

USNPS Science:

The Five Most Important Issues

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1. More important than anything else is our lack of an effective, competitive organization. The ad hoc approach to science seen in many U.S. parks and all ten of USNPS's Regions contributes to a provincial approach which spends much energy competing among its diverse components for severely limited resources rather than among all other USNPS functions (e.g., construction, cyclic maintenance, etc.) for its "fair share." In addition, the lack of a comprehensive approach to science organization and integration with park operations contributes to sub-standard programs

and lower grades for researchers and research administrators in some areas. In the past, the USNPS science program's lack of cohesiveness has guaranteed its poor visibility and resultant stagnation among other "upwardly mobile" USNPS programs.

In the past two to three years a more active role by the USNPS Washington Office has helped reverse this trend. However, this more active role in energizing new initiatives has further demonstrated the limitations of the USNPS organization for adapting to program en-

hancements. For example, the increased number of meetings to discuss these initiatives results in a wide range of representatives (e.g., from students to Regional Chief Scientists to Associate Regional Directors), all shouldering similar responsibilities for their respective Regions. Also, concurrent meetings on different initiatives will be poorly represented by some Regions, since the same person is often responsible for both.

The wide disparity among Regional science programs is destined to get wider as those with available expertise are better able to answer "calls for proposals" for new initiatives—which are often reviewed by a technical board consisting, primarily, of non-USNPS professionals. The "call for proposals" approach persists, even though this process often results in funding the *best documented* or *most convincing* park proposal rather than the best areas for the program from a strictly scientific basis. Since "capability" and "track record" are parameters often used in ranking proposals, the "have" parks continue to get the lion's share of resources and the "have nots" continue to be bridesmaids.

The independence of some park science programs, often the largest programs, precludes the direction of significant resources and expertise toward national and regional goals, not to mention the many needs of smaller, less fortunate parks. Independent park programs usually enjoy no technical oversight beyond the park organization. This situation leads to the evolution of unique standard operating procedures and perpetuation of sometimes questionable resource allocation and procurement policies. Support for the status quo leads to criticism of variant

organizations and ambitious reorganizations in other regions.

Control of regional science programs by the respective Regional Directors allows Servicewide science initiatives to be diverted toward other, "higher priority," projects on a Regional basis and impugns the Washington Office's efforts to balance programs among Regions.

I realize weaknesses can be found in any organization, but the USNPS has far too many of them to be overlooked as self-serving allegations. While there exists no perfect solution to the problem of organizational inadequacies, the best compromises, at least for the near term, are often indicated by careful analysis. An organization which

- ◆ Balances resources among Regions and individual parks and provides reasonable protection against diversion of resources to other, non-science uses;
- ◆ Provides for re-direction of resources (i.e., people and money) as science needs change;
- ◆ Addresses strategic, Regional, and Servicewide issues as well as individual park management needs and facilitates communications and program coordination across the hierarchy;
- ◆ Provides for duly earned career growth and security, as well as equitable pay scales for researchers and research administrators; and
- ◆ Is responsive to all levels of USNPS management

will, no doubt, be supported by most USNPS employees.

A significant reason for my having ranked organization over size of program is the fact that the current organization is incapable of responding effectively and efficiently to substantial program enhancements (i.e., program increases of over 100% and new programs running into millions of dollars). In such cases, individual Regions quickly move, in a variety of ways, to *obligate* all available funds rather than systematically analyze, plan, allocate, and implement new research. In fact, it is likely that all Regional science programs would not get the full amounts allocated to them through their Regional offices. Therefore, before large enhancements of the science program are implemented, the organizational problems should be remedied to ensure these enhancements are actually realized.

2. Size of the program (or "level of effort") is the second most important issue. Industry typically returns 10-15% of profits to research and development of new products or services. Most U.S. federal land-managing agencies spend 8-12% of their budgets on research. The USNPS plods along with less than 2% of its budget dedicated to research.

The size of the program has several obvious effects. First, and certainly of most significance, is the fact that the USNPS can address only the most pressing management-oriented concerns. Basic inventories, long-term effects research, and many important planning needs go wanting. Lack of scientific information means that more "best guess" or politically expedient decisions will be made by USNPS decision-makers—the potential for resource impairment notwithstanding. The relatively small size of the research program contributes to instability of the science program

and to poor morale of many USNPS scientists.

The USNPS science program would have to be immediately increased three- or fourfold just to address all current management questions and begin a systematic approach to accumulating a minimum amount of resource inventory information for *every* USNPS unit. Long-term monitoring programs to provide early warning of resource impairment will cost even more. Accumulating basic resource information into automated databases (e.g., Geographical Information Systems) to provide for efficient use and sharing of multivariate information will require much more money and people. However, if the mission of the USNPS is truly that of providing for public enjoyment without resource impairment, the task cannot be met with the current crises-oriented program.

3. Third is the lack of professional requirements for the "backbone" of the park management system—the RANGERS. In addition, there is also no professional requirement for park superintendents; in fact, most are selected from the ranger series. USNPS rangers have an outstanding institutional ethic—that is, one steeped in process—which is usually well ingrained by the time rangers are ready for a superintendency. Rangers prepare for this by holding a wide variety of positions, from those in maintenance to interpretation to law enforcement—and sometimes including a technician-level stint in resource management. However, there is no guarantee that this will produce superintendents with an overriding *professional* ethic toward preservation and management of park cultural or natural resources.

Thus, to many superintendents coming up through the ranks the traditional way, a forest is somewhat useless without a road or trail through it, a river is useless without a bridge, and a bear is fine as long as it doesn't attempt to "impair" public enjoyment of a national park. Failure to require at least a minimum level of training in ecology and natural resource management sciences results in many superintendents giving little support to science that is not directly aimed at answering their most pressing management questions in short order! Lacking respect for science and the scientific method, a superintendent will tend toward management decisions without the benefit of information derived from rigorous research. A formal education in an appropriate science would do a great deal for USNPS support for science, not to mention the advantages for implementing science recommendations.

4. USNPS "Mission Impossible" [i.e., the contradictory wording in the Organic Act which established the agency in 1916] is another cause for concern among the agency's scientists. The mission itself, i.e., promoting use of parks without impairing their resources, is virtually worthless in defining the appropriate *level* of

impact acceptable, as virtually any conceivable visitor use in certain ecosystems could integrally "impair" some natural resource. Without a more specific explanation of just how to determine impairment, individual and often arbitrary definitions will be adopted on a case-by-case basis.

The mission must be clarified to the extent that a scholarly determination of the impairment threshold may be effected. Only then will workable models be conceivable, models which could result in prediction and prevention of undesirable resource impacts.

5. Lack of a formal mandate for research in the USNPS works toward maintaining the current token science program. Other agencies enjoy legislation firmly entrenching the need to do research. If "Mission Impossible" is not rewritten, the USNPS needs legislation requiring the accumulation of inventory information, establishing a long-term monitoring program, clearly authorizing Cooperative Parks Studies units [i.e., park-oriented research centers affiliated with universities], and, perhaps, establishing a Service-wide Research Center to serve as the think tank for strategic research and a guiding force for long-term efforts.

