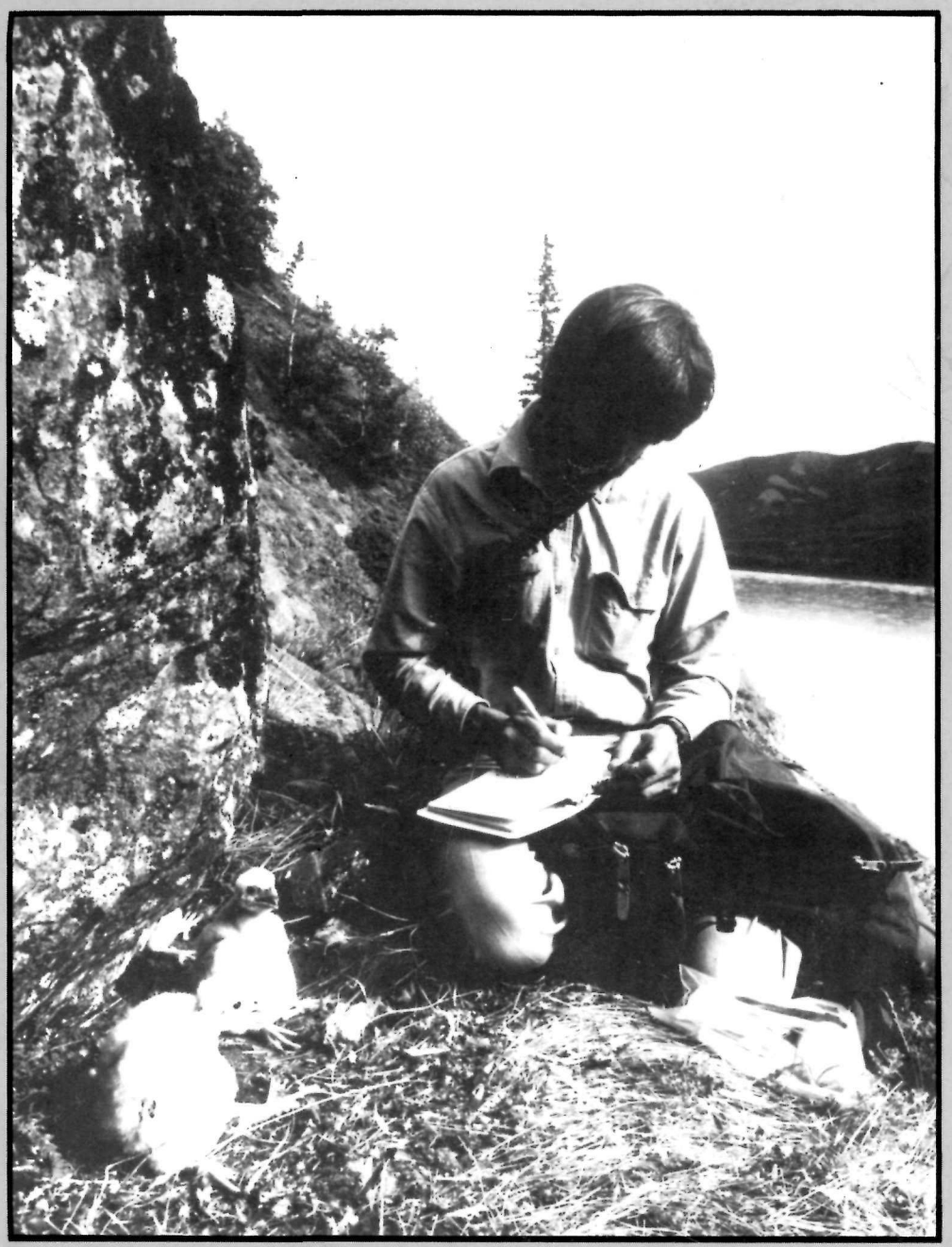
RANGER

The Journal of the Association of National Park Rangers

Vol. VII, No. 2 Spring, 1991



Research and Resource Management

Resource Management And Research In The NPS: An Uneasy Relationship

Bob Krumenaker
Isle Royale

On the last day of the most recent (November 1990) George Wright Society meeting — more commonly known as the "NPS Science Conference" — thirty people sat in a room debating the merits of forming a separate "section" of the George Wright Society for resource management. It was a topic that had first been raised two years earlier at the last conference, and its advocates hoped that they could finally get the group organized. Or, if not, put the idea to rest.

Most of the participants were experienced NPS resource managers (both natural and cultural) or scientists; even a few superintendents were seen. There were also a number of graduates of the NPS resource management trainee program, as well as several members of the current class. All the people in that room had probably debated the relationship between science and resource management more times than they could remember.

The vote was 15 to 15. A tie. No decisions made; no conclusions reached. Despite a very successful conference, where managers, scientists, and resource managers shared ideas, debates, information, beer, and more than a few good times, the lack of consensus in that room last November was typical of the National Park Service's inability to clearly define the roles of science and resource management in the parks.

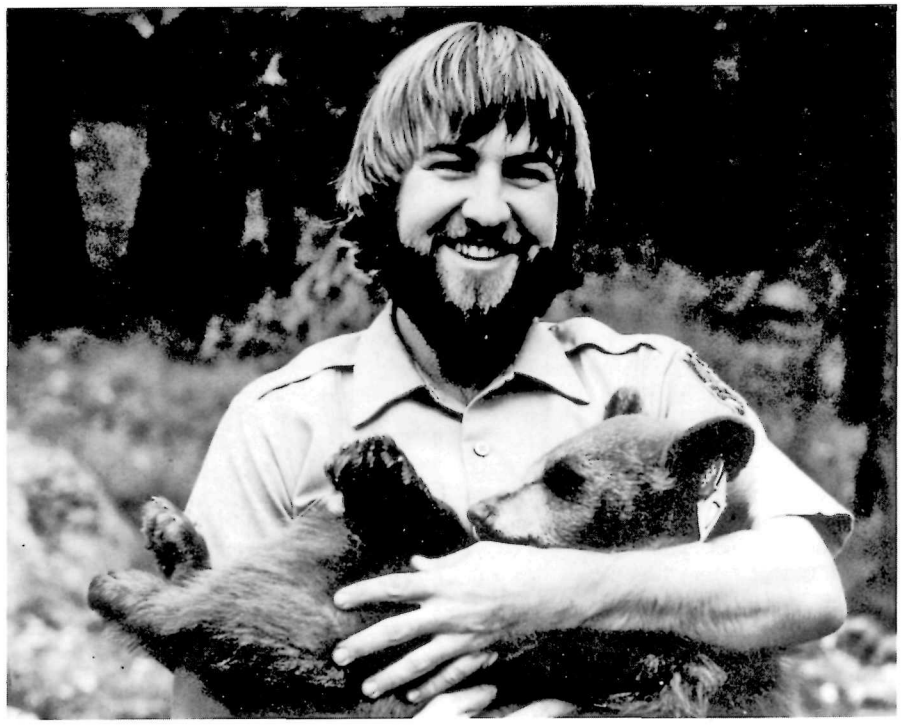
The lack of concensus is not for a lack of dialog: if we do anything to excess in the Park Service, it's *talking* about our problems. To bring park managers, scientists, and resource managers together with each other as well as rangers and other park employees, however, we need to do more than talk. We need to agree on a common vocabulary, purpose, and how professionals with dissimilar approaches, expertise, and rewards systems can work together for the protection of parks and park values.

Terminology

Let's begin with the some definitions, since our current problems stem partly from confusion over three key terms — science, research and resource management.

Science is a tool, and research and resource management are methods of using that tool. Research is the pioneering of new information or new techniques, while resource management is the implementation of monitoring, restoration, or mitigation actions to protect or enhance resource conditions.

Both research and resource management require the wise use of scientific knowledge and methods. Some argue that resource management and monitoring do not require science. I'd argue, though, that the lack of science in resource management and monitoring activities in the past explains why so much of the data collected can't be used again to measure trends or resource conditions. If you don't know why you're collecting information, or, even worse, why you are manipulating the resource, it's not likely, as the saying goes, that you'll recognize what you're looking for when you get there.



Research scientist holds tagged cub at Sequoia/Kings Canyon. NPS photo, courtesy of Jean Matthews, Park Science.

The Mandate for Science

The 1916 National Park Service Organic Act[1] says nothing about science or research — nor resource management, for that matter. The familiar words of the Act — "to conserve the scenery and the natural and historic objects and the wildlife therein" — may be inspirational, but they offer little guidance for a research or resource management program.

The science of ecology was new in 1916 and there is little evidence that Horace Albright, Stephen Mather, and others of that era were thinking about ecological relationships. Early management policies did encourage scientific education, but primarily through observation of objects, many of which parks rangers were to collect and stuff for the park museum before the visitor arrived:

> The educational, as well as the recreational, use of the national parks should be encouraged in every practicable way. University and high-school classes in science will find special facilities for their vacation-period studies. Museums containing specimens of wild flowers, shrubs, and trees, and mounted animals, birds, and fish native to the parks and other exhibits of this character will be established as authorized.[3]

There is no general mandate for scientific study in the national parks. Resource management is probably authorized, though not in such terms, by various laws requiring the protection of parks and park values. Only a few relatively new parks (Channel Islands being perhaps the best example) have a specific science mandate in their enabling legislation.[3]

Yet today many consider the parks to be the supreme examples of "natural laboratories" in the United States, if not the world. We champion biodiversity and the integrity of ecosystems and insist that all native organisms and their natural relationships within the parks are equally worthy of protection.

Bob Krumenaker has been the natural resource management specialist at Isle Royale since 1985. He's also been the coordinator/author of the resource management section of "The Professional Ranger" column in this magazine since its inception in 1989.

Environmental laws since the 1960s have forced the NPS to monitor and protect resources we took for granted (such as clean air and clean water) or may not have even recognized (such as endangered species and wilderness values) a generation earlier. Without a specific mandate for research, we have backed into it through a need for information — or to keep ourselves out of court, for the conservation community has often been more focused on park protection than we ourselves have been. (See the sidebar by Joseph Sax).

The Forest Service and the Fish and Wildlife Service, to pick but two of our sister agencies, have specific research mandates. While they, like the NPS, may be land management bureaucracies, Congress recognized that each of them has the primary responsibility in the government for a specific class of resources (forests, fish, wildlife) and gave them responsibilities outside their unit boundaries.

These other types of resources can often be separated from their land bases and studied in laboratories or universities; they are tangible, and, in the case of the Forest Service, have considerable economic importance. Is it any wonder that the science and research programs of these other agencies dwarf the National Park Service's program? What "class" of resource are we responsible for that can be dissected in a laboratory or grown under controlled conditions?

Applied research, i.e. that necessary to solve a specific management problem or concern, is generally accepted and encouraged by park managers. We commonly call it "mission-oriented" research and sponsor most of it ourselves, either by NPS staff or through contract or cooperative agreement. The objectivity of such research, however, is sometimes questioned; the storm of controversy that sometimes results can obscure the original question. Re-read Alston Chase's *Playing God in Yellowstone* if you need a reminder. Or better yet, apply for a resource management job at Yellowstone.

Is "basic" research an objective of park management? It seems to depend on the manager. The National Park Service's *Management Policies* (1988) contains the following two statements on the matter:

> Basic [natural resources] research may...be necessary to correctly interpret resources whose functioning or significance are not already known.[4]

> Research will be conducted to further park objectives as found in legislation and planning documents. Research activities will...[among other things] ...further understanding of ecosystems and document their components, condition, and significance.[5]

Research should therefore follow from either legislation, which is usually silent on the subject, or plans. If your resource management plan can justify it, then it becomes your objective. Since it's unlikely that we'll ever fully understand the functioning of ecosystems, the *internal* mandate clearly exists for non-applied research, even if many managers choose not to see it.

It is the rare field study that does not come with a cost or impact to the resource, however, and this should always be weighed against the potential benefits. Sometimes the costs are economic as well, typically manifested as logistical support and time required for the care and feeding of the investigation (or the investigator).

U.S. Fish and Wildlife Service photo.

The 1978 Redwoods Amendment to the Organic Act required that managers prevent the "derogation of the values and purposes for which these areas have been established."[6] No science, research, or resource management should occur in a park unless that standard is met; the challenge is determining where the threshold is, because it can't be defined in either law or policy.

The debate over the role of science in the parks has gone on for decades, and there have been many "blue-ribbon panels" which have been charged with exploring the dilemma. Proposed solutions have often been provocative, but have been ignored either by the agency or the Congress.

The Leopold Committee in the early 1960s is probably the best known, and the Gordon Committee in 1989 is the most recent. There is yet another group currently following in those footsteps, this one under the aegis of the National Academy of Sciences (NAS) and known as the Committee on Science in the National Parks.

The difference between the latter group and its predecessors, however, is that Congress instructed the Park Service to commission such a group and explicitly provided funds for that purpose. The NAS committee has been charged with looking into, among other things,

> ...the role of scientific research in the national park system, the duties and responsibilities of NPS scientists, the relationship between scientists and park management, and options for professional interchanges between NPS scientists and their professional colleagues in universities and other research centers.[7]

Both the NPS and the Congress have committed themselves to implementing its recommendations.

There also seems to be strong interest in rewriting the Organic Act to give the NPS a specific science and research mission. Director Ridenour says he is committed to improving our ability to manage resources based on scientific knowledge and wants to begin implementing the NAS recommendations during his tenure. The NAS report is due out in May.[8] If, as expected, they recommend some major changes, implementation will depend on the willingness of Congress to fund them.

Roles and Reponsibilities

Talk to someone only casually acquainted with the national parks and try to explain what "resource management" is. Is it forestry? Wildlife or fisheries management? Archaeology? The answer to each is both yes and no.

If I don't feel up to a long conversation, I'll tell someone I'm either a ranger or a biologist, but neither one is really accurate and certainly the images each appellation creates in the mind are quite different.

When I do try to explain some of the details, most people can't believe the amount of paperwork, planning, writing, and especially, computer work. The image of national parks and the people who work in them does not mesh with the portrait I sketch of a high-tech office with computers, fax machines, and field equipment that includes such devices as an electronic ozone analyzer and a global positioning system.

If I were to present a photo of *this* resource manager at work, it would show a harried person who wore the uniform of a ranger, was busily typing on his computer keyboard, and had a phone receiver seemingly attached to his right ear. The desk behind him would be covered with papers, reports, and software manuals. You *might,* however, be able to catch a glimpse of some attractive national park scene between the slats of the window blinds which are mostly closed to reduce glare on the computer screen.

Parks vary in size, of course, and so do their staffs. Large parks have a number of people in resource management, and small parks typically have none. But those mid-size parks that have taken the plunge usually

have but a single resource management "specialist."

The title is ironic, considering the number of "specialties" we deal with, each of which requires more expertise than we can usually muster. Just in the last two weeks I have had to be a "specialist" in wolf biology, conservation genetics, geographic information systems, forest ecology, air quality, fisheries management, toxicology, pesticides, resource law, global climate change, and fire management. Not to mention contract management, budget, personnel, and computer maintenance.

No one in this role can be an expert in all of these fields, yet the resource manager has to know enough to be able to plan, execute, and direct a program that addresses the entire range of issues that affect the resources of his or her park.

A resource management specialist is, more than anything else, a coordinator and manager of a great variety of disciplines that may have little more in common than that they all have something to do with natural or cultural resources. There is little or no opportunity to be a true "specialist" and keep up with the voluminous technical literature. The information revolution has been a decidedly mixed blessing.

In most parks, the resource management staff is responsible for writing plans and environmental assessments and recommending the priorities for management and in-depth studies of particular resource issues. If there is no research staff, the resource manager will also coordinate and manage whatever research program the park has.

Organizationally, the resource manager usually fits in the "ranger" division, and the journeyman grade is GS-9 or GS-11. A large percentage of resource managers have masters degrees, but only a few have doctorates.

Park-based scientists are much rarer critters, and in the larger parks typically fall into two different categories — staff positions (e.g. management biologists) and research positions. The dividing line between a management biologist and a resource management specialist in a large park is often negligible, particularly in parks with several RM types who divide responsibility by functional area. Grades typically fall between GS-9 and GS-12.

Research scientists, by definition, spend more than half of their time actually doing research and are graded on a sliding scale depending on their publications and professional productivity. They usually have doctorates and narrow areas of specialization. Their park work may or may not be limited to their specialties, and grades typically run from GS-11 to GS-13. The scientists are commonly found in separate divisions or work directly for their superintendents, and are insulated to some degree from park operations.

Most park scientists enjoy the detached role and argue that it is necessary to maintain their objectivity and keep them from being bogged down in the details of park operations.

The problem with the current system, aside from the fact that too few people do far too many things, lies in the disparity between responsibilities, grades, and credibility.

Resource managers have the broad responsibility of relating science to management needs and establishing park programs and priorities. They don't usually have in-depth expertise, however, and therefore are subject to a lack of professional credibility when dealing with academic and other agency specialists in a particular discipline.

It's not uncommon for a superintendent to showcase the park's research scientist rather than the resource manager in order to impress the community or an adversary with the quality resource program in the park. That practice can both slight the resource manager and simultaneously compromise the scientist as well because he or she inadvertently gets dragged into the political fray.

The research scientist may have the same credibility problem with his or her peers. Despite the scientist's relatively high grade, government pay still lags behind that offered by the academic community, and the park scientist in a remote area with limited opportunities to attend professional

Toward Natural Systems Management

Joseph Sax

The early national parks were established as enclaves of spectacular natural beauty. They were not meant to be, and they were not, integral ecological preserves. Parks were often managed esentially as wildlife zoos and boundaries were often ecological jokes. Nonetheless, because of their size and isolation, and because the lands around them were commonly uneconomical to develop, many parks in fact constituted the core of essentially pristine ecosystems, biological as well asesthetic treasures.

The modern environmental movement is both more knowledgeable and more scientifically oriented than its precursors. Park defenders demand not only that there be wildlife in the parks for visitors to see, but there be sufficient habitat to sustain wildlife populations in more or less natural conditions. The enviromental movement's legislative program has produced the Clean Air Act and the Endangered Species Act, for example — laws that demand recognition of the interrelatedness of natural systems.

The difficulty is that the National Park System, indeed the whole system of public and private lands, is not organized to produce the results these and similar ecologically sophisticated laws require. Parks are not, with occasional exceptions, ecologically integral in any respect. They do not encompass entire habitats for their animals, or whole watersheds, or even viewsheds, to say nothing of the airsheds by which acid deposition must be accounted for. Even the huge Yellowstone National Park does not include sufficient land to protect its geysers — the very symbol of American national parks — from geothermal mining beyond its boundaries.

From the perspective of preserving biological and genetic integrity, by which contemporary environmental opinion measures success, the parks (for all their wonders) are seriously deficient. If our parklands are to provide, in any degree, what we are now asking of them, far-reaching changes will have to be made. A great deal of land, both public and private, the use of which affects the parks and their resources, is going to have to be managed more sensitively. Traditional boundaries, between park and national forest, or between park and private land, must become less important, and "resource boundaries" must loom much larger. We already talk about the "Greater Yellowstone Ecosystem," which is essentially a euphemism for the habitat of the Yellowstone region's grizzly bear population. This is the first resource region of the sort that should be the basis of future land management.

So far neither Congress nor any agency of government has been willing to face up to the far-flung consequences of moving from traditional enclave management to the challenge of resource-based, natural system management. It is not difficult to see why there is reluctance. A great many people, interest groups, and public agencies have a lot invested in the traditional boundary lines, which define their turf. Thus, efforts to obtain enactment of park protection legislation, which would generally take account of transboundary impacts, languish in Congress. At the same time, paradoxically, Congress has moved forward with a great deal of modern environmental legislation that is, almost by definition, ecosystem-based and resource-oriented. The result is that, piece by piece, we have accumulated a considerable quanity of *de facto* park protection legislation, despite congressional unwillingness to enact anything with that label.

The above was taken with permission from Joseph Sax's forward to Our Common Lands: Defending the National Parks, *edited by David Simon and published by Island Press.*

meetings often has a difficult time staying current in his or her discipline.

Another problem lies with career ladders and opportunities for advancement. A research grade position has similarities to a tenured faculty position in a university and allows for advancement within the job as expertise and reputation grow. Many research scientists spend all or most of their careers in a single park, developing unparalleled knowledge of a single ecosystem. The down side of this is that managers often find their staff researchers "hard to control" and without a Park Service perspective beyond their own parks or ecosystems.

In an isolated park, a researcher (or anyone else for that matter) can go stale if not challenged regularly by professional peers. A mutual distrust between managers and park scientists often develops, usually caused by poor communications and lack of agreement on roles and functions.

While there are many notable exceptions, it seems that most resource management specialists move on a cycle similar to other career professionals in the NPS. To move up, they have to move out. This limits the local expertise they can develop, but maximizes the opportunities to experience a variety of professional challenges and bring those perspectives to bear in each new park job. The long-tenured researchers watch them come and go, and the program thrust changes with each new person in the job.

One bittersweet reality for many resource managers contemplating promotions is that they are often locked out of the *research* management role when they move to a larger park, since that interesting job is usually in the domain of the research scientist in any park big enough to have one.

These are old problems and they won't easily go away. Western Region's strategy of having all park research scientists report to the regional chief scientist and be affiliated with a university cooperative park study unit (CPSU) may be one solution to the scientists' problem. Midwest Region is taking another course by attempting to organize some of its park scientists into a Great Lakes research group to share expertise across park boundaries.

Solutions for the problems of the resource management specialists seem more elusive. The Service is now in its fifth class of resource management trainees, and has thereby significantly increased both the number and expertise of the people out in the field and the competition for the prime jobs. The program has been criticized, however, as attempting to train "multi-specialists" rather than resource program managers.

Some have suggested that the next class should be for current resource management specialists, encouraging continuing education and advanced training to keep current. The solution, if any, may lie with an even more ambitious attempt by the agency to staff the parks with more resource specialists and make them akin to BLM offices with their foresters, range managers, wildlife specialists, and hydrologists.

An encouraging sign to some is the trend towards reorganizing the science and resource management functions into a single division at both the park and regional levels. This should help foster better communications and break down the walls of what some (usually on the outside) see as the exclusive "club" of the PhD's.

But who should lead such a division? A scientist? A resource management specialist? Or perhaps a good manager, regardless of discipline? Some say this can't work, since the scientists are typically graded higher than the others. That's short-sighted, though, since OPM rules *do* permit higher-graded technical persons to work for lower-graded managers.

In regional offices, and, more importantly, in Washington, change occurs more slowly. Natural resource management, if it exists as its own entity at all, is almost always a sub-unit of either the science or ranger activities office, thereby fragmenting its identity and perhaps belittling its importance. (With cultural resources, on the other hand, things are inverted: WASO has its own cultural resources directorate, but in many parks you have to search awhile to find who is responsible for cultural resources.)

Many feel that top management in the Park Service science establishment doesn't recognize the importance of resource management or distinguish resource management from a research program. Some fear that the expected National Academy recommendation of an increased science emphasis for the NPS will mean more research but even less resource management.

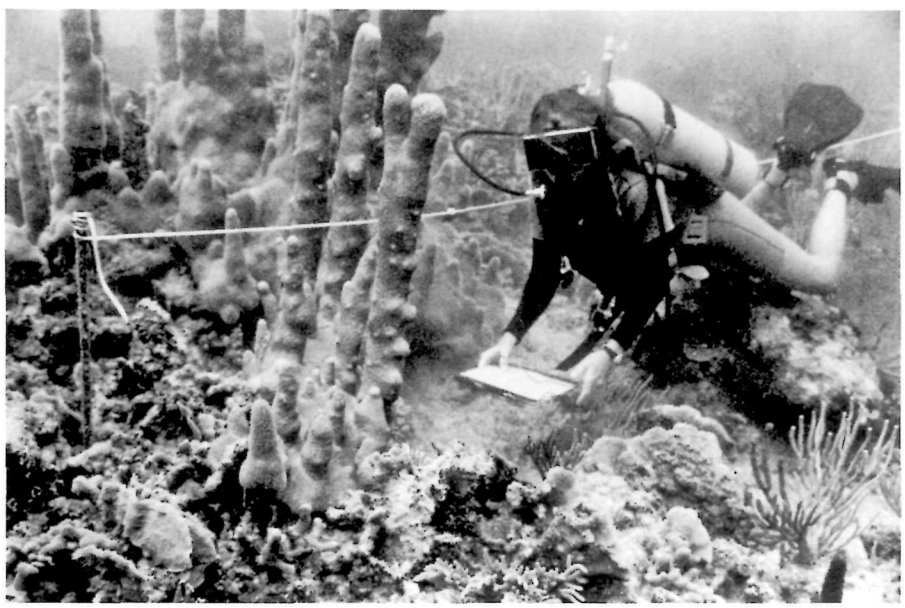
Where does that leave the park ranger? With the burgeoning technical workload, and expertise required to develop monitoring programs and implement them, can a ranger still do resource management?

Growing opportunities in fire management and the conversion to or establishment of many fire jobs in the biology (401) series would suggest that the answer is "yes", at least in fire. The need for resource protection is clearly increasing, and this will require the well-honed field skills of the park ranger or biological technician.

Ironically enough, traditional field skills may be in short supply at the same time that the need for academic and technical expertise by the resource management specialists is accelerating. Everybody can't be a specialist in everything, and therein lie the opportunities for people at all levels of the NPS.

Boundary fencing, poaching patrols, underwater shipwreck monitoring, and commercial fisheries management can all be considered resource management functions in those instances in which the core purpose of the function is the protection of resources and park values. There is opportunity, too, in the less glamorous but grade-enhancing bane of resource management, i.e. paperwork. I haven't met a resource management specialist yet who would refuse an offer for assistance in writing a plan or environmental assessment.

Most superintendents are former rangers and no one expects that trend to change drastically in the future. Resource specialists need to keep rangers involved in resource management if for no other reason than to protect the future investment: the best superintendents are the ones most sensitive to resource concerns, and they can



Diver conducting underwater resource inventory at Virgin Islands. NPS photo, courtesy of Jean Matthews, Park Science.

Directions in NPS Natural Resources Management

A workshop was held in Denver during the first week of May last year which focused on the future directions of natural resource management in the National Park Service. The idea for the workshop developed from numerous discussions among regional resource management specialists, who felt that there was a need to sit down together and "systematically coordinate (important topics), identify unmet needs, examine new ideas and consistency among regions, and explore guidance and directions provided by NPS policies."

The work group produced a comprehensive listing of over 70 recommendations for future actions which need to be taken in resource management. Sixteen of the more important ones follow:

- Superintendents need to realize that research provides the direction for solving a resource management problem. Research is not an end in itself. They need to see that additional funding to implement research will not be available without their support of a larger operating base or cyclic natural resource fund.
- Resource management projects that have a visible product should be addressed with a cyclic resource management fund. The strongest justification possible should be formulated for a cyclic or revolving fund to address recurring needs or events which have cycles of less than three years.
- The resource management program should be clearly described to OMB and the Washington Directorate as a primary mission of the NPS.
- The goals of inventory and monitoring (I&M) are to identify the condition of the resource. Parks' management objectives should be to manage for a certain condition of the resource, rather than being issue-based. As conditions continue to be monitored, management objectives should be re-adjusted based upon the information obtained through monitoring.
- Training for superintendents on the value of resource monitoring should be developed.
- Managers should be rewarded for identifying problems and not led to believe they will be punished for bringing them to supervisors' attention.
- If we begin an I&M program, we need to plan to carry it on. A continuing program should be reflected in the NPS budget initiative.
- Research priority-setting should be a partnership between resource managers and researchers.
- Problem definition must be a partnership between research and management to ensure that there is a clear understanding of management's need for information.
- Investigate the formal allocation of some Servicewide research funding to generate low-cost research simply by providing facilities.
- Basic resource data must be obtained and incorporated into plans. A planning protocol should be developed that provides time to collect resource data. With Congressionally mandated plans, request more time from Congress to follow this process.
- Funding priorities must provide for resource studies in advance of GMP planning.
- We need to shake off this spartan attitude that we've had and compare our staffing depth with other agencies. Then we need to request the funding that is needed to bring our resource management staffing levels up to a reasonable level. This could easily be on the order of $200 million. The director and regional directors need to coordinate, and then the regional directors need to coordinate with their superintendents, so we present consistent information concerning our needs in our contacts with others.
- The qualification requirements for resource management specialists, as well as rangers, should be upgraded. They should be based on a good task analysis, crossing the spectrum of parks. It is likely that this process would result in a positive degree requirement. Look at what type of degree, other qualifications, and trainable skills are needed to do a good job in the first ten years of their career.
- The resource management trainee program should be centrally funded and administered. FTEs and funding for salaries and training should be WASO-based during the training period, with trainees targeted for field assignments based upon predetermined needs expressed by parks. The FTE and base funding need to come to the park with the trainee-graduate.
- Trainees should have a minimum of a bachelor's degree in a natural science, with preference given to nominees having a graduate degree. Ideally these people would be from within the Service and bring with them a knowledge of Service goals, policies, and organization. Outside hires would no doubt be necessary and should attend "Introduction to Park Operations" or a similar course to prepare them for working in park situations.

develop those convictions only through experience.

Gary Davis, a research scientist at Channel Islands, sees an analogy between the players in the science/resource management arena and those in the medical profession.

Likening our beleagured park ecosystems to a sick or injured human being, Gary suggests that the rangers and field people are like EMTs, making the rapid assessment or initial diagnosis of a problem and taking steps to stabilize the patient and prevent further deterioration. The resource management specialist is the general practitioner, able to treat a wide variety of ailments and conditions and prescribing a long-term regimen of care. Acute disorders often times require a medical specialist or exploratory surgery, or in the case of parks, a research scientist to design a specialized treatment or diagnostic regimen. The research itself doesn't heal the patient, it's the application of that research and the quality of the short and long term care that provides the remedy. Each of these players is a professional with a different type of expertise, and all must work together to keep the patient alive.

Projects or Programs?

Park Service funding for science and resource management may be paltry compared to other agencies, but it has more than doubled in the last decade. The challenge for the NPS comes in balancing acute needs with chronic ones; the emphasis has traditionally been on solving the most critical problems with our limited resources, as it probably should be.

But the short-term view of the funding cycle and the various special initiatives (global climate change, inventory and monitoring, etc.) mean that it is extremely difficult to get funding for basic resource management and low-tech monitoring. After the research thrust is over, there is frequently no money left to implement the recommendations or results. Park base funds, oversubscribed as they may be, are expected to fund resource management programs.

The new format for park resource management plans (RMPs) embodies and formalizes this obstacle. The heart of the RMP is the list of "project statements" that outline specific problems and their proposed solutions. It's comparatively easy to get funding for say, a three-year study of erosion impacts in your campgrounds, while it is next to impossible to get a base increase to fund a resource protection crew to do preventive maintenance every year to keep the problem from becoming acute.

If there's any good news in all of this, it's that the funding problem is well known and several regions and large parks have set up their own cyclic resource management funds to address small or chronic concerns.

Continued on page 23.

The Professional Ranger

Resource Management

• Science conference — The Sixth Conference on Resource Management in the National Parks and Equivalent Reserves (a.k.a. the NPS Science Conference) was a great success last November. For the first time, the meeting emphasized resource management as much, if not more than, research. Highlights of interest to ANPR members included:

* Heather Huyck of the House Subcommittee on National Parks and Public Lands emphasized the need for professionalism in resource management and stressed the value of last summer's "endangered ranger" hearings on Capitol Hill.

* Associate Director for Natural Resources Gene Hester announced a $10 million base increase for natural resources in FY 91. This includes $3.8 million for regional resource bases, $1.0 million for Geographic Information Systems (GIS), $1.9 million for Global Climate Change (GCC), $0.7 million for wetlands, and an additional $2.5 million for the Natural Resources Preservation Program (NRPP).

* An attempt was made to organize a "resource management section" of the George Wright Society. See the feature article on resource management for details.

* Quotable quotes: Destry Jarvis (SCA): "Maintenance is the number one internal threat to the parks." Dave Simon (NPCA): "The biggest threat to the national parks is ignorance on the part of the American people." Bill Whalen (former director): "In Bill Reilly at EPA, we probably have the country's leading environmentalist — for a Republican."

• Funding increases — Those base increases Gene Hester announced have generated some controversy. The budget book said they were to have been split evenly between science (i.e. research) and resource management, but the bulk of the monies have gone to research programs. There is no national standard for resource management funding or program organization, and each region handles it in a different manner. See feature article in this issue for more on the uneasy relationship.

• Biogeographic areas — Five NPS biogeographic areas have been invited to submit detailed proposals in FY 91 for global change research program funding. They are Ozark Highlands (OZAR and BUFF as core areas), Glacier, Olympic, Southern and Central Sierra Nevada (SEKI and YOSE), and Western Lake Forest (ISRO and VOYA). Each site has developed a series of increasingly complex proposals which have defined their programs and allowed them to sneak past other areas competing for the same funds. The details vary, but each site will probably receive approximately $200-$300,000 for FY 91 and hopes to parlay the money into a five year (or more) research program. Most areas will be adding staff, particularly GIS and data management specialists. Look for vacancy announcements this summer. Three other areas will receive pilot (administrative) funding (Florida Keys, Colorado Rockies, and Northwest Alaska) to develop more complete proposals in FY 92. If expected funding increases occur in future years, additional NPS biogeographical areas will be added to the program each year, perhaps to a total of 20 or more.

• Fire curriculum — Paul Broyles of the NPS Branch of Fire Management has distributed review copies of a revised fire suppression curriculum. Many familiar courses are being upgraded or replaced to incorporate ICS and up-to-date materials and case studies. The prescribed fire curriculum is being fleshed out as well, with courses coming on line in all aspects of prescribed fire.

Bob Krumenaker
Isle Royale

Visitor and Resource Protection

The annual meeting of all ten regional chief rangers, the staff from Ranger Activities in WASO, and other law enforcement, resource management and fire management specialists (including your correspondent) was held in Washington in January. During that meeting, there was lots of discussion on law enforcement issues:

• Automatic weapons — An evaluation of a wide variety of semi-automatic pistols is being conducted by Paul Henry (JOTR), Dale Antonich (DEVA) and Garry Rocklage (NPS/FLETC) at the behest of Ranger Activities, WASO. Recommendations from the group are expected to address many areas, including preferred caliber, acquisition specifications, phase-in period, training standards, and assignment and accountability issues. Funding looks fairly good for FY 1992.

• Body armor — The NPS-9 authorization for soft body armor is being revised to strengthen the guideline stipulations on who wears it, when it is to be worn (or not worn), standardization, and replacement. Anyone with thoughts on the matter should direct their comments to their regional law enforcement specialist for final review in WASO.

• Law enforcement badge — There was discussion of a law enforcement badge, but it was agreed that the traditional badge should be retained with the addition of a DOI badge for credential cases and plainclothes use. The Forest Service model is being studied.

• Psychological exams — The participants felt that we should be conducting psychological exams for law enforcement personnel just as other agencies do. A survey of federal agency policies on such testing will be conducted.

• Full field background investigations — These are coming for *all permanent law enforcement personnel,* so get ready! OPM and DOI are giving the NPS three years to take care of the backlog. Instructions will be coming out soon on implementing this for new hires. Parks will have to bear the higher ($1,500) costs associated with this type of investigation. Seasonals will have to get a limited background investigation, which is still time-consuming and expensive.

• Central law enforcement equipment supply depot — An assessment is being made of the possibility of setting up a central supply facility for law enforcement equipment. One suggestion is to train and qualify basic students at FLETC in semi-automatics, then issue them their leather gear and weapons upon graduation. Graduates would retain this equipment for the duration of their law enforcement careers. Under such an arrangement, weapons couldn't be issued to non-commissioned employees, so commissions might be issued upon graduation from FLETC. Since commissions will require a full field background investigation, then investigations will have to be completed *prior* to nomination to FLETC — rather than just initiated as is now the case — so that graduates can receive them at graduation. Graduates might also get measured for body armor and pick up a nice new badge and credential case, too.

• Investigative equipment — An investigation is also being made into the possibility of setting up a central cache of investigative equipment. No location has been chosen as of this writing, but the cache supervisor would provide technical assistance and training for field units needing sophisticated surveillance and monitoring tools while conducting ARPA, drug, wildlife or similar investigations.

• Emergency funding — The consensus among participants was that events requiring law enforcement support are becoming increasingly complex and frequent. A recommendation was made that the NPS pursue a law enforcement equivalent to FIREPRO (LAWPRO?), and WASO Ranger Activities will be looking into this possibility. Lots of staff work and risk analyses will have to be done before this ever becomes a reality.

• Seasonal issues — Seasonal recruitment and retention issues were reexamined, but there were few new answers. The biggest roadblock seems to be the Service's in-