The George Wright
FORUM

Volume 5 ✦ 1988 ✦ Number 4

The George Wright Society
Dedicated to the Protection, Preservation and Management
of Cultural and Natural Parks and Reserves
Through Research and Education

Volume 5 ✦ Number 4

The George Wright Society was founded September 29, 1980 by Drs. Theodore W. Sudia and Robert M. Linn, both former Chief Scientists of the U. S. National Park Service. The Society is chartered in the State of Delaware, in accordance with the laws of the State of Delaware and of The United States of America, as a nonprofit educational and scientific organization dedicated to the protection, preservation and management of cultural and natural parks and reserves through research and education.

 (ISSN 0732-4715), P.O. Box 65, Hancock, Michigan 49930-0065 USA. The George Wright FORUM is published quarterly. The Editorial Board of The George Wright Society welcomes articles that bear importantly on objectives of the Society, and contributions from readers in the form of letters to the editor. Manuscripts, letters and news items (preferably double spaced typewritten) should be addressed to: Jean Matthews, Editor, The George Wright FORUM, Room 126 Forestry Sciences Lab., Oregon State University, 3200 Jefferson Way, Corvallis, OR 94331.

Membership applications and other business correspondence should be sent to: The George Wright Society, P.O. Box 65, Hancock, Michigan 49930-0065 USA. Membership in The George Wright Society is open to those who are "interested in promoting the application of knowledge, understanding and wisdom to the management of the resources of natural and cultural parks, sites and equivalent reserves." Membership dues are: Regular Member, $25 annually; Student Member, $15 annually; Sustaining Member, $500 annually; Life Member, $250. Subscriptions to The George Wright FORUM only (without membership in the Society) are: Libraries, $25; Individuals, $20. Dues, contributions, and subscriptions are US tax deductible. Additional information may be obtained by writing to the Society's P.O. box.

Preface

The following six papers address many philosophical, ethical, moral, organizational, and management issues confronting parks and park systems today. Virtually all of the concepts presented here seem applicable to most any park/park system anywhere. We recommend them to you. Moreover, we'd appreciate readers' reactions to these papers (any one or all), because nearly all parks and park systems will be experiencing many added pressures during the close of this century and beyond; the more good ideas that can be floated around in the parks community, the better prepared we are likely to be to make wise choices during these critical years.

The views of the authors expressed herein do not necessarily reflect the views of The George Wright Society; however, the Society feels that all relevant views should be circulated as widely as possible in keeping with the Society's education function.

.....*Eds.*

The Third Triennial Membership Meeting and Fifth Triennial Conference on Research in the National Parks and Equivalent Reserves

Holiday Inn—Broadway • Tucson, Arizona • November 14–18, 1988

Beginning on page 60 of this issue is the Preliminary Schedule of Activities —updated to September 1st. Regardless of a few remaining "blanks" the schedule contains all major sections and should serve to give the essence of the Conference.

A "Final Call for Abstracts" was sent some time ago to all recipients of the Forum. Enclosed with that mailing were registration forms for the Conference and registration forms for the Holiday Inn—Broadway. If for any reason you did not receive that mailing and you wish to attend the Conference, notify the Publications Office [The George Wright Society, PO Box 65, Hancock, MI 49930] at once; forms will be sent to you immediately. [The registration forms for the Holiday Inn must be received by the Inn by October 14 to take advantage of the special Conference rates.]

■

Proceedings from the 1986 Triennial Conference —an Update

Two additional volumes of the Proceedings from the 1986 Conference are now ready for distribution—Volumes 3 (Physical Processes and Water Resources) and 7 (Interdisciplinary Approaches to Freshwater Wetlands Research). These will be on their way to all '86 Conference registrants, and to those who have ordered them, just as soon as we can manage to get them all addressed and in the mail

We still have some unfilled orders for Volume 3—so if you ordered Volume 3 and have not received it yet, take heart; it won't be long now (we've been somewhat swamped!).

■

Dues/Subscription Fees Due Soon for Some

This current issue of Forum is the last of Volume 5. Membership/ Subscription dues forms will follow shortly for the next year/Volume 6. Please do **not** send dues until you receive the form—because not all recipents of Forum owe dues/subscription fees at this time (for several reasons). If you are **not** scheduled for dues paying at this time, you will **not** receive a form.

■

The Forum staff hopes to see you at the Triennial Membership Meeting and Conference in Tucson in November.

Remarks by William Penn Mott, Jr. at the Fourteenth Annual Natural Areas Conference

—October 14, 1987 • Peoria, Illinois—

An act of Congress on August 25, 1916, created the National Park Service. The authors of this legislation *probably believed* that creating and managing national parks was all the agency would ever need to do to protect the country's natural heritage. They may have thought that future judiciously located national parks would safeguard most of the country's important natural landscapes, and their associated species, biotic communities and ecosystems.

Similary, Yellowstone National Park was created by an act of Congress much earlier, on March 1, 1872, and it became the first national park in the world. The intent of the authors of this legislation was to safeguard the resources within the park in their natural condition. The founders *probably believed* that creating a boundary around its now approximately 2-million-acre area was all that would ever be necessary to conserve its biota for future generations.

However, time has demonstrated that what we "presume" were early assumptions for both the National Park Service, and the National Park System, may have been misguided. The Service must now look beyond the boundaries of national parks to encourage the preservation of sites outside the National Park System, that was created by legislation subsequent to that for Yellowstone. The Service must also look beyond the boundaries of the national parks simply to protect the national parks themselves. I would like to talk about both of these ideas in more detail.

Implementing our Extended NPS Preservation Mission

As one way to implement our extended NPS preservation mission, the national natural landmarks (NNL) program was established in 1962 by the Secretary of the Interior to encourage the preservation of the best remaining examples of the major biotic communities and geological features in the continental United States, Puerto Rico, the Virgin Islands, Hawaii, Guam, the Commonwealth of the Northern Marianas, American Samoa, and elsewhere. Additional program goals given include enhancing the scientific and educational values of

the sites recognized, strengthening public appreciation of natural history, and fostering a concern for conservation of the nation's natural heritage.

The NNL program remains the only natural areas program of national scope to identify and recognize best examples of both biological and geological features without regard to site ownership or management. The program therefore seeks to encourage the preservation of natural diversity, but it also deals with landforms, geological structures, fossil deposits, etc. As you know, the preservation of natural diversity, as well as these geological features, has important scientific, economic, educational, recreational, and aesthetic values, and is accomplished primarily through setting aside natural areas.

On May 18, 1987, the National Natural Landmarks program celebrated its 25th anniversary. I am pleased that the program all this time has been consistent with the goals of the National Park Service "12 point plan," which I instituted when I became Director. Let me state the parallels between the program and the NPS 12-point plan for you: it supports our ability to do long-range planning to protect natural resources by compiling an extensive nationwide natural area data base (point 1); it relies on not-for-fee land preservation techniques, i.e., federal recognition (point 2); it represents an extension of our public interpretation responsibilities for lands not in the National Park System (point 3); it is consistent with our goal of sharing our knowledge about resources, since NNL owners/administrators can request technical assistance from the Service (point 4); it increases the public's understanding of the role and function of the Service, since the NNL program relies extensively on news releases and communicates regularly with public officials, government agencies, and private organizations (point 5); and it recommends closer working relationships with the states and citizens groups through such endeavors as pilot inventory activities and the NNL patron program (point 6).

Let me elaborate on thoughts surrounding this last point. I believe the National Natural Landmarks program is a logical federal partner for state natural heritage programs and other state natural area preservation programs. Our tasks are complementary. I am encouraging closer working relationships between the NNL program and the states through the development of more memoranda of understanding; I have forwarded copies of an MOU we

instituted with the State of Maryland and asked each of the state natural area programs if they would like to enter into similar agreements with us. I am seeking to expand our network of "patrons" who inspect designated National Natural Landmarks for the National Park Service, which include states, private organizations, and individual citizens. Also, we have a large data base on sites not yet designated as NNLs: we have information on approximately 3000 other sites that need more evaluation, and this information on "potential" NNLs is available from us or the National Technical Information Service (NTIS). We wish to share this information even more widely than now occurs. We are also trying to improve our cooperative agreements with some federal agencies (BLM, FWS, and the Forest Service) to better coordinate the program as it involves federal lands.

I have recently taken actions to ensure the effective organizational placement of the headquarters staff of the NNL program in order that they might be more effective in meeting the needs of state natural area programs. And I am now negotiating trade-offs to see if we can identify more financial resources for the program which would allow more regular contact with the state natural area program at our regional office level.

NNLs, though often small and sometimes representing single natural features, are nevertheless logical complements to the National Park System itself. We have 339 units in the National Park System, but we also have 578 National Natural Landmarks. The NNL program extends our preservation mission beyond just our national parks. It is my hope that the NNL program also reflects the theme that natural area preservation, regardless of the protection tool used, should ideally involve a partnership between the federal, state, and private sectors. This partnership has been in existence since 1962, since the NNL program would not have gone anywhere without the voluntary help of the American public, other agencies, the states, universities, and private conservation organizations. I wish to increase the level of this partnership now. Additionally, we must start viewing each new natural area reserve as only one part of a larger nationwide protected area network.

Better mapping of the location of all our existing protected areas will facilitate a more precise identification of gaps.

As you may know, the Service's natural area preservation activities extend beyond park boundaries through other activities as well. For example, project 8 of the UNESCO Man and the Biosphere Program is co-chaired by the Service. World Heritage Convention activities receive regular NPS staff support. We also assist other countries on a periodic basis in planning or managing national parks around the world.

Refocusing our Traditional Preservation Perspective

The second idea I want to discuss is the need to refocus our traditional preservation perspective. In 1980, the Service began to more widely recognize that the National Park System is impacted by influences originating outside it, including air pollution, water pollution, logging, exotic species, development, and noise. Using the 1979 terminology of the National Parks Land Conservation Association, "no park is and island," the public and the Congress also became concerned about the external influences on national parks, as well as the internal ones.

We recognized that parks are not isolated from outside human influences. And we know that some of our national parks are not large enough to be self-sustaining ecosystems. They must depend upon outside resources. For example, Everglades National Park's source of water originates well outside the park, and some of the seasonal range of Yellowstone National Park's elk population is outside park boundaries. If some national parks cannot or will not be made larger, it is important that land uses on adjacent lands not be detrimental ones.

A "buffer zone," as in the model Biosphere Reserve concept, is one good alternative. We also need broad-scale regional planning outside national parks, such as is demanded for the "Greater Yellowstone Ecosystem." As I indicated in my address at Yellowstone National Park in June, 1985, we need an "area of concern" around national parks, including Yellowstone, where we want close cooperation of local landowners and agencies, so conflicting land uses do not intrude on the parks.

A public law passed on June 23, 1936, grants the National Park Service authority to aid the states and local government agencies in planning public park areas. It may provide an opportunity to protect land adjacent to park boundaries by

giving the Service the ability to aid the state and local governments in land use and recreational planning. I plan to investigate whether we could use this as a possible way to influence land use outside the National Park System. Additionally, both the U.S. Forest Service and the Bureau of Land Management have Congressional mandates to coordinate their land use plans with the plans of state and local governments. It would be a great step forward if the federal, state, local, and private sectors could really *fully* work together cooperatively in this arena of land uses next to national parks. Since it is related to influencing land use outside of national parks, I have asked the Internal Revenue Service for a reading as to whether lands adjacent to the National Park System will qualify for tax breaks if the owners apply for conservation easements, as implied in the new 1986 IRS regulations entitled "Income Taxes: Qualified Conservation Contribution," as provided in the *Federal Register* (Vol. 51, January 14, 1986).

In a world of increasing landscape fragmentation, and increasing alterations outside many nature reserve boundaries, including national parks, it is important that we recognize many of them for what they may become; habitat patches in a matrix of disturbed landscape, which could influence the viability of the biota within them. As you know, the academic study of "landscape ecology" has been in existence in Europe for a long time. It is a young discipline only recently pursued in the United States, although we have done much work that qualifies under its banner. We need to follow this European example and pursue this endeavor as an integrating science, and see if it can provide an overall theoretical framework for nature reserve management, especially outside of reserves. We need to start looking at the entire landscape more as a mosaic of habitat patches imbedded in a matrix of diverse land uses, and be concerned about patch or reserve shape, connectedness, boundary permeability, and so on. For instance, what are the pros and cons of habitat corridors for individual nature reserve system situations? If we want corridors, what is the optimal design, and for which species?

Summary: The Challenge Ahead

To summarize, then, we have many challenges ahead of us. First, we must strive to coordinate better among ourselves at the federal, state and local levels, and not duplicate our efforts,

such as data gathering, or squander scarce financial or staff resources. We should also view the addition of each new nature reserve as part of a nationwide network of reserves, labeled by diverse names such as national parks, national wildlife refuges, state game reserves, nature preserves, wildflower sanctuaries, biological field stations, outdoor recreation areas, etc. Since we know we will lose natural areas, we should strive to establish coordinated priorities.

We should also continue to try to protect the small remnants of biotic community types that were once widespread in our country, which in some cases are the best examples left, though they may be too small to think of as a traditional fairly large national park or nature reserve. For example, many are under 50 acres, and some are under 10 acres.

Secondly, we need the best technical guidance science can offer. We need scientists jointly assisting top managers or administrators in long-range planning of nature reserve systems, and not have them relegated to being low-level technical advisers. We must recognize at the same time, however, that ecology and related sciences have few of the many answers we now need. So there must be a balance between more long-term research, and using available but less-than-adequate data, because of the urgency of our present situation: landscape alteration is proceeding in this country at an alarming rate.

Thirdly, we can no longer view national parks and nature reserves as islands, uninfluenced by people and their activities outside them. Our old-time view of stopping our concern at the national park or nature reserve boundary has got to be replaced. We need buffer zones and regional planning. We need to look closer at older countries such as in Europe, where their longer history of land use can teach us lessons. We need to take into account the social and economic conditions adjacent to reserves.

We can still set an example for the world, just as our predecessors did in 1872 when creating Yellowstone National Park, by being innovative in regional planning. We must, however, recognize the dimension of the problem—technical, social, economic, and political—and we need support from a wide array of interest groups. We need to articulate the problem so the public will get the message. It is going to be very difficult and we will not win all the battles, since we are

competing with a growing population and a finite amount of land area available to us to use in the United States. As the Nature Conservancy stated in 1975 in a report for us, "America is losing ground," and it still is. Not just in terms of habitat in general, but also in terms of habitat next to existing reserves.

However, we must never fail to recognize all we have accomplished in creating the reserves we now have in the United States. There are no countries who could compare with us in terms of the number, size, diversity, or quality of the national parks and various types of nature reserves we have, owned or administered by the federal government, the states, counties, cities, universities, private conservation organizations, and individual citizens. We do have some regional cooperative activities. However, this is not enough. We need *holistic* land use planning in this country as it relates to national parks and nature reserves.

To achieve this, however, there must be a widespread appreciation of the fact that we now have a problem. This demands a viewpoint by much of the American public of "looking beyond national park or nature reserve boundaries," not just to set aside more of the small remnant examples of the vast diversity of our country's natural landscape, *but* to preserve in perpetuity all the biota *in* the national parks and nature reserves we have already worked so hard to establish.

Thank you.

William Penn Mott, Jr., Director, U. S. National Park Service, Washington, DC.

■

The National Park Service in the Temporary Society: Creating a Learning Agency

Richard Greenough and J. Douglas Wellman

Public agencies in democracies must adapt to changes in their social and political environments if they are to survive (Selznick, 1949). In America, the demands for agency adaptation have increased rapidly as our society has become more "temporary" (Mosher, 1971). The National Park Service, particularly in the years since the mid-1960s, has ex-

perienced such rapid change in the demands made on it that concern about agency direction has been raised (Foresta, 1984; Chase, 1987).

> *"Our desires for permanence and our demands for change are.....at war in the national parks."*

In this chapter we examine several theoretical viewpoints on public agency response to environmental change. Taken together, these responses are described as creating a "learning agency." Based on this body of theory, we sketch out some ways the National Park Service might enhance its ability to learn and grow with changing social demands.

Changing Demands on the National Park Service

Throughout its organizational history, the National Park Service has had to adjust its policies in response to demands and opportunities from the larger American social and political system. These changes have been especially dramatic in the years since 1960. In that time, growing environmentalist power has challenged the Service's original policy of encouraging visitor use through facility development and agency leadership has shifted from professionals to political appointees, while congressional restructuring has increased legislative interest in parks as distributional goods (Foresta, 1984).

One of the most challenging developments to emerge from these changes has been the "living landscape" or "greenline" parks. In these areas the Park Service is charged with preserving landscapes with a mixture of public and private ownership. Aversion to federal governmental intervention and unwillingness to pay full land acquisition costs have spawned efforts to force or entice local governments to regulate land uses in ways that would meet federal preservation objectives. At Cape Cod, for example, Congress specified that the Secretary of Interior's land condemnation powers would be suspended as long as local units of government carried out zoning acceptable to the National Park Service. In more recent

legislation, Congress has relied more on the carrot than the stick. In creating the Santa Monica National Recreation Area, for example, Congress provided for federal funding and technical assistance to state and local planning efforts which, if acceptable to the Park Service, would lead to federal funding for implementation.

The initiatives at Cape Cod, Santa Monica and elsewhere might point the way to the future. In the Conservation Foundation's 1985 assessment of the National Park System, greenline parks are advanced as the most reasonable approach to system expansion (Conservation Foundation, 1985). More recently, the President's Commission on Americans Outdoors, in suggesting greenways through and between urban areas, has reinforced the non-traditional park management concepts that have evolved since Cape Cod.

The greenline parks represent a radical departure from National Park Service tradition. The Park Service was a bureaucratic child of the Progressive era, and its formative years appear in retrospect to have been a golden age in which agency experts managed federally owned lands for widely agreed on purposes. In the new parks, in contrast, the Service does not own all the land, management must proceed in partnership with state and local units of government, public involvement in all phases of park operations is heavy, and occasionally there is strong disagreement over park purposes (Foresta, 1984).

The extent of change from traditional park approaches is extreme in the case of the greenline parks, but similar dislocations exist throughout the system. In the traditional nature parks like Yosemite (Wellman, 1987), in the historical parks like Manassas (Harris, 1987) and in the urban national parks like Gateway (Foresta, 1984), the National Park Service is challenged to work with diverse publics to define evolving park purposes. If we think of parks as entities that are created to answer cultural needs, it is not surprising to find the Park Service working closely with individuals and groups outside the agency to determine the meaning of parks. However, the extent of outside involvement in recent years and the intensity of disagreement over directions represent a major break with agency history.

In the ongoing task of working with the public to create the parks, we believe the Park Service must enhance its ability to learn from its encounters with outside forces in the temporary

society. In what follows, we present a conceptual approach based on the work of John Friedmann, Donald Schon, Chris Argyris, and Gareth Morgan which might offer a useful framework for enhancing agency learning.

Enhancing Agency Learning

Efforts to characterize the policy making process often begin with a rational, goal-seeking model. As presented by Dahl and Lindblom (1953), the functionalist orientation requires that policy makers try to learn all the value preferences in a society, assign each a relative weight, discover all available alternatives and their consequences, and then select the most efficient alternative.

The rational-comprehensive model is attractive in the clarity of its logic. However, in its pure form it is philosophically untenable (Popper, 1963) and pragmatically unworkable (Rittel and Webber, 1973; Schon, 1983). The uncertain, unique, value-laden situations facing public agencies like the National Park Service lead to policy processes that are bureaucratic, practical, incremental, conservative, and limited. These processes function to reduce uncertainty. Further, there are cognitive limits on centralized agency intelligence; rational-comprehensive approaches are inherently unable to inform the agency about large, rapidly-changing and complex social problems.

In place of a linear, rational model, it is suggested by a growing number of scholars that the policy process is best understood as a form of social learning, which occurs in decentralized, task-oriented, short-lived groups. In calling for a new form of planning to respond to new sets of problems, Friedmann emphasizes the idea that interpersonal transactions form the basis for the exchange of information and perceptions necessary to produce public policy. Through small working groups supported by "technical secretariats," the processed knowledge of the experts and the personal knowledge of the client, both of which are essential to shaping effective public policy, fuse in a reflexive process of mutual learning (Friedmann, 1973).

Similarly, Schon considers policy as the outcome of a learning process (Schon, 1971). In *Beyond the Stable State*, he contrasts this conceptualization of the policy process with the centralized, expert-driven process derived from the rational-linear model:

Government cannot play the role of 'experimenter for the nation', seeking first to identify the correct solution, then to train society at large in its adaptation. The opportunity for learning is primarily in discovered systems at the periphery, not in the nexus of official policies at the center. Central's role is to detect significant shifts at the periphery, to pay explicit attention to the emergence of ideas in good currency and to derive themes of policy by induction. The movement of learning (and ideas) is a much from periphery to periphery or periphery to center as from center to periphery. (Schon 1971:177)

According to Schon, however, a major barrier to agency learning is the way individuals function in their organizational lives, particularly their belief in the "Stable State":

Belief in the stable state is belief in the unchangeability, the constancy of central aspects of our lives, or belief that we can attain such constancy. Belief in the stable state is strong and deep within us. We institutionalize it in every social domain. We do this in spite of our talk about change, our apparent acceptance of change and our approval of dynamism. (Schon 1971:9)

In schon's view, when we are confronted with change we maintain belief in the stable state through automatic responses of which we are largely unaware, like "revolt" and "mindlessness." Taken together, these "anti-responses" constitute what Schon labels "dynamic conservatism." Dynamic conservatism fails to confront reality and therefore is doomed to failure.

Our unwillingness to constructively confront change is rooted in self-interest. The stable state generated for individuals in their organizational lives enables them to make sense of things. As Schon (1971:51-52) asserts, "change threatens this framework and brings uncertainty and anguish for the members of the organization." Accordingly, we can expect that these individuals will resist change through the strategies of dynamic conservatism.

However, due to such phenomena as system failure, innovation, and societal demands for change, change is inevitable for most social systems. Change typically forces a social system from one relatively stable state to another relatively stable state, but during the transition it is difficult for system members to see clearly where they are going. What they *can* see clearly is the danger to their present way of organizing their lives and making sense of them. It is this individual perception of danger which impedes organizational learning.

Organizational learning can occur in various ways. Perhaps the best known is the "rational-experimental," based on premises similar to the rational-comprehensive model of the policy process. This approach to organizational learning requires the definition and quantification of problems, the development of hypotheses and controls, and experiments which generate quantitative outcomes. Successful demonstrations are replicated. Most telling for this discussion, the rational-experimental approach is guided by a centralized intelligence.

As a depiction of how agencies learn, this model might be misleading. Organizations generally learn either through responding to crises or by engaging in limited scans of their environments.

We consider crisis learning first.

A crisis "....threatens the social system and sets up a demand for new ideas that will explain, diagnose, or remedy the crisis" (Schon 1971:126). However, these new ideas must struggle and compete successfully with ideas already adopted by the social system. This inhibits a rapid response to the present crisis. And even when ideas are adopted, the time lag for their acceptance often weakens their effectiveness. As Schon explains:

> *Ideas in good currency emerge in time, and the situations to which they refer change underneath the very process of deliberation. Ideas are often slow to come into good currency and, once into good currency and institutionalized, they are slow to fade away. By the time ideas have come into good currency, they often no longer accurately reflect the state of affairs.* (Schon 1971:127)

The lesson is that we must infuse organizations with the ability to respond more promptly and effectively to changes in the environment. Schon proposes the development of "learning systems" led by "learning agents." Three steps are required to accomplish this. First, we must realize that we can no longer assume that our current stable states—even new ones—will survive. Second, institutional managers must learn to manage the changes that inevitably occur. Third, managers must learn to facilitate organizational change in ways that do not threaten the identities of the organization and its members:

A learning system....must be one in which dynamic conservatism operates at such a level and in such a way as to permit change of state without intolerable threat to the essential functions the system fulfills for the self. Our systems need to maintain their identity, and their ability to support the self-identity of those who belong to them, but they must at the same time be capable of frequently transforming themselves. (Schon 1971:60)

The second way most organizations learn is through "single-loop" learning (Argyris 1983). In this approach, organizations learn by scanning their environments for critical events, monitoring these events, and then setting objectives appropriate to the shifting environment. Although information systems technology has facilitated this type of learning, it may also disserve organizational learning. It may "....keep the organization on the wrong course, since people are not prepared to challenge underlying assumptions." (Morgan 1986:90)

Considering these limitations, Argyris proposes "double-loop" learning. Double-loop learning involves the same steps as single-loop learning, but it also permits the questioning and adjustment of the organization's operating norms, if necessary. Double-loop learning facilitates the emergence of conflict and its resolution as processes that enable organizations to learn.

Morgan extends this idea in his metaphor of an organization whose learning processes and functions mirror the brain. He emphasizes the "minimal critical specification" of organizational processes in which the focus is on goals rather than means. For example, Morgan points to the organizations identified as innovative by Waterman and Peters, based on their use of experimental, "learning-through-action" processes, rather than rigorously predesigned responses. As he explains, in learning-through-action processes, "....inquiry rather than predesign provides the main driving force. This helps to keep the organization flexible and diversified, while capable of evolving structure sufficient and appropriate to deal with the problems that arise" (Morgan 1986:102). This enhances organizational learning.

Morgan adds that cybernetic principles also can stimulate organizational learning since they ".....create degrees of freedom within which the organization can evolve (which permits the formulation of) organizational mission in terms of 'noxiants' to be avoided rather than in terms of targets to be achieved" (Morgan 1986:106).

In summary, Friedmann, Schon, Morgan and Argyris offer ways of thinking about organizational guidance in the sorts of uncertain situations increasingly facing the National Park Service. Friedmann advocates making policy through a mutual learning process between expert and client. Schon suggests that for any organization to succeed it must profit from experimentation at the lower decision-making levels and account for automatic resistance to change by its members. Argyris proposes a double-loop learning process, which permits a system to guide itself through an uncertain environment by developing and retaining a capacity to question and adjust organizational norms. Morgan's conceptualization of the organization as a brain provides for double-loop learning through organizational processes that emphasize clear goals and minimally specified means. In this way, self-design principles modify functionalist ones.

Creating a learning agency is a difficult task. Management's challenge is to assess accurately the need to implement changes in policies and procedures, but to do so without damaging the core values of the organization. Joseph Sculley faced this challenge at Apple Corporation. Several years ago, Apple was in a downward spiral with the departure of Stephen Jobs, the failure of the Lisa system, and the inability to have the McIntosh regarded as anything but an underpowered toy. Change was required, but it had to occur in harmony with Apple's particular organizational culture. As Sculley explained recently at the Stanford Business School:

> *Apple's culture and values required that we find a way to manage through a crisis, but do it without violating the basic values of the company. If we did something to violate those roots, then I felt that was far worse than how much money we lost, or errors in strategy, or things like that, because it wasn't clear to me there was going to be another Apple computer.* (Washington Post, 1987)

Redesigning the National Park Service

Concluding his exhaustive and frequently critical analysis of the Park Service's travail in recent, turbulent times, Foresta (1984) argues that the agency has a vital role to play in the future:

> *A creative Park Service with equal dedication to experimentation in meeting new social demands (as it had in the early years), to a tough pragmatism in evaluating those experiments, and to protecting the integrity to the System entrusted to its care would remain an important part of the federal government and would ensure that the national parks remain an important part of American life.* (Foresta, 1984:287)

The most salient words here, in terms of this chapter, are "creative," "experimentation," and "evaluation." Foresta's challenge to the National Park Service fits well with the ideas we have presented. Friedmann, Schon, Argyris, and Morgan describe agency learning as occurring through a decentralized, experimental process. For the National Park Service, the center of attention becomes the individual park units. Working with citizen groups and other units of government, park superintendents and their staffs should be afforded considerable leeway to discover new ways of responding to evolving social demands.

Training the spotlight on the lowest administrative levels, however, immediately raises questions about the role of the upper levels—i.e., the Washington and regional offices. Clearly, simply turning the individual parks loose to strike whatever bargains they can would be ill-advised. After all, the primary concern behind the agency's 1916 organic act was that the individual parks established since 1872 would be lost to exploitative interests unless they were part of a larger system. Therefore, if the National Park Service is to move in the direction we advocate and become more of a learning agency, what is the proper role of the central administrative units?

In answering this question and concluding this discussion, we recognize that our suggestions may reflect our lack of understanding of current agency practices. To the extent the Park Service is already doing what we suggest, we hope to support them in transforming the agency. To the extent our suggestions represent new directions, we hope they will provoke discussion of ways the agency can respond to the changing needs of a changing society.

First, central administration should engage in an ongoing process of clarifying and articulating the Service's central purposes. Recent critics of the agency have called for policy clarification beyond the ambiguous original congressional "develop and preserve" mandate (Foresta, 1984; Chase, 1987), and policy actors outside the agency have become increasingly

vocal about the directions of the National Park System (Sax, 1980; Conservation Foundation, 1985).

As this is being written, the National Parks and Conservation Association, responding to a challenge from former NPS director Russell Dickenson, is preparing a broad-gauged plan for the system. Dickenson's intent was to obtain an agenda that did not reflect agency biases (Coffin, 1988). This is a laudable action, but it cannot stand alone. The National Park Service has full legitimacy to play its role in administering the U.S. Constitution (Rohr, 1986), and it must develop and articulate its own, internal sense of purpose. That is not to say it should not listen to outside forces, only that it should not abdicate its responsibility to them. As decision-makers at the periphery struggle with specific problems, they must have in mind an overall sense of purpose, a gyroscope that helps them maintain their bearings, and it is central's job to develop that guiding sense of purpose.

Given that the parks exist as part of a pluralistic society with rapidly evolving social wants, the policy guidance we suggest must involve personnel at all levels. The central offices must seek out the "ideas in good currency" that are accumulating at the field levels, and subject them to rigorous evaluation, both scientific and judgmental. Nor is it enough to develop policy statements and consider the task completed. The policy development process must be viewed as an ongoing task. Surely there will be points in the process where more formal statements are necessary, but they cannot be considered sufficient. As the scholars we have reviewed suggest, continual attention to agency purposes is required for success in a fluid environment.

A second broad area where central administration can encourage the Park Service to become a learning agency is in personnel practices. The following ideas are largely adapted from Mosher (1971), but they fit well with the more abstract concepts reviewed above. The agency can rely more heavily than it does on *ad hoc* teams comprised of individuals with varying professional orientations to work on specific problems, thereby breaking through the constraints imposed by professionalism. It can increase personnel mobility, for example by moving talented young people into responsible positions rapidly, and by encouraging extra-agency experience to broaden administrators' perspectives. It can support ad-

vanced education both through intramural and extramural coursework, thereby countering dynamic conservatism. It can engage in more active and positive recruitment of individuals who are comfortable working on the "wicked" problems that characterize contemporary national park management. And it can reduce the constraints on initiative posed by careerism and position classification, thereby supporting the spirit of experimentation that is one of the hallmarks of learning agencies. In these and other personnel practices, the central administration of the National Park Service can help field level officers respond creatively to the changing demands of the temporary society.

Conclusion

America's national parks should convey a sense of timelessness. Whether they celebrate natural systems or cultural objects, our parks are meant to serve as a permanent standard of reference (Sax, 1980). This is an especially important duty, since American society may be the most changeable in human history. Yet that same temporary society insists on participating in the governance of the National Park System. Our desires for permanence and our demands for change are thus at war in the national parks.

Finding ways to reconcile this dilemma demands great creativity and flexibility in the National Park Service, at the same time there is an unremitting search for a sense of purpose. In the last twenty years, through a period of rapidly increasing park popularity, the Service may have done well enough simply to cope with onrushing change. Now, perhaps, it is time for the Park Service to establish organizational learning processes that will enable it to work creatively with inevitable change.

References

Argyris, C. 1983. *Reasoning, Learning and Action: Individual and Organizational.* San Francisco: Jossey-Bass.

Chase, A. 1987. How to save our national parks. *The Atlantic Monthly* 260 (1) [July]:35-44.

Coffin, J. D. (ed.). 1988. NPCA study will call for major park boundary changes. *Federal Parks and Recreation* 6 (2):1-2.

Conservation Foundation. 1985. *National Parks for a New Generation: Visions, Realities, Prospects.* Washington: Conservation Foundation.

Dahl, R., and C. Lindblom. 1953. *Politics, Economics and Welfare.* New York: Harper & Row.

Foresta, R. A. 1984. *America's National Parks and Their Keepers.* Washington: Resources for the Future.

Friedmann, J. 1973. *Retracking America: A Theory of Transactive Planning.* Garden City, NY: Doubleday.

Harris, J. F. 1987. "Caretaker Wages Battle of Principles at Manassas." *Washington Post,* April 30.

Morgan, G. 1986. *Images of Organization.* Beverly Hills, CA: Sage.

Mosher, F. C. 1971. The public service in the temporary society. *Public Administration Review* 31(1):47-62.

Popper, K. R. 1963. *The Open Society and its Enemies.* New York: Harper & Row.

Rittel, H., and M. M. Webber. 1973. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4(2):155-169.

Rohr, J. A. 1986. *To Run a Constitution: The Legitimacy of the Administrative State.* Lawrence, Kansas: University Press of Kansas.

Sax, J. L. 1980. *Mountains Without Handrails: Reflections on the National Parks.* Ann Arbor, Michigan: The University of Michigan Press.

Schon, D. A. 1971. *Beyond the Stable State.* New York: W. W. Norton.

Schon, D. A. 1983. *The Reflective Practitioner: How Professionals Think in Action.* New York: Basic Books.

Selznick, P. 1949. *TVA and the Grass Roots.* Berkeley, California: University of California Press.

Washington Post. 1987. June 14, p. D4.

Wellman, J. D. 1987. *Wildland Recreation Policy: An Introduction.* New York: John Wiley.

Richard Greenough, Center for Public Administration and Policy, and *J. Douglas Wellman,* Department of Forestry: Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

■

The Mission and The Function and Structure of the U. S. National Park Service

Theodore W. Sudia

Introduction

Director Connie Wirth began the efforts to professionalize the management of the National Park Service in the 1950s. In 1967 Director George B. Hartzog, Jr. organized the Field Organization Study Team. The FOST specifically recommended the professionalization of the ranger force. When the study team's recommendations were implemented the professional duties of the naturalists, the historians and archaeologists were incorporated into the new ranger series. As they proceeded through the ranks they performed a variety of tasks. The rangers were to be assigned professional duties and an additional series was to be established for employees performing technician duties. These became the Park Ranger 025 and the Park Technician 026 series.

In the 1970s the National Park Service requested funding for law enforcement from the Congress and obtained it. Many rangers were sent to the newly established law enforcement schools and came back to the parks fully trained in law enforcement.

In the ensuing years the National Park Service devoted itself to visitor safety and protection and law enforcement. The park technician series 026 instead of being a stand alone series with its own entrance requirement and career potential became a feeder group for the park ranger 025 series. The duties of the rangers and technicians became co-mingled and persons with comparable training and backgrounds were hired in both series. Many seasonals with advanced academic training were content to accept positions in the park technician series 026 in the hopes of moving into the park ranger 025 series. Park rangers came to perform park technician duties and the duties across the series boundaries became blurred. In the end both series were combined into one, called park ranger 025, but fixed at the park technician 026 pay and career level.

The 1960s and 1970s were turbulent years in American history. The Vietnam war strongly divided the nation and

drugs were becoming all too fashionable. Street and drug related crime increased. The parks received their share and more of this onslaught. With the shift to law enforcement the ranger force was diverted from resource management and interpretation. In the end both series were combined into one, called park ranger 025, but fixed at the park technician 026 pay and career level. Neither the science nor the history programs of the Service have been able to compensate for the lack of professional resource management and interpretation at the park level.

In addition to the problems caused by the normal evolution of the National Park Service, in 1981 the Heritage Conservation and Recreation Service (HCRS), formerly the Bureau of Outdoor Recreation (BOR) was merged with the National Park Service. This merger obliterated the HCRS, but it could not erase the Outdoor Recreation Act of 1962, and thus it saddled the Service with the additional responsibility of administering this Act. Combining the HCRS with the National Park Service gave the Service responsibilities it either had not traditionally handled, or had not handled well. These programs include the grants to the States for outdoor recreation, technical assistance to the States for outdoor recreation, National Rivers and Trails, and Cultural and Natural Landmarks. These additions to the Park Service's long standing responsibility for National Parks, Monuments, Historic Sites and Buildings, as well as Recreation Areas has essentially transformed the Park Service into a National Administration for Cultural Affairs and Recreation. This assumes, as many National Park Service observers note, that the natural area National Parks are cultural institutions and not natural resource commodity reserves.

It is now mandatory for the National Park Service to re-examine its position particularly in the light of its newly assumed responsibilities for national outdoor recreation, rivers and trails and landmarks and arrive at a decision as to how it will allocate its scarce resources to administer all the programs entrusted to it by law.

This paper is an attempt to sort through the duties and responsibilities of the Service in an effort to understand the mission, the occupations necessary to carry it out, and the structure best equipped to support such an effort.

The Mission of the National Park Service

Many laws, proclamations, regulations and orders govern the mission and the structure and function of the National Park Service. The Organic Act of 1916 is the most quoted source of the mission of the National Park Service. The most quoted sentence from that act follows:

> *The Service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified,....by such means and measures as conform to the fundamental purpose of such parks, Monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.*

The national parks, monuments, and reservations are a bewildering complex of landscapes, scenes, vistas, places, and objects. Because of this diversity there is a tendency to divide the National Parks into rural and urban parks or natural and cultural parks. The National Park Service must face the fact that its resource management system for better or worse applies to the National Park System as a whole and that the System now includes rivers and trails, cultural and natural landmarks. In addition the Service is entrusted with the Outdoor Recreation Act of 1962, which requires a Federal approach to assisting the States with outdoor recreation. The Service is one Service with cultural, natural, rural, and urban resources to manage and with administrative responsibilities to assist the States. One management philosophy and one management system for the system is mandatory.

The mission of the National Park Service is to: Protect, preserve and restore the natural and cultural heritage of the United States and to avail to its citizens outdoor recreational opportunities, all according to law.

The first goal of the mission of the National Park Service is to: Properly manage the resources of the National Park System and other resources entrusted to its care and oversight by the people of the United States through acts of the Congress and Proclamations of the Presidents.

Many people think of the National Park Service as a land managing agency or as the promoter of an environmental ethic. The National Park Service manages land but it is not just a land managing agency. It manages many historic structures too. While the National Park Service advocates an environmental ethic it does much more than that. It advances a preservation ethic which includes an environmental ethic.

We can easily see an environmental ethic in the management of Yellowstone National Park. How do we apply an environmental ethic to the management of Independence Hall Historic Site? Specifically how does an environmental ethic apply to the Liberty Bell?

What does Denali or the Hayden Valley of Yellowstone National Park have in common with the Liberty Bell? The only answer is they are all resources managed by the National Park Service.

Resources that the National Park Service does not directly manage, it oversees. Cultural and Natural Landmarks of inestimable value are part of the System but not directly managed by the Service. The list includes places such as Monticello and Mount Vernon. These are private properties but under the surveillance of the National Park Service cultural landmark administrators. National Park Service resource management practice and principle affect these places as though they were physically and legally in the System.

The following discussion applies to cultural as well as natural resource management. Over the years resource management has been associated with natural resources. Resource management plans were always implied to mean natural resource management plans. Resource management applies to land and water resources as well as architectural structures and artifacts, (arrow heads and bird skins). Resource management, both natural and cultural, operates at three levels, with each requiring higher levels of professional skill for its execution.

At the basic level, resource management means *resource protection.* Resource protection rangers must safeguard cultural and natural resources from fire, unthinking misuse, poaching, and vandalism. Ranger archaeologists must stabilize archeaological structures and they must not allow artifacts to deteriorate. Curators must protect books and manuscripts, herbarium specimens, and museum collections. Resource pro-

tection rangers must visit all parts of the resource. Rangers doing resource protection need professional training.

Resource preservation is the next level of resource management. Before preservation rangers can do their work they have to study and understand the resource. Only then can they know what preservation methods to use. In natural areas the preservation rangers must know the successional stages of the vegetation. They may have to keep the vegetation the way it is or encourage it to develop another way. Cultural resource protection rangers must know the origin and condition of the structures they are preserving. If they are managing an historic scene they must know the vegetational stage when the historic event occurred. They must then know how to perpetuate that stage. They must be skilled professionals.

Restoration of resources, the actual physical repair of natural or cultural resources, is the next level of resources management and requires the utmost skill. Rangers who physically restore resources must have the knowledge and skills required to do this work. They must be skilled professionals familiar with how to conduct and apply the results of research. In all cases in this paper professional means the Office of Personnel Management definition, namely occupations that have specific educational requirements.

An equally important part of the National Park Service mission comes from the Organic Act. In the paragraph quoted above is the following phrase:

> *The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations....by such means and measures as conform to the fundamental purpose of such national parks, monuments and reservations....*

The concept of interest in the quotation is "...shall promote and regulate the use of...."

The National Park Service will promote and regulate the use and maintain the resources "unimpaired for the enjoyment of future generations." The National Park Service has to understand the resources and must impart that understanding to the public. Without knowledge of the resource both the park goer and the resources are at risk.

The second goal of the mission is to educate the public about the resource. The term educate is used here in its broadest sense and ranges from the proper placement of signs along roadsides to formal lectures and the construction of museums. The educational mission has several important parts. The first is to educate the public concerning the values of the resource. The second is to tell the public what is important about the resource. The third is to impart curiosity and wonder to encourage park goers to explore and study the resource on their own. The fourth is to instill caution and respect especially where the park goer's safety will be jeopardized without knowledge of the resource. The fifth is to show how the park is part of the larger whole to which it belongs. No park is an island, not in space nor in time. Natural area parks are part of the larger biogeographic region and they are part of a larger geologic province. Cultural areas are part of larger pieces of history. The battle of Gettysburg is an important battle and can be studied like a chess game, but its larger importance is its effect on the Civil War.

The intrinsic value of the resource is its innate or inherent value. *The moral value* of the resource is the lesson to be learned from the resource (the moral of the story). Moral values come from natural and cultural history. *The ethical value* of the resource guides our behavior and tells park goers how to act toward the resource.

What is the intrinsic, moral and ethical value of the Lincoln Memorial? The memorial is a classic Greek temple. That is its intrinsic value. The building represents the finest stone masonry of its kind. The statue is a tribute to the artist who designed it and the stone cutters who carved it. The architectural and artistic beauty of the monument provides its intrinsic value, which is separate and apart from what the memorial commemorates.

The moral value of the memorial refers to the Union of the States. It relates to the concept, "....one nation indivisible, with liberty and justice for all." The man whom the memorial commemorates saved the Union. His wisdom and compassion saw the nation through its most trying years. The memorial commemorates this man, his work and his wisdom.

The ethical value of the memorial compels us to act with reverence. The ranger on duty will stop children throwing a

frisbee since that behavior is not appropriate to the memorial. The same children throwing a frisbee on the Mall, however, are in harmony with the intrinsic, moral and ethical values of the Mall.

The intrinsic value of the Mall is open space. The moral value is that it promotes outdoor physical activity in keeping with healthy bodies and healthy minds. Throwing a frisbee on the Mall is appropriate recreation. It is the ethical behavior for the Mall.

The worth of the National Parks lies in their intrinsic, moral and ethical values as parks, not as standing timber or real estate. The National Parks are places removed from consumptive commerce because of their singular intrinsic, moral, and ethical values.

The second goal of the National Park Service mission, therefore, is to:

Educate the public concerning the intrinsic, moral and ethical value of the resources of the National Park System and other resources entrusted to its care and oversight and the role and status of these resources in the nation's natural and cultural heritage

Recreation

The Yellowstone Act of 1872 describes Yellowstone National Park as "a pleasuring ground." The Organic Act empowers the National Park Service to promote and regulate the use of the parks "....for the enjoyment of future generations." The Organic Act sets limits on what can go on in the parks. It says the use must conform to "....the fundamental purposes of such park...." The Redwood Act sets further limits on what is permissible. It specifically enjoins the National Park Service from permitting uses of the parks that are in derogation of the park's basic purposes and it states that only the Congress can authorize a use that is counter to the park's basic purpose.

The National Park Service thus is statutorily obliged to manage the parks in the way called for in the Organic Act of 1916, and the enabling acts. Providing for recreation is one such way. What kinds of recreation should the National Park Service promote in the parks? Joseph Grinnell in his book

"Animal Life in the Yosemite," gives the following example. He begins by describing National Parks as special places set aside because of their unique value. He goes on to say the parks promote "far seeing and far hearing." National Parks, according to Grinnell, are places of clear atmosphere without noises of civilization. Recreation in such parks thus focuses on human enjoyment of clear vistas in the stereophonic sounds of nature.

The enabling act for Cape Hatteras National Seashore specifies recreational activities for the park: sailing, boating, canoeing, biking, hiking, camping, and fishing. Recreation in Cape Hatteras centers on activities that can be done in the context of a natural park.

The law prescribes the appropriate recreation for any given park. Properly developed National Parks can accommodate park goers and at the same time provide for resource protection. The legislators saw the parks as places where people come to enjoy the pleasures of the nation's treasures. Parks for people is a popular theme for park management.

Administering the Outdoor Recreation Act of 1962 is now the responsibility of the National Park Service. These responsibilities were formerly carried out by an entire separate bureau of the Department of the Interior. Unless the Outdoor Recreation act is repealed or assigned to another agency the responsibility will rest with the National Park Service. As a footnote to history, if the Park Service takes up its responsibilities for the Outdoor Recreaction Act, it should re-examine the Park, Parkway, and Recreation Act of 1936. This would allow reconsideration of legislation that would have created a National Park Service along the lines of the Forest Service or the Fish and Wildlife Service, where in addition to Federal duties those bureaus have duties relating to the States.

The third goal of the mission of the National Park Service therefore, is to:
Provide recreational opportunities appropriate for specific sites of the National Park System or in other ways prescribed by law.

The National Park Service is a paragon. It is a model that has been emulated and respected the world over. Within the United States the Park Service is synonymous with excellence

in natural and cultural protection, preservation and restoration affairs. It is seen as the pre-eminent education and recreation agency. The National Park Service is obligated to share that excellence. The obvious method of sharing is by cooperating with agencies and organizations with similar missions.

The fourth goal of the mission of the National Park Service is to:
Cooperate with State, Local and International Park and Recreation and Historic Preservation agencies and other organizations with similar missions.

Shortened to the barest essentials, the mission of the National Park Service is:

1. *Manage the Resources*
2. *Educate the Public*
3. *Provide Appropriate Recreation*
4. *Cooperate with Related Agencies and Organizations.*

The Function of the National Park Service

What functions are necessary to accomplish the mission of the Service? The mission requires a resource management function. Management of the resources consists of three distinct phases. Each of these phases must be coordinated closely with the other two.

There must be a resource protection function. Properly functioning resource protection includes monitoring the resource, because natural resources are dynamic. Weather data and data from permanent quadrats and transects are needed. The census of animal populations is necessary to determine status of species in the parks. An annual bird census will give an indication of the impact of humans and developments in the park. While some monitoring is routine, other monitoring is at the level of research. All monitoring must be done in conjunction with research scientists who establish monitoring protocols.

There must be a resource preservation function. Preservation of resources requires inventories. Vegetation maps are needed. Species lists for birds, fishes, mammals and plants are needed. Appropriate photographs of the park are needed to add understanding of changes over time. Cultural resources have to be documented. Specimens must be curated and a reference library must be established.

The restoration function of the National Park Service's natural resources management program will require the services of outstanding researchers and scholars. Restoration will not be possible without world class knowledge of the situation. Anything less is to put the resources in jeopardy. Loss of the resource is not tolerable.

There must be an education function. The data from monitoring, inventorying, research and mapping forms the basis for the education program. In addition to scientific papers, books, films, video cassettes, posters, pamphlets, scientifically correct but written for the public, are the proper output for such a program. All this material taken as a body is the raw material for an interpretation program for the park goer, programs that must be strongly substantive, entertaining and able to reach all members of the family unit.

The final part of the three part program for resource management is the restoration phase. Resources are restored only after careful study. If manipulation is necessary to restore or recreate a resource, extensive advance research is necessary. Examples are the grizzly bear problem in Yellowstone, the cougar problem in Carlsbad and Guadalupe Mountains, the endangered Florida panther. After several decades of study, the flow characteristics of the Everglades are still not understood, leaving the management of this area in doubt. The restoration of Organ Pipe Cactus National Monument will require broad research before a truly safe plan of action can be devised.

And finally, there must be a recreation function. A small recreation unit is also required at the park level. This group develops a recreation program for the park goer commensurate with the fundamental purposes of the park.

Park Planning

For these functions to work smoothly, planning at the park level is needed. The resource management plan is a part of the general management plan that should be updated at regular intervals after the initial planning effort. The interpretive plan and the recreation plan are new and will have to be developed. The interpretive plan will include not only the interpretive prospectus but also the protocol for performing the inventorying and archiving functions of the park. The research plan is derived from the resource management plan

but will have to be recast to include materials from interpretive and recreation plans.

The planning function is needed to alleviate threats, particularly outside threats to parks. Non-compatible uses around the boundaries plague many parks. The Service must recognize that the resource values of the park do not stop at the park boundary. The condition of lands adjacent to the parks is of vital concern to those responsible for the protection of resources inside the boundaries. The park must engage in cooperative recreational planning with local, state and federal agencies to insure campatible uses around the park.

At the park level the following general plans, with appropriate action plans, need to be developed. All plans are part of the General Management Plan.

1. Resource management plan. This plan should contain the protocol for protecting and monitoring the resource.

2. Interpretive plan. The interpretive plan should contain the interpretive prospectus and the protocol for inventorying the park's resources. It should also contain a plan for caring for specimens and archiving records and maintaining a library.

3. Recreation plan. This plan will follow the uses of the park policy and will contain analysis of the park's resources and outline a recreational program in keeping with the fundamental purposes of the park.

4. Research plan. The research plan for the park is derived from needs stated in other plans. The primary activity of the park is to manage resources, educate the public and provide recreation. Park research is conducted to support the mission. The research plan will contain sections for cultural, natural and social resources. Providing opportunities for outside researchers to work in the park is part of both the resource protection and the education mission. This activity is accounted for in the research plan.

These plans are integral to the General Management Plan. They are updated as required. When completed these plans describe the professional functions of the park needed to support the mission.

To summarize, the professional functions needed to support the mission at the park level are: planning, resource protection and monitoring, resource preservation, interpretation, inventorying, resource restoration, research, and providing for recreation.

The Service must structure the parks to perform the functions necessary to carry out the mission. At this level where park goers meet the park employees and both meet the resource, the important functions of park management occur. If everybody at the park level knew the mission, a structure would not be necessary or else it would form spontaneously. Parks are complicated. Empoyees move frequently. It is necessary to structure the activities at the park level so they are logical from park to park.

From the mission we know we must have a resource protection unit. We must therefore have a resource protection unit that also has the responsibility for the monitoring function including census activities for the prominent species in the park. Monitoring procedures are devised in conjunction with the research program and tie into the research activities at the park.

To carry out the education function of the mission we need an interpretation unit is required. This organizational unit is responsible for the lectures, campfire talks, bird and nature walks. It is also responsible for the park's resources basic inventory and for curation and archiving. As in monitoring, the activities of this function are established in conjunction with the research program and are part of the research activities of the park.

The recreation function need not be a formal unit but should be a part of ranger activities. This function requires an outdoor recreation planner and an outdoor recreation specialist. The research component of recreation will be addressed in conjunction with the rest of the research program of the park.

Not all parks need a complete research unit. The regions support parks unable to support their own research programs. Large parks with high numbers of park goers require a research organization. All parks, however, should be able to identify their own research needs.

All parks should encourage outside researchers in the park in order to benefit from their work. If a researcher's work is of interest to the park, the park should seek to support it.

This most important lesson gained from the structure and function of the park is that the park is a unity. It is one complicated thing. The effective organization that manages it is

also one thing. To be effective, there must be close cooperation among the professionals in resource protection and monitoring, interpretation and inventorying, recreation, and research. They must function as a team. They must share resources. They must talk to each other and exchange and share information. To achieve these imperatives, these professionals must work for the same overall supervisor who controls their budgets and personnel, work assignment and who does their performance appraisals. In working closely together as a team the local park staff will accomplish the mission of the National Park Service. Cooperation in executing the mission will result in an overall increase in the efficiency of park operation. This in turn will result in a more cost efficient program. The greater the local cooperation and self-sufficiency the greater the impact of management on containing costs and increasing benefits to the park goer.

Functions that Support the Mission

The resource preservation, education and recreation mission of the National Park Service defines its central functions. Many functions go on in the park which are not central to the mission but which are necessary for the mission to succeed. Foremost among these are visitor safety and protection, maintenance, administration, and concessions. Without these functions the park will not work. They are necessary for the proper functioning of the park.

Law Enforcement and Visitor Safety and Protection

In some ways visitor safety and protection may be the #1 priority of the National Park Service. We invite the public to the parks. The Service is obligated to provide for the safety and protection of this invited public. The protection must cover not only the visitors from hostile and criminal elements of the society, but also the dangers inherent in the resource. The Hecht case in Yellowstone where a younster was fatally injured by falling into a thermal pool is a case in point. The court held the National Park Service to be responsible for the safety of that youngster. Enhancing visitor experience requires a benign environment. The Service can provide for that benign environment by educating the visitor concerning the hazards in the environment and by providing the physical protection of law enforcement.

Search and Rescue

The National Park Service manages remote areas with difficult terrain, mountains, rivers, lakes and wooded areas—all potentially hazardous to the park goer. Search and rescue is a necessary management tool for the Service. The Service can do no less when it invites the park goer into its areas.

Structural Fire Management

Visitor and employee lives and property and the property and resources of the park are at risk without structural fire management. The Service is obliged to maintain the readiness to combat structural as well as wild fire.

Maintenance

Maintenance is necessary to preserve the capital value of the built environment and to eliminate hazards to park goers and employees alike. It is necessary to the proper management of the park. Buildings must be heated and cooled. Plumbing and electrical service must work and roads have to be kept in safe condition. All aspects of facility management are incorporated in the mainenance function.

Concessions

Park goers encounter concession employees and seasonal rangers far more frequently than they encounter full time employees of the National Park Service. Concessionaires have a privileged place in the management and operation of the parks. Contracts that run up to twenty-five years are ample evidence of that relationship. In most cases the concessioner offers services to the park goer—food and lodging for the most part. In many cases the concessioners offer services that include interpretation. The concessioner then plays an important pivotal role, providing goods and services for the convenience of the park goer and providing professional services as the interpreter of the park's resources.

Concessions cannot be neglected when the overall strategy for the management of the park is devised. Concessioners should provide the same high quality performance of professional activity in carrying out the mission of the park as the Service provides.

Cooperating Associations

The Cooperating Associations have a vital role to play in the accomplishment of the mission of the Service. While they are independent corporations their purposes as stated in their corporate charters are to assist the Park Service in carrying out its mission. The Cooperating Associations are book sellers, and they are funders of worthy interpretation and research projects. They play an important role as intermediaries between the public and the Service.

By some standards Cooperating Associations are big business. It is time to examine the role of the Cooperating Associations and to encourage them to continue the work they have been doing but to also expand it into the new technological realms of the information revolution. The Cooperating Associations in their efforts to bring the story of America's National Parks to the nation and the world must seek their audience not only in the parks but in the park goer's neighborhood bookstore, drugstore and grocery store, and in the park goer's home through television.

The Cooperating Associations can reach and educate the American public concerning the essential values of the parks long before the American public reaches the parks. This is of inestimable value in safeguarding, protecting and preserving the resources of the National Park System.

Summary

The mission of the National Park Service is straight forward: manage the resources, educate the public, provide commensurate recreation, cooperate with related agencies and organizations.

The functions necessary to carry out the mission are: resource protection, preservation, restoration, research, recreation, planning, and education.

The structure of the park to provide these functions and these professionals is: A unit of resource protection, preservation restoration with a monitoring activity and with a subunit of recreation; a unit of education with a subunit of resource basic inventory and curation. Serving all professional units should be a research unit. A park planning unit should be located with facilities management.

Implementing the Mission

Accomplishing the mission of the National Park Service is a matter of attitude and some training, none of which requires a change in the management policies. The mission has to be drilled into the heads of all employees. Albright and Mather training centers have to be pressed into service and the team resources approach used so successfully by interpretation also has to be pressed into service.

The supervisors of the Service have to be taught position management in addition to their other supervisory skills. The managers of the Service have to be taught planning for change as a normal part of their managerial skills. As a Service we must want to work as a team, we must see the advantage to utilizing team resources to inculcate and infuse the new skills into the park environment. We have an abundance of leaders at all levels who know what to do. They must be given every encouragement to do it.

Conclusions

The productivity of any organization increases the more its employees know and understand its mission. The National Park Service is an ecosystem. Like all ecosystems it will operate at maximum efficiency if its members understand and support all its functions.

Lon Garrison said it: "The parks make us better than we are." To earn our keep we have to live up to the high standards that managing National Parks demands of us. By adopting the mission, recognizing the functions required by the mission and permitting the structure of the Service to evolve to carry out those functions we will accelerate the implementation of the mission. In this way will we insure each park goer the highest quality experience in the National Parks and leave the parks "unimpaired for future generations."

Theodore W. Sudia, Senior Scientist, U. S. National Park Service, Washington, D. C.

■

The Politics of Community Resource Management

Robert L. Arnberger

Because we manage parks, we share a common bond from the start. After all—we represent the "thin green line" that protects our nation's heritage—or do we?

There are big philosophical differences among many park managers and leaders within our organization. You know it; I know it—there is not a philosophical agreement amongst us as to how we should manage our parks in the face of growing adversity and external threat.

My own allegiance lies with more than the individual park unit I help to manage. My allegiance lies with a National Park *System*, not a single unit of a system. My loyalty is pledged to a concept I that I consider to be one of the few "pure and virgin" concepts ever put to action....the preservation of a nation's natural and cultural values by a *system* of parks.

As a manager of parks within this system, I feel I must *assertively* exercise my management responsibilities for in *not* doing so I, in effect, am mismanaging. Throughout my "managing around in the park system," I have found myself involved in the dynamic and often dramatic arena of community politics—and I like it.

Why is it some managers must be *convinced* to enter an arena of community politics, when that decision is a logical progression and extension of their vested responsibilities? To some park managers their interpretation of responsibility must extend to careers first, parks second, and system last; to standards of performance that are measured against technical criteria such as personnel management guidelines, forms management, and reports guidelines. They have no sense of strategic management principles where an "intuitive feel" for a philosophy of protecting a nation's values becomes the beacon for carrying out the "grand idea."

There is a reality now that must be faced. It is a reality that holds the potential for ruin as well as solution. The threats our parks face are the threats that our nation and society face. Urban America has closed in on the park system. The parks do not exist in "splendid isolation" as many of them once did. Increasing population exercises a steady quest for energy, transportation, food, recreation, and living space. The by-

products of these society requirements do not limit themselves to artificial legislative boundaries. Indeed, we know that they do not limit themselves to single communities, regions, states, or even nations. The poisoning of our planet may be the single, *final* common denominator of the equation. The information gap between what we know of these effects upon parks and the increasing quantity of new threats that daily show their face makes one wonder if solution will ever be part of any equation.

To further complicate the picture, the National Park Service, which has been entrusted with the responsibility of managing the system, is subject to wide swings of philosophy and management practice with each change of political administration. This reality creates frustration; at its worst it can destroy the principles of park management evolved from over a century of practice and potentially destroy the resource. If change is needed, let it come in small increments where we can assess constantly the effects upon the resource. As ex-Secretary of Interior Andress once said, "If we are to err, let us err in favor of the resource."

The need is for park managers to view their jobs in a broader context. Threats to parks are, by-in-large, externally generated by communities, by industries, and by political alliances or policies. A new era of park management lies before us. New sets of rules and policies will be written by park managers who perceive accurately that philosophy, protection, and solution must be accomplished with and through others outside the park. The concept of *community investment* in the protection of a resource must be a sought for end. In my view there is adequate justification and rationale to extend into these arenas more assertively than is presently the case. What is required is the decision, the inner conviction, the modulated and strategical implementation, and most importantly the strength to withstand assault. Even within our own organization, taking a position of advocacy for resource protection can be a lonely stance, more often than it should be.

Taking an advocacy posture can be supported by first focusing on authorizing legislation and accompanying intent of Congress. Broaden your review of legislation and find precedent—beginning with the Organic Act of 1916 and succeeding systemwide acts of the Congress.

Then check the legislative history of your own park. It must be inspected, dissected, and continually resurrected. If a vacuum exists, find the justification or precendent elsewhere. In our arguments with outside interests on external threats, we must methodically present our case based upon legal footing. Once this footing is established it is possible to extend to more conceptual, philosophical, and emotional arguments. Managers also must evaluate the legislation and congressional intent in terms of the *legal requirements placed upon them* in assertively acting to protect the resources they manage. In fact, it can be argued that by *not* aggressively managing the effect of external threats, a manager is in violation of the law he is pledged to carry out. It can be argued that certain compromises, negotiations, or lack of action place you in full risk of breaking the law. The Redwoods Act clearly states that failure to act, or making a decision detrimentally affecting the resource constitutes a "derogation of the values and purposes for which these various areas have been established." In short, the days of the simple "Custodial Superintendency" have ended. The threats are too varied and the risks too great.

These "Custodial Superintendents" are technical managers who adhere to management principles that constitute too narrow an image of their responsibilities. They view their job as simply implementing programs provided through clear legislative mandate by means of ordinary administrative systems and controls. "Receive the tasks and perform as directed," becomes both a codeword and excuse. Measurable products provided by monitoring systems, internal controls, rules, procedures, and internal regulations are created to assure strict conformance to the implementation mandate. These "conformance systems" provide useful management and organizational tools for analyzing, directing, and controlling our jobs of managing park resources. But, this approach fails to call forth the traits now required by park managers.

Superintendents must become "Strategic Managers," where the task must be more broadly defined if it is to truly encompass what is being asked. Few park managers are given the luxury of well-defined instructions about the shape, extent, and characteristics of the programs for which they are responsible. In his essay on "Strategic Management in the Public Sector," Professor Herman Leonard of the John F. Kennedy School of Government, Harvard University, states that:

Public officials are given resources with which to advance stated but often vague public purposes, through programs whose outlines are rarely more than sketched. They work with—and within—a mandate that is vague, contested, and shifting. They must imagine an appropriate conception of each program, one that is consistent with the legislated mandate and that can attract the requisite public and legislative support. They must give shape to the broad outlines of the program, making the vague mandate operational and reformulating it into more concrete tasks and goals. They must ask themselves the hard questions about the ultimate consequences and value and costs of the programs they pursue. They must be aware of political support for and opposition to their programs, and must find ways to position programs as to be responsive to changing political demands. They must work creatively to produce and take advantage of new opportunities to improve their programs, and explain the need for these changes to their political overseers. Indeed, often, they must be active in building support for their programs or for reformulations they have developed. They must, in short, build and act upon a strategic conception of their programs within the wider political sphere.

Park managers must be an important part of the process of policy formulation and redesign. They must develop the capacity to understand what creates public value. Seeking and exploiting new opportunities for providing services, responding to changes in political demands in innovative ways and acting to build a mandate for changes they believe are in the public interest must be the cornerstone for superintendency action. The job requires substantial discretion. It demands a political consciousness. It insists upon decision making and risk taking. The future of the National Park System depends upon the conviction and commitment of the strategtic manager who views political and community interaction as a necessity in carrying out his job.

A further affirmation must be made. Just as the perception of "how to manage" must change, so too must the definition of NPS resource management if we are to carry out the politics of *community* resource management. *All* employees in the NPS work towards perpetuation of the resource and our one common bond in the broadest sense is that we are *all* resource managers. This concept is easy for me to understand but its interpretation is as varied as the number of managers who apply it. The core of this affirmation simply states that our only mission in the National Park Service is to manage the resource.

In light of the increasing number and severity of external threats and the reality that many of our ecosystems are not purely "natural" anymore, I believe that a new era of "Conservation Biology" is at hand. Michael Soulé in an essay published in *BioScience* (Vol. 35, No. 11) in December 1985, examines this new discipline. I feel it has particular merit in terms of the politics of community resource management. Professor Soulé describes "Conservation Biology" as a science that "addresses the biology of species, communities, and ecosystems that are perturbed, either directly or indirectly, by human activities or other agents. Its goal is to provide principles and tools for preserving biological diversity." Professor Soulé states that it is a "crisis discipline....where one must act before knowing all the facts." Action is predicated upon a mixture of science and art, intuition and information, facts and philosophy. The real world now requires strategic resource managers to make decisions, offer comments and recommendations, and take action on external threat situations before the manager may be completely comfortable with the theoretical and empirical bases of the analysis. Tolerating uncertainty is frequently uncomfortable but often necessary.

For political reasons, decisions on managing the resource must often be made in haste. Community political interests demand proof of negative impacts upon the resource. Industries require review and demand quantitative analysis. Individuals leverage park impacts for personal or neighborhood association gain. The realities of chemical pollution effects, introduction of exotic species, definitions of minimum conditions for viable populations, the kinds of management practices undertaken and the ecological effects of development can be a confusing and uncoordinated orchestra of clamoring, contradicting demands to **make a decision now**.

We must pursue a conservation biology objective of "protection and continuity of entire communities and exosystems" (Soulé). Strategic practitioners of conservation biology "attach less weight to aesthetics, maximum yields, and profitability, and more to the long-range viability of whole systems and species, including their evolutionary potential" (Soulé). For the foreseeable future, park service managers cannot pursue a passive role of assuming long-term viability of natural communities will be guaranteed with little or no help from humans. In fact, we must become "managers" of

systems to assure long-term viability. We must make *conservation* oriented decisions based upon the best information available and with strategic and political sense to them. Many of our actions must, of necessity, be reactive. Inconclusive science or long-term research with little product can not be afforded. Science must be built around a concept of giving the manager answers that, while not precise or definite, will allow the manager to quickly enter the decision role required by the community.

When the park manager enters the decision role, success will largely depend on the manager's ability to:

- establish clear objectives
- anticipate potential impacts
- find help to support park interests
- understand the planning and regulatory process
- make some compromises consistent with park purposes
- follow through on promises

The mechanics of problem identification, solution, and community involvement are as varied as the number of parks, managers, and situations. Realizing this, I hope to weave for you a fabric of insights I have gleaned from the following sources:

1. Essay by Roland Wauer on "The Role of the National Park Service Natural Resource Manager," February 1980.
2. Essay and presentation by Rick Smith on "Some Non-Ecological Principles," December 1981, later printed in *Park Science*, Winter 1984.
3. Draft Report on "Park Protection" by WASO, based upon interviews with superintendents and members of their staff in 15 parks heavily affected by development pressures on adjacent lands, March 1987.
4. Essays and presentations on "The Politics of Resource Management at Saguaro National Monument," by Robert Arnberger, April 1986.

This fabric is heavily textured by my own feelings and experiences. It does not reflect the only way to do something. You may take issue with my perceptions. Your reactions are every bit as valid as mine and these other authors.

Proposition I

Have a clear understanding of what the *real* issue is and what the National Park Service position is. A superficial under-

standing of the issue is quickly perceived and the credibility of data or founding philosophy can be irretrievably impaired.

Some corollaries to consider:

1. Recognize that a legislative and administrative history of a park is based upon a series of promises, deals, trade-offs, and compromises required to garner support for the project. Don't make a fatal mistake of ignoring them but examine them in a positive light relative to the *opportunities* they offer.

2. The National Park Service should present its own interests and desires independently and avoid joining "coalitions." It seems to me too easy to have a coalition, rather than the Superintendent, dictating what is best for the park unit. As well, a coalition can miss the primary issue with secondary special interest issues that end up confusing and confounding those that must resolve the issue. A handicap you may experience by not "joining the party" is the tag of "fence sitter." Combat this perception aggressively by repeatedly speaking to NPS interests and stressing the need for independence of your action. Alliances are different from coalitions and are a necessary fact of life. Realize that the ally you have today may be your adversary tomorrow. Seek alliances that have "strength" to them and are based upon philosophical and practical similarities. The weakest alliances are exclusively issue specific where similarity of philosophy or mission is coincidental. Beware of the "wolf in lamb's clothing" who wishes to seek an alliance for other purposes.

3. Avoid confusing friends *and* foe. Exercise well-thought-out "battlefield tactics" but don't let those maneuvers confuse those who hold the key to solution. When the question is asked, "I wonder what side he is on now?" answer it aggressively and consistently with, "the resource's side." Frequently, issues get clouded by the variety and number of community groups involved. Separate out the NPS issue and deal in a clear-cut manner with those issues that impact the resource *you* manage. Dealing with other issues can weaken your position.

Proposition II

A community must posses a sense of investment in the positive solution of problems. Park problems are community problems and solutions must be perceived as having their origins in the community rather than within the park.

Several corollaries to consider:

1. The "people" process is different from the "political" process. Developing a sense of investment in these two groups may bring you to the same final product but is usually a result of different processes. A politician's sense of "investment" may be edged with hard realities and compromises. The "people's" sense of investment may be one of emotion and philosophy lacking a great deal of practicality.

2. Special interest groups will assent to investment or agreement *only* when they are convinced that their *own* interests are being served. Philosophical arguments will generally be futile. Concentrate on determining what *they* will gain rather than what the park will gain.

3. Market your park as an integral and vital member of the community. Know the demographics of your visitation and the economics that your presence in the community represents. Speak to how the park contributes to local employment, citizen enjoyment, emergency services, visitor dollars, and "national image" for the community. Build a constituency actively and purposefully.

Proposition III

Know the game players and be well versed in the rules by which *they* must play, for those are the rules you must play by also. You must get involved early and watch and listen carefully as the issue begins to develop. Chart not only your progress in the issue, but the progress of others as well. Knowing what was said in preliminary meetings and knowing of the dynamics of the participants may directly influence the outcome.

Several corollaries to consider:

1. The administrative and legal process by which a community plans and leads itself will be more important for you to learn than the similar process in your own agency. Read the comprehensive plans, the zoning ordinances, transportation plans, and neighborhood plans. Know what the planners' positions are, know what the politicians feel, and know what the special interest groups want. Knowledge of the process and personalities is the best tool for predicting behavior.

2. Don't be accused of "not coordinating" and don't be a stranger to the key agency orchestrating the process. Pursue "official coordination" responsibilities but don't forget the regular informal visit to discuss a mutual issue or find out more about an issue. Remember the reality of coordination—once you start, be sure you *fairly* involve yourself in the full spectrum of the issue—both friend and foe.

3. Recognize that other points of view may be valid and try to understand the interests of other participants. While being concerned about impacts on parks, don't fail to recognize that the parks sometimes produce negative impacts on landowners adjacent to the parks. Respect other's interests—even if we may not agree with them. Be "up front" in your disagreement and realize that "too much bobbing and weaving can loose you the prize fight."

Proposition IV

It is possible to make decisions based upon philosophical considerations and they will be accepted if you are honest about it. However, there is no substitute for accurate science

data to combine with the philosophical considerations. Decisions are based upon a variety of facts and information and should not be subject to exclusive subservience to scientific data or required research. You won't often get away with a philosophical or emotional decision, so be sure you take your best shot. Ultimately the data will be asked for or required anyway.

Several corollaries to consider:

1. "Crying wolf" will work twice—not three times. Even your friends will desert you when you present arguments that have little substance. Find substance and strength in your claims through facts, data, more facts, and more data. If you are making a decision based upon few facts, then say so. Creation of data and presentation of irrelevant facts is quickly seen.
2. Be prepared to be challenged with every decision. Before making the decision institute a process of evaluating what the challenges might be and where they will come from.
3. When you deal with specific impacts upon a specific resource, your arguments will be more persuasive then appeals to the general principles of conservation.
4. Be prepared to have the rug completely pulled out from under you. Develop fall-back positions and be prepared to negotiate. Distinguish between what is *really* essential to protect the park and what is just desirable. Know how to conduct an effective damage control mission and be able to distinguish when you have done enough. Too much damage control purveys a sense of weakness and lack of planning.

Proposition V

The solution to a problem is not necessarily dependent on NPS assuming the leadership role. Plan your strategy in an issue to determine levels of involvement and what opportunities exist to deliberately avoid or engage involvement.

Some corollaries to consider:

1. Sometimes "your" statement can be more effectively said by someone else. Realize that others can be leaders as well and may carry the banner more ably than you. Don't avoid behind the scenes maneuvering and action in order to ensure that resource interests are protected. Realize that a variety of avenues can lead to a common goal.
2. The political and special interest friends of the park must be alerted and prepared to play a part in the solution of highly charged political issues. Park managers must be able to recognize that time when they can do no more. Third party interests must be similarly astute in recognizing this impasse and be prepared to exercise the opportunities available to them.

3. Beware of the "Joan of Arc" complex. Although a commander of an army, she was burned at the stake. Our own egos often lead us to roles we should not accept. Coalitions looking for either leaders or scapegoats constantly search for that "magnetic issue and personality." Remember that generals manage a war or battle from the war rooms at the rear of the front. Battles are usually won by a variety of field commanders who follow a strategy developed by the general.

4. Be persistent and patient. Some of the success stories are the result of efforts by park managers who have pursued their objective against heavy odds. The time and energy invested in endless meetings may not produce immediate results, but it builds credibility and may lead to a key decision that will protect the park. Remember, there are a lot of friends out there—your job is to make touch with them.

5. Remember, you aren't the only one planning involvement or action strategies. Just as you incorporate others into your agenda without their knowledge, so they are doing the same with you. As you manipulate the process and the personalities within the process, realize you are probably being manipulated by others. Be prepared to react when someone else's agenda maneuvers you into a position where you don't wish to be. Similarly, be prepared to react and seize the opportunity when someone else's agenda has maneuvered you to "where you want to be."

Each park manager will find his or her own niche in the politics of their community resource management program. As well, each manager will develop a personal style and form in dealing with the community. I simply contend that your entrance into the community must be a conscious decision. It begins with a personal philosophical orientation to *take* action rather than have it forced upon you. It recognizes that remedy is intimately linked to community politics. It requires a park manager to be more than a "Custodial Superintendent." It involves accepting a strategic management role that allows maneuvering in fluid and value laden political environments where use of the variety of legislative, administrative, and policy remedies can be used more decisively to protect the resource.

As well, a new concept of conservation biology must evolve to better respond to the realities now being faced by our parks. It will allow the manager the flexibility of dealing with issues and making strategic decisions based on less than the ideal empirical evidence concentrating on systems and entire biological communities.

Ultimately philosophy, legislation, a new biology and strategical management is translated into mechanical field applications by the park superintendent.

[From a presentation given at the June 18, 1987 Superintendency Course at Delaware Water Gap National Recreation Area]

Robert L. Arnberger, Assistant Superintendent, Everglades National Park, Florida.

■

Northern and Remote Parks: Development Management and Impacts

Chip Dennerlein

The theme of Northern and Remote Parks is one that excites the imagination and challenges the talents of both state and federal managers of park lands in Alaska. To put my relationship to this theme in perspective, I must introduce myself as the chief officer of a division of the Department of Natural Resources of the State of Alaska: The Alaska Division of Parks. That agency is charged with a general statewide responsibility for public recreation on all state lands in Alaska and is specifically responsible for the management of more than three million acres of state park lands, which have been withdrawn from the public domain as "special purpose sites" under the constitution of the State. I am not responsible for the nearly 100 million acres of park and refuge lands which have been set aside by various federal agencies. However, I spent the better part of two years traveling between Alaska and Washington, D.C., working on the legislation that set those areas aside.

"Northern and Remote Parks" are no strangers to State Park managers. Nearly three quarters of our system is comprised of large blocks of remote or semi-remote parklands. At 1.5 million acres, the Wood-Tikchik State Park comprises fully one half of our state system. It is one of the largest state parks in the world and no roads reach its boundaries. I would like to consider with you today the "Alaskan experience" in the management of our remote parks.

The impetus to set aside large tracts of remote park land in Alaska is probably not very different from the motivations that led Canadians to establish some of **your** great areas. Certainly, a desire to preserve a quality of wilderness that is

fast fading from even the memory of most of the inhabitants of our country was the driving force, which gave popular support to Congressmen and Senators who voted for the establishment of the federal areas in Alaska. While this romanticized and politicised decision-making process in far away Washington, DC led to strong and forceful opposition to the federal legislation on the part of many Alaskans, there is no denying that these same motivations operated in Alaskans themselves as they moved ahead to establish a 1.5 million acre state park even in the thick of the federal controversy.

Beyond this general drive on the part of many Alaskans to keep some blank spot on the map, it took a loose knit coalition of hunters, fishermen, wilderness tour operators and local people to provide conservationists with the strength to move the bills forward. Even a fear of ourselves, played a role in Wood-Tikchik's establishment. A concern that we might ourselves over react to the federal set aside bills by disposing of our own finest areas helped move the legislation for Wood-Tikchik to passage.

The qualities of the area itself provided the final impetus. Without question, the Wood River-Tikchik system is one of the superlative areas of Alaska. It is a series of large lakes (one 36 miles long) which are stacked up against a dramatic mountain range. The lakes are connected by short rivers (some less than two miles long); each summer they teem with sockeye salmon. In fact, one of the "purposes" for the park is the protection of the spawning and rearing habitat of one of the world's largest runs of salmon. In the end, the legislation that passed reflected the concerns for both preservation and use that have always tugged on the Alaskan conscience. The park was established to protect outstanding scenic and natural values and to preserve the wildlife and fisheries habitat. It also was established to protect both recreational and subsistence uses of the land and resources.

A management council was established in the legislation to assist in the preparation of a master plan and to ensure that local interests and needs were not overlooked by far away bureaucrats and planners. Finally, even commodity resource interests were incorporated in the bill, and provision was made for construction and operation of a hydroelectric project if a certain site proved feasible. The legislation passed and the division was handed the management of Wood-Tikchik State Park.

In many ways, Wood-Tikchik is not unique among our remote areas, but it does represent the quintessential "northern and remote park" and the essence of our "Alaskan experience" in the State Park System. In applying Wood-Tikchik and my experience to your conference theme, I immediately noticed that something was out of whack. Our experience did not quite fit the sequence of events expressed in the conference title. In our experience, the sequence has been "Impact, Management, Development, Impact." It has been our universal experience that no matter how remote the park, the visitor and his unmanaged impacts always gets there before us. I think this will always be the case, for the concept that we can simply leave the large remote parks alone to take care of themselves is deeply rooted in legislative policy makers and budget committees.

The division is itself partially responsible for this sequence, since like park departments everywhere, great needs continually compete for limited operating dollars. In a system where literally thousands of users crowd road accessible areas each summer, remote areas are moved to the back burner at budget preparation time. This is a dangerous situation for two reasons. First, the mere establishment of an area as a park draws attention to itself. In the case of Wood-Tikchik, for example, the noted outdoor writer Michael Frome had published articles in the Los Angeles Times exclaiming over "the new pristine park in Alaska" before any management personnel from the division had even seen the area. Patterns established through unmanaged use are hard to change and in a northern environment the impacts can be considerable. Second, recreation, like gold, is where one finds it. Those unfamiliar with a large remote park will tend to think in millions of acres. *Not so the visitors, or the guides or the flight services. They know that the attractions and values are often preciously small and site specific. The entire valley may consitute the "ecosystem" which must be preserved to ensure the continuance of the healthy fish and wildlife populations, but the confluence of the salmon stream with the main river is where virtually all of the visitors will travel. Very shortly, incredibly swiftly sometimes it seems, the essence of a million acres is compromised by the impact of one hundred acres. The very first mistake is to view our northern and remote parks as vast—they are as site specific as a city park.*

The first role of the manager of a northern or remote area therefore, is to get a handle on the site specific values of the area.

The second "experience" that struck me was the speed with which use of a remote area can grow once that use begins. In 1962, back country use of Mt. McKinley National Park amounted to 57 persons. In 1971, 5,500 headed for the back country and by 1977 the figure was over 32,000 with an additional 81,000 using established campgrounds in the park. Mt. McKinley, though northern and remote, is on the road system and home of the highest mountain in North America. Moreover, I will grant you that it is Alaska's number one tourist attraction. But the trend is not park specific, it is general and to a greater or lesser extent it is affecting all the northern and remote parks. In 1978, three kayakers passed the door of a commercial lodge located within the Wood-Tikchik system. This year, three *groups* per week were making that same trip and the first complaints of garbage were noted.

Throughout Alaska, wilderness tourism is experiencing a significant growth market. This past year, nearly 40 percent of the respondents to the State's official travel publication requested information about experiences "off the beaten track." *The special challenge for the management of such use in northern and remote areas is that the areas themselves are often fragile and require a higher level of management than some of their neighbors to the south, while the traveler is seeking a wildness and a lower level of management.* While it is becoming obvious that a defense for wildness and its management can be made on the grounds that increasing numbers of people are quite willing to pay handsomely to experience the remoteness of the north, it is also becoming obvious that northern wildness can be loved to death almost as quickly as it can be destroyed by exploitation. It is an extremely fragile equation. *Wilderness tourism, like any other resource needs to be managed, if only to ensure the preservation of the experience for which the visitor comes in the first place.*

This is where the management of a remote park reaches its highest art and science, for there is little room in which to maneuver. In a recreation area, the manager may often adjust and manipulate the resource and his own management of it to satisfy changing demands because people seek what might be

termed a "median" outdoor experience and their levels of tolerance are high. But "the call of the wild" has caused the visitor to expend the considerable sums which it might take him/her to visit a remote area. He expects a pristine setting and a sense of freedom. Management must be virtually unnoticeable and it must not remove the "essence" of remoteness the visitor seeks. *The visitor to a remote park is often looking for absolutes, not degrees of an experience. Management is by definition a science of degrees. Standing on that paradox is not an easy job.*

Seemingly on the other end of the visitor spectrum from those who seek to experience the remoteness of northern parks on nature's terms are those who seek to experience the parks on their terms. Perhaps another distinction would be that there are those who wish to immerse themselves in the wildness and those who wish only to stand on its edge with the ability to retreat to familiar surroundings at day's end. But *whether one wishes to leave cililization behind or merely stand on its fringe, the powerful draw, the exciting mystique is essentially the same* and the quality required to satisfy both seekers is remarkably similar. Whether from a lodge or a campsite, the viewer of remoteness has little tolerance for its impurity. Both harbor an amazingly similar notion that civilization stops with them, whether at the end of the canoe or the car. Just as with the backpacker, the individual who we used to think of as the "conventional tourist" demands that the "remoteness" begin at the end of his fingertips. The infrastructure which supports his visit and experience may be a larger example of civilization's impact, but in reality it is simply a slightly bigger "zone" than the wilderness traveler's. The line at the edge of that zone is crisp. There is no room for fuzzy transition zones.

While it may be said that wildness is in the eye of the beholder, I have found that eye to be increasingly educated and demanding. This is another great challenge of northern and remote park management. As crisp as the fold of a piece of paper, the home of the bears and the raw untouched realm of the glaciers must start at the edge of the road, at the end of the trail, at the fringe of the campground and on the other side of the pane of glass in the visitor center window. The slice of wilderness offered the "conventional tourist" of today and the window through which he views it must be cut with a sharp scalpel.

In another aspect of the "development" of northern and remote areas to meet the needs of what we have considered the "conventional tourist," it has been my experience that we are increasingly seeing the "experiential" nature of travel today in this group of visitors as well as in the increased amount of back country users. No longer are even conventional tourists content with simply sitting in a tour bus or visitor center. They too want to reach out and touch the remoteness and wildness of our areas in their own way. We have seen this trend in museums across the country where those institutions offering "hands on" experiences have prospered while others have withered. It is only natural that this interest for a "hands on" experience should extend itself to the greatest of our outdoor museums—the living areas of our great northern and remote parks. Europeans, particularly the Swiss, have offered experiential tourism to even the most conventional traveler since the early 19th century. I do not believe we have to emulate the Swiss. We do not have to swing cable cars to the top of each mountain of our parks. We are offering something different. Europe is a beautiful land, but it is an old land, a pastoral land, a traditional land. *Those seeking their experience in North America, and I can speak here for Alaska, are seeking the experience of "raw" land, the sense of a land in the very process of being born.* We may not, therefore, need cable cars to each mountain, but we will need new forms of developments which protect the "rawness" of our remote resources while enabling the average visitor to reach out to the glaciers.

This brings up the ever present question: Who will pay for these precise and delicate management schemes and developments? And who are we developing for? Our experience in Alaska has been one of being caught in a proverbial bind. While we are not dealing with separate provinces or territories as you are here in Canada, we are a vast state with widely divergent geographies and demographies. By definition, our remote parks are located far from the population centers of the state. By that definition, they also are located far from the number of votes in the state legislature needed to finance their management and deveopment. Yet, in terms of tourism and visitation, it is the urban resident who seeks to leave civilization behind, thus constituting the majority of users. The problem is simple. It is always going to be extremely difficult to get politicians to

spend money for amenities outside the boundaries of their districts and it is unfair and unrealistic to think that rural legislators can carry the cost of remote park management and development in their share of the budgetary pie.

This crunch is precisely why the visitors and their impacts always seem to get to our remote areas before we do. Eventually, the concern of the visitors themselves for the future management of the parks, the legislature's recognition of statewide and even national importance of an area as visitation grows, the concerns of local people that "their area" is being overrun by outsiders and important local resources such as fish and wildlife will be destroyed, and the efforts of the agency itself bring funding to begin active management of the remote area.

Finally, I might say about development in northern and remote areas that I see two distinct aspects of our development program. Development can be a provider of opportunity or a management tool to control impacts. In the case of what we have thought of as the "conventional tourist" development of our parks opens the door and offers the visitor a window on the wilderness which he could not have seen without a conscious effort on the part of the agency to provide for his needs. This is the development of the road, the lodge, the visitor center, the hard surfaced trail and the campground. It is what has been traditionally thought of as development for traditional reasons. In our "Alaskan experience" another form of development is becoming equally important in our management of northern and remote parklands. This development is aimed at the 90 percent of the wilderness travelers who use the 1 percent of the park land of even a remote area. Earlier I mentioned the increase in use of the Wook-Tikchik State Park. There are two "obvious" Kayak trips in all of the park's 1.5 million acres. These are already experiencing impacts that are beginning to diminish the essence of the remoteness and wildness of the area.

There are really only three alternatives. The first is to establish a "no trace" camping ethic among all who travel to the area. While progress can be made in this area through public education and the establishment of a ranger station through which most people visiting the area might pass, it is highly unlikely that this will afford us with a total solution. The second option is to limit the amount of users. This option is simply not possible for us in Alaska, even if it were desirable.

You can imagine the response of legislators to the information that the Division of Parks was limiting the number of people using a 1.5 million acre park when the use figures for the area numbered only in the hundreds each year. Even the area residents, who may resent the influx of tourists (the self-contained variety) into their fishing and hunting grounds would join the fight against the division from a fear that one limitation on use would lead to others which would affect them. I am a firm believer in "real world" management and the set of givens that go along with every situation. In Alaska, it will be some time before we limit users in our remote areas.

The third option is to provide carefully contrived, minimal developments which themselves "manage" some of the use of the park. An outhouse in the wilderness may not be your idea of Alaska, but it is preferable to human waste and toilet paper behind every bush. Similarly, a cabin or shelter may not convey completely the feeling that "no one has gone before" you, but those shelters and cabins have a way of drawing in even the most ardent wilderness traveler. In fact, a cabin in the midst of the wilderness can be part of the essence of a remote experience. From a resource management point of view, that cabin can be placed off of the confluence of the salmon stream and shelters can ensure that truly unique, site specific attractions along the way are not blessed with the countless campfire rings and tent circles of travelers as the seasons pass. *In this sense, development can become one of our most important wilderness management tools in a system where personnel intensive management just isn't going to happen.* The development itself is an impact, but it is a planned and calculated impact, designed with both the user and the resource in mind. It is the role of the manager to use the development tool to ensure that the impacts after development are more positive than the ones prior to development, or those which would occur without developement. This is what I meant when I first referred to the sequence of "Impact, Management, Development, Impact." Remember the rule of clear and sharp lines between the visitor and the remoteness of the park. That line is sharper at the cabin door oftentimes than it is along a soiled and impacted stretch of river.

Lastly, I would like to offer a sort of synopsis of opinions I have arrived at through my experience in Alaska and which I think apply directly to the management of northern and remote areas wherever they are located.

First, get on the ground as soon as you can. Despite the difficulties of funding, make even some small effort to have a presence in any new areas. The longer you wait to begin active management the firmer the impression and expectation of an "unmanaged" area becomes. Also, the more difficult it is to correct problems that have become established patterns.

Second, look at your remote areas through the eye of a needle. The management of 10 acres may determine the quality of 10 thousand. Do not hesitate to employ "special area" designations and set widely divergent regulations for heavily used site specific areas and vast lightly used areas. Such actions can often ensure protection of key areas while allowing maximum flexibility for the use of vast areas by local peoples pursuing traditional uses.

Third, form advisory boards in the areas of the parks and work with them in an open and honest fashion. Northern and remote parks are often located in areas where Native residents and other local peoples have traditionally used the land for subsistence and other purposes. In many instances, they have supported establishment of the parks for fear that the lands would be put to other uses which would pose even greater impacts to their traditional lifestyles. The local peoples generally are wary and mistrustful of bureaucracies, often with good reason. They are also a wealth of knowledge. Work with them from the first. There is no substitute for this rule. There will be problems in the future. Outside use will impact local lifestyles and certain "traditional uses" may seek expansions that are inappropriate or incompatible with park values. But with a rapport and open working relationship from the first, the problems can be dealt with in a positive and constructive manner.

Fourth, base all developments on quality not quantity. If funding is limited, limit the scope of development. *Never compromise on quality. For this reason, it is essential that the agency itself control the development of its park areas.* You may provide for private sector involvement and even facilitate it, but do not turn your areas over to the private sector. I say this as one who has earned most of his experience in business and whose family is as good a business family as one will find—the inescapable liability equating bigger and better can cost the essence of the very thing we are charged with preserving for the enjoyment of future generations.

Fifth, be willing to go hungry. People are people. It is just as likely that a land manager will hunger for visitor statistics to justify appropriations as it is that a tourism promoter will hunger for profits. Neither profits nor appropriations are bad, but don't create yourself a problem just so you can solve it. Be patient, even if it hurts. Don't peddle the fragile remoteness of the north for a clerk and two field rangers in your next budget.

Sixth, when development does come, don't be afraid to *pave the wilderness....in small amounts.* There is nothing aesthetic and romantic about muddy trails, rutted roads, and wilderness streams with waste and toilet paper behind every tree. Neither is there anything "wildly" pleasing about a bog with 18 different foot trails through it. Harden a trail, even a wilderness one. Put an outhouse in a remote and heavily used location. Build a shelter or cabin in the wilderness, but let nature dwarf your developments. And keep the line between the visitor and the natural world crisp and sharp.

Seventh, let the visitor "experience the wilderness" whether immersed in it or on the edge of the remoteness of the north, *design your management and developments so that each class of visitor can touch and feel and experience the essence of the wilderness he came so far to see.* Build one road to one glacier. Authorize one helicopter firm to land on one peak. Remember—quality, not quantity. But give each who came to see the wondrous remoteness of the north a taste of it. In one place within your vast areas, *let him hold in his had what you have asked him to protect,* even if he is in a wheelchair.

Eighth, hold the line on incompatible uses. With few, if any, exceptions, there is no place in the northern and remote park for commodity resource uses. Recognize prior existing rights, but seek to minimize their impacts on park values and resources. In existing areas, resist their opening to extractive resource uses. In new or proposed areas, excise if you must, commodity resource potential lands from the proposed boundaries, but don't end up with a confused mish mash of lands in which all things must be preserved and protected and all things must be used and exploited. *Remoteness, especially in the north, demands an incredibly high degree of adherence to absolute principles to preserve its essence.* Don't enter the ring with one hand tied behind your back. It will wear you down and drag you down in a battle in which you will always lose. Don't learn to talk in terms of "mitigation." Mitigation is

a code word for "we have already lost, the question is—how much." Draw a line you can hold and hold it.

Ninth, base all your decisions on the natural values of the system. Whether it be development or management decisions, always remember that for northern and remote areas; there is precious little margin of error for your decisions. Northern and remote areas are closer to absolutes than any other areas I know. One step over the line and they can become nothing more than big giant "ordinary" parks. Remember that you are managing as much a philosophy, an image, an essence, as you are managing the tangible resources that comprise that essence. The reason for the existence of the park and the reason people will come to see it is not what civilization has done, but what it has not done.

Tenth, become a spiritualist. The rewards for managers of northern and remote parks are in heaven.

[Theme paper presented at the 20th Annual Federal and Provincial Parks Conference at Ft. Selkirk, Yukon Territory, Canada.]

Chip Dennerlein, Director, Alaska Division of Parks, State of Alaska [at the time of this address]. Present address is in Anchorage, Alaska.

■

The Role of Research in Wilderness

[Keynote address at the Sierra Nevada Wilderness Managers Meeting, 29-30 September 1987. Bass Lake, California]

David M. Graber

In the legislation creating wilderness, Congress has reflected two distinct perspectives: one is the value of wilderness to mankind through its spiritual and aesthetic qualities; the second is wilderness as the conservator of resources likely to be lost elsewhere, including whole ecosystems. Wilderness, in this alternate view, is a vessel containing precious cargo. The history of wilderness legislation reveals increasing understanding on the part of Congress that to be protected, wilderness and its resources must be managed—albeit gently—and that management in turn requires scientific infor-

mation. Finally, other places to learn about naturally functioning ecosystems are simply disappearing: wildernesses will increasingly be turned to a job other places no longer can accomplish.

The aesthetic and spiritual qualities peculiar to wilderness stem largely from the *apparent* absence of human influence. The kinds of intrusions wilderness managers and wilderness users most frequently speak of—fire pits, trail erosion, cut trees, evidence of motorized transport, water contaminated with feces, the presence of too many people—are correctable in a direct fashion as money and politics permit. Ironically, these factors generally have little influence on ecosystem function at levels where they have become intolerable to people. Thus our concern in primarily anthrocentric.

Research for Management of Wilderness

The most significant assaults on the functioning of wilderness ecosystems are typically insidious. They include air and water pollution, alien species of plants and animals (including stock), and introduced diseases. Others are "island effects," operating adjacent to unit boundaries, such as water removal or storage, fire control beyond the boundaries of the unit, or simply ecosystem alternations like agriculture or development that leave the wilderness not large enough on its own account to support some native elements or processes, such as large, mobile mammals and birds, or natural fire. Many of these anthropogenic alternations to wilderness are invisible or subtle to casual observers. Yet to ecologists and others who know the systems intimately, they are disastrous. This biocentric perspective contains another feature: any hope of reversing or mitigating these kinds of systemic changes requires a sophisticated understanding of how the system works, and that requires research.

The bulk of this research for wilderness management is in the form of inventory and monitoring. Detecting variance from natural functioning requires an understanding of what that natural functioning is. Once that underlying picture has been established, and models constructed to explain it, monitoring is necessary—indefinitely—to determine if the system is behaving as predicted. The Forest and Range Renewable Resources Planning Act (RPA) provided an impetus for the Forest Service, in particular, to begin assessing its resources.

The National Park Service incorporated inventory and monitoring into its management policies in 1987. Geographic information systems (GIS) increasingly have offered means of recording, examining, and analyzing resources information in ways far more powerful than traditional one-dimensional tabular files (such as simple counts of trees or grizzly bears). *Distribution* in space offers a second analytical dimension; stacking distributional data about different resources and different environmental factors—comparing, say, the distribution of visitors with the distribution of bighorn sheep, or of high ozone levels with injured yellow pines—provides yet a third dimension of understanding for the manager. New supermicrocomputers with ultra-high resolution color graphics and GIS programs are able to manage and represent vast and detailed information about land areas, permitting levels of understanding or planning never before possible. But first the information must be collected.

Research Impacts

While some kinds of inventory and monitoring data can be collected nonintrusively—satellite imagery, topography, or simple personal observation—many other kinds require an impact on the land and the presence of equipment. Stream gauges, air quality samplers, and weather stations are typical visual intrusions. Certain kinds of critical data must be collected destructively, such as toxics loads in animals from blood and fat, tree ring cores to measure growth rates, nutrient levels, and fire scars, or simply the trampling inherent in detailed plot work. Monitoring generally requires repeated measures taken at specified sample plots. Until global positioning systems (GPS) using navigation satellite telemetry for precise determination of locations are economically available, permanent marking of plots will be necessary. Stakes, tags, and flagging will be an unpleasant but necessary adjunct to ecosystem monitoring. Another kind of research intrusion is the transport system necessary for heavy, bulky, or specialized equipment. Pack stock, and often helicopters are necessary to move some materials in and out in a timely fashion. And lastly, some research areas must be closed to some or all public uses during the course of study, either to protect equipment or to avoid compromising the measurements being taken.

In addition to inventory and monitoring, directed studies will always be necessary to provide detailed data about a perceived system perturbance—say the decline of a native species or the appearance of an alien pathogen, and to build models to explain findings and predict the future.

Wilderness as Biosphere Reserve

A second class of research in wilderness is designed to serve not so much the particular land unit, but rather mankind's knowledge of his planet. As the least manipulated and perturbed sites on the continent, American wildernesses often are designated as the core areas of International Biosphere Reserves by UNESCO's Man and the Biosphere Program. These sites provide *control* areas against which the changes we have wrought on the planet can be measured and better understood. The research methods and impacts will be of the same sorts described above, but the benefits are designed to accrue not to the units themselves, but to society in general. Although wilderness managers have traditionally been unsupportive of such externally-driven research, there is an historic inevitability about research designed to benefit human existence.

Wilderness as Outdoor Laboratory

Traditional recreational use of wilderness (as well as grazing and other extractive activities where they are permitted) impose a cost upon wilderness. Trails, signs, and bridges, marring the wild landscape, must be constructed. Pack and saddle stock consume forage and trample meadows. Visitors disturb wildlife, catch fish, pollute water, leave trash, and periodically get lost or injured—requiring helicopter search and rescue. A balanced view, then, must permit scientific research *for its own sake* if the resource costs are commensurate with other kinds of wilderness use. Some kinds of research, for example environmental studies, ecosystem studies, and ecology, use wilderness as a grand untrammeled outdoor laboratory. Much has been learned in recent decades about predator-prey relationships, watershed hydrology, the roles of dead wood in forest systems, naturally functioning fires, natural plant aggregations, background pollutant levels—to name just a few, that could only be conducted in

wilderness settings. Even if these studies offer no direct service to wilderness management (and often they do), and claim no biosphere understanding beyond simply expanding human knowledge, *even if they serve only the scientific community*, they should not *a priori* be considered inappropriate and unwelcome as an activity in wilderness. While the standards of intrusion may justifiably be much stricter than for applied research, this kind of "recreation" is not inherently any less appropriate than backpacking or stock trips. And frequently, a clever manager can seduce scientists conducting research for their own reasons to fill information deficits.

Conclusion

I've described three classes of research that are appropriate in wilderness. While science *per se*, as a system for seeking knowledge, is inherently counterposed to wilderness as the mysterious and unknown place, it cannot be turned away on that basis. Rather, the appropriate standard that managers must apply is whether the benefits that will accrue to wilderness conservation, society-in-general, or human knowledge (my personal order of priority) by scientific research outweigh the costs imposed on wilderness by those research activities. That means that terribly important research may sometimes be permitted although it significantly compromises wilderness resources. Conversely, even the most fatuous research should be permitted if it imposes no more burden than ordinary recreational activities. It is the manager's responsibility to make that judgment, and to work with researchers to minimize their impacts. In the final analysis, however, an improved scientific understanding of wilderness ecosystems will give managers new, powerful tools to help protect those special places for eternity....a rather large job.

David M. Graber, Research Scientist, Sequoia and Kings Canyon National Parks, California.

■

The George Wright Society
Third Triennial Membership Meeting
and Fifth Triennial Conference

November 14–18, 1988

Holiday Inn–Broadway • Tucson, Arizona

Tentative Schedule of Activities

Sunday, November 13

Arrivals, early registration, and posters set up

Monday, November 14

8:00–11:00am	Registration, Committee Meetings, ancillary meetings, Posters set up
1:00–1:45pm	USNPS Officials, Welcomes, and Special Speakers
1:45–4:00pm	Inventory and Monitoring Panel
4:00pm	Committee Meetings, Discussions
7:00pm	Mixer and Poster Session

Tuesday, November 15

8:00–9:30am	National Parks and Conservation Association's Commission on Science and Resource Management Policy in the US National Park Service plenary speaker(s) and discussion session.
9:30–10:15am	BREAK and Poster Session
10:15–11:45am	NPCA Workshops
11:45–1:00pm	LUNCH
1:00–2:30pm	Authors of Recent Books concerning the National Park Service
2:30–3:00pm	BREAK
3:00–5:00pm	Interpretation and Education Natural Resources Panel Cultural Resources Panel
7:00–8:30pm	Resource Manager's Organizational Meeting

Wednesday, November 16

8:00–9:30am	BioDiversity Plenary Session and Workshop
9:30–10:15am	BREAK and Poster Session
10:15–11:45am	Workshops and MiniSymposia
Noon–1:00pm	LUNCH

1:00–2:30pm	Parks and Neighbors: Bridging the Gap Plenary Session and Panels
7:00–9:00pm	Evening: Banquet with GWS Awards, Special Guest Speaker and Business Meeting

Thursday, November 17

8:00–9:30am	Parks and Adjacent Lands Plenary Sessions International—National (includes MAB, etc.)
9:30–10:15am	BREAK and Poster Session
10:00–11:45am	Workshops and MiniSymposia
Noon–1:00pm	LUNCH
1:00pm	Field Trip Plenary Session
2:00pm	Load Buses for Saguaro National Monument
2:00–5:00pm	Field trip to Saguaro National Monument to examine various local land use situations and problems
Evening	Open Public Sessions by Authors or Interpreters (these events will not **necessarily** be this evening)
Evening	Poolside Entertainment

Friday, November 18

8:00–10:30am	Global Changes and Strategies, Inventory and Monitoring Plenary Sessions
10:30–11:00am	BREAK
11:00–Noon	Closing Session, Committee and Workshop Reports, Wrap-up
Noon–1:00pm	LUNCH
1:00–?	Committee Meetings, Departures

Saturady, November 19

Optional trip to Organ Pipe Cactua National Monument

Note: Author's Session and Global Change Session may be switched