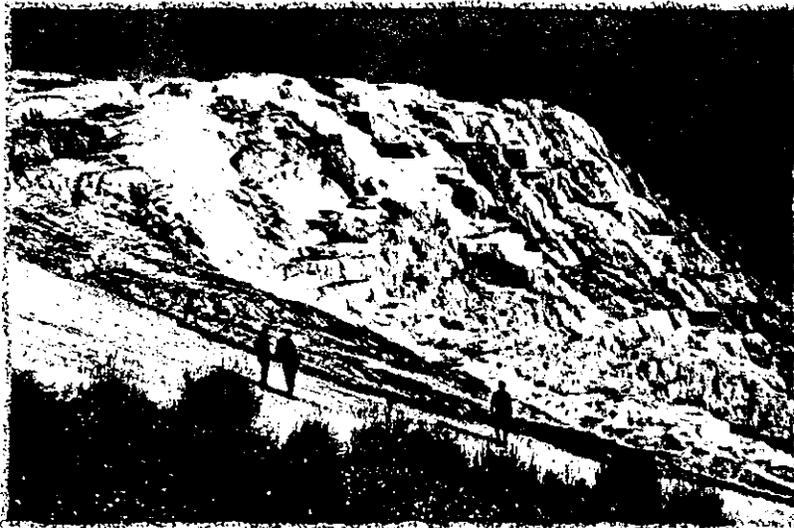


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Usable Knowledge



A Plan for Furthering
Social Science
and the
National Parks



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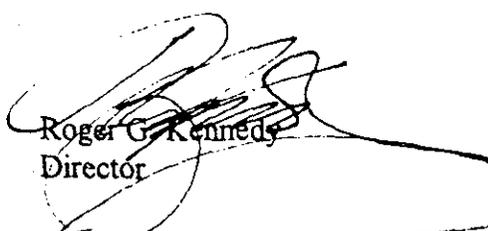
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FEB 7 1996

The management of the National Park System requires a continuous set of decisions, some small, some large, all important. Many affect people—including visitors, employees, concessioners, nearby communities, and National Park Service (NPS) partners. An accurate understanding of the relationship between people and parks is critical to both protecting resources unimpaired *and* providing for public enjoyment. Hence, the social sciences—those sciences that explore the human condition—are valued disciplines in the scientific repertoire needed by the NPS.

As noted in this report, this is an extraordinary time for the NPS. There is growing demand for social science information by NPS managers and partners. There has been significant organizational change within the Service and related agencies. The financial and human resources available for science are increasingly limited; the NPS must husband its science resources in creative ways. A sustained social science program has been recommended by a number of recent scientific panels and NPS task forces. For all these reasons, a plan for furthering social science is timely and important.

Usable Knowledge: A Plan for Furthering Social Science and the National Parks is an innovative, cost-effective plan for improving the social science capability of the National Park Service. It has been creatively conceived, carefully prepared, and widely reviewed. It is approved; we are committed to its success. The National Park System, the National Park Service, our partners and citizens will be the beneficiaries.


Roger G. Kennedy
Director


John I. Reynolds
Deputy Director


Michael Soukup

Associate Director, Natural Resource Stewardship and Science

Usable Knowledge

A Plan for Furthering
Social Science
and the
National Parks

Gary E. Machlis
Visiting Chief Social Scientist
National Park Service

February 1996

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Usable Knowledge

A Plan for Furthering

Social Science

and the

National Parks



Summary

I. Introduction

Understanding the relationship between people and parks is critical for protecting resources unimpaired and providing for public enjoyment. Hence, social science research is a necessary and important function of the National Park Service (NPS). This report presents a plan for furthering social science in the NPS.

The report was prepared by Gary E. Machlis, NPS Visiting Chief Social Scientist. NPS managers and the scientific community provided significant input through workshops, a survey and review of earlier drafts. The methods used to develop the plan are described in Appendix I.

An Extraordinary Time

The plan is presented at an extraordinary time. There is growing demand for social science information among NPS managers. There has been significant organizational change — in the NPS,

with the establishment of the National Biological Service (NBS), and in other related agencies. The financial and human resources available for NPS science are increasingly limited. A sustained social science program has been recommended in previous reviews of NPS science (summarized in Appendix II). For all these reasons, a plan for social science is timely.

The Social Sciences Defined and Described

The major academic divisions of human knowledge are the *natural sciences, social sciences* and *humanities*. The organization and management of science within the NPS does not neatly fit the academic model. The agency's strategy has been to align scientific disciplines with the management function most dependent upon the research results.

Archeology, anthropology and ethnography programs are located in the Cultural Resource Stewardship and Partnerships directorate. Their organization and management are beyond the assigned scope of this plan.

This plan focuses on the following social sciences: economics, geography, psychology, political science and sociology, as well as interdisciplinary research. In this report, "social science" refers to these disciplines. Under the 1995 NPS reorganization plan, these social sciences are located in the Natural Resources Stewardship and Science directorate, with leadership provided by a Visiting Chief Social Scientist.

A Viable Mandate for Social Science

The NPS does not have a direct legislative mandate to conduct scientific research. At the same time, a viable mandate for science, including social science, does exist. It emerges from the NPS Organic Act, official management policies, individual parks' enabling legislation and formal planning documents.

A Vision for NPS Social Science

NPS managers make many decisions that affect people — visitors, concessionaires, employees, local communities, interest groups and others. Hence, the NPS social science program must provide usable knowledge to managers in the form of research and technical assistance. To be useful, research results must be timely, understandable, relevant to decision-making and defensible.

Usable knowledge is best provided by state-of-the-art science.

State-of-the-art science deals with important questions, is grounded in sound theory, cost-effective, innovative in design and skilled in execution. It is well-reasoned and subject to peer review.

Hence, a vision statement for NPS social science is:

The objectives of the NPS social science program are to conduct and promote state-of-the-art social science related to the mission of the National Park Service, and deliver usable knowledge to NPS managers and the public.

II. An Inventory of Current NPS Social Science

Current Infrastructure

Currently, the NPS has a minimal infrastructure for conducting social science. There is a Visiting Chief Social Scientist, several former NPS social scientists transferred to the National Biological Service, and several Cooperative Park Studies Units (CPSUs) at universities (most with NBS agreements).

The Denver Service Center conducts and contracts social science in support of park planning and design. The Socioeconomic Studies Division (which reports to the Associate Director for Park Operations and Education) collects visitor statistics and conducts visitor surveys, market and economic analyses. The Visitor Services Project conducts visitor surveys, and customer service evaluations for the NPS. Parks, park clusters and field areas contract research.



Social Science Projects, 1990-95

A preliminary inventory of social science projects was conducted. Over 150 social science projects were completed during 1990-95, and over 35 are in progress. Most research projects (57%) were general visitor studies; economic studies account for 7% of the total. Current funding from all sources is estimated at \$1 million per year.

NPS managers have used the results to improve interpretive programs, develop and implement carrying capacity management plans, reduce the impact of campsite use, develop resource management plans and improve customer service. Specific examples are presented.

NPS Issues That Require Social Science

Based on interviews, workshops, an informal survey and other reviews, a list of important research issues emerges. Several critical research questions reflect a significant research agenda for NPS social science. Many of these issues are also the concern of NPS natural science, anthropology and ethnography programs. For each question, specific research needs are presented.

III. Recommendations

Following are key recommendations for improving social science in the national parks:

1. The NPS should develop and maintain a state-of-the-art and cost-effective social science program.
2. The objective of the NPS social science program should be *"to conduct and promote state-of-the-art social science related to the mission of the National Park Service, and deliver usable knowledge to NPS managers and the public."*

3. NPS social science research should be recognized within the agency as science, and fully integrated into an overall NPS science program.
4. NPS social science and scientists should make significant contributions to their respective disciplines, and encourage public use of research results.
5. The NPS social science program should implement key recommendations of the National Research Council's report on science in the NPS to the extent possible.
6. The current organization of NPS social science should be restructured to reflect recent changes in the agency.
7. A small Washington Social Science Program should be established. Its role and function should be to support social science activities in the field. It should be directed by a Visiting Chief Social Scientist.
8. Cooperative Park Studies Units should play an essential role in providing NPS social science. With the participation of NPS managers, universities and scientists, CPSU social science programs should be restructured and organized into a coordinated network.
9. A broader range of social scientists should be encouraged to conduct social science in the parks, through a competitive contracts program and other initiatives.
10. NPS social science should be coordinated with the research activities of the National Biological Service, other federal agencies and NPS partners.
11. The NPS should increase funding for social science activities.

These recommendations are implemented through the following plan.



IV. A Plan for Furthering NPS Social Science

Social Science Program Office

A small Social Science Program Office will be established in Washington, D.C. A Visiting Chief Social Scientist will provide leadership. A 0.5 time Research Administrator and 0.5 time Contracting Specialist will provide technical support; both positions are reassignments rather than new FTE. A student intern program will be established. A Science Advisory Committee will be formed.

The WASO office will initiate several activities. An electronic clearinghouse will be established to make social science information available to managers and the public. Social science needs assessments will be provided as requested, to aid park managers in prioritizing research. A Young Scientists Competition will be established to encourage innovative research. Research support for park planning and design will be increased. An interagency social science coordinating group will be formed to increase partnerships and cooperation. An internal working group will be formed to increase partnerships and cooperation across NPS directorates. A competitive contracts program will be established to conduct research on NPS national needs. Initially, the research will focus on economic impact analysis, carrying capacity research, social aspects of ecosystem management and a triennial survey of the American public.

A CPSU Network

Cooperative Park Studies Units are a key mechanism for delivering NPS social science. To continue being innovative and effective, CPSUs with social science programs will be restructured. Over several years, a network of "virtual" CPSUs will be created.

Each CPSU will have several elements. A host university will be the contact for the NPS. Partner institutions will expand the CPSUs potential services. A role and mission statement will identify key areas of social science research and service. A four-year plan will

provide general performance goals. A managers committee will help guide the CPSUs' social science research agenda and assist in program evaluations.

CPSUs will report to field area directors or their representatives in system support offices or park clusters. The WASO Social Science Office will provide coordination and technical assistance. A pilot effort to restructure an existing CPSU social science program will be undertaken.

The NPS has significant resources and responsibilities in urban areas. An urban-focused CPSU will be established to conduct social science research on urban recreation issues. Partners will include Historically Black Colleges and Universities, predominantly Hispanic universities and other urban institutions.

Other Programs

The Denver Service Center will be a partner in many of the initiatives in this plan. The Socioeconomic Studies Division will be refocused on visitor statistics. The Visitor Services Project will continue work at present levels. NBS science centers, system support offices and individual parks will be partners in several of the initiatives in this plan.

Funding Social Science: A Critical Investment

This plan proposes a modest funding increase for NPS social science. The result will be usable knowledge for managers, improved science, increased accountability and efficiency, and heightened productivity of scientists. FY96 costs are \$300,000; FY97-99 costs are \$445,000 annually. A budget is provided.

Implementing the Plan

Implementing the plan will require significant effort, especially in FY96-97. Communication with park superintendents and the NPS National Leadership Council will be important. A schedule is provided, showing objectives for each year FY96-99.



For More Information

For more information on NPS social science, and to receive additional copies of this summary or the complete report, please contact:

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I

Introduction

As every park superintendent comes to know, the management of national parks is necessarily the management of people. Visitors, employees, concessioners, nearby communities, interest groups, local governments — all affect the National Park System. An accurate understanding of the relationship between people and parks is critical to both protecting resources unimpaired and providing for public enjoyment.¹ Such understanding requires a sound scientific basis. Hence, social science research is a necessary and important function of the National Park Service (NPS). This report presents a plan for furthering social science in the NPS. The methods used to develop the plan are described in Appendix I.

¹ Throughout this report, "parks" refers to all types of units in the National Park System.



An Extraordinary Time

The plan is presented at an extraordinary time for the agency. First, there is growing demand for social science expertise. NPS managers face unprecedented needs to better understand public values, attitudes and behavior. Park visitation is predicted to rise 34% by 2000, and visitor management will require state-of-the-art techniques. Increased public participation in decision-making requires greater knowledge about the communities and regions adjacent to park lands. Ecosystem management is altering the inventory of scientific information required to manage federal resources, and social science information is crucial. New laws and initiatives, such as the Government Performance and Results Act (GPRA) and Vice President Gore's National Performance Review, have created additional needs for NPS social science research.

Second, there has been significant organizational change that impacts science in the NPS. The Service has embarked on a significant restructuring, not just in how the agency is organized, but how it functions. The science activities of the NPS must adapt to this "new" organization in order to be effective. The establishment of the National Biological Service (NBS) has altered the delivery of science to NPS managers, and requires an evolving partnership between these two agencies.

Other agencies closely related to the NPS — such as the USDA Forest Service, Bureau of Land Management and U.S. Fish and Wildlife Service — are themselves undergoing reorganization, and interagency cooperation on scientific matters is a necessity.

Third, the financial and human resources available for NPS science are increasingly limited. The basic relationship between the federal government and the scientific community is changing. The fiscal constraints imposed by federal deficit reduction and reduced spending are long-term, and support of science throughout the federal government will be impacted. The budget of the NPS, rarely generous given the agency's responsibilities, is stable or declining. The reduction in employees and limited funding for

research demand that more efficient ways of delivering needed science be created. The NPS must husband its social science resources in creative ways that limit cost and magnify value.

Finally, the call for a sustained social science program has been a frequent recommendation in reports, assessments and evaluations of NPS science. It has been recommended in:

- the National Parks and Conservation Association's park system plan (1988) and report on NPS ecosystem management (1989),
- the NPS's *Vail Agenda* (1992),
- the National Research Council's *Science and the National Parks* (1992),
- the Ecological Society of America's report on NPS ecological research (1992),
- the NPS's follow-up report *Science and the National Parks II* (1993),
- the National Research Council's report on establishing a National Biological Survey (1993), and
- the Government Accounting Office's 1995 report on NPS visitor services.

It also is a component of the NPS's 1994 Strategic Plan. Appendix II describes these reports and outlines their specific recommendations.

Hence, a wide range of scientific committees, professional associations, NPS managers and partners have described the need for the NPS to create and sustain a program of social science research. The agency has both a responsibility and opportunity to respond.

For all of these reasons, a comprehensive plan for NPS social science is timely and important.



The Social Sciences Defined and Described

The *social sciences* are the disciplines of science that study humankind in relation to its cultural, social and physical environment. In the academic world, they are one of the three main divisions of human knowledge, the other two being the *natural sciences* and the *humanities*. There is considerable overlap. History, for example, involves elements of both humanities and social sciences; geography includes both physical geography (a natural science) and human geography (a social science). Figure 1 illustrates these major divisions.

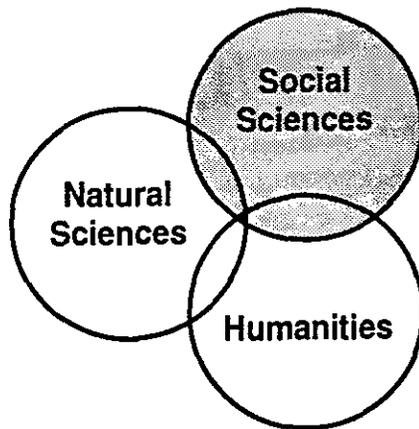


Figure 1. Major Academic Divisions of Human Knowledge

The organization and management of science within the NPS does not neatly fit the academic model. In part, this is an “historical accident” related to how the NPS adopted the sciences over time. In general, the strategy of the agency has been to align academic disciplines with the management function most dependent upon the research results.

Under the 1995 NPS reorganization plan, the natural sciences (both physical and biological, including ecology, geology, zoology, botany and others) are located in the Natural Resource Stewardship and Science directorate. Archeology, anthropology (including ethnography) and history are located in the Cultural Resource Stewardship and Partnerships directorate. Other social sciences

(such as sociology, geography, economics and others) are located in the Natural Resource Stewardship and Science directorate. Coordination of activities is increasingly important. Many NPS research programs provide technical services to other directorates, particularly to Professional Services and Park Operations and Education. Figure 2 illustrates these relationships.

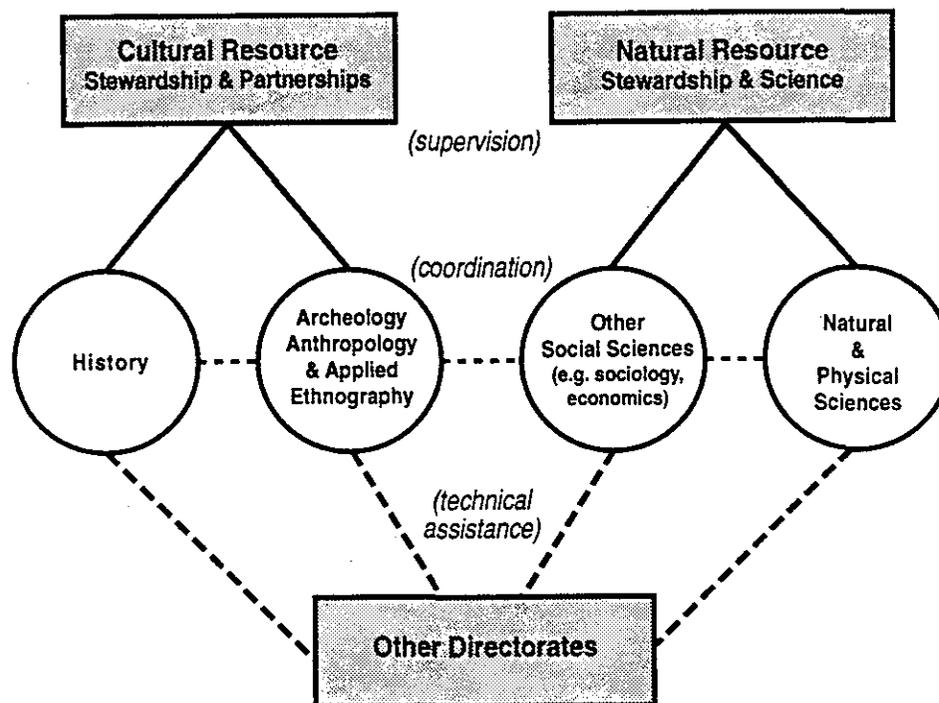


Figure 2. NPS Organization of Sciences and Humanities

While formal listings and opinions vary², several disciplines are commonly considered as social sciences: anthropology (and closely-related ethnography), archeology, economics, geography (human rather than physical), psychology, political science and sociology.

² For example, see Sills (1968), Robson (1972), Mukherjee (1983), Kruper and Kruper (1985), Webb et al. (1986), Social Science Research Council (1995) and National Science Foundation (1995).



The NPS currently has programs in anthropological and historical archeological research, as well as an established Applied Ethnography Program. Much work is conducted by these programs in support of NPS cultural resource management, and in response to legal requirements such as (but not limited to) the: Antiquities Act (1906), National Historic Preservation Act (1966, amended 1992), Archaeological and Historic Preservation Act (1974), Archeological Resources Protection Act (1979) and the Native American Graves Protection and Repatriation Act (1990). There are numerous scientists involved in these activities: the American Anthropological Association's 1994-95 *Guide to Departments* lists 198 anthropologists within the NPS. There are several research centers, including the North Atlantic Cultural Resource Center, the Midwest Archeological Center, the Western Archeological and Conservation Center and the Southeast Archeological Center.

As stated earlier, these operations function under the Cultural Resource Stewardship and Partnerships directorate. The inventory of archeological sites and architectural properties, and the scientific understanding of past human interaction with important cultural sites, requires significant scientific expertise. The above programs are essential to the NPS, and partners to this effort. *Their organization and management are beyond the assigned scope of this plan.*

Hence, the plan focuses on the following social sciences: economics, geography, psychology, political science and sociology. While these disciplines interact, each focuses upon certain units of study and driving forces important in understanding human behavior. Each has usefulness to NPS managers.

Economics (both macro- and micro-economics) treats markets, industries and economies as key units of study; the driving force of change is economic value broadly defined. Economics can aid NPS managers through studies of park economic impacts, the costs and benefits of park policies, and the role of parks in the tourism industry and national economy.

Geography (specifically human geography) treats regions, landscapes and other spatial units (governmental, ecological and so forth) as critical. The central concern is the spatial distribution of people, resources and culture. Geography can aid NPS managers through studies of tourist travel patterns, regional development and human impacts upon park resources, both natural and cultural.

Psychology has as its key unit the individual, and communication is a central driving force. Psychology can assist NPS managers through studies of visitor experiences, interpretive media and other forms of park communication.

Political science focuses upon institutions of state (at many levels); the central engine of change to many political scientists is power and its use. Political science can benefit NPS managers through studies of public participation in planning, the role of local communities and interest groups, and improving organizational effectiveness.

Sociology treats social groups, organizations and communities as key units of study, with human behavior its central concern. Sociology can aid NPS managers through studies of demographic trends, visitor behavior and public opinion regarding park policies.

These social sciences also are important partners in **interdisciplinary research**. Disciplines such as environmental economics, conservation biology and human ecology have emerged as important scientific fields relevant to the NPS. Interdisciplinary research, such as studies of visitor impacts upon wildlife or the economic impacts of ecosystem management policies, requires the social sciences.



Economics, geography, psychology, political science and sociology — along with interdisciplinary research — form the core social sciences described and discussed in this plan.³ Their operation and management is located within the Natural Resource Stewardship and Science directorate. There are several reasons.

First, these social sciences generally respond to a different set of legal and policy requirements than mentioned above for programs in the Cultural Resources Stewardship and Partnerships directorate. Examples are the new Government Performance and Results Act (1995) and visitor carrying capacity policies being established by many NPS units. Second, ecosystem management requires close relationship between social and natural sciences. The integration of biological and social science research into a comprehensive program is a recurring recommendation in many of the science reviews listed in Appendix II. For example, the NPS' Vail Agenda states:

We recommend that the National Park Service develop an expanded social science capability and integrate it into the agency's natural science program (1992:98).

Third, science and scholarship in the NPS (regardless of discipline) are largely activities supporting management of park resources. The general NPS strategy has been to organizationally place scientific and scholarly programs close to the management functions that use the research results. This strategy is linked to the NPS' authority and responsibility to conduct research.

A Viable Mandate for Social Science

Unlike many other federal land management agencies, the NPS does not have a direct legislative mandate to conduct scientific research. The lack of an explicit mandate has created "uncertainty about the importance and the role of science in the parks"

³ Throughout the remainder of this report, "social science" refers to these disciplines.

(National Research Council, 1992a: 90). Such a legislative mandate has been routinely recommended by scientific panels and committees examining NPS research, and would greatly benefit the NPS. At the same time, a viable mandate for scientific research already exists, and includes the social sciences. It emerges from the NPS Organic Act and mission, management policies, individual parks' enabling legislation and formal planning documents.

The Organic Act of 1916 states as the NPS mission:

to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (16USC.Sec.1).

The National Research Council's report notes that protection "requires sound understanding of park resources, their status and trends, the threats they face, and the measures needed to correct or prevent problems" (1992a: 1). This understanding must have a basis in research, be defensible in court, and hence derive from state-of-the-art science. The social sciences are clearly mandated, as they are necessary tools for both protecting resources (such as studies of visitor impacts) *and* providing for enjoyment (such as studies of visitor experiences).

The mandate for NPS scientific research (all disciplines, not just social science) also emerges from many additional federal laws. These include, for example, the:

- Lacey Act (1900),
- Historic Sites Act (1935),
- Wilderness Act (1964),
- Concessions Policy Act (1965),
- National Historic Preservation Act (1966),
- National Environmental Policy Act (1969),



- Endangered Species Act (1973),
- Clean Air Act (1977),
- National Parks and Recreation Act (1978),
- Archeological Resources Protection Act (1979), and the
- Native American Graves Protection and Repatriation Act (1990).

All require that affected agencies, including the NPS, engage in scientific research to meet regulatory commitments.

For example, the National Environmental Policy act requires an Environmental Assessment “for any proposed federal actions, including actions that occur with federal funding or on federal lands.” If it is determined that the quality of the human environment may be significantly impacted, then a full Environmental Impact Assessment must be conducted, including a Social Impact Assessment. To complete these required assessments, social science research is imperative.

The general mandate for science also emerges from official NPS management policies. The NPS Manual contains specific guidelines regarding the role of social science in fulfilling the NPS mission:

The Service will develop, gather, compile, store, analyze, update and employ adequate natural, historic, *social, economic, and demographic data* [italics added] relevant to planning and management at each park (National Park Service, 1988: 11-12).

To gather such information, a systematic program of research is authorized:

A program of natural *and social science research* [italics added] will be conducted to support NPS staff in carrying out the mission of the National Park Service by providing an accurate scientific basis for planning, development, and management decisions (National Park Service, 1988: iv-2).

Park management plans also contribute to the existing mandate for science. There are numerous examples. The need for natural and social science research is explicitly stated as a management goal in the Delaware Water Gap National Recreation Area Master Plan:

To encourage and provide facilities for soundly conceived research on conservation, natural history, and *sociological aspects* [italics added] of the recreation area.

The General Management Plan (GMP) for Craters of the Moon National Monument states that "continued research is needed to determine methods of permitting visitors to use the monument with minimal damage to resources" (1992: 24). And even more directly, the 1994 draft GMP/EIS for Grand Canyon National Park calls on the NPS to:

Provide opportunities for scientific study and research focused on Grand Canyon, consistent with resource protection and park purposes (p. 5-8).

Develop visitor use management strategies to enhance the visitor experience while minimizing crowding, conflicts, and resource impacts (p. 5-10).

Understand, assess, and consider the effects of park decisions outside the park as well as inside (p. 5-10).

Hence, a viable mandate for a science program that integrates natural and social sciences already exists for the National Park Service. This does not imply that efforts for a legislative mandate are unneeded. It does mean that social science is currently an appropriate function of the agency, and critical to carrying out the NPS mission.



A Vision for NPS Social Science

NPS managers often face a complex set of decisions, most of which must be made relatively quickly, simultaneously, without complete information and with consequences that require additional decision-making. Many decisions involve or affect people — visitors, concessioners, employees, local communities, interest groups and others. Hence, there is a continual opportunity for social science to assist NPS managers, if it can provide “usable knowledge.”⁴

In the social sciences, there are several categories of usable knowledge. The first is *information*. Monitoring data collected on visitors and resource impacts are an example. The second are *insights*, such as understanding how visitor use impacts resources. A third form of usable knowledge are *predictions*, such as forecasts of visitation and which visitor impacts are likely to increase. Finally, there are *solutions*, such as suggested ways that visitor impacts can be reduced. Table 1 outlines these categories, and illustrates the kind of research products needed by managers.

Table 1. Categories of Usable Knowledge

| Category | Typical Products | Example |
|--------------------|--|--|
| Information | data sets, maps, monitoring tools | monitoring data on level of visitor impact on resources |
| Insights | analyses, theories, interpretation of data | description of how and why visitors impact resources |
| Predictions | models, scenarios, hypotheses, estimates | forecasts of visitation increases, estimates of future impacts |
| Solutions | impact assessments, innovations, new techniques, management alternatives | levels of acceptable change assessments, management alternatives |

⁴ For a full discussion of the concept of usable knowledge, see Lindblom and Cohen (1979).

To be *usable knowledge*, research must be provided at the proper point in the decision-making process. It must directly address the park manager's needs and at a level of detail appropriate to the decision. The manager must understand the limitations of the research, the degree to which it can be applied, the probability of successful application and the reliability of the research results.

Usable knowledge is best derived from *state-of-the-art science*. Such science has several characteristics. It seeks to answer important questions, and is grounded in sound theory. It builds upon past research, yet is innovative in design and execution. It is cost-effective. It employs reliable methods for collecting data. Analysis is well-reasoned and rigorous. Results are clearly presented, shared widely and subject through peer review to open-minded scrutiny by the scientific community.

State-of-the art science includes *basic* research (dealing with general phenomena) and *applied* research (relevant to solving specific management problems). For example, both a general study of economic output models and a specific estimate of Grand Canyon National Park's contribution to Arizona's economy may provide usable knowledge to the NPS. Such research may sometimes be controversial, for it must provide scientific input to significant issues and difficult problems. Basic and applied research are both valuable to the NPS. The emphasis of the agency's program, derived from its mandate, should be on research applied to park management.

Therefore, a vision statement for NPS social science can be simply stated:

The objectives of the NPS social science program are to conduct and promote state-of-the-art social science related to the mission of the National Park Service, and deliver usable knowledge to NPS managers and the public.



This vision statement has implications. NPS-sponsored social science should be of the highest quality, integrity and creativity. It should be subject to peer review. It should contribute to the growth of the scientific disciplines. Science conducted in the national parks by others should also meet these standards. The questions that NPS social science addresses should be relevant to the needs of NPS managers. Hence, managers must have a voice in, yet not dictate research agendas. The delivery of results in the form of usable knowledge is a requirement of scientists; so is the expectation that managers consider this knowledge in their decision-making. Technical assistance to managers and NPS partners is a significant responsibility. The results of NPS social science are to be shared beyond the agency — with scientists, decision-makers, industry and citizens.

These objectives guided the development of the plan, and are the essential performance standards for all NPS social science activities.



II

An Inventory of Current NPS Social Science

The NPS has historically engaged in social science research.⁵ Such research was being conducted in the parks as early as the 1960s with the landmark Outdoor Recreation Resources Review Commission's (ORRRC) report on recreation in the United States, and in the early 1970s with visitor studies at selected parks. The NPS has employed social scientists since 1970, when for example the first Cooperative Park Studies Unit (CPSU) was established at the University of Washington.

In the 1970s and 80s, social science research increased in the number of studies being conducted, the number of active CPSUs, the number of regions with social scientists and the kinds of research being pursued. A Washington office was established, and additional research was conducted by several Schedule A (excepted) social scientists. The Socioeconomic Studies Division

⁵ As stated earlier, the existing NPS archeology, anthropology and ethnography programs are beyond the scope of this plan, and not included in this inventory.



went through several organizational changes and expanded its activity, and the Visitor Services Project was established. By the early 1990s, the range of activity had diversified considerably. In 1994, the CPSUs and several NPS social scientists were transferred to the new National Biological Service.

Current Infrastructure

Currently, the NPS has a minimal organizational structure for conducting social science. Under the 1995 NPS reorganization plan, a Visiting Chief Social Scientist has been appointed to provide leadership and direction. The position reports to the Associate Director for Natural Resource Stewardship and Science. There are 16 active CPSUs operating under cooperative agreement between the NPS and/or the NBS and universities. Five of the CPSUs have assigned NBS or university social scientists (see Table 2); others periodically contract with faculty to conduct social science research. The NPS and NBS operate several research field stations throughout the country; one field station has an assigned social scientist.

Table 2. Active NBS/NPS Cooperative Park Studies Units, 1995¹

| | |
|---|--|
| University of Arizona CPSU | North Carolina State University CPSU |
| University of California – Davis CPSU | Pennsylvania State University CPSU |
| University of Hawaii CPSU | University of Rhode Island CPSU |
| University of Idaho CPSU ² | University of Tennessee CPSU ² |
| University of Maine CPSU | Virginia Tech. CPSU ² |
| University of Minnesota CPSU ² | University of Washington CPSU ² |
| University of Nevada CPSU | University of Wisconsin CPSU |
| State University of New York — Syracuse CPSU | |
| Pacific Forest and Basins Rangeland Systems CRU | |

¹ Several CPSU's have separate agreements between the universities, the NBS and/or NPS; others have joint agreements with all three parties.

² NBS Research Social Scientist assigned to CPSU

The Denver Service Center (DSC) has several social scientists employed in research, planning and project management. The Socioeconomic Studies Division has a social scientist and small staff; it is responsible for the NPS visitor use statistics and reports to the Associate Director for Park Operations and Education. The Visitor Services Project (VSP) conducts general visitor use surveys and has one NPS employee assigned to the University of Idaho CPSU. There are several Schedule A social scientists available to the NPS. Research contracts administered by system support offices, service centers and parks employ individual scientists, university faculty, consulting firms and others.

The NPS currently funds social science research in many ways. Funds to support NPS social scientists and CPSU operating budgets were transferred to the National Biological Service, along with the scientists. Research at the CPSUs is often funded on a project-by-project basis by system support offices and/or individual parks; a few projects are co-funded with other agencies such as the Environmental Protection Agency or the U.S. Fish and Wildlife Service. The Denver Service Center funds many social science studies required by the planning process.

The Socioeconomic Studies Division is funded through the Office of the Associate Director, Park Operations and Education, and many of its individual studies are supported with DSC or park funds. The Visitor Services Project is partially funded and staffed through the WASO Interpretation Division (within Park Operations and Education); individual parks that undertake VSP studies share in the cost of their studies.

Social Science Projects, 1990-95

No systematic inventory of NPS social science exists, and reporting requirements vary such that it is difficult to comprehensively document all social science activity funded by the agency. Hence, an effort was made to *estimate* the extent and diversity of current research. Over 50 interviews were conducted

with NPS/NBS social scientists, NPS managers and participants at several workshops and conferences.

The inventory focused on work in the social sciences described earlier. There are several limitations. Ethnographic research was not generally included (the Applied Ethnography Program has prepared a 1995 list of projects completed and in progress, available from that program). With a few exceptions, projects completed during 1990-95 and projects currently underway were included. The Denver Service Center, Socioeconomic Studies Division and several CPSUs engage in short term projects and technical assistance not included in this inventory. Single projects may include several research studies, and other projects may have been unreported. Many studies could be placed in more than one category. Hence, the inventory is an initial and conservative estimate of the extent and diversity of NPS social science activity.

Figure 3 shows that over 150 social science research projects were completed during 1990-95, and that over 35 projects are in progress. An average of 25 projects were completed each year.

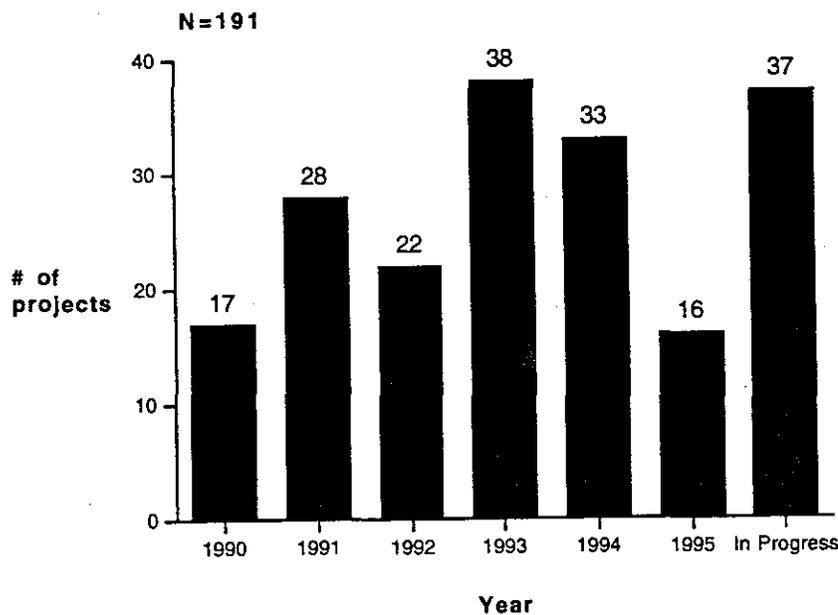


Figure 3. Social Science Research Projects Completed by Year

Research projects were categorized by general subject, including:

- economic and socioeconomic studies (such as market analyses),
- visitor use research,
- visitor experience/carrying capacity studies (Visitor Experience and Resource Protection, or VERP studies),
- attitude and perception research,
- general visitor surveys (including Visitor Services Project surveys), and
- other social science research.

Many of the general visitor surveys include information on economic expenditures, visitor experiences and attitudes.

Figure 4 shows that a majority of the current NPS social science deals with visitor use or general visitor surveys. Only 7% of the projects were focused on economic research. A large proportion of studies (29%) were special topic projects difficult to categorize. The extent of research varies from park to park. Most parks have not had any social science research in the last five years; Grand Canyon National Park reported 11 projects during that period.

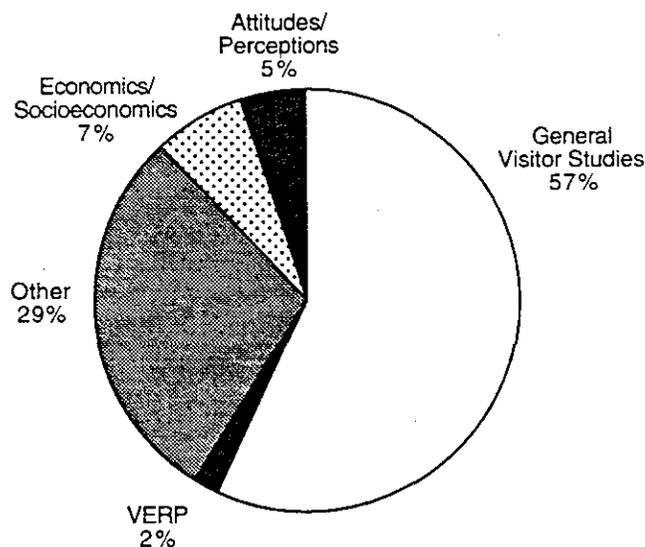


Figure 4. Distribution of Social Science Research Activities by Category



Estimating the total funding for NPS social science research is difficult, due to the variety of sources and lack of systematic reporting. Documented project costs for the five-year period were \$1.6 million dollars. Estimates were made for the remaining projects (based on documented studies of similar scope and location); the additional five-year total is \$1.4 million dollars. NBS social scientists' salaries and benefits, along with CPSU operating budgets for social science, are approximately \$0.4 million per year. Hence, the 5-year expenditure on social science is conservatively estimated to be approximately \$5 million dollars.

Examples of Usable Knowledge

NPS managers have used the results of these projects in many ways. For example:

- At Apostle Islands National Lakeshore, research conducted by the University of Minnesota was used to expand the interpretive program.
- At Arches National Park, research conducted by the University of Vermont and University of Minnesota CPSU was used to develop and implement a carrying capacity management plan.
- At Cape Cod National Seashore, research conducted by the University of Vermont was used to estimate the park's economic impact on the surrounding region. Other research was used to develop an off-road vehicle management plan.
- At Delaware Water Gap National Recreation Area, research conducted by NPS scientists in the Mid-Atlantic Region was used to reduce the impacts of campsite use on resources and improve campsite conditions.
- At Jefferson National Expansion Memorial, research conducted by the University of Idaho CPSU was used to help develop the Resource Management Plan, formulate a budget for the Museum and Visitor Services Division, and provide feedback to employees.

- At Mount Rainier National Park, research conducted by the University of Washington CPSU was used to reduce visitor impacts on vegetation.
- At Niobrara National Scenic Riverway, research conducted by the University of Minnesota CPSU was used to initiate cooperation between the NPS and river outfitters on new interpretive programs and education efforts.
- For the White House Tours, research conducted by the Visitor Services Project was used to improve customer service on the tours.

NPS Issues That Require Social Science

There are numerous research issues related to national parks and worthy of scientific study. The NPS must focus its research effort on issues relevant to managers, decision-makers and citizens. There are several key park management issues that are critical to the NPS, and that require social science research. These issues are also relevant to many NPS partners, such as gateway communities, technical assistance programs, heritage corridor partners and state outdoor recreation departments. The issues were identified by:

- a questionnaire sent to park managers and social scientists,
- information-gathering sessions at several professional meetings, and
- previous reviews of NPS science needs, such as that conducted by the Midwest Region (Lime, 1993) and the Mid-Atlantic Region (Marion, 1993).

They illustrate the core of a research agenda for NPS social science, and are described below. Importantly, many of these issues are also the concern of NPS natural science, anthropology and ethnography programs. Since needs vary widely throughout the NPS, the issues are *not* listed in an order of importance.



1. Who are national park visitors?

Social science research is needed to:

- document visitation trends among the American public and international tourists, and identify populations *not* using the National Park System,
- identify different park user groups at the park, park cluster and field area level—who they are and how they use the park,
- analyze visitor expectations, attitudes and evaluations of park experiences,
- monitor how user groups and their activities change over time, i.e. collect and analyze trend data,
- help managers identify how, where and for what purposes park resources are used,
- evaluate and improve methods of measuring and reporting visitation statistics, and
- help managers use visitor information available from other agencies.

2. What are the impacts of visitor use of park resources?

Social science research is needed to:

- analyze visitor use and distribution patterns,
- assist in identifying critical visitor impacts on natural and cultural resources,
- describe benefits of visitor use and park experiences,
- develop methods to reduce negative impacts and increase benefits,
- develop methods to reduce services and activities that are inappropriate or incompatible with the purposes of an individual park,
- define and describe “overcrowding” at different national park units,

- develop, improve and effectively apply “carrying capacity” methods,
- identify conflicts between different park user groups, and
- develop, improve and effectively apply conflict resolution strategies.

3. What is the relationship between national parks and their surrounding communities and region?

Social science research is needed to:

- clarify the role of national park units in larger regional mix of recreation opportunities,
- gain understanding of residents of adjacent communities, including information about community values, and attitudes toward parks and federal lands,
- identify and monitor subsistence and other uses of park resources by local populations,
- provide input into ecosystem management efforts at the park and regional scale,
- help managers work closely with local communities and forge partnerships that mutually benefit the park and communities,
- assist tribes in assessing park-related tourism development,
- develop, improve and effectively apply methods of public participation that balance the needs and desires of local communities and national interests,
- assist managers with politically-charged decision-making,
- assist in cooperation and partnerships between government agencies,
- predict how visitors and local residents will be affected by and respond to proposed management actions, and
- help managers actively integrate visitor and community-based perspectives into decision-making.



4. What is the relationship between national parks and local, regional and national economies?

Social science research is needed to:

- understand economic interactions between parks and nearby communities,
- assess local, regional, and statewide economic costs and benefits of parks,
- develop, improve and apply methods to evaluate non-recreational, non-consumptive benefits of parks,
- evaluate park entry and user fee systems, and
- predict gains or losses in visitation and evaluate their impact on park management, using regional economic indices and forecasts.

5. How can threats to parks be mitigated?

Social science research is needed to:

- evaluate effects of different adjacent land uses on park management,
- understand trends in land use at the landscape and ecosystem level,
- predict socioeconomic change (such as migration) that may impact park ecosystems,
- develop, improve and effectively apply methods of public participation, and
- develop, improve and effectively apply strategies to mitigate threats that are explicitly interdisciplinary (natural/social science research).

6. How effective are NPS interpretive, educational and public outreach efforts, and how can they be enhanced?

Social science research is needed to:

- assess the relevance and effectiveness of interpretive programs, media and public contact activities,
- identify issues and topics that require interpretive efforts,
- assess the effectiveness of visitor centers and museums,
- assist designers, planners, interpreters and managers in developing effective communication techniques,
- describe visitors' willingness to pay for services,
- assess alternative ways to deliver visitor services, and
- develop strategies for appropriate environmental education efforts.

7. What organizational and employee issues face the NPS?

Social science research is needed to:

- periodically evaluate the "state of the NPS," and its progress in restructuring,
- monitor job satisfaction and understand the factors that influence it,
- provide alternatives for building effective organizational capacities within the NPS,
- develop measures of employee productivity and organizational effectiveness,
- evaluate field support by central offices and specialized service centers,
- describe the NPS work force and how it is changing, and
- predict socioeconomic trends that will impact the organization and its employees.



8. How can natural and cultural resource management be made more effective?

Social science research is needed to:

- identify the human dimensions of natural and cultural resource management,
- provide critical socioeconomic baseline and trend data for resource management and employee training,
- provide public input to planning through community surveys,
- help managers use social science theory, methods and findings in resource management, planning, training and decision-making, and
- develop, practice and evaluate ecosystem management.

Certainly, other research questions and applied problems are relevant to the NPS. Yet the key issues described above represent a significant agenda for NPS social science. An effective social science program will deliver usable knowledge on these issues to NPS managers.



III

Recommendations

A comprehensive and well-organized social science program will have significant benefits for the NPS. The following are key recommendations for improving social science in the national parks.

1. The NPS should develop and maintain a state-of-the-art and cost-effective social science program.
2. The objective of the NPS social science program should be *“to conduct and promote state-of-the-art social science related to the mission of the National Park Service, and deliver usable knowledge to NPS managers and the public.”*
3. NPS social science research should be recognized within the agency as science, and fully integrated into an overall NPS science program.



4. NPS social science and scientists should make significant contributions to their respective disciplines, and encourage public use of research results.
5. The NPS social science program should implement key recommendations of the National Research Council's report on science in the NPS to the extent possible.
6. The current organization of NPS social science should be restructured to reflect recent changes in the agency.
7. A small Washington Social Science Program should be established. Its role and function should be to support social science activities in the field. It should be directed by a Visiting Chief Social Scientist.
8. Cooperative Park Studies Units should play an essential role in providing NPS social science. With the participation of NPS managers, universities and scientists, CPSU social science programs should be restructured and organized into a coordinated network.
9. A broader range of social scientists should be encouraged to conduct social science in the parks, through a competitive contracts program and other initiatives.
10. NPS social science should be coordinated with the research activities of the National Biological Service, other federal agencies, and NPS partners.
11. The NPS should increase funding for social science activities.

These recommendations are implemented through a plan for furthering NPS social science, described in the next section of this report.



IV

A Plan for Furthering NPS Social Science

The following plan includes specific actions to be taken, a budget to support critical initiatives and a schedule for accomplishing key objectives.⁶

Social Science Program Office

A small Social Science Program will be established in the Washington Office (WASO). It will report to the Associate Director for Natural Resource Stewardship and Science. Its role and function is to:

- provide leadership and direction to the social science activities of the NPS,
- coordinate social science activities with other programs of the NPS,

⁶ As stated earlier, the existing NPS archeology, anthropology and ethnography programs are beyond the scope of this plan, except as partners in specific activities clearly identified below.



- act as liaison with the NBS and other federal agencies on social science activities,
- provide technical support to parks, park clusters, system support offices and field area offices, and
- support a program of applied social science research related to national research needs of the NPS.

A brief annual report will be prepared that documents activities, application of research to park management and improvements in the program.

The program will be led by a Visiting Chief Social Scientist. A *visiting* position has several benefits: a wide pool of talented scientists can be drawn from, new ideas and perspectives can continually “refresh” the program, an additional permanent employee position is not required (though federal scientists would be eligible) and the renewable term provides flexibility to NPS. The full-time position will be filled by a social scientist of national stature. Appointment will initially be for 3-4 years, and could be renewed once for an additional 1-3 years.

The Visiting Chief Social Scientist has several key responsibilities:

- provide leadership and direction to the social science activities of the NPS,
- serve as a liaison with other science and related programs of the NPS (such as the Applied Ethnography Program, technical assistance programs and central offices),
- act as liaison with the NBS and other federal agencies on social science activities,
- represent the NPS to and within the scientific community,
- provide direction to a research program related to national needs of the NPS,
- serve as a visiting scholar,
- develop funding initiatives and external grants to support NPS research, and

- advise the Director and National Leadership Council on social science issues.

Hence, this position includes significant scholarly and leadership activity, in addition to administrative responsibilities.

Organization and Staff

Staffing of the WASO Social Science Program reflects its role in supporting, brokering and networking social science resources for managers in the field (see Figure 5). A 0.5 time Research Administrator (GS-11/12/13) will be reassigned from existing WASO duties, and report to the Visiting Chief Social Scientist.

The research administrator has several responsibilities:

- support the Visiting Chief Social Scientist in accomplishing national objectives,
- provide technical assistance as requested by parks, park clusters, system support offices, central offices and field areas,
- prepare budget justifications and external grant proposals for NPS social science,
- administer specific parts of the national program (such as Office of Management and Budget approval for surveys and peer reviews),
- serve as liaison with CPSU network and superintendents, and
- manage WASO science contracts.

A 0.5 time Contracting Specialist (GS-9/10/11) at the Denver Administrative Service Center will be assigned to assist the Social Science Program, and report to the Visiting Chief Social Scientist.

The contracting specialist has several responsibilities:

- provide contracting advice and assistance as requested by parks, park clusters, system support offices, CPSUs and field area offices,
- serve as a contracting liaison with the NBS, and
- assist in the restructuring of the CPSU network.



WASO secretarial support will be provided by the Associate Director's office.

A student intern program with universities in both the Washington, DC area and nation-wide will be established. Graduate students in the social sciences will provide project-specific assistance, supervised by the research administrator and Visiting Chief Social Scientist.

A standing Advisory Committee for Science will be established through the National Park System Advisory Board's newly formed Committee on Humanities, Science, and Education. Its scope of interest will include both the social and natural sciences. The role and function of the committee is to:

- provide the Director with external advice on scientific matters impacting the NPS,
- provide advice on the direction and organization of science within the NPS, and
- serve as an advocate for NPS science.

The committee chair will be selected by the Director from the NPS Advisory Board. The Associate Director for Natural Resource Stewardship and Science will serve as co-chair. The Director will select several external social and natural scientists. The committee will include an NPS representative selected by each of the NPS Associate Directors, field area directors, and a representative from the NBS. The committee will meet at least annually, and the Chief Social Scientist will provide liaison and technical support to the committee. The work of the committee will be coordinated with the Department of Interior's newly formed Science Board.

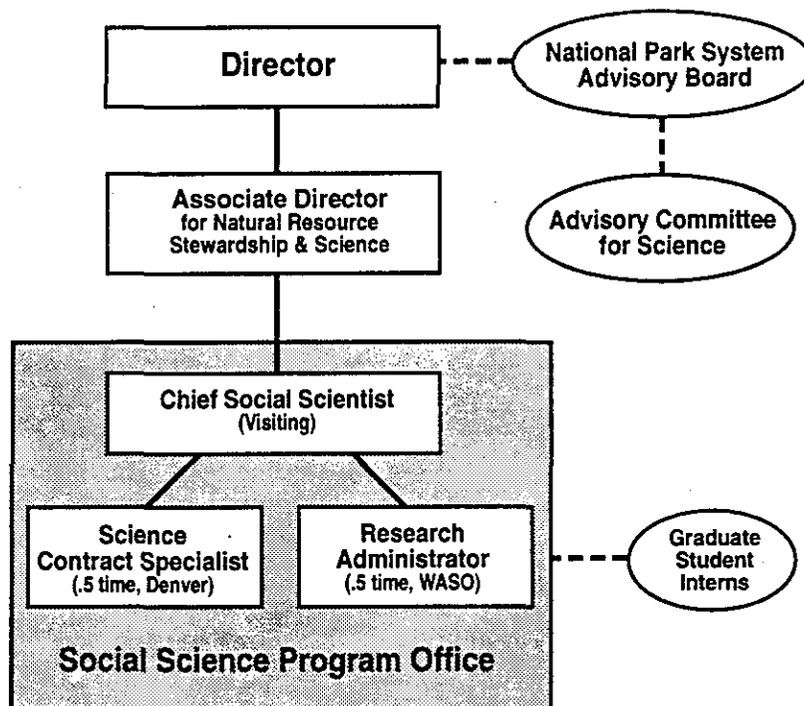


Figure 5. WASO Office Organizational Chart

Tasks and Responsibilities

The Social Science Program Office will initiate several key science activities that support NPS managers in the field. Work will be conducted through CPSUs, cooperative agreements, competitive contracts, Schedule A appointments and arrangements with NPS partners. These activities include:

- an electronic social science information clearinghouse,
- needs assessment and contracting assistance as requested by parks, park clusters, system support offices, central offices and field areas,
- a Young Scientists Competition,
- research support for park planning and design,
- an interagency coordinating group and an internal NPS working group,



- a research program on NPS system-wide issues, and
- development of a restructured CPSU network.

Coordination will be important, and each activity is briefly described below.

1. Social Science Information Clearinghouse

A social science information clearinghouse will be established. NPS managers, scientists and others will be able to access the clearinghouse through the internet (as a part of the NPS Homepage on the World Wide Web), and by cc:Mail, phone, fax and other means. Its purpose is to:

- make up-to-date information on social science research easily accessible to NPS managers,
- make data and research findings from other agencies and organizations (such as the U.S. Census) available to NPS managers,
- allow NPS employees to efficiently locate and use past and current research,
- efficiently archive social science data,
- allow scientists to share information and coordinate research activities,
- reduce workloads related to contracting and reporting, for both NPS managers and scientists,
- provide NPS managers with a roster of available scientists and sources of technical assistance (such as statisticians),
- aid field areas and system support offices in providing assistance to parks,
- improve the transfer of research results from scientists to managers,
- provide NPS field managers with a mechanism to identify and prioritize research needs,

- provide relevant social science data for planning, design and other decisions, and
- encourage non-NPS scientists to use parks as laboratories for research.

The project will be coordinated with the NPS Technical Information Center, Homepage, the Cultural Resources Stewardship and Partnerships directorate, the NBS and the private sector.

2. Social Science Needs Assessment

Assistance in assessing social science needs will be provided as requested by parks, park clusters, system support offices and field area offices. The purpose is to:

- provide a mechanism for park managers to identify and prioritize their research needs,
- offer park managers assistance in developing research agendas, and
- provide scientists with an opportunity to participate in prioritizing critical NPS research needs.

Assistance includes:

- technical advice on social science activities (such as survey design or customer service evaluation),
- assistance in preparing and reviewing scope-of-work, requests for proposals and contracting documents, and
- development of long-term plans for social science research at the park, park cluster and field area levels.

Emphasis will be on “bottom-up” assessment of needs. A pilot effort to formally integrate social science needs assessments into existing NPS planning processes (such as the Natural Resource Preservation Program, Resource Management Plans, General Management Plans, Interpretive Prospectus and others) will be undertaken. Partners may include the Denver Service Center, the Cultural Resources Stewardship and Partnerships directorate and the Office of Strategic Planning.



In addition, a training module on the use of social science in park planning, design and management will be developed and offered to managers (coordinated with NPS training programs).

3. Young Scientists Competition

A Young Scientists Competition will be established. Grants from foundations and other sources will partially support the costs of the competition. Its purpose is to:

- conduct innovative research on social science issues relevant to NPS managers,
- encourage young scientists at the doctoral level to engage in research needed by the NPS,
- establish partnerships with the professional scientific associations, and
- encourage non-NPS scientists to use parks as laboratories for research.

Each year, park superintendents and the National Leadership Council will select a research topic of national importance to the NPS. A research competition will be organized in partnership with the appropriate scientific society. The scientific society will judge the research proposals, and the selected young scientists will be supported to complete the research, prepare a brief description of the project and its applied relevance to NPS managers, and make a public presentation of the research results. The Cultural Resources Stewardship and Partnerships directorate and other Department of Interior agencies (such as the NBS) may wish to participate as partners.

4. Research Support for Park Planning and Design

An initiative will be undertaken to support park planning and design efforts at the park, park cluster and field area levels. The initiative will be coordinated with central offices, field areas and park clusters, as well as the Harpers Ferry Design Center,

Denver Service Center and Office of Strategic Planning. Denver Service Center staff with social science expertise will participate.

The purpose is to:

- provide technical assistance, proposal review and advice as requested by field area and park cluster staffs, the Denver Service Center, other central offices and the Office of Strategic Planning,
- assist park planners in initiating needed social science research,
- schedule research projects so that results are delivered at appropriate times in the planning process, and
- support research and development of new problem-solving tools (such as carrying capacity standards, performance measures and conflict resolution techniques) relevant to park planning and design.

A schedule will be produced and updated every six months so that research studies and management plans can be coordinated.

Contracting and technical review assistance will be provided as requested by service centers and park clusters. Research and development funds will be provided through the competitive contracts program to support innovative planning tools (such as VERP). As described above, a pilot effort to formally integrate social science needs assessments into existing planning processes will be undertaken.

5. Social Science Coordinating Groups

The Visiting Chief Social Scientist will convene and organize a group of social scientists managing research in NPS sister agencies — including the National Biological Service, USDA Forest Service, Bureau of Land Management and U.S. Fish and Wildlife Service. The purpose is to:

- foster communication between the agencies,
- increase partnerships and coordination of federal recreation research,
- share information regarding ongoing studies,



- share data relevant to several of the agencies, and
- find ways to lower costs and improve the application of social science research.

This informal group will occasionally meet to discuss areas of cooperation, and a brief annual report will be prepared. The effort will be coordinated with the Department of the Interior's newly formed Science Board.

An internal working group of NPS social scientists, including representatives from each directorate, will be formed to:

- increase communication and cooperation among NPS scientists,
- develop cooperative initiatives to benefit NPS managers and partners, and
- provide input to interagency coordination.

The group will not provide oversight of NPS programs; this remains the responsibility of the Associate Director supervising the individual programs. Each Associate Director will select representatives to this working group. The group will meet informally, and be chaired by the Visiting Chief Social Scientist. Its first task will be to produce a charter covering the group's scope of work, and creating mechanisms for cooperation and coordination.

6. Research Program on NPS National Needs

The NPS has social science needs that range in scale from individual parks, park clusters, and partnership programs, to the system-wide and interagency level. The WASO Social Science Program will sponsor a competitive contracts program to conduct research relevant to system-wide national needs. Such research should provide usable knowledge to field managers throughout the NPS. The program will be open to both CPSU and other social scientists. The program will result in a small but sustained research effort on selected research problems, and will evolve to reflect emerging issues facing the NPS.

The research will be organized around critical needs, including (but not limited to):

- visitor use of the National Park System,
- public attitudes toward parks and park policies,
- economic activity related to parks,
- social and interdisciplinary aspects of ecosystem management and sustainability
- conflict resolution and public participation,
- interdisciplinary research on human impacts on natural and cultural resources, and
- research and development of social science tools needed by park managers (such as VERP, GPRA evaluation techniques and the NPS Money Generation Model).

A key project is a comprehensive NPS National Survey of the American Public. The survey will be conducted every three years. NPS managers will recommend topic areas, and a nationally recognized research organization will be contracted to conduct a detailed survey of American citizens on issues related to the NPS. Data will be published in a report for NPS managers, partners, Congress and citizens. The results will be used to:

- track trends in public opinion,
- monitor reaction to park policies (enacted and proposed),
- gauge use of the National Park System, and
- identify issues of concern to the NPS, its partners and citizens.

Potential partners in the survey include the U.S. Fish and Wildlife Service, the National Parks and Conservation Association (which conducts similar surveys for its own purposes) and other organizations.



7. Development of a Restructured CPSU Network

The Social Science Program Office will take a leadership role in developing a CPSU network needed to deliver social science research to field areas, park clusters and individual parks. This CPSU network will restructure the existing CPSU social science programs (see next section for description). The WASO Social Science Program Office will assist in the restructuring by:

- providing contracting and other assistance as requested,
- creating professional development opportunities for scientists (including support for attendance at scientific meetings and recognition awards), and
- assisting in program evaluations of CPSU social science programs, in collaboration with scientists, university officials and field area directors.

The WASO Social Science Program Office will convene a meeting of participants in the CPSU network. Participants will include:

- NBS and other social scientists involved in NPS research,
- representatives of field area, park clusters and central offices,
- park superintendents, and
- university officials.

The purpose is to:

- involve all stakeholders (NPS managers, scientists, university officials) in the restructuring of CPSU social science programs,
- ensure communication between scientists working on NPS projects,
- develop an effective peer review process, and
- involve scientists and managers in development of the social science program initiatives (such as the information clearinghouse and the Young Scientists Competition).

A CPSU Network

A central mechanism for conducting NPS science and delivering scientific expertise to NPS managers has been Cooperative Park Studies Units. CPSUs operate under cooperative agreements between the National Park Service (and since 1994, the NBS) and universities. Traditionally, the units have been:

- focused on conducting biological and social science research,
- housed within one university,
- administered by an NPS employee or faculty member,
- serving a specific NPS region, and
- supervised by regional administrators.

CPSUs have been a cost-effective mechanism for delivery of NPS science. With the restructuring of the NPS and the creation of the NBS, a refined CPSU model is necessary. Such change will increase their usefulness to the NPS. The objective is to:

- provide NPS managers with state-of-the art science and scholarship,
- ensure that research is applied to park management needs, independently conducted and subject to peer review,
- encourage professional development of NPS employees,
- take full advantage of university resources for NPS benefit,
- be flexible and adaptive to differences in field area needs, and
- reduce administrative costs.

Hence, the CPSU concept should be updated to reflect the “new” NPS. While the formal relationship between the NPS and NBS is currently uncertain regarding CPSUs, several objectives can be identified. Restructured CPSUs should:

- be capable of delivering science and scholarship in all fields of inquiry needed by NPS managers (including social and natural science, cultural studies and history),



- offer professional development opportunities for NPS employees (including workshops, continuing education, specialized training, sabbaticals and graduate degree programs),
- allow for efficient and timely contracting, conduct and delivery of scientific research,
- provide the NPS access to valuable university resources, from laboratories to libraries,
- provide NPS managers with consulting, extension and technical assistance,
- have the flexibility to evolve and adapt to meet park, park cluster, field area and national needs, and
- operate efficiently and cooperatively, with minimal overhead and few FTEs.

In stages over the next several years, a restructured CPSU network will be created. Its basis will be a system of 7-10 "virtual CPSUs" across the country. The CPSUs are "virtual" in that they are not located in a single institution, but exist as a set of agreements, contracts, Schedule A appointments and other arrangements linking several institutions in order to better serve the NPS. CPSUs will have considerable flexibility in how they organize and deliver needed social science. Existing CPSUs could participate in this network; several have already begun to move toward this model. Each CPSU will have:

- a host university that serves as the contact point for the NPS,
- partner universities and other institutions that offer technical and professional services to the NPS,
- a role and mission statement that declares specific areas of social science research and service that the CPSU is especially qualified to pursue,
- a 4-year plan with specific performance goals, and
- a managers committee composed of NPS employees (such as field area staff and park superintendents).

CPSU social science programs will be administratively supervised by the field area offices or their representatives (such as a system support office). This includes:

- contracting basic cooperative agreements,
- supervising and evaluating NPS employees if duty stationed at a CPSU,
- managing activities of NBS social scientists if duty stationed at a CPSU,
- administering CPSU contracts and project funds,
- liaison with university officials, and
- operating the CPSU managers committee (see below).

CPSU social science programs will be coordinated and provided technical support by the WASO Social Science Program Office.

This includes:

- coordination of the CPSU network,
- convening scientist/managers meeting,
- technical and contracting assistance (such as OMB survey approvals),
- professional development opportunities for CPSU scientists (such as travel to scientific meetings and support for publications), and
- assistance to field areas in CPSU program evaluations.

A modest recognition award will be established, to recognize superintendents, resource managers and scientists that have jointly accomplished noteworthy social science research and creatively applied the results to park management.



Elements of a Restructured CPSU

Each part of a restructured CPSU is described below.

1. The Host University

CPSUs will continue to be based largely at universities. The host university will provide space and basic administrative support as part of its cooperative agreement (as is done now), and may house an NPS or NBS social scientist duty-stationed at the CPSU.

The host university would:

- serve as the liaison with the field area, park cluster and WASO Social Science Program,
- be responsible for administering the CPSU,
- develop CPSU plans and performance goals,
- coordinate the work of CPSU partners, and
- conduct research for the NPS.

2. Partner Institutions

Partner institutions can include other universities, community colleges and other research organizations. An NPS employee might be duty-stationed, even temporarily, at a partner institution. Partner institutions will be linked to the CPSU through formal agreements.

The partner institutions will:

- provide specialized services needed by the NPS,
- conduct research in their areas of specialization needed by the NPS, and
- participate in developing CPSU plans and performance goals.

3. CPSU Managers Committee

Working with field area directors and park clusters, each CPSU will organize a managers committee, composed of NPS superintendents and other NPS staff. Members will be selected by the field area director responsible for the host university agreement. The specific relationship between the managers

committee and the CPSU may vary from region to region.

The general purpose of the committee is to:

- provide advice and guidance to the CPSU in meeting NPS managers' needs,
- provide input on research agendas,
- serve as liaison with the park clusters, field areas and system support offices, and
- assist in evaluating CPSU performance.

Committees would meet and serve at the discretion of the field area director.

4. Role and Mission Statements

Each CPSU will prepare a role and mission statement that explicitly identifies those social science research, technical assistance, extension, education and other services that it is especially qualified to pursue. For example, several CPSUs may identify visitor surveys or economic impact analysis as part of their role and mission. A CPSU might also identify more specialized research areas, such as:

- carrying capacity issues,
- employee and organizational concerns,
- evaluation of interpretive media,
- issues related to management of borderlands with Canada and Mexico,
- the relationship between parks and tribal economies,
- tourism-based community research, or
- other relevant research areas.

The CPSU should be able to demonstrate its capability to provide state-of-the-art science related to research areas included in its role and mission statement. The role and mission statement will clearly identify services to be provided to system support offices and parks.



It will be used to:

- aid managers in contracting state-of-the-art science,
- guide research and service activities of the CPSU,
- ensure that the NPS has access to state-of-the-art science,
- avoid unnecessary duplication of effort,
- provide accountability and evaluate performance of CPSUs, and
- coordinate the CPSUs into a comprehensive network that serves NPS manager's needs.

CPSU partner institutions, representatives of the universities, field area directors and CPSU managers committees will participate in developing the role and mission statements.

5. 4-Year Plans and Performance Goals

Each CPSU will prepare a 4-year plan for its social science research and service activities. The plan will describe the CPSU's ongoing and anticipated projects, as well as its planned improvements in delivering science and service to NPS managers. The plans will include general performance goals and provide for flexibility and new opportunities that may emerge. The CPSU plans will be used to:

- guide the delivery of useful research to managers,
- justify CPSU and project budgets,
- coordinate the CPSUs to form an efficient network,
- support park planning efforts,
- coordinate research activities with the NBS, and
- evaluate CPSU performance.

CPSU partner institutions, representatives of the universities, field area director and the CPSU managers committee will participate in developing the plan. Program evaluations would be conducted every three years in cooperation with field offices, managers

committees, the WASO Social Science Program Office and CPSU participants.

Because each CPSU should be organized to reflect its particular mix of services to the NPS, no single organizational chart is appropriate. One example of a restructured CPSU is shown in Figure 6.

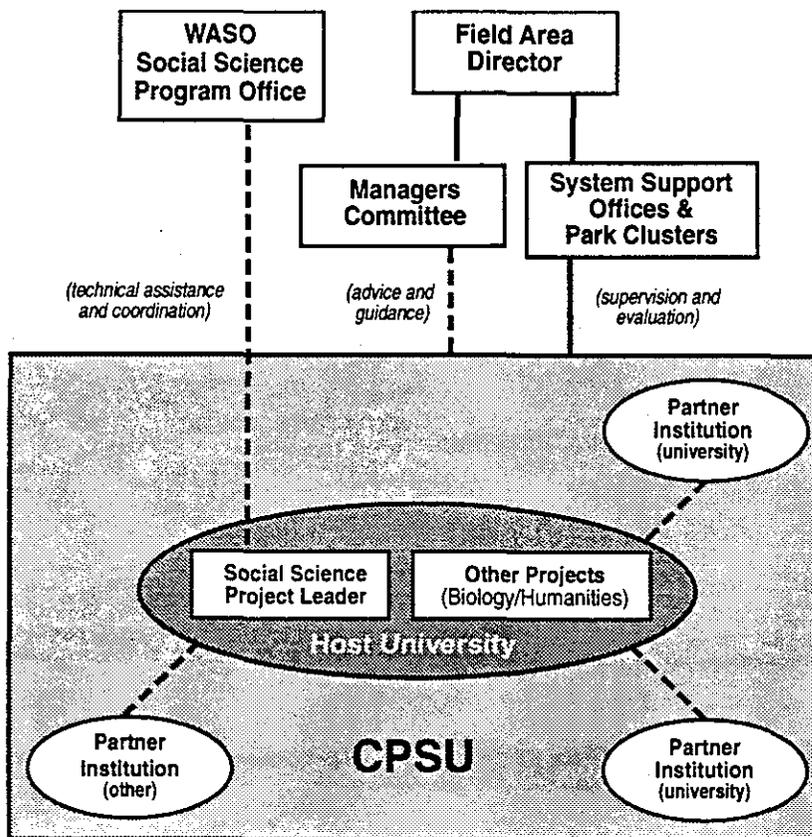


Figure 6. A Restructured CPSU Organizational Chart: One Example

Constructing the CPSU Network

The CPSU network will take several years to complete. Several immediate steps will be taken:

- a scientists/NPS managers meeting will be convened by the Visiting Chief Social Scientist to jointly plan and prepare the CPSU restructuring,

- contracting and legal specialists will assist the Social Science Program Office in developing options for creating the “new” CPSUs,
- existing CPSUs with social science programs will prepare proposals and schedules to guide their restructuring,
- a pilot effort will be undertaken to restructure at least one existing CPSU, and
- a CPSU will be established to focus on urban NPS sites, urban recreation research and the needs of inner cities.

Establishing An Urban-Focused CPSU

The NPS has a significant number of sites in the urban centers of the nation. NPS managers require increased social science information concerning urban “customers” of the agency. The NPS must increase and broaden its pool of scientific talent to include minority populations. Hence, a new urban-focused CPSU, with ties to Historically Black Colleges and Universities (HBCUs), predominantly Hispanic universities (or Hispanic Serving Institutions) and other urban partners, will be established. This CPSU will conduct social science research needed by NPS managers at urban sites, such as studies on:

- urban recreation demand and impacts on urban NPS units,
- cultural diversity and the needs of special populations,
- visitor management at high-density urban sites.

In addition, this urban-focused CPSU will provide continuing education and graduate training for NPS employees in urban areas, and assist NPS partners in urban areas with selected technical services, such as survey research design. Partner institutions may include recreation departments and universities from large metropolitan cities, and NPS technical assistance programs. In addition, coordination and cost sharing with related urban recreation programs (such as that of the USDA Forest Service) will be pursued.

Other Programs

The Denver Service Center

The Denver Service Center has several social scientists engaged in research and project management. Under its current restructuring plan, the Denver Service Center social science staff will expand. The staff conducts a variety of studies in support of park planning and design. Its efforts will be encouraged, and the Denver Service Center will likely participate in the CPSU network through agreements with several CPSUs. In addition, the Denver Service Center will:

- assign a liaison to coordinate activities with the WASO Social Science Program,
- develop a role and mission statement describing its social science activities related to park planning, construction and design,
- participate as a partner in the social science information clearinghouse, and
- work closely with the WASO Social Science program initiatives on research support for park planning and design and social science needs assessment.

The Socioeconomic Studies Division

The Socioeconomic Studies Division is a WASO program within the office of the Associate Director, Park Operations and Education. It is located in Denver. It currently collects and maintains NPS public use statistics (visitor counts), prepares statistical reports on public use, conducts visitor surveys, and produces economic impact assessments and market analyses. The office has faced considerable down-sizing (from 10 to 4 FTE), while the need for accurate and accessible public use data has increased.



The Socioeconomic Studies Division will remain in Park Operations and Education, re-focus its activity on public use statistics and be renamed to reflect its scope, role and function. With this specific role and mission, it will remain in the Park Operations and Education directorate as an operational activity. It will continue to conduct PPV (person per vehicle) surveys needed for visitor statistics. Its work on economic statistics (such as the Money Generation Model) will be expanded and supported by research in the competitive grants program. Its program of activity will be coordinated with the WASO Social Science Program and the CPSUs.

Under the direction of the Associate Director for Park Operations and Education, the Socioeconomic Studies Division staff will:

- develop a role and mission statement focusing on the collection, analysis and dissemination of public use statistics,
- prepare a 4-year plan for its activities, including an organizational structure, professional development and innovations in collecting and reporting public use data, and
- develop performance goals for the unit.

The Visitor Services Project

The Visitor Services Project is a research program within the University of Idaho CPSU. An advisory committee of NPS employees meets annually and provides advice and guidance. The VSP conducts approximately 10 visitor surveys each year across the National Park System, maintains a national database on VSP survey results and conducts customer service evaluations for the NPS.

Its FTE allocation has been reduced from 2 to 1 employee. The VSP will maintain its workload (no additional tasks or surveys per year, no increase in resources), and will remain a project at the UI CPSU.

The 1 NPS FTE and base funding used to conduct the project (currently located in the WASO Interpretation Division) will be permanently transferred to the WASO Social Science Program.

The VSP will:

- develop a role and mission statement focused on general visitor surveys, a national database and customer service evaluation,
- develop a 4-year plan for its activities, including an organizational structure, professional development and innovations in conducting visitor surveys and reducing study costs, and
- develop performance goals for the unit.

NBS/NPS Science Centers, System Support Offices, and Individual Parks

The NBS has social science activities underway in several science centers. In addition, several system support offices and individual parks (such as Grand Canyon NP) are developing social science programs. These programs will be encouraged, and should be adapted to individual park and park cluster needs. They may participate in the CPSU network as partner institutions. The WASO Social Science Program will provide assistance as requested, such as:

- technical advice on social science methods and programs,
- convening scientists/managers meeting,
- contracting and technical review assistance,
- access to the social science information clearinghouse,
- data-sharing and archiving,
- publications assistance, and
- professional development opportunities for NPS employees.



Funding Social Science: A Critical Investment

The plan just described requires a funding increase for NPS social science activities. Such an increase has been recommended by numerous reports on NPS science (see Appendix II). This is a critical investment for the NPS. Implementing the plan will strengthen NPS social science, and improve the ability of the NPS to protect resources and provide for public enjoyment. It will provide NPS managers with usable knowledge needed to manage NPS resources. In addition, this critical investment has several administrative and financial benefits.

The establishment of the Social Science Program Office will provide:

- increased accountability for how funds are spent,
- targeting of expenditures on key NPS research needs,
- easier and improved science contracting, and technical review,
- improved grantsmanship to attract external funds for NPS social science,
- improved performance and productivity,
- increased technical assistance to park superintendents, park clusters and field areas,
- less duplication of effort, and
- annual reporting of expenditures, activities and results.

The research initiatives in the plan will provide:

- improved management techniques that increase NPS efficiency and effectiveness,
- performance measures that improve NPS accountability, and
- increased public use of NPS research results.

The restructuring of the CPSUs will provide:

- increased NPS access to university resources,
- wider use of low CPSU overhead costs on NPS research and related activities,
- less duplication of effort,
- more efficient contracting,
- increased accountability for funds, and
- increased productivity of NPS scientists.

The following budget outlines the cost of implementing the plan. Some costs are indirect. For example, the permanent transfer of 1 FTE from WASO Interpretation Division to the WASO Social Science Program (needed to maintain the Visitor Services Project) may limit future options for the Interpretation Division. Current funding for existing projects, CPSU administrative support and NBS social scientists is *not* included. In FY96, \$300,000 is requested. Annual FY97-FY99 funding levels are \$445,000.



Table 3. WASO Social Science Program Proposed Budget FY96–FY99, thousands¹

| Program Activity | FY96 | FY97 | FY98 | FY99 |
|---|-------------|-------------|-------------|-------------|
| WASO Office | | | | |
| Establish Social Science Program Office | — | — | — | — |
| Support Visiting Chief Social Scientist position (salary, travel, secretarial support, operating expenses) | 145 | 145 | 150 | 150 |
| Assign a) 0.5 time Research Administrator (WASO) | — | — | — | — |
| b) 0.5 time Contracting specialist (Denver Administrative Service Center) | — | — | — | — |
| Establish WASO student intern program | 8 | 8 | 10 | 10 |
| Establish and convene Advisory Committee for Science | 4 | 4 | 5 | 5 |
| Prepare Science Office annual report | — | — | — | — |
| Critical Initiatives | | | | |
| Develop and manage electronic science clearinghouse | 20 | 10 | 10 | 10 |
| Conduct Social Science needs assessments | — | — | — | — |
| Establish Young Scientists Competition | 3 | 5 | 5 | 10 |
| Provide research support for park planning | — | — | — | — |
| Convene Interagency Social Science Coordinating Group (and internal working group) | — | — | — | — |
| Conduct research program on national needs (competitive contracts) | | | | |
| a) Economic impact analysis R&D | 40 | 65 | 75 | 60 |
| b) VERP research and development | 25 | 25 | 45 | 45 |
| c) Social aspects of ecosystem management | 20 | 30 | 30 | 35 |
| d) Triennial Survey of American Public | 5 | 50 | 5 | 5 |
| Cooperative Park Studies Units & Other Programs | | | | |
| Begin restructuring of existing CPSUs (assistance to CPSUs, scientist/managers meeting) | 25 | 30 | 35 | 35 |
| Establish urban-focused CPSU | 5 | 73 | 75 | 80 |
| Refocus Socioeconomic Division | — | — | — | — |
| Maintain Visitor Services Project ² | — | — | — | — |
| TOTAL | 300 | 445 | 445 | 445 |

¹ Current funding for existing projects, NBS scientists and CPSU administrative support is not included. ² One FTE permanently transferred from the Interpretation Division to the Social Science Program.

Implementing the Plan

Implementing this social science plan will require significant effort, especially in FY96 and FY97. Participation by scientists, superintendents, field area staff and others will be essential, as specific elements of the plan are converted to action.

Communication between scientists and managers, and between WASO, parks, park clusters, system support offices, central offices and field areas will be important. Hence, an organizational meeting of scientists and managers (designed carefully to reduce costs) will be convened as soon as the plan is approved. In addition, the Visiting Chief Social Scientist will provide (through cc:Mail or as requested) regular briefings to the National Leadership Council and park superintendents on progress.

The following table lists completed tasks for each fiscal year. It assumes approval of the plan by the NPS in early 1996.



Table 4. Schedule for Implementing the Plan

| FY96 | FY97 |
|---|--|
| WASO Office | |
| <p>Establish Social Science Program Office</p> <p>Reassign .5 FTE as Research Administrator</p> <p>Develop agreement with Denver Administrative Unit for .5 contracting specialist</p> <p>Develop agreements with universities for student intern program</p> <p>Convene social scientists/managers meeting</p> <p>Develop procedures for Advisory Committee; select members</p> | <p>Prepare WASO Social Science Annual Report</p> <p>Organize and administer critical initiatives</p> <p>Provide contracting assistance</p> <p>Student intern program underway</p> <p>Convene social scientists/managers meeting</p> <p>Convene Advisory Committee</p> |
| Critical Initiatives | |
| <p>Begin development of information clearinghouse</p> <p>Begin preparation of training module on social science, organize needs assessments</p> <p>Develop Young Scientists Competition proposal and procedures, seek matching funds</p> <p>Organize Interagency Social Science Coordinating Group and Internal Working Group; develop charter for both</p> <p>Prepare RFP's for competitive contracts program and contract 1-2 initiatives</p> | <p>Bring information clearinghouse on-line for managers</p> <p>Deliver training module, begin needs assessment assistance to parks</p> <p>Conduct first Young Scientists Competition</p> <p>Convene Interagency Social Science Coordinating Group and Internal Working Group</p> <p>Contract competitive contracts, first research reports delivered, public survey conducted and results presented to NPS</p> |
| CPSUs and Other Programs | |
| <p>Select CPSU for pilot restructuring</p> <p>Develop concept plan and agreements for urban-focused CPSU</p> <p>Socioeconomic Studies Division begins refocusing effort, renaming</p> <p>VSP database on-line, VSP 4-year plan, 10 park surveys completed</p> | <p>Restructure pilot CPSU</p> <p>Establish urban-focused CPSU, park projects underway, technical assistance to parks</p> <p>SESD 4-year plan completed, visitation statistics, MGM innovations started</p> <p>VSP work maintained</p> |

Schedule for Implementing the Plan (continued)

| FY98 | FY99 |
|--|---|
| WASO Office | |
| Prepare WASO Social Science Annual Report | Prepare WASO Social Science Annual Report |
| Organize and administer critical initiatives | Organize and administer critical initiatives |
| Provide contracting assistance | Provide contracting assistance |
| Expand student intern program to include more universities | Student intern program underway |
| Convene social scientists/managers meeting (if necessary) | Convene social scientists/ managers meeting |
| Advisory Committee evaluates Social Science Program progress | Convene Advisory Committee |
| Critical Initiatives | |
| Information clearinghouse on-line | Information clearinghouse on-line |
| Provide needs assessment assistance to parks | Provide needs assessment assistance to parks |
| Conduct second Young Scientists Competition | Conduct third Young Scientists Competition, First competition research project completed |
| Maintain Interagency Social Science Coordinating Group and Internal Working Group | Maintain Interagency Social Science Coordinating Group and Internal Working Group |
| Contract additional national needs research, research reports delivered, public survey data analyzed | New national needs initiatives established, research reports delivered |
| CPSUs and Other Programs | |
| Restructure additional CPSUs, performance evaluation of pilot CPSU | Restructure remaining CPSUs, conduct performance evaluations |
| Urban recreation research, park studies delivered to managers, technical assistance to parks | Urban-focused CPSU performance evaluation, studies completed, technical assistance to parks |
| SESD work continued, performance evaluation | SESD work maintained |
| VSP work maintained | VSP work maintained, VSP evaluated |





V

Appendices



Acknowledgments

Many individuals assisted in the development of this report and plan. NPS employees too numerous to mention provided opinion, advice, suggestions and reviews. Many participated in workshops, mail surveys and lengthy discussions. Social scientists outside the NPS also provided advice, often from very different perspectives. Associate Director Mike Soukup provided encouragement and thoughtful critique. For all, their enthusiasm and concern for social science in the National Park Service is gratefully appreciated.

Stuart Leidner assisted with the inventory of social science projects. Jean Haley, Kristin FitzGerald and Jean McKendry provided editorial assistance. Sandy Watson managed a vast amount of correspondence and helped prepare draft versions of the report; Mark Patterson helped design, input and prepare the final report. Barbara Ham of the University of Idaho Printing & Design Services prepared the cover. Their assistance was invaluable.

*Gary Machlis
February 1996*

Cover photo: Brown St. Paul. Yellowstone National Park, 1900. Courtesy of the National Park Service.

Appendix I. How This Report was Prepared

In October 1994, the NPS Director and the National Park System Advisory Board established a Social Science Committee. The purpose of the Committee was to "provide the Director with recommendations about the role social science should play in NPS research and management and how a social science program should be organized." The Social Science Committee included:

- Jessica Catto, National Park System Advisory Board (*chair*)
- Darryll Johnson, National Biological Service (*vice chair*)
- Dr. Jim Agee, University of Washington
- John Austin, Denver Service Center
- Jerry Belson, Acting Superintendent Yosemite National Park
- Dr. Richard Briceland, Assistant to the Director, National Park Service
- Dr. Denny Fenn, Regional Director, National Biological Service
- Dr. Jim Gramman, Texas A&M University
- Betty Janes, Denver Service Center
- Dr. Bill Kornblum, City University of New York
- Dr. Dave Lime, University of Minnesota
- Dr. Gary Machlis, University of Idaho
- Dr. Bob Manning, University of Vermont
- Dr. John Peine, National Park Service
- Noel Poe, Superintendent Arches National Park
- Chris Schillizzi, Harpers Ferry Center
- Sandra Walter, Deputy Regional Director, North Atlantic Region.

The Social Science Committee met in November 1994. At the meeting, a general consensus was reached on the importance of social science to the agency, and a list of key issues was developed (minutes of that meeting are available from the vice chair). While the NPS Advisory Board was being reorganized, the Social Science Committee did not meet, and in July 1995 it was discontinued. Deputy Director John Reynolds directed the new Visiting Chief Social Scientist (Gary Machlis) to "produce a plan for NPS social science." The plan was to focus on the social sciences described on pg. 6-7, and include both general recommendations and specific actions to be undertaken by the NPS.

The Social Science Committee's initial discussions were the starting point for this plan. In addition, a variety of workshops, interviews and data collection techniques were used to gather a wide range of views regarding NPS social



science. Workshops were held at:

- the 1995 Northeast Recreation Research Conference in New York (over 60 individuals participated),
- the 1995 Outdoor Recreation and Tourism Trends Symposium in Minnesota (over 80 individuals participated),
- the 1995 George Wright Society Annual Meeting in Oregon (over 75 individuals participated), and
- the Denver Service Center (over 25 NPS planners and managers participated).

An informal questionnaire that asked for advice and opinions regarding NPS social science was sent to NPS managers, social scientists in academia and others. Site visits were made to several field area offices, parks and the Denver Service Center. Interviews were conducted with:

- each of the NPS Associate Directors,
- several CPSU Social Scientists,
- several of the Field Area Directors,
- additional scientists and managers from the NPS and other federal agencies, such as the National Biological Service and the USDA Forest Service, and
- members of the scientific community.

For the inventory of NPS social science projects, phone interviews were conducted with over 50 individuals involved in current and past projects.

All major reports published on NPS science were reviewed, along with the growing literature on the administration of science.

The basic elements of the plan were developed from these workshops, surveys, interviews, literature reviews and the initial work of the Social Science Committee. A draft plan (*Review Draft – October 1995*) was prepared by Dr. Machlis, and submitted to managers, scientists and others for review. The draft was revised by Dr. Machlis. A review group was appointed by Associate Director Mike Soukup. It included Darryll Johnson (vice chair of the original National Park System Advisory Board's Committee), John Dennis (WASO) and Dick Ring (Superintendent of Everglades National Park). The group examined the reviews and revised plan (*Review Draft – November 1995*) and made additional recommendations. Dr. Machlis then prepared a revised plan (*Review Draft – January 1996*). It was presented to the NPS National Leadership Council for review. Following minor revisions, the final plan was prepared.

Appendix II. Reviews of NPS Science

Since 1963, more than 10 panels and review committees have studied the role of science in the National Park Service. The reviews have produced reports and recommendations to strengthen the science program. Recommendations have ranged from general (a legislative mandate for science) to specific (research to understand economic benefits of parks). This appendix summarizes key recommendations from many of the reviews. Specific recommendations implemented in this plan are denoted by italics.

Wildlife Management in the National Parks (“Leopold Report”) (Leopold, *et al.* 1963)

An independent commission, chaired by A. Starker Leopold, reviewed NPS research. Natural science was the focus and an ecosystem approach to park management was advanced. Generally, the Leopold Report recommended a modern, scientifically-based management and *expanded research program*.

A Report by the Advisory Committee to the National Park Service on Research (“Robbins Report”) (National Research Council 1963)

In a review released in 1963, the National Academy of Sciences proposed a research program for the NPS. A National Research Council committee, chaired by William Robbins, presented the following key recommendations:

- *mission-oriented research*
- permanent, independent, identifiable research unit
- Assistant Director for Research reporting to Director
- *research program plans for each park*
- research laboratories or centers where justified
- published research
- *additional financial support*
- *closer relations with scientific community*
- *greater consultation between management and research*
- *distinction between administration, operational management, research management*
- *scientific advisory committee*



National Parks for the Future

(The Conservation Foundation 1972)

The Conservation Foundation prepared a report including citizens' views on the problems and issues confronting the National Park System. This was part of a broader commemoration of the 100th anniversary of the system. Several recommendations in this future-oriented report addressed research needs:

- study social aspects of park and recreation use by urban visitors
- research units at universities
- *physical, natural and social sciences*

A Review and Recommendations Relative to the NPS Science Program

(Leopold and Allen 1977)

Durward Allen and Starker Leopold co-chaired a committee that produced another review of the NPS natural science program. The committee emphasized that science and research should be given a more significant responsibility in policy making, planning and operations. In general, this committee recommended stronger funding, staffing and influence for natural science. It specifically recommended that a position of Associate Director for Natural Science be created, with line authority over regional chiefs and park scientists.

Research in the Parks: An Assessment of Needs

(National Parks and Conservation Association 1988a)

NPCA undertook this review of NPS science and research needs as part of a larger plan for the National Park System. NPCA specifically examined the organization of research in the NPS and its relationship to resource management and decision-making. Key recommendations to strengthen agency research included:

- science advisory board
- research program independent of management and operations
- *natural, cultural and social science under an Associate Director for Research*
- National Park Science Center to:
 - develop research policy
 - assess research needs and priorities
 - develop national research strategy
 - develop budgets
 - communicate with field, other agencies, and Congress
- interdisciplinary technical research centers
- clarify national and international roles of science
- increase accountability of research administrators
- *support and encourage peer-reviewed research*

Parks and People: A Natural Relationship

(National Parks and Conservation Association 1988b)

This report was also a component of NPCA's plan for the National Park System. Past and present patterns of visitor use were examined along with predictions about future use. Specific recommendations about visitor management and visitor services were proposed:

- *system-wide effort to assess visitor impacts*
- *comprehensive social science initiative*
- *standardized, yet flexible, technique to measure visitation and visitor needs*
- *identify emerging trends in park visitation (e.g., demographics)*
- *develop innovative techniques for resolving land-use conflicts*

National Parks: From Vignettes to a Global View ("Gordon Report")

(National Parks and Conservation Association 1989)

This 17-member Commission on Research and Resource Management Policy in the National Park System was chaired by John Gordon. The commission focused on ecosystem management, strengthening research, increasing professionalism, and expanding the educational mission of the NPS.

Key recommendations included:

- *resource management based on ecosystem perspective*
- *national, regional and park Ecosystem Management Advisory Panels*
- *Ecosystem Management Network with other federal agencies*
- *cooperate with educational institutions*
- *formal mandate for research program*
- *research on socioeconomic impacts of management decisions, visitors and effectiveness of education and outreach programs*
- *collaborative research among parks, with other reserves, with other agencies and organizations*
- *significant contractual component to research program*
- *peer review of internal research*

Report of a Workshop for a National Park Service Ecological Research Program

(Risser and Lubchenco 1992)

Scientists within and outside the NPS met to develop an ecological research agenda. Their recommendations emphasized the need for interdisciplinary science that assists park managers in decision-making:

- *legislative mandate for science program*
- *understand social and ecological interactions between parks and surrounding communities*



- analyze and model natural and/or human-induced trends of natural resources
- identify threats and quantify impacts to natural resources
- multi-scale (temporal and spatial) research
- *merge social and economic information with environmental information for multi-scale resource management (landscape and region)*
- identify and predict outcomes of various management approaches
- cooperate with surrounding communities
- *cooperative research programs*
- *information management systems and protocols*

National Parks for the 21st Century: The Vail Agenda (National Park Service 1992)

The Vail Agenda was prepared as the National Park Service observed its 75th anniversary. Agency employees and interested people outside the NPS reviewed its responsibilities and presented recommendations to deal with current and future challenges. The following recommendations focused on the role of science and research:

- legislation to strengthen congressional sanction and funding for research
- *best available scientific research for resource protection, access and interpretation decisions and programs*
- comprehensive natural, historical, cultural and social science resource management and research program
- *expanded social science capability integrated into natural science research*
- *systematic inventory of information on park resources and visitor needs*
- *analysis of visitor-use impacts*
- state-of-the art, visitor-based, sustainable use design
- technical assistance for gateway communities and regions (e.g., for sustainable economic development)

Science and the National Parks (National Research Council 1992a)

The National Research Council prepared this report after the NPS asked for assistance in strengthening the science program. This report reviewed (1) how science can contribute to park management and (2) how parks can contribute to science. The NRC proposed several recommendations:

- separate funding and reporting autonomy for science program
- *elevate and reinvigorate chief scientist position*
- *competitive grants program encouraging external scientists to conduct research*
- *science advisory board*

Science and the National Parks II: Adapting to Change

(National Park Service 1993)

The Science Program Committee of the National Park System Advisory Board prepared this report in response to the recent NRC review of science.

The committee provided "practical suggestions" for establishing a sound, professional science program. The committee also considered the role of the National Biological Survey [now Service] (NBS) in such a program. Recommendations to the Director addressed ecosystem management, professionalization, partnerships and linkages, interface between NPS and NBS, and a legislative mandate for science. Key recommendations included:

- ecosystem management (including the human dimension) should be the guiding principle for management
- ecosystem management should be viewed as long term and evolving experiment
- resource management should be addressed in broader context (e.g., impact of activities outside park boundaries, impact of management on broader ecosystems)
- *rotating, visiting senior scientist position(s) of national stature in Washington Office*
- *improve relationships with professional scientific societies*
- *incentives for NPS managers and scientists to attend scientific conferences*
- ensure NBS is serving scientific needs of NPS
- *competitive grants program for science relevant to park management issues*
- *increase NPS science program breadth by adding physical and social science expertise (complement to NBS biological research)*
- assess progress and effectiveness of NPS/NBS science
- legislative mandate for NPS science

National Park Service Strategic Plan: Vision

(National Park Service 1994)

The Strategic Plan presents a series of objectives ("The Most Important Things We Can Do") and desired conditions. For science, the objective is to:

- *establish a scientific/scholarly basis for resource management decisions*

The following desired conditions are sought:

- complete and current resource inventories for park managers
- *data sharing between NPS and other agencies and organizations*
- use of spatial coordinates to integrate natural and cultural databases



- species distribution, vegetation, topography, soils and geology, water resources and water chemistry, air quality, and meteorology included in natural resource data
- resource monitoring
- ability to identify and understand how resources are affected by local, regional and global influences
- *highly professional and nationally recognized scientists and scholars*
- *managers understand and use scientific information*

Forestry Research: A Mandate for Change

(National Research Council 1990)

The Committee on Forestry Research of the NRC examined future research needs in forest management. The committee identified five broad research areas that should be strengthened: (1) biology of forest organisms, (2) ecosystem function and management, (3) human-forest interactions, (4) wood as a raw material and (5) international trade, competition and cooperation. The committee presented several recommendations relevant to social science:

- integrate social component into research on forest ecosystems
- *interdisciplinary and holistic research teams*
- *better understanding of human community associated with forests*
- better understanding of urban forests
- *behavioral science-human ecological research on sustainable regional resource systems*
- *increase amount of basic social science research on recreation*
- encourage international natural resource sociology
- broaden disciplinary backgrounds of extension specialists to include social science

Global Environmental Change: Understanding the Human Dimension

(National Research Council 1992b)

The Committee on the Human Dimensions of Global Change prepared this report to address fundamental questions about the human dimensions of global environmental change. Its specific tasks were to (1) assess previous social science research, (2) evaluate extant data resources, (3) consider the role of collaborative research and (4) develop a research agenda. Key components of the research agenda focus on interdisciplinary research:

- emphasize interactions among driving social forces
- comparative studies at national, regional and local levels
- multi-scale temporal studies (decades to centuries) of environmental effects on human actions

- *partnerships between natural and social sciences*
- *interdisciplinary research among social sciences*
- *federal government should acquire and make available data sets for human dimensions research*

A Biological Survey for the Nation

(National Research Council 1993)

This report was prepared to advise the Secretary of the Interior on the formation of the National Biological Survey. The committee that prepared this report stated that a biological survey would address a number of issues, including social ones:

- *understanding impact of human settlement patterns on biological resources*
- *maintaining contribution of nation's biota to aesthetic quality of life*
- *deriving new economic wealth from biological resources*

In its discussion of research priorities, the committee laid out important guidelines:

- *research responsive to management*
- *broadened understanding of inventory and monitoring activities*
- *new interdisciplinary initiatives at different temporal and spatial scales (interdisciplinary research includes biology and geological, hydrological, atmospheric and social sciences)*

Interdisciplinary research is a recurring theme in this report:

A more detailed knowledge of what makes ecosystems work as they do and how they are being affected by human activities that fragment and degrade them will help us deal with the increasingly complex legal questions pertaining to land use and water management. (1993: 90)



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