

The Evolution of NPS Science and Natural Resource Management

Rhetoric versus Reality

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YS: How did you get interested in history, specifically in writing a history of resource management in the National Park Service?

RS: For the first 15 years of my career, I was involved with historic preservation. But I have some background in environmental history; in fact what happened was that after Alston Chase's book, *Playing God in Yellowstone*, came out, the Park Service decided it had better look at its own history. The Washington

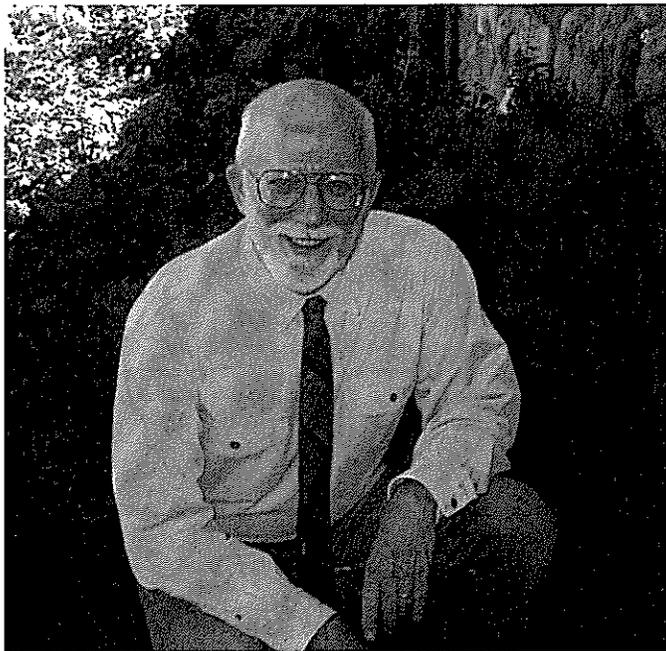


Photo courtesy R.W. Sellars

Office began preparing a history of natural resource management in the National Park System to be researched and written in four months.

That was 1987. I thought it was a very bad thing for the Service to try to do that in four months—it would be shot down immediately. Then I asked for the assignment on a longer range basis, and I got it.

YS: Thus the publishing of *Preserving Nature in the National Parks*. What types of research did you use to write the book. Did it include actually interviewing people, or was it all done from the documentary record?

RS: I spent about the first 15 months doing background reading and documentary research. My wife, who is the research librarian at the Museum of International Folk Art in Santa Fe, took leave

of absence from her job and traveled as a volunteer with me for the better part of a year doing research around the country: National Archives, NPS Harpers Ferry archives, the Bancroft Library, the Museum of Vertebrate Zoology at Berkeley, a number of parks, and a few other collections.

I did quite a number of interviews, but as it turned out I didn't use a lot of them. For one thing, I had to be opportunistic with the interviews and do them when I had a chance to visit with people, and that was mainly in the very first part of the project when I was not that familiar with the questions I needed to ask. Thus I

was not always asking the questions that I would want to know about later. Secondly, I really found out more than ever before that oral history has its problems. People want to remember things in a certain way. Sometimes they are absolutely correct. You're giving me a little oral history right now [laughs]. But the documents are so much better. If you're talking to someone about the early 1960s or the early 1970s, not only has it been a number of years since that time, but they might not really remember it all that well because today they just see things in a different way. So I used the documents far more than oral history. The real benefit of the interviews was to get me more familiar with the subject matter, and with the questions being raised and the concerns that people had.

YS: What were the questions you most wanted to answer?

RS: I realized from the very first that I was not going to do simply a history where “this research project was done and that research project was done” and where “so many scientists were hired at this time and so many at that time.” This was an administrative history of natural resource management; that’s what the official definition of this book has been all along. But I would never give it that title—I want it to sell more than a dozen copies! I realized that I was going to have to look at natural resources management not by itself, but in the context of what else the National Park Service was doing, asking the question that, if the Service was not conducting natural resource management in tune with the ecological knowledge of the time, what was it doing instead, and why? What were its priorities, and where did natural resource management—in particular, scientific natural resource management—fit in?

That’s the reason the book deals quite a bit with what I refer to in the introduction as *de facto* natural resource management, which is to say intensive development in certain areas such as along the South Rim of the Grand Canyon, which altered the natural systems in that area considerably. Or in the Yosemite Valley. I looked at development as an impact on natural resources and thus as a way of managing them out of existence, or certainly altering them considerably—and setting up conditions with which later natural resource managers and scientists and superintendents would have to contend.

So, I was looking both at development and at what we refer to as natural resource management—the actual, direct, hands-on approach to natural resources—trees, and mammals, and whatever. The book deals quite a bit with the developmental impulses of the Park Service.

YS: You mention that people perhaps didn’t even remember correctly to the 1960s and 1970s. Did you go back to whatever beginning documentation you could find for resource management?

RS: I go back to the 1870s and I deal with natural resource management in the nineteenth century as practiced by Army and civilian superintendents and their staffs,



During the early days of aggressive predator control this photo shows five men posing with wolf carcass at the Soda Butte Soldier Station in 1905.

Photo courtesy NPS Archives (YELL 36953).

on up through the time the Park Service was established. The book begins with Yellowstone in 1872, which I consider hands down to be the first national park. It’s odd that some people argue that Yosemite was the first national park, but in 1864 the federal government divested itself of the responsibility to run that area. I see the Yellowstone act as a much more broadly developed statement of national park philosophy and policy. I think of those who argue that Yosemite is the first park and then talk about the campfire story and the creation myth in 1870. Wait a minute. It doesn’t make sense. Yellowstone is clearly the first national park, so I began with Yellowstone.

YS: I’m surprised how often I hear a sort of retroactive judgmentalism. We are wandering back through our history and we unavoidably pass a lot of judgments on when “they” were right or wrong. In some cases, like the mistreatment of Indians, we exercise a lot of outrage too. But in other cases, like decisions about natural resource management, we tend to have a smugness about how “we know so much better now.” And there’s a hardness to the judgments that I think is inappropriate. What I’m getting at is this process by which more and more of us have come to recognize that science is just absolutely essential for all our decisions.

But some superintendent in Yellowstone in the 1920s could, intellectually, with a certain amount of integrity even, very comfortably feel differently about it and see the scientific crowd who were lobbying him to stop killing preda-

tors as another special interest group: “I’ve got the Cody Chamber of Commerce hammering me about this; I’ve got the Northern Pacific Railroad bribing my Congressman about this, and I’ve got these *scientists*, you know...” And that superintendent, because of the way his mandate had shaped up accidentally (sometimes purposely), it wasn’t intuitive to him that science should be his primary guide. It was almost a social victory for the scientific community that it worked out that way. Now, we see that all with hindsight. I’m troubled when I see historians sort of perverting that hindsight and implying that that guy was stupid, or even that there was something sinister going on there. What I’m really interested in is how these people worked through what is essentially a value system, because their mandate was so muddy it wasn’t going to tell them.

RS: I think that it’s important to consider the National Park Service Act and who its principal founders were: a borax mining executive, retired (Stephen Mather); a landscape architect (Frederick Law Olmsted, Jr.); a horticulturalist (J. Horace McFarland); and a young lawyer (Horace Albright). None of them had biological training to speak of beyond horticulture. It seems pretty clear to me from their correspondence that they were looking at preserving the dignity and majesty of national park scenery, including wildlife, and that they were looking at this in gross terms rather than with the precision of a biologist.

Their ideas tied into public enjoyment

very closely, which is mentioned at least twice in the NPS' act's principal statement of purpose. They were very concerned about that and about keeping the parks attractive to the people. That was one reason they would fight fires; it's one reason that they would kill predators to save the favored mammals. I think that it is important to note also that the 1916 act did not mandate new management policies. The Service merely continued with policies used by its predecessors, the early superintendents of the parks civilian and military. I do not believe that the Organic Act changed the policies whatsoever as far as day-to-day management of the parks went. I see the superintendents as doing a job that they thought was right and proper, and they reinforced that in kind of a group way, among themselves.

So, when the scientists came into the Service, about the very late 1920s but mainly the 1930s, they were truly insurgents. They had a different point of view. By contrast, the superintendents of the 1920s were mainly engineers; they were out of the developmental professions and they had the developmental impulse. They knew that if the national parks weren't developed for tourism the whole idea was likely to be lost, and the U.S. Forest Service might gain control of the parks.

YS: Let's move to the late 1950s, when a bunch of things are about to happen soon but they haven't yet. A superintendent in any big natural area right then—what might make him see those special interest groups differently?

RS: Many of the values espoused by Mather and Albright and their followers and associates in the 1920s were still in place in the Service by the late 1950s. The effort that George Wright [*the first NPS scientist, who in 1929 founded and funded out of his own pocket an NPS wildlife division*] and his fellow biologists had made to try to change the perspective had pretty much died out. There were still some very fine scientists in the Service, like Adolph Murie and Lowell Sumner. But as far as management itself goes, their perspective had not changed. The change came beginning really in the 1960s with the Leopold Report [*a 1963 review of wildlife management in the national parks that prompted a servicewide change in natural resource management poli-*

cies], and the National Academy Report [*a 1963 review of NPS science programs.*]

YS: But some of Wright's ideas had taken hold, such as restrictions on predator control.

RS: That is a good point. Changes had occurred, rather gradually. For example, Wright's group had pushed for reviewing and altering the fire policies. NPS biologist Adolph Murie was outspoken about

that. There is a wonderful set of letters: a debate between Lawrence Cook, who was at that time chief forester for the national parks in the West, and Adolph Murie, about the McDonald Creek fire in Glacier National Park in about 1936 or 1937. It's an excellent debate; you can see the two different policies and philosophies working against one another—the traditional forestry policy that Cook espoused, and the more ecologically attuned policy that Adolph Murie espoused. But the Service rejected Murie's argument.

And with the predator policy, Horace Albright, for decades even after he resigned from the NPS in 1933, remained determined to keep the parks' coyote populations down. There was plenty of support within the Service for killing coyotes—reflecting adherence to traditional ways—even after Albright himself had promulgated a more tolerant predator policy in 1931.

YS: The primary movement for the preservation of wilderness actually came out of the Forest Service. I never hear much about Park Service scientists or managers joining into that. Did I just miss it, or did the Park Service have this attitude that I think we still have today, that we don't need that extra piece of legislation because we're already protecting our parks?

RS: The answer to that question is that the Service did drag its feet on the Wilderness Act of 1964—it opposed it for a long time. But also within the Service there were men—Lowell Sumner, Adolph Murie, Victor Cahalane, for instance—who were very strong and early support-



Superintendent Horace Albright in 1922 celebrating amongst the accoutrements that reflected the thinking of the day. NPS photo archives (YELL 37160).

ers of wilderness. But Murie, Sumner, and others who supported wilderness were not park leaders; they were biologists, and they were down in the ranks. Park leadership felt that the Service didn't need this overlay of wilderness regulations. Frankly, I believe, skipping ahead toward the present, that one reason some of the major parks still do not have designated wilderness is that it has never been a top priority in the NPS. Had it been so, had the Service and the superintendents been constantly working with their congressional delegations and their support groups and made it a very high priority for the past 33 years, I think we would have more wilderness in the system than we have today.

YS: Yellowstone is one of those big parks without designated wilderness. I suspect that a lot of people recognize that wilderness is probably a purer classification than the way we manage our backcountry. We hear that the staff need the freedom to go out with chain saws, or helicopters, or whatever it is they're going to do. It seems funny that it's our branch of the federal government doing what the public in the West does to us—saying, "we don't want those darned feds in here telling us how to manage!"

RS: It was the same way with the National Environmental Policy Act of 1969; we didn't want it. With the National Historic Preservation Act, we supported the passage, but we didn't want to mess with those regulations. The Wilderness Act was really the first of the environmental-era legislation whose implementation the NPS resisted.

YS: Isn't an examination of NPS culture

important to understanding our history? **RS:** What really happened, I think, is the establishment in the 1920s under Mather of a dominant Park Service philosophy, a culture that valued managing parks for scenery protection and for public enjoyment. As long as the forests were green, as long as there were elk grazing and a fair number of visitors could see them, it didn't really matter too much whether there was a high elk population count or a low count. This reflected a fundamental set of values that the scientists would soon challenge. The scientists faced a unified perspective among Park Service leaders—who were geographically spread out but philosophically unified—favoring scenery and tourism management. And scientific knowledge was not a necessary part of that. In fact, science challenged that perspective.

George Wright and the biologists of the 1930s were effectively saying “you're not running these parks correctly; you're not doing the right thing. And these are the reasons why.” That was a challenge—even though the Service was only 12 to 14 years old—to already established traditions. The scientists were telling managers that they were not handling their resources properly.

My next research project is a history of historic site management. And in contrast to the scientists, historians and archeologists and architects who emerged in the Service in the 1930s—about the same time that the wildlife biologists were emerging—did not run into the same kind of organizational barriers in seeking to gain influence. And the reason, I think, is that they were operating in a different world—working in the archeological parks in the Southwest and the patriotic sites in the East. They were not telling the mainline, mainstream Park Service management that they were managing the parks wrong. So by comparison they had an easier time of it, whereas the biologists were really insurgents; they were challenging tradition.

Not only traditional ways of doing things, but if you were an individual who had been hired as a ranger in 1919 and you made it to a superintendency in 1925, you gained status in part because you thought the way the leadership did. You were drawn into the culture, through a

kind of filtration system. You succeeded because you agreed with what leadership believed. The scientists, by contrast, were challenging the system. And so what happened to the scientists? You don't see them rising up in the ranks. Carl Russell became head of Yosemite, he was an exception; he had a Ph.D. in wildlife biology, I think from Michigan. But by and large the scientists were kept out of upper level management. And they were marginalized because they challenged values that were already established under Mather and that had roots in the nineteenth and early twentieth centuries before the NPS.

YS: When you said that scientists went against mainstream management, are we talking about the big traditional parks, the Yellowstone and the Yosemite?

RS: By and large. That's where the natural resource issues were played out. Yellowstone, Yosemite, and later, Everglades and the Great Smokies, for example.

YS: It goes back to the scenic and tourism values; there was already perhaps a very strong economic constituency.

RS: Yes, for scenery and tourism management. But the scientists were not into that, particularly. Although I think they firmly believed that scientific natural resource management was compatible with tourism, that it should be a matter of good clear thinking and investigation about park development and management.

YS: Can we talk specifically about Yellowstone? Not just because it's the first park and we're here but because I think it's still portrayed as having been the first for so many other things in the Park Service. For example, the Leopold Report itself—one of the things that led to it was the elk reduction here.

RS: That was the principal concern that led to the report.

YS: I'm interested in your documentation of how Yellowstone reflected trends in the Park Service. We certainly still get criticized—I think very much—for our lack of use of science in resource management, and all that may be legitimate. We don't hear much about how Yellowstone is viewed as either a good or bad example of resource management or of using science to afford better decisions. I have no way from “the inside” of

knowing how historians view [our park] from a more objective perspective.

RS: In the book, I use Yellowstone more than any other single park because I think it really was a trend setter in natural resource management. Also, it is the one park that continually draws public attention, although others do, at times. But not to exclude the influence of other parks: for instance, fire management policy changes emerging in Everglades in the 1950s when Bill Robinson began to experiment with prescribed burning. Similar efforts began a bit later in Sequoia. Fish management policies began to change pretty much throughout the System, a little in the 1930s and some more in the 1950s. So you have these things interacting around the System; and yet on the whole Yellowstone is probably the one park where natural resource management is always at least visible, and often at the forefront of public interest.

YS: Being put in that role so often and getting so much attention appears to generate tremendous resentment and jealousy in the culture of the Park Service. I've seen some just bitter stuff against Yellowstone—vengeful stuff; I've actually witnessed it. I'm curious if you've picked up on that.

RS: Honestly I haven't. I've heard some of that myself, not much of it, but I didn't come across it in the documentation. I don't doubt its existence, though.

YS: There's a legend about Horace Albright walking into an office somewhere—it's famous Park Service folklore—and somebody had put up a sign that said “that's the way we've always done it in Yellowstone.” Apparently Horace was really annoyed. When I first came here I heard that [*park superintendent from 1967 to 1975*] Jack Anderson had the sign over his door and told his chiefs, “Don't give me that excuse!” [laughter]. That's the image of Yellowstone as this place that's unwilling to change, as opposed to a Yellowstone that gets stuck being the guinea pig all the time.

RS: What attracts me to Yellowstone is not just its scenery and the wonderful things there are to see here, and the natural resources, but also its history. And that's most readily exemplified in the buildings. Certainly the Old Faithful Inn

is a premier example of that. You immediately get a sense of the early national park years in some places in Yellowstone, and it gives it a depth, that while Yosemite, for instance, has some of, it's not as evident as it is here. Yellowstone is a fascinating, complex place historically and from a point of view of natural history as well. The historical factors might not be the reason most visitors come here, but I think it enriches their experience.

YS: On the other hand, that's complicated the mission. Now there is a vast outdoor museum of huge, expensive objects that we're saving, which changes the priorities of budgets and everything else, a lot.

RS: Such changes are expressions of the public will, as stated in the 1966 National Historic Preservation Act, which is an expression of concern about historic features in a big natural area like this. It's as much law, as strong a mandate, as for the preservation of natural resources.

YS: Without asking you to finger personalities, in your research did you find a clear correlation between who was superintendent and his attitude toward science or resource management? Is it largely personality driven, either by the presence of a very strong scientist or manager?

RS: I think we have had a number of superintendents who have proved very supportive of scientific resource management in the parks. The problem is that it depends upon the individual superintendents; it's not a pervasive Servicewide attitude that we must have scientifically informed and intelligent management. And in the age of ecology we now know that the only way to have intelligent management is to have ecological knowledge. We speak about this a good bit, but we don't necessarily do it.

You mentioned personalities. I would have to say the book provides an especially revisionist view of Horace Albright. Now, no question about it, he was a builder of the system; he contributed an enormous amount to advancing national park interests. But he remained very, very conservative regarding natural resource management. As it happened, I think he spent half of his later life at the typewriter; he was constantly corresponding with the superintendents and directors and whomever. So there was a great pa-

per trail left by Albright and I often used him as the voice of traditional management. Even though he was outside of the Service, he was real close to the Service for the rest of his life, and shared mainstream NPS perspectives.

YS: His visits were like presidential visits! I have a feeling that deference to Horace, this non-government guy, had an effect on all these managers who wouldn't take on anything that they thought would annoy Horace.

RS: Had Albright been converted to

stopped predator control, and I'm sure Horace believed it! Forty years later it's a great story. All you have to do is look at the record to know that "it wasn't like that, Horace." How did you take on the icon that was Horace?

RS: I let him take on himself. Of course, I'm the one who selected which documents to use. But I let him speak for himself in the 1930s and '40s and '50s and into the '70s. And in most cases I left it to the reader to make a judgment about Albright. But his positions were very

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contemporary ecological thinking, let's say in 1935 or 1937 or 1940, and had he told the leadership of the Service that "these wildlife biologists have a point...we really need to take this into account," he could have had a more positive effect on natural resource management than the Leopold Report. He had enormous influence on the Service. He was one of the founders. He and [former director Conrad] Wirth and [former director George] Hartzog, were men who really did contribute an enormous amount to expanding the National Park System, and they must be given credit for that. But as far as ecology goes, no. Hartzog made some moves in that direction, and Albright some, early on. But certainly not Wirth.

YS: I think it's a small enough agency that through force of personality someone like Albright could clog up, at least retard, the changes that might otherwise have occurred. I think that's interesting history, because I'm not that convinced that it happens all that much, where someone just through force of will and a strong typewriter keeps such tight tabs on "the children" for so long. Albright would at times set himself up as the hero who

clear.

YS: At least in Park Service culture you're not yet vilified for daring to cast a little taint on Albright.

RS: Twenty years ago I would have been...

YS: I wonder if you think that, today at least, we in the Service understand and embrace the need and value of science to do better management?

RS: Yes. I think it's advanced slowly. We have obviously far more scientific input on decision making than we did in 1963 when the Leopold Report was written; there is no comparison. At the same time, it's very clear—the Vail Agenda makes it clear, the 1992 National Academy Report [another review of NPS science programs] makes it clear—that we have not addressed our scientific needs adequately. I think the Service is quite short of staff for natural resource management, and while we've made progress, we haven't made the kind of determined progress that we should have. And we haven't made the kind of progress that we made, for instance, in law enforcement. When that became a high priority we jumped right on top of

it [snaps fingers]. The interpreters would say that they're hurting right now, too, but in the 1960s there was a big push for interpretation and for living history and things of that sort.

The Service will push for what it really wants and toward where its heart really is. I explain in the book how a variety of programs evolved in the post-Leopold era. And that the emergence of scientific resource management had to contend with a Service that was looking in other directions and had other priorities.

Now, I think we need a strong training program in natural resource management. If we're a natural resource management agency, which we continually say we are, we need a training program that is at least equal to that of law enforcement. Why not?

YS: That's the question. It doesn't look to me like the decision makers ever sat down together over the past 30 years and had some sort of gentleman's agreement—like major league baseball had for 70 years to keep black people out of it—to keep science on the back burner. It looks like it's one of those inadvertent priority things. Law enforcement, when it took off, was really easy to get funding for compared to a lot of other things. And interpretation has always struggled, it's always been expendable; it amazes me that we have as much of it as we do. What were the things that kept science from growing? Perhaps it's that there really isn't a clear enough mandate there—it's a mandate that has to be partly intuited from another mandate, which is "do a good job."

RS: The next-to-last chapter of the book deals with the "State of the Parks reports"—there were two of them (in about 1980-1981), and after that, I use a question that the 1991 Vail Conference on national parks raised—one of its four major concerns—the role of the National Park Service as an environmental leader. If our primary mission is resource preservation, why isn't that our primary focus? Where is our reality as opposed to our rhetoric? For a top-notch preservation program, the NPS needs to have a very strong training program—for people who are already in the Service and for people coming into the Service and for natural resource managers and for superinten-

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dents and other individuals in the Service who are related to those programs.

YS: In 1992, the National Academy did a wonderful job in listing all the people who agreed that the parks needed science; they said we needed to find a way to institutionalize science. It doesn't seem to be happening in any formal bureaucratic way. In fact, it appears that the opposite has happened, because our science has been taken away from us—presumably to make it better, but I don't really believe that. How do we change then?

RS: I would like to see the National Leadership Council [*senior NPS managers from the regional and Washington offices*] totally committed to the values that natural resource managers have and acting on those values on a daily basis. And I think that the way the service change is if natural resource management is given access not just to the rank and file positions but to leadership positions throughout the Service in the parks and the central offices. I don't mean necessarily they have to be directors, but they need to be in line authority at very high positions if indeed resource management is our primary function.

YS: Is that what's happening, slowly?

RS: Very slowly; quite slowly. Traditionally the natural resource managers have been pretty much been dead-ended

in those positions and their career paths have not been open to the upper-level management positions. As I understand it, part of the resources career initiative is that there will be a clear career path for resource managers—cultural as well as natural—to upper level management positions. And there absolutely should be. Until that happens, and until people (mainly with master's degrees in the natural sciences) are provided with sophisticated training that includes environmental politics, park management, and supervision—that is, not just in natural resource management, but in how to be upper level managers—until individuals with those kinds of backgrounds get in at the very top, I think that there's going to be a continual frustration with the Service for not rising to its real potential as a leader in the preservation of the natural environment.

YS: The people who are in charge now, the leadership that isn't characterized by those sentiments and by the natural resource managers' attitudes, how do they respond to this criticism? What are their positions?

RS: Some of them will agree with it and support change. Others will either oppose it openly or behind the scenes. There's a bit of history to this. The Leopold Report states—I have forgotten the terminology it used—that the big natural

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resource parks should be under people with biological training. And the report did not mean, I'm sure, only six hours in undergraduate school. And in my opinion that statement, if made to a superintendent who had come up through the ranger ranks and had a degree in recreation or something similar, and then became a superintendent, it would be a threat and a challenge to their traditional leadership. And what I'm saying today is also a challenge, in the sense that I think the Service should reconsider the nature of its leadership.

What really concerns me is that there should be natural science expertise and resource management expertise near the very top. I don't think it necessarily has to be the superintendent, but I would have it right below the superintendent, and in line authority. Why should Yellowstone—this is a world heritage area, it one of the premier national parks of the system because of its natural resources—why shouldn't it have someone with natural resource management expertise and a strong background in the natural sciences in line authority, at the very least as a deputy superintendent?

YS: We don't have a deputy superintendent, but the Director of the Yellowstone Center for Resources acts somewhat like a deputy superintendent.

RS: As I understand it, he has control over the research aspects. But does he have much authority over park-wide budget, planning, staffing operations, and so forth? Also, I frankly see protection as one subset of preservation, and I don't know where the rangers in Yellowstone are in all of this. I'm talking about a position that has authority over most everything going on in Yellowstone. It's fortunate that your resources director has built up a lot of strength here. If he were to leave, who would replace him? How strong and how effective would that individual be? What I'm talking about is not the strength of individuals, but institutionalizing this kind of thing throughout the system.

YS: The leadership which resists enough science, are they just an aging subset of Horace Albright clones? What is their rationale? Why do they not embrace it more? Do they just merely say, I'm too busy with visitor use issues? Do they

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have other things that they just regard as higher priorities?

RS: You've said it. There is a vast array of competing priorities in the parks. And they're simply answering to others, and science and natural resource management questions don't impinge on them as much as, say, concession operations. YS: I've had a suspicion that part of it was that when we have science, people think it caused management so much more trouble, or controversy. One of the reasons that we created *Yellowstone Science* is because we kept hearing that "you have no science there." But take the Craighead controversy over grizzly bear management [see *Yellowstone Science VI(1)*]. Ah, we had some science there—well, look what happened; that caused more trouble! Or the northern range and that controversy—we've had lots of science there—that's caused us nothing but disagreement. If people are aware that we have done research, they are not clear that it helps in making decisions.

RS: Scientists don't come up with management plans or decisions.

YS: They just disagree! So, does that influence managers, either by thinking the scientists are going to cause us nothing but trouble or they're really not go-

ing to help give us the answers?

RS: I address this problem in the book. How much the managers articulate this among themselves, I'm not sure, but I think it's pretty clear to them that, with an infusion of science, management becomes more costly, more time consuming, and a lot more complex. And the problem with science is that it often raises more questions than it answers, or attempts to answer. Ecology is just that complex. So I think that these factors have caused resistance, particularly since the Leopold Report. But also in the George Wright era there was a resistance to scientifically informed management because of such factors: cost, delays in decision making, and restrictions on managerial authority. If scientists come up with a decision on the northern range, or on the grizzlies, or the bison that goes against what the superintendent deep in his heart wants to do, then it's a restriction on his freedom to operate. It's a threat to traditional management.

You raised something that I would like to go back to, briefly. I see Mission 66 as the principal turning point in national park history. With Mission 66 we were into very heavy development, well-funded by Congress and moving right along. And that put us even more clearly in opposition to the direction the conservation movement was taking. They were moving toward the Wilderness Act; we were moving toward paving roads and building new visitor centers and other kinds of development. So we found ourselves really at cross purposes. Not only that, no longer did the environmental groups have the clubby, tweedy, bowser-club relationship with Park Service leaders they once had. It was a much more confrontational relationship. I quote Wirth on this: "they [*the environmental groups*] believe the Service is the enemy."

Then on top of that the Leopold Report was dropped on us in 1963—it was, in effect, an expression of the conservation movement's concerns for the parks. And that same year, the National Academy came out with its first report. That's one instance where I used a bit of oral history. I talked with Howard Stagner, who had been high in the Park Service administration at that time, and he made it very clear that Conrad Wirth had suppressed the

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National Academy's 1963 report by not publishing it, but simply putting it out in typescript. He didn't want to share that criticism with the public.

YS: I've never seen it cited.

RS: That is what Wirth wanted; he didn't want you to see it.

YS: It worked! Is it amazing that the Leopold Report actually took hold as much as it did?

RS: In the George Wright era, and earlier, when there was criticism of the Service it was mainly on the type of development occurring and its appearance, not so much its effect on ecology. There was little outside support or involvement with natural resource management, per se, in the 1930s in the parks. By the 1960s, that had changed. There was an outside voice, a very powerful voice, working in a very well-organized, politically well-connected way and becoming more powerful as the decade progressed—concerned not just with the appearance of development, but with what development and public use was doing to the ecological systems in the parks. So it was a different game. And the Leopold Report was backed by Secretary of the Interior Stewart Udall.

YS: He was not in a position to suppress it, having already more or less endorsed it by setting it up.

RS: The Leopold Report had more influence on natural resource management than the National Academy Report did, but the National Academy Report had more influence on the organizational situation for the biologists. The Academy argued for an independent biological program, one that was pretty much free from interference from management.

Organization is power, it reflects power, it reflects priorities. In my book I discuss organizational sociology and what the values of the Service were, how they

were reflected in the programs and in the leadership of the Service. If you look at the organizational charts across time you will see the development-oriented professions—landscape architecture, forestry, and so forth—moving right along at the top. By contrast, it was 15 years from the time the Leopold Report was written until the time an associate director [*for science and natural resources*] position was created in Washington. That came in 1978. During that 15 years, the science programs (their organizational status) would rise and fall. Starker Leopold was in for a year as chief scientist, and during that time science rose. It also happened to rise under [*former NPS director*] Ron Walker and I think that was in part because Walker did not know the Service well; he wanted to rely on professionals in the service, and he actually brought up the scientists.

YS: None of us seem to have been terribly enthralled with the recent creation of the National Biological Survey (NBS) which then became the Biological Resources Division (BRD) of the USGS. This came about by transferring all Interior Department scientists from other agencies including the NPS. Does your research come up into this period enough that you can comment on whether this has been a significant happening?

RS: I mention it briefly. My feelings were that the closer I got to the present the more journalistic the writing would be. And I would have had to spend at least two more years on this project in order to get fully on top of the details of what had happened in the 1980s and the early 1990s. But I do mention the creation of the NBS and then later the BRD. In my mind, it was a mistake to pull science out of the NPS, at this point anyway. The new arrangement might improve over the next

decade or so, but in the future, after the Clinton administration and after [*Secretary of the Interior*] Babbitt, I'm not sure how much determination there will be to make sure that it works for all the different agencies involved, including our agency.

YS: Twenty-some independent scientific reviews have basically all said the same things since the 1960s—that we still need more and better science and resource management. If our culture had demanded it, we would be getting there, and obviously we're not. So perhaps it's because there has not been either internal demand from the Park Service culture or the external demand from Americans who still seem pretty darned happy with what they are finding here. For many visitors a park experience is still a museum: "I've got to see the elk, I've got to see the bison, I've got to see the wolves"...it's a collection of things, artifacts, buildings. We certainly have not taught them about the ecological processes and change.

RS: Yes, but you can't do that overnight. I think what we really want to do is build an environmental ethic. An appreciation of natural beauty—the moose, the elk, the bison that visitors see, and the landscapes, and the forests in national parks—is for many people a threshold toward a greater and deeper understanding of the natural world, a greater ecological sophistication. That's one thing I certainly credit the Park Service and the national parks with. And this influence comes through their interpretive programs and through the presentation of the parks, and through making the parks accessible, through building this big circle-eight road system in Yellowstone so that people can get out and see these things. It is an interference in the natural system of things, but it also opens it up to the public. I do think that aesthetics is a route toward a deeper appreciation and understanding of the natural world.

Again, I do not see ecologically informed management as being incompatible with tourism. I think it can be worked out properly. I think indeed if resource preservation is our highest priority, then it should be reflected in our operations, our budget, our planning, and things of that nature. And we could do so much better... ❁