 days); period of time as a returning forest visitor (about 10.5 years); frequency of visitation (about 3.5 times/year); group size (median=4.1); original source of information about the forest (family/ friends=70 percent); whether or not they were at their favorite place on the forest (yes=71 percent); three most favored activities (jet/water ski, fishing, resting/relaxing); and two most important site attributes (place to recreate with family, low cost recreation area). Yet, although the two groups were similar with regard to many recreation characteristics, Anglos and Hispanics remained sufficiently different to suggest separate consideration in recreation resource planning and management on the Tonto.

Statistically significant (p=.05) areas of difference were found with regard to Anglos' greater access to a boat as part of their outing and motor-boating as an activity; Anglos' greater frequency of participation in jet skiing or water skiing; Anglos' greater incidence of canoeing, sailing, or kayaking; Anglos' greater incidence of RV camping outside of a campground; Anglos' preference for a place where they can use their equipment; Anglos' greater preference to finding a boat launch; Anglos' greater preference for enjoying the sounds and smells of nature; Hispanics' greater incidence of hiking or walking on trails; and Hispanics' greater preference for finding a picnic area.

While there is a somewhat greater likelihood that the groups are similar on a particular variable (i.e., p>.05), other differences indicated between the two groups,were Hispanics' greater incidence of tent camping in a camp ground (p=.10); Hispanics' greater incidence of group or team sports (p=.16); Hispanics' greater preference for obtaining information about the Forest by learning from their own group of family or friends (p=.11); Hispanics' greater importance given to finding a place to park (p=.17); Hispanics' greater importance given to finding hiking trails (p=.12); Hispanics' greater importance given to finding toilets (p=.07); and Anglos' greater incidence of tubing or rafting (p=.06).

Additional differences between Hispanics and Anglos were evident with regard to various social-demographic characteristics: the median age of Anglo groups was 20 to 29 years, while the age of Hispanic groups was 13 to 19 years; the average education of Anglos was 14.1 years, while the average of Hispanics was 12.6 years; and the median income of Anglos was $40,000 to $49,000, while the income of Hispanics was $20,000 to $29,000.

Discussion

Although Anglos and Hispanics are similar with regard to many recreational characteristics, the two groups are sufficiently different to suggest separate consideration in recreation resource management on the Tonto. If the survey sample accurately represents the Forest user population, about one in every six visitors to the Tonto is Hispanic, with a higher proportion of Hispanic visitors at some locations. The sheer size of this clientele group dictates that management consider characteristics of the recreation experience that will potentially enhance the quality of experience for Hispanic visitors, as well as the Anglo visitors.

The recreation experiences of Anglos on the Tonto suggest a strong equipment orientation sought in a natural setting. The centrality of home-brought equipment to recreation experiences is supported by the somewhat higher median incomes of Anglo, as compared with Hispanic visitors. The recreation experiences of Hispanics on the Forest suggest less reliance on expensive home-brought equipment and greater reliance upon basic on-site services and facilities.

The extent that observed differences between Anglo and Hispanic visitors can be attributed to differences related to income (the marginality hypothesis), to innate subcultural differences in values and expectations (the ethnicity hypothesis), or to some other cause remains undetermined (Carr and Williams [1993] provide an excellent discussion of the role of these variables in outdoor recreation experiences). However, both Anglos and Hispanics express preferences for the same "most preferred" activities and site attributes, suggesting that a lack of available personal resources is a factor in constraining demand by Hispanics. These findings suggest support for the marginality hypothesis and the ethnic assimilation perspective of diminishing inter-cultural differences (Floyd and others 1993).

Conclusions

Management Implications

This study's goal has been to provide an increased understanding of recreationists on the Tonto National Forest. From a management perspective, this knowledge can be useful in numerous ways. Our study's results showed that two main groups of summer visitors, Anglos and Hispanics, recreated at the Tonto. These groups represent quite different recreation experience types as is evident in their expectations for settings and use of on-site services and facilities. At the same time, an abundance of similarities between the groups suggest a considerable overlap in the recreation opportunities provided. This redundancy makes the task of management more tractable, since it allows management to focus on providing opportunities that help ensure the uniqueness of each group's recreation experiences.

The study also provides insight into the area of visitor education and safety. The current accident rate among Hispanics involved in water activities is dramatically higher than the rate for Anglos involved in similar activities at similar locations on the Forest. The information in the study pertaining to equipment access, activity locations, preferred means of gaining visitor information, and visitor age, group type, and educational profiles can be used to mount a water safety education project aimed at Hispanics at risk of drowning.

Research Implications

The study suggests several avenues for further research. The research conducted on the Tonto assessed recreation use during only the summer season. Managers believe that use on the Forest varies considerably throughout the other months, including levels of use and the activities of racial and ethnic user groups such as Native Americans. Research into use during these other seasons is needed to present a more complete picture of recreation on the Tonto.

Because considerable forest use by ethnic and racial groups is believed to occur at a distance from more easily accessible, heavily used sites, a household survey of remote forest users should be conducted. This approach would be especially useful in assessing use of the forest by the several Native American tribes who have reservations that adjoin the Forest. Essentially nothing is known about Native American use of the Tonto, (Taylor 1992) but proximity suggests the Forest plays an important role in the lives of some of these people.

These combined studies promise to effectively expand the geographic and social perspectives of recreation research, providing resource managers with a solid basis for management decisions. One method to achieve better decisions is to profile the experience attributes that promise to further enhance the recreation experiences of diverse forest users. The challenge to researchers is to contribute to these recreation profiles without building mere stereotypes of what are obviously complex and dynamic phenomena.

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Second Concurrent Session: Wednesday Afternoon

Land Ethics in Natural Resources

Chair: Robert M. Laidlaw
USDI Bureau of Land Management

A Preliminary Analysis of Environmental Dilemmas and Environmental Ethical Reasoning Among Hispanic and Non-Hispanic Forest Visitors[1]

Thomas C. Swearingen **Robert E. Pfister[2]**

Abstract: In a preliminary investigation of environmental reasoning, Hispanic and Anglo-American visitors were interviewed during the summer of 1991 in two National Forests near Los Angeles. A bilingual research technician approached parties visiting the sample sites and, after a brief introduction, requested that they participate in the study. No more than two persons from each party were interviewed, and a total of 132 interviews were conducted. The data collected during the interviews were evaluated by using theoretical frameworks of environmental ethical reasoning based upon the moral reasoning contributions of psychologists L. Kolhberg and C. Gilligan.

Greater diversity of cultural heritage is a significant demographic trend in the United States and the number of forest visitors of Hispanic ancestry is increasing in many urban proximate areas throughout the country. Resource managers are now faced with the need to effectively communicate to visitors with diverse cultural backgrounds and value systems rules about safety and environmental protection. This creates a need to clarify visitors' values and behavior toward the natural environment as associated with their cultural or ethnic heritage.

An ethical theme of ecological protection is the content of many persuasive interpretive communications to visitors. The success of this communication strategy depends on both the effectiveness of the message in prompting behavior and the ability of the visitor to comprehend the message. It is unclear if ethical messages about the natural environment are likely to have a uniform or common appeal to a culturally diverse visitor population. Such messages may not be appropriate to the reasoning ability (cognitive development) or level of comprehension of a highly varied audience.

Partridge (1982) proposed a theory about ecological morality as a basis to integrate the developmental theory of Kohlberg (1981, 1984) with an environmental ethical context. Subsequently, Christensen and Dustin (1986) suggested that Kohlberg's theory could be used as a guide to design interpretive visitor communications.

Previous research indicated that additional empirical investigations about the development of environmental ethical reasoning would be desirable prior to using Kohlberg's theory in the design of communications about environmental protection (Swearingen 1989).

This paper reports on our study that compared the environmental ethical reasoning of both Anglo-American and Hispanic forest visitors.

Methods

In a preliminary investigation of environmental reasoning, Hispanic and Anglo-American visitors were interviewed during the summer of 1991 in two National Forests near Los Angeles. The sampling procedure consisted of quota sampling at random visitor contact points in dispersed recreation areas of the forests on weekend days during June, July and August 1991. A bilingual research technician approached parties visiting the sample sites, and after a brief introduction, requested participation in the study. No more than two persons from each party were interviewed, and a total of 127 interviews were conducted.

The interview procedure included a one page self-administered form to collect demographic information (age, gender, marital status, years of education, ethnicity, years of residence in the United States) and a taped interview. After completing the questionnaire, the subjects were asked to read and respond to a scenario that posed an ethical dilemma involving conflicting values toward the natural environment. During the preliminary data collection, several dilemmas were used in the study. Two dilemmas were determined most effective in eliciting thoughtful responses, and these two scenarios were then used for the remainder of the data collection. One involved a conflict between species preservation and resource extraction, and the other scenario compared preferences for personal freedom to hike off trail to efforts of the managing public agency to prevent such behavior to protect the park environment. Respondents were asked for their opinion of the appropriate resolution of the dilemma and to explain their rationale for that opinion. After completing this structured component of the interview, respondents were then asked to describe their perception of an ethical conflict involving the natural environment. If the respondents could not readily relate a personal experience, they were asked to offer a more general or even a hypothetical conflict in environmental ethics. The subjects were again asked to explain their opinions concerning these self-generated

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, CA.

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dilemmas and to explain their rationales. A total of 132 valid responses were obtained from structured interviews, and 44 valid responses to self generated dilemmas.

The data collected during the interviews were evaluated using an environmental reasoning framework based upon Kohlberg's theory of development of moral reasoning. Analysis of the data consisted of a two stage content analysis of the visitors' comments categorizing both the normative content of the arguments and the rationales for their normative statements. Each visitors' comments were then further classified according to prototypical stage content of their arguments. This analysis was based on a standard scoring procedure when feasible (Colby and Kohlberg 1987), and an evolving theoretical extension of this scoring procedure used in a hermeneutic process to understand ethical reasoning in an environmental context. Responses were then analyzed by ethnicity and duration of residence in the United States to determine if there were significant differences in normative attitudes or reasoning abilities of ethnic subgroups of the sample.

Results

Demographic Profile

The descriptive data from the self-administered questionnaires were examined to determine if there was any bias in the sampling procedures. Contacts were evenly distributed throughout the sampling period. Male respondents represented 61 percent of all respondents; and the majority of respondents (57 percent) were married, living with partners. The mean age of all respondents was 33; and the average respondent had completed about 10 years of education. Of those responding to the question of ethnic heritage, Anglo-Americans comprised 42 percent and Mexican-Americans comprised 58 percent of the respondents.

Earlier investigations of the forest visitor also reported visitor demographic and cultural characteristics similar to the characteristics of this sample (Carr and Williams 1993; Ewert and Pfister 1990). The bilingual technician used the same dispersed sites from the previous studies in which the comparable data were collected.

The majority (54 percent) of the respondents who completed a questionnaire were born in Mexico (*table 1*). About 40 percent of the respondents were born in the United States.

Of the respondents, 94 percent were born in the United States or Mexico. Because place of birth does indicate the level of cultural influences on cognitive patterns, this group served as a basis for comparison. Duration of residence and nationality (place of birth) were combined as a measure of the degree of acculturation in the United States (*table 2*). Of the respondents completing the questions pertaining to socio-demographic characteristics, 42 percent were from the United States, 23 percent were Mexico-born with less than 10 years of residence in the United States, and 35 percent of the Mexico-born residents had been in the United States more than 10 years.

Structure Dilemmas

Subjects were asked to respond to one or more different structure dilemmas, and we then analyzed the norm and stage of reasoning associated with these responses. The Wilderness Resource dilemma presented a choice between resource exploitation and endangered species preservation. This particular dilemma elicited the most elaborate moral arguments by the respondents. When asked to explain their position, 41 percent invoked a public or private property rights moral norm, 32 percent of the respondents favored an environmental life preservation norm, and 11 percent advanced an argument based on preservation of human quality/quantity of life (*table 3*).

To further explain the rationale for their positions on the Wilderness Resource dilemma, a significant proportion of all respondents (45.2 percent) were concerned about the collective and individual consequences of resource extraction for human society (*table 3*). Only 16 percent of the responses concerned the consequences of resource development on the environment, and 28.7 percent of the arguments were based on abstract moral ideals of duty, rights, and equity or other principled arguments (*table 4*).

Similar patterns of predominantly anthropocentric social concern for environmental problems emerged in responses to other dilemmas. The second structured dilemma, called the "Shortcut" presented a scenario where a visitor is confronted with a choice of hiking on or off an established trail for personal reasons. Respondents invoked either agency authority, or law and punishment as the basis for decisions of 63.4 percent of the cases to this scenario. Significantly, 26.8 percent of the respondents favored an argument for responsibility and care for others in explaining this dilemma (*Table 5a/5b*).

One critic of Kohlberg's approach (Gilligan 1982) has argued that his standard scoring procedure (Colby and others 1983) does not adequately recognize the "care orientation" in moral judgments. Gilligan objected to Kohlberg's use of male subjects in formulating his model, and his emphasis on justice reasoning as the primary basis for moral judgments. The care orientation is considered more characteristic of female moral reasoning. Thus, the standard scoring procedure understates the level of moral reasoning of some females. Most of the responses to this dilemma which favored a care orientation were from females. These qualitative data support the critics of Kohlberg; thus, Gilligan's observations on gender differences in moral reasoning also apply to an environmental context (*table 6*). The use of a care orientation in resolving environmental ethical dilemmas has also been noted in other research.

Although the interviews primarily included brief responses, many of the respondents responses to the Wilderness Resource dilemma (n = 67) were sufficiently developed to tentatively offer a characterization of their stages of moral reasoning in an environmental context (*table 7*). As expected, few respondents (4.5 percent) advanced preconventional stage 2 arguments. The majority (76.1 percent) of all respondents' reasoning could be considered

Table 1—*Respondents' place of birth*[1]

Place of Birth	Frequency	Percent
United States	28	40
Mexico	38	54
Other	4	6
TOTAL	70	100.0

[1]Missing cases: 62

Table 2—*Foreign born and native born*[1]

Place of Birth	Frequency	Percent
United States	28	42.4
Mexico <10 years in USA	15	22.7
Mexico >11 years in USA	23	34.8
TOTAL	66	100.0

[1]Missing cases: 66

Table 3—*Wilderness resource dilemma-norm*[1]

Moral Norm	Frequency	Percent
Property - Public	25	33.3
Property - Private	6	8.0
Life Preservation	24	32.0
Life Quality - Human	5	6.7
Life Quantity-Environmental	3	4.0
Affiliation	3	4.0
Civil Rights	3	4.0
Life Quantity - Human	2	2.7
Rights of Nature	2	2.7
Life Quality-Environmental	1	1.3
Authority	1	1.3
TOTAL	75	100.0

[1]Missing cases: 15

Table 4—*Wilderness resource dilemma-element*[1]

Moral Element	Frequency	Percent
Group Consequences - Human	29	39.7
Group Consequences - Nature	12	16.4
Having A Duty/No Duty	9	12.3
Serving Ideal Social/Env Principle	7	9.6
Reciprocity	5	6.8
Individual Consequences - Human	4	5.5
Intergenerational Equity	3	4.1
Having A Right	2	2.7
Obey/Consent From Authority	1	1.4
Balancing Perspective	1	1.4
TOTAL	73	100.0

[1]Missing cases: 17

Table 5a—*Shortcut dilemma*[1]

Moral Norm	Frequency	Percent
Authority	17	41.5
Care	11	26.8
Punishment	6	14.6
Law	3	7.3
Life Quality - Human	2	4.9
Life Preservation - Human	1	2.4
Affiliation	1	2.4
TOTAL	41	100.0

[1]Missing cases: 5

Table 5b—*Shortcut dilemma*[1]

Moral Element	Frequency	Percent
Obey/Consent from Authority	3	7.5
Having a Duty/No Duty	1	2.5
Reward/Punishment	1	2.5
Individual Consequences	27	67.5
Group Consequences - Human	5	12.5
Group Consequences - Nature	3	7.5
TOTAL	40	100.0

[1]Missing cases: 6

Table 6—Norms used to decide structured dilemmas (general content categories)

Norms	Frequency	Percent
Life Preservation - Environmental	29	22.0
Human Consequences	44	33.3
Law/Authority	41	31.1
Care	12	9.1
Other	6	4.5
TOTAL	132	100.0

Table 7—*Stage content of all structured dilemma responses*[1]

Stages	Frequency	Percent
Stage 2	18	15.4
Stage 2/3-3	39	33.3
Stage 3/4-4	46	39.3
Stage 4/5-5	14	12.0
TOTAL	117	100.0

[1]Missing cases: 45

conventional reasoning, with 29.8 percent using stage 3 reasoning and 46.3 percent using stage 4 reasoning. A small minority (19.4 percent) of respondents used more abstract post conventional reasoning in their arguments.

A comparison of norms by stages is revealing despite the low expected frequencies of too many cells confounding the validity and interpretation of the chi square statistic (*table 8*). These data arefor the structured dilemmas with categories of norms collapsed to facilitate interpretation of the results. In general, ethical considerations for the environment were characteristic of both normative reasoning (stages 3 and 4) and principled reasoning (stage 5). More normative reasoning expressing concern for the human consequences of environmental conflicts is evident at the conventional stages (stage 3 and stage 4). The respondents classified at the low stage 2 or 3 level showed more concern for law and the roles of authority. The care orientation was most evident at stage 4. These results are consistent with theoretical expectations.

Ethnic Differences

Results of these preliminary findings were also examined in the context of the respondents ethnic heritage (*table 9*). The similarities in the ethnic groups' responses

Table 8—*Norms used to decide structured dilemmas by respondents' stage of reasoning*[1]

	Stage of moral reasoning				
NORM	2	2/3-3	3/4-4	4/5-5	Row total
Life Preservation - Environmental					
Count	0	5	10	12	
Exp val	4.2	9.0	10.6	3.2	27
Row pct	0.0	18.5	37.0	44.4	23.1 pct
Col pct	0.0	12.8	21.7	85.7	
Human Consequences					
Count	3	13	22	0	
Exp val	5.8	12.7	14.9	4.5	38
Row pct	7.9	34.2	57.9	0.0	32.5
Col pct	16.7	33.3	47.8	0.0	
Law/Authority					
Count	15	18	5	1	
Exp val	6.0	13.0	15.3	4.7	39
Row pct	38.5	46.2	12.8	2.6	33.3
Col pct	83.3	46.2	10.9	7.1	
Care					
Count	0	1	9	1	
Exp val	1.7	3.7	4.3	1.3	11
Pow pct	0.0	9.1	81.8	9.1	9.4
Col pct	0.0	2.6	19.6	7.1	
Other					
Count	0	0	0	0	
Exp val	4.2	4.2	4.2	4.2	2
Row pct	0.0	0.0	0.0	0.0	1.7
Col pct	0.0	0.0	0.0	0.0	
COLUMN TOTAL					
Exp val	18	39	46	14	117
Row pct	15.4	33.3	39.3	12.0	100.0

[1] Chi-Square 77.07647; D.F. 12; Significance .0000; Cells with E.F. < 5: 12 of 20 (60%)

Eta = .41397 Cramer's V = .46861

[2] Rows of datas (top to bottom)
Count
Experimental Value
Row (percent)
Column (percent)

was very evident. The difference between the Hispanic and Anglo environmental ethical arguments was low. Both ethnic groups primarily favored conventional stages of reasoning and offered anthropocentric norms in stating their position. A measure of acculturation, was examined to explain these results (*tables 9, 10 and 11*). A significant difference was not found between native born respondents, Mexico-born respondents in the United States 10 years or less and Mexico-born respondents in the United States more than 10 years. On the basis of these limited findings, difference in environmental ethical reasoning among the ethnic grouping in this sample is not evident. However, to generalize these findings beyond the sample of forest visitors contacted in this study would require further investigation.

Table 9—*Foreign-born and native-born respondents*[1]

Value Label	Frequency	Percent	Valid percent	Cum. percent
United States	28	21.2	42.4	42.4
Mexico <10 Yrs	15	11.0	22.7	65.2
Mexico >11 Yrs	23	17.4	34.8	100.0
		66.0	50.3	MISSING
TOTAL	66	132.0	100.0	100.0

[1]Valid cases: 66 Missing cases: 66

Table 10— *Stage of reasoning: Self dilemmas by birthplace &length of time in USA*[1]

		Born in Mexico		
Stage	Born in U.S.	In U.S. < 10 years	In U.S. > 11 years	Row total
Stage 2				
Count	1	0	2	
Exp val	1.2	0.9	1.0	3
Row pct	0.0	18.5	37.0	(6.8)
Col pct	0.0	12.8	21.7	
Stage 2/3-3				
Count	4	5	4	
Exp val	5.0	3.8	4.1	13
Row pct	30.8	38.5	0.8	(29.5)
Col pct	23.5	38.5	28.6	
Stage 3/4-4				
Count	11	5	7	23
Exp val	8.9	6.8	7.3	(52.3)
Row pct	47.8	21.7	30.4	
Col pct	64.7	38.5	50.0	
Stage 4/5-5				
Count	1	3	1	5
Exp val	1.9	1.5	1.6	(11.4)
Row pct	20.0	60.0	20.0	
Col pct	5.0	23.1	7.1	
COLUMN TOTAL				
Exp val	17	13	14	44
Row pct	38.6	29.5	31.8	(100.0)

[1›]

Chi-Square	D.F.	Significance	Min E.F.	Cells with E.F. < 5
5.84523	6	.4407	.886	8-12 (66)

Eta = .17957 Cramer's V = .25773 Number of Missing Observations = 118

[2] Rows of datas (top to bottom)
Count
Experimental Value
Row (percent)
Column (percent)

Table 11— *Stage of foreign-born and native-born respondent*[1]

Stage	Born in U.S.	Born in Mexico: In U.S. < 10 years	Born in Mexico: In U.S. > 11 years	Row total
Stage 2				
Count	1	1	0	
Exp val	0.5	0.9	0.6	2
Row pct	50.0	50.0	0.0	8.0
Col pct	16.7	12.8	21.7	
Stage 2/3-3				
Count	1	2	4	
Exp val	1.7	3.1	2.2	7
Row pct	14.3	28.6	57.1	28.0
Col pct	16.7	18.2	50.0	
Stage 3/4-4				
Count	1	6	4	
Exp val	2.6	4.8	3.5	11
Row pct	9.1	54.5	54.5	44.0
Col pct	16.7	54.5	50.0	
Stage 4/5-5				
Count	3	2	0	
Exp val	1.2	2.2	1.6	5
Row pct	60.0	40.0	0.0	20.0
Col pct	50.0	18.2	0.0	
COLUMN TOTAL				
Exp val	6	11	8	25
Row pct	24.0	44.0	32.0	100.0

1› Chi-Square: 8.93693; D.F.: 6; Significance: .1772; Min E.F.: .480; Cells with E.F. < 5: 12 of 12 (100.0 pct)

Eta = .22308 Cramer's V = .42277 Number of Missing Observations = 137

2 Rows of datas (top to bottom)
Count
Experimental Value
Row (percent)
Column (percent)

Conclusions

The predominant norms used to resolve dilemmas were based on anthropocentric concerns. The most common norms mentioned were concerns for the human quality of life, authority, property, and preservation of human life. Although these patterns were consistent, the shortcut dilemma that involved discussion of rule infractions prompted more to resort to authority or law norms.

The quartile results were all consistent with theoretical expectations of response distribution for a sample of adults. The most common stage of reasoning was stage 4 with stage 3 being the second most common. Stage 5, or postconventional reasoning was more common than the stage 2, preconventional reasoning.

The care orientation was found in some responses. This orientation was most commonly used by female respondents to resolve the shortcut dilemma as an expression of concern for the welfare and safety of others. This use of a care orientation would be more characteristic of stage 4 reasoning than stage 3 reasoning. This finding is consistent with the literature originally critical of Kohlberg's model and scoring procedures.

Our qualitative study confirms the appropriateness of the methods in field interviews of a culturally diverse audience. Cross-cultural psychology literature supports this premise and suggests that the variability between samples of Hispanic or foreign born individuals would increase if we conducted worldwide samples in the interviews: the representatives of Hispanic culture could be more representative if the non-native born Hispanic sample included residents of Spain, Caribbean nations, Central and South America.

The ethnicity variable should be identified as precisely as possible and the best operational measures should be identified to empirically test the efficacy of this methodology. Moreover, these results may not represent a consistent explanation of ethical values toward the natural environment or a theoretical developmental process. Our data cannot resolve this issue.

Future investigations on this subject might be to adopt a research design linking ethical reasoning with message comprehension and respondents behavior. In addition, cohort analysis and longitudinal data should be used to clarify the developmental process related to environmental ethical reasoning.

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Environmental Values, Ethics, and Depreciative Behavior in Wildland Settings[1]

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Abstract: Preliminary results were examined from a self-administered questionnaire regarding the relationships between personal values, individual characteristics, and depreciative behaviors. Respondents were queried about socio-demographics, reasons for visiting forest recreation areas, reasons for liking and disliking the forest, activities witnessed while visiting the forest, activities and occurrences that bothered the respondent, depreciative behaviors engaged in, and suggested penalties. Interesting racial variations were revealed in several areas of inquiry. Findings are useful to resource managers and researchers seeking insight into depreciative behaviors.

In recent decades, the Nation's forests have been pressured by mining, logging, real estate, and recreational interests to develop forest lands in a variety of ways. The USDA Forest Service has had to work towards meeting and balancing the needs of the various interest groups while continuing to keep the organization's goals and mission on track.

Although many areas have been set aside for human use, including recreation, the impact of uses, particularly in urban proximate areas has been tremendous. These sites are accessible to large numbers of diverse people and have become quite popular because of their unusual beauty, and unique features and challenges (*fig. 1*). This popularity has resulted in noticeable signs of decline at some sites like trail damage, litter, damage to vegetation, noise, and overcrowding. Conflicts between user groups and between users and resource managers have also become more likely.

Because these signs of decline eventually detract from the very characteristics that make natural areas pleasurable, and because the restoration involved to bring them back to their natural state is time-consuming, costly, and frustrating, the desire to understand behaviors leading to this decline has become of greater interest.

We hypothesized that individual values affect environmental ethics, which in turn influence behavior at a recreation site. Personal characteristics and perception of the recreation site also influence behavior. Perhaps wildland areas are viewed as an urban extension rather than as forest or wilderness. A view of wildland areas as urban extensions may cause visitors to engage in behaviors expected within a city, such as littering or tagging. These behaviors are detrimental in either setting, but are especially discordant with maintaining pleasurable natural areas.

This paper examines the problem of forest decline by addressing the relationship between depreciative behavior and people's perceptions or values about the forest.

Methods

A self-administered questionnaire was constructed for this study. Respondents were queried about socio-demographics, perceptions of recreation settings, personal values and behaviors, and recommended management interventions related to instances of depreciative behaviors. Forty-three respondents voluntarily completed the survey on-site. When the time for completion proved to be too cumbersome (an average of 30 minutes on-site), we switched to an on-site mini-survey with a delayed self-administered mail-back. Visitors in the mail-back portion of the study were asked to complete a brief survey requesting some socio-demographic information and their address for participation in a mail survey. Those who agreed to participate received the same questionnaire that had been used for the on-site survey respondents, along with a letter of explanation and a self-addressed stamped envelope. A postcard reminder was sent out one week after the mailing of the questionnaire packet, and a whole packet with questionnaire and return envelope was sent out to those who did not respond during the initial mailing periods. The final response rate for the mail-back survey was 44 percent, with many non-responses because of incorrect mailing addresses. An analysis comparing differences between on-site and mailed survey respondents showed a significant difference in education levels; however, other responses were not significantly different and the two pools of respondents were combined for this paper.

Data were collected on weekends between July and September of 1993 on three southern California National Forests including the Los Padres (Pfeiffer Beach, Arroyo Seco Recreation Area and Santa Ynez Recreation Area), the Cleveland (Desert View and San Luis Rey), and the Angeles (Charlton Flat, Crystal Lake and Stoneyvale). A total of 308 completed surveys were collected from visitors to those sites.

Results

Respondent Socio-Demographics

Fifty-one percent of respondents were female, and 49 percent were male. Ages ranged from 16 to 83 years old,

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Figure 1— Typical recreational use in one of southern California's National Forest settings where study data was collected.

with most being between 26 and 40 (48 percent). The majority were white (68 percent) and about one-fifth were Latino (18 percent), one-tenth were Asian, and a small number were either Native-American or African-American (4 percent). Respondents were well-educated: 51 percent had at least some undergraduate college education, and 23 percent had attended graduate school. Information on occupation was grouped into four categories: management/professional, clerical/technical, laborer/service, and not employed (unemployed, retired, student). One third of the sample fell into the management/professional category, almost a quarter were in the clerical/technical category (24 percent), just over a quarter described themselves as not employed (27 percent), and the remaining 16 percent were in laborer/ service jobs.

Each respondent was asked to indicate which of 10 income categories best described their annual household income. Twenty-one percent of the sample came from households with incomes of less than $20,000, 40 percent from households of $20,000 to $49,999, a quarter from households with incomes of $50,000 to $79,000, and the remaining 15 percent were from households with incomes of $80,000 or more.

Reason for Visiting Recreational Area

Respondents at the recreational area were asked to choose one reason that best described why they were visiting the area. Most respondents (22 percent) said they visited the area for the scenery/wildlife/being-in-the-forest while almost one-fifth said they visited for peace and quiet (*table 1*).

Table 1—*Reasons for visiting the recreational area*

Reason to visit	Percent
Scenery, wildlife, being in the forest	22
For peace and quiet	18
For outdoor activities	15
To rest and relax	14
For get-togethers	12
To camp	11
Other	8

Variations in the responses of the racial groups was interesting. While Native-Americans/African-Americans and whites were most likely to say that they visited the forest because of scenery and wildlife, Asians were most likely to visit to get together with family and friends, and Latinos were most likely to visit to camp. A third of all Native-Americans/African-Americans and a quarter of all whites visited for the scenery while one-fourth of all Asians visited the forest for get-togethers. One-fifth of the Latino respondents said they visited in order to camp.

Reasons for Liking and Disliking the Forest

Respondents were asked to list the three things they liked most and the three things they disliked most about the forest recreation area. Respondents listed scenery and the desire for peace and privacy as the main features they liked about the forest. Respondents also liked being outdoors, by the water, the trails, the accessibility of the forest, and the facilities in the forest. On the other hand, respondents listed inaccessibility, inadequate facilities, vandalism, and discomfort while in the forest as things they disliked about the forest (*table 2*).

Similarly themed questions elicited different responses. For instance, although 9 percent liked the forest for its easy access, 17 percent disliked it for its inaccessibility; and although 6 percent liked the forest for its facilities, 14 percent disliked the forest for inadequate facilities.

Scenery was the number one characteristic listed by all racial groups as reasons for liking the forest. Whites and Asians were about three times as likely to list access and about two times as likely to list peace/privacy than Native-Americans/African-Americans. The latter group was least likely to mention being outdoors as something they liked about the forest. Native-Americans/African-Americans were far more likely than other respondents to mention being by the water as something they liked about the forest (*table 3*).

More than a third of the Latinos and Asians listed litter as a reason for disliking the forest. They were far more likely to list this reason than whites or Native-Americans/African-Americans. Asians and Latinos were also more likely than other groups to list poor maintenance. Signs of overuse were listed most often by whites and Native-Americans/African-Americans as a reason for disliking the forest (*table 4*).

Depreciative Activities Witnessed by Respondents

A list of 14 depreciative or socially distracting behaviors was provided to respondents, who were then asked to indicate whether they had witnessed or experienced the occurrence of any of the activities while recreating in the forest. With the exception of hunting or fishing in undesignated areas, constructing wading pools, and making barbecue or campfires in undesignated areas, more than half of the respondents reported seeing each of the activities listed in *table 5*. Litter was the most frequently observed condition.

Activities and Occurrences That Bothered Respondents

Respondents were provided with a list of 22 activities or occurrences that might be encountered in the forest. They were asked to indicate whether each bothered them a lot, a little, or not at all. *Table 6* displays only those items which

Table 2—*Reasons for liking and disliking the forest*[1]

Reasons for liking the forest(pct)[2]		Reasons for disliking the forest(pct)	
Scenery	25	Out of place activity	26
Peaceful/private	16	Litter/dirty	25
Being outdoors	12	Inaccessibility	17
Being by the water	9	Inadequate facilities	14
Easy access	9	Vandalism	8
Hiking/trails	6	Discomfort at site	7
For the facilities	6	Signs of overuse	7
For fresh air	6	Poor maintenance	3
Exercise	5	Not enough wilderness	2
Maintenance	4		

[1]Number of respondents who liked the forest totalled 798; number of respondents who disliked the forest totalled 600.

[2]Percents reflect multiple responses: each respondent could list three answers.

Table 3—*Reasons for liking the forest offered by racial groups.*[1]

Reasons for liking the forest	Native-Americans/ African-Americans	Latinos	Asians	Whites
	percent[2]			
Scenery	36	25	31	24
Peaceful/Private	9	13	17	17
Being by the water	18	11	4	8
Being outdoors	3	10	7	14
For the facilities	9	11	8	4
Easy access	3	5	8	10
For fresh air	6	3	9	6
Hiking/trails	3	7	4	7
Exercise	6	5	4	4
Maintenance	3	7	4	3
Other	3	3	4	4

[1]Total number of respondents for each racial category: Native-American/African-American—33, Latinos—149, Asians—75, whites—541.

[2]Percents reflect multiple responses: each respondent could list three answers.

Table 4—*Reasons for disliking the forest offered by racial groups.*[1]

Reasons for disliking the forest	Native-American/ African-Americans	Latinos	Asians	Whites
	percent[2]			
Litter/dirty	16	36	35	21
Signs of over-use	21	18	21	28
Inadequate facilities	16	14	14	14
Feeling discomfort while at the site	16	7	7	6
Inaccessibility of the area	21	4	3	7
Out-of-place activities	5	9	7	10
Vandalism	5	7	7	9
Poor maintenance	0	5	5	3
Not enough wilderness	0	2	2	2

[1]Number of respondents for each racial category was: Native-American/African-American—19, Latinos—106, Asians—58, whites 417.

[2]Percents reflect multiple responses: each respondent could list three answers.

50 percent or more of the respondent said bothered them a lot. The highest percentage of respondents were bothered by seeing spraypaint on rocks and trees, and by seeing litter on the trails or along the road (almost 90 percent each). Interestingly, 44 percent of the respondents said that seeing people smoking bothered them a lot, but only 29 percent were bothered a lot by seeing people drinking alcohol.

Racial variations in activities and occurrences that bothered respondents a lot were not that noticeable, with the top three items selected being the same for all races including seeing spraypaint on rocks and trees, seeing litter on trails/ along the road, and seeing litter at picnic sites (*table 7*). Ninety-five percent of whites claimed that they were bothered a lot by litter on the trails or roads, and 90 percent were bothered by litter at picnic sites. These percentages are higher than that reported by any other group of respondents. Whites were also more than two times as likely as Native-Americans/African-Americans to report they were bothered a lot by loud music.

Asians were much less likely than other groups to say large crowds in the recreational area or many people on the trails bothered them a lot. For instance, they were about three times less likely than others to say that seeing many people on the trails bothered them and two times less likely than whites to be bothered by large crowds in the forest. Although high percentages of respondents were bothered a lot by seeing evidence of spray painting, Asians were the least likely to report being bothered a lot by it.

Table 5—*Activities and occurrences witnessed or experienced in the forest*

Activities	Percent
Litter at picnic sites/along the road	83
Carvings on trees	75
Other recreators making loud noises	71
Other recreators playing loud music	68
Other recreators walking dogs without a leash	68
Paintings, graffiti on rocks	67
Writing on the walls of the toilets	64
Cars parked on the grass or other no-parking areas	55
Others walking around on areas without trails	50
Tree branches used for barbecue fires	50
Other recreators making wading pools in the river	39
Barbecue/campfires in undesignated areas	38
Other recreators fishing in undesignated areas	18
Other recreators hunting in undesignated areas	14

Table 6—*Activities or occurrences that bothered respondents.*

Activity or occurrence	Percent
Spraypaint on rocks and trees	90
Litter on trails/along the road	89
Litter at picnic sites	86
Evidence of barbecues/campfires in undesignated areas	58
Trampled plants	57
People picking flowers, plants, or catching animals	55

On the other hand, Asians were five times more likely than Native-Americans/African-Americans to report that they were bothered a lot by seeing someone smoking. They were also twice as likely as Native-Americans/African-Americans to report being bothered by other recreationists' laughter. In addition, Asians were more than twice as likely as other respondents to be bothered a lot by people walking or wading in the river, seeing evidence of trail damage, dogs playing in the river and dogs unleashed. Latinos were more likely than any other group to report that they were bothered a lot by seeing picnic tables in need of repairs, while Native-Americans/African-Americans were more likely than any other group to report being bothered by seeing trampled plants (*table 7*).

Activities That Respondents or Members of Their Party Engage In

Respondents were asked to indicate whether they or any member of their party engaged in any of the activities listed in *Table 8* while recreating in the forest. Almost 40 percent of the respondents reported that they or members of their party walked around forested areas that had no trails, more than 20 percent reported that they or others in their party walked a dog without a leash and 20 percent reported making loud noises. Less than five percent reported painting or writing graffiti on rocks, hunting in undesignated areas, carving on trees, writing on bathroom walls, or fishing in unauthorized areas (*table 8*).

Racial variations in these activities were also of interest. Although Latinos were the group most likely to report picking up litter at picnic sites (*fig. 2*) and Asians the group most likely to report that they look for a cleaner spot to recreate, or leave the forest if it was littered (*table 9*), these two groups were far more likely to report that they or members of their party had left litter at a picnic site or along the road.

Respondents' Interventions

Respondents were asked to say whether they engaged in any one of 16 actions/interventions while visiting the forest. The majority had picked up litter at picnic sites (90 percent) and looked for a cleaner spot to recreate (73 percent). About a third had left the forest because of crowding (44 percent), asked another recreator to stop making noise (33 percent), and asked another recreator to stop littering (31 percent). Very few (15 percent) had called the police or a ranger.

Differences between the Asian subsample and the rest of the respondents were striking. Although most respondents reported that they picked up litter at picnic sites, Asians were far less likely to report taking such actions (65 percent

Table 7—*Activities/occurrences that bothered respondents by race.*

Reasons for disliking the forest	Native-American/ African-Americans	Latinos	Asians	Whites
	percent[1]			
Spraypaint on rocks and trees	92	83	71	94
Litter at picnic sites	83	80	77	90
Litter along trails/roads	75	79	74	95
Barbecues/campfires in undesignated sites	58	56	63	57
People picking flowers/plants/catching animals	58	44	45	59
Trees with broken branches	50	46	43	49

[1]Only the first six highest percentage categories were listed, and at least 50 percent of one racial group was bothered a lot by the activity or occurrence.

Table 8—*Activities engaged in by respondents or members of their party while visiting the forest.*

Activities	Percent
Walked around forested areas that have no trails	37
Walked a dog without a leash	23
Made loud noises	20
Parked cars on grass or other no-parking areas	16
Made wading pools in the river	14
Used tree branches for barbecue fires	14
Played loud music	11
Made barbecue or camp fires in undesignated areas	8
Left litter at a picnic site or along the road	8
Fished in unauthorized areas	4
Wrote on the walls of the toilets	4
Made carvings on trees	4
Hunted in unauthorized areas	3
Put paintings, graffiti on rocks	3

versus 91 to 94 percent). This is even more interesting when one notes that Asians were far more likely than other groups to ask forest rangers about litter pick-up (29 percent versus 14 to 19 percent for others), to look for cleaner spots to recreate (81 percent versus 70 to 73 percent), and to leave the forest because of litter, noise, crowding, drinking, or fear of violence. Almost half of all Asians reported leaving the forest because of litter. Asians were the least likely of all the other racial groups to approach other recreators and ask them to stop littering, making noise, drinking, or smoking.

Despite the finding that Asians visited the forest for get-togethers with family and friends (26 percent) and were less likely than others to be bothered a lot by crowds at the recreation site or by many people on the trails (19 and 7 percent respectively), they were most likely to leave the forest because of crowding (52 percent). This finding suggests that Asians are leaving the forest to go elsewhere to find a place to recreate with their families and friends.

Latinos were most likely to report picking up litter at the picnic site (95 percent), yet they were the least likely to look for a cleaner spot to recreate (70 percent versus 72 to 81 percent for others). Latinos were far more likely to ask others to stop drinking, smoking, spraypainting, and cutting down trees and branches.

Suggested Penalties for Engaging in Depreciative Behaviors

Respondents were provided with a list of 17 activities which might occur in the forest, and were asked to indicate which penalties should be applied to the perpetrator. Penalties included paying a fine, being asked to leave the forest, receiving a verbal warning, arrest, and watching a forest

Figure 2— Young man depositing litter at trash can in recreational area that is part of this study.

Table 9—*Activities engaged in by respondents or members of their party while visiting the forest.*

Activities	Native-Americans/ African-Americans	Latinos	Asians	Whites
	percent			
Walked around forested areas that have no trails	42	28	21	42
Walked a dog without a leash	18	24	7	25
Made loud noises in the forest	25	18	7	21
Made wading pools in the river	18	15	21	13
Parked cars on the grass or other no-parking areas	9	22	14	15
Used tree branches for barbecue fires	8	20	10	13
Made barbecue or campfires in undesignated areas	17	9	10	7
Left litter at picnic sites or along the road	0	11	0	3
Fished in authorized areas	0	11	3	2
Put paintings/graffiti on rocks	0	9	4	1
Made carvings on trees	0	11	0	2
Wrote on the walls of toilets	0	11	0	2
Hunted in unauthorized areas	0	11	3	2

conservation film. Respondents clearly considered some activities more deserving of serious penalties than others. Verbal warnings and fines seemed to be the most agreed upon consequences in many cases (*table 10*).

Differences between the Asian subsample and the rest of the respondents on this section of the questionnaire were striking. Asians were the group least likely to say there should be no penalty for collecting fallen branches and twigs to make barbecues or campfires (40 percent versus 52 to 58 percent). Asians were more likely than others to say that visitors should be fined for 14 of the 17 activities listed, in some instances they were three to four times more likely to suggest a fine. They were slightly less likely to suggest a fine for only three activities: carving/spraypainting, breaking tree branches, and lighting campfires/barbecues in undesignated areas.

Table 10—*Respondents suggesting penalties for forest visitors engaging in depreciative/socially annoying activities.*

Activity	None	Fine	Leave Forest	Verbal Warning	Arrest	Watch Film
	percent of visitors[1]					
Throwing garbage on trails/roads		63	14		11	
Playing loud music			27	59		
Carving/spray- painting trees		45	13		33	
Spraypainting rocks		44	13		33	
Breaking off branches		29	17	34		12
Parking or driving unauthorized area		33	14	45		
Walking on young plants		14	11	44		24
Picking or remove plants/animals		34	16	22		18
Lighting barbecue/ fire in undesig.		45	16	22		
Camping/picnicking in undesig. area		22	17	49		
Collecting fallen branches/twigs	53			28		
Hanging hammocks from trees	45			41		
Fishing in undesig. area		42		39		
Swimming in undesig. area		20		61		
Loud/rowdy behavior			47			
Making wading pools	17		11	56		
Walking dogs without a leash	18	22		51		

[1]Percentages are provided only when they are equal to, or greater than 10 percent.

Asians were also more likely than others to suggest that visitors be expelled from the forest for playing loud music, walking on plants, lighting campfires or barbecues in undesignated areas, collecting twigs/branches for barbecues or campfires, swimming in undesignated areas, and walking dogs without leashes.

In contrast, Latinos were more likely than other groups to suggest a verbal warning for playing loud music, walking on plants, picking or removing plants or animals, making campfires or barbecues in undesignated areas, fishing or swimming in undesignated areas, engaging in loud or rowdy behavior, and making wading pools. For many of the activities, whites were the group most likely to suggest the offender watch a forest conservation film (suggested for nine of the activities by between 5 and 26 percent of the white respondents).

Conclusions and Recommendations

Although the results of our survey are preliminary, they do indicate a relationship between people's values about the forest, and their personal perceptions of the recreation site, and depreciative behavior. The findings show that visitor's reasons for visiting the forest--such as enjoyment of scenery and natural areas--are similar. Most respondents also liked and disliked the same aspects of the forests. But perhaps of greatest interest was the reporting of actions engaged in, and respondents reactions to them. Racial variations were much greater in these areas of inquiry.

Racial affiliation was found to be an important factor in reactions to depreciative acts, as well as perceptions of appropriate agency intervention. The willingness of some groups to admit leaving litter may reveal something worthy of further investigation. For instance, because Latinos and Asians were most likely to admit leaving litter, they either were much more likely to do so, or more likely to admit to it. But because our data was obtained from a survey, some respondents may not have accurately reported actions and potential reactions to depreciative behaviors. Thus, future research should include other independent variables so that more insight and understanding can be obtained about depreciative behaviors and informed strategies of intervention can be implemented.

Ecology is a White Man's Problem[1]

Francisco P. Valenzuela[2]

Abstract: A synthesis of statements and research is presented on different minority communities, and a response to the statement that "ecology is a white man's problem" is examined. These characterizations provide insight into why ecology may be perceived as a "white man's problem." The common themes are then used to develop several suggested agency responses. These actions can help to make ecology or ecosystem management more relevant to minority communities and in turn foster more widely based acceptance and support.

Ecology is indeed a "white man's problem" if it primarily benefits white men. A "white man's" ecology or ecosystem management is a problem in a diverse society. It is a social problem if its solution raises questions of inequity and, through self-interest, divides and excludes classes and "minority groups" in our society. A limited definition of the problem and solution to ecology or ecosystem management problems may be better thought of as: "ecology, the luxury of white men". If the pressing problem of ecology neglects the poor and those who do not have access to natural areas, then ecology is the concern of only a minority.

In a recent poll, Americans considered hazardous waste, solid waste, and garbage the most important environmental issues (NBC News 1991). Ecosystem management as often defined by the USDA Forest Service may miss the mark because the expressed concerns of ecosystem management are distant from the every day concerns of most Americans, and very far from the minds of most of the poor. National environmental organizations also neglect the needs of minorities and their agenda often conflicts with the interests of the poor. They have few minority group members on their staffs or boards of directors (Steinhart 1991)

At a meeting in southern California, the resource managers estimated that 70 percent or more of their visitors were from minority populations and almost 100 percent were from urban areas (Chavez 1992). In Lincoln Park in Chicago, USDA Forest Service researchers found that park users interviewed identified with 25 different ethic groups. Conflicts in park setting issues—from discrimination to park equity—can generate anger and physical violence, and result in user displacement or non-use by some groups (Gobster 1992).

To understand the perspective of minority groups that ecology is a "white man's problem," characterizations for five major groups were constructed. These characterizations are a synthesis of past statements of several outspoken representatives from a few major minority group, and a distillation of relevant research. The characterizations were developed as a communication device to bring together many related issues and help create better understanding on the part of the listener. They bring together differing values and world views to expose the thinking behind what seems like unreasonable statements to many mainstream audiences.

This paper offers first-person characterizations of the perspectives of five minority groups responding to the statement that ecology is a "white man's problem.

Perspectives of Different Minority Groups

The following five characterizations are generalizations, and do not represent the opinions of all members of the five groups:

A Native American Responds

Ecology is a problem for white men. They worry about losing a snail and yet they have destroyed the Native American cultures and in some cases have committed genocide (Sale 1990). White men still are destroying our culture by deigning to us our own land and our own wildlife use rights. Yet we are still here. Already more than a third of the North American Continent has indigenous people as its majority populations (Anthony 1993). Indigenous people, who number about 300 million today, are the traditional guardians of the law of the Mother Earth, a code of conservation inspired by a universally held belief that the source of all life is the earth, the mother of all creation (Martin 1993). We are not part of and do not wish to be part of the mainstream of America (LaDuke 1993).

An Onondaga clan mother has spoken on the white man's word 'nature': "there is no word for 'nature' in my language. In English, it seems to refer to that which is separate from human beings. It is a distinction we don't recognize." (Shenandoah 1991). Native people consider themselves part of nature. There's no separation, like the one that necessarily exits in the industrial mind. The challenge faced by environmentalists is to de-colonize their industrial minds (LaDuke 1993). We still depend on the earth to care for us, we are saddened by the loss of salmon to cool office buildings in the dead cities. We have a relationship with nature, we need our hunting and fishing rights. We need to protect our sacred lands. The Lakota and other plains Indian tribes see the Black Hills as the heart of the earth mother. Large mining corporations see them as a place to mine uranium for electrical power and weapons (Swan 1986).

Your parks and reserves were often our lands. To us, these parks were created for white men, who can still hunt in the parks, who can go into parks and do whatever they want

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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(Hanson and Ngankam 1993). You want to take both our land and culture. Your historian, Francis Parkman noted that if the Indian would not "learn the arts of civilization, he and his forest must perish together" (Frontenac 1915) That has been our history with you, why should we think it will change?

Why is it that you try to teach us ecology? Original forest inhabitants and pastoralists had never heard of conservation. But their culture and way of life depended on it, embodied it. Their life meant conservation (Martin 1993). The first Americans were indeed the first ecologists (Martin 1987).

White man places the burden of his ways on us. In the Four Corners we live in the pollution of giant coal burning power plants. The hunting people, the Cree in Northern Quebec, have paid a great price for hydroelectric development in the region. Now, two-thirds of the total Cree population, about 9,800 individuals, have mercury levels that exceed the World Health Organization's safe limits (Rhaphals 1992). While they struggle to survive, your culture's animal rights groups fight the traditional animal trapping that their culture depend on. They also have a deep love of animals (Alexander 1993). But, live downwind of nuclear test sites. Fifteen of the 18 Federal research grants for Monitored Retrievable Storage Facilities (for nuclear wastes) went to Indian reservations (LaDuke 1993). Why is this?

An Inner City African American Responds

I wanted to walk through the redwoods, but I was afraid. Maybe this fear was self-imposed or it was fed by hints both subtle and overt? My timidity is colored by, I believe, our experience of racism and sexism in the nation. We fear people along the way (White 1991).

Many of us, due to the historical effects of slavery, learned to hate the land. It was a place of sweat and pain. Then there was the post-slavery segregation, we were limited in our outdoor recreation pursuits. Racial incidents were pervasive during the 1930's and 1940's. They would say, put all colored off the beach. I remember as a child being driven away by a group of white children when trying to swim at a local lake. Recreation was not safe for us. Your natural areas were not meant for us (Taylor 1989). Even now discrimination affects 1 in 10 of the minority users at Lincoln Park in Chicago (Gobster 1992).

In the 1960s we were involved in civil rights and perceived the environmental movement as a white thing. When we visited your environmental groups we found that differences in social backgrounds made things difficult and uncomfortable, fellowship was hard and you didn't seem to care about the community (Taylor 1989). You do not represent our concerns.

There is a lot of talk in this country about recreation, about parks, about playgrounds, and camping sites. If you are rich, if you have got wheels, if you aren't trapped by shanties or slums, maybe all that talk means something to you. But to the poor people of America, you might as well be talking about trips to the moon (Aberty 1968). If black Americans were as likely as whites to take vacations, the number of adult vacationers would swell by more than 2.8 million. We go on about half as many overnight trips as whites (Simmons Market Research Bureau 1993). Poor people of color in the cities use up to 35 percent of our income to purchase energy; renters get none of the incentives to weatherize their homes, but we are stuck with big heating bills. We have a hard time affording to go visit these far away places (Anthony 1993).

The Commission for Racial Justice in 1993 found that the single most significant factor in the siting of hazardous-waste facilities nationwide was race. The National Law Journal found that the Environmental Protection Agency took 20 percent longer to identify superfund sites in minority communities, and that polluters of those neighborhoods were fined only half as much as polluters of white communities (Sierra 1993).

For example, in Emelle, Alabama, located in the heart of west Alabama's economically impoverished "Black Belt," African-Americans make up more than 90 percent of the rural communities. Emelle is home to Chemical Waste Management's hazardous waste land fill, the Nation's largest hazardous waste dump. Public opposition began after residents discovered the new job-generating industry was not a brick factory (as was rumored) but a toxic waste dump (Bullard 1990).

If you want us to support your ecological concerns, then you need to support our values (Taylor 1990).

Our guiding principle is that our work must be done from a grassroots perspective, and it must be multiracial and multicultural; it is a movement for justice. Social justice movements often leave spirituality out, but the environmental justice movement holds spirituality as a very key element. The denial of racism in this country perpetuates it. We should be impatient with justice: if you really want to conserve the earth, then join the environmental justice movement; this is the movement that is going to constrain the destroyers of the earth, because the destroyers of the environment are the destroyers of our communities (Chavis 1993).

A Woman Responds

As a woman and a feminist and ecological radical feminist I am angry. I am mad that the powerful white males and their corporate America has raped Mother Nature. But I have hope that as women rediscover their instinctual selves and their bonds with nature and gain an equal footing with men that we can begin to heal the earth. Rachel Carson thought that loving the world was what science had to be about. That is essential to love the world before you understand it. She knew it would be dangerous to undertake understanding without that love, as well as love's classy child—awe—and its everyday child responsibility (Paley 1990). We seek a renewed stirring of love for the earth (Newhall 1961).

The control of nature is a phrase conceived in arrogance, born of the Neanderthal age of biology and philosophy, when it was supposed that nature exists for the convenience of man (Carson 1962). Environmental issues are women's

issues, for women sicken, starve, and die from toxins, droughts, and famines. Their capacity to bear new life is threatened by pollution. They bear the brunt of care for the sick and dying, as well as for the next generation (Starhawk 1990). For ecologists and feminists the earth's house and the human house are habitats to be cherished. The home, where women and children spend much of their time, is no longer a haven (Merchant 1985). Do most ecologist care about the environmental safety of our homes?

The themes of some feminist writers parallel the ultimate norms and principles of deep ecology. The "Age of Ecology" was started by a woman who cared and wrote the book *Silent Spring* (Carson 1962).

Environmental issues cannot be intelligently approached without the perspectives of women, the poor, and those who come from other parts of the globe, as well as those of all races and cultural backgrounds (Starhawk 1990). This male dominated culture is an earth-alienated culture. We need to have rituals in earth bonding (LaChapelle 1985). We need to acknowledge the power, authority, and mystery of nature (Starhawk 1990). In each of us is a wild woman who can run with the wolves (Estés 1992).

A Hispanic Responds

For centuries, people of color in our region have been subjected to racist and genocidal practices, including the theft of lands and water, the murder of innocent people, and the degradation of our environment. Your organizations continue to support and promote policies that emphasize the cleanup and preservation of the environment on the backs of working people in general and people of color in particular (Moore 1993).

Where my brother lives in Los Angeles, it's bad—just about every type of toxic fume is experienced there. Prevailing winds are toward East Los Angeles, so every night we have more than our share of impacts from the freeways and industries (Villalobos 1991). The root of the race gap is class difference—often minorities or recent immigrants experience the government as oppressive. They have little experience of political institutions working for them (Steinhart 1991). We often forget that there are more than 60 million people of color in the United States; soon we aren't going to be "minorities" anymore (Anthony 1993). The days when others determined our environmental future are over (Mauro 1991).

Who is it you are advocating for? In New Mexico, where I've lived 25 years now, there has been a history of problems and conflicts between our communities and environmental organizations. We're talking about land issues, water issues, regulations that environmental organizations have been pushing forward—for protection of who? for what? If it's for the protections of us then why haven't we been involved in it? If it is to protect our interests, then bring us to the table, because we do very fine at protecting our own interests. The Sierra Club has been responsible and a co-conspirator in attempting to take away resources from our communities (Moore 1993).

Perhaps the greatest obstacle facing minority communities fighting for change was the fact we saw environmental problems as luxury issues. The environmental movement was full of hippies, middle-class housewives, and crazy white people tying themselves to redwood trees (Rivera 1991). How can a poor black or Hispanic mother living near a hazardous waste incinerator be concerned about saving the spotted owl? Minorities realize that the environmental health issue is a civil rights issue (Moore 1993). Issues of the environmental destruction are issues of our long-term survival (Sierra 1993).

A Poor Appalachian Family Responds

Rural America is in the final days of a profound transformation. Appalachian whites that once worked the land are now dispossessed. Although most people perceive racial minorities as distinct groups, they do not usually act like groups. Instead, like other people, each individual member makes decisions based on his best solutions to his own problems. What racial minorities in rural areas do share consistently is a common profile of poverty and deprivation. We are particularly vulnerable to economic and social changes. For two decades we have been reluctantly selling our lands and moving away (Deloria 1993).

Rural minorities are frequently fearful as well as distrustful of an outside authority, and may be afraid to challenge outsiders. That leaves us in a very vulnerable position. It is easy for the majority to perpetuate feelings of helplessness and inevitability in minority communities that keep them at the bottom of the social and economic pyramid. The cost may be protection of the affluent majority's lust for recreational health obliterating the rural minorities' security in the next two decades (Deloria 1984).

People aren't choosing between jobs and the environment; they're choosing between death—their jobs are killing them—and unemployment. It's a sick choice (Douglas 1993). We depend on the land. Our land is poor and has been abused. Now we are losing what is left. You do not seem to care about us. We seem less important than a rare fern.

In Reply

These five responses contain many similar threads that could be developed into a more inclusive model of ecosystem management. A model that includes many different communities of interest can generate greater public support for ecology in ecosystem management.

The first key to inclusion is the acceptance that other groups have valid environmental and ecological concerns and that these concerns are also the concern of the land manager. Each of the groups characterized expressed concern about the environment but not without reference to their group's quality of life and freedom for self determination. In our political environment, the activities of the government

require the support of groups outside the current main stream of the environmental movement. Clearly, minority communities are increasing their political mobilization on environmental issues (Taylor 1990). Land managers should consider the group's world view even if it may differ from the mainstream. Do not dismiss it in the planning process. Avoid setting up win/lose value conflicts but instead act to find mutual goal attainment in an atmosphere of respect for these differing values. Do not trade off the importance of a community's environmental health against the health of distant ecosystems; both of these should be considered important.

The second key is the inclusion of the human dimension in the ecosystem management framework. Positive work in this area is taking place by the National Task Force on the Human Dimension. The task force expanded the definition to include ecological survival values. It proposes the use of Maslow's hierarchy of motivational needs (Maslow 1968) to help understand the community level relationship to the demands from the National Forest system. This is useful because it expands the understanding of the human's community relationship to ecological processes to include physiological needs. The poor and minority groups are also concerned about these higher level needs (Taylor 1990). Also this view of motivation leaves out an analysis of the barriers between concern and ability to take action to meet those needs. An inner-city poor may have met his lower level needs, but may also desire relaxation at the distant forest; he may be unable to take action, however, because of many factors such as fear, or lack of knowledge or transportation. Also this model is based on a value system or world view not accepted by all.

All people and culture should be included in decisions regarding integral elements of the ecosystem. As planners define the ecological communities and the desired future condition of these communities, the human element must be part of that definition. The kind of relationships and benefits for human cultures should be explicit.

The third key to an inclusive model of ecosystem management is the active pursuit of involvement by the minority or underprivileged community. This involvement needs to include education, dialogue, and information exchange focused on enabling groups to become engaged in land planing processes. This goal may require extensive out-reach. Part of this effort also requires that the organizations undergo change and diversify the cultural background of the decision-makers; employees with greater diversity of values should be sought, and long-term value investments should be made in diversity.

A recent outstanding example of local involvement occurred between the Chequamegon National Forest and the Lac du Flambeau, Red Cliff, and Lac Courte Oreilles Bands of Lake Superior Chippewa. A memorandum of understanding was signed between the groups to promote increased cooperation and understanding of ecosystem management. The Tribe Bands stated, "Whereas the forest and waters that make up the Chequamegon National Forest have provided for the spiritual and physical needs of the Potawatomi, Cree, Winnebego, Lakota (Sioux), and the Anishinabe (Chippewa or Ojibwe) people for thousands of years....the original people believe all life is sacred and the woods are filled with consciousness, ... Since people are dependent upon all creation, we must live with and respect the earth and all living things." The Forest Service goes on to say, "It is the intention of the parties to this Agreement to Strive for Balance, Equity, Respect, and Harmony Between People and Environment across interests, across regions, and across generations by sustaining the land community, meeting this generation's needs and maintaining options for those generations who will follow in our footprints."

Finally, recreation, interpretation, and environmental education play a special role in providing a portal to direct experience of the non-human world. Agencies need to be active in providing greater institutional accommodations through not only physical design but through information systems as well. Agencies need to provide culturally diverse recreational and interpretation opportunities. Recreation should be emphasized that supports the cultural values of different groups and provides opportunities for people to get close to nature. Interpretation should address the concerns and issues of different groups. Relevant as the audience understands it or discovers it in the message is basic to interpretation (Tilden 1957) but may be confused by the internal agency understanding of relevancy.

An excellent example of a systematic approach to relevancy occurred during the development of a visitor center interpretive plan on the Caribbean National Forest in Puerto Rico. A team of specialists in psychology, sociology, anthropology and resource management carried out field observations and interviewed local and international visitors. This included a series of short, open-ended interviews for target groups followed by probing questions to elicit more information on different aspects of the interface between visitors and the local forest, or employees and visitors. The study also provided information on visitors' existing knowledge, cultural themes, and information needs associated with the development of a visitor center (Valdes 1992).

Interpreters could be considered as ambassadors of the non-human world. Interpreters help communication between the non-human community and the human community. The lack of direct experience and communion between human and the non-human is hazardous. It can promote a public that is uncaring about the non-human world as well as a public not grounded in the ecological realties of life and the abilities of the non-human world to survive in harmony with the needs of humankind. To become true community members, people need to understand that their citizenship involves the stewardship of the non-human world (Snyder 1994). Agencies need to be actively involved in creating an inclusive view of providing service to all and instilling the responsibilities of stewardship in all the citizens.

Conclusion

This paper treads on two sensitive areas. One is the problem of generalization about "minority groups" and speaking for them, and the other is an increasingly common generalization and attack on "white men." The first was tread carefully. The second was not. In the general media, expressions of a hard-edged race and gender ideology (Leo 1993) have become common. There is a need to recognize that this serves very little purpose and is misleading. First of all, many different ethnic groups comprise the group 'white men' and many are not affluent nor privileged. By the year 2050, the nonwhite, non-Hispanic population will still only comprise about 25 percent of the U.S. population. Thus, divisions along race and ethnic lines most likely will not best serve these groups. Blame may relieve stress, but it is also disempowering and depressing (Andrews 1987). Minority groups need to empower themselves and work with the majority. The majority need to understand that to act to improve the environment for all and protect the rights of the minority benefits everyone. Mahatma Gandhi said, "No culture can live, if it attempts to be exclusive." Likewise ecology or ecosystem management can not protect the natural ecosystems if it fails to include the concerns of the diverse publics.

Public land managers, communicators, and researchers have a responsibility to provide public service to all. Government land managers need to understand the concerns of different groups and the results of their management decisions on these groups. Managers need to take on the challenge to provide and actively encourage greater access to planning and decision-making processes. The government needs to actively create not only greater institutional accommodation for these concerns and needs as expressed by these 'minority groups,' but participation in public education as well. The ideal is not a parental relationship toward minority groups but participation in the empowerment of these groups. Land managers are stewards of every one's resources and need to consider their decisions in that light.

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Protection, Safety and Use Issues in Natural Resources

Chair: Deborah S. Carr
USDA Forest Service

Accessibility Benchmarks: Interpretive Programs and Services in North Central California[1]

Laura J. McLachlin, Emilyn A. Sheffield, Donald A. Penland, Charles W. Nelson[2]

Abstract: The Heritage Corridors Project was a unique partnership between the California Department of Parks and Recreation, the California State University, and the Across California Conservancy. The purpose of the project was to develop a map of selected northern California outdoor recreation and heritage sites. Data about facility accessibility improvements (restrooms, clear access from the designated parking space to the site or facility, Telecommunication Device for the Deaf (TDD), Braille materials, large print materials, and sound amplification devices), and interpretive and recreation amenities were collected. The current accessibility status of interpretation in north central California is reported and serves as a benchmark for access enhancements to sites and programs.

Several tourism researchers have discussed the swift rise of heritage tourism (Crompton 1990, Makens 1992; Steel-Prohaska 1990; Tighe 1990a, 1990b), the importance of effective interpretive programs to enhance visitor enjoyment (Gunn 1990, Hayward 1989), and the need to create a critical mass of attractions to promote tourism at the regional level (Lue and others 1993, Schneider and Kaldenberg 1991). The Americans with Disabilities Act (ADA) has stimulated interest in site and programmatic accessibility for visitors with limitations (Elsner 1992), estimated to be as many as 100 million citizens (Kermeen 1992).

Project Overview and Purpose

The Heritage Corridors Project was a partnership between the California Department of Parks and Recreation, the California State University, and the Across California Conservancy (a non-profit disability access and advocacy organization). The purpose of the Project was to develop a map of outdoor recreation and heritage sites in Northern California. Because ADA compliance plans were first required in 1992, the interpretive programs and services (hereafter called amenities) data collected in 1992 for the Heritage Corridors Project provide a unique and timely dataset.

This work was authorized through California Assembly Bill 4044 and served as part of a comprehensive plan for a statewide system of trails. The "heritage" portions of this system will be a part of an eventual nationwide network of heritage-related outdoor recreation resources. Although the project was initiated at the State level, local and Federal outdoor recreation and heritage sites were also featured.

Access for Persons with Disabilities

The Americans with Disabilities Act (ADA) has played an important role with access to outdoor recreation and cultural heritage resource areas (Elsner 1992). "With an estimated 43 million people in the United States with disabilities severe enough to be recognized by the ADA," with another 10 percent of the population temporarily disabled at any given moment, and with yet another 10 percent with mobility impairments due to old age, as many as 100 million United States citizens can benefit from improved site accessibility (Kermeen 1992).

The ADA was designed to eliminate discrimination against people with disabilities in the areas of employment, transportation, public accommodations, public services and telecommunications (Schleien 1993). The Act supports architectural and attitudinal modifications to maximize opportunities for people with disabilities. "Handicapped travelers make up a segment of the travel market that is growing and is deservedly receiving greater consideration in the physical design of tourism facilities" (Mill and Morrison 1985, Mueller 1990). In addition, families are another one of the fastest growing tourism markets (Makens 1992), which means that destination areas can anticipate increasing numbers of families who have children with disabilities. Fortunately, with the passage of the ADA, the necessary incentive for the design and construction of accessible sites and amenities is in place.

Although people with disabilities desire recreation experiences similar to those of the able-bodied population, many of them face numerous constraints to travel. Studies have found that for persons with disabilities, social contacts are reduced and financial responsibilities are increased (Murphy 1982). In addition, parents of children with disabilities have restricted free time because of their increased child care responsibilities (Lucca and Settles, 1981). These are examples of some of the constraints experienced by individuals with disabilities and families who have a member with a disability.

Furthermore, most people with disabilities require extensive planning and preparation prior to a trip. This may be because of the need for assistive devices such as a wheelchair or a walker, large print materials, or a telecommunication device (TDD).

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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While there are many things to think about when planning a camping trip, probably the most important thing for a wheeler is obtaining accurate information. Most parks have made some modifications to make them more accessible to disabled people, especially wheelchair users. However, the extent of modification varies widely from park to park and from camping area to camping area (Ellis 1992).

Destination points must be contacted to verify access and availability to special services. In outdoor recreation and interpretation, this may include such features as a ramped and paved campground site, a visitor center with sound amplification devices, or a nature trail with large print self-guided materials.

Interpretation

"Interpretation" is a broad and encompassing concept that is used in a variety of public and private areas. Tilden (1967) describes interpretation as "an educational activity which aims to reveal meaning and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information". Aquariums, zoos, parks, forests, museums, and other attractions all use interpretation techniques. Hayward (1989) espouses a comprehensive approach to interpretation that combines "a leisure setting with an educational or cultural experience". Sharpe (1992) describes interpretation as serving three purposes: 1) helping the public to understand and appreciate the resource; 2) assisting the public in pursuing its own interests about the resource; and 3) providing resource stewards with a management tool. Sharpe's first two purposes of interpretation apply to the Heritage Corridors sites. Because the majority of sites are public sector entities, the third purpose also applies, although in ways not directly apparent to visitors.

Tourism promoters have started to recognize the value of "heritage" in travel decision-making. "Visiting historic sites and museums ranks as the first, second, or third most popular activity for tourists in every state in the United States" (Steel-Prohaska 1990). This trend is increasing for at least three reasons: 1) the "baby boomers" are approaching middle-age, a time when people generally become more interested in culture and heritage; 2) the senior adult population, strong supporters of cultural and heritage activities, is also increasing; and 3) cultural resources are often suitable for mini-vacations, another trend within the travel and tourism industry (Tighe 1990a). Furthermore, family vacations are on the rise and historic and/or outdoor recreation sites are popular family vacation activities (Makens 1992). These trends provide evidence that cultural and heritage travel will flourish in the future.

Methods

In the present study, we compiled a list of outdoor recreation and heritage sites by using primary and secondary information sources. A panel of tourism, therapeutic recreation, and geography specialists selected 300 sites for further investigation. A survey was designed to collect interpretive amenity information from sites in north central California.

Development of Survey Instruments

Site Selection

A secondary source search of the state parks map, American Automobile Association publications, commercial tourism guidebooks, Federal resource agency listings, recreation access guides, and the California Office of Tourism files generated an extensive list of possible sites. Each site was then evaluated against the three criteria for map inclusion. First, potential sites were required to be of cultural, outdoor recreation, or conservation education significance to California. Second, sites had to have interpretive materials for "self-guided tourism." Third, sites had to possess significant site improvements for persons with vision, hearing, or mobility impairments. Sites meeting two of the three project criteria comprised the master list from which the map sites were selected. These sites included parks, forests, museums, attractions, parkways, and vista points administered by local, county, state, or Federal agencies or organizations. After discussions with agency officials, various disability access groups, and other key informants, the list was reduced to the 300 most promising sites.

Self-Administered Mailed Survey

A 4-page survey instrument was designed to collect amenity and accessibility data about each site. The project co-directors developed the initial version of the survey that was then sent to a panel of State and National Park interpreters. After this pilot study, minor revisions were made in the survey instrument. Agency directors at each site received a survey packet just after Labor Day in 1992.

Telephone Survey

A more concise version of the mailed survey was prepared for use in a telephone interview with managers or access coordinators at sites that had not responded to the written survey. Four trained interviewers conducted the telephone calls between November 1992 and February 1993.

Data Collection

By using these two data collection strategies (mailed questionnaire and telephone interview), all sites were contacted. Of the 300 sites, 172 were selected for detailed analysis based on their recreational and interpretive amenities and their accessibility status for persons with mobility impairments.

Data about facility accessibility improvements (restrooms, clear access from the designated parking space to the site or facility, TDD, Braille materials, large print materials, and sound amplification devices) were collected. Nine interpretive amenity categories were evaluated (exhibits, guided tours, nature trails, museums, visitor centers, printed interpretive materials, site signage, interpretive audiotapes, and videotapes). If an amenity was present, respondents were

asked to answer an additional question about site accessibility for visitors with mobility impairments. Three levels of access were identified: not accessible, "easy" or assisted accessibility, and independent accessibility. For an amenity to receive the "independent" access designation, a mobility impaired visitor traveling alone should be able to exit his/her vehicle, enter the site or facility from the designated (handicap) parking space and utilize the site or facility.

Results

Sites were classified according to management agency and site type. Forty-nine (28 percent) of the sites were managed by Federal agencies, 74 (43 percent) were under the administration of State agencies, and 49 (28 percent) were governed by local agencies. Each of the sites were also categorized as natural heritage or cultural heritage sites. In addition, if a cultural heritage site had been identified as a California Historic Landmark that designation was noted. One hundred and twenty-nine (75 percent) of the sites were natural (e.g., outdoor) heritage sites, 55 (32 percent) of the sites were categorized as cultural heritage sites, and 45 (26 percent) of the sites were historical landmarks. (Categories were not mutually exclusive; 7 percent of the sites were classified as both a natural and a cultural resource area.)

Data were collected for nine types of interpretive amenities and six types of access improvements. Interpretation amenities included programs, materials, and services provided to the public for educational purposes. Of the interpretation amenities measured by the survey, the average site had 8.5 amenities. Only 31 percent of the amenities were accessible to visitors with mobility impairments. The most frequently occurring amenities were: printed materials (79 percent of the sites), exhibits (70 percent), interpretive signage (67 percent), guided tours (59 percent), visitor centers (43 percent), video tapes (40 percent), museums (39 percent), nature trails (38 percent), and audio tapes (8 percent).

"Access improvement" was defined as an amenity that improved site accessibility to persons with mobility, visual, or hearing impairments. These amenities included restrooms, clear access from the designated parking space to the site or facility, large print materials, sound amplification devices, telecommunication device (TDD) for the deaf, and Braille materials. One hundred forty-nine (87 percent) of the sites had accessible restrooms. More than half of the sites (58 percent) had clear access from the parking lot to the facility. Improvements for people with visual impairments included large print information at 15 (9 percent) of the sites and Braille materials at 5 (3 percent) of the sites. Amenity improvements designed for individuals with hearing impairments included sound amplification devices at 12 (7 percent) of the sites and a TDD at ten (6 percent) of the sites. Five interpretation amenities (exhibits, guided tours, visitor center, museums, and nature trails) were evaluated for accessibility to visitors with impairments (*table 1*). In addition, restrooms were included as an important amenity in terms of dictating destination stops.

Discussion

Printed materials, exhibits, and guided tours are examples of interpretation found at many destination locations. Printed materials can be mailed in advance, allowing people with disabilities to plan ahead. In addition, printed materials improve the interpretive experience for many visitors and offer a helpful mechanism for visitors with hearing impairments. Audio-tape tours, available in fewer that 10 percent of the sites, can be enjoyed by visitors with visual impairments. Increasing the number of these materials could enhance the interpretive experience for all visitors.

Table 1—*Levels of accessibility for selected interpretation and access improvements*[1]

		Not accessible		Accessible with assistance[3]		Independently accessible	
Amenity	Sites with amenity[2]	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Interpretation Amenities							
Guided Tours	102	46	45	56	55	31	30
Visitor Center	74	12	17	62	83	37	50
Museums	67	14	21	55	79	32	48
Nature Trails	65	35	54	30	46	12	18
Exhibits	121	0	0	121	100	95	79
Other Amenity							
Restroom	149	19	13	130	87	90	60

[1]Accessibility figures were calculated as the percentage of the particular amenity that were reported as accessible with assistance or independently accessible.
[2] Number of sites out of 172 that had the amenity.
[3]The accessible with assistance frequencies and percentages include sites that are independently accessible.

Exhibits are the most capital-intensive interpretive amenity. These are particularly valuable interpretation tools as facility staff continue to decline or take on additional duties. However, exhibits are also the most accessible interpretation amenity, with more than half classified as independently accessible to persons with mobility impairments. Access improvements for other types of disability groups are practically nonexistent. This is partially alleviated by the frequent occurrence of guided tours. Tour guides are typically able to make minor adjustments in their interpretive talks to accommodate the differing needs and interests of groups. Many provide alternative experiences for visitors with visual or hearing impairments.

Nature trails are included as an interpretive amenity. They differ from hiking trails because they have fixed interpretive signage, guidebooks, or other printed materials. As the "trails movement" continues to rise, nature trails are expected to increase. Characteristics of nature trails include a shorter trail than that of a hiking trail, intersecting loops, and rest benches. These qualities make them particularly popular with travel parties, such as groups comprised of people with varying ages and ability levels. These same characteristics make nature trails good candidates for accessibility improvements.

Conclusions and Recommendations

The Heritage Corridors Project is one of the first steps toward a nationwide system of heritage trails. Continued research on the types of assistive devices that are consistent with the needs of current site users will be useful to site planners and managers. On-site access inventories are also needed. To be effective such inventories will require collaboration between trained researchers and persons with mobility, hearing, and vision impairments. Although an ambitious task, local disability access and advocacy groups could facilitate such an effort. Finally, access and interpretation information needs to be disseminated to benefit persons with disabilities.

A wealth of opportunities for outdoor recreation and heritage exploration is available in northern California. The map and database provide visitors with valuable information to assist in trip planning and site visitation. This research reports the most comprehensive and current accessibility status of heritage recreation in north central California and serves as a benchmark by which future efforts and improvements can be measured.

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Is Alaska Really Different? A Review of CUSTOMER Recreation Visitor Survey Data[1]

Patrick C. Reed[2]

Abstract: Many believe that Alaska is unique and that its location, resources, and population influence the use patterns and attitudes of its National Forest recreation visitors so that they seem notably different from visitors to other National Forests outside Alaska. Data from a recreation visitor survey called CUSTOMER were analyzed for the years 1991 to 1993 to identify signs of differences between recreation visitors to the Chugach National Forest and other selected National Forests outside Alaska. Although some significant differences do appear, a definitive conclusion may not be drawn from the existing CUSTOMER data.

Alaska is popularly regarded as different from other States of the union, a view that encompasses beliefs about its geography, natural resources, cultural heritage, population, and lifestyle. Many assert that such characteristics influence or create different use patterns and attitudes among its recreation visitors (State of Alaska 1993, International Tourism and Resort Advisors 1993). In lieu of comprehensive and substantive data to the contrary, this basic assertion may have influenced the management plans and the activities of State and Federal recreation managers in Alaska, including those of the Chugach National Forest (CNF). But is outdoor recreation in CNF really different, and more importantly for its recreation managers, are recreation visitors there really different from those of National Forests outside Alaska? Addressing the latter issue is important to better meet the needs and desires of recreation visitors to CNF.

Clearly, CNF is distinguishable from other forests in the National Forest. Two hundred miles across and the size of Massachusetts and Rhode Island combined, the 5.6 million-acre CNF is second in size only to Alaska's other National Forest, the Tongass. CNF is bounded to the north by the rock and ice of the Chugach Mountains and to the south by the 3,500 mile coastline of fjords and islands of the Prince William Sound. Despite its size, the vast majority of CNF is accessible only by small aircraft, boat, or foot.

The natural and cultural resources of CNF seem unmatched elsewhere. Only 500 miles below the Arctic Circle, the climate supports dozens of active glaciers. Probably more wolves, bears, and bald eagles can be found in CNF than in any National Forest outside Alaska. Prince William Sound is itself a haven for a rich and diverse marine life, including several species of whale, sea lions, otters, as well as its renowned salmon and shellfish. The 700,000 acre Copper River Delta in the eastern half of CNF is the largest contiguous wetland ecosystem on the west coast of the Nation and the yearly destination for millions of migratory birds. CNF is also the aboriginal and contemporary home of populations of Eskimos and Indians, whose ancestors have inhabited the coastal areas for more than 10,000 years.

Recreation visitors to CNF can choose from a full spectrum of recreation opportunities. Developed facilities range from the modern Begich, Boggs Visitor Center (the most visited tourism site in Alaska) to developed overnight campgrounds equipped with flush toilets. Those seeking more primitive recreation experiences can choose from backpacking in de facto wilderness to cross-country skiing and sea kayaking. Still others may choose to see glaciers and wildlife from automobiles, aircraft, ships, or on foot.

Thus, CNF does indeed have many special and unique characteristics that may influence its recreational visitors. However, whether the physical and social settings of CNF are different from those of other National Forests outside Alaska is a moot point. The more relevant issue is whether the settings influence the attitudes and behavior of recreational visitors so that they are different from those of visitors to other National Forests outside Alaska. Unfortunately, research has not been done that definitively establishes a cause and effect relationship. Perhaps the best that can be done at this time is to sort through existing data for clues to the following question: do recreation visitors to CNF exhibit characteristics, preferences, reasons for participating, and levels of satisfaction significantly different from those of National Forest visitors elsewhere? This paper addresses these questions through an examination of one recent recreation visitor survey applied to CNF and other sites outside Alaska.

CUSTOMER Recreation Visitor Survey

To examine the question of "difference," both relevant and commensurate information about the recreation visitors to CNF and other sites outside Alaska is needed. Although location-specific visitor and tourism surveys have been administered for a number of years across the Nation, only one survey using a consistent questionnaire and sampling procedure—the Customer Use Survey Techniques for Operation, Management, Evaluation and Research (CUSTOMER) recreation visitor survey--has been applied to National Forests and other locations both within and outside Alaska.

Developed and implemented by the USDA Forest Service's Southeastern Forest Experiment Station, CUSTOMER was designed to provide a range of general

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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and site-specific recreation visitor data useful in the management of individual National Forests as well as in the preparation of the Forest Service's national Renewable Forest and Rangeland Resources Planning Act (RPA) for the analysis of recreation and wilderness (English and others 1993; Cordell and others 1990). By compiling the results of individual National Forests and other locations, CUSTOMER may also be used to develop a basic national database on visitor demographics, trip profiles, reasons for choosing a site, activity participation, and visitor importance and satisfaction with general site attributes.

Between 1990 and 1993, CUSTOMER was implemented on a U.S. Office of Management and Budget-approved pilot test basis in over 35 "sites" (defined for purposes of this paper as a unique combination of an administrative unit and a recreation season) across the Nation. More than 19,850 recreation visitors nationwide were interviewed on-site and also asked to complete one or more additional mailback surveys. Three CNF sites were sampled in 1991 and 1992. With more than 2,800 recreation visitors interviewed during summer and winter seasons, CNF accounted for about 14 percent of the national total.

Because of its scope, consistency, and the number of interviews completed, CUSTOMER should be an ideal data source for comparing recreation visitors to Alaskan and sites outside Alaska, including sites administered by the Forest Service, USDI Bureau of Land Management, and USDI National Park Service. Nevertheless, several problems arise from the CUSTOMER sampling method, and thus efforts to make robust comparisons among individual sites are complicated.

First, the sample of national sites was actually self-selecting because participation in CUSTOMER was either administratively mandated or voluntary. As a consequence, the sites did not represent a true random sample of National Forest visitors nationwide. Second, each site was responsible for defining the activity groups of interest. Thus, a description of "developed camping" may actually differ considerably according to a remote or poorly funded site, in comparison to an urbanized and well-funded site's description of "developed camping."

Another problem was the weighting of the collected data. Most sites had a poor idea of the actual amount of annual visitor use, as well as the relative proportions of the various component activity groups. Therefore, the basis to properly weight data is low for developing summary means and frequencies for any single site and for all sites combined. Because of the relatively high cost of on-site survey sampling, small sample sizes--especially from mailback surveys--were inadequate for reliable statistical analysis for many of the activity groups.

Last, but certainly not least, compilations of CUSTOMER data are not readily accessible. An independent working database, limited to summary means and frequencies contained in individual CUSTOMER site reports, was therefore created for this paper. The summary nature of the database severely limits extensive data analysis.

Comparison Methodology

Despite these difficulties, CUSTOMER data are used as the basis for comparing CNF recreation visitors with those of other sites outside Alaska in the attempt to detect visitor differences. Specific activity groups, representing the visitors' stated primary recreation activity during a visit to a site, are chosen as the focus of comparison. Some preliminary manipulation of the data was necessary, however. The original self-reported activity groupings in the individual CUSTOMER survey reports are re-classified in the working database into groups that are assumed to be the most closely analogous in actuality. This reclassification results in a total of 27 possible activity groups. Of these, it is found that 19 cannot be used for comparison for one of the reasons: (1) a particular activity group has no representation in both CNF and non-Alaskan sites; (2) the total sample size for an activity group is determined to be too small for purposes of analysis; or (3) the activity group could only be classified as miscellaneous. This reduced the available overall sample sizes by 35 percent for CNF and by 47 percent for the non-Alaskan sites. The eight activity groups suitable for comparison are:

- Angling
- Developed overnight use
- Dispersed day use
- Motorized boating
- Nonmotorized boating
- Roaded sightseeing
- Trail use
- Visitor information service (VIS) activities

The working database of summary CUSTOMER data contains more than 200 separate variable means and frequencies which describe the use patterns and attitudes of recreation visitors. Attempting to compare CNF and non-Alaskan recreation visitors across all of these variables is beyond the scope of this paper. Thus, five of the most relevant subsets of the larger dataset are chosen as the basis of comparison. The five data subsets include:

- Selected demographic characteristics (age and income).
- Selected visitation characteristics (primary vs. secondary destination; repeat vs. first-time visitation; in-state vs. out-of-state residence).
- Reasons for choosing site (scenic beauty; good facilities; prior knowledge; convenient location; personal reasons; crowding at other areas; seeing new attractions; traveling with a group; trying a new site; and other).
- Importance of general site attributes (reasonable fees; location of site; barrier-free accessibility; quality of scenery; cleanliness of facilities; clear directional signs; good roads and parking; helpfulness of personnel; information on site history; nearby shopping and supplies; presence of agency personnel; safety and security; site maps and information; and trip planning information).
- Satisfaction with general site attributes (same as importance attributes).

Measurement of difference within the 5 data subsets for the 8 activity groups is dependent upon the nature of the data being compared. At least three measures of difference are possible given the data limitations:

- Range of data subset variable means and frequencies.
- Rank correlation of data subset variable means and frequencies.
- Overall mean of data subset variable means and frequencies.

The first and simplest measure of difference involves examining the data subset variables for CNF recreation visitors to find means and frequencies that are outside the range of means and frequencies in the other sites outside Alaska. Thus, if data subset variable means and frequencies for CNF recreation visitors are either higher or lower than the highest or lowest mean or frequency recorded among non-Alaskan sites, it is considered an indication of a possibly important difference between the Alaskan and non-Alaskan sites. This measure of difference is applied throughout the comparisons because it does not rely upon any statistical assumptions and can be used with the categorical data in the first two data subsets (demographic and visitation characteristics).

A second measure of difference involves the rank ordering of data subset variables rated by CNF recreation visitors to determine if the order differs from the order of visitors to non-Alaskan sites. This second measure of difference is usable on lists of items that can be rank-ordered, including the third, fourth and fifth data subsets (reasons for choosing site, site attribute importance, and satisfaction with site attributes). Within each data subset, variables are rank-ordered for both CNF and non-Alaskan sites and compared to see if there is a positive correlation in the rankings. Because the data under analysis were nonparametric in nature, the Friedman two-way analysis of variance is chosen to test whether the rank-orders agreed (Wilkinson 1990).

A third measure of difference considers whether CNF visitors rated general site attributes higher or lower than visitors to the non-Alaskan sites. This measure is applied to the fourth and fifth data subsets (importance of, and satisfaction with, general site attributes). A t-test is applied to the variable means of data subsets for CNF and non-Alaskan sites in order to determine if visitors rated the variables higher or lower.

Assumptions different than those used in the selection of the activity groups, data subsets, and measures of difference used in this analysis could produce different results and conclusions in the comparisons.

Results

Selected Demographic Characteristics

Age and income are two characteristics that are key variables in modeling recreation consumption (English and others 1993). We found main differences between visitors to CNF, and their non-Alaskan site counterparts as a whole (*table 1*).

The most common age category among all eight activity groups in CNF is 25 to 44 years of age, followed generally by 45 to 64 years of age and 12 to 24 years of age. Seven of the eight activity groups in the non-Alaskan sites also show that the 25 to 44 years of age category is the most common. Differences between visitors in CNF and sites outside Alaska, as reflected in the range of frequencies measured (*table 1*), are evident in four of the eight activity groups (developed overnight, dispersed day use, and nonmotorized boating activity groups show no differences).

The most common annual household income category for five of the eight activity groups in CNF is $25,000 to $49,999, followed by $50,000 to $74,999 in the remaining three activity groups. This is the same in the non-Alaskan sites except that the identity of the specific activity groups are different.

Regardless of whether they are recreating in CNF or non-Alaskan sites, motorized boaters and nonmotorized boaters display larger proportions of higher income categories. Differences between visitors in CNF and sites outside Alaska, as indicated by the range of frequencies measure, are evident in six of the eight activity groups (angling and developed overnight activity groups show no differences).

Selected Visitation Characteristics

Few consistent differences are indicated among visitors to CNF and non-Alaskan sites in terms of visitor residence and prior visitation. In CNF, in-state visitors are more common in seven of the eight previously listed activity groups (the exception is dispersed day use groups). Among non-Alaskan sites, in-state visitors are also more common in seven of the eight activity groups (VIS activity group is the exception). Both of the activity groups in exception exhibit higher percentages of in-state visitors than observed in non-Alaskan sites. Visitor differences are indicated in only two of the eight activity groups (dispersed day use and VIS activities) by using the range of frequencies measure (*table 1*).

CNF is the primary destination for the majority of recreation visitors in half of the eight activity groups. In contrast, non-Alaskan sites are the primary destination of the majority of visitors in all eight activity groups. By using the range of frequencies measure, differences between visitors in CNF and sites outside Alaska are indicated in six of the eight activity groups (developed overnight and VIS activities groups show no difference).

Repeat visitation is more common than first-time visitation for six of the eight activity groups in CNF, the exceptions being the dispersed day use and trail activity groups. Repeat visitation is also more common in seven of eight activity groups in the non-Alaskan sites. The range of frequencies measure shows differences in only two of the eight activity groups, dispersed day use and motorized boating.

Table 1—*A Summary of indications of differences between Chugach National Forest and sites outside Alaska.*

Data subset / Measures of difference	Activity groups: Angling	Developed overnight	Dispersed day	Motorized boating	Nonmotorized boating	Roaded sightseeing	Trail	VIS[4] activities
1. Demographic characteristics:								
A. Age								
Range of frequencies measure[1]	—	—	—	Yes	—	Yes	Yes	Yes
B. Income								
Range of frequencies measure	—	—	Yes	Yes	Yes	Yes	Yes	Yes
2.Visitation characteristics:								
A. Residence								
Range of frequencies measure		—	Yes	—	—	—	—	Yes
B. Destination								
Range of frequencies measure	Yes	—	Yes	Yes	Yes	Yes	Yes	—
C. Visitation								
Range of frequencies measure	—	—	Yes	Yes	—	—	—	—
3.Reasons for choosing site:								
Range of frequencies measure	Yes	—	Yes	Yes	Yes	—	—	—
Rank correlation of frequencies measure[2]		—	—	—	Yes(p=.05)	—	—	—
Mean of frequencies measure[3]	—	—	—	—	—	—	—	—
4.Importance of site attributes:								
Range of means measure	—	Yes	—	Yes	Yes	—	—	Yes
Rank correlation of means measure	Yes(p<.05)	Yes(p<.05)	Yes(p<.05)	Yes(p<.05)	—	Yes(p<.05)	Yes(p<.05)	Yes(p<.05)
Mean of means measure	Yes(p<.01)	—	—	Yes(p>.05)	Yes(p<.01)	Yes(p>.01)	—	—
5.Satisfaction with site attributes:								
Range of means measure	—	Yes	Yes	Yes	Yes	—	—	Yes
Rank correlation of means measure	—	Yes(p<.05)	—	Yes(p=.05)	—	—	Yes(p<.05)	Yes
Mean of means measure	—	Yes(p<.01)	—	Yes(p<.01)	Yes(p<.01)	Yes(p<.01)	—	Yes(p<.01)

[1]Chugach NF mean higher or lower than observed range in non-Alaskan sites.
[2]Rank correlation of means and frequencies using Friedman's two-way analysis of variance (Kendall's coefficient of concordance).
[3]Overall mean of means and frequencies using two sample-paired T-test.
[4]Visitor information service activities.

Reasons For Choosing Site

Scenic beauty is the most often stated reason for choosing CNF as a site in four of the eight activity groups, followed by convenient location and previous experience. This is generally consistent with the rank ordering of reasons in most activity groups in non-Alaskan sites. Among activity groups, motorized boaters in CNF on average choose 6 of the 10 reasons more often (*table 1*).

Nonmotorized boaters choose three of the reasons more often than visitors to the non-Alaskan sites. In both cases, try new area, other areas too crowded, and/or scenic beauty are reasons mentioned more often by CNF recreation visitors than non-Alaskan site visitors. VIS activity group visitors choose two of the reasons (try new area and other areas too crowded) less often.

Indications of differences between CNF and non-Alaskan sites are seen in four of the eight activity groups (angling, dispersed day use, motorized boating, and nonmotorized boating) using the range of frequencies measure. Using the rank correlation measure, only the nonmotorized boating group shows a statistically significant difference ($p \leq .05$) between rank orders of reasons by visitors in CNF and non-Alaskan sites. In none of the eight activity groups do the

overall mean frequencies for all 10 reasons show a statistically significant difference ($p \leq .05$).

Importance of General Site Attributes

Quality of scenery is ranked as the most important attribute among visitors in all eight of the activity groups in CNF except developed overnight users, who rank cleanliness of facilities highest. Other attributes that are also consistently ranked as important by CNF visitors are cleanliness of facilities, reasonableness of fees, safety and security, and trip planning information. Cleanliness of facilities is ranked most important by visitors in seven of the eight non-Alaskan site activity groups.

Motorized boaters in CNF rate 3 of the 14 general site attributes higher than their counterparts in non-Alaskan sites, but also rate five attributes lower. Nonmotorized boaters in CNF rate 9 of the 14 attributes lower than did the visitors in non-Alaskan sites.

Indications of differences between CNF and non-Alaskan sites are seen in four of the eight activity groups (developed overnight, motorized boating, nonmotorized boating, and VIS activities) by using the range of means measure (*table 1*). By using the rank correlation measure, all but the nonmotorized boating group shows a statistically significant difference ($p \leq .05$) between rank orders of attribute importance by visitors in CNF and non-Alaskan sites. Four of the eight activity groups (angling, motorized boating, nonmotorized boating, and roaded sightseeing) show indications of statistically significant difference ($p \leq .05$) considering the overall mean of the 14 individual attribute means.

Satisfaction with General Site Attributes

In all activity groups except trail use (which rates it a close second), CNF visitors are most satisfied with the quality of scenery attribute. Likewise, quality of scenery is rated as the most satisfactory attribute by visitors in all eight activity groups in non-Alaskan sites. Another attribute that consistently rates high among both CNF and non-Alaskan activity groups is reasonable fees.

Indications of differences between CNF and non-Alaskan sites are seen in five of the eight activity groups (angling, roaded sightseeing, and trail use activity groups show no difference) considering the range of means measure (*table 1*). Three of the eight activity groups (developed overnight, motorized boating, and trail use) indicate a statistically significant difference ($p \leq .05$). Five of the eight activity groups indicate a statistically significant difference ($p \leq .05$) considering the overall mean of the 14 individual attribute means (angling, dispersed day use, and trail uses show no differences).

Discussion and Conclusions

This examination of existing summary CUSTOMER data to determine indications of differences between recreation visitors in CNF and sites outside Alaska is only exploratory at best. It does not represent the level of comparative analysis that is possible given access to the full CUSTOMER data set. It does represent, however, the nature of problems any CUSTOMER site will have in attempting to establish a larger frame of reference by which to view the responses of its visitors.

The results of this effort to find indications of summary differences between CNF and non-Alaskan site recreation visitors are less than conclusive. The three measures of difference often simply result in inconsistent conclusions. If the three measures of difference for the eight activity groups are directly compared, consistent agreement occurs less than half of the time. The rank correlations and range of means/frequencies measures yield evidence of a difference an equal number of times, and both indicate differences more often than measuring magnitude of means. Clearly, any questions regarding difference should be properly framed, and a method should be chosen that is most appropriate to the type of data and issue.

CNF recreation visitors as a whole appear to be most different from their non-Alaskan counterparts in terms of the lower importance they attach to general site attributes. Conversely, as a group they are the least different overall from non-Alaskan site visitors in terms of the reasons why they choose a site: both highly value scenery.

Summarizing the results of the measures of difference by activity group, the activity group in CNF that appears to be the most different from sites outside Alaska is motorized boating and the activity group with the least differences is developed overnight. However, in neither group is there complete agreement among the five data subsets.

In terms of selected demographic and visitation characteristics, the dispersed day use and motorized boating activity groups show the most differences between CNF and non-Alaskan sites. When considering reasons for choosing a site, the nonmotorized boating activity group shows the most difference. The motorized boating activity group consistently indicates a difference in importance of site attributes; while both the motorized boating and developed overnight activity groups consistently show a difference in satisfaction with site attributes, with only the angling activity group consistently indicating no difference.

Perhaps equally useful information can be derived from noting important similarities between CNF and non-Alaskan visitors: the near universal importance and appreciation of scenery; the dominance of 25 to 44 year visitors; the high probability of repeat visitation; and greater importance shown for barrier-free accessibility compared to presence of personnel in the field.

CUSTOMER data—not unlike that of other comparable recreation visitor surveys—has genuine limitations for any robust comparisons among different activity groups and sites because of its statistically compromised sampling procedures. As a result, CNF, as well as sites outside of Alaska, must be content with low levels of reliability if available summary CUSTOMER data is to be used to compare the characteristics

and attitudes of their recreation visitors. Unfortunately, given the current era of smaller resource management budgets, there should be little expectation that another national survey, one which will use improved methodology and a geographic base, will be forthcoming anytime in the near future.

The existence of even perfect data nationwide will not ensure that participating sites such as CNF will be able to take advantage of the information. Such data first must be made accessible to individual sites. And secondly, the sites must have either trained staff or adequate funding to contract for investigation of the data. Both issues are roadblocks to any current effort to make even a summary level of comparison.

Is the creation of a national recreation visitor database and the making of detailed comparisons among sites of real value? Might such comparisons simply have more theoretical than practical benefit? Might it not be sufficient to simply know the recreation visitors at a site and manage accordingly, irrespective of whether the visitors are different from those at another site? Yes, and no. Many management issues are unique and are more properly examined and solved within their immediate context, making data comparisons with other sites a superfluous activity. Other issues may be more universal in nature and solution. A national database can help improve a manager's ability to identify and react to the true cause of a problem. In most instances, unless it is patently incorrect or misleading, some data is probably better than no data when it comes to helping to understand recreation visitors. Surely relying solely upon the assumptions and preconceptions of some recreation managers can be as perilous as facing an issue without an information base.

Given the status of past and future research efforts it is debatable whether CNF managers can know for certain whether their recreation visitors are indeed different from non-Alaskan counterparts, and whether those differences or similarities are a significant piece of the management puzzle. Like other National Forests outside of Alaska today, CNF can only hold its breath and hope it is not.

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Partnership and Service Delivery Strategies for Natural Resouces

Chair: Alan Schmierer
USDI National Park Service

Partnerships in Natural Resource Agencies: A Conceptual Framework [1]

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Abstract: To meet financial constraints while maintaining or improving programs, natural resource managers have increasingly turned to partnerships with other public agencies or private businesses. The process of developing a successful partnership, however, is rarely chronicled, much less empirically studied. By using the available natural resource and business management literature, a set of criteria have been suggested as necessary components of successful partnerships. The resulting conceptual model provides a framework for guiding future empirical verification.

Partnerships between natural resource agencies and other organizations have emerged as an innovative management strategy to meet agency goals while responding to financial constraints. The National Park Service, for example, has over 400 such arrangements. Similarly, the USDI Fish and Wildlife Service, the USDA Forest Service, and the USDI Bureau of Land Management have been active in creating partnerships.

Although the need to develop partnerships is well established, most public-private partnerships have not been systematically evaluated. The few existing studies have examined the characteristics (LaPage 1994) or process components (Selin and Chavez 1992, 1993; Darrow and others [In press]) of partnerships, and are typically based on comparisons of a limited number of case studies. Without empirical and theoretical scrutiny, the criteria needed to create and maintain a successful alliance are difficult to identify. Moreover, because unsuccessful partnerships are rarely discussed, much less chronicled, it is difficult to identify techniques and strategies to be avoided.

The limited natural resource literature as well as the business management literature suggests three distinct phases associated with successful partnerships: (1) initiation, (2) planning, and (3) implementation/evaluation. Each phase is characterized by different processes that influence the direction of the partnership.

This paper offers a conceptual framework for systematically evaluating natural resource partnerships, and provides a foundation for future empirical exploration.

Initiation Phase

The need for initiating a partnership may originate from economic issues, an administrative mandate, or other sources. During this phase, the process elements include an evaluation of the agency's internal and external environment relative to its orientation to other agencies / organizations (Lewis 1990). The ability to identify key resources, forecast potential problems, and evaluate "principles of fair exchange" are key indicators of success (Lane and Beamish 1990). Principles of fair exchange involve an evaluation of the perceived equal reciprocity of human and non-human resources.

Although prospective partners may have been considered, more intensive partner selection occurs during this initiation phase. Natural resource agencies appear to be more sensitive to the role of careful partner selection (Maxwell 1994, personal communication). After the field of potential partners has been narrowed, initial non-binding agreements may be made. Forming these initial agreements serves as a testing ground for how well partners actually work together.

Planning Phase

Once the core group of partners has been selected, more formal partnership meetings begin. During the initial meetings, the lead partner is either selected or emerges, and the roles of other partners are clarified (Collins 1991, Kent 1991, Killing 1983, Lewis 1990). A review of case studies from the National Park Service indicates that there may be different leaders for different parts of the partnership project (Darrow and others [In press]). Clarification of the roles each partner will play is an indicator of the ultimate success of a partnership.

A second indicator during the planning phase is the development of a strategic plan which includes mutually agreed upon vision statements and goals (Collins 1991, Stodder 1991). The vision and goals statements provide a foundation for formulating a written plan, essentially a "map" for the direction of the partnership. The written plan should include clear financial plans (Dent 1990, Lynch 1989, Selin and Chavez 1993), address legal, regulatory, and tax issues (Carter and others 1988), and consider the role of incentives, recognition, and rewards for all partners (Merrifield 1992, Selin and Chavez 1993). These issues are particularly important for partnerships with volunteer organizations that are not tangibly compensated. For the natural resource agencies, this step can be particularly complex because of the array of business structures in partnership with the agency. For example, partners may include volunteer organizations,

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for profit businesses, or non-government organizations, each having different legal/regulatory, and tax structures.

Third, partnerships may alter the responsibilities of the existing staff or involve the hiring of new personnel. Therefore personnel needs should be determined during the planning process (Ganitsky and Watzke 1990, Killing 1983). As the strategic plan develops, an indicator of successful partnerships is staff and public involvement. Without internal and external support even the best planned partnerships may fail (Darrow and others [In press]). The business management literature presents a strong case for involving all levels of staff in an ongoing manner during partnership development (Lewis 1991 1992, Zeira and Shenkar 1990). The process of including the public or staff in partnerships entails a determination of who should be involved and a plan for how to involve them.

Equally important is the design of a marketing strategy, a practice not nearly as common with natural resource agencies as with private businesses. Marketing strategy is essential to the success of the partnership (Kitchell and Kraayenbrink 1992, Selin and Chavez 1993). For natural resource agencies, a marketing plan tends to take the form of providing public education and planned communication about the partnership project. Media and messages should be targeted to specific audiences.

Finally, the planning process should include the construction of information systems. This involves the development of data organization, data storage, and a determination of how information systems will be operated.

Implementation/Evaluation Phase

During the implementation/evaluation phase, priority should focus on creating criteria for measuring project progress (Killing 1983). The selected criteria should remain flexible so changes can be made as needed. A key indicator of success is ongoing evaluation and monitoring (Selin and Chavez 1993). Successful partnerships merge evaluation and resulting changes with information systems and marketing plans.

This phase should include exit or termination strategies for the partnership (Killing 1983, Merrifield 1992, Slowinski 1992). As the project nears conclusion, partners can consider one of three options: (1) continuation of the partnership via extension of the current project or creation of a new project with the same partners, (2) the inclusion of new partners to work on additional aspects of a current project, or (3) terminate the partnership.

Conclusion

By documenting process elements associated with each phase of an existing partnership, managers and researchers will be better positioned to evaluate the potential success of new partnerships.

The three phases outlined here raise a number of questions for future research. During the initiation phase, for example, can evaluation criteria be identified to assist in the screening of potential partners? What components should be included in an analysis of the agency's internal and external environment? During the planning phase, which specific issues must be included in the vision and goals statements? What are the most effective ways of involving the staff and relevant publics in the development of a partnership? For the implementation/evaluation phase, what are appropriate indicators of a project's success? Can effective and efficient strategies be identified to assist in conflict resolution between partners?

Overall, this paper raises more questions than it answers. Our goal is to encourage the adoption of more formal procedures for evaluating existing partnerships. Conceptualizing a partnership as a series of distinct phases, provides a framework for examining specific components.

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A Content Analysis of USDA Forest Service Recreation Partnerships[1]

Steve Selin[2]

Abstract: The USDA Forest Service has been implementing a partnership initiative for 6 years as part of the National Recreation Strategy. Several internal efforts have been undertaken to evaluate the progress made in this initiative as well as to make adjustments in the initiative for the future. These evaluation efforts are extended to present a content analysis of recreation partnerships operating in the National Forest system in 1991. Results are tabulated from a sample of 292 partnership reports submitted by each National Forest to the Washington Office in 1991. Information about geographic distribution is highlighted, as well as scope, size, purpose, type of partner, and benefiting resource area and recreation activity. Results from the study have important implications for analyzing trends and informing future resource allocation decisions.

The USDA Forest Service's National Recreation Strategy was envisioned as a conceptual framework to encourage Forest Service managers to emphasize partnerships, customer satisfaction, and professionalism in providing outdoor recreation services in the National Forests. As an incentive to field units, a competitive Challenge Cost-Share grant program was established in 1988 to match private investments in innovative recreation projects.

This paper summarizes several internal efforts to monitor and evaluate the impact of the partnership component of the National Recreation Strategy and the Recreation Challenge Cost-Share program. In addition, results from a content analysis of recreation partnerships are presented that extend previous assessments and may offer one analytic approach to future appraisals of the partnership initiative.

Appraisal of Partnership

The partnership initiative has been appraised internally by two methods. One monitoring effort is the annual summary of the Recreation Challenge Cost-Share program. All field units are requested by the Forest Service Washington Office to send in profile information on partnerships partially funded through the cost-share program. These partnership profiles are compiled in an annual publication available since 1988 that highlights Forest Service and partner contributions as well as listing names and organizational affiliation of all participating partners.

A second attempt to monitor progress in the partnership initiative was begun in 1990 when a partnership commission convened to critically examine the partnership component of the National Recreation Strategy. The Commission compiled information from a number of sources including a survey of partners (Selin and Chavez 1993). In addition, testimony from Commission members and related reports and program reviews were used to define issues and interpret responses. Based on these information sources, the Commission made a number of recommendations for improving partnership programs within the Forest Service.

These two monitoring efforts have contributed to our knowledge of partnership initiatives within the Forest Service. However, other analytic methods exist which can extend our understanding of partnerships, illuminate trends, and inform future policy decisions regarding partnerships. The following study uses a content analysis method to examine a number of partnership trends within the National Forest system.

Method

The sample for this study consisted of partnership reports compiled from two sources. As part of a larger study, I mailed a letter to Recreation Staff Officers on all National Forests requesting cost-share agreements and supporting documents from two of their most successful recreation partnerships. In addition, a copy of all USDA Forest Service regional reports on partnerships during the 1990-91 fiscal year was obtained. The final sample consisted of partnership reports on 292 partnerships representing 69 different National Forests from every Forest Service region.

A content analysis method was used to systematically analyze the content of the partnership reports. The content analysis procedure consisted of several stages. First, major categories of data were identified in the partnership reports. These included geographic distribution and scope, size, type of agreement, purpose, legal status of partner, benefiting resource area and recreation opportunity enhanced. Next, recording units of the actual text corresponding to each major category were manually transferred under each major category. To minimize inter-rater error, the data was coded by only one trained research assistant. The primary investigator and research assistant reached consensus on identifying categories and questionable recording units. Once recording units were coded under each major category, this data was transferred to database software program known as Paradox. Sub-categories were identified within each major category and the data was recoded. Again, only actual recording units in the text were transferred using a query option in the

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, San Diego, California.

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Paradox software. Once recoded, descriptive summary statistics were calculated for each sub-category including frequencies and percentages. When one recording unit was present in each partnership, the descriptive statistics totaled 292 and 100 percent. However, in some cases, recording units were absent in some partnerships and descriptive statistics were based only on those partnerships where the recording unit was present. Also, in some cases, several recording units were identified for one sub-category (i.e., when a partnership benefited several resource areas). In these cases, the descriptive statistics totaled more than 292 and 100 percent.

Results

In this sample, 69 different National Forests submitted partnership reports. However, the number of partnerships submitted was not evenly distributed. In fact, 21 percent, or 60 of the 292 partnerships in the sample were submitted by two National Forests, the Chattachoochie and the Bridger-Teton. In addition, 20 partnerships were submitted by the White River National Forest and 28 percent of all partnerships in the sample were submitted by three National Forests.

Although all 10 Forest Service regions are represented in the sample, 63 percent of the partnerships were submitted by western regions (*table 1*). The Rocky Mountain Region (Region 2) had the highest number of reported partnerships (61). Interestingly, the Pacific Southwest Region (Region 5) only submitted six partnerships.

Most partnerships in the sample were relatively small, with one to three partners. Only 7 percent of the partnerships included more than seven external partners (*table 2*).

The sample was dominated by small community-based partnerships (*table 3*). Three local sub-categories were identified: those initiated by the Ranger District, those initiated by the Forest recreation staff, and those classified as partnerships initiated by an unverified source.

Table 1—*Partnerships, by USDA Forest Service Region*

Forest Service Region (E or W)	External partnerships	
	Number	Percent
Region 1 (W)	8	3
Region 2 (W)	61	21
Region 3 (W)	16	5
Region 4 (W)	56	19
Region 5 (W)	6	2
Region 6 (W)	17	6
Region 8 (E)	47	16
Region 9 (E)	60	21
Region 10 (W)	21	7
Total Eastern Regions	107	37
Total Western Regions	185	63
Total	292	100

Table 2—*Partnerships, by number of external partners*

External partners per partnership	External partnerships	
	Number	Percent
1-3	229	85
4-6	21	8
>7	20	7
Total	270	100

Table 3—*Partnerships, by geographic scope*

Scope	Number	Percent
Local	249	85
State	26	9
Local-Ranger District	10	3
Local-Forest	7	2
National	4	1
Tribal	2	<1
International	2	<1
Total	292	100[1]

[1]Before each percentage is rounded off to nearest percent, total percentage equals 100 percent.

As might be expected because of the matching funds available, challenge cost-share agreements were the most widely used type of agreement (*table 4*). However, a number of other types of agreements were represented in the sample.

Informational services had the highest number of partnerships with many emphasizing interpretive materials, promotional brochures, kiosks along scenic byways, and visitor guides (*table 5*). Many partnerships also focused on either new construction or rehabilitating older structures or buildings. Common purposes in these two areas included constructing visitor centers, campgrounds, trail maintenance, and refurbishing old Civilian Conservation Corps era structures.

The legal status of external partners was evenly distributed among state agencies, businesses, and the nonprofit sector (*table 6*). However, if one assumes that many of the associations, user clubs, and civic organizations mentioned were incorporated as tax exempt nonprofit organizations, then the importance of the nonprofit sector becomes evident.

As expected, recreation partnerships dominated in the sample (*table 7*). However, in many partnerships several other resource areas were involved. For example, public affairs benefited from the significant number of partnerships that emphasized informational services. In addition, wildlife management partnerships have their own challenge cost-share funds and are summarized annually in a separate publication.

Some outdoor recreation opportunities were enhanced more by partnership outcomes than others (*table 8*). Though

Table 4—*Partnerships, by type of agreement*

Agreement	Number	Percent
Challenge Cost-Share	167	87
Cooperative	5	3
Memo of Understanding	5	3
Participating	5	3
Collection	5	3
Interagency	2	1
Interpretive	2	1
Partnership	2	1
Total	193	

Table 5—*Partnerships, by purpose*

Purpose	Number	Percent[1]
Information	155	53
Construction	140	48
Maintenance	89	30
Rehabilitation	77	26
Administration	53	18
Cultural Resources	32	11
Special Events	7	2

[1]Several partnerships had multiple purposes resulting in percentages exceeding 100 percent.

Table 6—*Partnerships, by legal status of partner*

Partner	Number	Percent[1]
Public (State)	94	32
Nonprofit	84	29
Business	83	28
Association	50	17
Volunteers	44	15
Public (Town)	29	10
User Club	28	10
Civic Organization	26	9
Public (County)	24	8
Public (Federal)	24	8
Foundation	4	1
Tribal Government	1	

[1]Several partnerships benefitted multiple areas resulting in percentages exceeding 100 percent.

Table 7—*Partnerships, by benefiting resource area*

Resource	Number	Percent[1]
Recreation	233	80
Public Affairs	48	16
Cultural Resources	25	9
Wilderness	16	5
Wildlife	15	5
Administration	8	3
Ecosystem Management	4	1

[1]Several partnerships benefitted multiple areas resulting in percentages exceeding 100 percent.

Table 8—*Partnerships, by activity*

Activity	Number	Percent[1]
Hiking	64	22
Visitor Services	59	20
Camping	24	8
Fishing	22	8
Cultural Appreciation	21	7
Miscellaneous	17	6
Historic Preservation	16	6
Snowmobiling	15	5
Driving For Pleasure	15	5
Cross Country Skiing	13	4
Facilities	12	4
Picnicking	12	4
Parking	11	4
Wildlife Viewing	11	4
Lake Oriented Recreation	10	3
Tourism	10	3
Mountain Biking	8	3
Lodging	5	2
ATV	4	1
River Recreation	4	1
Shooting Range	2	

[1]Several partnerships benefitted multiple areas resulting in percentages exceeding 100 percent.

the diversity of activities represented is striking, many partnerships focused on enhancing hiking opportunities through trail construction and maintenance projects. Visitor service projects were also enhanced by partnerships dominated by the development of interpretive and promotional materials.

Discussion

The ability to generalize study findings to all recreation partnerships on the National Forest system is limited by several factors. First, National Forests that did not submit partnership reports to the Washington Office or to the investigator upon request may or may not have had a vigorous partnership program. One can only speculate whether this lack of reporting was due to disinterest in partnerships or only to the reporting function. Also, this data reflects only those partnerships in progress in 1991 and cannot be extrapolated to 1994 trends.

However, results from this study present a composite view of recreation partnerships operating in the National Forest system in 1991. Perhaps the breadth and diversity of partnership forms is the most striking finding of this study. Diversity in purpose, type of partners, benefiting resource area, and enhancement of recreation opportunities all support the contention that partnership initiatives within the Forest Service have been an unqualified success.

Despite the diversity of partnership forms represented in the data, the character of the typical recreation partnership has also emerged. Although the Chrysler Corporation's support of the scenic byway program is a high-profile partnership, most partnerships are community-based with only a small number of partners. These community partnerships make intuitive sense because at the community level people have strong attachments to special places and are empowered to protect and enhance them. Also social networks exist at the community level that can lead to productive partnerships.

Although the sample cannot be generalized to the entire National Forest system, it is disturbing that partnerships were so unevenly distributed across National Forests. The findings suggest that partnerships have been inconsistently applied at different forests. Success in implementing partnership programs appears to be dependent on the discretion of line officers at the National Forest and district levels rather than unqualified system-wide success.

This study is important because it establishes a baseline profile of recreation partnerships operating in the National Forest system. However, partnerships are dynamic relations between organizations and interests and are therefore constantly evolving. The study's real potential will be realized by replicating it at specified time intervals so that trends can be systematically analyzed in partnership initiatives. In addition, more comprehensive and flexible databases will be needed to monitor partnership progress. Incentives are needed to ensure more representative reporting from field units.

Acknowledgments

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Seeking Common Ground: Establishing Interpark Partnerships[1]

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Abstract: As Californians struggle to maintain their parks during tight economic times, closer partnerships between providers must be sought to protect the resources of many parks while also maintaining desirable levels of service. A process is discussed that has been used by the USDI Park Service and the California Department of Parks and Recreation in reviewing park goals, administration and management of interpretive, recreational, natural and cultural resources of 11 parks within 3 joint clusters, with common recommendations for interagency cost efficiencies and improved public service. This ongoing effort may point the way for increased cooperation between State and Federal and other levels of park management.

Beginning in May 1993, discussions between the Directors and staff of the California Department of Parks and Recreation (CDPR) and the USDI National Park Service (NPS), Western Region led to a decision to explore potential joint operational improvements and cost savings that might be achieved between adjacent State and National Park units.

This initiative was undertaken as a result of public comment received in spring 1993, during the California State Park and Recreation Commission's Statewide public workshops on the status of California's park and recreation needs. It was also partially in response to a proposal by NPS for a temporary transfer of management responsibilities for the three State park units within the Congressionally authorized boundary of Redwood National Park.

In 1968 when Congress authorized what ultimately had become the 106,000-acre Redwood National Park, it made provisions for accepting by donation any or all of Jedediah Smith, Prairie Creek and Del Norte Coast Redwoods State Parks within its boundary, envisioning the potential for single agency management under the National Park Service. In 1978, an interim management transfer of the three State parks to NPS for a 15-year period was negotiated and readied for signature, but was not consummated by NPS for several reasons, including the sudden increase of its responsibilities in Alaska as a result of an Executive Order by President Jimmy Carter. In recent years, the possibility of a 5-year interim transfer of management or fee ownership of the State parks to NPS was raised again.

The issue of transfer holds a high level of local interest in Humboldt and Del Norte Counties. The local perception is that the Federal government has not delivered on its projection for improved rural economic growth resulting from Redwood National Park creation and expansion (Kiester 1993). Projected attendance projections and daily visitor expenditures have not materialized. Recently, despite tough local economic times, the consolidation theory has been advanced by some local leaders, who have suggested that single agency management would accelerate public acceptance of the Redwood National Park as a destination, resulting in longer visits and more local spending. Unfortunately, this suggestion was perceived by some as a threat, and resulted in the creation of an adversarial relationship between the National and State Parks as well as their constituents. This heightened uncertainty and limited conditions for cooperative projects and management.

The California Park Service and the National Park Service have a long history of working together. An example of this cooperation is the transfer of some park units such as those at the Marin Headlands, Stinson Beach and the historic ships as building blocks to create the Golden Gate National Recreation Area. Consequently, despite the increasing interagency friction in the northwest corner of California, both agencies recognized that they had units in close proximity in other locations that could benefit from similar cooperation. Such cooperation was particularly needed, not only because of recent budget constraints for park managers but because park management focus in the National Park Service had shifted in the creation of newer California park units. This shift was from a strictly "within the park boundary," single agency management approach, to an emphasis on empowering interagency and public-private partnerships both within and beyond park boundaries. Also, the rate of encroaching development had created an urgency to coordinate agency resources to protect joint park values. Therefore, both agencies agreed to start an assessment of operational efficiencies and cost saving possibilities where state park units occurred within some congressionally-authorized boundaries. In addition to the north coast redwood parks, the San Francisco Bay Area parks were reviewed, including Angel Island State Park and Golden Gate National Recreation Area, and the Malibu coast parks, composed of Malibu Creek, Point Mugu and Topanga State Parks, Leo Carrillo State Beach, and Santa Monica Mountains National Recreation Area.

Methods

To explore the potential of increased cooperation, NPS and CDPR appointed "The California Coordinating

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Committee on Operational Efficiencies." Membership consisted of in-house park management professionals with matched representation from CDPR and NPS. The 10 individuals who were to make up the committee membership were chosen for their professional objectivity and breadth of practical park management knowledge. Collectively they represented several hundred years of park-related experience from throughout the United States and California as rangers, naturalists, and superintendents, park evaluation personnel, and high-level managers. In an effort to maintain objectivity, however, deliberate efforts were made to select individuals who had never served in the subject parks.

We were assigned to act as the staff liaisons to facilitate the committee's efforts. The committee's charge was to independently and objectively develop and review the appropriate factual and intangible elements relevant to the efficient administration, provision of necessary common support facilities, resource protection and visitor management within the authorities and purposes for which the various units were established. To give the committee direction and support, a joint work program and schedule were quickly developed by the staff liaison from each service and agreed upon by the Western Region Director of NPS and the Director of CDPR. The purpose of this process was to objectively evaluate the management of these park groups and to make recommendations for the best management of these units so as to maximize efficiencies for park administration, resource management, facility maintenance, law enforcement, visitor information, sharing of interpretive facilities, services, and staff.

Both agencies recognized the need for public involvement from this project's inception because a significant amount of correspondence and verbal comment on the redwood park consolidation issue had been received. Consequently, in August 1993, the committee began soliciting public input on issues it could address. Unfortunately both media and public response was very limited.

In preparation for individual park reviews, each involved CDPR and NPS park superintendent was requested to review his or her responsibilities and to prepare a briefing paper covering prescribed categories for each of the units administered. Each paper was to give a description of the park, its purpose, usage, established park management and themes, an inventory of visitor facilities and developed areas, staffing and operating budgets, and major issues facing each unit. Each superintendent was also asked to prepare a preliminary list of recommendations for joint efficiency and cost saving initiatives. The superintendents were encouraged to discuss their recommendations with their counterpart in adjacent National or State Parks. This consultation occurred to a greater or lessor degree in each park cluster and was a foreshadowing to the committee of the existing level of interagency cooperation. When completed, the briefing papers were organized along with maps, other background materials, and a detailed schedule that was then distributed to each member of the committee in advance of their field review of the units.

On-site park reviews by the coordinating committee of the north coast redwood and Malibu coast parks occurred during the week of August 29 to September 2, 1993. Because of time constraints the San Francisco Bay area review was limited to a slide orientation. The other reviews consisted of individual park and site tours conducted in common by the superintendents of each cluster. All reviews included individual presentations by each superintendent of the main issues and threats facing the units in their care, a description of ways they were currently cooperating with their adjoining park counterparts, and recommendations on how these efforts might be improved. These presentations were followed by intensive questions and answers between the committee members and the individual superintendents. The committee met nearly every day in private after the field reviews and superintendent presentations. At these meetings, based upon the briefings, site tours and professional insights, the committee started to identify park-specific efficiencies. At the last meetings, its members also agreed to recommend improved NPS-CDPR agency-wide information sharing and collaboration mechanisms. In its deliberations, the coordinating committee carefully considered how each alternative might affect the local economy.

Results

The joint coordinating committee was impressed with the professional commitment of all park employees to protect resources, complete their respective missions, and show concern about park threats that were reflected in the overall condition of the individual parks. Generally, the committee found more similarities in common problems and commitment to resolution than they did in differences. This approach led to their conclusion that both agencies would benefit if agreements at the headquarters level were negotiated to enable and invigorate programmatic cooperation and sharing of solutions so as to avoid having to individually "reinvent the wheel." Although differing levels of existing cooperation at each of the park clusters were observed, the committee agreed that greater efforts at the superintendent levels to meet regularly and map out programs for joint interpretation programs, shared facilities, goal development and implementation would result in greater trust and cooperation at all levels of the park staff structures.

Despite some initial minor differences, in general the level of consensus among the committee members was extraordinary as to their observations, findings, and recommendations. Although this diverse group from two separate park cultures, had common interests, some feared that their positions and conclusions might be radically different, necessitating the preparation of minority reports. Fortunately, this was not the case, and the staff liaisons, based upon the committee's discussion and direction, were then able to draft the committee's report and recommended actions; these actions were designed to provide better protection for each park's natural and cultural resources in a

more complete ecosystem context and to improve the park visitor's information and in-park experience, while providing the best return on the taxpayer's dollars. The report went through three in-house draft reviews involving committee members and the involved park superintendents. The revised draft report was then presented to Donald Murphy, Director of the California Department of Parks and Recreation, and Stanley Albright, Western Regional Director of the National Park Service. With some very minor changes, they approved the draft recommendations of the report.

The following highlights cover the coordinating committee's joint agency and park specific recommended actions.

Agency-Wide

The committee found and strongly expressed their belief that cooperation is most successful when it is formalized by written agreements and accountability measures between multiple levels of different agencies. Agency level coordination is needed to invigorate park-to-park as well as agency-to-agency programmatic cooperation. From the headquarters level, through the park superintendents to the maintenance foremen and the trail crew bosses, all must be empowered to work together. But to be most effective at successive levels, cooperation must start on a day-to-day basis at the superintendent's level with positive direction and oversight from headquarters providing incentive and accountability. Accordingly, the following initiatives were recommended:

- The directors of the two park agencies should sign a Memorandum of Understanding (MOU) that directs the superintendents of the three park clusters to identify and implement cooperative initiatives.
- Key program staff from both agencies should be brought together to address agency-wide cooperative initiatives including: dispatch for emergency response, 1-800 public park information numbers, visitor orientation training, concessions management, signage, park visitor information packaging, visitor safety, control of exotic species and feral animals, response to gangs and graffiti, coordination with tour operations, etc.
- In an effort to assure that the agreed upon actions are carried forth in a timely manner, a schedule of implementation is proposed, with twice yearly progress reports. At the end of a 3-year period, NPS and CDPR would conduct an analysis to determine the overall success of the coordination program and make recommendations for any corrections needed.

North Coast Redwoods

Consolidation of the three State parks under the single management of the National Park Service was considered by the committee to be neither necessary nor desirable. The consensus of the committee was that the condition of these parks is good to outstanding, because of significant progress in resource restoration and visitor improvements, such as combined park resources and recreation experiences of all four redwood parks that result in an internationally significant park. However, Federal and State budgets can fluctuate, with Federal funding levels healthier in some years and State funding faring better in others. The two major park agencies that operate side by side have a larger, more effective voice in coping with threats and providing services with their combined staff expertise and support bases. Further, the three State park units almost pay their own way, largely due to entrance fees, higher campground revenues, and staffing levels. Consequently, cost savings to the CDPR would have been very limited if management were turned over to the NPS. The agencies concluded that the financial reality is that park resources and visitor experiences would be best served by the most cost effective use of both NPS and CDPR budgets. Rather than transferring these parks from the State Park System, the committee suggested that focus should be on strengthening partnerships.

It was agreed that the National and State Park superintendents should jointly prepare a Memorandum of Understanding addressing the management of these four units. The detailed goals and operating principles for the joint accomplishment of specific tasks include the assignment of responsibilities for common park functions, resource management, road and trail maintenance, interpretive programs, signage, alternative visitor transportation, public information, maintenance, and additional recreational opportunities such as coordinated trail development and signing, interpretive programs, joint visitor center staffing and environmental education. Cost efficiencies should be reinvested in park operations. Other recommendations included:

- Locate a State park liaison, with management authority over the three State parks, at the National Park headquarters to act as ombudsman for State park matters and to assure closely coordinated operation of the four redwood parks.
- Expand resource management activities of Redwood National Park to include the three State redwood parks to include the entire park ecosystem. A CDPR resource management liaison position will be established to work with NPS on shared resource protection issues.
- Prepare an updated park-wide general management plan to provide an integrated blueprint for all four park units and the adjacent communities.
- Target a needed planning effort to provide additional recreational opportunities and allow use of less accessible parts of the park within acceptable park resource carrying capacities so as to help fulfill the promise of the Redwood National Park as a destination park and stimulate the economy of the local communities.

San Francisco Bay Area Parks

The committee decided that the two park superintendents should convene senior managers and key program

staff to pursue mutual initiatives with priority to stabilizing, rehabilitation and fund-raising for historic structures, removal techniques for Scotch broom and eucalyptus, and efforts to package and promote visitor service on Angel and Alcatraz Islands.

In addition, the superintendents should explore potential cost efficiencies between other units in the Bay Area, including Mt. Tamalpais and Samuel P. Taylor State Parks and Muir Woods National Monument.

Malibu Coast Parks

The committee recommended that State and National Park superintendents should renew inter-park cooperative processes to include program staff and the Santa Monica Mountains Conservancy.

It was also suggested that a centralization of geographic information systems (GIS) functions should be evaluated, as well as development proposal reviews, resource management functions, visitor information services, adoption of uniform trail, brush clearance, and sign standards, and establishment of an interagency visitor center.

As previously reported, in addition to the above recommendations, each of the six superintendents had prepared specific cooperative joint efficiency and cost saving initiatives as part of their briefing materials for the committee's August/September site visits. These initiatives were recommended as starting points for each area's management interaction.

Reaction to the Report

The "Draft Report: California Coordinating Committee on Operational Efficiencies" was mailed to known interested members of the public, environmental groups, Chambers of Commerce, locally elected officials and the media. Open houses, which provided opportunities for the public to discuss the report and its recommendations with its authors, were scheduled for the week of February 7, 1994. About 20 individuals attended each of the three public meetings held. Some conservationists voiced frustration with the limited public involvement and still favored transfer of interim management of the three State redwood parks to NPS. Several individuals expressed their concern about the complexities of making such a partnership effort successful. Many others voiced very constructive ideas for implementation of the report and supported coordinated management. Their general attitude seemed to be "put old differences and rivalries behind us, and let's get on with working toward common goals." A subsequent opportunity for public review and written comment through the end of February was provided before the report was finalized. Comments received were reviewed and should be included in an addendum to the final report, which is expected to be completed in the spring 1994.

The first ever all-staff meetings of National and State Park employees have been held in the North Coast Redwood and the Malibu Coast park clusters. (The latter meeting also included the employees of the Santa Monica Mountains Conservancy.) We attended the North Coast Redwood meeting, where the staffs were briefed on the report in the morning and spent the afternoon in six program groupings brainstorming potential cost efficiencies and other implementation of the report's recommendations. Although some staff were concerned about how the report may affect them personally, most experienced a high level of excitement, interest and anticipation about the prospect of working more closely together. In this case at least, the implementation process was clearly task oriented and the managers must be swift to stay ahead of their eager employees. Consequently, the park Superintendents have already met to draft their MOU and initiate discussions of a coordinated work plan in anticipation of the summer season. The draft MOU is also being prepared at the interagency level.

Recommendations

For those interested in adopting a similar partnership process, several basic ingredients are recommended for success based upon our experience.

- Solicit written, top level buy in and agreement at the start.
- Clearly state the purpose. A clear exposition of the purpose of the effort will not only give direction, but may assuage fears of some of the participants.
- Give the effort specific focus and goals that are in both agencies' mutual interests, such as operating efficiencies and cost savings that can be reinvested in park resources and visitor services management.
- Open the process. Strive to make the process as fair, balanced, objective and open to employees and the public as you can. Building trust is critical to gain cooperation and achieve success.
- Make it a cooperative effort. Think in terms of incentives for the park managers to work together. Inform and involve the park managers at the onset and throughout the process. Let them make their best case and explore and present initial recommendations.
- Assign independent inter-staff liaisons. Staff liaisons must be committed, patient, and process and people oriented. They will staff the process and keep it moving. It is crucial to appoint the right people and that liaisons have access to decision makers.
- Agree on a work plan and schedule for the process, and include a public involvement strategy from the beginning.
- Recruit the best people from each agency so that the coordination team is balanced. Look for a balance of park management experience and insight, a strategic sense and awareness of policy and budget realities. Make sure both the park superintendents and headquarters managers are included. Select people who are not directly vested in the specific park issues and who are open to a wide range of innovative solutions.

- Consider an outside member. While not used in this program, a member of the committee from outside of the two involved organizations might have added to its objectivity, veracity, and credibility.
- Follow through. Keep promises, expectations and commitment on a timely basis. Follow-through establishes the credibility of the process.
- Communicate. Inform everyone of progress, decisions or delays. This not only fosters a positive team sense, but works to relieve the anxiety of the unknown.
- Accountability. Establish an oversight, appeals, and trouble-shooting process. Set forth management performance standards, require reporting of results periodically, and have an evaluation program for accountability.

Conclusion

We are greatly encouraged by the cooperation and success shown by the development of this joint report. In spite of fire, earthquake, and mud flow, park superintendents are already meeting and working to find ways to allow their programs to mesh, holding joint, all-staff meetings and sharing training and resource information.

We are confident that the effort in preparing this report will point the way for increased cooperation and efficiencies between the State and Federal levels of park management. Although the committee's report already suggests that other opportunities existing within the park clusters should be reviewed, other possibilities may also arise from this report. Its implementation may serve as a pilot program, particularly if pending Congressional legislation for the expansion of Point Reyes National Seashore is passed and if the California Desert Bill is enacted. But this report may also serve as a model for cooperation between the State and local, and Federal and local levels as well. In this period of economic stress, when park agencies at all levels are struggling to maintain their park systems, such partnerships will serve as an important method for continued service to the public, and they will preserve the resources that our parks are designed to perpetuate.

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Educational Poster Session

Chair: Patricia L. Winter
USDA Forest Service

Educational Poster Session

Deborah Chavez, Compiler

The educational poster session provided a way of increasing the ordinarily limited time available for discussion of papers, while simultaneously making it easier to communicate visual materials not well suited to oral presentations. Poster presenters were available for 2 hours to discuss their displays. Poster presentations were divided into five categories: user issues; environmental education; partnerships; the urban/wildland interface; and economic issues. These poster sessions are summarized below. This symposium session was chaired by Patricia L. Winter, USDA Forest Service.

User Issues

Five of the posters in part addressed the common issue of user characteristics. The first two examined the mountain bike user group. The first, **"Slickrock Trail Mountain Bike Survey: Implications for Resource Managers and Area Communities"** by Dale J. Blahna, Susan Van Patten, Scott A. Dawson, Doug Reiter, and Russ Von Koch, focused on an area known for mountain bike riding—the Slickrock trail near Moab, Utah. Blahna and others reported results from a 1993 study. The study was designed to identify the background and behavioral characteristics of bikers on the trail, and their preferences for current and future mountain bike management. The majority of survey respondents were male, between age 21 to 35, with an annual household income of about $42,000. Most respondents were on their first or second trip to Slickrock. Findings suggest that management interventions, like use restrictions, are not necessary. Respondents were concerned with protecting resources so that management interventions, like closing trails to protect resources, could be used.

The second mountain bike study, "**Mountain Biking in the San Jacinto Region"** by Deborah J. Chavez focused on an area where a regional mountain bike system is envisioned. Respondents to this survey were typically, male, about 34 years of age, residents of large towns or cities, with an average annual income between $20,000 to $39,999. Most respondents had been mountain bike riders for several years and had made large time and money commitments to the sport. Like the participants in the Blahna study, these respondents did not see a need for user restrictions unless it was needed to protect soils, scenic vistas and vegetation. The users had frequented many trails in the areas, which suggested a regional system might be perceived favorably by users. The findings also suggested that plans for development should not include many amenities as they are not desired by current users. Desired features included maps of trails with mileage, signs indicating permitted and prohibited trail users, and drinking water.

The third poster, "**Commercial and Non-Commercial Visitors to BLM Recreation Sites Along the Mokelumne and Merced River Corridors of the Western Sierras"** by Sam A. Lollar and Robert E. Pfister examined river users. These users were mostly Anglos who expressed satisfaction with their river experiences. User opinions indicated a desire for site conditions to remain the same, for more information about the area, for better clean-up, and to enforce more rules and regulations. Trash bins, facilities for people with disabilities, restrooms, and trails headed the list of improvements desired. Friends and family were the primary means for learning about the areas. User knowledge of who maintained the areas was not strong.

Water-related activity was also the focus of "**Boating Capacity Review and Determination for Pineview Reservoir"** by Randy T. Welsh. Pineview Reservoir is a heavily used recreation/irrigation reservoir located adjacent to the Wasatch Front urban area in Utah. According to Welsh, the issue is how to maximize the boating capacity of the reservoir to provide recreation opportunities while maintaining public safety and perceptions of a quality recreation experience. Reservoir managers feel the allowed numbers in the current carrying capacity policy are too high in order to effectively increase public safety and decrease boating congestion. This poster examined carrying capacity literature, recalculated useable acres, and made recommendations on revising the carrying capacity for Pineview Reservoir.

User information was also a focus for "**GIS Display of Recreational Activity and Associated Economic Value"** by Julie Schaefers. The poster described a study of the Sweet Home Ranger District in Oregon. The data collected included group size, location of activity, user preference of available resources, trip expenditures, willingness to pay, and socio-economic information. The data was used to develop a dollar value for each activity and the demand for recreation activities in the area. This information can be used by resource managers as a land use planning tool as one measure (or layer) in a geographical information system (GIS) map of the area. Decisions made from this information could be used to improve the recreation opportunities of an area and to minimize conflicts between the recreational use and other competing uses of an area.

Environmental Education

Environmental education and land use ethics were the topics of three posters. The first, "**Children's Forest: Involving Tomorrow's Leaders Today"** by Robert Louden,

described a program meant to empower youth to participate in forest stewardship. The Children's Forest is a 3,400-acre section of the San Bernardino National Forest in California. The planners envisioned that youth will do all the planning, research, and implementation of forest management activities. From this, youth will learn leadership and educational skills to pass on their knowledge.

The second poster, "**National Forest Resource Game for Ecosystem Management"** by Brent H. McBeth, described a computer natural resource game. Many years ago, the Forest Service produced a cardboard game entitled Woodsy's Natural Resource Game. This material was distributed for home and small group environmental education purposes. The game consists of a game board that has land types as spaces around the board. These include rangelands, timbered mountains, rivers, streams, deserts, wetlands, grasslands and others to represent the full spectrum of lands that are managed by the USDA Forest Service. The playing cards represented land uses, from camping to harvesting timber for houses. Surprise cards had statements that begin with "Act of Nature," "Act of Man," and "Act of Congress" and instruct the player to add or remove use cards. Each player is dealt a hand of "Use" cards. The objective of the game is to properly place the "Use" on a compatible land type as you move around the board in turn. The first player to successfully place all of the "Uses" wins. Other players may challenge the placement of a "Use" card on any land type. A computer version of this game is being developed. The computer game will be accessible for home and public school use to teach sound ecosystem management principles of land use and stewardship.

The third poster, "**History of the Trabuco District"** by Judith L. Behrens visually portrayed historic land use ethics of this Ranger District of the Cleveland National Forest in California. The poster emphasized the cause-effect processes that influenced historic land management practices. The photographs and narrative summaries focused on the impacts of early users and demonstrated that land use ethics in the "good old days" were not necessarily positive from an environmental or ecological standpoint.

Partnerships

Two posters described partnership activities. The first, **"Look What's Blooming on the Mt. Baker-Snoqualmie National Forest"** by Laura Potash and Penny Falknor was a visual display celebrating wildflowers. Celebrating Wildflower events are largely educational, emphasizing wildflower appreciation and conservation by the public. In 1992 the Mt. Baker-Snoqualmie National Forest cooperated with 22 businesses and community groups in creating a beautiful "Celebrating Wildflowers" quilt; hosted a wildflower festival; produced 15 "Look What's Blooming..." table top displays; and produced 10,000 copies of a "Celebrating Wildflowers!" newsletter. The program was expanded in 1993 with a full day wildflower festival in Darrington, Washington. The program was expanded again in 1994 with a 2-day festival, development of a native plant school curriculum, and 20,000 copies of the "1994 Celebrating Wildflowers!" newsletter.

The second poster, "**Puget Sound Eyes on Wildlife—A Watchable Wildlife Program,"** by Mary Sagal and Charlie Vandemoer described a partnership between the Mt. Baker-Snoqualmie and Olympic National Forests, the Washington Department of Wildlife, and the Pilchuck and Black Hills Audubon Society Chapters. Goals of the program were to promote the protection of wildlife and its habitats in both forests; provide enhanced opportunities for all people to view wildlife and wildlife habitat while at the same time protecting this resource; promote learning about forest wildlife and its habitats needs; develop broad public support for forest practices that maintain healthy ecosystems for all forest wildlife; and establish internal and external partnerships that foster a sense of ownership in the use and management of National Forests.

The Urban/Wildland Interface

Two posters examined issues in the urban-wildland interface. The first, **"Emerging Challenges to Natural Resources: Keeping the 'Wild' in Wilderness"** by Lee DiGregorio and Sue Zahn, describes the San Mateo Canyon Wilderness (SMCW) on the Cleveland National Forest in southern California. The SMCW contains 40,000 acres nestled within the Santa Ana and Santa Margarita Mountains. Primary features of the SMCW are the many canyons that support intermittent and perennial streams that support a wide variety of riparian vegetation. Located within a 1-hour drive from the densely populated cities of Los Angeles and San Diego, this island of Wilderness is surrounded by encroaching residential neighborhoods and urban growth. Primary management challenges are related to easy access to the Wilderness, ever growing conflicts among our visitors, and a general lack of understanding of wilderness ethics by the public. The poster summarizes the effects of urban pressures and the emerging challenges to manage the natural resources while resolving conflict issues among users.

The second poster, "**Fire Managers Must Talk With People"** by Arthur W. Magill, examined fire-related issues in the urban-wildland interface. Managers have repeatedly stressed the need to avoid building with flammable materials and landscaping with fire-prone vegetation yet residents continue overlook these warnings. Several problems may prevent managers from achieving their fire management goals. Communicating with homeowners is challenging; professionals in the building trade build to satisfy the desires of homeowners; community plans frequently do not address the interface fire issue; and fire managers do not spend enough time dealing with the public. Some barriers may be removed if fire managers overcome their reluctance to public involvement and become leaders in interpersonal communication. This could be achieved

in part by training in the social sciences that emphasizes interpersonal relations, and communication strategies.

Economic Issues

Two posters examined economic issues. The first, "**Natural Resources in the Invisible Economy of Rural New England"** by Ron Glass, Thomas More, and Rod Zwick examined the nature and magnitude of the invisible economy in Vermont's northeast area. This rural area is faced with economic loss of traditional resource-based industries and is characterized by high unemployment rates and low household incomes. The data, based on a mailed survey, suggests that residents are quite active in resource harvesting activities. The study results also suggest that the "invisible economy" is a highly significant factor in the lives of many rural residents. Knowledge of this economy may be of value for resource management decisions.

The second poster, "**The Role of Natural Resource Managers In International Tourism and Rural Development"** by Arthur W. Magill, examined the economic potential of regional complexes. The United States had a service trade export surplus of $31.7 billion in 1990. Tourism is the largest category of service exports, and foreign tourism accounted for a surplus of nearly $2 billion in 1990. Wildland areas of the United States are important destinations for international visitors, but little is known about these visitor's use of wildlands, their contribution to local economies, or their influence on the service export surplus. The surplus might be increased if resource agencies encouraged international visitation to wildlands. This poster describes how lesser known wildland attractions can be packaged to develop regional complexes to attract more tourists than the attractions may draw alone. It suggests that increasing foreign tourism may provide more dollars to support rural community development, to bolster sagging rural economies, and to reduce the United States trade deficit. Resource managers are encouraged to overcome their reluctance to public interactions and assume the leadership for building an international tourism strategy for wildlands.

Wednesday Evening Session

Simulated Field Trips

Chair: Linda Hecker
USDA Forest Service

Simulated Field Trips

Deborah Chavez, Compiler

The Simulated Field Trip session offered resource managers an opportunity to "show" Symposium attendees their resource areas. One presentation had a national focus, two examined recreational and cultural issues in Alaska, another focused on management of a National Forest in southern California, and the last presentation looked at recreational opportunities at a National Forest in Washington. The session was moderated by Linda Hecker, USDA Forest Service.

National Focus

Joe Meade's **"Universal Design and the Outdoor Recreation Environment"** simulated field trip was designed to raise audience awareness of access to outdoor settings. It addressed national efforts to establish universal design guidelines for outdoor recreation settings. The main premise behind the development of these guidelines was the interrelationship of recreation settings, customer expectations, and levels of accessibility. Dynamic slides illustrated the concept of universal design, which is to provide facilities, programs and services that foster a sense of dignity, independence, and social integration. A diversity of visitors, activities, and recreation settings (i.e. Urban/Rural, Roaded Natural, Semi-Primitive, and Primitive) were shown, including people in wheelchairs rappelling from rock cliffs, anglers, campers, hikers, and boaters. Part of the simulated field trip included exposure to new, state-of-the-art ultra light outdoor sports equipment for individuals with mobility disabilities. The presentation challenged participants to promote access for all to America's Great Outdoors.

Alaska

Two simulated field trips offered views of resource use in Alaska. Geneen Granger's **"The Many Cultural Uses of the Alaska Resource Area"** looked at issues related to culturally specific uses of natural resources in Alaska. Patrick Reed, F. Clark, L. Ziemann, and S. Randall's **"Born of Ice: A Simulated Field Trip Through the Chugach National Forest"** focused on the Chugach National Forest in Alaska. This Forest is the Nation's northernmost and the second largest in the National Forest System. Its unique recreation opportunities and settings draw visitors from around the world and accommodate more than 16 million visits annually. Here Forest visitors may see glaciers and watch whales in the beautiful Prince William Sound, visit the rich wildlife habitat of the Copper River Delta, and fish the rivers and coasts for four species of salmon. They may camp, hike, hunt, kayak, downhill and cross-country ski, study the natural and cultural history of Alaska, or just relax--all amid spectacular mountain and coastal scenery. Managing the recreational opportunities in the Chugach is truly a challenge, due to factors such as the Forest's size and remoteness, Federal statute provisions, the Alaskan transportation infrastructure, changing land ownership status, the growth of all forms of tourism, traditional and subsistence resource use issues, and even oil spills.

California

Joan Wynn's **"Armchair Tour of the Cleveland National Forest"** focused on the many opportunities presented on the Cleveland National Forest in southern California. The National Forest covers 600,000 acres in San Diego, Riverside, and Orange Counties and many management issues are related to the proximity to urban areas. The land is predominantly chapparal, with steep canyons and intermittent streams, oak woodland meadows, Jeffrey and Coulter pine stands, and peaks up to 6,140 feet in the Santa Ana, Palomar and Laguna mountain ranges. Employees there manage campgrounds, other recreation sites, four wildernesses, wildlife habitat, range, watershed and soils, timber, fire prevention and protection, cultural resources, lands and special uses, communication sites, roads and trails, and more. Support programs include budget and fiscal management, personnel, civil rights, health and safety, fleet and facilities maintenance, computers, communications, and public affairs. Attention is currently focused on managing ecosystem diversity and valuable open space in southern California, protecting threatened and endangered species, and managing some of the last remaining large parcels of land used by wildlife. The increasing population in San Diego, Orange, and Riverside counties means a growing demand for recreation opportunities such as picnicking, camping, hiking, riding bicycles, and off-road vehicles.

Washington

Sue Lampe's **"Defining the Human Dimension in the Lewis Integrated Resources Analysis Project"** simulated field trip focused on the Mt. Adams Ranger District on the Gifford Pinchot National Forest in Washington. The Forest is conducting an Integrated Resource Analysis (IRA) on an estimated 21,000 acre planning area. Within the IRA area, about 44 miles of road are closed, restricting motorized vehicle access into about 60 percent of the IRA area. This area is commonly referred to as the Lone Butte Wildlife Emphasis Area and is allocated to several resource uses, including wildlife, recreation, and timber harvesting. The closure was implemented in 1988 with the purpose of

reducing harassment of elk from vehicle traffic. Since then, conflicting issues have resulted over resource use of the area. Timber industry is concerned that the closed area restricts land availability, making the 12,000 acre unavailable for timber harvest. Many recreationists perceive the area to be a wildlife and recreation area where timber harvesting would not occur unless it benefits wildlife habitat. The IRA process allows for the analysis of landscape functions for organisms which "use" the landscape, including humans. The human "dimension" includes spiritual, ethical, cultural, historic, esthetic, economic, and social concerns. Often, the human dimension of project planning has stopped at the analysis of its ability to provide timber or aesthetic values. The aim of the IRA will be to incorporate more information on the human components of the landscape, and then in turn contribute to a model that can be used Forest-wide in other IRA's.

Third Concurrent Session: Friday Morning

Pilot Projects and New Paradigms

Chair: Anne S. Fege
USDA Forest Service

Getting Alice Through the Door: Social Science Research and Natural Resource Management[1]

Alan W. Ewert[2]

Abstract: A number of trends are altering the role of science in natural resource management. These trends include the growing political power of science, the recognition that most natural resource problems are extremely complex and not prone to uni-dimensional solutions, and the increasing need to integrate an understanding of the human component into the planning and decision-making process. A sampling of the various roles of the social sciences and the types of questions amenable to social science are examined.

In Lewis Carroll's *Alice Through the Looking Glass*, Alice espies a strange-looking rabbit, follows it down a hole and ends up trying to get through a door that is much too small for her. In some ways we are faced with a similar analogy in natural resource management in which we have been confronted with a creature called heightened public awareness and interest in the management of our natural resources and followed that creature along unfamiliar terrain--public involvement in decision-making—and have come to a door that is difficult for us to get through—actually integrating the social sciences into policy and decision-making.

Ascertaining the management preferences of a small segment of a population is a much easier task than understanding the overall human dimensions of natural resource management. Sometimes it seems that the prime directive of natural resource agencies has shifted from "what can we do for the public" to "what can the public do to us?" Moreover, from a national perspective, questions such as value (Bengston 1993, Brown 1984), the impact of attitudes on behavior (Vincent and Fazio 1992), and the relationship between environment usage and the impact upon social structures (Force and others 1993) are not always easy to ascertain from local-based public meetings and issues. Many of the problems society now faces in the management of its natural resources transcend easy solutions because they are global in nature, represent a longevity of neglect, are cross-cutting in boundaries and disciplines, involve damage that, in some cases, is irreversible and requires long-term and expensive solutions. Landre and Knuth (1993) argue that the success of groups, such as public advisory committees, often depends on the situation and composition of the community, and as such, is prone to a great deal of variance in both process and outcome. Therefore, a re-examination of the role of social science is needed to effectively develop natural resource policy and management.

This paper reviews some current trends surrounding science and natural resource management, discusses some potential roles for the social sciences and proposes a structure in which to "house" social science research in a natural resource agency, such as the USDA Forest Service.

Current Trends

Natural Resource Issues

The number of situations now confronting natural resource management far exceed the capability of any one scientific group or governmental organization to adequately deal with these issues. These issues include the following:

- Environmental degradation
- Global deforestation
- Global climate change
- Loss of biological diversity
- Changing demands for forest products
- Wilderness preservation and the proper role of reserve areas
- Sustainable production and harvesting practices
- Forest health
- Conflicting demands from society for preservation, recreation and commodity production

Because of the number and complexity of these and other issues, science is gaining political power (Dietrich 1992). This political power has increased because of the relatively objective nature of the research endeavor; the different scales of effects (e.g., site, forest, landscape, ecosystem, and global) that result in management solely based on intuition and past experience; and the overall lack of comprehensive data bases. In the latter case, the lack of comprehensive data sets allows the manager and policy-maker to develop premature closure on specific issues. For example, the belief that overharvesting is simply a result of leveraged buyouts and economic incentives of the timber companies tends to oversimplifies a complex situation.

As a result of this incomplete information, scientists increasingly are asked to provide a foundation for the development of policy by defining the various alternatives. This implies that research serves an "up-front" role in decision-making that is used to develop policy rather than support for a decision already made. Research must also provide monitoring information about the outcomes and quality

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, CA.

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of the decisions and policies implemented, and maintain impartiality despite the pressure from the political process. And finally, another problem with the current role of research is the development of multi-approach and multi-discipline predictions rather than uni-dimensional solutions.

Values

A second trend is the growing diversity of values human beings place on natural resources. This diversity is not only situational but also a function of space and time. For example, to a person building a house, the wood products and price of those products are of critical importance. Most people, however, only build one or two houses in our lifetime and in the interim, other values take precedence in our value system. These other values might include forest preservation in order to escape the noise and congestion of the urban environment or cherishing the recreational activities offered by the forest environment. Others might value large wilderness landscapes as a way for the experience of adventure and challenge.

Westman (1977) has previously distinguished between the goods and services produced by the natural environment. Goods include marketable products such as timber or forage or even the use of the environment for recreation. Services, on the other hand, are the functions of an ecosystem and how these various functions interact. These services include the absorption and breakdown of pollutants, the cycling of nutrients, and the fixation of solar energy. One example of this is the buffering effect of coastal wetlands.

Juxtaposed to goods and services is the concept of values. A number of authors have identified a wide range of values associated with the natural environment (Roston 1985). These values include scientific, therapeutic and recreational entities (Ewert and Carr 1993). Associated with all of these values are differing levels of potential conflict (*table 1*). For example, aesthetic values have a high potential for conflict because of the individual nature of aesthetics. One person's beautiful setting is another person's boring scene.

Human Impacts

A third trend surrounding the interface of science and management is the growing omnipresence and omnipotence of human impact upon the earth's landscape. There can be

Table 1—*Selected values associated with wildland areas*[1]

Values	Level of Potential Conflict	Comments
Scientific	Low	Not well advanced; loss of wildlands is outstripping the ability to collect information.
Therapeutic	Low	Many acknowledge the cathartic and rehabilitation qualities of wildland environments.
Ecological/bio-diversity	Low	The importance of saving gene pools for future generations is widely recognized.
Recreation	Medium	Can conflict with other values such as scientific; as a highly personal quality of life issue, these values often invoke high levels of emotion.
Symbolic/cultural identity	Medium	Symbols from wildland areas such as the bald eagle or bison represent certain societal and national values (e.g., freedom, strength, "rugged individualism").
Aesthetic	High	The intangible and subjective nature of these values often lead to disagreement as to worth and value.
Inherent worth	High	For many, wildlands have an intrinsic value just being there. Others feel that wildlands should be more "productive" for the good of society.
Market	High	Usually are extractive and compete with most other values. This exclusivity creates high levels of emotion and conflict.

[1]Sources: Roston (1985); Ewert(1990).

little doubt that few landscapes or sites now exist free from the influence of humans. Most scientists agree that the net loss of the world's forests due to human activity since preagricultural times is about 8 million square kilometers or an area about the size of the continental United States. Of this amount, more than three-quarters has been cleared since 1680. In addition, the annual human withdrawal of water from natural circulation is now about 3,600 cubic kilometers or an amount exceeding the volume of Lake Huron. In 1680, the annual withdrawal was less than 100 cubic kilometers. A number of other statistics indicate the decline of global and environmental health (Postel 1992).

Each of these trends suggests that *people need to be considered in any long-term management strategy.* The research community would be challenged to describe any major scientific advancement that ultimately did not involve a human dimension. Reidel (1992) poses the idea that in natural resource policy, perhaps management has been asking the wrong questions. The research community could also be asked the same question. What then would be the right questions and how can information be generated toward answering those questions?

The Role of the Social Sciences in Natural Resource Decision-Making

Bormann (1993) suggests that concepts of the environment such as sustainability, forest health, biodiversity, and ecosystem management are essentially human constructs that serve as expressions of human values. If we believe that natural resource management is one manifestation of the society in which we live, what type of scientific structure must be in place to provide the information necessary for effective natural resource decision-making? Machlis (1992) observed that biologists, ecologists, and other natural science professionals are now faced with a hard reality: ultimate solutions to natural resource problems are related to social, cultural, economic and political systems--the very systems that are the focus of the social sciences. While, traditionally, the social science disciplines have included political science, geography, anthropology, sociology, psychology, economics, and philosophy, more recent areas of inquiry could include the recreation and leisure sciences, education, demography, and social ecology.

What is the role of the social science disciplines in the formation of natural resource policy? Global climate change presents one scenario that is both timely and of profound importance. The irony in this example is that while the issue has primarily been defined in terms of meteorological and chemical processes, the causes are almost exclusively human. Indeed, Maloney and Ward (1973) suggest that most environmental crises facing our society and the world are really "crises of maladaptive [human] behavior." For instance, the various social sciences could affect the development of a comprehensive solution to any emerging changes in the global climatological systems:

- *Anthropology*—What have been the patterns of human adaptation in response to historical changes in the climate? Did communities develop large scale adaptive methodologies, migrate, or simply die-out? Knowledge of our ancestors' reactions may provide some insight into about the species general behavior in this type of crisis.
- *Political Science*—What political and/or governmental institutional structures have been effective in producing global awareness, monitoring, and enforcement procedures? As a global community, we already have some examples of international discussion and action on far-reaching environmental issues such as nuclear weapons, regulating the use of the oceans, and international cooperation on issues such as illegal trade of threatened and endangered species (Feldman 1991).
- *Economics*—What mixes of economic incentives would be most effective in altering behaviors to produce a more environmentally-friendly set of actions?
- *Education*—What educational vehicles would be most influential in modifying the behaviors of individ uals? What will be the most effective mechanisms whereby methods of education can be translated into behaviors and knowledge that are not detrimental to the global environment?
- *Psychology/Sociology*—How can the individual and the society be more responsible in modifying their behaviors to lessen the overall impact upon the natural resource base? What specific attentional cues "tell us" that there is a threat to global health?
- *Recreation and Leisure Sciences*—Because outdoor recreation is often the primary avenue from which a large segment of the population experiences a direct contact with the natural environment, can the outdoor recreation experience be managed to increase the individual's sensitivity and willingness to act environmentally-conscious (Ewert, 1991)?

A growing set of literature now addresses the need to integrate the social, physical, and biological sciences (Heberlein 1988). The fact that our research community has failed to do so points to a message of inertia and lack ofwillingness on the part of the scientific institutions we have developed. Holden (1988) has argued that: The social sciences have lagged far behind in assessing the interactions between physical changes and human activities. Far more is known about the processes of global warming, deforestation, resource depletion, and pollution than about the processes of the human institutions that create these effects.

However, merely rallying against the status-quo can ultimately be counterproductive. As we seek to bring about a greater awareness of the need for the social sciences in the context of natural resource research and decision-making a number of points should be considered (Machlis, 1993):

- Include incentives for the integration of the biological and physical sciences such as competitive grants, research

proposals and workshops. These could frame the questions in such a way as to be of interest to the other sciences. For example, identifying the inelasticity of entrance fees at a particular location could also include the anticipated physical and biological impacts upon the resource based on the different use levels.

- Social science research programs need to be multi-scale including individuals, groups, communities, landscape and counties (human-equivalent landscape level), ecosystems, biomes, and global systems.
- Where possible, recreation and similar disciplines should be linked with the mainstream social science literature. Failing to do so tends to marginalize and downgrade the information our scientists generate in the eyes of other disciplines and the courts.
- From a funding agency perspective, design our cooperative agreements to meet natural resource management needs, both in terms of the actual science but also with respect to the overall visibility of the research. In addition, priority should be given to cooperative agreements that incorporate a consortia of universities and other research institutions in order to bring a variety of ideas and approaches to the issue under study.
- Increasing our sensitivity about our managers and public who are not always cognizant of the human dimensions of natural resource management. The social sciences need to focus on defining the human dimension in natural resource management in addition to identifying the potential research questions.

Although this list is incomplete, the emerging scientific challenge is to incorporate the social sciences into the policy and decision-making agenda because they bring a scientific focus on the human dimensions aspects of natural resource use.

A Proposed Structure for Doing Social Science Research

There is no prescription for success in any scientific endeavor. Any structure or "housing" arrangement has its drawbacks as well as advantages. Stern (1993) suggests some overriding and compelling questions to consider about the role of social science research in natural resource management. These questions include:

- What forces drive the types of human activities that contribute to environmental degradation?
- What are the mechanisms through which humans create environmental change?
- How and in what ways does this environmental change effect the things people value (e.g., agriculture, coastal sea-levels)?
- How do these changes impact social organizations such as governments, environmental/citizen groups and communities?

In addition to these macro-level questions, the actual mechanics of social science research and natural resource decision-making will require that social science expertise be available for a variety of micro-level, shorter-term and localized research needs, such as the study of the socio-demographics of the visitors to a particular location or how changes in harvesting have impacted specific communities.

In the case of social science research and global environmental change, Stern and others (1992) have recommended that the Federal government join with private funding sources to establish three to five national centers for research on the human dimensions of global change. This scenario consolidates social science efforts of the USDA Forest Service into two social science centers.

One center would be based in the west and the other in the east. Each center would have the dual responsibilities of providing contracted service to National Forests, districts and other research units in addition to conducting research about theoretical social inquiry. A number of pervading issues suggest that each center should be located on or close to universities that have strong social science programs. Research would be conducted through center-directed, investigator-initiated RFP's (Requests for Proposals), fellowships, or cooperative agreements. In addition, it would be of paramount importance for these centers to develop an extensive network of social scientists from a broad-spectrum of disciplinary expertise to study a particular issue.

Conclusion

The issues facing the social sciences now exceed visitor and experience characteristics and often include the very fabric of many of our social systems. Issues such as global climate change, the spotted owl, and old growth remind one of the Yukon traveler in Jack London's *To Build a Fire*. The man was wise in the ways of the world but not in their significance. He never "saw" the clump of snow hanging from the tree, directly over his fire; the clump of snow that ultimately caused his demise. Our failure to include the human component in our environmental decision-making, at the very least will increase the probability of making poor decisions as a result of incomplete information. People make the problems but they also create the solutions. Fortunately, at this point in time, we still have a choice about what the future holds for some of our natural resources and perhaps, even for us. However uncomfortable the fit, integrating the social sciences with the rest of natural resource decision-making is a door we need to pass through.

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ACCESS America's Great Outdoors: Public Lands Are for Everyone![1]

Joe Meade **Gregory J. Lais[2]**

With nearly 200 million acres of majestic mountains, deep rugged canyons, pristine high lakes, wild rivers, immense forests, and open meadows, the National Forest System provides the largest variety of outdoor recreation opportunities in the United States. Federal lands encompass a combined total of nearly one-third of this country.

Most outdoor recreationists have the freedom to choose the type of recreation activity they want, the setting they want, and the personal level of challenge they desire for a quality recreation experience. People are drawn to the National Forests for different reasons. Some seek the solitude of the primitive backcountry; others, a rustic campsite nestled in the woods; and others, a social setting with convenient facilities. **These visitors have a choice.**

Yet, for millions of Americans, choices for a desired recreation experience are limited. Historically, recreation facilities and programs were created by traditional design for the "average" person, which usually excluded people with disabilities. Thus, many people regard the great outdoors as inaccessible.

Recreation uses and customer expectations have changed. Recreationists, land managers, and designers are recognizing that all people should have the opportunity to participate in outdoor recreation. In response to this expectation, Play and Learning in Adaptable Environments, Inc. (PLAE)—a multi-disciplinary, non-profit organization—and the USDA Forest Service have developed *Universal Access to Outdoor Recreation: A Design Guide*. This state-of-the-art design guide is breaking new ground in the area of accessibility by focusing on integrating *universal design* into all outdoor recreation environments (PLAE 1994).

Universal Design Removes the Barriers

Universal design is a relatively new approach that considers the needs of all users—children, the elderly, and people with mobility, sensory, cognitive, and temporary disabilities. In this approach, aspects and elements of accessibility are incorporated in the earliest planning stages and are designed to blend with the natural environment. The goal of universal design is to develop facilities, programs, and services that foster a sense of dignity, independence, and social integration for all visitors.

The philosophy and guidelines presented in *Universal Access to Outdoor Recreation* relate customers' expectations and choices with accessibility. Just as people seek different recreation opportunities and experiences in the National Forests, their expectations of accessibility also vary. To ensure that a diversity of recreation settings and customer expectations are considered, the USDA Forest Service and other natural resource management agencies use the *Recreation Opportunity Spectrum* (ROS), an innovative recreation management and planning tool that divides outdoor recreation settings and levels of accessibility into four broad categories: urban/rural (easy), roaded natural (moderate), semi-primitive (difficult), and primitive (most difficult).

Are Accessibility and Protection of the Natural Environment Mutually Exclusive?

Because urban/rural settings are generally highly developed, people expect an easy level of accessibility to facilities and programs, such as visitor centers and its displays and programs. Trails in such settings are likely to be paved, with only gentle slopes. Developments such as fishing sites and scenic overlooks would include handrails designed for both safety and accessibility.

Roaded natural settings are somewhat less developed than urban sites. People visit these areas expecting a moderate level of accessibility. Rustic campsites nestled in the woods may have leveled surfaces; instead of asphalt, campers might find compacted gravel surfaces. Trails, too, may be of natural compacted material, and slopes may increase slightly. Handrails at fishing sites may be replaced by natural materials such as boulders, giving anglers a greater sense of adventure and of being "out on the water."

Semi-primitive settings seldom offer developed features, and expectations of a difficult level of accessibility prevail. Campers are usually left to their own devices to find a relatively flat piece of ground for their tents. Trails in rugged terrain are usually narrow and steep. Accessibility is a secondary consideration. Scenic views and fishing sites occur as part of the natural environment.

Primitive settings preserve the natural environment and accessibility standards are often not applicable because the primary concern is the sense of personal risk and challenge. As a result, people expect the level of accessibility to be the most difficult. People access primitive areas by various means, from canoeing and kayaking, to horseback riding and hiking.

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One important point to remember is that all developed structural elements—restrooms, water hydrants, picnic tables, and cooking units—will be designed to meet full accessibility standards at all sites.

Who Benefits?

More than half the American population will benefit from campgrounds, restrooms, trails, and other visitor facilities and programs that are designed with access for everyone:

- One in 5 Americans (43 million) experiences a disability
- One in 10 Americans (25 million) is temporarily disabled at any one time
- Nearly 1 in 3 older Americans (11.2 million of the 30 million people over age 65) has a disability.

In addition, if one family member cannot participate, most likely the entire family will be affected. So the initial figure of 43 million is actually just the beginning. Thus, the number of people directly benefiting from universal design can easily be multiplied three or four times.

What's on the Horizon?

In addition to facilities and activities, universal design should be integrated into all programs and services. This integration will benefit all ages, abilities and cultures, as well as increase customer satisfaction. Individuals visiting an interpretive center or a visitor station expect and desire equal access to the information and services offered there. Information should be available in a variety of formats: visual, audible and tactile. Programs should be offered with options that allow for the greatest range of participation.

The need for programmatic access underscores the importance of ensuring that service providers are sensitive to the needs of persons with disabilities and understand the vital importance of providing this access. Training and exposure to the issues and concerns of universal access is critical. Universal design improves the program and service for everyone.

Collaboration

American institutions are being encouraged and compelled to combine resources with other agencies for collaborative projects. The USDA Forest Service has developed several partnerships related to universal access which demonstrate that the whole is greater than the sum of the parts. One example of this is the Universal Design Short Course. For this partnership, the Forest Service formed a team with Wilderness Inquiry, Inc., a non-profit travel organization serving people with and without disabilities on wilderness adventures throughout the world, and the University of Minnesota, a land-grant university. The short course offered an intense exposure to universal design and presented guidelines on integrating it into the outdoor recreation environment. By acquiring personal experience, course participants developed the understanding that universal design is the only design approach that makes sense in a democratic society.

The Forest Service has also established a partnership with Wilderness Inquiry, Inc., and America Outdoors, an association of trade outfitters. Through this challenge cost-share agreement, the outfitter industry and the Federal public land management agencies have developed a handbook to assist outfitters and guides in providing universal access to their programs and services (National Council on Disability 1992).

Currently the American Ski Federation (AFS) has collaborated with the USDA Forest Service to develop access guidelines for the ski industry. This effort reflects not only a legal response to requirements of the Americans with Disabilities Act, but also the industry's view that providing accessible facilities makes good business sense. Developing guidelines together will create workable solutions that focus on quality customer service.

Quickie Designs, a manufacturer of ultra-light outdoor recreation sport equipment for people with mobility disabilities, has formed a partnership with the USDA Forest Service and Wilderness Inquiry's state-of-the-art technology for accessing America's Great Outdoors.[3]

These examples of partnerships underscore the fact that agencies do not need to have or develop expertise in every area. However, they do need to know where to find specific skills and how to develop effective partnerships that will make the best use of that expertise.

Accessing the Wilderness

Another partnership involving the National Council on Disability and Wilderness Inquiry Inc. produced a Congressionally mandated report on *Wilderness Accessibility for People with Disabilities.* This study, presented to the President and Congress, focused on lands managed under the National Wilderness Preservation System (NWPS). The report concluded that people with disabilities were as concerned with protecting the integrity of the wilderness as non-disabled individuals; accessibility should be a secondary consideration to the preservation and protection of the environment in the NWPS.

The report also contained several recommendations to Congress related to the need for adopting policies that are consistent with Section 507c of the Americans with Disabilities Act, such as developing guidelines for special permits and modifications that are consistent with the Wilderness Act; conducting trainings for NWPS managers to raise awareness of disabilities issues and use of NWPS by people with disabilities; and providing information to the

[3]Trade names and commercial enterprises or products are mentioned solely for information. No endorsement by the U.S. Department of Agriculture is implied.

public about recreation opportunities in the NWPS for people with disabilities.

A significant majority of persons with disabilities surveyed in the report enjoy the NWPS. Further, 76 percent of those surveyed do not believe that the restrictions on mechanized use stated by the Wilderness Act diminish their enjoyment. People with disabilities visit the NWPS in the same ways and for the same reasons that people without disabilities visit the NWPS.

Conclusion

The ideals we have described are based on broad input from consumers of accessible outdoor recreation. However, much additional research is needed. Two critical issues that warrant further study are: the social expectations of consumers of accessible recreation in the diversity of recreation settings; the energy consumption and physical capabilities required to utilize the universal design guidelines being established for outdoor recreation environments.

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A Field Critique of the 3-Year Pilot Test for the CUSTOMER Recreation Visitor Survey[1]

Patrick Reed Gwen Hirsch[2]

Abstract: From 1990 to 1992, the USDA Forest Service implemented a 3-year pilot test of CUSTOMER, a standardized nationwide recreation visitor survey. Intended as a partnership between the agency's Research and National Forest System branches, CUSTOMER has been a limited success to date. By the end of 1993, nearly 20,000 recreation visitors had been interviewed in more than 35 different sites, including 15,800 National Forest visitors from Alaska to Puerto Rico. Resulting data have not been fully analyzed to date nor been made available for recreation researchers, managers, or the general public. The results of a telephone interview of past CUSTOMER users is presented regarding their evaluation of the recreation visitor survey. Inherent conflicts within the multiple goals of CUSTOMER are examined, as well as insufficient funding and sponsorship, methodological compromises, and availability of alternative means for data collection that may be curbing a wide-spread demand for the survey in its present form. Six general recommendations are offered to help improve identified problems in CUSTOMER.

The need to better understand the recreation use and users of the National Forest System has been evident since the passage of the Forest and Rangeland Renewable Resources Planning Act (RPA) in 1974 and the National Forest Management Act in 1976. Since the passage of these acts, the practical and theoretical goals of studying recreation have evolved from the collection of relatively simple quantitative measures to more complex qualitative measures of user behavior (Manning 1986). As suggested in the 1989 USDA Forest Service RPA Assessment, and by others including the Office of Technology Assessment (1992), further effort is needed to collect comprehensive recreation visitor information that will enable recreation providers to improve the quality of recreation planning and management nationwide (Cordell and others 1990). The importance of studying Federal "customers" was most recently reinforced in an Executive Order signed by President Clinton on September 11, 1993, which charged all executive departments and agencies (including the Forest Service) with "ensuring that the Federal Government provided the highest quality service possible to the American people" (Clinton 1993). Specifically, the Order called for agencies to "survey customers to determine the kind and quality of services they want and their level of satisfaction with existing services."

One of the more ambitious efforts in recent years to improve understanding of recreation visitors nationwide, the Public Area Recreation Visitor Study (PARVS), was begun in 1985 by the USDA Forest Service's Southeastern Forest Experimental Station (SEFES). That Station has proposed to supersede PARVS by the more comprehensive Customer Use Survey Techniques for Operation, Management, Evaluation, and Research (CUSTOMER) recreation survey. In response, the Office of Management and Budget (OMB) issued approval in 1990 for a 3-year pilot test (1990-92) of CUSTOMER to evaluate the methodology and potential effectiveness of CUSTOMER. During the past 3 years, CUSTOMER has been one of the few large scale studies of the Federal land recreation visitors and the only one to be conducted by a Federal agency.

This paper offers a field-level review and discussion of the 3-year pilot test of the CUSTOMER recreation visitor survey. After the achievements of CUSTOMER during the 3-year pilot test are summarized, the results of a telephone interview of personnel from sites that have utilized CUSTOMER are presented. Finally, three general issues associated with the CUSTOMER survey are discussed, as well as six recommendations for improving CUSTOMER (or other subsequent recreation survey projects).

CUSTOMER Achievements and Current Status

During the 3-year pilot test (and 1993) on selected Federal lands nationwide, CUSTOMER was successful in generating a wide range of recreation visitor data using a combination of on-site interviews and mailback question-naires. As of December 31, 1993, CUSTOMER had been implemented at more than 35 sites (defined as a unique combination of a specific administrative unit and recreation season) in 17 States, including 28 sites administered by the Forest Service, 7 by the USDI Bureau of Land Management, and one each by the USDI National Park Service and Tennessee Valley Authority. (CUSTOMER has also been used as a component of several other economic value studies around the Nation.) More than 19,850 recreation visitors were interviewed on site, with 43 percent also completing and returning one or more additional mailback surveys. Some 80 percent of the total interviews (15,800) occurred within National Forests in all major geographic regions although the regions were sampled disproportionate to the amount of recreational use they received (USDA Forest Service 1993). Within the National Forests sampled, visitors engaged in all major categories of recreation activities (as defined by the Forest Service's RIM [Recreation

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, CA.

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Information Management] and RRIS classifications) were interviewed, although again, disproportionate to use.

CUSTOMER on-site interviews yielded information on selected demographic characteristics of visitors, including respondent sex, age, race/ethnicity, education level, employment, physical and learning impairment, household type, household income, group type, and group size. Selected trip characteristics of respondents included residence or market area; trip purpose; information sources for trip planning; primary destination; repeat versus first-time visitation; distance and hours travelled; length of stay; nights on site; visits during last 12 months; year of first visit; reasons for choosing a site; and identification of substitute sites. Finally, the on-site interview collected visitor attitudes about selected site-specific recreation planning and management issues.

Following the on-site interview, visitors were given mailback questionnaires asking them to rate the importance of generalized setting attributes for both ideal settings and those at the site. Visitors also rated their satisfaction with those same attributes. In accordance with the work of Martilla and Hames (1977), importance and satisfaction ratings were subsequently combined to suggest appropriate general management responses. An optional second mailback questionnaire captured visitor trip and equipment expenses that could be utilized in the IMPLAN economic input-output model to indicate the economic impact of recreation use on surrounding counties.

A Field Evaluation of CUSTOMER

Despite the cost and amount of effort involved in the development and application of CUSTOMER during the 3-year pilot test, to date the survey's implementation, effectiveness, or use by the sites that have implemented CUSTOMER have not been systematically evaluated. Accordingly, for this paper one or more representatives from each site that had contracted for CUSTOMER during its 3-year pilot test were interviewed over the telephone by the authors between December 1993, and January 1994. The purpose of the interview was to evaluate CUSTOMER based upon the experiences of the sites. Two types of site representatives were defined and contacted: (1) "planners," or those involved in initiating and structuring the customer survey for the site, and (2) "users," or those who now apply the results of CUSTOMER data in the ongoing planning and management of the site. A total of 47 site representatives were identified and interviewed. (Four representatives had retired subsequent to their involvement with CUSTOMER and were not contacted.) The responses of each site representative were weighted equally in the analysis of the interview results although in several cases an individual was involved as both a planner and a user at the site, or was involved in multiple implementations of CUSTOMER.

The responses of planners and users were compared in order to detect differences in their expectations for CUSTOMER and its subsequent performance. And responses for the years 1990, 1991, and 1992 seasons were compared in order to recognize improvement or maturation of the CUSTOMER project. And the Forest Service was compared with other agencies in order to suggest whether CUSTOMER was found more or less suitable by Forest Service site representatives as a group.

Expected Use of CUSTOMER Data

Site representatives were asked to indicate whether they had expected to use CUSTOMER data for several advertised uses of CUSTOMER. The most expected and most frequently used application of CUSTOMER data reported was for uses associated with new investments and capital improvement projects (89 percent), followed by site planning (83 percent), and forest planning and plan revision (77 percent). The application with the least expected and actual use was training (17 percent). Other possible expected uses included marketing and publicity, environmental impact statements and assessments, congressional data requests, budgeting and staffing, and conflict resolution. Up to 35 percent of the site representatives reported that they had not yet had an opportunity or need to use the data for one or more of the expected purposes. Many expected that they would eventually use the data.

Usefulness of CUSTOMER Data

Site representatives were asked to rate 10 specific areas of CUSTOMER data in terms of usefulness for meeting their planning and management needs. Using a 5-point scale ranging from "very good" (5) to "very poor" (1), the highest ratings were given to visitor demographic profiles (4.2), trip profiles (4.1), and visitor setting preferences (4.1). The least useful data were associated with spending and economic impact (2.9). Other possible areas of data included activities engaged in, visitor setting satisfactions, values and markets, special issues, and willingness-to-pay. The mean ratings for several areas of information differed significantly ($p <= .05$) by agency and by year.

CUSTOMER Implementation

Using the same scale, site representatives were asked to rate how well nine different stages of CUSTOMER were implemented at their sites. Volunteer training and interviewing (4.2), pre-survey consultation (3.9), and on-site set-up and sampling (4.0) were most highly rated. The lowest rated implementation stage was post-survey consultation (2.4). Other implementation stages included final data report, presentation of results, mid-survey consultation, and contract administration. The mean ratings for several implementation stages were significantly different ($p <= .05$) by year, the highest ratings given to CUSTOMER implementation in 1991.

Future Use and Recommendation

Site representatives were asked if they would consider conducting another CUSTOMER survey at their site within the next 3 to 5 years. The most common responses were "No—no need to update data" (20 percent), "Maybe—survey funding is uncertain" (17 percent), and "No—would seek other sources for data" (15 percent). Thirteen percent indicated "No—not satisfied with CUSTOMER" and only 6 percent indicated "yes—satisfied with CUSTOMER." The frequency for the "No—not satisfied with CUSTOMER" response differed significantly ($p \leq .05$) by agency, with Forest Service site representatives less likely to be unsatisfied.

Most site representatives responded "Yes—without conditions or reservations" (47 percent) when asked if they would recommend CUSTOMER to other National Forests, parks, wildlife refuges, or Bureau of Land Management districts. Forty percent indicated "Yes—with conditions or reservations," but 13 percent responded "No—would not recommend CUSTOMER."

Comments

Site representatives were asked whether they had additional comments regarding CUSTOMER or suggestions for improving or changing CUSTOMER. The most common points expressed in the comments of the representatives included:

- A need and desire for social survey data on recreation visitors in general.
- A need for data that can address site-level planning and management problems and issues, as opposed to data structured for use in a national research database or national modeling efforts. This site-level data is without a doubt the reason that most sites became involved in CUSTOMER.
- A wide range of physical and social conditions and available management resources among sites, as will as analytical capability and sophistication among site managers. The implementation of CUSTOMER needs to be flexible to fit unique situations and available resources.
- Some of the most desired information, especially economic impact and market analyses, is also the least well developed in CUSTOMER in terms of its scope, comprehension, and applicability.
- One of the most often expressed complaints was that CUSTOMER did not also capture total use estimates as well as profiles of typical visitors.

Issues Facing CUSTOMER

As reflected in the responses from the telephone interview of site representatives, field-level support of CUSTOMER as it was implemented was less than unanimous. Not suprisingly, usage of CUSTOMER has declined since its peak year in 1991. In 1993, only six sites participated and, to date, only half that many expect to implement CUSTOMER in 1994. The apparent concern about CUSTOMER expressed in the interviews suggests that if CUSTOMER is to mature and thrive in the future as a corporate recreation visitor research tool at least three very much interrelated issues must be addressed: (1) the purpose of CUSTOMER; (2) the administration of CUSTOMER; and (3) the methodologies of CUSTOMER. These issues are easy to identify but will require some hard decisions and a full recognition of the implications and trade-offs of the choices made.

Purpose of CUSTOMER

CUSTOMER was implemented to serve multiple purposes, especially to aid National policy planning and National Forest-level management. Like its predecessor PARVS, which was one of the foundation databases used in the Forest Service's legislatively mandated 1989 RPA Assessment (Cordell and others 1990) and 1993 RPA Assessment update (English and others 1993), CUSTOMER was intended foremost to provide baseline and continuing data for RPA Assessment analysis of the outdoor recreation and wilderness situation in the United States. This purpose has dictated much of the structure of the CUSTOMER sampling methodology and survey questionnaires.

Another purpose of CUSTOMER was to provide visitor information to individual sites participating in the survey. Thus, in addition to information used in the RPA Assessment analysis, CUSTOMER also contained questions to help provide insight into managing recreation resources, including visitor reasons for choosing a site; visitor satisfaction with various site and management attributes; and up to a dozen unique questions developed in consultation with each site.

A third purpose was to develop a nationwide database that would be capable of providing a composite picture of recreation visitors at public recreation areas across the country. The data base would also be utilized to compare visitors of one site with those of other sites in order to help establish a frame of reference for interpreting results.

CUSTOMER most likely can serve only one master well. The multiple purpose intent of CUSTOMER has contributed to conflicts in its implementation and to some limitations in its usefulness for the RPA Assessment analysis of recreation and for the management of individual sites. For example, by virtue of its trying to assess comparable national trends, CUSTOMER questionnaires have purposefully retained some vagueness in question structure in order to be applicable at a variety of sites and for a variety of activities. This purposeful vagueness, however, may in turn increase confusion among visitors when responding to survey questions and among site managers interpreting ambiguous data results. Both tend to limit the specificity and usefulness of information needed for management at any given site. In addition, the number of questions whose primary usefulness is for RPA Assessment analysis modeling (and national database purposes) consumed most of the time it took to complete an interview. As a result,

few site-specific questions could be added to the questionnaire without the entire survey often requiring one-half hour or more to administer.

CUSTOMER sampling plans were structured around specific groups of recreation activities, preferably those that could be easily incorporated into RPA Assessment analysis modeling equations for set activity groups, rather than focal areas of activities. Site managers were encouraged (if not effectively restricted) to label and treat their recreation visitors as standard activity groups rather than as unique visitor groups with unique desires and needs. The sampling plans in turn relied upon a site manager's ability to estimate the number and distribution of recreation visitors by the standard activity groups. In many cases the site managers were unable to supply accurate estimates, which led to less effective sampling plans. More importantly, since it was not entirely random, sampling by activity group precluded the almost universally desired capability of estimating total recreation use.

Such limits on the usefulness of CUSTOMER data to sites has contributed to an annoyance among some site managers. Some consider that they have in a sense helped underwrite the cost of the RPA Assessment analysis out of their own forest budgets at the expense of gaining more reliable site-specific data.

CUSTOMER's multiple purpose nature has also affected the usefulness of the data for national database purposes as well. Because of the use of individual sampling plans and the self-selecting nature of participating sites, the ability to derive and validate weighting factors to proportionately weight site data for national aggregation has also been adversely affected. Finally, regardless of the reason, no national database has been made available to datenor have the summaries of individual results been compiled and published.

Administration of CUSTOMER

Developed within the Research branch of the USDA Forest Service Service, CUSTOMER was initially considered to be a research project. Thus, the development costs of the 3-year pilot test were primarily funded by the Research branch. Nevertheless, sites participating in CUSTOMER transferred funds to SEFES to help cover the cost of travel for consultation, developing sampling plans, providing and monitoring volunteer interviewers, data analysis, and report monitoring volunteer interviewers, data analysis, and report preparation. An average cost per site for implementing CUSTOMER was about $15,000, although some sites contributed as much as $100,000 for extended or multiple seasons of interviewing. During the middle of the pilot test, a recommendation was made by the National Forest System branch to set an unofficial cap of $20,000 for an average site. Without additional base funding, this amount would not be adequate to support a full-time staff at SEFES dedicated to the operation and development of CUSTOMER.

In 1992, the Research branch considered CUSTOMER to be sufficiently developed and therefore no longer considered it a proper research function (although it retains its original ties to SEFES). The National Forest System branch, however, has yet to assume the direction and funding of CUSTOMER. As a consequence, CUSTOMER now receives little or no base funding sufficient to maintain a dedicated staff. CUSTOMER is effectively if temporarily in administrative limbo.

Although the cost per site for implementing CUSTOMER is too low to support a full-time staff, it is nevertheless a considerable amount to many National Forests. The decision to implement CUSTOMER often comes at the expense of hiring seasonal employees needed to help manage the sites. The perceived high cost of CUSTOMER in comparison to other priorities for National Forest recreation budgets, in combination with the acknowledged need for visitor data, has and will continue to force a number of site managers to pursue other avenues for collecting recreation use and information (especially the use of nearby universities). The reliance upon independently operated research will not further the development of a standardized national database of recreation visitor information.

The cost of research will also likely promote the continued sampling of activity groups, which for one reason or another have become a management problem or interest. Alternatively, site managers may choose to maximize data collection by sampling only the most cost-effective activity groups, such as developed overnight and day use, sightseeing, and visitor information centers. There is evidence that this has occurred. To date, little if any extensive sampling has been done in designated wilderness areas because of the very high per capita cost of interviewing wilderness visitors. Without some form of reduced cost or subsidization, the information available about backcountry visitors in particular will continue to be sub-standard by comparison. As a result, the breadth of recreation visitor knowledge will likely remain rather narrow in scope and focused on more heavily used and developed sites.

Resolving the administration of CUSTOMER may also affect its overall sampling strategy and the flexibility of the survey instrument. If CUSTOMER were to be administered by the National Forest System branch—essentially as just one tool in a manager's "toolbox"—concern for ensuring "representatives" of sites when compiling results from a national database would be minimal. Rationale for retaining a rigid questionnaire format and length would also be reduced. Again, such a course will not further the development of a standardized national database of recreation visitor information.

CUSTOMER Methodology

Other problematic issues that affect the sampling procedures used for CUSTOMER, include problems of poor specificity of sampling unit; nonrandomness on the selection on sites and visitors; bias and representativeness of results; aggregation and weighting of data; and confidence levels for results.

As a source of data for national planning, some argue that existing CUSTOMER data has a degree of bias in terms of geography, activity, and towards repeat visitation. The

sites that have participated in the 3-year pilot test essentially represent a self-selected sample of all such sites where people recreate. To date, general regions such as the Rocky Mountains (especially the Rocky Mountain Region) and the Pacific Coast (especially the Pacific Southwest Region) have been proportionately under-sampled in terms of the visitor use they receive annually, while areas such as Alaska and the South have been over-sampled. This problem compounded by the fact that the sites sampled within the regions are not necessarily a good cross-section of the range of site types in the region.

Another problem has resulted from the fact that each site involved in the 3-year pilot test was responsible for assigning a definition to an activity group. Although this should rightly be their choice, activity groups may be defined differently: an urban-oriented site (such as the Las Vegas District of the Toiyabe National Forest in Nevada) may define 'over-night camping' differently than a more remote site (for example, the Steens Mountains in the Bureau of Land Management's Burns District in Oregon). Comparisons and aggregations of such data seem logical but may result in the proverbial mixing of apples and oranges.

Still another problem stems from the fact that CUSTOMER data in fact represents only the visitors who used the site. CUSTOMER was not intended to be a household survey capable of assessing the recreation behavior of the population in general without regard to whether to, or how often, they used a site. In this respect, CUSTOMER data is most likely biased toward visitors who frequent sites most often and may be biased toward those who haven't been displaced because of dissatisfaction with the setting attributes or management. As a result, data on infrequent users and dissatisfied visitors is under-represented. This is one possible explanation for the consistently high visitor satisfaction ratings for site attributes observed throughout CUSTOMER results. Mailback responses were not examined to disclose the possibility of non-response bias among visitors.

Although systematic weighting adjustments suggested by other National Forest use information may compensate for non-random, disproportionate, or biased sampling, the end product cannot be better than the other information. In truth, the reliability of National Forest recreation use information at all levels is highly variable. Thus, even if problems with randomness and adequate sample size could be resolved, final estimates may be compromised by unreliable weighting factors.

A true pre-test of the CUSTOMER survey was lacking. Instead, the prior PARVS instrument, from which the CUSTOMER questionnaire was adapted, was assumed to have already been tested in service. However, CUSTOMER included several new "modules" and a new pre-test might have been able to detect how well visitors actually understood some new key concepts and phrases. For example, in questions concerning satisfaction, visitors were asked to rate "barrier-free access." Although the phrase is generally understood among recreation professionals as referring to a degree of accessibility to persons with a physical or other disability (a qualitative measure), visitors could also have interpreted the phrase as referring to whether enough trails or roads were open to the public (a qualitative measure).

Also needing additional examination are statistical confidence levels that may be placed on CUSTOMER survey results. To date, there has been little if any discussion as to what constitutes acceptable error bounds for survey mean and frequency estimates, considering the implications of their use for both Federal and National Forest level applications. Without such an examination, sites especially are resigned to "getting what they get" from sample sizes that their budgets permit. In addition, site managers have not been provided with confidence intervals for means and frequencies estimated in the standard CUSTOMER reports in order that they might at least make their own judgments with a known level of risk.

Summary and Recommendations

The range and volume of data needed to plan and manage our National Forests and other Federal lands—both individually and collectively—is extensive and varied. Like other Federal agencies, the Forest Service has been making slow but steady progress towards recognizing those needs and to improving their efforts to gain the necessary information. Clearly, though, much remains to be done in terms of conceptualizing and implementing a comprehensive visitor information monitoring strategy.

The PARVS and CUSTOMER recreation visitor surveys have been valuable tests for the collection of some necessary information. Nevertheless, like many other Federal, state and private recreation visitor surveys, CUSTOMER has its flaws and may have a limited future as it has been structured and implemented. Given the potential for conflicts involved in gathering site-specific management data and nationwide planning data, the expectation that one type of survey can meet multiple needs may not be feasible. CUSTOMER has been developed and implemented without the benefit and guidance of a truly comprehensive national information strategy. From the results obtained from telephone interview of site representatives, the conflicts and the lack of direction could undermine widespread user confidence in and application of CUSTOMER.

In the longer term, other data collection strategies—existing, proposed, or future strategies can equally if not better fulfill the separate purposes of CUSTOMER. For example, the recently developed, shorter, and more flexible (CUSTOMER) Report Card may be a superior method for collecting data and specific management issues. Household surveys, such as the proposed National Survey on Recreation and the Environment, are in theory superior for collecting nationwide recreation visitor use and general preference information.

In the near term, we recommend several general actions that would increase the attractiveness of CUSTOMER to

either the Research or National Forest System branches of the Forest Service, (and other potential users) by correcting some of the surveys major weakness, including the following:

- Establish a new national task force or working group composed of national planners, field recreation managers, and researchers to review the Forest Service's future recreation planning and management data needs. Further, the group should develop a reasoned and comprehensive strategy and set of quality standards to guide site-speciic and national recreation information collection and analysis. (This recommendation is consistent with conclusions of the Office of Technology Assessment (1992) regarding the data condition and needs for the RPA Assessment analysis of recreation and wilderness.)
- Resolve which branch of the Forest Service—Research or the National Forest System—will administer and fund the operation and development of CUSTOMER.
- Resolve whether the purpose of CUSTOMER data collection is for RPA Assessment analysis, the national recreation visitor database, or National Forest-level management.
- Conduct an in-depth review of CUSTOMER's theoretical and technical strengths and weaknesses. Similarly, other existing and proposed surveys should be reviewed so that CUSTOMER may be compared to systems and methodologies (Chavez and others 1993). Establish protocols for linking or modifying CUSTOMER so that is may also serve in a secondary support role to other equally sophisticated survey efforts previously implemented.
- Improve the standard CUSTOMER sampling methodology, data analysis, and reporting format to include more useful marketing data and economic expenditure and regional impact analyses. Confidence intervals on mean and frequency estimates should be included to help managers assess the "risk" of relying upon an estimate. Better pre-survey consultation should be conducted, and post-survey follow-up procedures to evaluate experience should be improved. More flexibility in sampling approach that permits estimation of activity and total site use should be available, if not preferred. Finally, the summary results of pilot test sites should be compiled, published and updated annually.
- Develop a short course or module in the national correspondence course curriculum (such as exists at Colorado State University) that could teach site managers to become more knowledgeable in survey research methodology and data analysis, including the use of available computer software to compile and analyze CUSTOMER survey data.

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Using Challenge Cost-Share Partnerships to Communicate with Ethnically Diverse Recreation Users in Southern California[1]

Thomas W. Spencer Robert E. Pfister[2]

Abstract: Recreation managers have established more effective communication with dispersed recreation users of the Angeles National Forest in southern California, through the development and use of Challenge Cost-Share Partnerships with regional non-profit organizations. From 1988 to 1990, researchers conducted a series of surveys of recreation visitor populations in the heavily used dispersed recreation areas of San Gabriel Canyon, on the Mt. Baldy Ranger District. The findings revealed that most of these users only decided to come to the National Forest 24 hours or less before their arrival. This finding suggested that recreation use of the National Forest was mostly the result of spontaneous choice behavior and that communication with groups in advance would not be easy or certain. Thus, they would not have current information on changes in regulations or fire restrictions. Nearly 70 percent of the users surveyed were Hispanic, of which 81 percent listed Spanish as their primary language. The fact that many of these users were recent immigrants offered insight into their lack of familiarity with the programs and practices associated with an outdoor land ethic.

The Angeles National Forest (ANF) in southern California has become the quintessential urban National Forest. More than 15 million people reside within a 1-hour drive of the National Forest boundary--the skyscrapers of Los Angeles Civic Center are only 9 miles away. Forest managers serve an annual number of 30 to 35 million recreation visits.

Communicating complex messages about forest regulations, resource ethics, visitor safety, fire restrictions and recreation opportunities to the user population was perceived to be somewhat ineffective in the context of the tendency to use traditional information delivery strategies. This problem was particularly evident in communicating with dispersed recreation customers. In 1988, a study was begun to examine what could be done to improve the communication process between the USDA Forest Service district staff and and seasonal visitors arriving in large numbers to dispersed areas of the Angeles National Forest.

This communication study had two primary objectives:

- to examine the decision-making process of the visitors in terms of planning their trip and to describe the trip characteristics of the dispersed site visitors; and
- to test the adequacy of a two-stage questionnaire in obtaining specific information about the com-munication networks of the new (non-traditional) visitors engaging in recreational activities at the dispersed sites.

Methods

In summer 1988 data was collected from more than 230 “non-traditional visitors” at nine sites in the Mt. Baldy Ranger District. Based upon field observations of district staff and a report by the Supervisor’s Office (Hartley 1986), the data collected showed that a variety of activities and uses in specific areas were new to the lower canyon area and little was known about the customer. Data were collected from personal interviews and from the distribution of a self-administered questionnaire. The field investigators also completed a record about group characteristics and recorded comments provided by the user concerning how they each felt about the area, the facilities, and the general management. The procedures involved a stratified random sample of nine sites for the interview procedures. The dispersed sites where the visitors were contacted are shown in the sketch map of the Mt. Baldy District and the Arroyo Seco District (*fig. 1*).

Results

Only a portion of visitor responses are described herein and these results relate to their trip characteristics, trip-planning, and their preferred style of communication. Complete information pertaining to the observations that follow are reported in their entirety in Appendix A of the project technical report (Simcox and others 1989).

Trip Characteristics

The majority of the respondents (76 percent) indicated they spent approximately 1 hour or less to arrive at the area. The variation in travel time was noteworthy: the average was 62 minutes with a standard deviation of 50 minutes. This average travel time applies to an extensive area of the Los Angeles Basin; and the responses of visitors to the question of “residence” (ZIP codes) showed that the Mt. Baldy District serves a basin-wide market. The summer trips

[1] An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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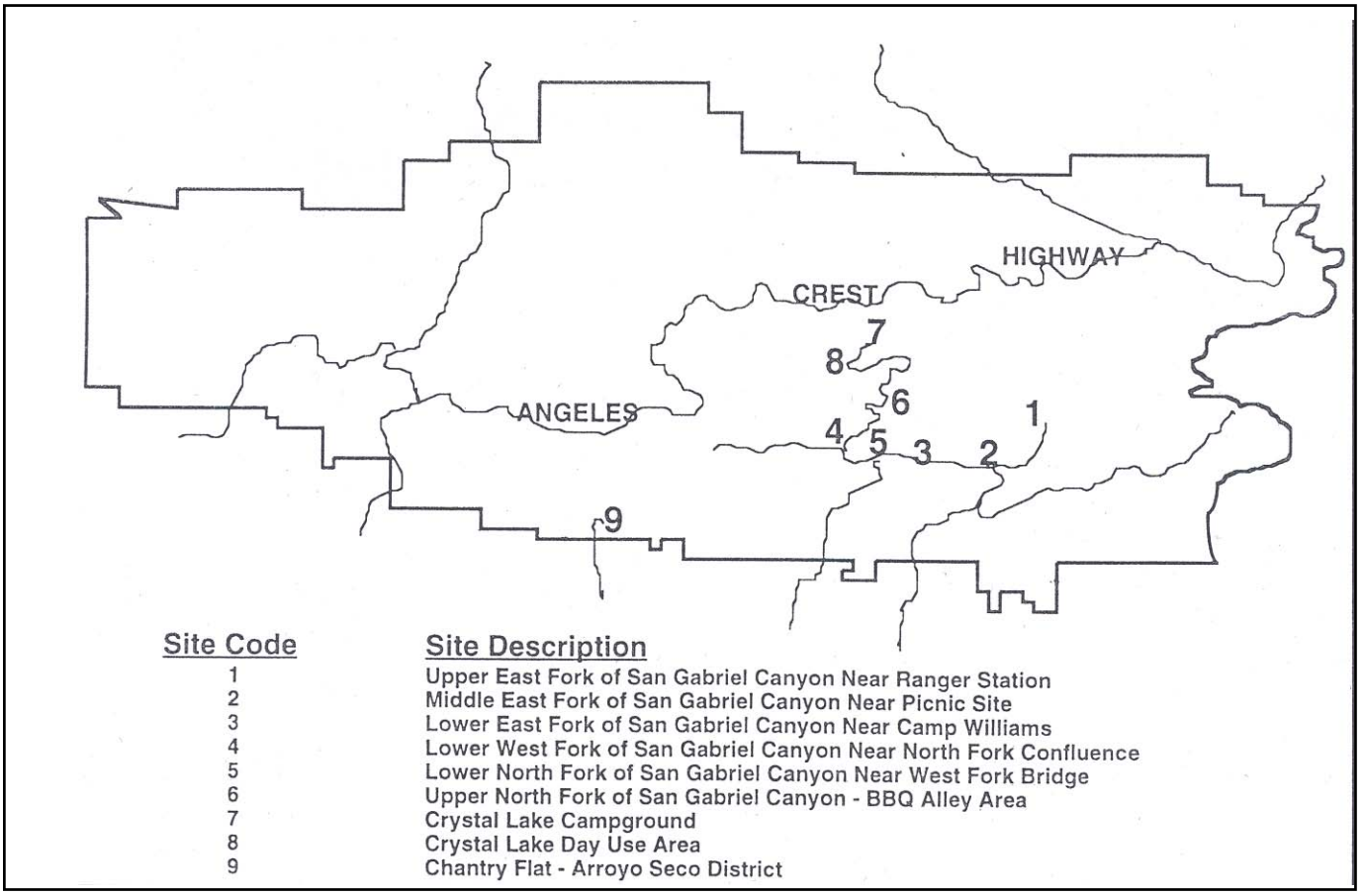

Figure 1—Angeles National Forest

involved large groups with an average size of eight individuals and a variation ranging from 1 to 50 individuals. Ten percent of the groups had from 16 to 50 individuals in their party.

Trip Planning

The results revealed very little advance planning for the trip—most of the visitors decided 24 hours or less before arriving to the area. This response was true for the majority of the respondents (70 percent) and made the task of broadcasting advance public notices more uncertain. Generally everyone in the group participated in the decision to visit the area (65 percent), but this was not a time-consuming decision because the site was the only place they considered (61 percent). The majority (76 percent) of the visitors were self-identified "new users" because they visited the recreation site either once the previous summer or perhaps the day they were interviewed.

Interpretation

The investigators concluded from these results that the new customers have different characteristics, use patterns, and preferences in comparison to the established use patterns. The new visitors were often "New Americans" in the context that they had immigrated to the United States. They tended to prefer interpersonal oral messages to learn about the area and the opportunities available to them. The new visitors' knowledge and perceptions were based upon communication with peers and friends and not the printed material published by the managing agency. Nearly three-quarters of those surveyed first heard about San Gabriel Canyon from another person. Except for guidebooks, mass media were unimportant sources of information. This finding was consistent with previous studies that focused upon the communication networks of newly immigrated individuals. As stated by J.O. Yum (1983) "Newly immigrated individuals will seek out their own culture in a new country and will only expand their communication networks over a long period of time." This meant that some of the visitors to the area, whose cultural experiences or values were based upon closely knit family systems, would tend to have a more limited interpersonal communication network. That is to say an interpersonal communication network which can be contrasted to what would be characteristic of a California-born Anglo; the kind of visitor who is most likely to have one of the widest range of communication networks. This difference was revealed in the responses of the U.S.-born visitors whom were more likely than other visitors to use guidebooks as a source of information about the area ($p < .03$).

Also, beyond the questions related to the communication networks, there were questions related to spatial patterns and timing of public messages. Because the socio-demographic variation was substantial among the culturally diverse visitors, targeting public announcements to specific local residential communities would be difficult—given the dispersed nature of the customer. Moreover, given the spontaneous nature of the visitors' trip-planning, the resource managers' ability to systematically contact them in advance and deliver accurate and timely messages about regulations, site closures, or use restrictions would be very limited. In addition, the recreation experience of the visitor was not tied to a specific entry point (e.g.-ORV area) nor an established check-in procedure (e.g.-wilderness permit), so the implementation of some form of on-site communication would have to be well-thought out.

Research Applications and Recommendations

The recreation leadership group on the Mt. Baldy Ranger District (MBRD) examined the research findings and recommendations generated by field investigation conducted by California State Polytechnic University-Pomona and California State University-Chico along with other reports produced by the research staff at the Pacific Southwest Research Station (PSW), USDA Forest Service.

The studies suggest that natural resource professionals need to listen more attentively to the public to clearly understand their wishes and values (Magill 1988). Listening to, and communicating with the dispersed recreation customers is a challenge. The Forest Service is effective in communicating and interpreting detailed, and sometimes complex, information to the public at "fixed" locations like information bulletin boards and Visitor Centers. The agency has no effective strategy for informing visitors in dispersed recreation settings. Mt. Baldy District staff evaluated a range of options to help educate the user audience such as:

- Use existing systems and infrastructure. The public can obtain forest information from knowledgeable staff at 15 "fixed" locations. This number could be increased to about 40 seasonally if all fire stations were staffed with information personnel.
- Design new curriculum for the public school systems. Adapt messages to existing programs such as Project Learning Tree.
- Utilize the existing news and information media networks.
- Improve information and interpretive signs, handouts, and brochures.
- Increase the use of volunteer and other human resource programs.
- Develop and expand the use of Challenge Cost-Share Partnerships.

A Thorny Problem

It was evident from the research that limiting the delivery of complex messages about regulations and environmental awareness to signs and bulletin boards was not going to be sufficient to result in compliant behaviors when the visitor profile revealed a bilingual audience with considerable variability in their literacy and their prior knowledge about the area. It was suggested that more emphasis be placed upon face-to-face interpersonal contacts in the recreational setting rather than off-site contacts. Nearly 70 percent of the users in San Gabriel Canyon made their decision to come to the forest within 24 hours of actually making their visit so that planning the outing was more a spontaneous event (Simcox and others 1989). On the other hand, it was impossible to implement face-to-face contact utilizing paid Forest Service employees for at least four reasons:

- *Bilingual Skills*—Only two employees in the field operation functions of law enforcement, fire prevention, and recreation had fluent bilingual skills (Spanish/English).
- *Shrinking Workforce*—In the early 1990's the Forest Service has downsized the workforce nationally so that few opportunities existed to fill vacant permanent or temporary positions with candidates who possessed bilingual skills.
- *Time Constraints*—Retraining existing employees to be articulate in a second language would be costly and time-consuming. Some indicated resistance to being so trained.
- *Declining Budget*—The MBRD was able to field only 14 employees at peak periods, because of budget and staffing limitations. Most of the district's time was consumed responding to critical incidents, or meeting the requirements of operations and management in developed recreation sites. Its staff was generally unavailable for work that involves public contacts with dispersed recreationists in the canyon bottoms and along streamsides and trails.

If the agency opted for training the existing workforce, the numbers of available employees were too few to effectively communicate with the numbers of users who need personal contact. An estimate of 10 to 15 bilingual employees would be needed during periods of high visitation to communicate messages about user safety, environmental awareness, and regulations. Considering the rates of returning visitor use, it was estimated that 1,000 to 2,000 contacts were needed per day during periods of high visitation.

Crafting a Solution

Because a skilled bilingual public contact staff will be slow to develop within the existing workforce, managers should consider opportunities outside the workforce.

In 1991, the MBRD began working with California Environmental Project (CEP), a regional non-profit organization that coordinates volunteer clean-up events and recycling efforts on private and public lands. CEP leaders

indicated that they were interested in expanding their relationship with the Forest Service.

We shared the research findings provided by PSW with CEP. Both CEP and the Forest Service had procedures for cleaning-up litter and graffiti on public lands. As cooperators, we recognized that cleaning-up after users was only a part of the solution. The many canyons and dispersed recreation areas of the Angeles National Forest (ANF) had been cleaned and recleaned hundreds of times over the past three decades. To continue this process without a more permanent objective was both endless and hopeless.

Thus, after several sessions with CEP and PSW staff, we recognized a unique opportunity to develop a strategy. CEP has also been involved in a separate cooperative relationship with the Los Angeles Conservation Corp (LACC), another regional non-profit organization, headquartered in South-Central Los Angeles. As part of the agreement, LACC provided paid crews—from the primarily Hispanic and African-American neighborhoods of the inner-city—for the conservation and clean-up efforts of CEP. Thus, LACC had an unlimited supply of enrollees readily available, offering a variety of linguistic skills from several ethnic and cultural backgrounds.

In addition, because the cooperative volunteer relationship between CEP and the MBRD was formalized as a Challenge Cost-Share Partnership, a new source for funding became available to the Forest Service through a separate agreement with the Los Angeles County Department of Parks and Recreation (LACPR). A portion of those funds have been made available for support to the partnership with CEP. Thus, as the Challenge partner, CEP could assume the role of clearinghouse for recruiting, training, equipping, organizing, scheduling, and supervision of volunteers and LACC members.

Genesis of the Eco-Teams

The first step was to acknowledge the premise that interpersonal communication appeared to be the most efficient solution to contact and educate dispersed users. From there, focus was placed upon the opportunity presented by the relationship between CEP and LACC.

In concept, we were creating a highly mobile group of environmental educators, who would individually possess the following capabilities and attributes:

- Broad knowledge and understanding of general forest information, rules and regulations, fire prevention, outdoor safety precautions, and ecological systems.
- Ability to relate to and communicate with the user groups predominant in a particular dispersed recreation area, by using bilingual skills.
- The desire to learn and train others.

A major emphasis for these contact teams would be to educate users about their individual and collective role in protecting the quality of the environment. The complex relationships between organisms (in this case, humans) and the forest environment form a community, termed an *eco*system, from which the name *Eco-Teams* was derived.

The Results - A Success Story

The first *Eco-Teams* were recruited by CEP in the spring 1992 from the ranks of seasoned LACC crews. The Forest Service assisted CEP with the training and equipment. The recruits received 16 hours of intensive classroom training that included practice public contact scenarios. The trainees were then paired with experienced public contact staff to observe and assist with actual public contact work.

Beginning in late May 1992, as many as eight two-person *Eco-Teams* (ET) were deployed in San Gabriel Canyon. The ET's contacted thousands of recreationists, distributed various forms of bilingual information and passed out litter bags. The following is a partial list of the accomplishments of the ET's from May 1992 to October 1993:

- Over 40,000 public contacts made on three National Forest Ranger Districts.
- During 1992, a 48 percent increase in voluntary compliance with the San Gabriel Canyon Parking Fee Program.
- Forest users packing out an estimated five hundred Eco-Team supplied trash bags.
- A positive response from forest users, canyon businesses, residents and Forest Service staff.
- A visibly more attractive, less littered National Forest.

The Challenge Cost-Share Partnership between the Forest Service and CEP has been expanded to include LACC and every Ranger District of the Angeles National Forest. The total net value of the Partnership was $57,000 in 1992, increasing to more than $433,000 in 1993. Challenge contributions to the partnership are about 5:1 in comparison to those by the Forest Service.

The MBRD sought, and obtained, funding support for the ET's from other grant programs including the Natural Resource Conservation and Education Program, and the Urban Forest Demonstration Project.

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Economic Issues in Policy Formation and Resource Management

Chair: Howard A. Clonts
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Marketing a National Forest: The Resource Manager's Dilemma[1]

Howard A. Clonts **Jeffrey R. Hibbert** [2]

Abstract: National Forests throughout the United States are facing critical management decisions regarding optimal resource use amidst strong countervailing pressures for access. Visitors to Talladega National Forest in Alabama were surveyed to develop appropriate marketing strategies. Cluster analysis showed that separate homogeneous user groups exist. This information was vital to the formation of appropriate marketing strategies.

Forest based recreation is continually gaining participants. Opportunities to pursue traditional activities such as hunting and hiking, as well as new ventures such as rock climbing or rafting, may all occur within one National Forest area. The USDA Forest Service has a unique role: forest managers must consider demands for timber management as well as highly diverse forest recreational uses.

The 217,000-acre Talladega National Forest (TNF) located in the lower Appalachian Mountain chain, was used to evaluate conflicting user demands and develop appropriate marketing strategies for non-timber forest resources. Contained within the boundaries are a 2,000-acre resort state park, the 7,940-acre Cheaha Wilderness, a 100-mile National Recreation Trail, a National Scenic Byway, a major interstate highway, two wildlife management areas, and an array of lakes, rivers, streams, and trails that make the area a strong recreational attraction. The National Forest also contains colonies of the endangered red-cockaded woodpecker and other threatened and endangered species. In addition, the Talladega is a resource well-suited for rapid growth of southern pine and hardwood.

Marketing Resources

The concept of market segmentation involves the use of one or more variables in classifying visitors into homogeneous groups (Kotler 1983, Pride 1989). Crompton (1983) referred to the possible variables as geographic, sociodemographic, and behavioral. While many studies have focused on geographic variables, (Cornell and O'Leary 1989, Jorgensen 1990, May 1992), the most commonly used variables for segmentation were sociodemographic characteristics (Pride 1989). Kotler (1983) noted that because sociodemographic data are generally easiest to obtain, it is the most popular variable.

The perception that geographic and sociodemographic characteristics alone are not sufficient to properly classify consumers led to more sophisticated approaches to segmentation. Among these, marketers have commonly used benefit segmentation to divide the market. (Kotler 1983, Calantone and Johar 1984).

Only a few studies have applied the more common segmentation principles to National Forest users (Jorgensen 1990, May 1992). However, these studies typically employed locational or sociodemographic factors for defining potential market segments. More clearly defined market segments are needed for forest managers to provide proper recreational opportunities to the public.

Theoretical Framework

National Forest services are examples of public goods. Public goods are those which are not controlled by one individual, accessible by all, and show consumption indivisibilities. A public good is not divided among consumers but is available to all. Therefore, since no one is excluded, no one can capture the full benefit of the good. The benefit derived from the good is a function of the total amount of the good made available.

The appropriate model for public good analysis is the pure market discrimination model. This model recognizes that each individual receives different levels of marginal benefits from a public good. However, it is impossible to estimate individual demand curves for thousands of visitors. Thus, it is important to group individuals who receive similar benefits. Cluster analysis is a commonly used method for grouping visitors who seek similar benefits. Using this method, respondents may be placed into relatively homogeneous groups based on the similarities they share (Kachigan 1986).

The clustering technique was applied to the TNF to group respondents based on the types of benefits sought. This site was chosen for empirical analysis because of its popularity for highly diverse outdoor recreational activities.

Methods and Procedures

During 1993 personal interviews were conducted of visitors on the TNF. A sample period of 65 days resulted in 193 visitor contacts from which a total of 148 usable questionnaires were obtained.

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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The survey questionnaire contained several sections focusing on recreational activity in and around the TNF. A benefits sought section using a one to five importance ranking was included to determine activities and facilities visitors considered important to their satisfactory recreational experience. Geographic and sociodemographic questions such as distance travelled, income, education, and travel cost were also included.

Visitors rated 37 possible benefits during the survey. Because evaluation of all these different variables was vague, factor analysis was used to condense the 37 potential benefits into grouped variables. Using condensed variables, cluster analysis was performed on the visitor use data to determine what segments existed in the visitor population. Once visitor segments were identified, they were tested for stability with discriminant analysis.

Market Segments Defined

Data on all respondents were combined to obtain a general demographic profile which showed a strong white male prevalence among forest visitors. Furthermore, the results characterized the average respondent as being a middle-class, full-time employee with 2 years of college-level education.

Additionally, trip distance data showed a regional pattern of visitation with the majority of visitors from northern Alabama. The mean distance travelled to the forest was 78 miles, but the median distance was only about 35 miles, indicating that a small number of visitors travelled much greater distances.

Cluster analysis allowed identification of user groups based on personal characteristics and the benefits they were seeking in personal recreational experiences, including visits to TNF. The analyses indicated the particular benefits sought by different user groups.

Using the condensed variables derived through factor analysis (*table 1*), clustering was effective in defining survey respondents (*table 2*). A three-cluster solution provided the best picture of the benefits respondents were seeking. Four of the seven composite benefits-sought variables were significant in defining the relevant clusters (*table 3*). Yet, these variables alone were not sufficient to define distinct clusters. In initial analyses using only benefits-sought, the distances between cluster centroids were relatively small, e.g., the distances between clusters two and three showed distinctions detectable only at levels beyond two decimal points. To increase the distinction between clusters, visitor characteristics of trip distance, education, income, and employment status were added as bases for clustering.

To better understand what visitors wanted, rankings for the significant benefits-sought variables were contrasted between the clusters (*table 4*). Members of clusters two and three were similar with respect to benefits sought, but differ-ences in other characteristics showed they were distinct groups.

Cluster means for the composite wilderness variable showed agreement among all three groups that these activities and facilities were generally important to the region. Statistically significant differences among the clusters existed only for hiking and backpacking. More than two-thirds of the respondents in cluster one specifically said that hiking was an extremely important benefit, but only 40 percent of respondents in the other clusters indicated it was important.

Additionally, nearly two-thirds of the respondents in cluster one said that backpacking was an important activity while half or less of the members in clusters two and three felt it was an important recreational experience.

Table 1—*Variables used to cluster respondents and the importance variable components.*[1]

Group name	Importance variables
Wilderness	swimming in a lake or river, canoeing, visiting a designated wilderness area, hiking, backpacking, horseback riding, camping in a natural area
Consumption	hunting, fishing
Modern	swimming in a pool, water skiing, pleasure boating, using a marina, staying overnight in a cabin or a motel/lodge, eating in a restaurant
Social	socialize with other visitors, attend a visitor orientation program
Nature	picnicking in natural area, being alone with nature, viewing nature, visiting nature center, going for scenic drives
Sports	riding a bicycle, trail bikes, off-road vehicles, rock climbing/adventure sports, cross-country training, test or exercise outdoor skills, play outdoor sports or games, tennis, golf, competing in organized sports, having equipment to rent
Recreational vehicle	flush toilets, hot showers, RV dump station, camping in an area with fully developed facilities

[1]Talladega National Forest Visitor Survey, Alabama 1993.

Table 2—*Cluster summary for the three-cluster solution.*[1]

Cluster	Frequency	Nearest cluster	Distance between cluster centroids
1	13	3	6.75
2	58	3	4.05
3	77	2	4.05

[1]Talladega National Forest Visitor Survey, Alabama, 1993.

Table3— ***Means and ranges for all variables in each cluster. Talladega National Forest visitor survey, Alabama, 1993.***

Variable	Range	P>F	Means		
			Cluster 1	Cluster 2	Cluster 3
Wilderness	1-5	.4912	2.32	2.51	2.54
Consumption	1-5	.0001	3.65	1.97	2.15
Nature	1-5	.0618	1.75	2.20	2.40
Recreational vehicle	1-5	.5338	3.33	2.87	2.86
Trip distance	Actual	.0001	56-75	26-35	36-55 distance
Education	1-25 (yrs)	.0001	22	12	15
Employment	Current Status	full-time	full-time	full-time	full-time
Income	1-10	.0001	$31,000	$19,000	$30,000
Amount more willing to pay	dollars	.0020	55.16	45.87	94.77

Table 4—*Mean scores for each component of the composite variables.*[1]

Variable[2]	P>F	Mean scores		
		Cluster 1	Cluster 2	Cluster 3
Wilderness				
Swimming in a lake or river	.6722	2.31	2.39	2.53
Canoeing	.4012	2.46	2.86	2.75
Visit a designated wilderness area	.3564	2.23	2.24	2.26
Hiking	.0866	1.61	2.21	2.17
Backpacking	.0474	2.31	2.80	2.52
Horseback riding	.2658	3.38	3.16	3.08
Camp in natural surroundings	.6048	1.92	2.18	2.11
Consumptive				
Hunting	.0001	4.31	2.14	3.33
Fishing	.0131	3.00	1.84	2.01
Natural				
Picnicking in a natural area	.1482	1.94	1.95	2.18
Being alone with nature	.1654	1.54	2.10	1.99
Viewing and photographing nature	.2493	2.00	2.10	2.38
Visiting a nature center	.1348	2.15	2.73	2.99
Going for scenic drives	.2733	1.54	2.30	2.29
Recreational vehicle				
Flush toilets	.6450	3.25	2.70	2.80
Hot showers	.8657	3.16	3.05	2.83
RV dump station	.5786	3.83	3.19	3.43
Camping in an area with full-developed facilities	.1802	3.08	2.31	2.62

[1]Talladega National Forest Visitor Survey, Alabama, 1993.
[2]Importance scale: 1- extremely important; 5-extremely unimportant.

Unlike the wilderness variable, results for the other composite benefits-sought variables showed very clear distinctions among clusters. For example, the mean score of cluster one for the consumption variable of 3.65 indicated that these activities were not important. Specifically, most of the respondents in cluster one said that hunting and fishing were extremely unimportant. On the other hand, most of the respondents in clusters two and three indicated that hunting was an important benefit they sought in various regional recreation areas. This finding wasn't a surprise since local hunting pressure is quite common.

Similarly, the study revealed the importance of fishing to local and regional visitors. More distant travelers were indifferent to the activity.

Members of all three clusters favored the components of the composite nature variable. For example, all respondents strongly favored picnicking in a natural area and being alone with nature. However, while members of clusters two and three were somewhat indifferent to visiting a nature center, nearly 70 percent of the respondents in cluster one said such a facility was an important benefit for the region. This is a signal that information sources are important if this group is to be expanded. Nature centers, interpretive programs and other similar events would be good means of building the clientele from group one.

Mean scores among the three clusters for the composite RV variable were very similar. Respondents in all three clusters were indifferent toward most of these facilities. But, interestingly, almost two-thirds of the respondents in cluster two favored fully-developed camping facilities. No clear explanation was evident for this preference by local visitors. However, it could mean that more frequent visitors simply want an upgrade in facilities.

Marketing Strategies

In the aggregate, primary activities sought were fishing, hunting, hiking, and picnicking, etc. Logically, overall strategies for attracting forest visitors should emphasize these activities. Yet, because of the magnitude of resources required for each activity and the potential conflicts between them, different resource allocations and destinations should be provided throughout the forest.

Because more than half of current visitors live within 25 miles of the forest, it is reasonable to assume that the majority of TNF visitors will continue to be from areas in or near the forest. Members of this group were interested primarily in the consumptive activities of hunting and fishing. Provision and timely maintenance of areas designated for consumptive activities would appear to be a necessary part of any marketing strategy. Yet, the resource base for hunting is somewhat eroded. At present, any additional pressure on the wildlife population, particularly white-tailed deer, could significantly diminish the breeding population, thus reducing populations further. Other wildlife species suffer similar population problems, but to a lesser degree. Fishing resources, the alternative consumptive choice benefit, are presently underutilized, and could be safely promoted.

On the other hand, a marketing strategy focused on the regional and out-of-state visitors who desire trails and camping areas could add to the incomes of local communities if they could purchase services and supplies locally rather than transporting them to TNF. One goal of nationwide National Forest management is to improve the level of living for communities within and near forest boundaries. Regional and out-of-state visitors expressed a strong willingness to spend more on forest recreational trips if supplies and services were available. Thus, a strategy for increasing community income is desirable. Yet, the out-of-state group is the smallest of those identified as TNF users, and the portion of the regional segment with similar preferences is also relatively small. Thus, a policy to attract more visitors who typically spend more per recreational trip and prefer hiking, camping, and other activities would likely mean displacement for local and regional consumptive resource users. The manager's dilemma is now quite evident.

An optimal *resource protection strategy* should call for maintaining or reducing the pressure by local and regional residents on the wildlife base. An optimal *income strategy* would mean that non-consumptive activities and opportunities for such should be increased. Achieving both resource protection and increased incomes may be accomplished by expanding facilities and promoting opportunities favored by non-local interests. But, that strategy would leave the larger local visitor group unsatisfied.

Thus, a better alternative may be to consider either permanent or seasonal forest use-zones within which visitor activities are designated. This management strategy may be a means to allow maximum visitor satisfaction, given the resource limitations.

A successful marketing strategy for the TNF depends on promotional efforts to attract and inform potential visitors of forest use opportunities. Forest resource development provides an excellent opportunity for surrounding communities and entrepreneurs to expand economically. No marketing program can be successful unless all local interests provide for visitors' needs and interests. Thus, forest marketing strategies should evolve from the combined efforts and ideas of all interests in the area.

Conclusion

The statistical procedures used were effective in segmenting forest visitors. First, factor analysis was effective in reducing the diverse benefits sought in recreational activities into a manageable number of variables.

Second, cluster analysis proved to be an acceptable tool for market segmentation using the variables reflecting benefits forest visitors were seeking plus user geographic and

sociodemographic characteristics. Three clearly distinguishable groups of visitors to Talladega National Forest in Alabama were found.

One important observation is that all respondents were visitors to the TNF. These active forest users were found to have somewhat different preferences for recreational satisfaction. Satisfaction is the important factor in any marketing and promotional plan by the Forest Service. The fact that clustered respondents had similar preferences for recreational experiences within a National Forest does not mean the analysis had little benefit. Rather, it shows that even among people with similar resource based preferences, clear differences may be targeted for different forest management and rural development purposes.

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Protecting Oregon Old-Growth Forests from Fires: How Much Is It Worth?[1]

Armando González-Cabán John Loomis Robin Gregory[2]

Abstract: Current fire management policies in the USDA Forest Service includes traditional multiple uses, but these policies do not adequately incorporate non-traditional uses such as preservation of biodiversity and related nongame and endangered animals. A contingent valuation methodology was used for valuing the general public's desire to know that rare and unique ecosystems exist and will be protected from fire for current and future generations. The methodology was applied to old-growth forests and critical habitat units for the northern spotted owl in Oregon. A mail survey describing a simulated voter referendum on an Oregon old-growth fire prevention and control fund that reduces by half the number of acres of old-growth burned each year was sent to a random sample of 1,000 Oregon households. Each household was randomly assigned one of 20 alternative program cost levels ranging from $2 to $300. The mean dichotomous choice willingness to pay estimate was $90.00. By expanding the sample to Oregon's population yields, estimates ranged from $45 to $99 million for the whole State (a low of $45 to $90 per household). The resulting value per acre saved from fire under the proposed scenario is more than $24,000; and the cost per acres of old-growth protected is $28.

Incorporating the protection of natural values beyond recreation into fire management decision making is a growing concern of Federal agencies with wildland fire protection responsibilities (González-Cabán 1993; González-Cabán and Chase 1991). These values include people's desire to know that rare and unique ecosystems exist (existence value), that they will be protected for future generations (bequest value), and that they will be available for visits at future times (option value) (Randall and Stoll 1983). Existence and bequest values have been quantified in monetary terms for eliminating logging of old-growth forests in Washington (Rubin and others 1980), and Colorado (Walsh and others 1984), but not for protecting these old-growth ecosystems from fire.

The USDI Fish and Wildlife Service has designated about 2.9 million hectares (7 million acres) of the remaining old-growth forests in the Pacific Northwest as Northern Spotted Owl Critical Habitat Units. The direct effects of such designation is to eliminate clearcutting and to impose severe logging restrictions, but a significant threat remains to the preservation of these habitat types: catastrophic fires. Different fire management policies and programs can reduce the frequency of human caused fires and the extent and severity of all fires. Lack of economic values in fire management models is a major concern of fire managers in the Pacific Northwest (Gregory and von Winterfeldt 1992).

This paper describes the performance of contingent valuation method (CVM) for measuring the total economic value (sum of recreation, existence, bequest, and option values) for protecting old-growth forests in Oregon from catastrophic fires.

Methods

Contingent valuation is a widely used method for obtaining information about willingness-to-pay (the maximum amount a person would be willing to pay) for recreation, existence, bequest, and option values (Mitchell and Carson 1989). Federal agencies recommend this method for performing benefit-cost analysis (U.S. Water Resources Council 1983) and for valuing natural resource damages (U.S. Department of Interior 1986). Its use has been upheld in Federal courts (U.S. District Court of Appeals 1989).

By creating a simulated market, the contingent valuation method (CVM) obtains an individual's values for use or preservation of natural resources. The simulated market is conveyed in a mail questionnaire, a telephone call, or personal interview. In this study we used a mail questionnaire.

A CVM survey design involves three elements: 1) portrayal of the resource to be valued; 2) description of the particular mechanism used to pay for the resource; and 3) the question format used to elicit the respondent's dollar amount willingness-to-pay (WTP).

The resource to be valued was a fire prevention and control program for three million hectares of old-growth forests in Northern Spotted Owl Critical Habitats Units (CHUs) in Oregon. This program consisted of: a) Greater Fire Prevention; b) Earlier Fire Detection; and c) Quicker and Larger Fire Response. Respondents were told that the proposed program would reduce by half the current number of fires (300) and acreage burned in the CHUs (7,000 acres).

A voter referendum was the means by which all households would pay. Individuals were told in the survey "Because Oregon's old-growth forests are also Federally designated critical habitat units for the threatened northern spotted owl *all U.S. households* would pay into a Special Oregon Old Growth Fire Control Program. This fund, by

[1]A slightly different version of this paper appeared in the Proceedings of the 12th Conference on Fire and Forest Meteorology, Society of American Foresters, October 26-28, 1993, Jekyll Island, Georgia.

An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, California.

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law, could only be used for fire protection in federally owned old-growth forests shown on the map. Adoption of the program would be decided as part of a national election".

Using the voter referendum approach, the WTP question format was dichotomous choice. The dichotomous choice mimics an actual vote by simply asking if the person would vote (e.g., pay) for the item if it cost the household a particular dollar amount each year. The individual must then decide if the values to him/her are worth this price. Varying the dollar amount across the sample allows the analyst to statistically develop a demand-like relationship between probability of a "yes" response and the dollar amount. The basic relationship corresponds to equation (1):

$$\text{Prob}_{yes}(X) = 1-\{1+\exp[B_0-B_1X+B_2X_2+B_3X_3+B_4X_4+B_5X_5]\}^{-1} \qquad (1)$$

in which B's are coefficients estimated using logit regression, X is the dollar amount the household is asked to pay, X_2 represents Fire Harm, X_3 represents Existence Importance, X_4 represents Education level of respondents, and X_5 represents Forest Recreation.

By using Hanemann's (1989) formula we can compute the expected value of WTP as:

$$\text{Mean WTP} = \left(\frac{1}{B_1}\right) \cdot \ln\{1+\exp[B_0+B_2X_2+B_3X_3+B_4X_4+B_5X_5]\}. \qquad (2)$$

Survey respondents were randomly assigned to 20 different bid amounts ranging from $2 to $300. The wide range was chosen so that at the low end, anyone who valued old-growth forests or the northern spotted owl would very likely indicate that they would pay, but almost no one was expected to pay $300 per year.

Two check questions followed the WTP question. One determined if responses to the WTP question from persons who would not pay anything for the proposed prevention and control program represent a valid value or a protest of some feature of the simulated market. We also asked why other individuals would pay for the prevention and control program. Finally, simple demographic questions were asked, such as age, education, membership in environmental organizations, and income. The final questionnaire was made into a six-page booklet.

Survey Development

USDA Forest Service fire management specialists were consulted before we began the survey to ensure a good understanding of the natural resources at risk from fire in old-growth forests and spotted owl critical habitat areas. We asked them if the forest resources would be either: (a) adversely affected in the short term; (b) positively affected in the short term; or (c) not affected. The resulting information was used to describe to respondents the likely effects of fire.

A meeting of two focus groups were held at Decision Research consulting firm in Eugene, Oregon. The main objectives were to determine if our basic Fire Prevention and Control Program was understandable and realistic and to discuss acceptable ways the program could be funded. A survey instrument was developed and pretested on a small sample of residents of Eugene, Oregon, and Riverside and Davis, California. The pretest was also used to establish an appropriate range of bid amounts for the dichotomous choice question.

Sample Design

The survey questionnaire was sent to a random sample of 1,000 Oregon households. The random sample was bought from Survey Sampling Inc.[3] which have all the names, addresses, and phone numbers of Oregon's households drawn randomly from Oregon telephone books on a computerized file. The overall survey design and mailing procedure followed Dillman's (1978) total Design method (first mailing, reminder postcard, second mailing). The first mailing was sent out the first week in May, with a remainder postcard 4 business days later. A second mailing of the survey with a new cover letter was sent to non-respondents the first week in June 1993.

Results

Out of the 1,000 total survey questionnaires mailed, 156 were not usable because they were refused, undelivered, or the addressees were deceased. A total of 425 completed questionnaires were returned for a response rate a little over 50 percent. This response rate is about average for general population surveys, using a first mailing-postcard-second mailing without any financial incentive.

The age of the sample of Oregon households exceeded the population level (*table 1*). This finding is typical in mail surveys. The income level and percent of males of the sample also exceeds the population level. The over-representation of males is due to Survey Sampling Inc., drawing the majority of names from the phone books, which traditionally lists addresses and phone numbers under male names.

Some people said they would not pay anything for the fire prevention and control program and offered reasons (*table 2*). The first two categories are considered valid responses that reflect legitimate reasons to decline to pay. We considered that people who indicated they could not afford to pay took their commitment to participate in the

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

Table 1—*Demographic characteristics of sample and Oregon's households*

Characteristic	Sample	Oregon[1]
Mean age	52.76	49.00
Mean education (years)	14.28	13.00
Mean income	$37,831.00	$32,336.00
Percent male	69.00	49.00

[1]Source: 1990 U.S. Census

Table 2—*Reasons why people would not pay*

Reason	Percent
This program is not worth anything to me	3.35
I cannot afford to pay at this time	7.55
Subtotal[1]	10.90
I don't think this program would work	7.55
It is unfair to expect me to pay	5.45
I am opposed to new government programs	14.55
Fire is natural and benefits forest	6.05
Other	3.55
Subtotal[1]	37.15

[1]Totals from tables 2 and 3 do not total 100 percent since not everyone answered their respective questions.

survey seriously. The third through fifth categories are usually classified as protest responses. They are usually not considered valid representations of the individuals willingness-to-pay, although they represent valid concerns. These concerns may include a rejection of the basic premise of the CVM market, some feature of the scenario, or generalized concerns about the issue.

Protest responses are typically not included when computing WTP; thus they were not included in this analysis. Implicitly, though, the sample average WTP is applied to these individuals when expanding the sample to the population. Overall, an unusually high 37.1 percent of the responses were considered protests; therefore, the sample average WTP is conditioned on valid survey responses, as described above, of the remaining 63 percent.

The majority (22 percent) of the protest responses included reasons such as the respondents "didn't think the program would work" and that they "were opposed to new government programs." To resolve the motivation behind the responses would most likely require personal interviews and is an important priority for future research.

Table 3—*Reasons why respondents would pay*

Reason	Percent
This program is worth at least this much	10.85
I have a duty to protect these old-growth forests	17.75
To contribute to a good cause	4.40
To pay my fair share to protect these old-growth forests	11.45
Other	2.15
Total[1]	46.60

[1]Totals from tables 2 and 3 do not total to 100 percent since not everyone answered their respective questions.

Almost 47 percent of the respondents reported a positive WTP (*table 3*). Almost 11 percent of the respondents providing a positive response chose the first reason listed in the table. This is the category that most closely matches an economic interpretation. The next motivations, including a "duty to protect" and "paying a fair share," reflect the majority of the respondents. Only about 4.4 percent indicated they would pay simply to give money to a good cause. In accordance with the economic paradigm that what matters is willingness-to-pay regardless of motivations, all positive WTP amounts and non-protest zeros, are retained in the analysis.

Statistical Analysis

WTP can be estimated either through open-ended or dichotomous choice questions in contingent valuation studies. The empirical advantage of dichotomous choice relates to the ease of responding to this question format. For example, 10 to 15 percent more of the respondents answered the dichotomous choice as compared to the open-ended questions. However, the open-ended format provides more information per respondent. In our research we obtained similar results whether computing WTP using the dichotomous choice or open-ended questions format (Loomis and others, in press). The results presented here are from the dichotomous choice format.

Mean WTP under the dichotomous choice format is calculated from equation (2), using the coefficients relating the yes/no responses to the bid amount (dollar amount respondents are asked to pay). The coefficients are typically estimated by using logistic regression (Hanemann 1984). A multivariate dichotomous choice equation allows us to investigate the effect of other independent or explanatory variables on dichotomous choice WTP responses. (A more extensive treatment of the data and the different regression models estimated could be found in Loomis and others (In Press)).

Our analyses provided the coefficients and t-statistics of the multivariate equation (*table 4*). All the coefficients have the intuitive expected sign and are statistically significant at

Table 4—*Multivariate logit equation*

Variable	Coefficient	T-statistic
Constant	-3.8395	-3.93
Fire harm[1]	0.3081	3.79
Existence importance[2]	0.4085	2.46
Education[3]	0.2411	3.99
Forest recreation[4]	0.7165	1.98
Bid amount[5]	-0.2075	-3.94
Chi-square (5 of)	102.4652[6]	
Pseudo R^2	0.3094[7]	

[1]A person's perception of whether fire is harmful to a) diversity of plants and animals, b) health of trees, c) muddying of salmon spawning habitat, and d) northern spotted owl habitat. Responses are -1 for fire is beneficial, 0 for fire has no effect, +1 for fire is harmful. Thus a score of +4 would be fire is harmful to all, while a -4 would be fire is beneficial to all. Scores close to zero indicate fire having neither a positive nor negative effect.

[2]Importance of knowing that old-growth forests exist in Oregon. It is measured on a 1 to 4 scale, 4 being very important and 1 being not important.

[3] Level of education in years.

[4] A dummy variable for whether they have visited forests for recreation in the past 12 months; 1 if they have visited the forest, 0 otherwise.

[5] Dollar amount they were asked to pay.

[6] The degrees of freedom for the chi-square is five (Kmenta 1986, p. 556). He states "Note that in general the number of degrees of freedom of the chi-square variable is given by the number of explanatory variables in the model."

[7] See Kmenta (1986). The computational formula is $1-(LLF_{max}/LLF_{null})$ where LLF_{max} is the log likelihood function value under the full model and LLF_{null} is the log likelihood function under the null hypothesis (all the B's set equal to zero).

the .05 alpha level or higher. The multivariate logistic regression equation had a pseudo R square of 31 percent.

Income, age, and gender were not statistically significant. A statistically significant effect was not found for income even when education was excluded from the equation. This may be because the dollar amounts people were asked to pay being relatively small compared to their income.

Expanding the Sample to the Population

One critical concern when expanding the sample to the population is the external validity or generalizability of the sample values to the population. The external validity is partly dependent on the representativeness of the sample frame and the survey response rates. While our sample frame was a random sample of Oregon's households, the response rate is a little lower than desirable. The net effect is that our sample education is about 1.3 years more than the State of Oregon as a whole (*table 1*).

We developed a range of benefit estimates based on three approaches to expanding the sample to the population (*table 5*). The first approach, sample average, generates a WTP of $90 per household and about $99 million annually by generalizing the sample average to the entire Oregon population. In this approach the sample average values is applied to non-responding households as well. A lower estimates of $45 per household and a State aggregate value of $49.5 million annually is generated by assuming that the proportion of households not responding to the survey hold a zero value for the prevention and control program. Finally, a medium estimate of $77 per household and $84 million annually for Oregon would be obtained by replacing our sample average education level of 14.3 years with the State average education level of 13.0 years in our logistic regression equation (*table 4*). This procedure implicitly makes the resulting sample representative of the State population on the only statistically significant demographic variable.

The benefit estimates are preliminary and do not include any values from households in the other 49 States of the U.S. regarding reducing the risk of wildfire in Oregon's old-growth forests and spotted owl habitat. The U.S. has about 100 million households and Oregon has about 1 million. Even if the rest of the U.S. households maintained a much lower value toward fire protection in Oregon's old-growth forests, the rest of the U.S. value would dwarf the value of Oregon residents alone.

Respondents were told in the survey that the fire prevention and control program would reduce by half the number of acres of old-growth forest that would burn each year. This represents a reduction of 3,500 acres of old-growth forests that would no longer burn each year. If the middle estimate of WTP of $84.6 million annually is divided by 3,500 acres that would no longer burn, the resulting value per acre saved from fire is $24,170. In addition, if we divide the $84.6 million by the 3 million acres of old-growth forests in Northern Spotted Owl Critical Habitat Units that are protected results in a value of $28 per acre protected. These methods correspond to the Forest Service fire management planning process.

Conclusions And Future Research

The overall response rate for the survey was a little over 50 percent and the WTP amounts from both open-ended and dichotomous choice formats were different from zero. The annual WTP value per household in the sample was $90. The total annual Oregon resident's willingness-to-pay ranged from $45.6 to $99 million with a medium estimate of $85 million annually. And, old-growth forests protected from fire was $28 per acre.

The absence of well documented statements that the fire prevention and control program would technically work may have contributed to the relatively high protest response to the willingness-to-pay question. Even so, many people indicated they were opposed to any new government programs. This opposition is a difficult issue that must be dealt with in future focus groups and survey pretesting. One possible strategy to deal with this issue would be to identify those

Table 5—*Expanding sample willingness-to-pay to the State of Oregon*

Item	90 Percent Confidence Interval	Mean WTP Per Household	Households (Millions)	Total (Millions)
Sample Average	$70 - $111	$90	1.105	$98.920
Middle Estimate (Adjusted for Education)	$64 - $96	$77	1.105	$84.588
Lower Estimate	$35 - $56	$45	1.105	$49.460

aspects of the fire prevention and control program that elicited this anti-government response and differentiate those program aspects from other general government programs. Another possibility is to frame the forest protection effort as a private or local or non-profit (i.e., not State or Federal government) fire prevention district or insurance program. For example, willingness-to-pay could be asked as an annual insurance premium for the fire prevention and control program. Another more promising alternative is to conduct in-person interviews, so that respondents are clearly focused on the economic issue of the study.

The sample demographics over-represented older, higher educated, and higher income households. The sample also over-represented males. Only education was statistically significant in explaining WTP in the dichotomous choice logit regression. More representative demographics could be obtained from a more expensive random digit dialing approach of all households.

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Coordinated Fee Structure for Developed Recreation Sites on the Ashley, Uinta, and Wasatch-Cache National Forests[1]

Brent H. McBeth[2]

Abstract: A joint effort between three National Forests in northern Utah was begun to provide a uniform process for establishing fees at developed recreation sites, based upon the "cost approach" method. This method can be adapted for other National Forest and District use and can be modified to reflect "comparable fees" and updated periodically to meet local needs and changing conditions.

The Ashley, Uinta and Wasatch-Cache National Forests in northern Utah jointly analyzed procedures for establishing fees at developed recreation sites. The purpose was to establish a coordinated fee structure process for the three urban National Forests. Two procedures were analyzed:

- Market analysis of other Federal and State agencies and private campgrounds in geographical areas of concern to determine fee comparability between developed recreation sites in the public sector and those in the private sector.
- Analysis of operation and maintenance costs and benefits for existing or proposed campground fee sites to establish the fee. This analysis is based on selected cost/benefit ratios and interest rates, and such factors as market comparability and social/political climate.

At present competition is low between developed campgrounds in the public and private sectors in northern Utah. This is because of the variety of recreation settings, levels of outdoor recreation experiences, and expectations of customers. In general, those seeking outdoor experiences in northern Utah can match their expectations, choosing between highly developed campgrounds in city/town environment and usually less developed sites in nearby forest and desert environments.

Most private campgrounds in northern Utah are located within or next to communities. These campgrounds serve the needs of customers wanting highly developed and special amenities, and/or serve the needs of customers en route to destination recreation areas on public lands. These customers are willing to pay more for these sites, especially if the sites offer full service features and facilities, such as water, sewer, electricity and recreational equipment/infrastructure. Therefore, the lower campground fees at nearby public recreation sites do not persuade customers to use public instead of private sites.

Public lands in Utah offer many destination sites. Customers traveling to these destination sites may stay at private campgrounds along the way. Upon arriving at a chosen destination site on public lands, these customers usually prefer to stay at campgrounds on site. Their preference to stay on-site is because of the proximity of additional recreation opportunities at or near the public campground of choice, and the long distance that they would have to travel to stay at private campgrounds in adjacent communities. The preference to stay on-site is not based on the lower campground fees at the public campground sites. Thus, developed campground fees in the urban private sector markets of northern Utah are not in direct competition with developed sites on the three National Forests.

Because the market competition between private and public campgrounds is low, the Ashley, Uinta, and Wasatch-Cache National Forests selected a cost analysis procedure for determining fees at developed campgrounds. Fee comparisons with the private sector will also be implemented to level extreme differences between fees.

The following Cost Analysis and Recommendations will be used as guidelines for District Rangers to establish yearly campground fees.

Goals

- Provide the District with rationale and method for establishing campground fees.
- Ensure that the fee structure is coordinated among the Ashley, Uinta, and Wasatch-Cache National Forests and reflects similarities as well as differences among recreation settings, uses and publics on the three Forests.

Objectives

Develop a fee structure that considers the following criteria, as listed in the USDA Forest Service Manual, Title 2300—Recreation Management 2331.23:

a. The amount charged for use of comparable facilities and services offered by the private sector in similar settings.

b. The amount charged for use of comparable facilities and services administered by Federal, State, and local agencies in similar settings.

c. The benefits received by the user, including the quality and variety of recreation opportunities offered at or near the

[1]An abbreviated version of this paper was presented at the Second Symposium on Social Aspects and Recreation Research, February 23-25, 1994, San Diego, CA.

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site and special services such as the use of amphitheaters, boat launching ramps, and swimming sites.

d. The direct and indirect costs to the United States of developing, maintaining, and operating the site, facilities, and equipment, and providing services.

e. The cost of collection versus the amount collected.

Process, Concept, and Basic Steps

A. The Concept: This process is based on identifying the desired future condition of the site as if new; determining the cost to maintain this condition over time; determining the income needed for the costs; and selecting a fee that is appropriate considering investment by the government and other considerations.

B. Basic Steps: The basic steps required to determine the fee rate at a recreation site are as follows:

1. Determine value of the site facilities when new, using the comparison examples for various developmental scales as a guide, and enter the information on the electronic spreadsheet.
2. Identify the annual maintenance, operation, resource, and construction/reconstruction costs to be used, and enter them on the electronic spreadsheet.
3. Build the Financial Model using the information from the electronic spreadsheet.
4. Check the benefit/cost ration figures in the Financial Model and make adjustments in proposed fees until the ration is 1:1 or better.
5. Compare the fee developed in the Financial Model with factors such as comparable market rates and social/ political considerations and decide what the fee rate should be.

The paper entitled "Coordinated Fee Structure for Developed Recreation Sites on the Ashley, Uinta, and Wasatch-Cache National Forests," is available from the Ashley National Forest. It includes a spreadsheet and worksheet for cost calculations as well as a Financial Model for Present Net Worth.

The model also has considerable flexibility for the manager to consider different management and investment alternatives and display the benefit/cost of each alternative.

Acknowledgments

This process was developed by Alan G. Baird, Forest Recreation Planner, Ashley National Forest, with contributions from Garth Heaton, Recreation, Lands, and Minerals Staff Officer, Ashley National Forest; Brent McBeth, Recreation and Lands Branch Chief, Uinta National Forest; and Larry Lucas, Recreation, Lands, Minerals, and Wilderness Staff Officer, Wasatch-Cache National Forest. Portions of the background information in the publication were assembled by Gordon Williams during his tenure as Forest Landscape Architect on the Uinta National Forest.

What's A Walk On The Wildside Worth?[1]

Elwood L. Shafer[2]

Abstract: Quantitative measures of the economic nonconsumptive values of observing wildlife in forest environments are not widely available. Six case studies of fish and wildlife amenity values are briefly described. The annual total consumers' surplus value of all six activities was twice the total out-of-pocket expenditures spent to visit the six sites involved. The rationale for additional extensive research and development on nonconsumptive economic values of fish and wildlife are outlined.

Wildlife-associated recreation is one of the country's most popular forms of outdoor recreation. Observing, photographing, and feeding wildlife provide enjoyment to millions of persons in the United States, many of whom also fish and hunt. In 1980, 28.8 million nonconsumptive users aged 16 and older traveled at least one mile from their home primarily for the purpose of observing, photographing, or feeding wildlife, spending $4 billion in the process. Some 69.4 million persons enjoyed wildlife in some way while on a trip for another purpose (President's Commission on Americans Outdoors 1987).

The Fish and Wildlife Conservation Act of 1980 authorized programs to enhance nongame species, but funds have never been appropriated for this purpose. In FY1986, the USDI Fish and Wildlife Service budgeted 1.4 million dollars for nongame research. State fish and wildlife agencies devote approximately 7 percent of their budgets to nongame programs, but additional funding is critical to develop programs to address nongame issues.

Probably one of the reasons additional funding is not available to address nongame issues is because of public land allocation decisions--in the past these were based largely on the expected value of the resources that could be obtained from those lands. Benefits and costs were typically estimated only for those resource outputs that could be taken from the land, such as timber or fish. Economic evaluation of natural resources that provide pleasure without taking resource outputs, such as viewing wildlife, has been overlooked in customary analyses of benefits and costs. This is because quantitative measures of the amenity values of nonconsumptive activities of observing wildlife in forest and rural environments are not widely available (Sorg and Loomis 1984).

This paper examines the economic estimates of amenity values urgently needed by regional planners and natural resource professionals for comparing economic values of alternative land uses, such as producing commodities marketed (like timber or forage) versus producing resources not usually marketed (such as viewing different kinds of wildlife).

Six Case Studies In Pennsylvania

Results of six case studies of the nonconsumptive values of fish and wildlife in Pennsylvania provide indications of the combined net economic value of these kinds of resources (Shafer and others 1993). During a 12-month period, teams of interviewers questioned visitors at six Pennsylvania sites.

- Fisherman's Paradise: a 1-mile stretch of Spring Creek, which is a nationally known trout stream in Centre County, where no trout may be kept and tackle is restricted to fly-fishing equipment and barbless hooks.
- Spring Creek: a 3-mile section of this 21 mile stream that is open to fly fishing year-round, but no trout may be kept.
- Hawk Mountain Sanctuary: a 2,000-acre, private mountaintop on the border of Berks and Schuylkill counties; it is the world's first refuge created to protect and observe birds of prey.
- Middle Creek Wildlife Management Area: a portion of state game land in Lebanon and Lancaster counties where visitors can observe 238 species of water fowl.
- Elk viewing areas: a 144 square mile area of State forest and game land in Cameron and Elk counties, where Pennsylvania's only elk herd roams unrestricted.
- Shaver's Creek Environmental Center: a raptor rehabilitation center in Centre County where the surrounding grounds feature a wide variety of ecological habitats and indigenous wildlife.

The interview teams asked visitors questions related to destination, round trip miles and expenditures, duration of the trip, and length of stay.

Two Econometric Procedures

Two prominent econometric procedures were used to estimate consumers' surplus at each location: the travel cost method (TCM) (Rosenthal and others 1984) and the contingent valuation method (CVM) (Moser and Dunning 1986). TCM involved statistical modeling to relate quantities of use to total trip costs. The CVM compared average travel costs per person at the interview locations with average estimated travel costs required to visit a substitute, equally-desirable site. The aggregate value of each of the six amenity resources was derived by multiplying a location's total number of visitor days by the location's average willingness-to-pay (or

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consumer surplus) value—as calculated by either the TCM or the CVM. A visitor day was defined as one recreation visitor at one of the study locations for part or all of one day (*table 1*).

Consumer Surplus Varied Widely

The resulting average willingness-to-pay values (1993 dollars) at the five locations compared favorably in some instances with values estimated (using the same econometric procedures) for consumptive, hunting and fishing activities and other nonconsumptive forest recreation activities such as hiking and backpacking in dispersed recreation environments and wilderness areas in western states (Shafer and others 1993).

At the high end, for example, anglers would be willing to pay $53 each to catch and release trout at Fisherman's Paradise. But they're willing to pay less than half that—$19—to fish per day on Spring Creek. Visitors at Hawk Mountain are willing to pay $15 to see hawks, falcons, and eagles in flight during their fall migration. While visitors to Elk County will spend $24 a day to watch elk or to even hear them bugle. At other locations visitors will spend $7 a day to watch waterfowl at Middle Creek and about $4 to spend a day at Shaver's Creek Environmental Center (*table 1*).

The total consumers' surplus value (1993 dollars) of all six activities to participants amounted to a total of more than $1.5 million annually—twice the total out-of-pocket expenditures of approximately $769,700 spent to visit the sites (*table 1*).

What's On The Horizon?

As natural resource conservation issues collide against development pressures, it is particularly important to know how much a population would pay to enjoy a natural location. Extensive research, development, and application efforts need to be expended on this issue in order to:

- Increase resource manager's understanding of the current net economic value of a wide range of natural environment in which wildlife can be enjoyed for its sheer natural beauty.
- Demonstrate the net economic value of creating new amenity resources.
- Make more allocation decisions during current and future wildlife resource management planning.
- Predict—in some cases—nature-oriented tourism travel behavior.
- Forecast economic consequences of physical changes in the quality of the amenity resources involved.

Table 1—*Annual total resource values for each of the six study locations (1993 dollars).*

Activity (location)	Total number of visitors	Expenditures[1] per visitor day	Annual total expenditures[2]	Net economic value per visitor day[3]	Annual total resource value[4]
Catch-and-release trout fly fishing (Fisherman's Paradise—1.04 miles)	1,648	16.56	35,597	53.40 (TCM)	86,019 or 84,634 per stream mile
Catch and release trout fishing (Spring Creek—3.31 miles)	2,894	5.19	15,002	19.32 (TCM)	55,912 or 16,691 per stream mile
Watching birds of prey (Hawk Mountain—2000 acres)	46,100	7.00	322,515	15.04 (CVM)	693,344
Observing waterfowl (Middle Creek—5200 acres)	75,900	2.73	207,662	4.28 (CVM)	324,852
Viewing elk (State Forest and Game Lands—144 square miles)	7,200	14.22	102,384	24.51 (CVM)	176,472
Environmental education (Shavers Creek)	45,000	1.92	86,575	4.44 (CVM)	190,800

[1]Average amount spent per day by a typical visitor; expenditures were total out-of-pocket costs for transportation, lodging, food, and beverages, entertainment, equipment rental, recreation site fees, supplies, and miscellaneous items associated with the visit.

[2]Total amount spent by visitor to the activity.

[3]The additional amount a typical visitor would have been willing to pay per day over and above his actual expenditure as computed by TCM or CVM. (TCM-travel cost method, CVM-contingent valuation method.)

[4]Total number of visitor days multiplied by net economic value per day for that activity.

Current Net Economic Values Are Not Enough

In addition to net economic value, other economic values are also needed. For instance, current users derive economic benefits from knowing that amenity resources exist (existence values), or knowing they exist for future generations (bequest values). Furthermore, many people who are not currently using these areas would be willing to pay to maintain the opportunity to use these kinds of environments in the future (option values). Public opinion surveys need to be conducted within each State to evaluate existence, bequest and option values (along with net economic values) for wildlife and other nonconsumptive forest-recreation activities (Walsh and others 1984).

Conclusions

How much is a pristine trout stream worth where you're not allowed to keep your catch? Or a promontory where it's possible to witness an aerobatic display of hawks and other birds of prey? With increasing frequency such questions can be answered in economic as well as emotional terms. The consumer surplus (or willingness-to-pay) values reported in this paper for five different kinds of nonconsumptive uses of fish and wildlife are over and above the average cost of travel, purchasing admission or equipment, or the price of food and lodging during the visit. In other words, these values represent what someone would pay merely for the experience.

Resource economics might not entirely balance the scales—or accurately estimate the exact value of amenity resources. However, it is a step in the right direction. An old expression says that we know the price of everything but the value of nothing. It's time to take action to more fully evaluate the nonconsumptive values of fish and wildlife. These natural resources enrich our lives in many ways with aesthetic, scientific, cultural, educational, recreational, and economic values. As sensitive indicators of the health of our environment, they are indeed components of the web of life that sustains all of us (President's Commission on Americans Outdoors 1986).

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Resource Management Case Studies

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The Potential Impacts of the Homeless on Public Lands[1]

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Abstract: The multidimensional problem of the homeless population in San Bernardino and nearby counties in California is examined and its impacts on adjacent public lands. The characteristics of the homeless in the area are described, as well as possible implications of this population for public lands use. Issues related to the homeless population are examined, such as displacement of recreational uses, economic development, law enforcement, and population mobility.

In the western United States, as in other parts of the country, the problems of homelessness are readily apparent. In almost every community, the number of people homeless and on the streets has been increasing during the last 3 years (Dixon 1993). In some areas, the homeless are concentrated in urban areas only (Orange County Register 1993). However, in other areas the homeless not only affect the traditional urban areas, but may also impact public lands that are adjacent to or near urban areas. Some of these impacts are related to health problems, drug problems, increased crime, children not attending school, and the issue of trespass. To better understand the existing impacts of the homeless on public lands and the potential impacts from continued occupancy by this group, the socio-economic and demographic characteristics of this group of individuals should be studied. To this end, the Center for Community Affairs, in conjunction with the San Bernardino Homeless Coalition, commissioned a study on the homeless population in western San Bernardino County (traditionally known as the Inland Empire) and in the city of Pomona (located in the east end of Los Angeles County).

The objectives of this research were twofold. First, data concerning the socio-economic and demographic characteristics of the homeless were developed. Second, problems that this population present to urban and rural areas, as well as to public lands, were explored.

Study Area

Los Angeles, Riverside, and San Bernardino Counties all include large amounts of public land in the form of State parks, USDI National Parks and monuments, USDA National Forests, and USDI Bureau of Land Management resource areas. Each of these public lands in the above-mentioned counties is either located right next to a large urban area or within an hour travel time from one.

The area selected for study included approximately seven small communities located within the Los Angeles urban milieu. These communities were Pomona, Montclair, Ontario, Upland, Rancho Cucamonga, Chino, and Chino Hills (*figure 1*). The communities comprise about 300 square miles. The total population of these communities is about 250,000 people (State of California 1992). The study area is located near the Angeles, San Bernardino, and Cleveland National Forests and is, in many places, not immediately adjacent to public lands. It is sufficiently close, however, so that speculations may be made from this and other data sources concerning the impacts on resources from the homeless, should larger numbers begin to occupy public lands.

Data Collection

Data collection occurred during the first 2 weeks of May 1993. Supporting data, collected by other researchers in the same geographic area in 1992 or 1993, are also presented for comparative purposes.

Sample Size, Randomness, and the Interview Process

The Coordinator of the San Bernardino County Coalition estimated that about 3,000 to 5,000 homeless people in the area were studied (San Bernardino County Homeless Coalition 1992). To make valid generalizations for a population of this size, the sample must contain about 325 to 350 people. The interview teams conducted 329 useable interviews; this number was of adequate size so that statements about the existing population and predictions of future impacts from this population on public lands near the study area could be made.

In many instances, inadequate sample size can present problems; but in this research, the concept of randomness was more problematic. Because those selected for interviews were drawn from the street as they were encountered, randomness in the selection process could not be guaranteed. This process therefore may have yielded potentially biased results. Nevertheless, the study does yield findings concerning the status of the homeless in the study area. These findings could form the basis for other studies conducted in a more structured way, which could yield statistically significant findings.

About 30 interview teams comprised of two to three student members from Economics classes at the California Polytechnic University-Pomona, were developed. The students were given instruction in interviewing techniques. Although

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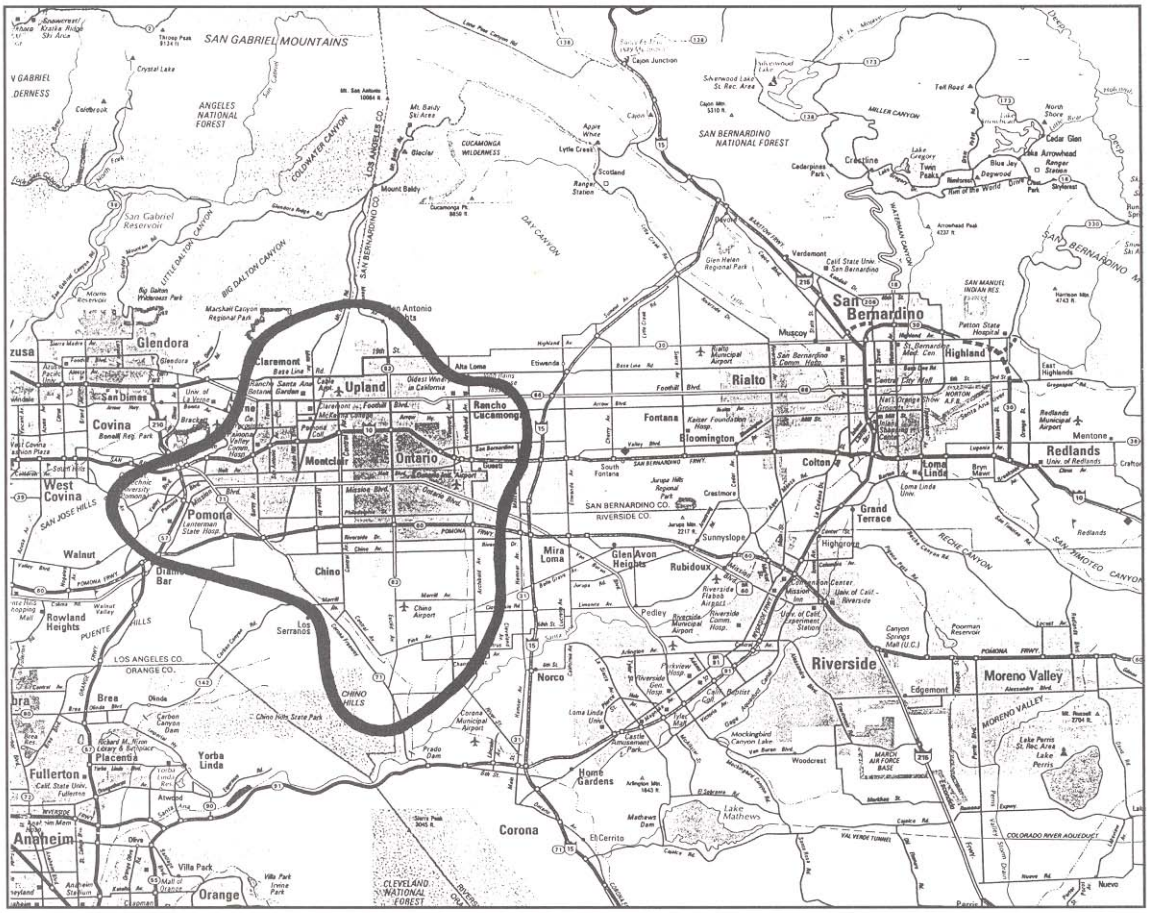

Figure 1—Map of the study area.

these teams used a structured questionnaire as a basic guide, team members were allowed to rephrase questions if needed. Several of the teams contained Spanish-speaking members who provided assistance in helping interviewees understand the questions. Each team was assigned an interview area derived from geographic data given to the authors by the Homeless Coalition Coordinator for San Bernardino County and the Social Services Department of the City of Pomona.

Analysis of the Data

The data were analyzed in the form of percentages and tabulated. Conclusions concerning the homeless were drawn from these data as well as other data available to us from the previous research of others in the study area. The implications of this information for urban areas and public lands were drawn solely from the data gathered and telephone interviews conducted with USDA Forest Service personnel.

Comparison of Current and Past Research Results

The data we developed and from this and from two other studies of the area (the San Bernardino Homeless Study and the Redlands Family Service Study) were compared and contrasted (San Bernardino County Homeless 1993; Redlands Family Service Association 1993). These studies' results are included in this paper so that a more complete picture of the homeless in the study area counties can be presented.

Although some similarities in data do exist among the studies, the studies themselves surveyed differing homeless populations: the present study was conducted with street people; the San Bernardino County study (SBC) accessed many different types of homeless; and the Redlands Family Service Association study (FSA) primarily surveyed families. The three groups were compared, yielding many interesting characteristics of the homeless.

Gender, Age, and Ethnicity of the Homeless

The Blumner-Daugherty (B-D) and the San Bernardino County (SBC) data indicate that the majority of the homeless encountered in the interview process were males (*table 1*). The Redlands Family Service Association (FSA) data indicate that the majority were females. This difference may be explained by the FSA organization's clientele, which is primarily families. Often these families are headed by females. Thus, the clientele of the FSA provides a different population pool than either the B-D data or SBC data.

Table 1—*Gender of the homeless interviewed in seven southern California communities.*

Gender	B-D[1]	SBC[2]	FSA[3]
	percent		
Males	79.9	55	35.7
Females	20.1	45	64.3

[1]Blumner-Daugherty data.
[2]San Bernardino County data.
[3]Redlands Family Service Association data.

Table 2—*Average age of the homeless*

	B-D[1]	SBC[2]	FSA[3]
Average age of homeless adults	34	27.7	32

[1]Blumner-Daugherty data.
[2]San Bernardino County data.
[3]Redlands Family Service Association data

Table 3—*Ethnic background of the homeless*

Ethnic Background	B-D[1]	SBC[2]	FSA[3]
	percent		
White	29.2	46	63.6
African-Amer	26.4	20	12.7
Hispanic	27.4	29	22.5
Native American	5.2	2	1.2
Asian-Pacific	4.6	1	0
Declined to State	4.6	0	0
Other	2.7	0	0

[1]Blumner-Daugherty data.
[2]San Bernardino County data.
[3]Redlands Family Service Association data

Table 4—*Where the homeless sleep*

Location	B-D[1]	SBC[2]
	percent	
Mission	6	0
Shelter	9	16
Motel	8	16
Outside	37	12
With friends	15	39
Cars, buildings, etc	12	18
Other	12	0

[1]Blumner-Daugherty data.
[2]San Bernardino County data.

The SBC and FSA data show a narrower differential in gender percentages than that of the B-D data. One possible explanation for this is that the B-D data were collected primarily from street people, most of whom are male. The other research data were collected from a variety of situations including, but not limited to the street, a feeding center, service providers, and shelters. While the B-D data may not offer a broad overview of all those homeless, it may give a better picture of those on the streets. This finding is important because street people may be more mobile than other homeless and could migrate more readily to public lands.

The average age of the homeless adults in all three studies indicates that those interviewed were mainly between the ages of 25 and 40 (*table 2*). The FSA data indicated that while the average age of the children in their study was about 7.52 years, the percentage of homeless comprised of children was not revealed. The SBC data indicate that of the total population surveyed, the number of people under the age of 18 was 32 percent. The B-D survey indicated that only about 5 percent of those surveyed were under the age of 20. Thus, because of some differences in the sample populations, statements about the significance of children as part of the homeless population are difficult to make.

The most divergent data from the studies were those indicating the number of whites who were homeless (*table 3*). Some possible explanations for this divergence might be the missions of the sponsoring agencies or the goals of the studies themselves. However, conclusions of importance can be drawn from all the data: the percentages of Hispanics and African-Americans as homeless differ greatly from their actual percentages in the American population—i.e., minorities comprise a higher portion of the homeless population than was expected.

Socio-spatial Characteristics of the Homeless

One question of interest to these researchers that also had been asked of those in the SBC survey addressed the issue of where the respondents sleep (*table 4*). The B-D data revealed that the majority of the homeless sleep "outside," while the SBC data indicate that only 12 percent sleep outside and another 6 percent slept in "abandoned buildings." The high number of homeless sleeping in cars, buildings, and outside present possible social service/law enforcement problems for all public agencies.

Two of the most common misconceptions about the homeless problem are that the people who are homeless have just become that way and that they migrate readily from one geographic area to another. Many also perceive that the homeless have migrated to California because of social service benefits available to them, and/or the benign weather (O'Hare 1987).

The three studies provide data on the length of time those interviewed have been homeless (*table 5*).

The homeless problem is not one that has only occurred in the last few months. The B-D and FSA studies indicate that many of those sampled have been homeless more than 4 years.

The length of time in the area is of some value in determining whether those homeless surveyed have migrated

Table 5—*Length of time homeless*

	Average time period
B-D	1 to 2 years
SBC	16 months
FSA	2 to 3 years

Table 6—*Length of time in the area*

Time Period	Percentage of sample
Days	14.9
Months	22.3
Years	62.3

to California to obtain increased benefits or whether they are long-term residents. The B-D study was the only one that addressed this issue. It found that the majority of the homeless had been in the area for quite a while (*table 6*).

Unfortunately, no direct questions were asked concerning whether those surveyed were natives or whether they had migrated to California. However, the data do indicate that the majority of those surveyed had been in the area for a number of years indicating, perhaps, that although benefits and climate may not be the reasons the homeless came to California, these might be the reasons why they remain.

Table 7—*Sources of income for the homeless*

Most frequently cited source	B-D	SBC
	----------percent----------	
Food stamps	1.4	56
Welfare	22.3	52
Recycled goods	0	20
Veterans	3.8	2
Social Security	12.4	6
Workman's Compensation	2.2	3
No income	45.9	15

Socio-Economic Characteristics of the Homeless

All three studies obtained data on income. The studies reported major differences in income levels. The data presented by the FSA, which was reported in dollar figures only, revealed that most of the homeless families interviewed had incomes that might enable them, when combined with other forms of assistance, to rent or own a residence. We were not able, given the structure of the report, to classify the income data into "sources of income." The FSA concluded that the majority of the homeless interviewed were homeless by choice and that they were abusing the system.

The B-D and SBC data indicate a different scenario. The conclusions drawn from these data were that the majority of homeless do not receive adequate funds to have regular shelter and that most are living "near the margin" (*table 7*).

Although the data show mixed results, those homeless interviewed in the SBC study received most of their income from welfare and food stamps. Similarly, the B-D study indicated that the majority of the homeless received their income from welfare, food stamps, and social security. Because of the depth of the questions in the B-D study, it was determined that 45 percent of those interviewed received no income. Further analysis of the data showed that these individuals received no income for two reasons: many of these individuals did not apply because it was a "hassle" to do so; and secondly, many did not have a permanent mailing address to receive the funds through the mail.

Only the B-D and SBC studies examined the reasons for homelessness. These studies found reasons most often cited for homelessness that included lack of employment, substance abuse, and the sharing of homes with others.

A final area of interest to these researchers--which was not addressed in the other studies--was skill levels in terms of occupation (*table 8*).

Table 8—*Skill level of the homeless*

Skill level	Interviewees
Unskilled	150
Semi-skilled	110
Skilled	35
Technical	15
Management	18

The vast majority of the homeless were unskilled or semi-skilled. This finding has important implications for the California economy. As the economy recovers, less unskilled and semi-skilled employees will be needed as the economy shifts to more technical means of production. The long-term prospect for these workers is a continued decline in the labor force (Rossi 1989).

Implications for Public Service Providers

A large number of homeless in any given area present increased service demands on the providers of public services (Erikson and Wilhelm 1986). At present, most of the homeless nationwide are located in urban areas. However, many urban areas are located in close proximity to public lands of all types. If the samples used in this study described the approximate general homeless population of Southern California, the following conclusions about the homeless can be drawn:

- The homeless are relatively young.
- The homeless group contains a disproportionate number of Hispanics and African-Americans.

- The homeless have lived in the area more than 1 year.
- The homeless have little or no source of dependable income.
- Large numbers of homeless do not sleep in traditional shelters.
- The homeless have low occupational skill levels.
- Large numbers of homeless may have alcohol and substance abuse problems.

The Impacts of the Homeless on Public Lands

The results of the three studies show that the homeless have the potential to become an increasing presence on public lands. With their many and varied problems, the homeless present a source of problems for law enforcement agencies in urban and rural areas and on the public lands. For example, the Riverside County Sheriff in Hemet and health department officials have had to deal with homeless individuals who have been squatting on land near Idyllwild that is adjacent to the San Bernardino National Forest. In addition, in the San Bernardino area, squatters have located on land in the National Forest and present a source of violations such as exceeding the time limit for camping, unhealthy sanitary conditions, drug and alcohol problems, littering the area by building temporary shelters (much like the "Hoovervilles" of the Depression) (USDA Forest Service 1993).

We believe that if the economic situation in California continues to decline, the problem of squatters in the state's National Forests and on other public lands will increase. We also believe that squatting on public lands outside designated camping areas will increase, resulting in the need to devote more public agency resources to law and code enforcement. This may occur as the number of squatters increases and the agencies attempt to control problems of vandalism, fire, crime, and drug use (USDA Forest Service 1993). The agencies may need to devote more resources to the training of personnel to deal with these problems.

Problems of Exceeding Campground Time Limitations

A growing problem, which has been substantiated by interviews with some public agency professionals, is that of the homeless exceeding campground time limitations. Homeless individuals commonly move into campgrounds on the public lands (USDA Forest Service 1993). However, in some instances, these individuals habitually exceed the campground limitation period of 14 days. The typical response is that these individuals simply move on to another district and repeat the cycle. Because detailed records are not kept of visitors to the public lands, the homeless who have been "evicted" from their campsite simply move on to two or three other districts first before returning to their first site (USDA Forest Service 1993).

Bizarre cases have also been reported involving groups of individuals who have decided that they are "mountain men," living in wilderness areas, killing wildlife, and destroying vegetation. These trespassers are part of the homeless population (USDA Forest Service 1993), but they are difficult to find because of the staffing limitations of most public agencies.

The implications for public agencies are many. The homeless have a right to use public lands, as do all citizens. However, to the extent that they exceed their visit limitations; build semi-permanent residences; and leave their collected belongings such as cans, bottles, and other forms of refuse on the public lands, they do cause problems for other visitors. Public agencies need to increase their enforcement personnel to help maintain the public lands so that these lands do not become major homeless encampments.

Minor Children

An increasing number of homeless families are now entering the public lands (USDA Forest Service 1993). As these families lose their homes, many of them have relocated on the public lands. This poses problems for compliance with school attendance laws.

In California, children must attend school until the age of 16 (State of California Education Code). In addition, parents must provide for these children until they are of the age of 18 (State of California Civil Code). Public agency officials must report the appearance of children on the public land to the local authorities if school attendance violations have occurred.

Substance Abuse and Emotional Problems

Substance abuse and emotional problems are increasing in the United States. The three studies of the homeless indicate that these two problems appear to be significant in homeless populations. Public agency professional need to be provided with training on how to deal with individuals or groups engaging in substance abuse and how to deal with visitors showing unusual behavior.

Conclusions

The long-term implications of the homeless on public lands can only be a matter of conjecture. Recovery for the California economy is predicted to occur in late 1994 or 1995 (Bank of America 1993). The economy, at present, is down-sizing and in many sectors, substituting capital for labor. Thus, the unskilled, semi-skilled and even some technically-trained workers will have difficulty finding employment in the future. Unless some major programs are begun for job retraining and employment relocation, the number of homeless will increase nationwide. This situation will be particularly great in California because of the closing of military bases and the shrinking of the defense sector. If the above conditions continue, possible implications for public lands in California would include:

- A potential increase in squatters on public land.
- A potential increase in the number of homeless exceeding the campground time limits.
- As families with young children become more common amongst the homeless, it may be necessary to have

coordination with several public agencies to deal with possible child abuse and school absences.

- If the homeless cannot find work because of their low skill levels—even as the economy improves—this group's use of public lands may increase.
- Because of immigration, non-English speaking peoples with low skill levels may become homeless and turn to the public lands for shelter.
- To deal with non-English speaking peoples, public agencies will need to increase bilingual personnel.

Because of the exploratory nature of this research, additional information needs to be gathered on the homeless, specifically addressing the issues most likely to affect the use of public lands by the homeless. Only primary data gathering will determine if homeless population characteristics and problems from the urban homeless are very different from those of the homeless who are found on the public lands. If the data collected reveal similar socio-economic and demographic characteristics, then the suggested implications from our research will be confirmed. If they do not, then additional study needs to be done to determine the precise nature of the socio-economic and demographic characteristics of those homeless who seek shelter on the nation's public lands, and to develop solutions to a problem with important implications for public land managers.

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Community Based Research for an Urban Recreation Application of Benefits-Based Management[1]

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Abstract: Benefits-based management is an approach to park and recreation management that focuses on the positive outcomes of engaging in recreational experiences. Because one class of possible benefits accrue to the community, a philosophical framework is discussed suggesting that communities are themselves the primary sources, generators, and repositories of knowledge. Communities are valuable sources of information about their own needs, and are important players in benefits-based management. A strategy is described to provide an overview of the needs of two communities within the city of Portland, Oregon, and the usefulness of this information to implementing a benefits-based management approach.

Park professionals believe in the value of the forest and parklands we study, research, and manage. The enjoyment and benefits that the public gains from these sites and the services provided are strong professional motivators. But somehow that conviction does not translate fully to the community at large. Perhaps community groups do not maintain the same beliefs as park managers. Despite our best efforts at public participation our management plans are still criticized by the media and the courts. And despite the joy and satisfaction of our programs, budgets have been frozen or diminished as other priorities take precedence.

Benefits-based management (BBM) is an attempt to reverse this trend by providing a clearer understanding and documentation of the recreation management process and outcomes and by giving the community voice in the planning process. Benefits-based management aims to explicitly identify the unmet needs of the community, to develop specific time-bound management objectives that guide planning and programming to help meet these needs, and then to measure the outputs, or societal benefits, of an agency's management.

Social scientists from the Rocky Mountain Forest and Range Experiment Station of the USDA Forest Service and their associates have begun trial implementations of benefits-based management across the country (Lee and Driver 1992). One of the urban pilot programs for benefits-based management is being conducted in conjunction with the Bureau of Parks and Recreation in Portland, Oregon. Portland has a reputation as a very livable city, partly attributed to its extensive urban forest and park system. The Bureau of Parks and Recreation, under the guidance of its director, Charles Jordan, seeks to provide essential social and cultural opportunities to the whole range of Portland's population. Jordan, in summing up how parks and recreation services are more than just fun and games, appeals to social science researchers to provide the missing statistics and charts needed to convince decision-makers that the supporting role of parks and recreation is an essential part of the holistic solution to the challenges of the 90's that are facing our society (Jordan 1992). Benefits-based management is part of this effort to document the benefits to society.

Benefits-Based Management

A benefits-based management approach focuses on the effects of a recreational activity rather than on the activity itself. Park and recreation providers frequently concentrate only on the provision of activity opportunities. The successful classes and programs of a previous year are commonly used to simply replicate a defacto policy decision for future years. Facilities, staff abilities, and resource constraints also determine which opportunities are offered. These decision making processes focus on the provision of recreation activities and on the number of people who participate in them.

Benefits-based management is different. Rather than concentrating on the mechanics of providing the recreation opportunity, it explicitly defines the outcome of the experience. In effect it shifts emphasis from the supply side and into the demand side of recreation. But BBM goes beyond simple exhibited demand for park and recreation opportunities because it looks at the needs of the people rather than just what they demand. Our customers' specific recreational wants are shaped by their awareness of the possibilities and the known outcomes of these options. But this knowledge may be limited. They might also temper their demands by their own realistic appraisal of the daily constraints on their lives. But our clients do know their own needs. They can identify the problems and pressures in their lives, for which they would like some antidote. Our job as professionals is to find the activity and setting that provides them that antidote. This method is the heart of the benefits-based management approach.

The shift from an activity-based management approach to a benefits-based approach has been echoed in the attention of research. Initial efforts were focused on counting the number of people and the number of activities, as well as settings and resources they would require and consume. As attention shifted to an experience-based approach, the quality

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of the experience rather than the quantity was important. According to the Recreation Opportunity Spectrum planning framework, managers would concentrate on the provision of physical, social and managerial conditions optimal for a particular type of recreational experience. A benefits-based approach goes a step further and identifies not only the psychological and experiential outcomes of the experience, but also the flow of benefits to individuals, groups, communities and society in general.

Our knowledge of the general benefits of recreation is quite advanced, particularly as documented in the wilderness literature (Driver and others 1987 1991a, Schreyer and Driver 1989). Driver and others (1991b) define a benefit as a change that is viewed to be advantageous - an improvement in condition, or a gain to an individual, a group, to society, or to another entity. However, the techniques for specifying and measuring the consequences of the provision of specific park and recreation resources are not well-defined, nor is the appraisal of the value of these consequences to particular individuals, groups and society. The benefits-based approach seeks to specify clearly-defined, measurable, time bounded objectives. More particularly, management seeks to provide specific benefits at specific areas to targeted segments of the community within specific time periods. This approach is similar to MBO--"management by objectives."

One challenge of a benefits-based management approach is to turn to the community to help them identify their needs. We need to go out into the community and ask the targeted audience (e.g., single mothers) what they feel they need, how we can meet those needs, and what we can do for them. Significant effort and skill is required to become immersed in, and a part of, the specific target community. Consensus on the needs and concerns of the community is a necessary step, as well as the mobilization of support for any innovations.

An Application in Two Portland Communities

As a trial application of benefits-based management we attempted to go to the local communities in Portland to help them identify their needs. Because our focus was on community benefits, our methods were anchored within a philosophical framework that regards the community as the holder and source of knowledge. Our role as researchers is to help give voice to, and to gather and document that knowledge. As Sommer (1990) stated, "The researcher who seeks to understand or change a place must know and respect its spirit, the constellation of attributes that sets it apart from all other places."

But our knowledge is itself socially constructed and constrained by the evidence generated by our research efforts or provided to us. The standards of what constitutes evidence is not only a product of the scientific community but also of the community in which the knowledge originates. Indeed, the standards of evidence are relative and dynamic since they are developed in the process of gathering knowledge.

Implicit within the above discussion is the notion that communities are the main generators, sources, stores and acquirers of knowledge. Thus our research must be anchored within those communities. This method is in marked contrast to a more individualist approach, which maintains that the self and self-knowledge are the only reality. A more communalist framework is neither objectivist in the sense that every knower sees a universal, objective truth, nor is it relativist in which everyone's knowing is the truth. Rather because everything we sense is shaped and mediated by the influences, practices and traditions of the socio-historical context, we should focus our attention on the community. As Nelson (1993a) explained, "My claims to know are subject to the knowledge and standards constructed by the various communities of which I am a member; indeed, I have the ability to know only because there are such communities, and both my communities and I will judge my claims by reference to communal standards and knowledge."

Thus, the question is one of not only what is known but who knows. Science can be seen as a dynamic process of society to construct and re-construct knowledge. Science can aim to make sense of, explain, and document the experience and features of our world. A communalist approach allows for evidence and reasonable belief without certainty. Our theories and understandings are underdetermined by the evidence we collect. Future experiences and experiments may lead to different conclusions. Furthermore, all the evidence we collect is a product not only of the community under study but also of the larger system of a priori assumptions, theories, practices and standards of evidence. These aspects of research change, and so we should also expect our understandings and theories to change. Coherence and explanatory power could become important criteria for assessing the reasonableness of these products of research.

Furthermore, our sensory experiences are neither objective nor direct. They are insufficient to discriminate a universal or best truth or theory. Our perceptions are shaped and moderated by our social and evolutionary heritage. Our senses have adapted and been refined to allow us to survive. We filter, organize and are differentially sensitive to those aspects of our total environment which are most adaptive and useful for our existence. Additionally, much of our sensory experience is mediated through socially constructed and meaning laden signs, such as language, numbers, icons, and myths. The idea of the independent, objective observer as a credible notion of science is increasingly difficult to accept.

Indeed, the individual exists embodied and situated within the specific social and historical context of the community. Personal identity does not exist outside the social roles and pressures implicit in interactions with others. Although some would say that social roles do not determine identity (Cochrane 1989), character and personal meaning are embedded in the social milieu. As MacIntyre (1981) suggests "... the story of my life is always embedded in the story of those communities from which I derive my identity. Not only do we interpret ourselves in the context of the community and its traditions,

but the experiences that have shaped our characteristics are themselves shaped by traditions. We are not passive receivers of knowledge; rather we actively construct meaning and knowledge from within the community.

However, the notion of a community is itself not well defined. Political and geographic boundaries are rarely appropriate. Indeed, the community should be self-defined. MacIntyre (1981) suggests the following requirements for community: a common sense of tradition and ritual; shared histories and common stories and myths; a common conception of good such as shared purposes or goals; and shared values and principles reflecting perhaps a common religious background. Much of this stems as a result of birth, legacy and family relations as well as geographical or physical proximity. However, these factors may also arise from work, leisure and lifestyle commitments.

The definition by McMillan and Chavis (1986) is appropriate: "Sense of community is a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members' needs will be met through their commitment to be together." That commitment also has costs in terms of limits on individual expression, mobility and privacy. Similarly, although communities provide psychological support, they also physically and psychologically coerce. But as Anderson and others (1988) suggest: Given the choice, many Americans chose to think of themselves in terms not only of individual, but community, identities.

Nelson (1993b) defines "a group or community that constructs and shares knowledge and standards of evidence" as an epistemological community. These standards then allow individuals to organize their experiences. The epistemological communities are frequently a function of shared projects and purposes, reflecting perhaps the notion of community mentioned above. Thus, individual knowing is derivative and dependent on the communities knowledge: you or I can only know what we as a community know or could know. Epistemological communities are wide ranging, overlapping, ever-changing and also quite fuzzy at the boundaries. For example, the group of scientists in a laboratory or sub-discipline, or who collaborate on a project, generate knowledge as a community, but are difficult to definitively bound in any given time or place.

Data Collection

Portland is an ideal location in which to pilot test a benefits-based management approach. The city has an excellent reputation for its livability and high level of provided services. The city and its people are committed to the outdoors and are proud of their park heritage. Although Portland has a high proportion of whites, ethnic and racial diversity among the different districts of the city is still prevalent. For the purpose of this study, two lower-income suburban communities were chosen. We felt that the main outcome of our research efforts at this stage was the documentation of the community context in which we could implement benefits-based management.

We used a variety of strategies to help us understand and explain the experience and features of these two communities. Our attention was focused on two community centers, one from each neighborhood, which would serve as the programmatic center for the implementation of benefits-based management. Initially, socio-economic data was collected for the service area neighborhoods for the community centers (Johnson 1993). Historical accounts of the growth of the area and current neighborhood planning documents were also used to inform researchers. More current topical issues were collated through the use of newspaper archives.

However, the bulk of the research efforts was aimed at documenting the current values of the community. Participant observation techniques, where the researcher takes an active role within the community, allowed access to otherwise undocumented knowledge. In addition to spending time interacting within the community and the community centers, the researchers also had standing within the Bureau of Parks and Recreation. In addition to describing and coming to an understanding of the communities, we sought to identify the organizational context and possible opportunities and constraints for the implementation of the pilot test of a benefits-based management approach. The researchers were therefore invited to attend both management and community meetings.

A variety of focus groups were held with general community members, community leaders and with those involved in various current community planning efforts. Individual interviews and personal accounts were held with key informants. These informants were identified using a snowball technique whereby each informant was asked to identify others who played significant roles in the community and who therefore should be contacted. A range of community leaders, including church leaders, business leaders, social workers and store holders were interviewed. Each session lasted between 1 and 2 hours and focused on describing the community, its uniqueness and its problems today. Researchers returned to some informants to check and validate their findings.

Some Example Findings

The Mt. Scott community in southeast Portland had traditionally been a family neighborhood of mainly British and Northern European descent. Although considered a lower-income and economically depressed area, the majority of houses were owner occupied family homes. Even though only 44 percent of the people had resided in the same house since 1985, many considered Mt. Scott particularly stable. Frequent mention was made of second and third generation families who had lived in the same house, as well as the frequent return of young parents to the home and community in which they grew up. Several community leaders considered this close kinship and insularity a problem. The community

expressed a commitment to maintaining the status quo and a tendency to resist change. New members, particularly those of another ethnic group, struggled to feel welcome and part of the community. Some community members felt besieged by more general societal pressures. The city's community center, considered by many to be the focal point of the neighborhood, was uniquely placed to help the community meet these challenges. It has been a source and symbol of community pride.

The needs of the Mt. Scott community seem to focus around the family. Child care needs were substantially unmet. Further, the community maintained that many adolescents have little connection or responsibility toward the neighborhood. One long-term solution is to work with the very young. By attracting them to the community center at an early age, the goal has been to build loyalties and patterns of behavior that will last through their adolescence and into adulthood. This is particularly relevant to the Mt. Scott neighborhood, given the preponderance of single-mother households and the need for more childcare for the very young children. An organized child care program, for example, would not only bring the young children back into the community center and neighborhood, it would also involve the parents. They too would become aware of the resources and opportunities available. And frequently older children of the same family also become involved. Parallel classes might be proposed for those parents who do have the time available. Research on shared leisure experiences has demonstrated such positive outcomes as increased family satisfaction, family interactions and family stability (Orthner and Mancini 1990).

The Eliot community in northeast Portland, in contrast, has had a long tradition as a center of African-American activity, but is now facing an uncertain future. Urban renewal programs and civic construction have driven away many local businesses. Cheap but attractively located houses have been bought by mainly white, first-home buyers and speculators. As the percentage of owner-occupiers has dropped, there has been less attention to property maintenance. The Eliot community has a very strong church presence, to which many turn for leadership. The churches are working on community problems, such as the high violent crime rate, much of which is carried out by juveniles. Church leaders have also worked with the Bureau of Parks and Recreation in sharing resources and facilities to provide better recreational opportunities for youth.

The community has been eagerly awaiting the recent re-opening of the Matt Dishman Community Center. People have been waiting for an indication of whom the community center will serve. Many local neighbors had thought the community center was theirs, a high quality facility to serve their needs. However, they are now seeing an influx of people from outside the neighborhood. The new members on the other hand see the center as a regional resource, a magnet that attracts outside communities. A common theme from many community leaders was the hope that the community center could serve as a neighborhood connection. As a family center it could become a source not only of recreational activities for both boys and girls but also of information and help for the parents. It could become the hub of the neighborhood, a gathering place where everyone feels welcome. The community center could also become a showcase of neighborhood pride and achievements. Members of the Eliot community often mentioned the need to instill a greater sense of historic and cultural place among their young people. A mentoring program has been suggested that would allow community elders to pass on some of the traditions of the region and community to younger members. Such a program would also help provide personal contact, commitment, and guidance to the sometimes wayward youth. Mentors have been reported to help lower high risk behaviors such as drug abuse and teen pregnancies, and raise school related performances (McPartland and Nettles 1991). The mentors themselves would become a core representing most facets of the community, and would gain leadership skills from their training. A mentoring program would serve as the vehicle for bringing back the people to the community center.

The Bureau of Parks and Recreation is ideally suited to help meet some of these needs identified within these two communities. Its mission statement mentions the aim of enriching people's lives, in which recreation is only one piece of what is needed for a balanced and healthy community. The organizational context and constraints to implementing programs and services to meet these needs is documented elsewhere (Borrie and Roggenbuck 1993). The Bureau of Parks and Recreation aims to institute specific time bounded objectives for the needs of the two communities. The impacts and outcomes of the services provided will be measured as an indicator of their success. As a trial benefits-based management approach, we hope to develop both quantitative and qualitative measures of the clearly defined benefits. For example, the success of a mentoring program in the Eliot community could be examined by measures of incidence of problematic behaviors of youth participants, and by evaluations of the sense of belonging and attachment within the community. Other benefits being examined include environmental learning outcomes as a result of programs designed to meet the environmental education needs of the communities.

Conclusion

By focusing on the perceived needs of the community, benefits-based management both empowers and informs the clients of our park and recreation services. As a management and research task, it is shifting the focus from expert driven, generalized policy and planning objectives to more local concerns. If our aims are to truly make a difference in the lives of the communities we serve, then benefits-based management and community based research are appropriate tools that should be further developed.

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Total Quality Management: Managing the Human Dimension in Natural Resource Agencies[1]

Denzil Verardo[2]

Abstract: Stewardship in an era of dwindling human resources requires new approaches to the way business is conducted in the public sector, and Total Quality Management (TQM) can be the avenue for this transformation. Resource agencies are no exception to this requirement, although modifications to "traditional" private enterprise versions of TQM implementation techniques must be done if success is going to be achieved. The application of TQM within a public resource agency has been the focus of the California Department of Parks and Recreation (DPR) during 1993-94. The lessons learned form the early stages of TQM implementation within the Department; the impact and implications for resource management teams; a candid discussion of the human dimension of implementation (internal and external); and a discussion of traditional TQM versus public agency TQM are addressed.

Although many governmental agencies were complaining about budget reductions in the context of California's stagnet economy, the California Department of Parks and Recreation (DPR) took a proactive approach to the problem of managing under these reductions. Under the guidance of State Parks Director Donald Murphy, mid-management levels were cut and the Department reorganized eliminating an entire level of bureaucracy that had increased over the years. Not only did restructuring reduce the potential for park closure, but it prevented the lay-off of field employees who directly serve the visitor. This was done while saving valuable, dwindling tax dollars. Already known for their service, park employees such as rangers, lifeguards, and maintenance workers were directed to give renewed emphasis to "customer" expectations as critical to the future of the DPR. Administrative support to those front-line employees was geared toward meeting their customers' needs; and resource management professionals were decentralized allowing for more rapid and better informed decisions at the field level where the resource issues were occurring.

This restructuring began in early 1992, soon after Governor Pete Wilson appointed Donald Murphy as Director of the California Department of Parks and Recreation, the first field Superintendent to ever become Director. Murphy appointed a committee, called the Phoenix Committee—symbolically named after the mythical bird that rose from its own ashes—to look at the Department's organizational structure. His charge to the Phoenix Committee was actually quite simple: simplify the reporting relationships within the DPR and make recommendations for change. Total Quality Management team practices were used by the group in carrying out its mission. The Director was given the duty to implement any recommended changes so that the Department was to carry out its managerial responsibilities—a true "reinventing" of the Department of Parks and Recreation (also referred to in this paper as DPR, State Park System, and California Park Service).

Originally, State Parks were organized into 55 (+) districts that reported to 5 regions; these regions in turn reported to a Sacramento Headquarters chain-of-command in a traditional police/military fashion. As a result of the Phoenix Committee recommendations, the 55 park districts were consolidated into 23, and the 5 regions were eliminated completely. The districts now report directly to a streamlined Sacramento Headquarters operation. Two resource service centers, one in the northern and one in the southern part of California, were created and staffed with specialists who could better meet district and resource needs by being closer to the issues at hand. The number of resource specialists, such as ecologists, was increased to allow their placement directly in the district operation. This consolidation of districts, decentralization of resource specialists, and flattening of the organizational structure saved the DPR 10 million dollars annually while transforming the Department in such a way that quality management applications could be effectively integrated into the "culture" of the organization.

District Superintendents and Departmental Managers were given broader authority to manage their units while being held accountable for maximizing revenue through the practice of sound fiscal management. Instead of levels of approval for even the most routine determination, these managers were delegated the authority to make any and all operational decisions within the scope of their duties.

While businesses in the private sector had undergone similar transformations, the number of public agencies that had looked at the efficiency of their operations and that had actually implemented structural improvements have been few and far between. Motivation is low in government for truly efficient operations, and in fact major structural changes can have a negative side effect to the agency if the political implications are not worked out in advance. When budget reductions occur in government, they traditionally occur "across the board" regardless of any efficiencies one agency may have introduced. However, with proper administrative and legislative support, and with budgetary stresses providing a degree of motivation, efficiency can be achieved in spite of

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the opposing pressures to leave the traditional governmental hierarchy in place.

Dealing with the human dimension of reorganization was a factor that was planned in advance, but planning can only mitigate, not eliminate resistance to change. "Upgrades," "downgrades," job changes, and relocation require management sensitivity as well as a sense of purpose. Communication, no matter how frequent or thorough, is never sufficient in the eyes of those impacted, and with complete restructuring almost everyone is impacted in one way or another. Special weekly bulletins, "The Insider, " were issued by the DPR to keep all employees notified of the rapid changes that were occurring. Relocations were published, and new job assignments distributed so that everyone had information shortly after changes were initiated. Morale still suffered as individuals — the human dimension—were impacted. One lesson learned from the reinvention of the Department was never to underestimate the impact any change will have on morale, especially in an organization with a traditionally close-knit internal culture, such as the type that is prevalent in virtually all resource agencies. However, once all transitions were in place, and the transformation completed, morale increased as employees looked with a degree of enthusiasm at their new roles and responsibilities in a more vigorous organization.

Total Quality Management as Defined by the California Park Service

Concurrently with the restructuring efforts of the California Park Service, and orientation to Total Quality Management (TQM) took place with every employee participating. Customer service, coupled with the concepts of continuous improvement—important premises of TQM—and employee empowerment became the framework for the new management structure. The implementation of TQM within a resource agency required a hard, realistic look at what we were, what we stood for, and where we wanted to be. At the same time the DPR had to get TQM beyond the jargon stage and into the fabric of the organization's management systems to institutionalize it in the culture. This process was by no means easy, and it certainly is not complete.

TQM Application

"Total Quality Management" is a set of management principles and methods by which decisions are made. It is based on the concept of "customers" defining quality for the organization. Quality is everything of value to a public service organization, such as wise use of resources, service, etc. Customers come in two basic categories: (1) external—the visitor to the State Park System, as well as any stakeholder in the system such as concessionaires, non-profit organizations, legislators, other resource agencies, and; (2) internal—employees whose job is served by other employees. Basically, the next person down the line to deal with a service (or product) is an internal customer. Personnel and accounting section staff and resource specialists, are all examples of workers who at some point in time have internal customers to serve. In the implementation of TQM within the California Department of Parks and Recreation, constant awareness is given to the fact that TQM could lose relevance for those who focus on end-user satisfaction, working with publicly intangible organizational services such as payroll transactions. Although resource specialists deal with more tangible service, TQM relevance must be couched in terms balancing efficiency and equity, a subject discussed more fully later in this paper. Customer feedback provides one method of determining the needs of the customer. Visitors need to give feedback, informally and formally through specially developed, measurable instruments, to the organization. Employees need to give feedback to supervisors and managers. Feedback is required to learn how our needs are changing, and how quality can be improved. However, while customer-driven quality is a premise of TQM, the DPR is driven by influences other than the customer's expectations. The needs and demands of the State Legislature, the regulations imposed by State control agencies, and the essential "public-ness" of the government arena are examples of forces that impact customer driven quality decisions. Unless carefully and skillfully managed, these forces could pose a threat to the creative interaction necessary to institute change in general, and TQM specifically.

Data collection is another important feature inherent in TQM. Customer feedback, problem solving and sorting, eliminating the causes of problems and inefficiency, monitoring the progress of improvement, are but a few of the items requiring valid data to base decisions. Resource agencies often collect resource data, but not the type of data that would actually focus on a specific problem so that it could be mitigated or "fixed." One simple example of such a problem, a fictitious scenario from the DPR, is one that might have occurred on a guided tour of a resource area. A specific tour guide could not be heard well. Complaints from the public resulted in a counseling session with the guide--a typical, previous management reaction when dealing with complaints. However, applying the tools of TQM to gather and process real data actually solved the problem. The tour guide in question was responsible for half of all the complaints issued. Upon analysis the complaints were found to be generated from only one part of the tour—the part he conducted. The counseling may have ended with the guide talking louder, but real data showed that re-routing the tour permanently solved that problem, because the real problem was excessive noise from external sources at that one portion of the tour. But complaints still occurred because only half of them were attributable to the cause investigated. In a TQM organization the next step would be to determine what was producing the next largest number of complaints and then focus on that problem through developed problem solving, and data collecting processes. According to Dr. Edwards Deming (1986), one of the founders of the quality movement, this method "constantly and forever improve(s) the system of production and service."

Continuous process improvement is a fundamental requirement of TQM. Keeping some processes stable, and improving others that cause the most problems, is how we achieve better results. Constantly adapting to these changes, and continuously improving the processes by which we work, will begin to improve the entire organization. The method by which to identify these processes and select those which need improvement is taught in the California Park Service Park Quality Management Training Program.

In TQM, problem solving utilizes team approaches. Of all governmental entities, resource agencies are especially good candidates for widespread use of team problem solving using the specific scientific approaches offered in TQM applications. The DPR is not unique among its sister agencies in having a variety of resource specialists, rangers, and managers who, when a problem is identified, all have a piece of the solution. By carefully selecting a true team of individuals to apply TQM's tools in a problem solving process, solutions are developed with a degree of accuracy and thoroughness not otherwise possible. Not all work is done in teams though, and to imply that under TQM all work is done by teams is a common misinterpretation of Total Quality Management applications. However, to utilize team approaches to solve a problem—real team approaches not just a group of people coming together to discuss an issue—has been extremely successful for the DPR even during the initial stages of our TQM journey.

One of the more important concepts in TQM is the "total" part of Total Quality Management. "Total" implies the involvement of all sections within an organization. The cooperation of many parts of an organization to solve problems, to work together and resolve issues, to achieve continuously improving levels of quality for the customer, is essential to meet any agency's goals, let alone its mission. Yet a weakness of the DPR, and indeed most resource agencies, is a lack of "systems thinking." Resource specialists, rangers, maintenance workers and administrative staffs have traditionally had a degree of friction, sometimes bordering on jealousy or outright animosity, towards each other. Working together for the common good—systems thinking—to achieve the mission and vision of the Department requires a change of internal culture, one we are committed to achieve both for the effectiveness of TQM and for our organizational survival. Achieving a vision can only be done with a total quality effort.

Employee empowerment, the ability to effect change within an employee's sphere of influence as well as the ability to collaborate to "fix" problems, is important to the Department. Empowerment is a powerful word, and an even more powerful concept. Like TQM, empowerment is easy to describe at a jargon level, but requires commitment to practice. Creating an atmosphere that enhances employee self-esteem, and that requires staff to take personal responsibility for an agency's success, leads to a quality organization. Empowerment is not TQM. TQM can lead to true empowerment, however. The concepts are mutually inclusive when empowerment is applied appropriately and when managers and supervisors know the power behind the concept and do not see it as a threat to their position. The DPR has encouraged employees toward empowerment, and to take responsibility for their own actions. At the same time, even after hours of training for all individuals in the organization, the concept is still misunderstood to a degree. Perhaps another lesson learned from our implementation of TQM is that we should have let our quality journey progress a bit farther before introducing the concept of empowerment as organizational policy. The DPR had to "catch up" to empowerment because we did not have the structures in place to take full advantage of, or to adequately define, the concept.

Individuals within the DPR prior to the implementation of TQM, had often stated that, "we are already doing a lot of TQM." Although our commitment to public service was unquestionable, we did not realize how little we were practicing the quality tenets of TQM. Focus on the customer, as we have defined them, data collection for problem solving, the concept of continuous process improvement, team problem solving with attention to results, and systems thinking, combined with employee empowerment, were not unified as a strategy within the Department of Parks and Recreation prior to our TQM efforts. Such unification is hardly achieved through jargon.

Public & Private Sector Differences

The focus of this paper has been to specifically define Total Quality Management within the context of the DPR. However, it is important to note that there are some fundamental differences between the public and private sectors, as well as some differences within the public sector between resource and other types of agencies, that need to be taken into account when implementing TQM.

Management turn-over occurs differently in the public and private sectors. One of Deming's "Deadly Diseases" is management mobility (Deming 1986). In the public sector, top management generally changes with each election cycle. In the private sector, this disease that impacts the efficiency of organizations is not based on factors of governmental politics. In the private sector management mobility is to a degree controllable. The public sector organization does not influence upper management's mobility. Fortunately in resource agencies, levels of management below the appointed management staff may be promotionally mobile, but they often stay with their respective Departments for entire careers. This mitigates the impact of Deming's disease of management mobility.

Customer identification is more difficult in the public sector. In the business world, customers can be readily identified, both internally and externally. Quality and customer satisfaction levels can likewise be determined fairly quickly and easily. Success is measured by their "bottom line." This is not possible in the public sector,

"where not only is there no bottom-line profit, but most public employees are hesitant, or even reticent to call those whom they serve customers" (Verardo 1993). Resource agencies such as the DPR provide services that cannot be easily measured statistically, and our clients have little choice but to remain customers because of few alternatives. However, as difficult as the statistical measurement of service might be, it is imperative that it be done. The collection of real data to solve problems is the only viable means by which to analyze customer expectations.

Finally, the public sector and resource agencies must keep this concept before them: equity is more important than efficiency (Deming, personal conversation). TQM is geared toward efficiency. Decisions made are based on customer-driven input and data within a structure that can quickly react to a changing environment. But no matter what the impact on the organization, the DPR and other resource agencies have a responsibility to be equitable rather than efficient, if that is the choice. Equal access to parks for all people, or protection of irreplaceable resources for future generations regardless of current public demands are issues of equity which are inherent in our mission, and are not violable by the concept of efficiency. Unfortunately, issues of equity are often used as an excuse not to be efficient thereby weakening the ability of resource agencies to modernize their management processes.

The fact that there are forces other than the customer that impact quality, such as control agencies, the legislature, and the open field upon which public agencies must play, has already been mentioned and need not be dwelt upon further.

Steps in Implementing TQM, Cycle I: Strengthening the Organizational Structure and Planning for Change

Carr and Littman (1990) have constructed a flowchart that illustrates the Quality Journey of the California Park Service (*figure 1*). The major concepts required in a quality management program are printed at the top of the chart: Assessment, Planning, Implementation and Institutionalization. The boxes show what we have done and where we are going. Although TQM can be implemented by using numerous models, this model is the only one which allowed dual tracks to be pursued simultaneously. The California Department of Parks and Recreation is making some rapid short-term improvements, while instituting and planning for long-term change. Another important feature of this model is that it allows cycling back through the process, illustrating

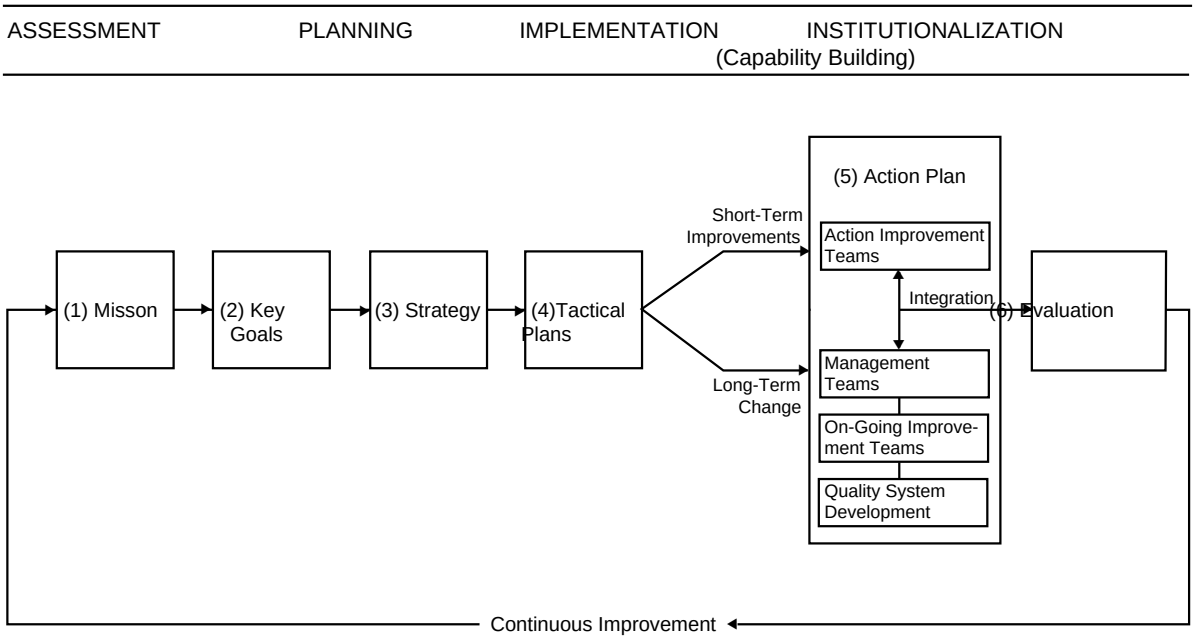

Figure 1—Road map of the quality journey (California Department of Parks and Recreation [California Park Service])

that TQM is a journey, not a destination. The DPR is in its second cycle of this model.

The First Journey

Our Mission (1) was well-defined, although it was reviewed and tested as part of a visioning process. Key Goals (2) were developed from assessments and planned recommendations supplied from the Department's Phoenix Committee. A Transition Team was formed to plan the DPR restructuring effort including costing out all relocation and assessing the organizational impact of reductions at the mid-management level. The resulting Strategy (3) lead to Tactical Plans (4) that were implemented, resulting in both short-term improvement--the saving of 10 million dollars annually through the reductions--and the longer term change triggered by the formation of an entirely new, less hierarchical, park service structure. During this rapid initial phase of implementation, a steering committee made up of the Director and his immediate management staff, initiated orientation sessions for all Departmental managers in TQM and Empowerment. The steering committee's Action Plan (5) further called for the training of Action Improvement Teams consisting of selected trainers from each district as well as each headquarters office in the Department. This phase of training was conducted at the William Penn Mott, Jr. Training Center in Pacific Grove, the Department's centralized training facility. These management teams and improvement teams then oriented every employee within the Department to the goals of the organization with regard to TQM and Empowerment. The results of these orientation sessions, and the implementation of the concurrent restructuring were evaluated (6) and the process began again at a more methodical level: one which would focus on institutionalizing the changes made, and one which would implement Total Quality Management throughout the DPR.

The Second Journey

The first journey through the improvement cycle concentrated on restructuring the Department and on orienting employees to a new way business would be conducted in the future. The second journey would be to change those business methods by involving increasing numbers of employees. By using this approach, the DPR is unique among organizations. "TQM has been most successful when tailored to the unique needs of specific entities" (Verardo 1993). The DPR has tailored its implementation of TQM to meet its organizational needs, and not to meet the needs of theoretical practices.

In private industry, and with traditional TQM theory, reorganization of the business is a logical end-product of TQM implementation. The structure of the organization is carfully studied, and customer responsiveness assessed through a variety of data gathering and problem solving techniques. With the California Department of Parks and Recreation, an immediate budgetary crisis forced innovation. That the DPR was a hierarchical government bureaucracy required little study, let alone full TQM integration. It did need a quality team effort (the Phoenix Committee) to decide what structure would be the most responsive and most efficiently address all customers' needs. Increasing the organizational responsiveness of the DPR by downsizing mid-management assured greater success with TQM implementation.

Steps in Implementing TQM, Cycle II: Initial Integration of TQM Practices

In March, 1993, I was appointed as Assistant Director for Total Quality Management of the DPR. The purpose of the position was both to assist with, and to drive, the implementation of TQM within the Department. A member of the Director's staff, I was not in charge of a division of employees but instead was to formulate policy and institute change throughout the entire organization and across all departmental boundaries. The new position had among its duties the charge to work with each Deputy Director and Division Chief to institute necessary changes, and to carry out the Director's commitment to integrate TQM throughout the entire Department.

Visioning

A logical starting point to enculturate TQM into any organization is to begin with its mission and values, and create a vision based on a realistic projection of that organization's desired future state. This "visioning" is a necessity if TQM is going to focus on improvements and quality efforts geared toward achievable results. TQM application without vision could result in some operational efficiencies, but it certainly will not have any long-term substance or long-term quality improvements for resource agencies. W. Edwards Deming himself stressed the requirement that vision be developed to focus an entire organization on improvement (Deming 1986).

The California Department of Parks and Recreation, like most resource agencies, has a historic mission rooted with overtones of preservation ethic:

> *The mission of the California Park Service is to provide for the health, inspiration and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high quality recreation.*

But was the mission current? Could a Vision be realistically projected based on the mission's goal of success for the organization and stewardship of the resources entrusted to the California Department of Parks and Recreation? Murphy and Verardo set out to test the mission and goals of the Department through a vision audit that included an evaluation, the scope, and the context of the future state of the DPR (Nanus 1991). The "Vision Evaluation" charted the movement of the Department towards the proposed vision by evaluating and checking the vision against a template of questions. The "Vision Scope" set the boundaries to the vision by defining the scope of what was achievable, and the

"Vision Context" attempted to identify important future developments that could affect the DPR. The audit led to a series of meetings, including a two-day off-site meeting, of the full staff (all division chiefs and Director's staff members). The subject of the meetings was a "visioning" effort based on the data collected. The future of California's resources under the stewardship of the DPR, the seemingly contradictory recreational emphasis, the plight of the Department within the economic context of California were all explored during visioning and the end-result published under the title *The Seventh Generation*. One of the most important documents to come out of the Department, *The Seventh Generation* is the strategic vision of the DPR. It embodies the heritage, mission, values, goals, and vision of the Department. All employees were sent a copy and a leaflet published for public distribution that enumerated some of the basic tenets of *The Seventh Generation*.

Strategic planning was begun by translating the goals and tactics identified in *The Seventh Generation* into operational terms. This first strategic plan was a "top-down" plan, although it did account for input. The DPR could not implement a TQM "bottom-up," data-driven strategic plan because training and implementation in actual TQM tools had not yet taken place. Yet the DPR strategy for the future had to be initiated without delay, both for the benefit of the organization and to capitalize on the creative momentum of *The Seventh Generation*. The next strategic plan of the Department will be one in which the goals of the field, generated through the use of TQM techniques integrated into operations, are coupled with the goals of upper management—a 50-50 bottom/top generated strategic plan. The third strategic plan will be a "bottom-up" plan taking the data and goals generated by the field using TQM techniques and turning them into the strategy for the DPR. Strategic plans are a blueprint of Department operations for the future. As the needs of the organization change, and as TQM becomes more integrated within the operation of the DPR, the strategic plan, or portions of it, will change annually to meet progress toward the vision expressed in *The Seventh Generation*.

Training

Concurrently with the visioning process, the California Department of Parks and Recreation began planning for TQM training, and a timeline for the implementation of the various stages of integration of TQM. Because no other resource agencies had embarked on TQM, the Department had to consult with individuals who could at least shed light, offer suggestions, and provide some direction based on their efforts. Keith Smith of the California Bureau of Automotive Repair; Miles Ennis, strategic planner for the Department of Finance; and private consultant David Jones of Sentient Systems provided valuable advice and assistance to the DPR. The various training programs and trainers available were monitored and evaluated to assess whether they would meet the training needs of the Department based on the curricula and the training model that the organization had developed. The model was driven by the decision that management would be intensively trained in TQM basics, followed by joint sessions with "trainers" from each organizational unit. By using this method, the DPR would begin to have operational management buy-in while at the same time trainers would assist in enculturating field personnel to TQM techniques and team approaches. The trainers would also be a resource to the managers for whom they work. Once management and trainers were trained, administrative officers and higher level supervisors would receive TQM training tailored to their respective levels and duties.

After numerous evaluations, Ron Black, a consultant with Meta Dynamics, was selected to provide lead instruction to managers and trainers in the application of TQM, team roles in a TQM environment, and the tools of the TQM trade. The California Department of Parks and Recreation contracted with the Training Source, a Sacramento-based adult education provider affiliated with the Los Rios Community College District with whom Ron Black was associated, to obtain his services. The resulting Park Quality Management Program became a framework for increasing TQM implementation throughout the Department. Future training programs will supplement, not repeat, materials presented during the initial year of Park Quality Management Training.

Developmental Stages

Meanwhile, several DPR pilot programs and projects were instituted on an experimental basis throughout the state. Those that worked well would provide information for the new teams and projects. The programs that did not would provide valuable lessons for those that followed. One effort was selected by the Governor's Task Force on Quality as a "pioneer project," and received support from the Governor's Office on Planning and Research, the only resource agency project selected.

Quality systems development began when the DPR was chosen as one of four state agencies to participate in a pilot program to switch from line-item to performance-based budgeting. Performance-based budgeting lends itself more readily to the application of TQM techniques than does line-item, although one does not necessitate the other. Moreover, the pilot departments will receive a degree of freedom to operate outside the parameters normally established and monitored by regulatory agencies of state government.

Meaningful customer feedback requires surveys, among other instruments, based on meaningful data. Simply surveying visitors, employees or the myriad of other stakeholders such as concessionaires does not necessarily provide meaningful data. Satisfaction surveys must be correlated with the relative importance of the information received (relative importance from the customer's viewpoint) in order to provide statistics that can be meaningfully analyzed. The DPR uses a visitor survey that can be statistically correlated with "importance" to provide insight into which problems need to be addressed, and in what relative order. The methodology of this survey will be extended to other surveys in the near future.

The Future of TQM, Cycle III

The California Department of Parks and Recreation is committed to continuing its quality journey. The vision is of an efficient, responsive organization whose planning efforts will provide "customer delight" to future generations. The results of that vision are that we will have been successful stewards of our resources for those generations. Total Quality Management, with all its implications, is the only method by which to realistically achieve that goal.

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Deming, W. Edwards. 1986. Out of the crisis. Cambridge, MA: 507 p.

Nanus, Bert. 1991. Visionary leadership. Los Angeles, CA: 398 p.

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Friday Afternoon Session

Summary of Round Table Session

Chair: Authur Magill
USDA Forest Service

Round Table Session

Deborah Chavez, Compiler

The round table session was designed for interaction between the presenters and other round table participants. Nine round tables, each capable of holding 10 participants were set up in one room. Presenters for the sessions were encouraged to lead discussions on one of many topics in these areas: visitor issues, human dimensions, management tools, and research issues. The session was moderated by Arthur Magill, USDA Forest Service.

Visitor Issues

Four round tables addressed visitor issues. Carolyn Daugherty and Sidney Blumner led a discussion entitled **"Visitor Impacts: An Examination of Public Land Management Strategies,"** which focused on alternatives to lessen the impacts from the growing numbers of visitors to public lands. Topics included user fees, visitor quotas, national policies, funding alternatives, and other mechanisms. Geneen Granger led a discussion entitled **"Subsistence Use and Abuse in National Forests."** The discussion focused mostly on impacts in Alaska.

Thomas Spencer led a group discussing **"ECO-Teams."** Most of the discussion focused on the ECO-team approach on the Angeles National Forest and the impending startup of the team approach to environmental education on the San Bernardino National Forest.

Donald Stikkers led a discussion entitled **"Social Issues in Conflict Resolution: The Case of Mountain Bikes."** Information was shared on the status of conflict and ideas on what is working as this issue evolves. Participants generally agreed that conflicts are working themselves out as interaction between the groups improves with mutual understanding of goals.

Other issues discussed included wildlife conflicts, displacement of other users, the need for trail maps, and trends.

Human Dimensions

Two groups discussed some current agency issues. Alan W. Ewert led a discussion entitled **"Human Dimensions Research in Federal Agencies"** and Robert Laidlaw and Harold Belisle led a discussion entitled **"Human Dimensions of Ecosystem Management."**

Management Tools

A discussion entitled **"Using a Geographic Information System (GIS) as an Analytical Tool for Decision Making"** led by Dorothy Albright and Robert E. Pfister focused on social, economic, and recreational values that may be added to GIS models. The goals of adding layers to these models is to give resource managers more information from which to make management decisions.

Research Issues

Two discussions focused on research issues. The first, led by Elwood L. Shafer was entitled **"The Challenges of International Ecotourism Research."**

The second discussion, led by Richard Hansis, Susan Lampe, and Ann Shlisky was entitled **"Methods for the study of a Social Assessment for the Lewis IRA Area."**

The discussion centered on the methods used to discover the social values users have for the Integrated Resource Analysis (IRA) area. The methods included interviews and focus groups. Both methods helped bring stakeholders into the planning process at the earliest stages before any projects had been proposed. One issue raised in the discussion was accessing publics who are potential users or participants. The participants concluded that a random sample of the regional population would be the best method.

Appendixes

Appendix A: Symposium Program

Social Aspects and Recreation Research Symposium—February 23-25, 1994, San Diego, California

Theme: Human Dimensions of Natural Resources

— Opening Remarks: Wednesday, February 23, 1994 8:00am-9:30am

- *Deborah Chavez,* Program Chair
- *Enoch Bell,* USDA Forest Service, PSW Research Station
- *Anne Fege,* USDA Forest Service, Cleveland National Forest

— First Concurrent Session: Wednesday, February 23, 9:45am-11:30am

Social Issues and Conflicts in Multiple Use
Chair: *Michael A. Schuett,* Southwest Texas State University

- *Steven W. Anderson* "Transforming Controversy Into Consensus: The Steens Mountain Initiative"
- *Susan P. Rust* "The Urban Wilderness Park: An Oxymoron"
- *Michael A. Schuett and Steven J. Hollenhorst* "Conflicts and Issues Related to Mountain Biking in the National Forests: A Multimethodological Approach"
- *Alan E. Watson and Michael J. Niccolucci* "Conflicting Goals of Wilderness Management: Natural Conditions vs. Natural Experiences"

Human Dimensions of Ecosystem Management
Chair: *Deborah S. Carr,* USDA Forest Service

- *Deborah S. Carr and Gloria Flora* "Human Dimensions in Ecosystem Management: Research and Application in the USDA Forest Service"
- *Tim O'Keefe* "Olympic Learning Center: Ecosystem Management"

Impact of Multicultural Groups on Resource Management
Chair: *John L. Heywood,* Ohio State University

- *Deborah J. Chavez, Janna Larson, and Patricia L. Winter* "To Be or Not To Be a Park: That is the Question"
- *John L. Heywood and Raquel Engelke* "Differences in Behavioral Conventions:A Comparison of United States-Born and Mexico-Born Hispanics, and Anglo-Americans"
- *Patrick Tierney* "Development and Testing of a Cultural Identity Construct for Recreation and Tourism Studies"
- *Denver Hospodarsky* "A Racial and Ethnic Group Analysis of Recreation on the Tonto National Forest

— Concurrent Session 2: Wednesday, February 23, 1:00pm-2:45pm

Land Ethics in Natural Resources
Chair: *Robert M. Laidlaw,* USDI Bureau of Land Management

- *Tommy Swearingen and Robert E. Pfister* "A Preliminary Analysis of Environmental Dilemmas and Environmental Ethical Reasoning Among Hispanic and Non-Hispanic Forest Visitors"
- *Dorceta E. Taylor and Patricia L. Winter* "Environmental Values, Ethics, and Depreciative Behavior in Wildland Settings"
- *Francisco Valenzuela* "Ecology is a White Man's Problem"

Protection, Safety and Use Issues in Natural Resources
Chair: *Deborah S. Carr,* USDA Forest Service

- *Daniel Harkenrider* "Meeting Customer Expectations: Can Public Safety Be Assured in an 'Urban Proximate' Forest?"
- *Laura McLachlin, Emilyn Sheffield, Donald A. Penland, and Charles W. Nelson* "Accessibility Benchmarks: Interpretive Programs and Services in North Central California"
- *Patrick C. Reed* "CUSTOMER Recreation Research in the Chugach National Forest: Is Alaska Really Different?"

Partnership and Service Delivery Strategies for Natural Resources
Chair: *Alan Schmierer*, USDI National Park Service

- *Ronilee A. Clark* "Opportunities for Increased Public Interaction in Habitat Restoration Efforts"
- *Kit Darrow and Jerry J. Vaske* "Evaluating a Systematic Approach to Developing Partnerships in Natural Resource Agencies"
- *Steven Selin* "Towards a Typology of Recreation Partnerships"
- *B. Noah Tilghman and Ray Murray* "Seeking Common Ground"

— Educational Poster Session: Wednesday, February 23, 3:00pm-5:00pm
Session Chair: *Patricia L. Winter*, USDA Forest Service

- *Judith L. Behrens* "History of the Trabuco District"
- *Dale J Blahna, Susan Van Patten, Scott A. Dawson, Doug Reiter, and Russ Von Koch* "Mountain Biking: Use, Characteristics and Preferences"
- *Deborah J. Chavez* "Mountain Biking on the San Jacinto District"
- *Lee DiGregorio and Sue Zahn* "Emerging Challenges to Natural Resources: Keeping the 'Wild' in Wilderness"
- *Ron Glass, Tom More, and Rod Zwick* "Personal Use and Barter of Fish and Wildlife in the Northeast Kingdom of Vermont"
- *Sam A. Lollar and Robert E. Pfister* "Commercial and Non-Commercial Visitors to Bureau of Land Management Recreation Sites Along the Mokelumne and Merced River Corridors of the Western Sierras
- *Robert Loudon* "Children's Forest: Involving Tomorrow's Leaders Today"
- *Arthur W. Magill* "Fire Managers Must Talk With People"
- *Arthur W. Magill* "The Role of Natural Resource Managers in International Tourism and Rural Development"
- *Brent H. McBeth* "National Forest Resource Game for Ecosystem Management"
- *Laura Potash and Penny Falknor* "Look What's Blooming on the Mt. Baker-Snoqualmie National Forest"
- *Mary Sagal and Charlie Vandemoer* "Puget Sound Eyes on Wildlife - A Watchable Wildlife Program"
- *Julie Schaefers* "Geographical Information System Display of Recreational Activity and Associated Economic Value"
- *Randy T. Welsh* "Boating Capacity Review and Determination for Pineview Reservoir"

— Simulated Field Trips: Wednesday, February 23, 7:00pm-9:00pm
Session Chair: *Linda Hecker*, USDA Forest Service

- *Gary Elsner and Joe Meade* "Universal Design and the Outdoor Recreation Environment"
- *Geneen Granger* "The Many Cultural Uses of the Alaska Resource Area"
- *Sue Lampe* "Defining the Human Dimension in the Lewis Integrated Resources Analysis Project"
- *Patrick Reed, F. Clark, L. Ziemann, and S. Randall* "Born of Ice: A Simulated Field Trip Through the Chugach National Forest"
- *Joan Wynn* "Armchair Tour of the Cleveland National Forest"

— Field Trips to the Cleveland National Forest or San Diego Bay Area
Thursday, February 24, 1994 8:00am-5:00pm

Trip to the Cleveland National Forest and Historic Julian
Trip to San Diego Bay, National Monument, and Nature Center

— Banquet and Thursday Evening Session: Thursday, February 24, 6:00pm-9:00pm
Lee Stetson portrays John Muir in "The Spirit of John Muir"

— Opening Session: Welcome from USDI Bureau of Land Management
Friday, February 25, 1994 8:30am-9:30am

- *Dick Barbar*, USDI Bureau of Land Management
- *Mark Nechodom*, University of California at Davis

— Third Concurrent Session: Friday, February 25, 9:45am-11:30am

Pilot Projects and New Paradigms
Chair: *Anne S. Fege*, USDA Forest Service

- *Alan W. Ewert* "Social Science Research and Natural Resource Management:Restructuring for a Future Paradigm"
- *Patrick C. Reed and G. Hirsch* "CUSTOMER Recreation Research: A Critique of the 1990-1992 Pilot Test"

- *Thomas W. Spencer and Robert E. Pfister* "Using Challenge Cost-Share Partnerships to Communicate with Ethnically Diverse Recreation Users in Southern California"
- *Joe Meade and Gary Elsner* "Universal Design and the Outdoor Recreation Environment: Framing a Research Partnership"

Economic Issues in Policy Formation and Resource Management
Chair: *Howard A. Clonts*, Auburn University

- *Howard A. Clonts* "Marketing a National Forest: The Resource Managers Dilemma"
- *Armando Gonzalez-Caban, John B. Loomis, and Robin Gregory* "Protecting Oregon Old-Growth Forests From Fires: How Much Is It Worth?"
- *Brent H. McBeth* "Coordinated Fee Structure for Developed Recreation Sites"
- *Elwood L. "Dick" Shafer* "What's a Walk on the Wildside Worth?"

Resource Management Case Studies
Chair: *Herbert Echelberger*, USDA Forest Service

- *Sidney M. Blumner and Carolyn M. Daugherty* "The Potential Impacts of the Homeless on Public Lands"
- *William T. Borrie and Joseph W. Roggenbuck* "Qualitative Research: Setting the Stage for an Urban Recreation Application of Benefits-Based Management"
- *Herbert E. Echelberger* "Measuring Recreational Use of a Large Interstate Waterbody"
- *Denzil Verardo* "Total Quality Management: Managing the Human Dimension in Natural Resource Agencies"

— **Round Table Session: Friday, February 25, 1:00pm-3:00pm**
Session Chair: *Arthur W. Magill*, USDA Forest Service

- *Dorothy Albright and Robert E. Pfister* "Using GIS as an Analytical Tool for Decision-Making"
- *Carolyn Daugherty and Sidney Blumner* "Visitor Impacts: An Examination of Public Land Management Strategies"
- *Alan Ewert* "Human Dimensions Research in Federal Agencies"
- *Geneen Granger* "Subsistence Use and Abuse in National Forests"
- *Richard Hansis, Susan Lampe, and Ann Shlisky* "Methods for the Study of a Social Assessment for the Lewis IRA Area"
- *Robert Laidlaw and Harold Belisle* "Human Dimensions of Ecosystem Management"
- *Elwood L. "Dick" Shafer* "The Challenges of International Ecotourism Research"
- *Thomas Spencer* "ECO-Teams"
- *Donald Stikkers* "Social Issues in Conflict Resolution: The Case of Mountain Bikes"

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