Resource Management

Chapter 4

An Overview of the Resource Management Program at Guadalupe Mountains National Park

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With each passing year, the collective bank of human knowledge about the world in which we live increases exponentially. It is phenomenal what we have learned over the past 25 years about the cultural story and natural resources of this parcel of land called the Guadalupe Mountains.

If you consider the collective pool of human knowledge about the world from the time of creation to 0 B.C. as a baseline quantity, it then took from 0 B.C. to 1760 for the information that people knew about their world to double. It took another 120 years, from 1760 to 1880, for that information load to double. From 1880 to 1914, only 34 years, it doubled again. There was another doubling after 27 more years, and again after 11 years which brought us up to 1952. It doubled again by 1959. Only 3 years later, the human knowledge bank had doubled again. Since 1985 information about our world has doubled every 6 months or less. Does anybody's brain feel tired yet? Does anybody wonder why we don't know everything there is to know about these resources?

Advances in technology have us learning more and provide the ability to process relationships about our environment that people never thought possible. Studying the resources of the Guadalupe Mountains is no exception. Since the park was authorized in 1966, nearly 250 research studies have been undertaken. These studies have ranged from microscopic fungi to landscape-scale geologic studies; from the early inhabitants and traces they left behind to current visitors with the ways and reasons they come to our national park.

One goal of this symposium is to exchange information about the past and current resource management program. The program has been accomplished through a variety of means which have included cooperative programs, private or university investigators, and federally-mandated assessments and monitoring. Discussing this program is not an attempt to impress anyone, but to get each of us here us to think about what has been done, what yet needs to be done, and even as a springboard to generate new ideas about how we may learn about and share the knowledge of these resources.

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The earliest of recorded baseline studies about this area were conducted by Vernon Bailey in 1905. He documented the presence of bighorn sheep, and the black-tailed prairie-dog for which Dog Canyon is named. U.S. Cavalry records of significant water sources and natural resources extend back to the 1860s. Researchers at Texas Tech, Sul Ross State University, the University of Texas at Austin, New Mexico State, Baylor University, and University of Arizona have carried out baseline studies, which greatly contributed to the proper interpretation and management of this park in the early years. An interagency browse survey was initiated in 1973 between the Bureau of Land Management, U.S.D.A. Forest Service, and the National Park Service which provided a good inventory of regional botany. The results of the survey and condition assessment are

still used as a basis for our current vegetative cover map. The 1970 Texas Archeological Society Survey and the Katzes' archeological studies in 1973, 1974, and 1976 through Texas Tech and University of Texas, San Antonio, resulted in documenting 330 cultural resource sites.

The momentum and interest generated by these early studies did not necessarily slow down upon completion of these projects. There are many carry-over activities that exist to this day and continue to follow protocol established by those research projects. Water resources of McKittrick Creek were recognized as being fragile and subject to being easily altered if not managed properly. Owen Lind of Baylor University began surface water quality monitoring in 1967, and Dasher and Fish of Texas Tech continued the data collection into the 1980s. Since 1990, park staff has assumed monthly monitoring of surface water: nitrate, orthophosphate, dissolved oxygen, pH, hardness, sulfate, and chloride levels at selected sites. All of the water quality data for McKittrick Creek and some park springs has recently been copied to and made accessible through the EPA STORET database.

Large-scale fire is the greatest threat to Mexican spotted owl habitat within the park.

From 1982 to 1985, Harvey & Stanley Associates conducted a mountain lion territory and range study for Guadalupe Mountains and Carlsbad Caverns national parks. The study resulted in park staff recording multiple forms of lion sign along repeatable transects which are hiked twice a year. The resulting data is being analyzed statistically to determine the population trend. The two parks have amassed a data set for 13 years of lion sign. To make the most of our field effort at Guadalupe Mountains National Park, we have been collecting data about black bear sign observed along these same transect routes since 1993.

With respect to federally-mandated monitoring programs because of special status and significance, the park monitors resident threatened or endangered species. In 1982, the McKittrick pennyroyal was listed as a threatened species and the park became involved in population monitoring in accordance with the recovery plan. As an added measure of protection, park managers decided to reroute part of the McKittrick Canyon trail to prevent trampling of this plant. The plant was delisted on September 22, 1993, not due to a rebound in the population, but because the monitoring effort revealed a greater than previously known population throughout its range. We now periodically monitor the population to ensure there is no significant decline in the park population. The same area of steep terrain serves as home to the American peregrine falcon which is currently listed as endangered. The park has monitored our peregrine population from March to August every year since 1985 to determine the presence of breeding pairs and to monitor nesting and fledging success. Fortunately, there is little human activity or disturbance in these steep-walled canyon areas, and as best we can tell, young have been successfully reared almost every year.

Another newcomer in the federally-mandated monitoring scheme is the Mexican spotted owl which was listed by the U.S. Fish and Wildlife Service as threatened on March 16, 1993. This owl has habitat present in cool, narrow canyons within both national parks and on the Lincoln National Forest. Guadalupe Mountains National Park holds representation on the interagency Mexican spotted owl work group which is tasked with aiding in the implementation of the recovery plan in the Sacramento and Guadalupe Mountains. For the next two years the park plans to conduct field surveys for the owl in order to move ahead with habitat enhancement through the use of prescribed fire. Large-scale fire is the greatest threat to Mexican spotted owl habitat within the park.

Under Section 110 of the National Historic Preservation Act, federal agencies are required to inventory, assess and manage their cultural resources in a manner that will protect significant features from deterioration or loss. It is not uncommon for us to make previously unrecorded discoveries of fire-cracked rock, pot shards, or other traces of ma-

terial culture while performing a variety of field work in the park. In addition to the park archeological inventories in the 1970s, the park embarked on a cultural resources inventory 1988 to photograph and document as many known cultural resources as possible. These resources range from prehistoric rock art to recent day rock walls such as the remains of the Pinery Station. The Pinery Station is one of four cultural resources in the park which hold special significance in the telling of local or national history and is listed on the National Register of Historic Places. The three other places in the park on the National Register include the Wallace Pratt Lodge, which is a stone cabin in McKittrick Canyon; the more than century-old Frijole Ranch, which is one of the older continuously-occupied houses in Trans-Pecos Texas; and an assemblage of sites and features that compose the McKittrick Canyon archeological district. The Ship-on-the-Desert, another home of Wallace Pratt, is also eligible for listing on the National Register due to the unique character of the architectural style.

Under our preservation activities, we have park staff who are trained to perform routine maintenance and preservation on historic structures. Sometimes that involves looking for traces of original paint around window frames such as at Williams Ranch, or reproducing a masonry mortar formula to match the original that has weathered away on our stone structures. The park maintains contact with the Texas Historical Commission on a regular basis to keep them informed of any activities that may affect cultural resources such as routine maintenance or modifications to roads, trails, utilities, structures or landscapes of ethnographic or historical significance. A cultural landscape report for the Frijole Ranch area has been completed to aid with management decisions and recommends appropriate future interpretive uses of the historic ranch landscape.

Over the last two years our staff has been working jointly with Carlsbad Caverns National Park on issues related to the Native American Graves Protection and Repatriation Act. We have been in communication and consultation with 13 tribes that have associated themselves with the Guadalupe Mountains to begin the process of proper disposition of funerary items and grave goods. In recent years the two parks have also issued joint contracts to document the area history and regional ethnography.

As we consider the Federal Caves Protection Act, we have 30 documented caves within the park. The majority of them are not open for recreational use as are some of the other caves in the Guadalupe Mountains. This is primarily for two reasons; they are tough to reach, not very extensive, and most people don't want to expend the effort for the limited return. The majority of them have not been completely surveyed and the park does not want to lose valuable data about unique features such as faunal remains contained within them.

The park is active in many cooperative study programs. Our air quality program includes particulate monitoring as part of a national effort under contract with Crocker Nuclear Lab at the University of California, Davis, and our visibility monitoring is coordinated through a Servicewide contractor, Air Quality Specialists, in Fort Collins, Colorado. The Clean Air Act identifies the park as a Class I air quality environment. Since 1982, the park has collected data to establish baseline air quality values under a provision of the "protection of significant deterioration" amendment to the Clean Air Act. Visual range conditions, how far a person can see toward an unobstructed horizon, have been measured as great as193 miles and as low as 37 miles. Sulfates, organics, nitrates and coarse material are some of the measured particulates that affect air clarity and visual range. Sulfates are introduced from urban and industrial areas in the Southwest United States and Northern Mexico. Organics come from natural emissions, smoke, and industrial solvents. Nitrates have their source from automobiles or any combustion source. Wind blown soil from regional playas, vehicles on dirt roads and agricultural areas contribute to suspended solids.

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The park has been a partner of the National Atmospheric Deposition Program since June of 1984. The equipment collects precipitation samples which are analyzed for acid precipitation. A 10-year analysis has shown acidity of precipitation has decreased by 46% in the park. Although the limestone composition may buffer some aspects of acidic precipitation, it is unknown what contact effect it may have on vegetation and other organisms.

A large share of what we learn about the resources is a result of university research through thesis work and from private investigators. Many field projects have been accomplished on the backs of graduate students. Opportunities exist for continued and future student thesis work as long as it contributes to park management goals. Examples of current and recent studies include geological research related to petroleum applications and paleoecology. Some of the specimens collected as a result of these projects have been placed into a study and teaching collection in the park museum. This makes them available for examination by future researchers and students without the need for duplicate collecting. Recent genetics work has focused on the Texas madrone, yellow columbine, and bladder fern. Other projects have expanded our inventories of moths and butterflies, crickets, scarab beetles, and scorpions.

If we don't know what we have, we don't know what to protect.

The National Park Service needs to complete basic inventories of park resources. If we don't know what we have, we don't know what to protect. Over the years the park has made progress on inventorying springs and seeps, with an eye toward periodic monitoring of water flow and quality; conducting a breeding bird survey, which periodically needs to be revisited; and sampling vegetation from fuel load plots to determine potential use of fire as a management tool.

Human activities have had an impact on some park resources. We have established a monitoring program to measure human impacts on vegetation adjacent to campsites, and we have attempted to restore populations of Montezuma quail to Dog Canyon in 1986 and have returned Merriam's turkey to McKittrick Canyon and The Bowl. A joint project between the park and the Texas Railroad Commission in 1996 was to secure openings of abandoned copper mines with bat-compatible gates to provide habitat for these mammals and safety for visitors.

Modern transportation has opened corridors for plant and animal pests to enter the park. In 1987 and 1988 the park began removing and monitoring salt-cedar, *Tamarix ramosissima*, from areas around old stock tanks and arroyos. The last salt-cedar was successfully removed in 1993. From 1995 to the present, we are trying to keep a new invader, Malta starthistle (*Centaurea melitensis*), in check through an education program with our employees, and then we get down and dirty and pull them by hand so that we don't eradicate other sensitive species that are growing alongside them. In the three or four years that we have been working with this, we have reduced the population of this exotic to 25% of what the discovered population was in 1995.

We have established a wildlife observation database that currently includes 4,500 entries for birds (2,852), mammals (1,055), and reptiles (472). The park contributes to a National Park Service natural resource bibliography database that currently includes 1,900 entries representing projects associated with Guadalupe Mountains National Park. The greater Guadalupe Mountains bibliographic records in the database are 3,069 if you include the Carlsbad Caverns data. We have also created a database of large-format maps, specific to park projects over the years, which is up to 506 entries. From 1992 to 1997 we built a botanical database with over 1,000 entries of plants that have been found on the park, many of which are represented in the park herbarium.

We have recently entered the age of Geographic Information Systems (GIS) to store field data collected with Global Positioning System (GPS) equipment. This enables us to represent and see re-

lationships between resources. We are building data themes to represent archeology, vegetation types, soils and geology, sensitive species habitat, fire history, park roads, trails and structures. A large task that lies ahead will be to convert years of paper records into digital, georeferenced form that can be used with this system.

Our museum management program contains more material than is able to be displayed in park visitor centers. This material in the collection is maintained for documentation of natural and cultural resources and for the objects' research value. Our Automated National Catalog System currently helps us manage the collection by keeping track of specimens on loan, and generating an annual random sample inventory so we may be sure of the security and condition of a portion of our collection each year.

All research activity in the park generates data and potentially a collection of specimens. Information gathered about national park resources is to be made available to the public. Many of you are familiar with the Investigator's Annual Report of which you are reminded every year if you have an active research project in the park. Those reports are currently going into a searchable database, so I emphasize the importance of submitting specimen records and associated bibliographies that are generated long after the field work is completed. The database is not currently accessible to the general public due to containing site sensitive information, but if you have a research need or want to determine if other scientists have performed work in your field of interest, park staff can assist you by searching the database.

What do we have for the future? We plan to keep all these programs going and desire to maintain and establish new working relationships with resource-based agencies and universities. One dream is to develop field school programs in geological, biological and cultural resources. We hope to restore black-tailed prairie dogs, desert bighorn sheep and American pronghorn to park habitat from where they were eradicated. We would like to restore a population of native fish to McKittrick Creek. We need to conduct vegetation and cultural resource surveys on the newly acquired land on the west side of the park.

No one has the monopoly on the information that has been gathered through the park resource management program. These features are held in trust by the National Park Service for all. During the concurrent sessions of this symposium, we will highlight but a fraction of what has and is currently taking place in the area of research and resource management. I hope that you will be stimulated to consider how you can help Guadalupe Mountains National Park to close the gap even more quickly on the next doubling of information yet to be discovered about this gem of a park.

References

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Note: The author also consulted references in park databases and reference files. These included research permit files of various authors, the park wildlife observation database, the National Park Service NRBIB database (Natural Resource Bibliography database), and the investigator's annual report database.

Chapter 5

Research, Resource Management, and Resource Protection at Guadalupe Mountains National Park: the Next 25 years

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I am with the NPCA, the National Parks Conservation Association. NPCA is the nation's largest citizen organization working to protect and enhance the national parks. However, after my stirring performance yesterday in the Forest Service educational skit, many of you may now know me as the "Tall Stalagmite." Thank you. It certainly was a challenging role for me. Some say it was probably far beyond my ability, but it was probably an appropriate role since essentially my costume yesterday was a dunce cap. If you've seen *Wag the Dog* you know how important Dustin Hoffman says casting is; casting is everything. So they probably got the right guy. Larry Henderson, thank you also very much for that certificate. As long as you have been in the National Park Service, it is an honor to have graduated from anything that you are running, so to speak, so thanks a lot. I want to thank all of your capable and committed staff, really Jan Wobbenhorst, Fred Armstrong and everyone who worked so hard to put this symposium together. Jan, I just say that the lovely gift you just got is an exotic plant [a bouquet of roses], and please do not bring it into the park. This is quite an opportunity to be here with you. NPCA is very committed to science, research, and resources management in the park system. This is a wonderful job by the park and its staff, and when you said I might have a place in the program, little did I realize it was going to be as a stalagmite first, but this is a great honor to be with you.

Seriously, I might ask you, though, what is a non-scientist dunce doing addressing this auspicious group, which I might add is a pretty good-looking group, and in addition to being good-looking, I would say it is a wonderful, great collection of wisdom and wit. I was thinking about looking out at this group over the past day or two also. Many of you, of course, have been involved in the Guadalupe Mountains region from the inception of this park or before, even since the 1975 symposium. I wondered what could I possibly say or do that would be around 25 years from now, aside from my police record, that is. I think the answer probably lies—to carry this drama-illusion probably just a little too far—in this area not too far from drama and a little bit of Steven Speilberg's Hollywood. I think the reason I am probably up here and why I'm a part of the jigsaw puzzle of the entire national park family that is represented here tonight, is in the interface and the intersection of knowledge, research, science, policy, the public and what they desire. And I'd say in one of the most quintessential human traits of our race, that is, the ability we have as human beings to contemplate the future, to have some vision, and yes, to dream a little bit. Birthdays and anniversaries are a time obviously to celebrate, but also to look back fondly and be proud of how far we have come, perhaps even to recognize mistakes. For Guadalupe Mountains National Park is still, I would say, a young adult at the age of 25. Really it is a time primarily to look forward, at age 25.

Its safe future depends on you, on us, on the American people.

I wanted to share with you just a few of my thoughts about looking forward, and not so much to summarize the excellent things that I have heard here over the past two days. I think Dr. Baker may have some of that responsibility, and it

will be difficult, I think, to summarize so many of the good things I have heard. To present a slightly different view in a slightly bigger picture to what we are all engaged in, I think Guadalupe is, obviously as you do, a national treasure. Its safe future depends on you, on us, on the American people. And as we celebrate the park's 25th anniversary, this being one of the last events in an excellent year of things the park has done, I think our agenda for the next 25 years really does have to be visionary. So, what I would like to do is present to you, if you will, what I'll call NPCA's silver anniversary agenda for the future of Guadalupe Mountains National Park. This is a ten-point action plan, for those of you who like to think in concrete numbers, and I will run down a few of the things that I have been thinking about over the past year here for the park.

If I had a penny for every gallon of gas that has been sold from some of the companies that have done amazing things in terms of learning about geology in this park, I think we'd have our endowment p.d.q.

I think we need to establish a research endowment for Guadalupe Mountains National Park. I think that endowment should be one that actually benefits Carlsbad as well, but this idea came up in some conversations I'm sure many of you had. I even heard it this afternoon again. This idea is certainly something that superintendents have thought about and we have talked a little bit about over the past year. A research endowment for this park would create a permanent source of funding for both basic and management-related research. Obviously, we can't manage what we don't understand. That's a trite phrase now, but you know the more you hear it, the more optimistic it makes me, and people are believing it. We need to put research, and by that I mean natural and cultural research, which is what I will be talking about in all of my remarks, on a plane that really makes it possible to do better things. Guadalupe is a library of a million volumes, and I really believe we have only taken a few of them down off the shelf. I think we can fund this endowment through a variety of creative ways, and I don't mean to single out one particular potential source of funding, but I will just say that if I had a penny for every gallon of gas that has been sold from some of the companies that have done amazing things in terms of learning about geology in this park, I think we'd have our endowment p.d.q. In 1975 the symposium proceedings from the previous symposium called for a minimum funding of $25,000 a year for research at this park. Adjusted for inflation, that would be right now a whopping $34,000 a year. We clearly need a lot more than that and I think we can get it.

Secondly, I think we obviously have to dramatically improve inventory, monitoring, and resource management programs at the park. The future of the national parks really does depend on strengthening the agency's commitment to science-based natural and cultural resource management. Baseline data is obviously essential to making good sound management decisions. Guadalupe Mountains has significant gaps in its basic resources inventory; in fact, no national park really has a completed one. We need to be much further down the road in these areas. I think the National Park Service here should establish the goal of having the complete, or as complete as possible, resource inventory in a full-scale operating monitoring program in place in the next five years, that is, by 2003. This is an ambitious goal, but it's one that Great Smoky Mountains National Park is about to embark upon, and there is no reason we can't do it here.

This is not to say that there hasn't been wonderful work done at this park. I think this symposium is just total proof that great things are happening here, and we know a lot. We are still a long way from where we should be. I think that also holds true from the way the National Park Service deals with resources management, if you will, and these comments of course are directed to an agency that I love probably as much as you all do, and I hope they will be taken in that spirit. Resources management still is not the priority that it should be in the National Park Service. Twenty-five years ago, Ro Wauer, whose name is familiar in association with this park—he also happens to sit on NPCA's board now, so I have to answer to Ro a fair

amount—he wrote in the preface to the symposium proceedings in 1975 that too often federal bureaucrats (I hate that word) expend energy and great sums of money planning park developments without due regard to the full protection of the area's resources that were the primary reasons for the establishment of the park. Twenty-five years later, we have made a lot of progress, but I'm not sure Ro would be entirely happy with where we are, either.

I know some of you just heard recently, just today, little excerpts from Dwight Pitcaithley about Dick Sellars' book. One of the last things Sellars says in the concluding chapter of that book, *Preserving Nature in the National Parks*, is when and only when the National Park Service thoroughly attunes its own land management and organizational attitudes to ecological principles, can it lay serious claim to leadership in the preservation of the natural environment. So even 25 years after Ro made his comments and Sellars' book has come out, we still have a long way to go. That is not to say that we don't have a lot of great committed people and good work going. We still need to see a change in how the National Park Service prioritizes resources management and research. This park has over $4 million in unfunded research needs for critical natural and cultural projects. I think it is probably time this park had a separate resource management division. These are formed and structured things, but they do say a lot sometimes, and in tight budget times it is hard to reprioritize, stretch and do more with less, I guess as the agency has been asked to do. We are coming down to the nub of the issue here now as we approach the 21st century. I am very optimistic about Director Stanton's proposals for a resource initiative, and it is very exciting, although I will have to say the proof will be in the pudding. It is going to take all of us to help the National Park Service implement this initiative and follow through on what I truly believe many, many good people in the agency want to do. Dick Sellars is not the first person to recommend these things. In fact, there have been 13 reports over the last 20 years that have called for some significant change in science, research, and resource management in parks. We need to get on with it. We need to make it a top priority. There is also legislation in congress that is sponsored by Senator Thomas of Wyoming, a republican, that isn't perfect but it does have some titles in that bill that, if slightly corrected, would help the National Park Service programs dramatically, I think. So we need to rally together and get the bill on its proper course and get it passed.

As part of doing that, I think I would like some time to see in the future a really, truly amazing Guadalupe and Carlsbad science center—geophysical sciences center—here in the Carlsbad area, just contributing to a great array of wonderful scientific and investigative talent that is already here that could make Carlsbad even more of an attraction and world-renown for its endeavors. I think we need to understand our visitors to this park tremendously more than we do now. I heard some nice and very exciting research presented yesterday about a visitors survey. Basically we know that backcountry use has doubled here since the park was established, and the park has embarked on some monitoring efforts to watch that carefully and follow the impacts. This park really needs a full-scale visitor enjoyment resource protection (VERP) program, which is sort of the new version of what we used to call carrying capacity. We have to get on in implementing these things.

Now I am going to move into the troublemaking section of the talk because I think you probably all agree with what I have thrown at you so far. As we think about the next 25 years, if we are really going to be truly visionary, we'd better talk about not only just researching and learning about this park but truly protecting its resources, protecting its values, the reason it was established as a park and the reason people love it so much. I think that begins with protecting the resource base a lot better than it is right now. Let's start with something that you all will see tomorrow, at least some of you, the sand dunes. I think we

I think we need to designate wilderness in and around this park to protect the wild places, and if you will, to protect us from ourselves a little bit.

need to protect the salt flats that feed the sand dunes. Those are the source of the gypsum that form those dunes and continue to replenish them. Over time, let's make sure that that natural process continues. I think some permanent protection for the salt flats via acquisition or easements or any kind of cooperative approach—and there could be many—really should be pursued. I think we need to designate wilderness in and around this park to protect the wild places, and if you will, to protect us from ourselves a little bit. Congress could designate just about 90,000 acres of wilderness in and around the park. That includes about 33,000 acres within the park as well as some Forest Service and Bureau of Land Management wilderness study areas that are next to it. These designations, I truly believe, will add an extra layer of protection, and over the long term, be what's right for integrating management. Obviously, over the long term—and this is the long term but I think it has to be said anyway—I don't think we should necessarily rule out the notion of these areas being combined into a single national park that would stretch along the entire Guadalupe escarpment between Guadalupe and Carlsbad Caverns.

Quiet—the ability to hear the sounds of nature free from noisy human intrusions—is really one of the most threatened resources in the park system.

I think we need to protect Guadalupe's scenic views. Lands near the park, some of which you will see tomorrow, including sensitive lands immediately below El Capitan, near Guadalupe Pass, and on the approach to McKittrick Canyon, are vulnerable still to development that could mar some of these vistas or otherwise complicate management. I think we also have to have permanent protection for these approach routes and sensitive vistas; again, cooperation is my preferred tactic there. However we do it, we need to get started. We need to talk about these things in order to accomplish them over this time frame.

Number seven on my list is a simple thing we often take for granted. Air quality in West Texas is increasingly threatened by polluting emissions from sources in both Mexico and the United States. The amazing views from the park must be protected by reducing emissions in both countries. This is not a Mexican problem; this is our problem, too. Air quality, I think, is the next "endangered species" resource, if you will, and if we fail to protect the dramatic scenic vistas of the western United States, I think this is one of the things our children will least forgive us for, if we fail on that score. We have hard work to do on it, but let's identify it as an objective and get going on it.

In that same vein I think we have to think over the long term about protecting the sounds of nature in Guadalupe Mountains. Quiet—the ability to hear the sounds of nature free from noisy human intrusions—is really one of the most threatened resources in the park system. There have been proposals in the last year-and-a-half for increased military jet flights, which could seriously impact this park. Many of these impacts have been reduced—I will not say eliminated—but reduced. But I really think we should be talking in terms of isolating and insulating this park from the effects of noisy over-flight intrusions. On that score, congress needs to move quickly, and you need to help congress to pass legislation that would provide a badly needed structure and process for managing scenic air tours over the national park system, which is a problem in almost one-third of the park units in this county. There is legislation, again sponsored by a republican member of congress, Senator McCain, which would set up that structure, and NPCA is backing that. If we care about the park, we better care about why we better get this law made.

I think over the long haul we obviously have to improve interagency and international cooperation for Guadalupe Mountains, preserving the long-term health and integrity of this area, the whole escarpment region. It depends on this cooperation. I think it is visible in the room tonight, the cooperation between the National Park Service, the Forest Service, Bureau of Land Management, state governments, and many, many other entities including Mexico. I

do want to take a moment and recognize the non-Park Service folks who came to this conference and who participated in the conference, and I know who want to continue and improve this cooperation. That is the way we have got to go. I think more of those folks should have been here, honestly, but it is great to see the solid base of cooperation that does exist. That cooperation has to extend all the way across the border. Just taking the bats that inhabit this region, if we don't address habitat issues and organochlorine problems and visitation and education issues that relate to our neighbors in Mexico, we are going to be missing the big picture of this park over the long haul.

Lastly on my list, I think, how do you get all of it done? Well, there's probably a pretty big price tag for some of this stuff. Partnerships and funding—addressing these needs of the National Park Service are really critical. As never before, really, the National Park Service needs new funding for critical programs and additional public and private sector partners. Congress can help provide some of that money through concessions reform and permanent changes to the fee program for the National Park Service, enacting film fee legislation, which might return a little bit more money to the parks, and passing something called a park bonding proposal, which might help generate some more money. NPCA is in favor of all of those things. I also think we need to institute some bioprospecting protocols, because in the next few years we are going to see a dramatic increase in that activity, and I don't want the National Park Service to miss the boat either in terms of protecting the resources from the impacts of bioprospecting or losing out from the potential economic or financial benefits that might accompany some positive prospecting. Partnering with institutions—many of which are represented here, like cooperating associations, academic institutions, civic organizations, public and private sector groups, and in fact, the surrounding communities—is the key to strengthening public involvement and commitment to this park. We are going to need a heck of a lot more of it over the next 25 years.

Everybody knows that if you pick ten things, you are always leaving some things off, so there is an 11th thing on my list, and I will close with this. Obviously none of this is going to work really well unless we develop much more of a conservation ethic in this country. The parks are one of the best places, as you all know, to teach that ethic. We have learned to treat our parks a little bit better than other lands, but we still seem to have a propensity for trashing a lot of the stuff outside parks. Over the long term, we can't survive that sort of division and dichotomy. We have to move toward more sustainable approaches. The National Park Service people are great teachers, all of us are teachers, and I think we all have to help in that effort. I know that virtually everyone in this room is contributing in some way or another to it.

I know I am preaching to the converted here on a lot of this stuff, but we do have a lot of work to do. It goes beyond the work you do in science, it goes into civic responsibility, and I want to remind us of that duty that we all have. I think there is hope. I have seen the future and I am optimistic. Part of that future, part of that hope, is named Dana Cassingham. She is the high school student who won the park's award for student presentation at this symposium. I don't know if Dana is still here tonight at dinner, but if she were I would make us applaud her again. Maybe we should anyway just for the virtue of the fact that we see a passing of the torch, if you will, a little bit, and that gives me hope. If she were here, I would probably say I look forward to seeing her as the conference chairman 25 years from now. That really makes me feel optimistic. We have work to do, but Dana has a lot of work to do also.

In closing, I just want to say that this has been a marvelous event, and it obviously is not over. We still have another great day tomorrow, and we should leave this symposium knowing that the National

Park Service and its supporters and partners must join together to make this agenda (or this agenda plus whatever you think is important) a reality. We must act now; we must get started on it, so that Guadalupe's 50th anniversary will find this place more secure and more cherished than ever before. I look forward to working with a lot of you—I'm sure—on those efforts.