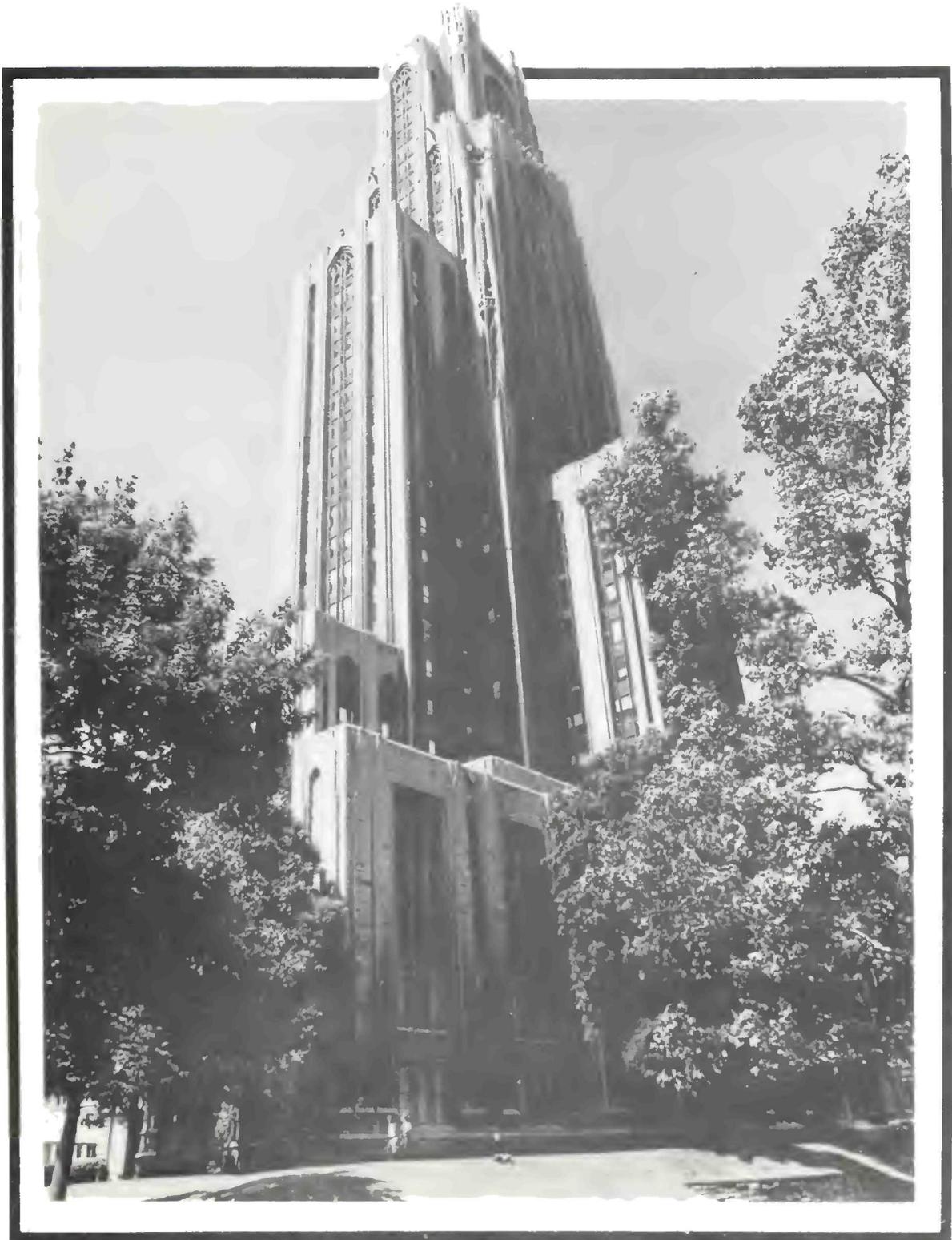


Trends

1983
Volume 20
Number 3

Academe: A Park and Recreation Resource





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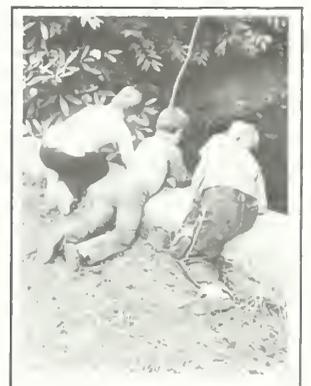
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Trends

A publication of the Park Practice Program

The Park Practice Program is a cooperative effort of the National Park Service and the National Recreation and Park Association.

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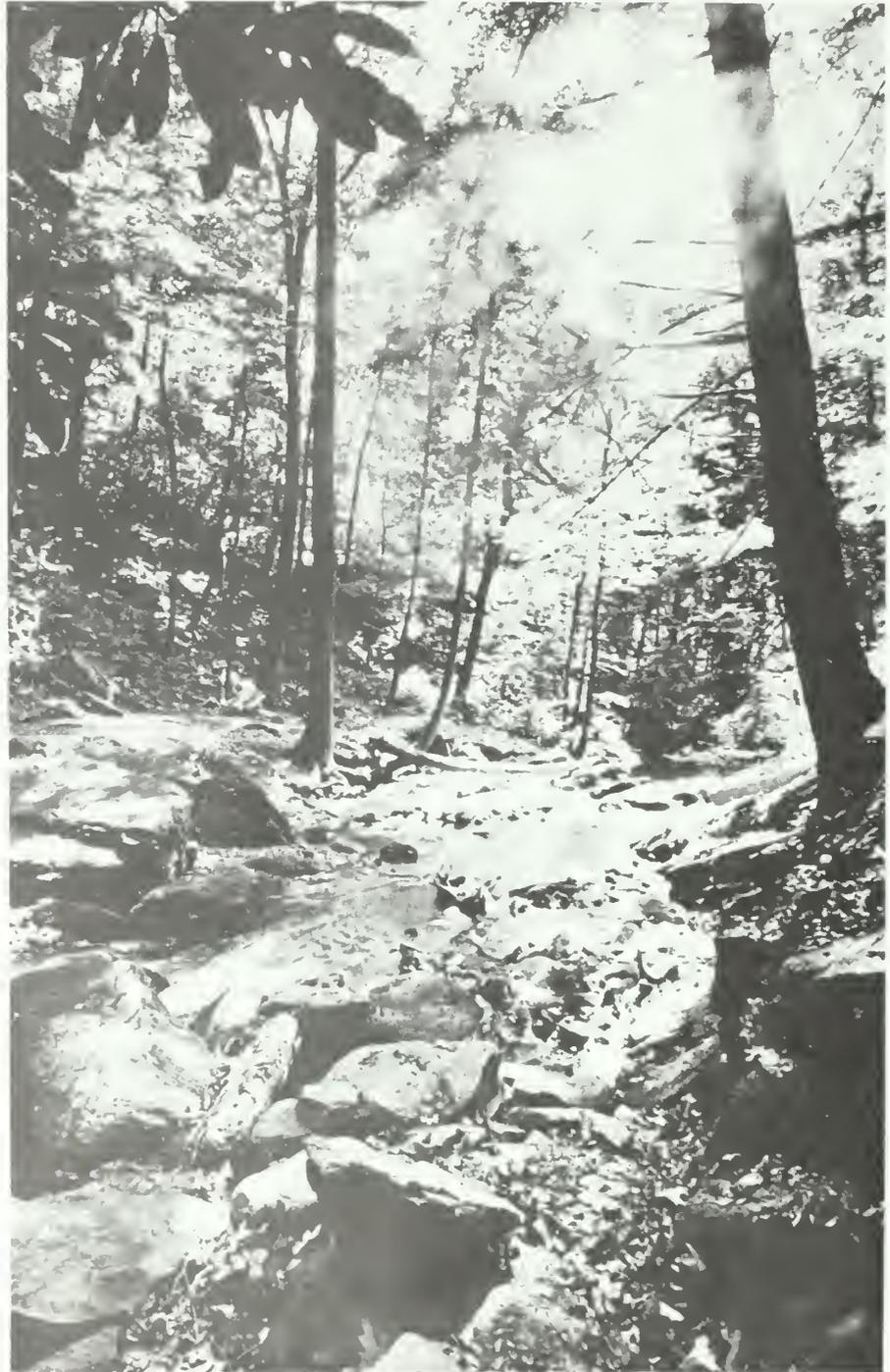
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Introduction

This Summer 1983 issue of TRENDS focuses on the significant potential of our colleges and universities to contribute to the planning and management of park and recreation resources. The articles presented in the following pages reflect the exciting and often unique projects and programs being conducted by many college and university Parks and Recreation Departments throughout the United States.

Throughout this issue you will read about partnerships that have been developed between land-managing agencies and academic institutions to solve some complex problems that resource managers must address. Research is assuming an ever-increasing role in affecting park and recreation management policies and some interesting research projects are discussed here. You will read about interpretive courses and programs and the opportunities offered by colleges and universities for the professional development of today's resource managers, as well as the need to acquire new technology and adapt curricula to better prepare the resource managers of tomorrow.

The issues facing resource managers continually become more complex, and there is a need to reach out to organizations and institutions to help solve the planning and management problems of our park and recreation areas and facilities. Academe is one such valuable resource.



Colleges and universities can significantly contribute to the planning and management of our natural resources.

Professional Development

by Herbert Brantley, Ph.D.

Resource managers must maintain up-to-date competency in their field if they are to effectively perform their job functions. Universities and colleges are in a unique position to help with this phase of resource management. Yet resource managers, particularly recreation resource managers, have been slow to recognize the potential of colleges and universities to contribute to management of park and recreation resources. This is due in large measure to three factors. First, the faculty of educational units available to provide such service have not been very sophisticated in teaching methodology, nor have they been very knowledgeable about management of natural resources for recreation. Even though many of the faculty come from a recreation management setting, not many have representative resource-based experience. Secondly, the need for the universities to recover the cost of providing programs of professional development has not been well received. And, thirdly, the resource manager, possessing a combination of academic experiences and on-the-job training, feels the educational institutions have little to offer.

Obviously, the conditions cited above are undergoing change. It appears that universities and colleges, and in particular the land grant institutions, are uniquely capable of contributing to the management of park and recreation resources. One area which can best be served is that of professional development. This is predicated primarily on the unique mission of the land grant university to provide teaching, research and extension, all of



Managers test their skills while studying resource problems.

which can be used in professional development. This does not imply that only land grant institutions can make a contribution. It's merely a recognition that the elements of professional development for the recreation resource manager are generally combined in the former.

When considering the potential contribution of institutions of higher education to the professional development of park and recreation personnel, it is impractical to concentrate on the educational dimension alone. One should recognize that the three mission elements are likely to be brought to bear on a program of professional development. Thus, it would be appropriate to consider how they are interrelated.

Research

Theoretically, it is through research that the problems of

managers are resolved. The manager seldom has the time or the inclination to engage in the formal, systematic and intrusive process of carrying on the scientific method of inquiry. Such inquiry is the professors' badge of office. Without a program of research the recreation resource faculty would not be able to contribute any more effectively to the professional development of park and recreation personnel than would the faculty from any other academic discipline. It is through research that the problems of the manager are understood. Further, it is through research that the theoretical solutions to the problems can be considered. Professional development, then, provides a forum for the discussion of research results and of the impacts of possible solutions.

It is important that the resource



Clemson University

The group poses for the traditional class picture.

manager consider that often research activity can be undertaken by the university faculty without agency funding. The faculty have interests and needs, coupled with institutional support, which diminish or eliminate contractual requirements. Often work can be done by graduate students at very low cost. However, if the manager is looking for very site-specific answers that have little or no universal application, then there should be no question about the appropriateness of "contract" research.

Extension

Most professional development activities are considered to be a part of extension. Extension is the outreach arm of the university through the blending of research results with problem analyses and solutions. It has only been during the past few years that university administrators have given impetus to extension activities by all faculty, making outreach programs the objective for all academic units. Thus, there has evolved a tie between faculty and professional development. This has been a boon to those seeking assistance for such programs.

Teaching

The primary mission of any institution of higher education is teaching. Teaching, as research, is also a badge of office. Participation in professional development activities provides the faculty with opportunities to stay in touch with job requirements of the recreation resource manager. It often provides university students with the chance to interact with the practitioner.

Since teaching is the dominant

factor within the troika, it is important for emphasis to be placed on program development which includes the establishment of clear and measurable objectives for each course, and that there be acceptable methods of evaluation.

It is equally important that courses, to the extent possible, provide for on-hand experiences for the participants. Most of the persons engaged in professional development lead active, problem-solving professional lives. To use the lecture method with little audience participation is tantamount to failure.

Establishing the Relationship

Resource managers should be as objective as possible in selecting a university to provide professional assistance. The presence of an academic department with an appropriate name is not sufficient. It would not be unreasonable to ask for faculty vitae, or to schedule a conference to discuss mutual interests. However, most relationships are developed much less formally than this would imply. The institution generally has developed a "reputation" within the area being considered. Working relationships need to be nurtured

over several years leading to confidence levels which indicate potential for success. Neither the agency nor the educational institutions can afford to have these relationships fail.

Courses

An area of substantial professional development growth over the past several years centers on workshops, seminars and institutes. These vary in length from one day to several weeks. They are provided from several perspectives ranging from the program where need is perceived and content is developed by the faculty to those where needs are identified by the agency and met upon request by the faculty. Each program has its own set of dictates. It would be difficult to determine which is the most effective. However, one could generally say the program which is needed by agency personnel and which is designed in concert with the user and collegiate faculty is most effective.

One problem which arises from user-generated requests is that there are seldom opportunities for multi-agency participation. Thus, there is little cross fertilization between businesses and agencies and the employees of

each. The important dimension for academe and field managers is the development of a strategy which uses the results of research in professional development.

When possible it is preferable to have open admission. It is important to the participants to know about the "mix" of the class in advance. If more than one agency is involved, the faculty needs to structure the course content in ways which prevent an over emphasis on examples from any one agency. Even where there is special attention focused on one of the participating agencies, the problem can be minimized by stating that at the front end of the process.

Students

The most common relationship is for the provision of student experience. Students are an excellent resource for the recreation resource manager. Field work and practicum experiences are generally required. The agency thus has access to a group of young people who may bring to the agency an exuberant, fresh approach. The agency, in turn, can be a party to field testing educational theories. The student returns to the campus with an understanding of the bridge between professional preparation and on-the-line management.

Sabbaticals

An effective, under-utilized resource in professional development is the faculty sabbatical. The system provides a very cost-effective way for the recreation resource manager to bring to an agency an individual who can provide formal on-site instruction, and who can provide informal opportunities for agency personnel to be provided with the latest in management theory.

Since the faculty member is on leave with pay from the university, often a salary is not needed. The short sabbatical, six months or less, generally provides full salary while the two-semester or year-long sabbatical provides one-half salary. Usually, some subsistence is needed since the faculty member is incurring added costs by being away from the normal home base.

Memoranda of Understanding/Contracts

It is recommended that long before the need for contractual relationships is established, memoranda of understanding should be developed. These provide a visible statement of policy that the relationships are two-way streets. Thus, it is much easier at a later date to enter into formal contractual agreements. It may be possible for the educational institution to lower costs for service by reducing or eliminating "indirect costs." These costs are central to institutional policy. However, if it can be shown through memoranda of understanding that the agencies are providing opportunities and services to the academic program, then there may be reductions in the charges which are normally imposed.

Where desirable for the interested parties to draw up a contract, the formality and the detail may be dictated in part by institutional policy. Even in the absence of such policy the program can be guided by the contract. Services may be agreed

upon for a fixed cost for the entire program or may be rated on a unit cost per participant. The latter may take the form of tuition charges or registration fees. Since each institution has its own unique accounting procedures, it is desirable to be able to negotiate the method of payment.

Obviously, the descriptions of relationships presented in the preceding paragraphs provide only a minimum picture of the potential for academe to be a park and recreation resource. Limitations are set only by the imagination. It is important, however, to keep in mind that the results of any program are best achieved through partnership — a partnership in which each party recognizes the uniqueness of the other and in which there is mutual respect.

Dr. Brantley is Head of Parks, Recreation and Tourism Management and Associate Dean of the College of Forest and Recreation Resources at Clemson University, S.C.



Managers become faculty for a day. Gary Everhardt, Superintendent of the Blue Ridge Parkway, leads the class discussion.

Will Recreational Activity Lead to Better Health for the Elderly?

by Carol Cutler Riddick

How important is recreation in shaping the mental health of older Americans? Can an outdoor camp experience be beneficial to nursing home residents? Will aquariums, fish videotapes, or birdfeeders be effective means for reducing blood pressure and stress, and otherwise improve the health of the elderly? And, can playing videogames lead to improvements in eye-hand coordination and leisure satisfaction of older institutionalized and non-institutionalized persons?

These are just a few of the questions being examined by some of the faculty and graduate students in the Department of Recreation at the University of Maryland. Although these projects are at different phases—some have been completed, some are underway, and some are on the “drawing boards”—they illustrate a “union” of sorts. That is, they could be viewed as a “marriage” between academic research and community service. While at a theoretical or esoteric level the studies may be worthwhile, they also have implications for local recreational program planning and management. These projects, as well as some of their ramifications for the practitioner, are briefly described in this article.

The Connection Between Recreational Activity and Mental Health

America is a graying nation. Approximately one out of every ten persons in the United States has celebrated his or her 65th birthday. Indeed, it has been projected by 2050, three out of ten persons in this country will live this long.

Thus, in order to understand

the relative contribution of recreational activity in shaping the psychological well-being of the elderly, a number of studies have been conducted. Specifically, efforts have been directed at determining the relative effects of a variety of factors, including recreational participation, on older males and older females (with a variety of labor force backgrounds).

Review of survey research findings of thousands of elderly selected at random, reveals at least two interesting facts. First, participation in recreational activities (more so than health status or income level, for example) has emerged as contributing most to the mental health of older persons. Participation level in recreational activities is by far the most meaningful predictor or barometer of how satisfied an individual is with his or her life. Second, the relationship between recreational participation and mental health has consistently been noted, regardless of whether the focus is on older males or older females (including homemakers, retirees, and women reported working outside the home at age 65 or later).

In summary, the data is rather conclusive that older individuals who were more active in recreational pursuits were more likely than inactive persons to experience greater satisfaction in their lives.

This finding has at least one implication for public policy. That is, it appears that social policies in regard to recreational programs for the elderly (such as Senior Centers and those provided in day care settings) may act to influence the life satisfaction of older persons. Consequently, na-

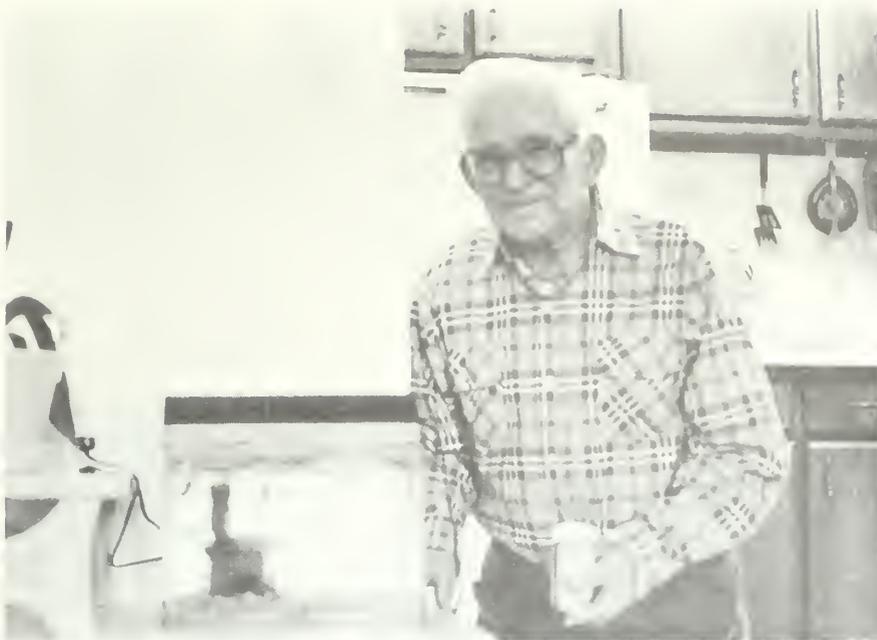
tional, state, and local policies dealing with recreational programs for the elderly have considerable potential for reducing unhappiness and enhancing mental health. Perhaps such research findings will prove persuasive in convincing decision makers on the merits of maintaining or increasing the funding levels of recreational programs for older persons.

A Day Camp for Nursing Home Residents: A Public Service Model

During the past few years, the Special Population Division of the Maryland National Capital Park and Planning Commission, in conjunction with the Prince George's County Department of Aging, has sponsored a day camp for nursing home residents. The goal of the camp is to provide a diversified and enjoyable recreation program which meets some of the leisure needs of those senior citizens who are confined to a nursing home setting.

The seven week camp is held at a county regional park. Within this area, a rustic senior site has been established which, throughout the years, has become more accessible. During any particular weekday a total of approximately 35 residents from two to three nursing homes attend the camp. A salaried staff of five persons, with occasional assistance from volunteers, serves the senior campers. Additionally, nursing home staff (usually two attend per home) assist with activities. In 1982, the total budget for the camp was \$4,500.

Once at the park, the nursing home residents' four hour ses-



Carol Riddick

Participant in "Age of Aquarium" experiment.

sion is broken into distinct phases. On arrival, refreshment and orientation activities occur. This is followed by a short physical exercise period. Next, seniors are encouraged to participate for about 45 minutes in some scheduled recreational activity such as a nature scavenger hunt or constructing a pine cone and peanut butter bird feeder. Lunch (provided by the nursing home) then follows. The afternoon begins with another 45-minute activity block. Lastly, everyone gets involved in preparing for departure.

Subjective evaluation by the "campers" and nursing home staff suggests this rather unique camp has positive impact on the lives of seniors. However, officials would like to know: (a) what sort of effects (for instance, are participants more likely than non-participants to experience less loneliness and greater contentment with their leisure time); and, (b) how the outdoor day camp can be improved.

Shifting gears, although related, a doctoral candidate desires to undertake an applied research problem on a subject that is of interest to someone "outside the ivory tower." Voila, a match is made! It is anticipated that during the spring and summer of 1983 the student will col-

lect the information needed (in a quasi-experimental fashion) to answer the questions noted above. Expected finished products—a report the sponsoring agencies will find useful and a document the University will accept as a dissertation.

Watching Fish and Birds: Can They Be Some of the Elderly's Best Friends?

The effects of animals on humans represent a fairly new area of research interest. It has been suggested that pets foster positive emotional, social, and physical health. However, a review of the literature reveals that most of the previous work is based on anecdotal reports or case histories of non-representative institutionalized individuals.

Very few studies have investigated the therapeutic potential of animals under somewhat controlled conditions. One investigation found that pet ownership significantly contributed to coronary heart disease survival regardless of the individuals' psychological or marital background. Furthermore, the relationship between pet ownership and survival remained significant even when those individuals owning dogs were excluded from the analysis. Another study conducted by

University of Pennsylvania researchers reported that viewing a fish aquarium was an effective means for reducing the blood pressure and stress of college students and staff.

Considering then that 95 percent of the elderly reside in a community setting, a study of how the lives of the elderly could be affected by the introduction of a new hobby, involving aquariums, was developed. In the fall 1982, the University of Maryland's Graduate School provided a research support award to the Department of Recreation. The objective of the study is to provide information on the feasibility of using fish aquariums for meeting some of the social-psychological and physiological needs of the elderly.

The research design for this pilot study involves three groups. Each group numbers approximately ten persons. Individuals in all the groups reside in a public subsidized housing complex for senior citizens in Montgomery County, Maryland. The study began when pretests were administered in February 1983. Every effort was made to match individuals on important characteristics so that the membership of each group, when compared to the other two groups, was more or less the same. It is expected the study will be conducted over a six-month period, at which time post-testing will occur.

The first group has received aquarium tanks supplied with goldfish. This species of animals was chosen because it can easily be cared for—it tolerates erratic feedings and maintenance schedules as well as extreme temperatures. Furthermore, it

responds to displays of affection, is trainable, and has a long life expectancy. This group is receiving bi-weekly visits lasting approximately 30 minutes in duration. During this visit, tank maintenance assistance is provided, plus the older person's blood pressure is recorded.

The second group is involved in a friendly visitor's program. Like the first group, they are on a bi-weekly schedule with visits lasting approximately 30 minutes. During these visits, the blood pressure levels will also be recorded. The primary rationale for having the visitor's group is to hold constant any possible effects the tank maintenance visits have on the first group (and hence, "tease out" the impact of aquariums per se versus maintenance visits).

The third group involved in "Age of Aquarium & Friendly Visitor Project" is a control group. During the six month study they will receive neither fish aquariums nor friendly visits. Instead, this group will act as baseline for comparison. After the research project is concluded, members of the second and third groups will be offered an opportunity to receive aquariums.

While the "jury is still out" on the case of introducing community elders to aquariums, a few observations (admittedly based on subjective reactions and "eyeballing" pretest results) can be noted. First, the support and encouragement by members of different levels of government for the study have been remarkable. It has evolved as a cooperative agreement among county, state, and federal employees. Second, the response of the elderly residents of the housing unit in-

involved in the study has been overwhelmingly positive. Indeed, the researchers cannot walk down the apartment's corridors without being besieged by inquiries from the residents, their visitors, or custodial staff on the progress of the study. Thirdly, preliminary findings suggest that aquarium owners are experiencing reductions in loneliness.

The significance of this relatively inexpensive program (it cost less than \$20 per tank set-up) is that it may yield noteworthy benefits. That is, we may find that it is effective in altering stress, blood pressure, loneliness, or improving happiness or satisfaction with one's leisure time.

A spin-off of our research project, the University of Pennsylvania study noted above (dealing with college students and aquariums), and a new videogame show are currently unfolding. The University of Pennsylvania study found that for subjects who suffered from high blood pressure before the experiment began, fish aquarium watching proved even more effective than for the non-hypertensives involved in the study. Furthermore, companies have recently reported that videotapes showing birds, waterfalls, ocean waves, and fish have been a commercial success. These "television tranquilizers" have had a number of applications—so far they have been used in hospitals, dentist offices, banks, and living rooms.

Consequently, given all these developments, one of the graduate students in the Department of Recreation is interested in conducting a laboratory experiment involving elderly persons with high blood pressure. The

basic questions behind the study are: does either daily watching of fish aquariums or fish videotapes reduce blood pressure and stress of hypertensives; and (2) which, if any, of the two interventions (real fish or taped fish) is more effective?

For instance, if the fish videotape is as every bit effective or more effective than looking at real aquariums, imagine the ease of caring for a videotape over a real-life aquarium. Indeed, one might conjure up visions of residents of nursing homes or the community elderly taking a "stress" break or viewing a fish videotape as a follow-up to television soap operas!

Still another study in the planning stage is one involving the intervention of wild bird feeders. As envisioned, selected nursing home residents will be provided an opportunity to be responsible for the care of wild birds. This would be a replication of work done by researchers at Marietta College. They found, among other things, significantly higher scores by individuals receiving a bird feeder outside their window (compared to individuals not receiving such feeders) on life satisfaction, happiness, alertness, and sociability. If such findings can be verified, wild bird feeders may be confirmed as an inexpensive means for improving the health of senior citizens.

Videogame Play and Seniors

A new technological innovation, videogame play, is sweeping the attention of adolescents and adults across the country. Some persons have begun debating the merits of videogames. Research on the topic is scarce and what has been reported is speculative



Watch out Ms. Pac-Man!

Carol Riddick

and anecdotal at best. Some individuals (for instance, the Surgeon General) allege that videogame play is addictive and hence bad for teenagers.

In contrast, articles in various trade and manufacturers magazines as well as the popular press attributed videogame play with positive gains in confidence, accomplishment, self-image, social interaction, and activity enjoyment. Additionally, those benefits which were consistently cited in the videogame literature dealt with improvements of motor skills—such as hand-eye coordination, reflexes, and agility.

In regard to quasi-experimental research on the topic, only two pertinent studies could be identified. In one study, the Hebrew Home of Greater Washington reported (using the one-shot case

study approach) that nursing home residents given the opportunity to play videogames enjoyed the experience. Many of the residents reported feeling good about participating in the age of technology and looked forward to sharing their newly acquired skill with their families. A second study was conducted in a Mid-West nursing home. According to observations by the activity director, residents experienced increased self-confidence and hand-eye coordination through videogame play.

Because of the paucity of research on the topic, two graduate students are planning to undertake a systematic study on the psychosocial and health benefits of computerized, electronic videogames on nursing home residents and Senior Center participants. Some of the

speculated results of the study include demonstrating that videogame play can improve motor skills and self-confidence of the elderly. It is also believed that the findings can be used to offset negative images, held by recreational/activity staff, about the psychomotor capabilities of older persons.

Conclusion

Universities and colleges can be a valuable resource for the practitioner. And "real world" agencies definitely are valuable resources for academicians and students. Biologists term such an interdependence symbiosis.

In short, service providers can guide researchers in posing relevant questions for study. Researchers in turn can assist recreation service providers in determining ways for improving their services. And the students, the professionals of tomorrow, will gain all the more from such a union. Our experiences have found that these marriages between academe and practitioners are heavenly! Indeed, such alliances must be made between recreation providers and recreation researchers interested in serving the geriatric population. An adaptation of a Beatles' song might best say it all—

When I get older, loosing my hair

Many years from now

Will you still need me,

Will you better serve me,

When I'm sixty-four?

For further information about any of the studies cited in this article contact: Carol Cutler Riddick, Assistant Professor, Department of Recreation, University of Maryland, College Park, MD 20742.

Native American Interpretation/Environmental Education

by David Jackson

Native American Interpretation is an area of great public interest. However, the public presentation of many topics can create problems of understanding and the use of many topics of interpretation can be a matter of serious concern to local Indian groups. Placed within a different worldview and involving spiritual considerations, many seemingly innocent topics such as gathering basket-making materials can become a very complex process of demonstration and interpretation.

The straightforward presentation of archaeological findings from the recent past (several hundred years) can be viewed by some Indian groups as a sacrilegious tampering with the dead. The proper burial and respect for these remains should be kept in mind when dealing with materials from archaeological excavations.

Many general types of information about Indian spiritual practices can be a matter of interpretation for the public. However, it is a good idea to consult with local Indian groups because many items of sacred knowledge can somehow find their way into field notes and other published materials which are not meant for sharing with people who are unable to place it within its proper context.

Ways of dealing with the cultural demonstration to increase its effectiveness as an interpretive event are important. Much is lost if the Indian weaver or carver, for example, does not communicate with the public.

Over the years the staff of the Native American Career Education in Natural Resources program of the College of Natural

Resources, Humboldt State University, has sought to develop and extend a course on Native American Interpretation and a correlative offering with the Environmental Education program of the Department of Education.

Historical Overview

Both classes start with a brief overview of Indian history. Students frequently find this section of the class to be the most difficult because of the great complexity of the federal-Indian relationship from the beginning up to the present time. Yet, this is the most important part of this course—to understand how Indian people got to the present time, to understand the many changes in Indian culture, changes in lifestyle, and changes in how Indians themselves view Indian culture today.

At the present time there is still a general lack of understanding by the public of Indian history. We approach the historical overview in class so that students may apply a broad perspective in focusing on what is relevant for a particular area. The situation in California where there are no Indian treaties is quite different from Washington state which is very much the scene of important Indian treaty issues. This fact will affect how Indian interpretation will have to be handled.

Research

After the overview of Indian history, the second step in program development is the research of published and unpublished materials. This is the easiest step and can lead to a false sense of security. The anthropological materials are frequently written with a great sense of authority. It is important to keep in mind that

much of this material has been written by people who usually have not lived the culture, are looking at it from the outside and who have a completely different background, lifestyle, and personal set of assumptions.

Consultation

The third step should be the consultation with local Indian traditional people. Making contact can be a problem in itself. In some areas there will be Indian organizations which might be used to make reliable contacts. Frequently the traditional people will be of advanced years and will require some effort for successful contact.

Just locating someone to weave baskets or to perform some other cultural demonstration will probably not be enough. Because a person has a certain skill does not guarantee that there will be a communication of that skill. Time will be needed to see if the contact person is not only willing to demonstrate in public, but also if there is going to be any communication. Cultural demonstration without communication is no interpretation at all.

Earlier this year we decided to take a field trip to the Warm Springs Dam in Sonoma County (CA) to visit some sedge gathering sites with a group of Pomo basket makers. Pomo basketry has reached a very high level of craft, and we were excited and eager to see how the materials were gathered. This site is also of interest because many prime sedge beds were to be flooded and several of these sites had the plants removed and transplanted to a site below the dam by this same group of weavers.

Previously, in another class,



Humboldt State University

Distinguished Pomo Basket Maker Elsie Allen selects sedge roots.

some Pomo basket weavers had demonstrated weaving and the gathering process. Time of the year was observed, seasoning and curing were discussed, and basic techniques of weaving were demonstrated. Mention was made at that time of proper attitude and spiritual readiness, although it was not stressed in any particular way.

This time was to be different. We were to be accompanied by a Pomo medicine woman. She quickly mentioned that they had not seen the sedge beds since the removal project, and the sedge beds were now off limits as construction came to an end.

We arrived at a soon-to-be-flooded sedge bed and all rushed down to the bed to begin digging. After several minutes our leader called a halt to the digging and explained that there were a

number of observations to be made. A prayer was offered and a quick survey of the group was made to determine:

- were any of the women having a menstrual period?
- were any wives of the men having menstrual periods?
- why were the men interested in Pomo basketry (since traditionally it was not thought proper for most men to be involved with basketry)?

An explanation that this class was interested in the resource issue of Indian access to a sedge gathering site on public land did not seem to be an adequate explanation to the medicine woman. She stressed the importance of proper spiritual preparation and of our personal attitudes since they could be essential to the survival of a particular sedge

bed in the future. Indian environmental considerations were discussed to make sure that our gathering left the bed with the necessary means of regeneration. After characteristics of root texture which were most desirable for weaving were discussed, and proper use of the tools was demonstrated, approximately half the group left the immediate vicinity of the site because they had been declared spiritually impure for this particular occasion.

While our previous experience with Pomo weavers had not entirely prepared us for this situation, the participation of the medicine woman had undeniably added richness to this demonstration. It was important that basketry be placed within a traditional spiritual context, and it gave an added dimension for members of the class.

The medicine woman was comfortable in her public role as an interpreter, and her authenticity was undeniable. For those members who would not participate in the gathering, other basket makers were present to discuss gathering and the preparation of the materials for weaving. An anthropologist from the removal project was also present to explain the agency role and objectives.

In this case spending time with the medicine woman before the field trip would have helped us to overcome some of the problems which were mentioned earlier. This was also a situation where no intervention by the agency representative was necessary in any aspects of the cultural demonstration. This demonstration featured the following desirable interpretive qualities:



Members of interpretation class with Elsie Allen.

Humboldt State University

- involvement of a traditional Indian
- demonstration of a craft of great complexity and utility
- a cultural demonstration placed within its traditional spiritual context
- good communication between the demonstrators and the public.

This cultural demonstration and the entire sedge transplanting project show a desirable relationship between an Indian group—not just in interpretation but also in implementing Indian concerns in an important land management issue.

Legislation

An important part of the Native American Interpretation

class also covers key cultural resource management legislation such as the American Indian Religious Freedom Act, P.L. 95-341, and agency policies such as National Park Service proposed Native American Relationships Policy; Management Policy. Interpreters need to be aware of their own agency policies and to have a good general idea of what should be done as a matter of course in dealing with Indian subjects of interpretation and Indian concerns in land management and planning issues.

Our class in Environmental Education is centered on the use and adaptation of various strategies of environmental education for use in Indian schools, particularly Indian Reservation schools. We have had some success using and adapting the publication "In-

roduce Science to Students Using the Environment in Northern California Indian schools."

Conclusion

In summary our class in Native American Interpretation uses the following syllabus:

- Overview of general Indian history
- Research of published and unpublished materials
- Contact with Indian resource people (traditional Indian people)
- Review of Cultural Resource Management legislation
- Discussion of agency-Native American Relationship policies
- Public Presentation.

Consideration of Indians as people, consideration of Indian culture through time, and consideration of Indian culture within its spiritual context should assist the interpreter in the development and presentation of Indian interpretive projects.

David Jackson is the Director of the Native American Career Education in Natural Resources program of the College of Natural Resources, Humboldt State University, Arcata, CA.

Cooperative Interpretive Training Program

by Donald S. Warder, Ph.D.

In mid-May over the last two years, 35 men and women students from the University of Wyoming (UW) have relived the harsh life of new recruits in the U.S. Army of the Frontier as well as being military post laundresses. The time period replicated has been the mid-1870s. The project has been a duplication for university students of the NPS "Camp of Instruction" for living history interpreters. The place has been Fort Laramie National Historic Site (WY) where, historically, soldiers were actively protecting emigrants traveling the Oregon Trail.

This unique academic experiment was developed by the UW Department of Recreation and Park Administration with the full cooperation of the National Park Service. Fort Laramie National Historic Site, active as a military post from the late 1840s until about 1889, has largely been restored and presently serves approximately 90,000 tourists a year. The academic program was devised to provide students with a first-hand perspective of how to offer a living history interpretive program to the public at such a site. Important to such a process, the students learned how it actually felt to live during the 1870s, leaving behind the trappings of our modern society.

Each day began with an authentic 5:15 a.m. "First Call," followed by reveille, inspection in ranks and a standard 1870s Army-issued breakfast. The rest of each day followed the true-to-life daily tasks and training programs of yesteryear's soldiers. The fifteen women students dressed and performed duties as

frontier Army post laundresses or as officers' wives.

Special features in the intensive course for the men involved working at various duty stations around the fort, as well as standing guard for one night. An "incident" was scheduled, allowing the students to react as soldiers would have at the frontier post. In addition, students participated in a campaign involving a six-mile march, an overnight campout, carrying full field equipment. The experience was designed to simulate the patrol actions in the Fort's history. During the latest course, Indians participated by coming into the campaign encampment, speaking only in sign language. It was obvious by the student's reactions that the degree of

realism desired was achieved. Both the laundresses and soldiers attended a barrack's dance late in the week where period music was played and dances of the period were taught.

The National Park Service has used the living history interpretive technique for many years to train personnel. The method involves replicating the most authentic atmosphere possible in order to re-create a way of life of a given locale at a particular point in time. Food, clothing, weapons, and even activities are modeled in minute detail on carefully researched originals. In the UW program, for example, this included using duplicates of official War Department Articles of War and enlistment papers.



Women students performing duties as frontier Army post laundresses.

The idea of applying the training session technique to an academic program was conceived by Dr. Donald S. Warder, UW Recreation and Park Administration Department Head, who worked extensively with National Park Service administration. Gary Howe, Superintendent at Fort Laramie National Historic Site, shared the enthusiasm for developing the course. A total of eleven instructors were involved in teaching the course, several of whom are active National Park Service employees from throughout the region. These include Ellis LeFevre, Dinosaur National Monument (CO-UT); Neil Mangum, Custer Battlefield National Monument (MT); Mike Livingston, Gary Howe and Tony Tommel from Fort Laramie; retired National Park Service employee Dr. Donald Rickey; and Warder. Uniforms, furnishings and all the necessary equipment were provided by Fort Laramie National Historic Site and Scotts Bluff National Monument (NE).

The course has been designed to maintain high academic standards. Students wrote a final examination and demonstrated living history interpretive techniques to the visiting public.

The course was considered a huge success by the National Park Service, the University and the Department. Students have been unanimous in their support for continuing the course in future summers. The benefits to both the National Park Service and the students are many.

Dr. Warder is Head of the Recreation and Park Administration Department, University of Wyoming.



University of Wyoming



University of Wyoming

Students learn how it felt to live during the 1870s by participating in true-to-life daily tasks and training programs.

Changing Degree Programs to Enhance Student Skills

by Louis F. Twardzik

The title of this article is noteworthy, not only because of the subject, but because it calls for a direct response. Unquestionably, this subject-title is about benefiting students and calls for something they might find useful, and not necessarily for the benefit of the institution, faculty, or profession. It is not possible, however, to address curricular changes that will benefit students without a critical review of those that are responsible for providing or conferring those benefits.

Understanding the Student's Interest

Clearly, the park and recreation student, regardless of competition in the job market, is studying toward achieving a satisfying life through professional employment. Equally clear is the employment position facing students today. This is probably the worst such market new graduates have faced. This means that students can't even depend on the limited opportunity for jobs created by normal attrition, resignations, retirements and deaths, because workers prefer to stay on the job longer in times of economic stress.

The few available positions are often left open by managers to fulfill budget reductions. The realistic employment picture facing the new graduate is that those few beginning positions that do surface are quickly filled by the graduates who are currently employed part-time by the agency while waiting for a full-time opening, or by those who served a highly successful intern program with the agency. Recent graduates who have served an internship or worked part-time

are known and tested products and not surprisingly, are generally offered those openings, regardless of official search procedures.

There is a difference between the employment opportunities available to students based on their area of emphasis—administration, interpretation, therapeutic recreation—but for the purpose of this article they will be considered as being equal in the problems they each experience in finding suitable professional employment. They are all at a disadvantage because of the market.

Understanding the Institutions

The lack of professional job opportunities threatens to create an over-supply situation which in turn threatens the rationale for continuing those university and college educational programs. There can be no doubt that the condition of the economy during the early part of this decade cannot tolerate a continual condition of over-supply. Funding of park and recreation and leisure study departments will be severely curtailed as universities and colleges reassess their educational priorities.

The educational institutions that will survive and possibly prosper will be those that, despite obstacles of scarcity, can successfully enhance the student's education and skills and employment potential. This is not to suggest that the surviving institutions will be the same leading universities of today. Immediate needs have to be identified and met now, but universities were not made by God or

man to respond to the short term. If the national economy continues its present pace of recovery for another five years, it is not unreasonable to foresee a heavy fallout of college and university programs of study in park, recreation, leisure studies and tourism because much of the remaining demand for graduates can be met by junior colleges, small private colleges, and private professional training institutes, at a lesser cost. All of these institutions can use former college and university faculty in parks and recreation to teach their students under short-term, semester-long contracts. The four-year and graduate degree-granting institutions that survive this decade will be those that are capable of changing to accommodate the changing professional needs of students by enhancing their skills and attitudes, and making them employable as well as educated. As survivors, these four-year and graduate professional programs will be well positioned to assume continuing leadership in their teaching and research programs, as the economy improves. But so will the small private colleges, junior colleges and private training institutes who will have accommodated students' employability needs.

There is no assurance that these new leader institutions will include all of those that have achieved accreditation by the National Recreation and Park Association (See Who Can You Turn To?).¹ One of the most difficult programs facing the universities and colleges is that many have misjudged the kind of facul-

ty needed to teach and do research in the 1980's. There seemed, reasonably enough, during these earlier years, a need for faculty who could bring a more scientific orientation to teaching and research in parks and recreation (See *Who Can You Turn To?*).² An approach that would not only improve the kind of teaching and research available and needed by students, but would also help the professional field achieve an acceptance within the academic community.

As a result of implementing that rationale, the changes in faculty in most institutions have been remarkably upgraded during the past decade with increasing numbers of faculty holding doctoral degrees and research skills (See *Who Can You Turn To?*).³ These new faculty are starting to bloom in their own areas of emphasis. They are beginning to achieve tenure and are therefore not overly interested in change; first because colleges and universities and their faculties do not change quickly, and secondly, this group of new faculty are on a fast track of their own and now is the worst possible time to interrupt their progress in research and publication.

It is this author's opinion that some of our leading programs and departments in parks and recreation may not survive because their fast-track faculty may be leading them in a direction completely separate from the new needs of the public and the profession during the short term.

The enigma is clearly that these same faculty are needed for the future of the institution and the profession in the long term because their scientific advances in teaching, writing and research



Students relax on campus at Michigan State University.

will continue to be the basis for improving professional programs in higher education. But how to capture and use these talents in keeping with the short-run survival needs during the next five years is the critical question.

Philosophically, there is little choice but to adopt the views of two of the nation's most successful administrators of higher education:

By tradition, universities are primarily contemplative and reflective institutions, not active instruments for change. The tradition will no longer suffice as justification for passivism. Most observers agree that the forces are such that universities will inevitably be transformed. The only questions which remain are whether the transformation is to come from within or without and will the change be truly creative or merely reactive.

Clifton R. Wharton, Jr.

(See *Who Can You Turn To?*).⁴

Can a large university retain its stability, its integrity, and its usefulness to society by continuing to carry on in the same way as before, doing more and more of the same things, or must it change?

It is my belief, and I hope it is yours, that it must change; that the pressures and strains are so intense and so persistent as to make innovation mandatory. We see old attitudes, old methods, old values, being challenged and changes in society all around us. Can we expect the university, itself a social instrument, to escape unchallenged and unchanged? We cannot.

John A. Hannah
(See *Who Can You Turn To?*).⁵

Both Drs. Hannah and Wharton confirm that the role of the university is to assist in meeting social needs as well as discovering and teaching truth.

It follows that if the progress and advances that have been made in park and recreation education are to continue, the institutes that have made these contributions over time will have to bridge the short-term gap by developing a teaching and research program that meets the needs of the park, recreation, leisure and tourism service systems as they exist now. The consequences of not accepting this need for change is to produce graduates who are not suitably prepared professionally and, therefore, not employable.

There is no question, professionally-oriented curricula cannot withstand such rejection of its graduates for long. With the disappearance of baccalaureate programs of study, departments would be left with only the graduate program and the graduate faculty intact. It is generally accepted that some graduate level faculty, especially in those academic departments where they dictate matters of curriculum, would be pleased to have the undergraduate programs and faculties disappear, leaving them with limited numbers of high level students. Universities are not above encouraging this attitude: they generally attribute higher value to graduate level teaching and advising. The graduate level faculty can teach ten graduate students and receive credit comparable to an undergraduate faculty member who teaches many times more undergraduate

students. Doctoral candidates are highest; a teacher need only be responsible for a relatively few of them.

This approach to higher education has been accepted in the past largely because graduate faculty are the first to be tenured. When the universities and colleges return again to the more conventional state, this approach to higher education will probably slip back into place. In the meantime, there is no assurance that professional education will return to what it has been. Society, including state legislatures, is evaluating university and college performance more rigorously. Criteria is often based on 1) the current demand for professional education and training, and 2) programs that will satisfy the demand.

Outside Help

Regardless of the composition of the faculty, most university and college departments would benefit from outside assistance in planning the development of a short-term, survival, academic program. Conventional wisdom suggests that advisory groups, including professional practitioners, various institutional representatives, as well as faculty and students should be established to help guide the academic departments through the remainder of the 1980's.

Each department obviously should develop groups according to their particular needs and available talent. Nevertheless, it seems a caveat is in order: emphasis should be on identifying new needs and how to change resources and programs to meet them. Traditionally-minded people will contribute little to these

goals; students without work experience will have little to offer, and neither will affirmative action considerations in the composition of the committee. The people who serve on advisory committees should be recognized as being capable of innovative and critical inquiry. And to achieve this committee makeup, it probably will be necessary to appoint people who may not even be acquainted with the curriculum in parks, recreation, leisure studies and tourism. Example: every curriculum committee today in this field is addressing the problems of how their students can enroll in business college classes which, because of the enormous demand throughout the university, are often closed to non-business majors. The most traditional response seems to be to find other departments in the university, i.e., economics, who offer somewhat similar courses or, if they are not available to park and recreation majors, or are not satisfactory substitutes, to drop the requirement for business management courses.

A non-traditional response to the problem could be to permit students to enroll in community colleges for business management courses for university credit or contract with a community college instructor to teach a business management course in the park and recreation department as a visiting lecturer, for one term a year. These latter two responses will not readily occur to traditionally-minded advisers and faculty because they know the problems associated with these options. The non-traditionally — minded faculty and advisers may come closer to the solution

because of a willingness to address the problems of students and a feeling of not being bound to the institution's constraints, including business college accrediting programs which monitor the ratio of instructors and students.

An academic advisory committee of this type should not be expected to gather data. The department faculty should perform this function, thereby permitting non-faculty members to address issues and not become involved in discussions on methodology of research.

Managing Existing Resources

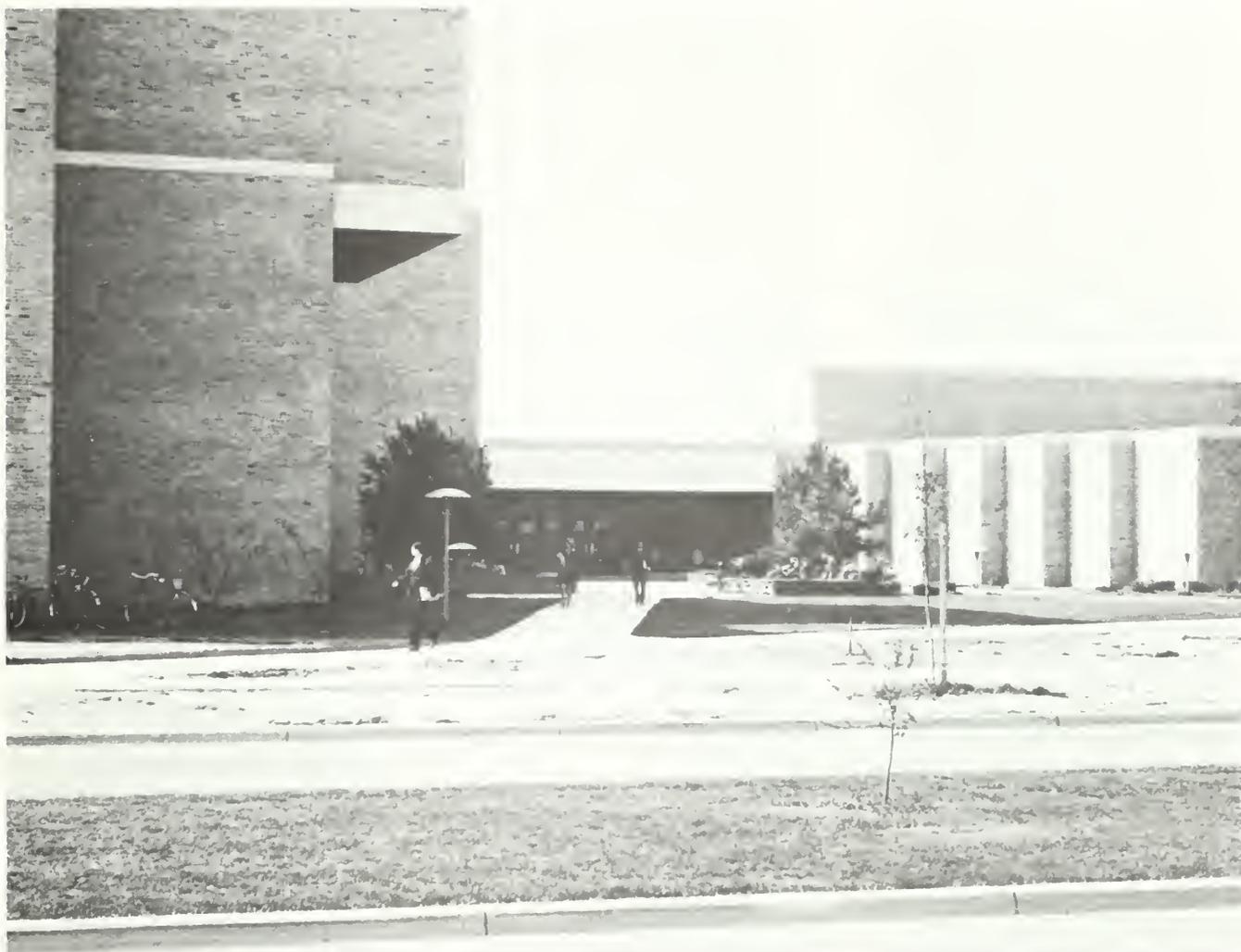
The modern university and college includes a great variety of applied fields of study ranging from medicine, horticulture, education, sociology, and parks and recreation and leisure, as well as the basic disciplines of biology, chemistry, mathematics, psychology, upon which they depend for basic theory.

The justification and growth of the applied fields of study is generally predicated on 1) social demand, and 2) a sound relationship with one or more basic disciplines. In the process of growth, it is not uncommon for applied fields to compete for prominence and social demand and university resources. As a result, the applied fields of study almost always follow a single, common, narrow competitive track of growth and development. With age, they are buttressed by a professional clientele capable of exerting outside pressure on the university through a variety of institutional arrangements, including accreditation, certification, registration and licensing.

Their source of power is their ability to withhold employment opportunities for graduates of institutions that do not conform to their criteria.

This is the general strategy followed by universities and applied fields. Today, the sad state of financial exigency of many universities and colleges is not limited to a few industrial state universities anymore. It is becoming a nationwide phenomena and new strategies of advancing professional fields is in order. Primary amongst these new ways of attempting to maintain and improve existing curricula is to enter into new relationships with other fields of applied studies where mutual goals are enhanced. In the process, it may be necessary to at least modify some of the constraining and regulatory programs, including accreditation.

Single-track professional curriculum development is no longer a useful strategy. In fact, it may never again be possible regardless of how fast and far the economy recovers. For those who continue to harbor contrary views about single-track professionalism in university curricula, they might gain some additional insight into the inevitability of the need to work on dual tracks by noting how the world's largest and most successful business enterprise, General Motors, similarly faced up to the reality of a changing world and its changing markets and its ability to compete in them and took upon itself a foreign competitor, Toyota, to jointly build a small car. They obviously foresaw mutual benefits in this arrangement. University departments should engage in similar searches



Michigan State University

Michigan State University's Natural Resources Building.

for either new partners or new relationships with other applied academic departments.

Partnerships and Relationships

Partnerships can generally be considered arrangements in which two or more departments make a significant commitment to establishing a new joint program, i.e., a joint area of study. Relationships, on the other hand, can mean a joint working relationship

between departments mutually establishing a jointly-administered and taught course, or joint faculty appointments.

The essence of recreation is such that a great number of academic departments consider it as part of their area of study; departments of geography, astronomy, museums, urban planning and landscape architecture, forestry, horticulture, medicine, and there are others. The relationships that a park and

recreation department might establish need not include a transfer of funds. Some institutions permit an exchange of faculty between departments with adjunct professorship status. When an exchange involves mutual benefits in teaching courses, there is no need for salary exchange because each department's curriculum is enhanced in the process.

Even when courses are not exchanged, adjunct or joint appointments serve to break down the single-track, professional curriculum development mentality and that in itself is adequate justification for joint or adjunct faculty appointments.

It is therefore not uncommon to have faculty in park and recreation departments with joint appointments in departments of sociology, education, physical education, forestry, and others. Most often the relationship is dependent on the various educational backgrounds of the faculty member. A professor in a park and recreation department who has one of his degrees in physical education or forestry would be more apt to be offered and take a joint appointment in departments of physical education or forestry.

The partnership kinds of arrangements are much more difficult and time consuming to arrange. They generally include joint offering of degree programs or heavy commitments to new courses. Some underway at Michigan State University are the joint graduate degree program between the College of Business which offers an MBA degree (Master of Business Administration), and the Department of Park and Recreation Resources (PRR) and its MS degree (Master of Science).

The need for additional business management background in the professional education program of parks and recreation is apparent. Colleges of business are overwhelmed with demand for their courses. In 1979, the Department of Park and Recreation Resources initiated a proposal which recognizes the

benefits students would receive by taking a graduate program that would result in the students receiving both the MBA and MS degrees. While the time involved in completing the joint program is greater than that required for one, it is less than that required if the student took both degrees separately.

What are the Mutual Benefits?

Students in PRR are guaranteed access to business management courses that are offered by faculty with great competence in management. Business students who take the dual program generally have an interest in tourism and commercial recreation, and similarly benefit from courses offered by parks and recreation faculty in parks and recreation policy, management, theory, planning and design.

While this may very well be the first joint MS-MBA program offered to students in parks and recreation in the country, it has not required additional funding (including foundation seed-money), or transfer of salaries. The background skills of graduates of this program are enhanced enormously. While the program is too new to report on the employability of these graduates, it's reasonable to expect that they will be in demand—regardless of the state of the economy.

There are similar opportunities for joint undergraduate degree programs. Park management concepts throughout the country have gradually worked themselves into an efficiency

model of management. This process of rationalizing machine maintenance over labor-intensive programs has rejected the once popular horticultural emphasis in parks planning, design, development and management. Texas Tech University is the best known university curriculum in the country for its combination of horticultural, landscape architectural and recreation areas of study. Today, there are few park and recreation curricula that even offer their students electives in horticulture.

The general condition of American parks reflects this turning away from horticultural planning because of a general inclination to replace aesthetics with softball fields. The pendulum has swung so radically in the direction of park maintenance efficiency and sports activities that there is now a countering awareness that parks should once again be balanced with aesthetic experiences based on the science and practice of horticulture and landscape architecture.

Into this matrix of supply and demand and the need to enhance student skills and job opportunities, the private sector should be recognized for what it contributes to both knowledge and employment of people. Park and recreation majors with horticultural backgrounds and skills may even be in greater demand in the private sector of parks, resorts, and building and condominium management than in the public sector. Recognizing this apparent need, the faculty of Park and Recreation Resources at Michigan State University and the Department of Horticulture are in the process of developing a

joint B.S. degree program in Park Horticulture. Planning for the program has proceeded to the point that in all probability it will not be necessary to employ additional faculty even though at least a few new courses will be required. Basically, the four year program will consist of a proper mix of existing courses in both departments and the School of Urban Planning and Landscape Architecture.

Conclusion

Changing degree programs in the professional fields is an ongoing, normal function of the university. The difference during the past four years is that these haven't been normal times and, therefore, the process and kinds of change to accommodate the needs of students and society have had to be increased.

The substance of change that seems to be demanded to universities and colleges is also not the normal refinements of existing courses of study. It's more in the nature of dramatic change in perceptions by faculty as to what constitutes the professional field, and then how to educate and train students for it, now. To assure that these perceptions are accurate, effective advising groups, including practitioners, should be appointed.

It has been noted that the programs of professional validation—accreditation, certification, registration and licensing—take on greater importance during times of low employment markets because of the ability of the professional organizations to control employment of graduates, whereas the need for validation is greater during high demand in

order "to protect society" from educational programs of questionable merit. In either case, faculty have a concern for validation as additional inducement to establish advisory committees or councils.

So, while the question about changing degree programs represents a never ending phenomena in higher education, the severity of change during this decade requires an especially sensitive and innovative spirit by the university and the profession to understand mutual needs, and then a willingness to make appropriate change in both academic and professional programs.

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Carrying Capacity: Evolution of Manage- ment Concepts for the National Parks

by Patricia E. Aspland and
Katharine A. Pawelko

A unique American institution, the National Park, was first introduced with the Congressional designation of the Yellowstone area as a public park. Two primary purposes were addressed in this law: one, the preservation of unique lands and, two, the use of these areas as "pleasuring grounds" by the public. The 1872 act specifically stated that "the Yellowstone region is hereby reserved and withdrawn from settlement, occupancy, or sale. . . and set apart as a park or pleasuring ground for the benefit and enjoyment of the people. . . The Secretary of the Interior shall provide for the preservation. . . of all timber, mineral deposits, natural curiosities, or wonders within said park. . . in their natural condition." (17 Stat. 32)(U.S.C., title 16, Sec. 21 & 22). Later, when an act to establish a National Park Service was enacted in 1916 to provide an administrative vehicle to manage and maintain the quality within the expanding park system, it reiterated that the parks existed for the concurrent purposes of preserving unique national resources, while also providing for use and enjoyment of the people.

Philosophical Dilemma that the Act Poses

While more units were added to the National Park System, it wasn't until the post-World War II period that the American public increasingly became avid visitors to the country's natural park heritage — "the crown jewels." Much of this change in visitor behavior was due to the advent of the industrial tourism age which permitted and encouraged "mass recreation" op-

portunities. Park managers, who continuously had to encourage people to visit the parks, were now busily involved with serving droves of itinerant visitors. With timely vision, precipitated by the trend of burgeoning numbers of visitors, the National Park Service implemented "Mission 66," a ten-year plan, bridging the decades of the 1950's and 1960's, to expand, upgrade and maintain the parks.

With the turnaround in the park visitor situation, from rather low levels of users to steadily increasing numbers, a potential conflict inherent in the National Park statutes was exposed. Park managers began to realize that while they were carrying out their mission of providing for the enjoyment of increasing numbers of people, they were doing so perhaps at the expense of protecting the integrity of their second mission—the protection of the parks' natural resources. The fragility of these "Temples of Time" became manifest as hordes of users continually descended upon and inflicted damage on them. As a result, park managers began to ask themselves, "how many visitors are too many?", and "how can we manage for the visiting public while simultaneously providing optimum stewardship of these unique lands?" At this point in park history, the dilemma between the two thrusts of the National Park Service mission became evident.

True Park Experience

The apparent conflicting aspects of the National Park mission has led many scholars to scrutinize the concept of what actually represents "the true park ex-

perience" in America. This article identifies managerial strategies which have been adopted by the National Park Service in its effort to provide a balanced approach to carrying out the dual responsibility. A case in point referring to the role that research can assume in affecting management policy decisions shall also be included.

A contemporary spokesperson, Joseph Sax, has reflected upon what the true park experience should be. He advocates that preservation of the park resources must be the foremost concern of management. Furthermore, Sax contends that the style of and emphasis upon modern tourism deprives the national parks of their central symbolism: the preservation of unique natural resources.

In an effort to determine what the outdoor experience should be, the concept of recreational carrying capacity evolved. Various researchers such as Brandborg, James and Ripley, LaPage, Lucas, and J.A. Wagar were among the early developers of this conceptual model. More specifically, as stated by J.A. Wagar, recreational carrying capacity was "the level of recreational use an area can withstand while providing a sustained quality of recreation." (Wagar 1964).

Since 1964, recreational carrying capacity has evolved into a model consisting of both social-psychological and ecological dimensions which attempt to more precisely describe what a "quality" outdoor recreation experience is. Wagar expressed the social-psychological dimensions of recreational carrying capacity

in terms of user satisfaction. Numerous researchers have attempted to measure the impact which increased user density has upon the quality of an outdoor recreation experience. The question of "how many is too many?" before a quality outdoor experience is altered is the focus of social-psychological carrying capacity research.

Research examining ecological carrying capacity has concentrated on the effects that recreational activity has upon soils, vegetation, water quality and wildlife behavior (Stankey 1980). A recent annotated bibliography by D.N. Cole and E.S. Schreiner (1981) summarizes research addressing recreational impacts on soils, vegetation, campsites and trails in backcountry areas.

A far more evasive area in need of further research is the study of human-wildlife interactions in outdoor settings. An extensive annotated bibliography by Catherine Ream (1980), is an attempt to summarize past research with respect to this topic. According to Ream, many wildlife species have become accustomed to people in national parks and other wildlife refuge areas. Research addressing the impacts of human-wildlife conflicts in our national parks has been on the increase since 1975. Studies concerning the National Parks have included: the effects of winter recreation on wintering wildlife; the implementation of mountain goat and bear management programs; and the study of the effects of visitors on elk populations. Concern for wildlife and its resistance to increased human intervention in our park backcountry areas will continue to be an



Katharine Pavetko



Katharine Pavetko

Increasing numbers of people frequent backcountry areas.

area of growing interest. These carrying capacity studies are acutely linked to the environments of our National Park System since visitor impact in the park units is a contemporary management issue.

The Grand Canyon Research Series: A Case Study in Carrying Capacity Research.

Between 1955 and 1959, fewer than one hundred persons were making the adventurous whitewater trip down the Col-

orado River through Grand Canyon National Park. With the completion of the Glen Canyon Dam in the early 1960's, the character of the river trip was tamed and thus it attracted increasing numbers of river runners on an annual basis.

When 16,432 persons were documented as floating down the Colorado River through the Grand Canyon in 1972, the National Park Service was faced with the prospect of making some crucial management decisions.

During the period from 1973 to

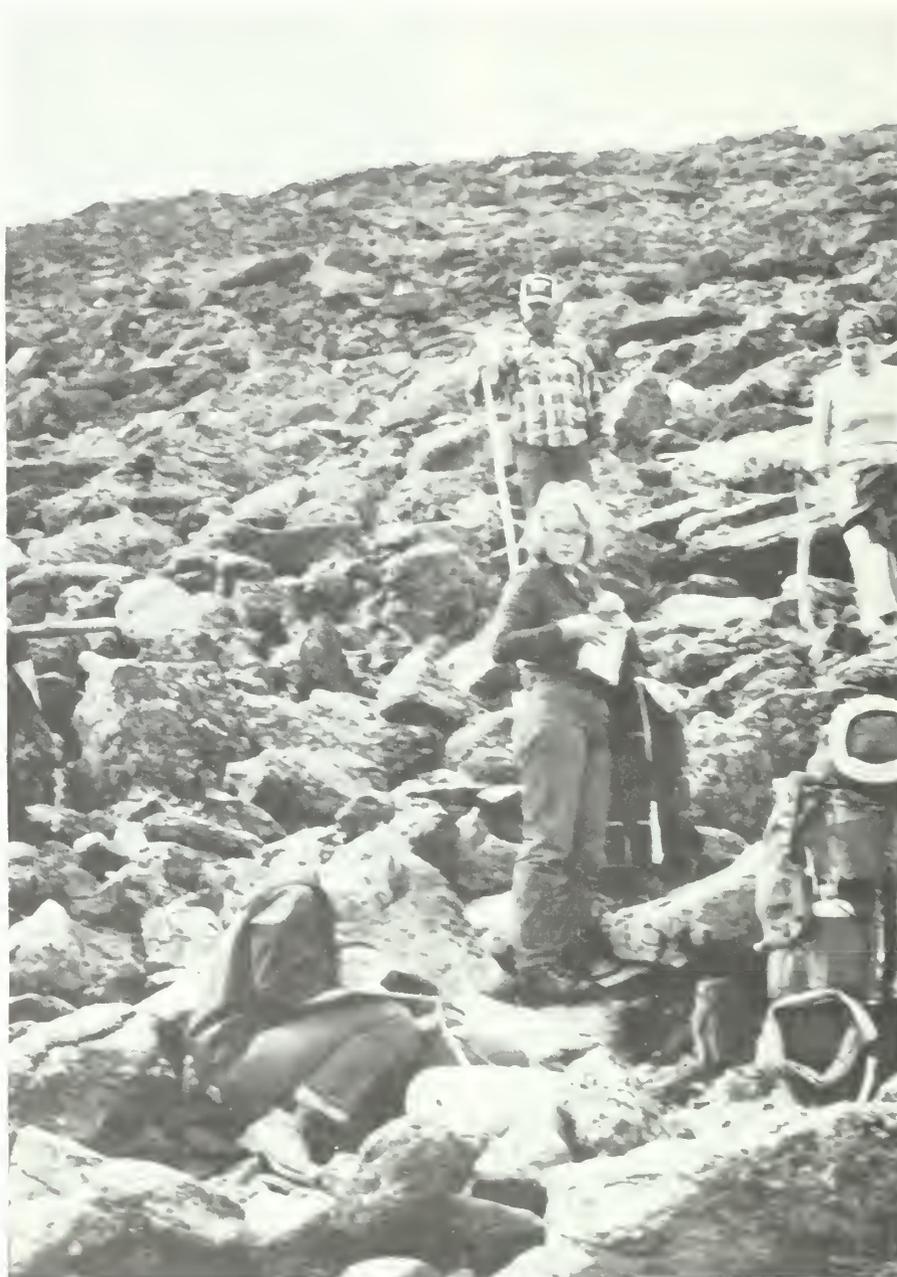
1976, scientific data concerning the streamside habitat and river ecosystems were collected on the Colorado River in the Grand Canyon National Park.

In 1973, Senior Research Coordinator Dr. R. Roy Johnson headed a multifaceted research series oriented to the investigation of the Colorado River experience. The various components examined in the research project included: sociological aspects of the river runners' experience; economic analysis of the river trip trade; environmental and ecological forces in the river and streamside zones; the standing of endangered and threatened species; inventories of campsites; human carrying capacities; use timetables; water quality conditions; flora and fauna inventories; and the development and ensuing condition of beach areas.

Findings from the Colorado River research series indicated that the Glen Canyon Dam had the major environmental impact upon the river ecosystem. To a lesser extent, visitor impacts were cited as also influencing the river system.

In terms of ecological impacts from increased visitor use along the Colorado River, Carothers and Aitchison (1976) and Howard and Dolan (1976) found a correlation between trampling, impacted vegetation and erosion at heavily used campsites. Carothers and Aitchison also found that hiking and picnicking caused degradation to the riverbank ecosystem.

Supplemental to the vegetative studies, Carothers and Aitchison found that increased human use caused the disturbance of adjacent river habitat of ground dwelling animals. It was speculated that such disruptions



Backpackers pause along the Lion Head Trail, White Mountain National Forest.

Katharine Pawelko

would bring about some behavioral changes in these animal communities. In terms of aquatic life, float parties had little overall effect upon the fishes of

the Grand Canyon area.

Research conducted by Shelby and Nielsen concerning use levels and use patterns also focused upon the carrying capaci-

ty concept and the estimation of what depicts a true wilderness float trip experience. Their findings concluded that density did not affect user satisfaction of a total trip experience. Yet, in terms of use patterns, a preference for oar-powered over motor-powered travel during the float trip was apparent. This specific study entailed a field experiment where river runners were asked to travel halfway through the canyon in oar-powered boats and halfway through the canyon in a motorized raft. Results from this study indicated that river floaters preferred oar travel to motors through the canyon. Individuals who preferred oar travel described this experience as more relaxing and peaceful than the hurried pace of a motorized float experience. The social-psychological research addressing the motor-oar issue lent support to the original draft Colorado River Management Plan, 1977. As stated in the plan, "The goals for management of the Colorado River in Grand Canyon will be to perpetuate the wilderness river-running experience and to attempt to mitigate the influences of man's manipulation of the river" (USDI 1977). Hence, the results from the Shelby and Nielsen study illustrated that the protection of a wilderness-type float trip experience was important to user parties. Nevertheless, in 1980, a rider was introduced on the National Park Service 1981 appropriations bill. This amendment prohibited the use of funds that would aid in a total motor phase-out decision. The motor-oar issue is representative of the critical importance that outdoor recreation research

may have in influencing park management strategies. Shelby makes the suggestion that policy decisions should be dependent upon an interactive process which involves researchers, the public sector and resource managers.

The Colorado River research series represents an important step in park resource management. Information gained from research can aid in the management of a fragile park environment such as is illustrated in the Grand Canyon National Park.

Contemporary Issues

The March 1972 Task Force reports of the Conservation Foundation, "National Parks for the Future" contained the following recommendation: "high priority should be given to research directed at finding the physical, ecological and psychological carrying capacity of every unit under the jurisdiction of the National Park Service. This information should be the basis for the establishment and enforcement of user quotas to prevent visitation from exceeding the carrying capacity of the environment."

This concern for visitor impacts on park resources has continued to be addressed throughout the National Park System. The recent "State of the Parks" report (USDI 1980), which was presented to Congress, was the first servicewide survey completed that identified both internal and external threats to the National Parks. Seventy-five percent of the reported threats were classified as being inadequately documented, with visitor-related activities identified as needing

additional monitoring or research documentation (USDI 1980). The seventy-three threats reported in the parkwide survey were grouped into seven general categories: aesthetic degradation, air pollution, physical removal of resources, exotic encroachment, visitor physical impacts, water quality pollution and quantity changes, and park operations (USDI 1980). For the purposes of this report, Table 1 identifies the threats reported for aesthetic degradation and Table 2 identifies threats concerning visitor physical impacts. Under the category of aesthetic degradation, the problem of overcrowding and vandalism was the fourth greatest reported threat to the park units. Table 2 cites trampling as the greatest reported threat reported under the category of visitor physical impacts.

Table 1 Percent and Number of Threats Reported by Subcategory for the Aesthetic Degradation Category

Subcategory	Percent	Number
Land Development	14	153
Utility Access-Powerlines, Pipelines, etc.	11	116
Roads and Railroads	10	107
Overcrowding and Vandalism	10	110
Urban Encroachment	9	100
Vista-Road Signs, Inholdings, etc.	8	91
"Other"	8	94
Mineral Surveys, Development, Extraction	8	82
Forest Disease/Pest Infestations	7	73
Grazing or Agriculture	6	60
Wildland Fires	5	59
Timbering	4	40
	100%	1085

(USDI, NPS 1980)

Table 2 Percent and Number of Threats Reported by Subcategory for the Visitor Physical Impacts Category

Subcategory	Percent	Number
Trampling (Soil Compaction & Loss of Veg.)	21	106
Erosion (Shortcutting, Stream Banks, etc.)	18	91
Off Road Vehicles	17	86
Wildlife Harassment	11	55
Campfires	10	51
Habitat Destruction	8	40
Subtle Influences	7	35
"Other"	6	30
Cross-Country Skiing	2	10
	100%	505

(USDI, NPS 1980)

A concern resulting from increased user trends and the expansion of tourism in the parks becomes evident from this 1980 survey.

The time is apparent for continued study regarding the effects of increased visitor impacts on national parklands. Related to this timely concern, a research endeavor is presently underway. Sponsored by a grant from the National Parks and Conservation Association, the faculty outdoor recreation research team at the University of Maryland at College Park has been charged with the task of, first, synthesizing existing theoretical and empirical work devoted to the concept of recreational carrying capacity and, second, developing a methodology for the estimation of this concept which can be implemented accordingly in the management strategies of the individual National Park units.

The National Park Service is supportive of this pioneering research venture, as many park



Katharine Pawelko



Katharine Pawelko

Backpackers read posted information at trailhead before setting out along the Presidential Range in the White Mountain National Forest.

managers are at issue in dealing with the impacts resulting from increased visitation trends. With the rising problem of resource scarcity, outdoor recreation research must now play a major role in aiding the policy-maker to implement sound long-term resource management decisions. The National Parks and Conservation Association-sponsored project is an attempt to bridge the gap between the outdoor recreation researcher and the park resource manager.

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Katharine A. Pawelko is currently a Doctoral student at the University of Maryland at College Park in the Recreation Resource Management Program and is an Instructor at the University of Maine at Presque Isle.

Solving Park Problems: Developing a Social Science Research Plan

by Gary E. Machlis, Ph.D. and
Edwin E. Krumpe, Ph.D.

Park managers are increasingly called upon to make difficult decisions that involve and influence a variety of people, organizations and institutions. Parks are "social creations," and it should not surprise us that much of park management is people management. A wilderness ranger may contemplate a new backcountry policy to deal with overcrowding. A state park director may face closure of a park due to budget difficulties. Urban recreation leaders may need to revise their programming as the local community changes.

Sociological information can be a distinct advantage in solving such park problems, and in some cases is a prerequisite for action. Since the 1950s, sociological studies dealing with urban, regional and national parks have increased dramatically. Park managers have an increasing "need to know"—about their visitors, staff, local community, and nation.

The problem is that there are so many different kinds of information that social scientists could gather for park managers. Today's manager is faced with determining what kind of information is needed to solve park problems, and how and when research studies should be conducted. A solution is for park staffs to develop a plan to guide the allocation of research money and effort. The goal of such planning is to ensure that usable knowledge is obtained. In this article, we describe the necessary parts of a social science research plan, suggest a process for developing such plans, and discuss their advantages to park managers.

What is a Social Science Research Plan?

A Social Science Research Plan (SSRP) is simply an organized, written strategy for acquiring sociological information useful to park management. The plan should demonstrate the social science needs of the park, derived from management policies, legal requirements, and park goals and objectives. It should provide a set of criteria for prioritizing information needs and evaluating research proposals. In addition, it should provide a systematic program for implementing necessary research. The SSRP serves as an advisory document to park managers.

Benefits of A Research Plan

The benefits of an SSRP are many. Accurate and useful information, available when decision-makers need it, can increase efficiency and the quality of decisions. For example, constructing new visitor facilities or resolving a major resource problem may require information on visitors' desires and behaviors prior to management action. The SSRP can help ensure that the right information is available at the right time.

Another benefit is that an SSRP may improve the accountability of researchers. By prioritizing critical information needs, the plan will favor those research projects designed to produce the most needed information. Researchers working with the park (or interested in doing so) will be encouraged to align their research efforts with the needs of park management.

A third benefit of an SSRP is that it will enhance long-term planning. All planning—program, fiscal, facility, resource or personnel—can be no better than the information on which it is based. For example, studies of recreation demand may be needed for facility planning, and a job satisfaction survey may be a necessary part of personnel planning. An SSRP helps focus research efforts on important issues.

Finally, an SSRP plan can be useful in soliciting research assistance from outside institutions and agencies. It is not uncommon for universities and other organizations to have particular expertise and support for certain types of research. Faculty and graduate students are often looking for worthwhile research projects. With an SSRP in hand, the park manager can provide these institutions and researchers with a list of important research topics, and identify those individuals who might be interested, willing, or able to provide help.

Contents of a Social Science Research Plan

The plan need not be a lengthy document, yet several components are necessary. First, it should include a list of the park's social science needs. Does a particular section of the park receive heavy vandalism, and no explanation is available? Is the number of visitors per year an important figure for budgeting, yet no accurate information exists? These information needs should be stated as clearly as possible in the plan.

Second, the plan should include some evaluation of the identified research problems. Which ones are most critical? Which require immediate action? For parks with numerous needs, a prioritized list should be part of the plan. A final component should be a schedule for implementing the research. It should include a short-term schedule for proposed projects (dates for starting, completion, and delivery of information to managers), as well as a long-term schedule of what research is necessary over the next five years. Recommendations for funding sources and available assistance also can be part of the document, along with a list of those involved in the plan's preparation.

Procedures for Developing an SSRP

Several steps are necessary to develop an SSRP. A basic outline is provided below.

1. Park management should conduct or commission a review of all social science research specifically relevant to the park. This would include graduate students theses, special surveys, unsolicited research, broader studies that include data on the park, historical reports, and program evaluations. This literature review inventories the amount and type of information that is already available.

2. A planning team is assembled. Each organizational unit of the park (resources management, visitor services, administration, maintenance, and so forth) should be represented. A trained scientist, with ex-

perience in applied social science and recreation management should be part of the team. Such expertise is often available through universities or other public service agencies. Citizens' groups and the general public might also be represented on the planning team.

3. The planning team should identify management issues and problems. Staff members might be asked: What information about people do you need to do your job? In addition, legislative mandates, court orders, management policies, and capital development plans might be reviewed. Public input such as hearing records and letters are also valuable sources.

4. Once identified, the issues and problems should be prioritized based on three major criteria: How critical is the problem? How useful will the research results be? How feasible is the research project?

Figure 1 provides a sample checklist that the team might use in evaluating possible research projects. In a small park area with few research needs, this kind of checklist could be used to "screen out" inappropriate projects. In areas with many needs and numerous proposals, the list could be used to give proposed studies a numerical score and ranking. In any case, the park manager can reasonably require the social scientist to respond to the questions in Figure 1 prior to beginning any study.

FIGURE 1

Examples of Criteria for Evaluating Social Science Research

Is the Problem Critical?

1. Is the study required by legislative mandate or court order?
2. Would information from the study be valuable in an anticipated lawsuit?
3. Is the study needed because of an identified threat to human health, safety or visitor experiences?
4. Is the study critical to the preservation of natural or cultural resources?
5. Will the information from this study lead to potentially significant savings of funds?
6. Does the study relate to a problem that is presently, or could reasonably be expected to become, highly controversial?
7. Is the study needed to provide information for a specific park program?

Will the Results be Useful?

1. Can the need for information addressed by the study be adequately met in other ways?
2. Will the study duplicate work that has or is presently being done by someone else?
3. Will the study results help improve visitor experiences? If so, how?
4. Will the study results help improve the management of natural or cultural resources? If so, how?
5. Will the results be provided to managers in time to be used in decision-making?
6. Will the study results be useful in addressing more than one management issue?
7. Does the study have significant scientific value apart from its application to park management?

Is the Project Possible?

1. Is there sufficient time and money to successfully complete the study?
2. Will the study have any unacceptable impacts upon natural or cultural resources of the park?
3. Will the study have any unacceptable impacts upon park visitors and/or staff?
4. Can sufficiently accurate data be collected?
5. Does the investigator have the expertise to successfully conduct the study?
6. Is the design of the study scientifically sound?
7. Does the design of the study meet all legal requirements for collecting data?

Adapted from "A Suggested Strategy for the Management and Planning of a Sustained Problem of Social Information Acquisition at Olympic National Park" by Darryll R. Johnson and John Aho. Unpublished report, Pacific Northwest Regional Office, National Park Service.

5. The team then prepares a draft SSRP. The draft includes the prioritized list of research needs, a schedule of proposed projects, recommendations for possible research strategies or methods of collecting data, and possible sources of funding and assistance.

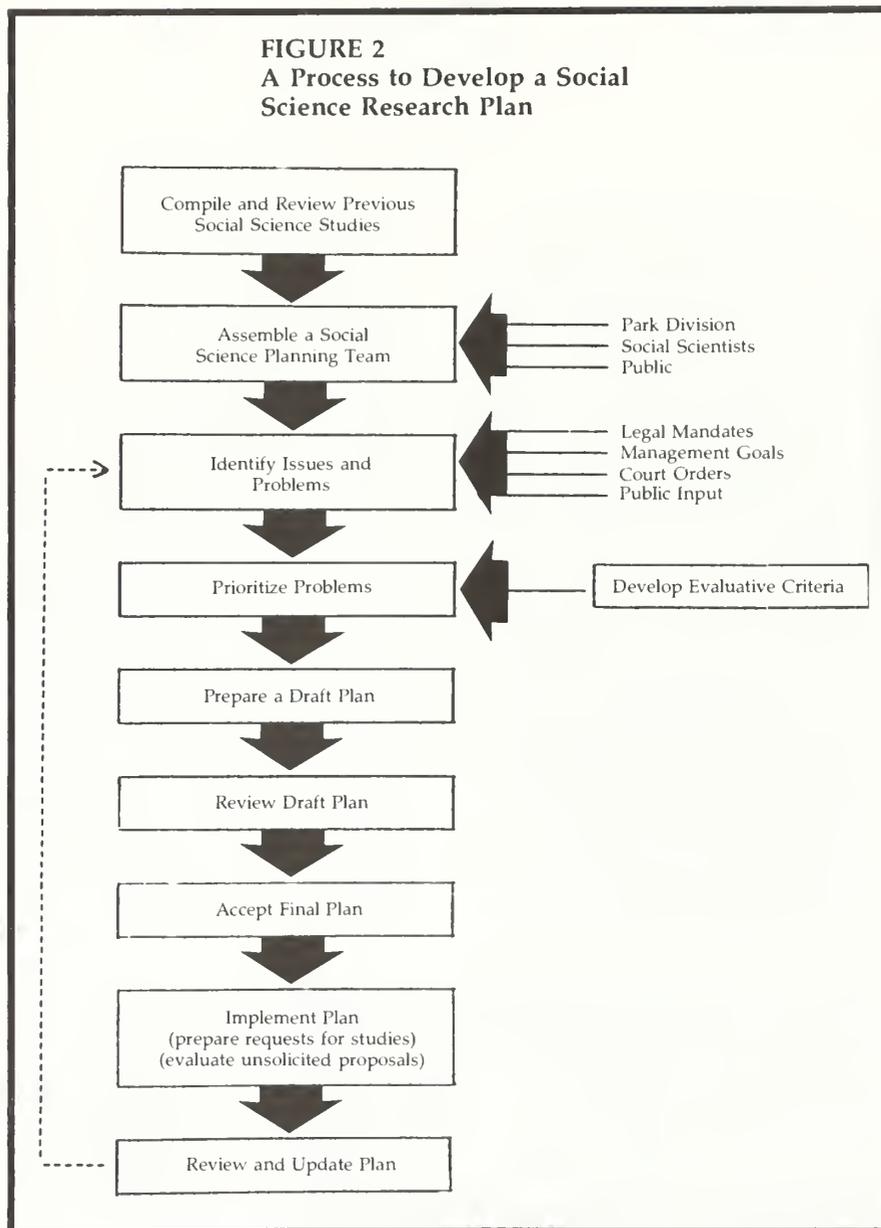
6. The draft plan is reviewed by the chief administrator of the park, as well as by other selected park staff. Omissions, corrections and suggestions for improvement are provided to the planning team. The final report is prepared and sent to the chief administrator for approval.

7. The plan is officially accepted. The highest administrative level of the park should endorse the plan. Although this may not be a commitment to carry out all of the plan's proposals, it should be a commitment to follow the recommendations whenever social science research projects are being considered.

After the plan is accepted, it is used in preparing requests for research projects and in evaluating unsolicited research proposals. Since the information needs of park management will change over time, the SSRP will need to be reviewed and revised regularly.

Conclusion

The park managers of the 1980s, faced with smaller budgets, more demand for services and increasing responsibilities, need useful and timely information to do their jobs. Social science research can often provide such usable knowledge, but the occasional thesis project,



unplanned survey, or single research study is not enough. To be useful, social science must be organized and planned in advance to meet the needs of managers. This requires park professionals to play an active role in setting research agendas, and to develop a working partnership with social scientists. A social science research plan is a necessary, beneficial and feasible tool in solving park problems.

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Training Resource Managers: An International Program

by John Titre, Leslie M. Reid, Philip McKnelly, Allan S. Mills, and J. Martin Goebel

Developing nations throughout the world are recognizing the value of identifying, evaluating, and protecting strategic natural resources. However, there are also increasing demands for public access to these areas, especially those close to population centers. This places the professional resource manager—the official charged with resource stewardship—in an embattled position.

The Cauca Valley Corporation (CVC), headquartered in Cali, Colombia, is one of the many resource agencies that is aware of the need for assistance in meeting new challenges arising from growing environmental pressures. CVC has jurisdiction over 2.2 million hectares, including two national parks. Resource problems include uncontrolled forest conversion, erosion, wildfires, flooding, and soil salinity.

Based on informal talks by former Peace Corps volunteer, John Titre, with CVC officials and Texas A&M University's (TAMU) Department of Recreation and Parks, it became obvious that there was interest in exploring a comprehensive planning and management approach to the solution of natural resource problems. The Department was independently developing an eco-development training program, and looking for an operating agency to cooperate with to test the approach.

The eco-development approach incorporates social, economic, and political objectives utilizing ecological information as a base for decision-making. This is in contrast to outmoded approaches which treat resource problems as isolated situations with little or

no relation to other social, economic, and political issues.

Initial Workshop at Texas A&M

In December 1980, Texas A&M University hosted a workshop in response to the request from the Cauca Valley Corporation to conduct an initial eco-development training program. Leslie M. Reid, Head of the Department of Recreation and Parks, invited the following participants: Nelson Melendez, Executive Director of World Leisure and Recreation Association (WLRA); Philip McKnelly, Chief, Recreation, Interpretation, and Environmental Education at Land Between the Lakes (LBL) of the Tennessee Valley Authority; Donald Warder, Head of the Park Administration Department, University of Wyoming; and Luis Ferrate, then an Environmental Analyst with the Guatemalan government; and interested faculty and students to a preliminary planning workshop.

Written materials were received from the National Park Service International Affairs Branch, the Center for Strategic Wildland Management at the University of Michigan, and UNESCO'S Man and the Biosphere Programme. Additional documents such as the World Conservation Strategy (IUCN, WWF, UNEP) and Global 2000 Report to the President (CEQ) served to orient participants to priorities for training.

Workshop conclusions were: 1) training should be targeted for mid-level managers, 2) training should be done in-country, and 3) an analysis of local problems should be conducted prior to implementing a training program. At the close of the workshop, an

informal agreement was prepared between the representatives of the Department of Recreation and Parks at Texas A&M University, Land Between the Lakes of the Tennessee Valley Authority, and the World Leisure and Recreation Association. This agreement consisted of a statement of purpose and major goals for the proposed eco-development training program.

A Strategy is Developed at Land Between the Lakes

Approximately five months after the Texas A&M Workshop, Dr. Philip McKnelly organized a second session involving many of the same participants at Land Between the Lakes, TVA's resource demonstration area. This facility offers a field setting from which to draw appropriate examples of integrated resource management in addition to recreation and environmental education practices.

At the conclusion of this meeting, specific roles were defined for the three major parties of the eco-development training agreement: TAMU, LBL, and WLRA. WLRA offered to coordinate the training and communicate directly with CVC administrators in Colombia. The TAMU Department of Recreation and Parks agreed to prepare training materials and provide the necessary instructors. LBL agreed to open its demonstration area for short-term training of resource managers from abroad. In addition, this workshop produced: 1) a tentative course curriculum, 2) a schedule for carrying out the initial Colombia training course, and 3) a

preliminary budget for that project.

In lieu of an in-country needs assessment for the Colombia training, a continuing dialogue was carried on with CVC administrators to refine program content for a ten-day course. It was determined that participation would be made available to ten watershed managers from CVC, ten recreation planners from other agencies in Cali, and five participants from agencies in Latin American countries other than Colombia.

Course participants came from various disciplines including forestry, agronomy, biology, architecture, geography, and the social sciences. As resource managers, their responsibilities were equally diverse with several acting as watershed planners and managers, and others as foresters, wildlife managers, recreation specialists, park administrators and educators.

Training in Colombia

The Colombian course, entitled "Planning and Management of National Parks and Protected Areas," was conducted November 15-24, 1982, at the San Emigdio Training Center near Cali, Colombia. Instruction was provided by four U.S. instructors (John Titre, Philip McKnelly, Allan Mills, and Martin Goebel), and one foreign instructor (Mercedes Corrales of Mexico). The CVC Training Center Coordinator, Jorge Fandino, and three CVC staff members also assisted. Twenty participants attended, and a majority of them also subsequently spent an additional two days visiting Purace National Park near Popayan as guests of

Superintendent Celendonio Rozo.

Following is a summary of the training components considered most useful to the course participants.

TVA Example of Integrated Resource Management

Three separate slide-talks showing examples of resource management, recreation, and environmental education at Land Between the Lakes were presented. Successes as well as failures were discussed with the participants. Land Between the Lakes, a 60,000 hectare peninsula of mixed forest and farmland, provides a microcosm of sound resource management exemplifying TVA's original intentions "... to provide for reforestation

and proper use of marginal lands."

Wildland Management Categories

In an attempt to address their respective roles and needs, Kenton Miller's matrix on the "Alternative Categories for Management of Wildlands" was introduced to the participants. An extended slide presentation was used to demonstrate the various objectives for conservation of alternative management categories.

In addition, a short explanation was made of the biosphere reserve concept of the Man and the Biosphere Programme, another wildland management category that fits well with the eco-development approach.

Following each session, participants engaged in lengthy discussions on the adequacy of



Colombian participants developing one component of an operative plan.

Alan Mills, Texas A&M Univ.

each alternative in their own countries and regions.

Management Unit Report

The management unit report used in this course was designed to enable participants to more systematically evaluate and communicate specific information on the condition of the physical setting and user/recreation experiences. This technique was developed and successfully applied at LBL by Kenneth Chilman, Department of Forestry, Southern Illinois University. It is brief and focuses on: 1) perceived problems, 2) expressed needs, 3) stated objectives, and 4) financial constraints.

After participants were divided into groups of four, an ecological inventory was developed on base maps. Specific information was gathered on climate, geology, physiography, drainage, soils, vegetation, fauna, and land-use. In addition, visitor information was incorporated from a two-page hypothetical user survey. A final section of the management report included alternatives and recommendations for managerial action. Each group presented the findings to the other participants who, in turn, evaluated them. Reports were displayed for the remainder of the course as products of group process.

Demonstration Areas for Environmental Education

Ways were suggested for using demonstration areas as a means of diffusing information on land management practices such as terracing, alternative cropping

systems, biomass utilization for energy, and other practical technologies. The "El Topacio" site in Los Fraillones de Cali National Park provided an ideal setting for illustrating the demonstration area concept by conducting environmental education demonstrations. Participants then discussed the idea of demonstration areas in their watershed units as a means of involving local communities in environmental problem-solving.

Operative Planning

An operative plan is a type of mini-management plan which can be developed relatively quickly and must be revised periodically. Operative planning is a recent concept, utilized by Craig MacFarland and Roger Morales at CATIE in Turrialba, Costa Rica. It can be used as a tool to ensure that existing management plans are carried out, or it can be used in lieu of a full-scale management plan when one is lacking.

Course participants were instructed on the steps involved in developing an operative plan. They were then divided into three groups to develop three major components of an operative plan for a regional park in Chile administered by a participant from that country. The Chilean participant then took responsibility for integrating these components into a completed operative plan, and agreed to send a copy to all other course participants after returning home.

Visitor Needs Analysis

Visitor needs assessment was included in the course because of

a request received prior to the course from an employee of INDERENA, the agency with primary responsibility for managing Colombian national parks. Visitor needs assessment is a process in which needs of visitors are identified and priorities determined. Participants were introduced to the methodology of survey questionnaire development and administration so they could assess visitor needs for purposes of more effectively planning trails and other developments.

A trail leading from the "El Topacio" visitor center in Los Fraillones National Park was used as an example. A questionnaire was developed to assess the different attributes desired by visitors using this trail. Rain precluded involving all participants in the data collection exercise as scheduled. However, participants employed at the park agreed to later complete the data collection, and arrangements for subsequent analysis were agreed upon with Texas A&M instructors.

Plans for Future Training

A comprehensive evaluation of the Colombian training was conducted during the final day of the course. Results showed an overwhelming interest in this and other types of in-country training on an annual basis. Course participants also provided constructive feedback on ways to improve the organization and content of future courses.

Agencies in other Latin American countries have also indicated an interest in training programs similar to the one conducted in Colombia. An in-



John Titre, Texas A&M Univ.

Course participants study written materials at the CVC Training Center.



Martin Goebel, Texas A&M Univ.

Training course participants involved in an Environmental Education exercise with course instructors at Los Farallones National Park, Colombia.

country needs assessment for training was carried out in Costa Rica by two authors of this report in response to an expressed interest by the Costa Rican National Park Service. Conduct of the requested Costa Rican training course is contingent on availability of funds.

In addition to in-country courses, the eco-development training program has other training objectives. One of these which is currently underway is an internship program at TVA's demonstration area at Land Between the Lakes. LBL has agreed to make internships available to a

limited number of program participants in addition to other qualified persons. One person who participated in the Colombian training course is now completing a three-month stay at LBL and another participant has applied to attend later this year. Others who have completed LBL internships include persons from Spain, Chile, and Costa Rica. WLRA is responsible for screening applicants for internships, although LBL makes the final decision on acceptance. In some cases university credit can be arranged for internship participants by the Department of Recreation and Parks at Texas A&M University.

In the future, the eco-development training program plans to provide materials and technical assistance to universities and professors in Latin American countries who are developing curricula related to environmental education and resource conservation. It is also the intention to initiate cooperative research projects with Latin American agencies for whom training courses are provided. Another proposed component of the eco-development training program is a seminar on training of resource managers to be alternately hosted by Texas A&M University's Department of Recreation and Parks and TVA's Land Between the Lakes training center.

Further information on any aspect of this eco-development training program can be obtained by contacting the following: Dr. Leslie M. Reid, Head, Department of Recreation and Parks, Texas A&M University, College Station, Texas 77843; Dr. Philip McKnelly, Land Between the Lakes, Golden Pond, KY 42231; Mr. Nelson Melendez, World Leisure and Recreation Association, 345 E. 46 Street, New York, NY 10017.

Are Your Data Providing Information?

by Linda Caldwell and Chrystos Siderelis, Ph.D.

Accountability and technology: the need for more information and the means to provide it. Producing and selling information is one of the nation's fastest growing and most lucrative industries. Why is it, then, that personnel often bemoan the fact that they don't have enough information? Often, it seems, information needs are not assessed—resulting in too much data but too little information.

The United States Forest Service (USFS) felt there was a conflict between the utility of recreation data collected by forest personnel and its informational value to forest and district supervisors. Therefore, as part of a multi-phase study to examine data collection procedures for estimating recreational use on forest lands, the USFS decided to first examine the information needs of personnel who manage recreational areas on forest lands. Two issues were recommended for study: (1) What are the recreation information needs of forest and district personnel responsible for administering USFS lands?, and (2) What is the utility of currently provided information on dispersed areas to forest and district personnel in light of their responsibilities? These two issues provided the focus for a study completed by Caldwell and Siderelis (1982).

There were three outcomes of the study: (1) information needs of forest personnel were identified; (2) suggestions and concerns about the existing Recreation Information Management system were identified; (3) an investigatory procedure was developed through which information needs in other park management agencies may be assessed.

Case Study Procedures

Because subjective opinions, insights, and observational information were needed, a structured case study approach was selected as the investigatory procedure. Case studies involved asking a series of questions from a checklist to each person interviewed, and gathering supplementary background information from forest and district office records and files. Three forests were chosen for study: Allegheny National Forest (Pennsylvania); Daniel Boone National Forest (Kentucky); and Superior National Forest (Minnesota). Ten additional field surveys of a limited scope were administered at western U.S. forests to delimit the geographical bias of the three Eastern case studies.

The information we collected was analyzed by a "case analysis" method suggested by Patton (1980). Briefly, case analysis involved the critical organization of interview data into categories for comparative investigation.

The case studies were conducted during June, July, and August of 1981 and eighteen USFS personnel from the three forests were interviewed in-depth.

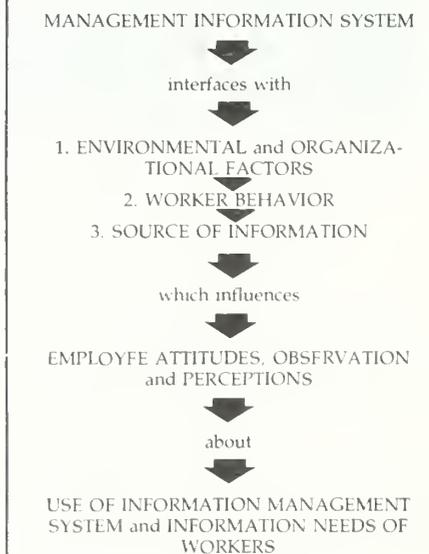
Assessing Information Needs—A Paradigm

In order to assess the information needs of USFS personnel, a theoretical model developed by Lucas (1980) was adapted for use in organizing the data collection effort. The resulting paradigm provided the means for identifying and exploring factors that in-

fluence information needs. Further modification of the paradigm was completed after the Forest Service project. To avoid redundancy and to conserve space, only the final revised paradigm is displayed in Figure 1. As is described in this figure to fully comprehend the need and use made of information, many aspects of the organization, its employees, and the existing information base and system for managing it must be considered.

Past research indicates that an employee's attitude toward the input of data into a computer and the quality of computer products from an information system is a good predictor of the use and satisfaction with that system (Lucas, 1980). Attitudes or value perceptions deal with the worth of the information system relative to the accuracy of data fed into the computer, and procedures

Figure 1. Paradigm for Assessing Management Information Needs



are devised to operate the information system by the user. That is, the less faith employees have in a system and the more cumbersome it is to operate the system, the less likely they are to utilize information from the system and feel their needs are being met (King and Rodriquez, 1978).

The factors that influence a person's attitude toward the system can be organized into three categories: environment and organization, worker behavior, and source of information. Each of these factors are briefly examined.

Environmental and Organizational Factors

Information needs are influenced by the environment surrounding a work organization and the type of work setting in which one is working (Radford, 1977; Hunter and Crook, 1981). Some examples of environmental and organizational influences considered in this study were: (1) internal organizational elements, such as job positions and responsibilities; (2) physical, economic, or technological elements, such as fiscal and manpower constraints; and (3) outside forces, such as political and regulatory concerns.

An additional factor is top management support and attention (Lucas, 1980). Of course, top management controls the resources for an effective management information system. But, more importantly, top management must support the information system, for example, through training sessions on the uses and application of

computer-products from the management information system.

Perhaps the most important consideration here would be to insure user involvement in the design and/or modification of the information system. A successful system is much more likely to emerge if those who use the system help in designing it.

Determining whether the information system accomplishes agency goals effectively and efficiently was beyond the scope of this study, but is nevertheless an important consideration.

Worker Behavior

The way in which an employee approaches a problem or makes a decision influences the worker's need for information. For example, some individuals like quantitative data while others prefer qualitative data. Therefore, the decision-making style will affect the need for information and the satisfaction of information provided by the management information system (Radford, 1977; Lucas, 1980; Murdick and Ross, 1976).

Personal and situational factors also influence information needs. Age, education, length of time in the agency, etc., seem to be important in determining whether or not information is satisfactory to a manager (Lucas, 1980). For example, a young, new manager may have different information needs than a veteran manager.

Source of Information

Technical characteristics of the management information system must be considered in examining information needs. One con-

sideration is the accessibility of the data—are data available in report form or from a computer terminal screen? Another concern is how old are the data? Year old data may be acceptable in some situations but unacceptable in others. The accuracy of the data is another concern. Again, accurate data may be necessary at times, but for other purposes semi-accurate data may be good enough. Other questions regarding the technical aspect of an information system are: How long do workers have to wait for reports? Is the computer-product readable, interpretable, and practical?

Another major area that must be assessed when examining information needs is whether or not personnel are receiving the kinds of information they need. Does the information provide the right answers to management questions or inquiries? Even though the data may be timely, accurate, and interpretable, if they don't answer questions, they are useless.

Are there other sources that can provide information? If the information system does not supply needed material, but if that information can be easily obtained elsewhere, the deficit in the current information system may not really matter.

Result From the Forest Service Study

Rather than discuss the results for each of the discrete categories presented in the paradigm, results are summarized and discussed in an integrative fashion.

Out of our interviews with the eighteen forest and district supervisors, we found more similar responses to questions we pose than different ones. Of initial importance was that all individuals felt recreation data on visitation were vital in performing their responsibilities.

Generally, we found that most supervisors were satisfied with some of the data on visitation and site characteristics they were receiving from the Washington Office. BUT, there were informational needs voiced and many of these needs were considered very important.

The U.S. Forest Service uses the Recreation Information Management (RIM) system to collect and process data on recreation use at forested recreational sites. Basically, forest technicians estimate or count visitors to recreational areas and sites. They then compile this data onto RIM forms which are sent to the Washington D.C. office where the data are aggregated and processed, and eventually sent back down to regional forest offices, and then on to forests and districts. We did not set out to evaluate the RIM system, but found that it was impossible to talk about information needs with foresters without discussing the RIM system since RIM is the primary data base.

Forest Service personnel in the forest and district offices periodically consult the RIM system to retrieve information on (1) the number of developed recreation sites, (2) reporting recreational usage numbers to the media, and (3) upward reporting of recreational usage internally within the Forest Service.

The RIM system provides an

important feature that is seen as responsive to the information needs of forest supervisors—the special reports. Originally, these reports were requested by individual forest and district officials to answer specific management questions. However, many of the 35 or more special reports have been incorporated into the RIM system and are routinely generated and distributed to all forest and district offices.

Another finding was that each forest utilized a supplemental information system to maintain data on visitor use. These supplemental systems were different for each of the three forests, but provided the same types of information. Supplemental systems were accessed more frequently than the RIM system and were perceived to be more responsive to forester's information needs. Also, the information derived from supplemental systems was perceived as being more accurate than the RIM system. The Allegheny National Forest utilized a supplemental system called "Advent," while the Superior National Forest relied on the Wilderness Permit System for supplemental information.

Despite the RIM system and the supplemental information systems, the foresters we interviewed relied on verbal, informal communication as their primary source of data. For example, if a manager needed to know how much visitor-use was occurring at a certain forest area, he or she would talk with someone he or she trusted who worked in that area, e.g., technician, volunteer. The information derived from informal conversations was viewed as more timely and more accurate. (In addition, several of

the foresters were more comfortable with verbal data rather than a computer printout.)

Forest personnel also received information from a variety of other sources, including: travel and tourism agencies; fish and wildlife departments; departments of transportation; local retailers such as backcountry outfitters; or university personnel doing studies at the forest.

There were three main technical concerns regarding the information provided from the RIM system: (1) the turn-around time from the input of the data to the receipt of processed data took a year, which was too long a time in most cases; (2) the data were felt to lack credibility due to mistrust in data collection procedures used to input data into the RIM system; and (3) the RIM system was described as cumbersome and complex to use—a common complaint was that there were "reams of RIM."

Perhaps the most interesting finding of this study was the type of information forest personnel felt they needed and weren't receiving. The most desired information was "people" information about visitors, which included: (1) sociological and demographic data and trends; (2) what types of experiences did visitors desire, and were they getting those experiences; (3) what level of development was preferred for facilities and areas; (4) how did people view current management practices, and how would they view changes in those practices; and (5) what do the future market and trends in forest recreation use look like?

Other information needs cited were: site specific information;

more accurate data on dispersed-use recreational areas where visitor use was increasing, or on areas targeted for management impact assessments; standardization of data; and, more training in the use of the RIM system and application of computer-produced products.

Discussion

We found that technicians who collected the data did not put much energy and care into data collection as they would have if (1) top management were more fully convinced of the value of RIM products, (2) if they felt that the data they were collecting would help answer the informational needs of foresters, and (3) if they trusted the accuracy of data collection procedures, that is, better visitor estimation procedures. Chances are, if these data collectors were part of the initial RIM design process, some of these problems would not exist.

Training opportunities on the use and application of the RIM system would serve several purposes. Training would clear up some confusion regarding the complexity of the system. As an indication of management support, training would hopefully open avenues of two-way communication regarding concerns about the information system. Also, training would serve to instruct foresters in applications of RIM for planning and controlling management purposes; it was difficult for some personnel to see how the data would be helpful even if they were accurate. In addition, training could also help to ease employees'

fears about using computer information. It is possible to shape employees' decision styles so that they feel more comfortable with quantitative data.

Given the strongly voiced need for "people" information, every effort should be made to avail reports and information about visitor forest recreation-use trends and desires to forest personnel. To be successful, however, top management must insure the usage of computer-produced products as well as assist personnel in utilizing the reports in planning for and controlling visitor-use of forested recreational areas and sites.

Many of the foresters interviewed in this study desired more standardized information and units of measure (regarding cost reporting and estimating visitor use) for comparing their forest and/or district to others. This concern is interesting because we found that forest personnel were actually moving away from standardization in using their own supplemental information systems instead of the RIM system. One suggestion would be to determine what features of the supplemental systems, as well as the special RIM reports, were desirable. Complementary features could then be incorporated into the existing RIM system. At the same time, however, it would be necessary to eliminate the unnecessary information which caused confusion.

This review process would help in the standardization procedure. It would also help to clarify what information in the complex RIM system was not utilized and necessary. Additionally, this process would help to contain the

growth of the special RIM reports. Although RIM reports are seen as providing useful information, they are growing in number and may soon be as complex as the original RIM system.

Application of the Paradigm

Assessing the utility of currently provided information and unmet information needs is a process that should occur regularly in a park organization. Information systems and workers grow and change—what was good 5, 10, 15 years ago may not be effective now.

It is critical to periodically assess the information requirements for worker responsibilities and decisions. That is, examining the technical aspects of an information system will not provide a complete picture. Each agency will have various organizational and worker related problems that will affect information needs.

Asking questions of employees would be a good way to begin to assess the utility of current provided information and to assess other information needs. The following are some examples of questions, but each agency will need to personalize them to reflect its individual nature and situation.

1. What are the organizational and environmental features of my agency? Are there any unique features that will affect information needs of workers in conducting responsibilities?
2. Does top management support the use of the information system—how?
3. Who designed (modified)

Computers in Academe

by Patricia Farrell, Ph.D.

the information system? Was there shared involvement by workers in the design?

4. What are the information users' primary responsibilities? In which of those responsibilities do they utilize information provided by the information system—why or why not? How often is the information used? How important is that information?

5. What is the decision-making style of the employees who use the information system?

6. What effect do age, education, and length of tenure in the organization have on the need and use of the information?

7. If employees do not get their information from the information system, where do they get it? Why?

8. What are the technical concerns of employees in using the information system?

9. What information needs remain unmet? Why?

Each of these questions may have a series of related sub-questions. Answers to questions can be analyzed using the case analysis method mentioned earlier and described by Patton (1980) in his book. This analysis should help to clarify and organize the finding of your study so that you can identify strengths, areas of management concern, and information needs of workers. Management can then continue to change and be responsive to worker information needs.

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At no time in the recent past has a new technology so influenced what and how we could effect the learning environment on this nation's campuses as the computer. The purpose of this article is to present a practical approach for the transition into the "Star Wars" type of future by focusing on micro-computers. We will explore the uses of micros in the teaching and research departments of academe.

Historical Perspective

The computer resource has been available on campuses for many years: the early popular models since the 1940's. Only the boldest, some would add the strangest, of the faculty would venture over to the key punch machines at the computer center and risk making those fatal JCL errors. The computer was seen as a number cruncher - period. It was a machine on which one could move ahead from the hand-pulled calculator; later move to the electronic calculator; and finally one was able to handle those research problems requiring enormous storage and the ability to accept complex algorithms. Frustrating use of time was diminished—time to be used for other tasks. Just as faculty were becoming accustomed to the keypunch operations and were able to appreciate what graduate students were easily mastering, the card punch system became obsolete and data entry methods changed. First came the remote entry by phone hook-up. Finally electronic entry came to the campus with the keyboard and CRT (cathode ray tube) visual terminals. All units

were essentially connected to a main frame computer or a smaller unit called a mini-computer, which has less storage capacity than the main frames and is unable to handle jobs with major complexity.

The major use of the computer, and certainly the first use for most people was to ask it to be a calculator. Statistical packages were developed and adopted by most schools. Users could log in on the main system and call up one of these packages. The favorites today are SPSS (statistical package for the social sciences) and SAS (statistical analysis system). As the user became more familiar with these packages, the technical part of the research process was simplified. The student researcher and faculty were now able to concentrate on the elegance of design and inference rather than struggle with summing rows and columns in such a cumbersome way. But woe be to that graduate student who could master the tool, yet fail to be cogent regarding what the "print-out" meant!

The scientific community was by far the heaviest computer user in the academic community of scholars. The university administration was quick to employ the computer in its management of data - payroll, student records, planning and development and, of course, budget management. It was the statistician's greatest joy. To the non-statistician the computer was a remote machine with little use in one's everyday life at the university.

In a separate part of the university, word processing was taking hold. Administrators were learning how to dictate on tapes

which then were removed from their recording devices and handed to the clerical team for transcription. Without too much trouble or fanfare, this transcription process moved from the printed page to the video page. Handling words, for the computer, was almost as easy as handling numbers. Thus, the word processing system evolved before the office understood about electronic word storage.

On many college campuses, the Education school was developing and implementing CAI labs (computer assisted instruction). The equipment at this time (late 1960's—1970's) was large, costly, and frequently dependent on one or two individuals to be technicians, teachers and proposal writers. Even though federal support was behind this effort, many of those labs today are gone and have been totally replaced with a new and quite different look. Much of the use of these labs dealt with drill and practice learning, and the real elegance of the computer lay undiscovered.

With the development of the micro-computer, many aspects of the high technology are right for the times. Perhaps most importantly is the cost. In 1980, one could purchase a micro—a processing unit, storage in abundance, a monitor and a printer all for under \$3000. Clearly, the price was within range of most departmental budgets. Now the critical question came. What do we need them for? How can they assist with the instructional portion of the department? Do I need to learn programming skills and if so, what language is best?

By now the computer has the capacity to be more than the



Students plot data with a graphics board.

mega-calculator. It can be programmed to draw, to play music, to search and sort word files, design graphic presentations—all of which are but a small representation of its classroom use.

Suggested Uses of Computers

There are common classes to most curricula in the Recreation and Parks field. If a curriculum were to incorporate the use of computers into its classes, there would be no need to teach a separate computer course. It is this writer's contention that programming skills are not necessary for the majority of professionals entering the field. One must be able to talk to the programmer just as one needs to be prepared to discuss matters with the civil engineer and the landscape ar-

chitect. But to gain the level of expertise required to program a computer to the needs of a professional office, it would require an enormous commitment of credits in the academic program. Each may wish to learn a small amount of BASIC just to have a sense of how much would be required, but the bottom line is to learn about software and its adaptable uses to the field. When all else fails, employing a programmer is the direction to go (this may mean employing one of your children or some other grade school child).

The following discussion is directed toward how a department might manage its teaching of computer literacy. It is suggested that space be donated for a computer laboratory because the learning curve for computer literacy rises dramatically when people have a chance to learn

from each other. It is also suggested that both hardware and software needs be considered in the budgeting process. This article addresses appropriate software which has wide application and excellent adaptability to many classes. It is not classroom-specific software but software that will be useful in any park and recreation agency.

Step One

In whatever beginning classes the majors take, it would be appropriate to have a computer assignment. At some point in the discussion surrounding leisure behavior, video games will be a topic under scrutiny. This could be the perfect time to have students do two things:

1. Use a software package that tutors the students in uses of the keyboard (See Who Can You Turn To? #1).
2. Have a small supply of games (check with your local micro-users club) for students to play.

The students have now been forced to try the keyboard and hopefully have had some fun in the process. Although it is not recommended that the games portion of the lab get out of hand, it is necessary for the students to be at ease with the machine and have a beginning grasp of its capacity.

Step Two

Now that the students have mastered the elements of the computer itself, it is time to require that their skills move upward. There is a small set of software that lends itself especially to

the recreation programmers' interests, park maintenance interests, as well as some elementary program budget skills development (See Who Can You Turn To? #2). Software is currently available to introduce the learner to running a tennis draw, managing a swimming meet, setting up a reservation system and setting up round-robin tournaments (See Who Can You Turn To? #3). The program and leadership courses will find these packages useful.

A particularly fine piece of software provides the faculty member with a skeleton framework into which many learning styles can be programmed. The Shell Games software (See Who Can You Turn To? #4) put out by Apple provided an early opportunity for some creative drill and practice sessions for the students as designed by the faculty member. There are models for multiple choice tests, true/false testing and a chance to design a matching quiz. All that is required of the instructor is to modify the model itself to fit one's specific content requirements.

In addition, software for early work on budget planning, or any task requiring a spread sheet, is available from many different companies. Visicalc (See Who Can You Turn To? #5) is one of the best known programs. After a special orientation to the program and only a few critical command keys, the students should work well with this software. It is important to introduce this piece of software for a simple task, since later in the curriculum even more elegant use will be made of it.

Step Three

Now the students are ready to put another skill into action. Most are required to prepare papers as part of their regular assignments. Almost every company has a script writing program. For the computer handling words is a simple task. Students should be knowledgeable about the word processing program capabilities. Thus, somewhere in the academic program, students should be required to handle at least one assignment using the word processing software. The Apple Writer program (See Who Can You Turn To? #6) is quickly mastered. Most script programs are similar, and it is the printer elegance that determines the quality of the printed output. A dot printer is adequate for a student lab requirement. If office use is also part of the computer's workload, then some variety in printers will be necessary.

Those who are fearful of computers tend to be so because of the keyboard. Also, there are those that resent having to perform technical work. The wise teacher indicates that typing skills are passé; it is keyboarding talent that is necessary. Be pragmatic, words are important. Many supervisors and executives believe that they will never need to use a computer. They are simply cavalier and incorrect.

Step Four

Because of the nature of the work in the Recreation and Parks field, charts and graphic representation of ideas are familiar administrative tools. The students



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Computer labs significantly contribute to computer literacy.

need to see how the computer can be used to generate this type of work at a fraction of the cost of employing the graphic artist, and it can be reproduced in a fraction of the time.

There are many software packages that perform well in aiding the writer to chart a visual representation of some data for reports or other purposes. The PFS Graphics program (See Who Can You Turn To? #7) is superb. It permits bar graphs, pie charts, and plots lines and curves. There are many places for this type of computer expertise to be demonstrated in the curriculum. Class work in administration and management, evaluation and programming are but a few areas where this could be an important addition to the classroom.

Summary

If the curriculum has been successful in introducing the suggested steps and accompanying

software packages to the students, the agency employing such students will be well along in having a staff with a suitable degree of computer literacy. Notice that nowhere has it been suggested that this process leads toward producing a computer programmer in the professional sense. If there are unique program needs on the part of an agency, then it is appropriate to employ a professional to do this task.

In the future, all professionals will have computers on their desks and will be operating most functions of the job with the aid of this technology. Universities must accept the responsibility to prepare students for tomorrow, not yesterday. A commitment is necessary to bring up to speed a small computer lab and provide an appropriate amount of software. As usual, the spark needs to be struck - the learning curve will almost take care of itself.

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She has published articles, professional papers and has coauthored two books: THE PROCESS OF RECREATION PROGRAMMING and EVALUATION DYNAMICS.

Assessing Outdoor Recreation in the United States

by H. Ken Cordell, Ph.D. and Lawrence A. Hartmann

“... outdoor recreation is more important than ever in American life—as a fundamental expression of our national character, for its benefits to individuals and to society, and its significant contribution to the nation's economy.”

So concluded the Outdoor Recreation Policy Review Group in February, 1983. This group was chaired by Laurance Rockefeller, and was one of the most prestigious ever assembled to examine the fate of outdoor recreation in America. Outdoor recreation is not only important commercially and aesthetically, it is fundamental to our culture. Demand for outdoor recreation has continued its spiraling growth despite an oil embargo, recession, and high unemployment (see figure 1).

In the 1960's and early 1970's government at all levels responded to increasing demands for outdoor recreation with dollars, land, and development. But in the late 1970's and early 1980's these priorities have shifted and budgets for recreation declined. Several critical questions must now be addressed: Does government have an obligation to continue to expand public outdoor recreation opportunities? If so, how can government meet such an obligation? As competition for tax revenues grows, what must we give up? In future years, what recreation opportunities will people want most, and where and how will they seek them?

Responsible government agencies and private recreation enterprise must grapple with these questions and they must be responsive to changes in outdoor recreation wants and needs. A careful and comprehensive

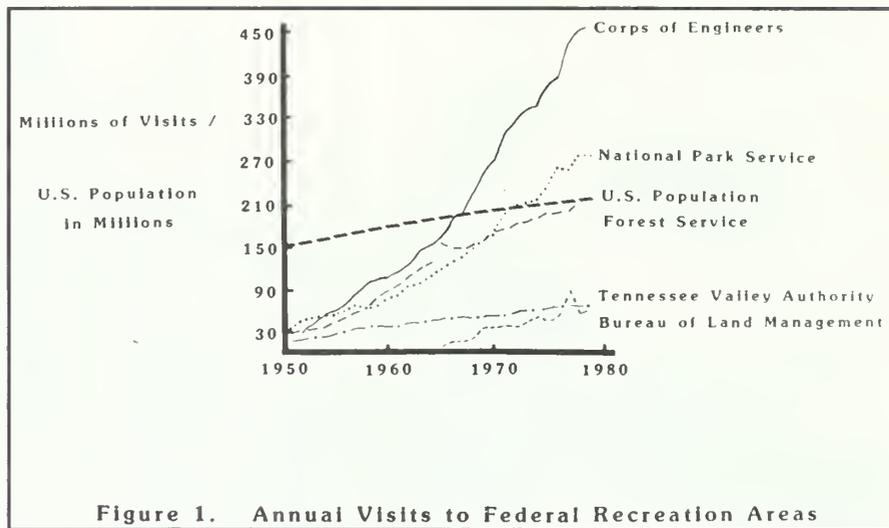


Figure 1. Annual Visits to Federal Recreation Areas

SOURCE: Driver, B.L., and D.H. Rosenthal. 1982. *Measuring and Improving Effectiveness of Public Outdoor Recreation Programs. Appendix 2: Use of Public Outdoor Recreation Opportunities, 1950-1979. Report of the Workshop on Outdoor Recreation Output Measures*, Washington D.C.: Department of Human Kinetics and Leisure Studies, George Washington University.

assessment of the current outdoor recreation demand and supply situation and recognizable recreation trends will help to identify these needs and define options for providing public outdoor recreation opportunities. In this article we explore the need for and problems associated with national recreation resource assessments. Our emphasis is on the U.S. Forest Service research program located in Athens, Georgia, aimed at improving outdoor recreation assessment methods.

Change is Certain

This country's first comprehensive outdoor recreation assessment was provided in 1962 by the Outdoor Recreation Resources Review Commission (ORRRC). The major observations of ORRRC included:

- Outdoor recreation opportunities are most urgently needed near metropolitan areas.
- Considerable land is available for outdoor recreation, but it does not effectively meet the need.
- Outdoor recreation is a major leisure time activity which is growing in importance.

ORRRC projected how large outdoor recreation demand would be by the year 2000. Halfway through that projection period, we already see that actual growth in demand has greatly exceeded ORRRC's projections. But the significance of ORRRC's projections lie not in their accuracy, but in the fact that all indicators pointed to major changes, many of which have come true for both recreation demand and supply. Tracking these changes and iden-

tifying and projecting meaningful trends are essential to the assessment process. For example, some of the major recreation demand related trends since 1960 include:

- The U.S. population has grown by 53 million people and is shifting South and West
- Income and leisure have increased and recreation has become central to American lifestyles
- The market for outdoor recreation has become segmented into young, middle aged, and older Americans, and concern has shifted from "we" to "me"
- The average American is older
- We are changing from an industrial to a high-technology, communications society with more decentralized government, residence, and business.

Some of the major supply-related trends since 1960 include:

- The Bureau of Outdoor Recreation was created, grew, and has now been dismantled. This agency was responsible for coordinating and funding outdoor recreation planning, acquisition, and management.
- Several systems for preserving irreplaceable natural resources were created, including the National Wilderness Preservation System, the National Wild and Scenic Rivers System, the National Trails System, and National Recreation Areas. Other preservation systems, including the National Park System and the



One major supply change since 1960 has been creation of the Wild and Scenic Rivers System.

U.S. Forest Service, Daniel O. Todd

National Wildlife Refuge System, have been greatly expanded.

- Legislation was enacted to reduce air and water pollution and to protect cultural resources
- Federal expenditures for recreation increased from \$75 million in 1960 to a high of \$1.4 billion in 1980
- Federal and State governments acquired 12.6 million acres of recreation areas
- State park systems expanded from 6.6 million to 9.5 million acres
- Local government acres and areas for outdoor recreation doubled
- There has been tremendous growth in private commer-

cial recreation enterprises and facilities including resorts, second homes, ski facilities, and theme parks

- Private land and water areas have been increasingly subdivided, closed, and access otherwise limited to the public. Almost 55 million acres of private farm, forest, and range have been developed for uses other than recreation
- Water impoundments have grown tremendously, including both reservoirs and small ponds.

Recent Assessment Activity

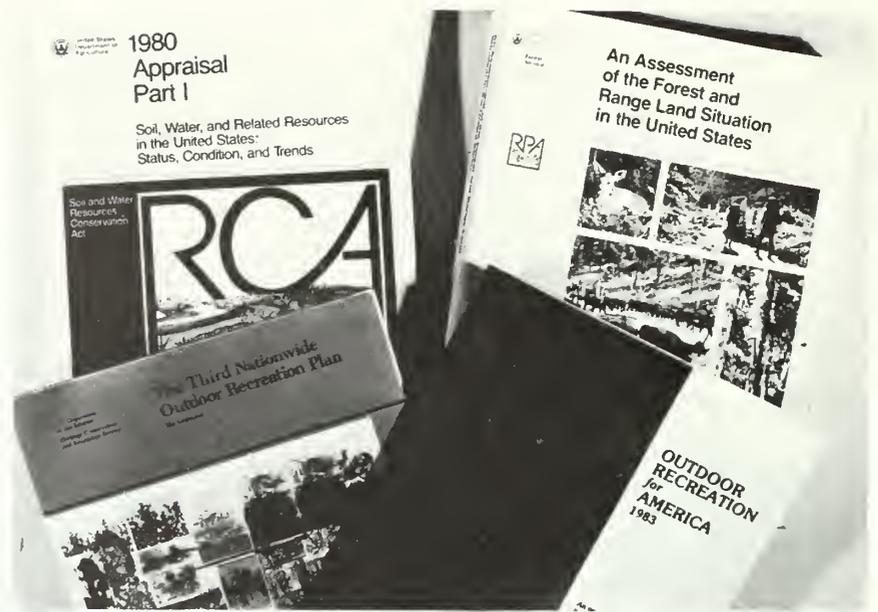
Several pieces of legislation enacted since 1960 require federal assessments of our national outdoor recreation situation. Public Law 88-29 directs the Secretary of the Interior to maintain an inventory of outdoor recreation needs and resources, and to develop a nationwide outdoor recreation plan. The last plan was published in 1979. Under Public Law 95-192, the Soil and Water Resources Conservation Act (RCA) of 1977, the Secretary of Agriculture is directed to appraise the outdoor recreation situation as it relates to conditions and uses of soil and water resources. The last RCA Assessment was published in 1981. In addition, the Secretary of Agriculture has been directed by the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974, as amended by the National Forest Management Act of 1976, to continuously assess the condition and uses of the renewable resources of the Nation for guidance in develop-

ment of forest and range management policies and programs. Outdoor recreation is one of the primary renewable resources examined in the RPA Assessment.

Recently, private conservation groups have become more interested in outdoor recreation. In 1980, the American Forestry Association and other resource conservation organizations sponsored the National Conference on Renewable Natural Resources. Background papers were commissioned from recognized national experts in seven major areas, one of which was recreation. The summary report from this National Conference report and a subsequent report published in 1983 by the Outdoor Recreation Policy Review Group both recommend establishment of a second ORRRC modelled after the first. A major difference would be that the new ORRRC is to draw heavily upon the expertise and data from ongoing national assessment programs, such as the Forest Service's RPA Assessment. On April 19, 1983, a bill was introduced by Senator Wallop to legislatively establish a second ORRRC.

Ongoing Assessment Activities

Changing priorities and smaller budgets in the federal government have left only one ongoing outdoor recreation assessment effort - the Forest Service Resource Planning Act (RPA) Assessment. Forest Service research scientists are serving as national coordinators for the outdoor recreation and wilderness section of this assessment. The work is being conducted at the



Private interest in outdoor recreation has heightened recently. A recent study by the Outdoor Recreation Policy Review Group built upon previous Federal assessments and resulted in introduction of Congressional legislation to establish a second Outdoor Recreation Resources Review Commission.

Southeastern Forest Experiment Station's Forestry Sciences Laboratory at Athens, Georgia, with the assistance of key scientists and professionals at other Forest Service research locations, in universities, and in other federal agencies. Much of the research centered at the Athens Laboratory will focus on development of improved assessment methods and then applying these methods in development of the next RPA assessment of outdoor recreation in 1989.

Currently, the Bureau of the Census is conducting a nationwide survey of recreation participation. This National Recreation Survey (NRS) will be comparable with other surveys conducted in 1960 and 1965, and will be used by several federal agencies and universities for planning, research, and education. The Forest Service will draw heavily on this survey for development of projections of future participation in outdoor recreation. The projections will be used in development of the 1989 Assessment.

Research Needs

Outdoor recreation assessments have largely proven inadequate for long-term planning. Yet, the

information assessments can provide is increasingly important for planning effective recreation delivery systems. To design the most efficient, effective and responsive systems, we need to know as much about the future as we can. This is particularly difficult in the ever-changing arena of recreation. Changes in economic conditions, legislation, demographics, equipment technology, attitudes, available leisure time, and the emergence of recreation fads make prediction of future outdoor recreation participation especially complex.

Past projections have usually underestimated the magnitude of growth in outdoor recreation. More importantly, they have failed to predict new trends and directions in participation. Better projection methods are necessary to increase prediction accuracy, especially in terms of the kinds of changes that are likely to occur.

There are several promising areas where improvements in projection accuracy can be made. First, a single, standardized system for collecting recreation participation data should be established. Without accurate and uniform data, even the best projection models will project the future inaccurately. Improvements also need to be made in statistical projection methods.

A variety of statistical techniques exist, but none have produced fully satisfactory results. Beyond demand prediction, practical and accurate methods for describing recreation supply, scenic quality and recreational quality are important for accurately assessing the recreational merit of both public and private recreational resources. Finally, a system for periodic review and updating of assessment information is necessary to help guide mid-course corrections in policy and funding.

The current system for collecting recreation participation and supply data is largely uncoordinated and unstandardized. A large number of local, state, and federal agencies and a host of private groups provide recreation opportunities for the public. However, because we lack uniform definitions of supply elements and a standard data collection system, interagency, regional, and time series comparisons are haphazard at best. A standard system would provide more meaningful comparisons and would allow more accurate local, regional, and national coordination and planning.

Much of the assessment research being conducted by the Forest Service focuses on improving statistical participation projection methods. Two principal approaches are being evaluated using the current National Recreation Survey. The first approach uses estimates of the costs of travel to recreation destinations, along with indices of complementary and substitute opportunities, income, and other characteristics to predict future use. A second method uses recreation supply indices, participant characteristics, proxies of the price of participation, and other appropriate variables as predictors of recreation participation. The constraints imposed by a set of rigid assumptions associated with "travel cost methods" are relaxed somewhat under this second approach, but at the cost of more limited application of the end results. Improved participation models will be used to develop regional and national participa-

tion projections as well as projections for specific recreational activities.

Another particularly challenging problem is meaningful description of the set of opportunities available to persons in different parts of the country. Practical and accurate methods to describe local and regional recreation supply and conceptual frameworks for structuring samples for deriving estimates of supply quantities are not adequate. Several information sources, including a nationwide survey of rural landowners and a sampling of commercial recreation enterprises, will be pulled together to derive a meaningful and comprehensive supply picture. A particular weakness in the past has been the lack of measurement methodology to determine the urban and suburban supply spectrum.

An important part of assessing the recreational merit of both the public and private resource base is scenic and recreational quality. Research is currently underway to develop the capability to predict and describe the scenic quality of forest and range settings based on traditional forest stand and vegetational

characteristics. A similar project is proposed to model recreational quality and utility. These quality descriptions can be integrated with the Recreational Opportunity Spectrum (ROS), which classifies land on a six-part continuum from primitive to urban settings. This system is currently employed by the Forest Service and the Bureau of Land Management. Research scientists will also attempt to determine ways to predict recreation participation within each ROS category.

The RPA assessment will also include a description of the amount and appropriateness of road and trail access, degree of public rights to access, amount and kind of site development, and management policies and practices. While describing the current status of these resource attributes is rather straightforward, describing trends and making future projections of these characteristics at 10-year intervals, extending 50 years into the future, presents a methodological challenge. Particular attention will be directed toward trends in and influences on private sector supply of outdoor recreation opportunities, and particularly



An important part of recreation assessment is measuring various forms of outdoor recreational opportunities.

toward economic influences on land use changes.

National Assessment is a Cooperative Effort

Much of the Forest Service outdoor recreation assessment research is carried out in cooperation with key scientists in academic and private research institutions, as well as with scientists in other federal agencies. The major cooperating federal land-management agencies concerned with outdoor recreation assessment are the Forest Service, National Park Service, Soil Conservation Service, the Bureau of Land Management, and the U.S. Army Corps of Engineers. While the outdoor recreation interests of each of these agencies differ, there are many areas of mutual need and concern, for example, projections of future patterns of outdoor recreation participation. Current interagency cooperation is strong, but there is much room for strengthening the substance and process of this cooperation.

A Final Word

The network for supplying outdoor recreation in this country is changing more rapidly than ever before. Budgets and staff are being trimmed, land and water management policies are being reexamined, and some recreation sites and facilities are being closed. At the same time, participation in outdoor recreation has climbed steadily, despite a lagging economy. New forms of outdoor recreation demand are emerging as technology and personal values change.



U.S. Forest Service

One emphasis of future assessments must be to examine the role of the private sector in outdoor recreation.

Federal, state, and local governments and the private sector must be able to respond in meaningful ways to rapid changes in outdoor recreation demand. Timely responses require accurate knowledge of the future. Improvements in long-term forecasts of recreation participation will provide a much needed general look at that future. Frequent systematic updates of outdoor recreation assessments are necessary to provide midcourse corrections in policy and funding.

The development of periodic national assessments of outdoor recreation is a challenging and important task. The results of a national assessment are widely used and have pervasive effects. For this reason, the data bases and analyses must be carefully developed, interpreted, and subjected to rigorous standards and review. Our work in Athens is directed primarily toward improving assessment concepts, models and methodologies. This work should result in better data and analyses for the 1989 RPA Assessment, as well as for other possible assessment efforts which may emerge. As the legislation to establish a second ORRRC moves through the legislative process, it will become more clear whether or not a second comprehensive review of outdoor recreation in America will actually occur. If it

does, research to improve data bases and methods for obtaining and analyzing these data will attain even higher relevance. In any case, improved assessment methodology will assist traditional outdoor recreation planning and programming, and should ultimately lead to better management of this nation's outdoor recreation resources.

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