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Values, Science, and Policy: How Best to Serve the National Parks

What is Policy?

Thanks to John Dennis, Mike Coffey, and Mike Soukup, this is a session about policy. We wildlife biologists talk energetically about and advocate policy, but often without stopping to think about what policy is, how it is and should be set, and by whom. So in order to make sure that we are all communicating, it seems desirable to start this discussion with a bit of Political Science101 before talking about national park policy.

The several dictionaries around me vary slightly in their definitions of "policy," but converge on an amalgam something on the order of, "A statement or stated plan of how an organization will operate to achieve some goal."

So a policy is a stated plan or course of action, and most of the discussion about policy tends to focus on this aspect. The discussion frequently overlooks, or simply fails to address, an extremely important part of the process: the goal or goals. Consequently, most of the policy discussion focuses on means rather than ends. A major point that I will develop in this paper is that policies, and the management programs they prescribe, cannot be meaningfully designed without clear and explicit goals which they are designed to achieve.

Point 2 in this 101 discourse, probably obvious to all, is that policies set for public or common-property resources, such as public land, are public policies. And needless to say, they are therefore carried out by some governmental entity.

Finally, numerous authors (cf. Hendee 1974; Giles 1978; Kania and Conover 1991; Wagner 1994; Kennedy and Thomas 1995) are now pointing out that public resources are managed, not for the resources themselves, but to satisfy societal values. Hence, management goals are the satisfaction of those values, and an oversimplified model of the policy process is sketched in Figure 1. The implications of this model are: societal values are the basis of the whole process; goals are articulated to satisfy those values; policies prescribe management programs to achieve the goals, and thereby satisfy the values; and science is not part of the direct causal sequence that sets policy.

Figure 1. A model of public policy-setting which originates with societal values.

Goal-Setting for the Parks

If we apply our Poli Sci 101 principles to the on-going debates on wildlife policies in the National Park System, it becomes clear that the arguments over culling animals, prescribed burning, elimination of exotics, restoration of absent species, and such variants of no management as natural regulation and natural-process management are debates over means, not ends. Very little of the discussion focuses on the ends box—the "goals" of our model—which, for national parks, are their purposes or reasons for being.

The goals we do have in place, and which officially guide park policies, come from a diverse and disjointed array of sources that fall into two general categories. One is legislation: the 1916 Organic Act and the enabling acts establishing each national park. The latter are commonly pushed by local congressional delegations, typically with different agendas in different biophysical settings, and with the result of different purposes and policies among the parks (Huff 1996, 1997).

The second category is a spectrum of goal statements set within the federal executive branch. At one end of the spectrum are presidential proclamations establishing national monuments that later become national parks. Grand Canyon and the current Grand Teton national parks are examples.

In the middle of the administrative hierarchy, the National Park Service (NPS) itself has prepared and published a series of policy statements over the years variously termed "administrative policies" (NPS 1968), "management policies" (NPS 1988a), etc. The 1968 document states that the agency's administrative policy dates back, with only "minor modifications," to a May 13, 1918, letter written by Interior Secretary Franklin Lane to NPS Director Stephen T. Mather (NPS 1968, 14). The letter is sometimes called the Magna Carta of the national parks.

In a number of cases, these System policies have been influenced by external, professional panels or committees, such as the 1963 National Academy of Sciences–National Research Council Advisory Committee to the National Park Service on Research (Robbins et al. 1963), and the concurrent Secretary of Inte-

rior's Advisory Board on Wildlife Management, the Leopold committee (Leopold et al. 1963). That this committee influenced general, System policy is shown by Secretary Stewart L. Udall's May 2, 1963, memorandum to NPS Director Conrad Wirth stating: "You should, accordingly, take such steps as appropriate to incorporate the philosophy and the basic findings [of the Leopold Committee] into the administration of the National Park System" (NPS1968, 88).

The current policy document, issued in 1988, stresses the differences between units of the System, and pronounces only very broad charges that give great flexibility within which park goals can be set:

> Park managers should ascertain park-specific purposes and management direction by reading the park's enabling legislation or proclamation and determine general management direction, not inconsistent with enabling legislation, from the organic act (NPS 1988a, chap. 1:2).

This very general charge facilitates independent goal-setting within individual parks—the other end of the goal-setting spectrum. The result, according to Huff (1997), is a range of goals so varied as to "preclude the development of explicit, forceful management objectives for all System units." In some cases, goals or policies articulated in individual parks have become goals for the entire system. Thus, the natural-regulation policy adopted in Yellowstone in 1967 (NPS 1967) for the management of ungulates was contrary to System policy at the time, but eventually spread to become the System's prevailing policy (Wright 1992, 78-79).

In addition to the goals officially in place for individual parks and the System, a variety of goals are advocated by non-NPS resource professionals, environmental organizations, and other devotees (cf. Rolston 1990; Boyce 1991; Brussard 1991; Frome 1992, 231), usually on the basis of their own personal values. Some of those have been proposed at this conference.

The result of all this action is a wide and confusing array of officially adopted and proposed goals that can be generalized into a number of categories which overlap to varying degrees:

1. De facto museums (1916 Organic Act, Leopold Committee's "vignettes of primitive America");
2. Ecological experiments: natural regulation (Despain et al. 1986), natural-process management (Boyce 1991);
3. Ecological reference systems for comparison with contemporary human-modified ones (Wagner and Kay 1993; Boyce 1996);
4. "Playgrounds" (cf. the 1872 Yellowstone Act's "pleasuring grounds"; Sax 1980; Foresta 1984);
5. Cathedrals for spiritual renewal (Sax 1980; Rolston 1990; Frome

1992);
6. Venues for education (NPS 1992; Frome 1992);
7. Refugia for protecting biodiversity (Brussard 1991) and threatened and endangered species (NPS 1988a, chap. 4:11); and
8. Nation building: to "... preserve, protect, and convey the meaning of those natural, cultural, and historical resources that contribute significantly to the nation's values, character, and experience" (NPS 1992).

And one can see management procedures that are assiduously avoided in some parks while being carried out routinely in others: animal population control, prescribed burning, etc.

Huff (1996), as mentioned above, has stressed that the biophysical settings and enabling acts of the parks are so varied that this type of diversity is inevitable. But one then wonders whether there is any but the vaguest overall purpose to the System, or whether it is largely a collection of miscellaneous, ad hoc entities. As Carol Aten, former chief of the NPS office of policy development, commented, "at the park level, there is no System view" (personal communication, 1992).

Numerous authors, both inside and outside NPS, have argued that the national park goals we do have from this diverse range of sources are too ambiguous or ill-defined to give clear policy and management direction. Johnson and Agee (1988), two NPS employees who convened a symposium on "Ecosystem Management for Parks and Wilderness" in 1987, commented that "park and wilderness goals will have to be stated in more precise terms, depending on the values represented by the individual area," a theme expressed repeatedly during the symposium. The Gordon Commission study (Gordon et al. 1989), sponsored by the National Parks and Conservation Association, recommended that NPS "install and refine the concepts of ecological management ... [including] establishing preservation and visitor impact management goals." One member of the Commission commented, "They've got to decide what it is they want" (personal communication, 1989).

In November 1991, the Renewable Natural Resources Foundation and Utah State University co-sponsored a workshop on fire policy in the national parks. After two days of discussion, the participants (53 NPS employees and a similar number from other federal and Canadian agencies and academia) concluded that the System's biggest need is a clear statement of goals (Wagner 1993). Other authors have commented in the same vein (Foresta 1984, 1; Bonnicksen 1989; Bonnicksen and Stone 1982a, 1982b; Porter 1991; Underwood and Porter 1991; Porter et al. 1994).

I believe that it is at least in part because of this lack of clear and explicit goals or sense of purpose that the parks are experiencing significant impacts on their natural resources. One has to consider these impacts to be "problems," depending on what the System and park goals are. A 1986 internal, agency-wide survey identified 101 categories of "threats" to the natural resources of the System (NPS 1988b). In the survey's list of major natural resources "issues," the first three were:

- Degradation of park resources due to native animal species overpopulation;
- Impacts on threatened, endangered, and other sensitive animals; and
- Loss of threatened, endangered, and other sensitive plants.

Wagner et al. (1995) summarized a number of cases in which high populations of white-tailed deer in eastern parks, elk in western parks, and feral or exotic species throughout the System were profoundly altering park ecosystems, reducing native biodiversity, stimulating invasion of exotics, and affecting threatened and endangered plant and animal species. If park goals are the maintenance of healthy and intact ecosystems, preservation of biodiversity, and protection of threatened and endangered species, these alterations again have to be considered "problems." In my opinion, they are caused, or exacerbated at least in part, by lack of clarity or agreement on System and park goals.

If park goals are unclear and ambiguous, it is not possible to formulate precise policies within the sequence illustrated in Figure 1. In turn, ambiguous policy cannot give a clear prescription for management programs. We heard Exhibit A from someone in the audience for this session. In his very fine review of NPS policies, John Dennis stated that NPS policy for managing biological resources is natural-process management, a policy also set forth in the current *Management Policies* document (NPS 1988). When asked by someone in the audience if NPS has a definition of "natural," Dennis's prompt response was "no." I submit that without explicit definition of the policy, it is impossible for park managers to know exactly how to proceed. The end result is risk of damage to the resources.

For these reasons, I maintain that the most immediate need regarding national park policies is to develop a set of succinct goal statements for the entire System, and for individual parks. Perception of the need is not unique with me. The authors cited above, both within and outside NPS, obviously conclude the same. And while Huff (1997) takes issue with this view in Wagner et al. (1995), he contradicts himself by stating in the close of his article "I suggest we start with some common-sense revisions

to our Servicewide and park-specific policies, clearly iterate our purposes...."

I understand the logic in Huff's argument, and that of NPS's own Vail symposium (NPS 1992), that the diversity of units in the System makes it difficult to articulate any System-wide goal or purpose. But without one, the System is merely a random array of independent operations. And, after stating the difficulty, the *Vail Agenda* did set forth a general purpose, the "nation-building" one listed above. Moreover, it is certainly possible, and there is an urgent need, to define explicit goals for the individual units.

Who Should Set Goals and Policies for the Parks?

The parks belong to the American people, and I contend that goal-setting should be a public process, addressing societal values. This process is achieved to some degree when goals are articulated in legislative action. But as we have seen above, goals and policies to a substantial degree are set internally by the agency at levels ranging from the central administration down to the individual superintendents. This internal goal-setting is a legacy of the turn-of-the century Progressive Era (Nelson 1995; Freemuth 1997), when technically trained professionals thought they knew what was best for the public, and designed and implemented policies themselves.

Progressivism incurred two problems. One was the inertia of agencies in changing policies as societal values changed. This has been less of a problem for NPS, which has retained high public-approval ratings, than it has been with the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM). The latter two have been cajoled out of Progressivism by public pressures and resulting legislation, and have adopted more public-sensitive, policy-setting procedures. Lacking such pressures, NPS has not moved with the other agencies.

The second problem is what (in the eyes of some observers) amounts to mismanagement. With an accepting public, lack of critical scrutiny, and client capture in the early 1900s, USFS has been charged with excessive or ill-advised logging (Hirt 1994) while BLM has been accused of allowing excessive grazing (Jacobs 1991). And NPS does not escape this one: the resource problems described above must be attributable in part to internal decision-making by an agency operating with ill-defined goals, and without strong scientific (Risser et al. 1992) or professional (Freemuth 1996) underpinnings.

For all of these reasons I consider it extremely important that NPS develop new, public-sensitive mechanisms for goal setting and policy making. The parks do now engage in the National Environmental Policy Act process for specific management

actions proposed in their resource management plans. Olympic developed a lengthy environmental impact statement for proposed mountain goat management, as did Yellowstone for wolf restoration. And they do enter into ad hoc policies under public pressures when particular problems arise, as with the recent Yellowstone bison situation, and earlier over the Fishing Bridge incident (Freemuth 1989).

But there is no formal, System-wide legislation for setting goals at both the System and park levels, such as USFS has in the National Forest Management Act, which prescribes forest planning with significant public participation in each of the national forests. Nor does NPS have standard administrative procedures, such as BLM's coordinated resource management planning and Interior Secretary Bruce Babbitt's resource advisory councils. These collaborative approaches have virtually become the norm in natural resources policy-setting, and are given a number of generic titles such as "interest-group pluralism" and "collaborative decision making" (Wagner 1994).

I am not alone in advocating such procedures for the National Park System. The Gordon Commission (Gordon et al. 1989) recommended "national, regional, and park Ecosystem Management Advisory Panels." A 1992 joint workshop between NPS employees and members of the Ecological Society of America recommended "science cooperative groups" (Risser and Lubchenco 1992). And NPS's own *Vail Agenda* (NPS 1992, 133) recommended that NPS "greatly expand the role of the public in resource stewardship activities and eliminate the barriers to public participation."

One would hope that such procedures would be adopted administratively within the organization, stemming from the recognized need alluded to in the Vail Agenda and which I contend here. But students of bureaucracy generalize that bureaus are conservative and seldom initiate significant change internally (cf. Downs 1967). Hence, the change might require new legislation—perhaps a new organic act.

In total, the parks are facing a number of management dilemmas and resource impacts which I believe are not receiving adequate attention because of ill-defined goals, and because of insufficient participation in goal articulation and management planning by concerned publics that would support resolute action.

The Role of Science

I pointed out above, as an implication of my model of policy-setting, that science is not a part of the causal sequence connecting societal values to management programs designed to satisfy those values. Policy-setting is a sociopolitical procedure, and science itself does not set policy.

However, science has an indispensable role in the overall process if policy-setting is to be enlightened and rational. That role is to provide an environment of fact and truth within which policy deliberation can take place, and without which policy-setting is largely a process of power politics, often without empirical knowledge of the implications of policy alternatives. Thus we can now elaborate the above policy-setting model with the role of science, both social and natural (Figure 2).

The social sciences have the important role of ascertaining and portraying the value profile of the affected publics, and the social, political, and economic implications of alternative goal, policy, and management options. The natural sciences similarly evaluate the biological and physical implications of those options, assist in the development of management programs, and evaluate how well they achieve the goals. In the process they clarify, and where appropriate quantify, such terms and concepts looming large in national park management as "natural," "natural regulation," "natural-process management," "ecosystem integrity," etc. Wagner et al. (1995) have discussed at some length the ambiguity associated with these terms, and the problems of translating them into clear-cut management directions.

Thus science illuminates every step of the policy and management

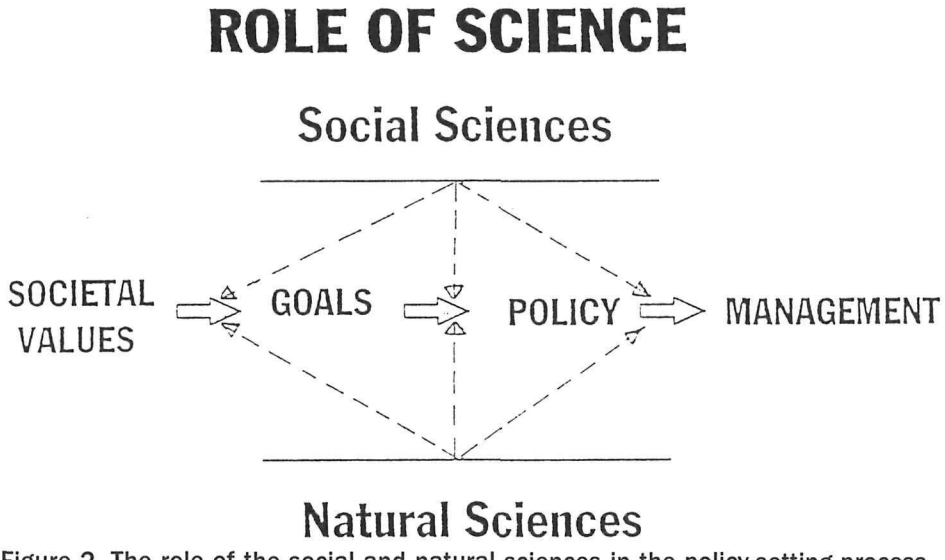

Figure 2. The role of the social and natural sciences in the policy-setting process. Science is a service to policy-setting, illuminating the process by analyzing the societal value profile; elucidating the consequences of goal, policy, and management options; assisting in the design of management programs; and analyzing the degree to which those programs achieve their goals.

process. But if it is to do so effectively, it must be competent and objective and have the trust and credibility of all concerned interests involved in the situation. It is for these reasons that I believe scientists should avoid policy advocacy. When a scientist advocates in favor of a given position in policy debate, he or she risks damaging the image (if not the reality) of objectivity, and credibility and trust fade.

This becomes a problem in a resource management agency which has the charge of advocating for and protecting the resources. But somehow the scientists must distance themselves from the policy positions of the organization. Some observers have charged that science in some areas of the System has been biased to support the agency's policies, and I have seen evidence to that effect. One of the purposes for Secretary Babbitt's formation of the National Biological Survey was to distance the researchers from the management agencies in order to move the scientists away from policy and administrative coercion. We all hope that the change will have this effect, but I have not yet seen much evidence of it. It may take generation turnover.

Conclusions

In my judgment, the numerous natural resources problems identified both by NPS insiders and outside observers result at least in part from the lack of clear and precise goals, both for the System and for individual parks, that would give clear direction for management programs. I and numerous other observers believe that the System urgently needs articulation of such goals.

Since the parks are a public resource, I contend that goal-setting should be a collaborative public process involving concerned interests, much like the other resource agencies have adopted. Developing such procedures might be achieved administratively within the organization, or require new legislation.

Science does not set policy, but it is an indispensable service to rational policy-setting by illuminating the process. In order to do so effectively, it must be competent and objective, and have credibility and trust. Scientists should avoid advocacy in policy debates in order to maintain both the image and essence of objectivity, and to retain credibility and trust. To achieve this, they need some measure of administrative separation from management and management administration in order to escape policy and administrative coercion.

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