THE GRAND CANYON NATIONAL PARK

OVERSIGHT HEARING

BEFORE THE

SUBCOMMITTEE ON NATIONAL PARKS AND PUBLIC LANDS

OF THE

COMMITTEE ON RESOURCES
HOUSE OF REPRESENTATIVES

ONE HUNDRED FIFTH CONGRESS

SECOND SESSION

ON

ANALYSIS OF NATIONAL PARK SERVICE DATA ON AIR OVERFLIGHT SOUND AT THE GRAND CANYON NATIONAL PARK, AND THE GRAND CANYON RIVER WILDERNESS MANAGEMENT PLAN AND ASSOCIATED COLORADO RIVER MANAGEMENT PLAN

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THURSDAY, SEPTEMBER 24, 1998

HOUSE OF REPRESENTATIVES, SUBCOMMITTEE ON NATIONAL PARKS AND PUBLIC LANDS, COMMITTEE ON RESOURCES, WASHINGTON, DC.

The Subcommittee met, pursuant to notice, at 10:01 a.m., in room 1334, Longworth House Office Building, Hon. James V. Hansen (chairman of the Subcommittee) presiding.

Mr. HANSEN. Good morning. The Republicans and I think the Democrats are holding caucuses and conferences this morning so we have a lot of heavy issues going on and so they'll be dribbling in, I believe, as we continue.

STATEMENT OF HON. JAMES V. HANSEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

Mr. HANSEN. Welcome to this oversight hearing on two important issues in the Grand Canyon National Park. The first deals with the data that was used by the Park Service for a 1994 report to Congress and subsequent environmental documents regarding the substantial restoration of natural quiet and air tour overflights conducted over the Grand Canyon and the second with a wilderness management plan being developed for the park.

Perceived problems with safety and the natural quiet caused by air tour overflights above the Grand Canyon National Park have been recurrent issues since at least 1975 when Congress first addressed these issues and passed Public Law 93–620. Another law was passed in 1987 which addressed park safety and required the Park Service to do a study on noise associated with all aircraft on the natural quiet of this and a number of other national parks. This law also requested the Park Service and FAA to provide recommendations which would substantially restore natural quiet in the Grand Canyon.

These recommendations became the basis for the Park Service to conduct studies regarding natural quiet restoration which were then integrated into the report to Congress in 1994 and other documents. At issue today is how the Park Service developed and used the data for these reports, including the modeling and the assump-

tions used in the modeling, which led the Park Service to conclude that natural quiet has not been restored in the Grand Canyon.

In April 1998, the Grand Canyon National Park issued their draft wilderness management plan and environmental assessment for public comment. The stated purpose of the plan is to guide the management of resources and visitors' uses in the wilderness areas and to address wilderness/back country issues within the context of the Wilderness Act. For many people, however, the plan seems to be becoming the primary document used by the Park Service for the management of the entire national park, including the Colorado River management plan and the general management plan for the park.

The direction of the Park Service to manage a full 94 percent of the Grand Canyon as a huge wilderness area has caused this Subcommittee considerable concern. For example, there are 29,820 acres classified as potential wilderness, which includes the Colorado River corridor. The potential wilderness classification of the river corridor is important because of the possibility of eliminating motorized use of the river by commercial river tours. Today, we will be discussing this and other issues as managing the Grand Canyon as a huge wilderness area.

[The prepared statement of Mr. Hansen follows:]

STATEMENT OF HON. JAMES V. HANSEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF UTAH

Good morning everyone and welcome to the oversight hearing on two important issues in the Grand Canyon National Park. The first deals with the Wilderness Management Plan being developed for the park and the second with the data that was used by the Park Service for a 1994 Report to Congress and subsequent environmental documents regarding the substantial restoration of natural quiet and air tour overflights conducted over the Grand Canyon.

In April of 1998 the Grand Canyon National Park issued their Draft Wilderness Management Plan and Environmental Assessment for public comment. The stated purpose of the Plan is to guide the management of resources and visitor uses in wilderness areas and to address wilderness/backcountry issues within the context of the Wilderness Act. For many people, however, the Plan seems to be becoming the primary document used by the Park Service for the management of the entire National Park, including the Colorado River Management Plan and the General Management Plan for the park. The direction of the Park Service to manage a full 94 percent the Grand Canyon as a huge wilderness area has caused this Subcommittee considerable concern. For example, there are 29,820 acres classified as "potential wilderness" which includes the Colorado River corridor. The potential wilderness classification of the river corridor is important because of the possibility of eliminating motorized use of the river by commercial river tours. Today, we will be discussing this, and other issues, as managing the Grand Canyon as a huge wilderness area.

Perceived problems with safety and the "natural quiet" caused by air tour overflights above the Grand Canyon National Park, have been recurrent issues since at least 1975 when Congress first addressed these issues and passed Public Law 93-620. Another law was passed in 1987 which addressed park safety and required the Park Service to do a study on noise associated with all aircraft on the "natural quiet" of this and a number of other national parks. This law also requested the Park Service and FAA to provide recommendations which would substantially restore natural quiet in the Grand Canyon. These recommendations become the basis for the Park Service to conduct studies regarding natural quiet restoration which were then integrated into the Report to Congress in 1994 and other documents. At issue today is the how the Park Service developed and used the data for these reports, including the modeling and the assumptions used in the modeling, which led the Park Service to conclude that natural quiet has not been restored in the Grand Canyon.

With that as a background, I want to welcome our witnesses here today. Because time is short, I would like to ask that each of them earnestly try to keep the oral statement to 5 minutes or less.

Mr. HANSEN. With this background, I want to welcome our witnesses here today. Because time is short and one of the rules of this Committee is we earnestly try to keep your oral statements to 5 minutes. Please keep in mind, by unanimous consent, all of the entire statements that you will give will be included in the record for us to look at and for our perusal. And if you could keep just to 5 minutes. You'll all see that clock or those three little lights in front of Congressman Stump. And when those go red—or green, yellow, red—just like a traffic light. And you all know how a traffic light works and, if you're like most Americans, you'll run the red light.

[Laughter.]

But, anyway, keep in mind that we would appreciate it. If you've got something burning in your bosom that you think your eternal life is hanging on, well, then go ahead and say it, but keep it short.

We don't limit Members of Congress. That's one of the few perks that we still have left around this place. And we're very pleased to have our good colleague from Arizona—and the National Park of the Grand Canyon is in his area—the Congressman from Arizona, Mr. Stump. I understand that Mr. Shadegg, Mr. Hayworth, and others will be walking in. They are trying to catch a few more tidbits out of the Committee. So, Mr. Stump, it's always a pleasure to be with you, my good friend. And we'll turn the time to you.

STATEMENT OF HON. BOB STUMP, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Mr. STUMP. Mr. Chairman, thank you very much. And let me thank you for your favorable response to the request by Mr. Shadegg and myself to have this oversight hearing on wilderness and oversight matters within the Grand Canyon National Park itself. And also to thank you for holding earlier field hearings on the issue of oversight. And, with your approval, Mr. Chairman, I would like to submit for the record a formal statement. And I appreciate the time and energy you and your staff have put in on a variety of issues concerning those that we face at the Grand Canyon.

It's a privilege for me to represent the Grand Canyon area and to share that area with you, Mr. Chairman, to the north, and with my colleague Mr. Shadegg and Mr. Hayworth, that area around Flagstaff, the city of Flagstaff, and the Navajo reservation to the south. I take great pride in trying to help visitors that request our office for ways and times on just how to see the canyon and we try to help in every way we can. And it is precisely for that diversity of requests that we get for various visits and times to visit that I think this hearing is so important today.

A balance between environmental concerns and accommodating the many different ways that visitors see and experience the Grand Canyon seems reasonable to me. And I am concerned that we are headed in the opposite direction, however. Declaring 94 percent of the park as wilderness and then so severely restricting the manner in which the remaining part of the park can be used is not a very friendly way to welcome visitors to the park. I believe that the ma-

jority of park visitors in their trip to the Grand Canyon is a once-in-a-lifetime experience. The very real possibility of eliminating motorized raft trips because they don't conform, for whatever reason, and demolishing the two lodges that visitors sort of see there, doesn't seem to be a friendly way, either.

Quite honestly, Mr. Chairman, I don't believe that the Park Service is taking steps to enhance people's trip to the canyon. But, rather, through their general management plan, their overflight plan, and the proposed wilderness plan, the park appears to be asking the visitor to give up how they want to see the canyon and fit to the park's idea how they should see the canyon.

I hope today's hearing will shed some light on all the Park's plans and really give us that reasonable balance between environmental concerns and a diversity of visitor uses and how so much wilderness can be justified. And when and how the decision was made and how are we going to afford their plans, not only in terms of how much it would cost to implement all they want to do, but how much it's going to cost the average family to visit the canyon.

And, Mr. Chairman, once again I thank you for having this hearing and I'd be glad to and happy to answer any questions that anybody may have. And I thank you, Mr. Chairman.

[The prepared statement of Mr. Stump follows:]

Mr. HANSEN. Thank you, Mr. Stump. We appreciate your testimony. And feel free to join us on the dais if you're so inclined.

Mr. STUMP. Thank you.

Mr. HANSEN. The Ranking Member, Mr. Faleomavaega, from American Samoa is with us. I'll turn to him.

Mr. FALEOMAVAEGA. Mr. Chairman, my apologies for being late. Nothing like having jet lag in traffic.

My personal welcome to the gentleman from Arizona who just testified this morning and, for the essence of time, I will submit my record—my statement to be made part of the record and look forward to hearing from the members——

Mr. HANSEN. Thank you.

Mr. FALEOMAVAEGA. [continuing] and from our witnesses this morning.

[The prepared statement of Mr. Faleomavaega follows:]

STATEMENT OF HON. ENI FALEOMAVAEGA, A DELEGATE IN CONGRESS FROM THE STATE OF AMERICAN SAMOA

Mr. Chairman, Grand Canyon National Park is one of the magnificent units of the National Park System. It is not surprising then that there is a lot of interest in the park's management.

Today's hearing focuses on the Draft Wilderness Plan for the park and the related Colorado River Management Plan, as well as a review of the Park Service's data on aircraft overflights within the park I understand that the public comment period on the draft wilderness plan closed just last week and that the NPS is still a long way away from putting out a revision of the Colorado River Plan for public comment.

As for aircraft overflights, this has been a source of continuing problems for Grand Canyon National Park. I am pleased by the recent joint efforts of the National Park Service and the Federal Aviation Administration to address these problems.

Mr. Chairman, I appreciate the attendance of our witnesses today and look forward to their testimony.

Mr. HANSEN. The first panel that we have will be the superintendent of the Grand Canyon National Park. We appreciate you

being here with us. Also, Elling B. Halvorson, president of Papillon Airways; Robin T. Harrison, consultant; John R. Alberti in engineering; and Dr. Ahuja, professor and regents researcher from Georgia Institute of Technology. So, I think we're putting your names up there and if you can—they're on both sides; you can see where you are—we'd appreciate you coming up and taking your positions, if you would, please. Superintendent, you're right on the end there.

Superintendent Arnberger, do you want to be the first one?

Mr. ARNBERGER. Yes, sir. I'd be pleased to.

Mr. HANSEN. OK. I think that's very appropriate. Would you mind pulling that mike up to you so we can get this all on recording? I appreciate it. We'll turn the time to you, sir. Thank you for being here.

STATEMENT OF ROBERT ARNBERGER, SUPERINTENDENT, GRAND CANYON NATIONAL PARK

Mr. ARNBERGER. Thank you. It's a real privilege to be here and thank you for the invitation to represent Grand Canyon National Park and the National Park Service on these two very important issues. First of all, I will provide you some testimony on the acoustics and so forth.

I'm pleased to be able to provide you some analysis of the data relating to the scenic air tour flights over the Grand Canyon. Public Law 100–91 in 1987, commonly referred to as the National Parks Overflights Act, required a plan providing for the substantial restoration of natural quiet and experience of the park and the protection of public health and safety from adverse effects associated with aircraft overflights. This Act also required the National Park Service to submit a report to Congress on whether this plan has succeeded in substantially restoring the natural quiet in the park.

Extensive acoustical and sociological research was conducted between 1989 and 1993 to provide the information for the report. This report was submitted to Congress—excuse me—in 1994 and published in 1995. In this report, the National Park Service concluded that the phrase "substantial restoration of natural quiet" required 50 percent or more of the park to be without the sounds of aircraft for 75 to 100 percent of the day.

In the recent case of The Grand Canyon Air Tour Coalition versus the Federal Aviation Administration, the U.S. Court of Appeals for the District of Columbia recently ruled that the use of acoustic data to determine the degree of natural quiet is not unreasonable. No acoustic research has been completed at Grand Canyon since 1993, although the FAA has initiated some visitor-based, dose-response research in the park this past summer.

To predict the acoustic impact of aircraft noise in natural and park-like settings, the National Park Service contracted with leading modeling experts to design and build a state-of-the-art computer noise model that would accurately model the park acoustic environment. The result was the National Park Service Overflights Decision Support System, better known as NODSS, the Park Service model, which is able to measure the impacts of aviation noise on ground visitors at a resolution of 300 meters, even with respect to the complex topography of the Grand Canyon. Using inputs, in-

cluding the acoustic characteristics of the park and various aircraft types and the number and the routing of overflights operations, the model is able to characterize how close the park is to reaching its goal of substantial restoration of natural quiet.

Now, the FAA uses the integrated noise model, with the acronym of INM, to provide predictions of acoustic impacts on communities around airports, and its results have been used for the preparation of the environmental documents associated with the proposed and the final rules. In the Grand Canyon case, the FAA has used INM together with NPS acoustic data and the FAA estimates of the number of overflights operations to produce the results expounded in their environmental assessment.

An understanding of how much of the NPS natural quiet restoration goal has been achieved is critical to the rulemaking process in which the NPS and the FAA are now engaged. The two models, however, produce somewhat different results. As the two models were developed for use in very different settings and for very different purposes, it's not surprising that they do not produce identical results. Although we believe that the NODSS model, the FAA model, is—I'm sorry. The NODSS model is the NPS model—is the best product we could have produced at the time, neither model has been field-validated in relation to its ability to precisely accomplish the intended purpose.

To determine how to best model the acoustic impacts of overflights-produced noise at the Grand Canyon, the FAA and the National Park Service have agreed to conduct a model-validation study that should provide additional information regarding the accuracy of these models and perhaps others that we have not tested at all. The design, implementation, and results of this model validation study will be monitored by a panel of internationally acclaimed acoustics experts. By combining the model validation study with review by a technical review committee in an open process, we expect to achieve both better science to enlighten our policy and regulatory decisions and to also generate greater public confidence our processes, the results, and our future decisions.

That concludes my remarks this morning. I'd be more than happy to answer any questions.

[The prepared statement of Mr. Arnberger may be found at end of hearing.]

Mr. HANSEN. Thank you, Superintendent. We're honored to have on this Committee John Duncan from the State of Tennessee who also chairs the Subcommittee on FAA. Mr. Duncan, do you have any comments you'd like to make at this time before we proceed with this panel?

Mr. DUNCAN. No, Mr. Chairman. As you know, I went to your district and we had a hearing on this several months ago and I'm still very much interested in it. But I would just go ahead and listen to the comments of the witnesses at this time. But thank you very much for giving me this opportunity.

Mr. HANSEN. Thank you. Mr. Halvorson, we'll turn to you. If you'll pull that mike up to you, please.

STATEMENT OF ELLING B. HALVORSON, PRESIDENT, PAPILLON AIRWAYS, INC.

Mr. HALVORSON. Mr. Chair, members, and others, it's a pleasure to be here today. My name is Elling Halvorson and I own Papillon Helicopters, Grand Canyon Helicopters. And I'm a part owner of Grand Canyon Airlines. I represent those two organizations, as well as the 2,000, more or less, people who work in that industry at the canyon and get their living from it. Also members of HAI and the United States Air Tour Association, who operate in that area.

You have my written statement and it's before you, but this morning I'd like to just speak to you from my heart. In 1986, aircraft flew all over in the Grand Canyon. The Public Law 100–91 was passed in 1987 and, at that time, there was some good reason for that law. The thing that was different about that point in time and now is that the operators, the FAA, and the Park Service all got together to find out from the Park Service those sensitive areas that they wanted quietness. We worked together closely and we came up with a special rule SFAR 50–2 that satisfied everyone at that point in time.

But just as we see the goals changing in the wilderness, we see the goals continually changing in the sound issues over the canyon. What was good 10 years ago is no good today evidently. And I might remind us all that the aircraft is the only thing that doesn't ever have to be cleaned up behind. It's the only thing that doesn't leave any impact on the Grand Canyon of a permanent nature.

The report to Congress that was required by Public Law 100–91 had many biases in it. And, in particular today, I'd like to talk about the computer modeling. The report says that there's only one-half or less than one-half of 1 percent of the entire Grand Canyon in which you can't hear aircraft. That is a blatant false statement. There are 10 times or more that amount of area where you cannot aircraft, touring aircraft, at all, immediately adjacent, even, to the superintendent's office. There are hundreds of square miles in the park where you will never hear a touring aircraft.

I realize that this was a problem with the report, that it had biases. And I tried to call it to everyone's attention. I couldn't get any response out of the Park Service and so I thought the only way to address this is to get a technical study that could be compared against the report to Congress. I knew of JR Engineering in Seattle, Washington, a company that specializes in aviation acoustics and I made an arrangement with them to secure accurate data of every flight during a period of the year that went through the Grand Canyon, its route, the type of aircraft, and the air speed to which it operated, so an accurate analysis could be done and computer modeling.

When I received the preliminary draft, I spoke to many people in the Park Service, including my good friend—and he is a good friend—the superintendent here. And I actually showed them a few pages from the report. I told them that I wanted to keep this report confidential. I didn't want to use this report. I asked the people in the Park Service to clean up their own act and I would put that report away forever because I didn't want any embarrassment.

I held that report for over a year. During that period of time, I explained in workshops, in hearings, in written responses to NPS, to the FAA, and through these individual meetings what was wrong with the report that the Park Service had put out. I got no response back. And finally, about 6 months ago, at a workshop in Flagstaff, Arizona, I was asked by the Park Service, by the FAA, by the environmental community, if I would share that report.

And that's the reason that we're here today. I'm not a technical person but I know that when I can't hear sound and it shows on a chart that I'm hearing sound, that it's basically wrong. And I think that you'll find out today, as this progresses, that the heart of the issue is that 50–2, the SFAR that we're working under, meets and even exceeds the goals that the National Park Service had set for themselves. And I would repeat that. That we have met or exceeded the goals that the Park Service has set for itself.

And the action that I hope would be taken is to put this program on hold, to freeze the goals because we have so many moving targets. Freeze the goals that the Park Service has set. And that a new report should be prepared that accurately and reasonably establishes the conditions at the national park. And also that the decibels for noticeability should be standardized to everyone's comfort level.

Thank you for this time. I appreciate you calling this hearing. This is the process that it should go through and I'm delighted to be here.

[The prepared statement of Mr. Halvorson may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Halvorson.

Mr. Harrison.

STATEMENT OF ROBIN T. HARRISON, P.E., CONSULTANT

Mr. HARRISON. Thank you, Mr. Chairman Hansen, and members of the Committee. I am the guy who can take the credit or perhaps the blame for being the fellow who first proposed the systematic assessment of natural quiet as a separate resource. In 1972, when I and my colleagues made this proposal, we were thought of as being somewhat heretical because how can sound, as a resource, be equal to the resources that we manage—wood, water, wildlife, recreation, et cetera?

I've spent the last 30 years of my life with the U.S. Forest Service as the program leader for aviation and acoustics at the U.S. Forest Service Technology and Development Center in San Dimas. In that office, I was the fellow who prepared the Forest Service report to Congress in response to Public Law 100-91 and, as I'm sure you're familiar with that report, the conclusions are quite different from those of the Park Service. In 1972, we proposed that any definition of natural quiet would have to be based on human impact and this, after 20-some years, is still not the case. As Elling points out, the definitions of natural quiet seem to be a moving target.

As part of my duties at the Forest Service, I was the technical adviser to the Park Service in the initial stages of their scientific work, which led to the preparation of the report to Congress. It is through the work of my colleagues at the Forest Service and I that the contractors, the scientific contractors, who worked for the Park

Service in the development of the data that underlies the report that we discussed today, that's how that came about.

In the initial stages of this work, the Forest Service and the Park Service worked together, as if it were one project. That is, myself and two colleagues from the Forest Service advised on technical issues with regard to the Park Service study. The initial approach was to get the best scientific minds that could be found, contract them to perform research, and develop impartial scientific data which could be used to develop and support aircraft management studies and wilderness strategies for both organizations.

I was excited and honored to be part of this effort and we worked diligently toward timely fulfillment of the congressional mandate. I visited many, many Forest Service wildernesses, many parks, making measurements of sounds from aircraft myself and supervising many more measurements. Concurrently with this sound measurement work, we oversaw careful research with regard to the effects of aircraft noise on wildlife, on structures, with regard to visitor safety, et cetera. For the first time in 20-some years, as a researcher and manager, I had at my disposal the money and resources to answer scientific questions which I had first raised over 20 years ago.

But I was troubled by some of my visits to the national parks. In Hawaii Volcanoes, for instance, the Park Service employees asked me to meet with them. They wanted to put in front of me their concerns about how the noise of helicopter overflights in and near the park affected them. They wanted me to know just what horrible racket they were forced to put up with. I asked them about observable effects on wildlife. I asked them about visitor complaints. I asked them about compromises to safety from the helicopter overflights. But they never gave me any concrete data. I didn't, at the time, read Public Law 100–91 to concern itself with the employees and so I didn't carefully heed the things they said. In retrospect, I should have realized what I was seeing and hearing.

As the scientific work began to roll in, the Forest Service team busied itself preparing our report to Congress. But the Park Service seemed to be less impressed with the results received. Payments were delayed; revisions were demanded; more work was proposed. And I found myself being invited to fewer and fewer parks and being consulted less often. By this time, it was clear to me what was happening. The Park Service was not happy with the results that it had obtained from its contractors because these results did not support the preconceived notion that the parks, and the Grand Canyon in particular, had a serious natural quiet problem.

The problem I have, as an acoustical scientist and engineer, with the work that is done for the Park Service is not the basic scientific work, which is completely defensible and of the highest quality. And my friend Supervisor Arnberger is very manly to admit that a reassessment is needed. We've all heard the old expression: Garbage in, garbage out. The computer program NODSS is probably an excellent framework in which to predict the response of park visitors to noise. However, the inputs as to what constitutes natural quiet, what is an acceptable level, are seriously deficient.

If I could have not more than 90 seconds, your honor. There is a system, a way, that we scientists like to do things. Scientific work should be transparent. It's known by the name of the peer-review system. Scientists should submit to their peers all of the work that they do for review. Arguments will ensue at the scientific level and, eventually, more or less consensus will be achieved with regard to the validity of scientific work.

The work that has been done at the Park Service has not been subject to this transparency. Although NODSS, as I say, is an excellent framework with which to begin the work, the assessment of human impact has been seriously deficient for technical reasons which we simply don't have time to go into, but which I have submitted for the record and I ask that it be included.

[The information referred to may be found at end of hearing.]

Mr. HARRISON. I'd like to close by saying it's very encouraging to me to hear Rob talk about an internationally acclaimed panel of acousticians to review this work. I would just like to encourage this Committee to reject the Park Service's report as it has been submitted and to consider the new work the Park Service might do while maintaining oversight of the impartiality of the people who review this work.

Thank you very much. It's a pleasure to have been able to address you.

[The prepared statement of Mr. Harrison may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Harrison. Appreciate your comments.

We've been joined by another one of our Arizona colleagues, Mr. John Shadegg. As I explained to you, the members who arrive, we would have them give their opening statement, if they so desire. And we don't hold the members to a time limit. That's one of the perks we have. And we also do say anything when they whisper, but when you do, we do. So if we—we would like to turn to Mr. Shadegg.

STATEMENT OF HON. JOHN B. SHADEGG, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Mr. SHADEGG. I thank you, Mr. Chairman, and I will not give my full prepared written statement but I would like to submit it for the record.

I want to express my sincere appreciation for your holding this hearing. It is an extremely important hearing, I think, for the people of my district, for the people of all of Arizona, for the people of all of the Southwest, and for the people of the Nation. I wrote my substantial paper in law school on the difficulties of governmental agency trying to strike a balance in public policy. It happened to be the Environmental Protection Agency and it was the issue of sulphur dioxide and the copper mines in Arizona being pushed both ways or counterpressured from opposite directions.

On public policy questions, it is incredibly difficult and I understand and sympathize with the position that all people in public administrative positions are in when they have to do something like the task of developing this wilderness management plan. But

I think it is my job now, in my current position, to see that they do that in a fashion which produces the best possible product.

I am concerned about portions of the wilderness management plan. I am concerned about aspects of the wilderness management plan which say, for example, while on the one hand we hear that it will not dictate future decisions, such as the question of any motors ever on the river, there's language in the plan which says "all future plans have to be consistent with this plan." I need to get that clarified in my mind.

I have concern about—well, I have extremely strong feelings, Mr. Chairman, about the importance of protecting the pristine and unadulterated character of the vast portion of the park, including, in my opinion, virtually everything in the inner canyon. I have concern that the wilderness plan, particularly with regard to areas above the rim, goes too far. And it proposes to treat, as wilderness, areas which are not currently being treated as wilderness and areas which are not currently being used as wilderness and areas which, I believe, it is unclear at best that they comply with the requirements of the Wilderness Act for designation as wilderness.

And I think there are grave questions, Mr. Chairman, about those areas being closed or now treated as wilderness, in that it will restrict the access of people who use them now as access points to take back-country hikes and will restrict access by people who are either physically handicapped or too young or too old to be able to enjoy a pristine back-country experience. And I feel very strongly that in the development of this plan, we have to strike a very careful balance, we must make sure that the undamaged portions of the park, which can and should forever be wilderness, are protected in that fashion.

But we have to be equally certain that areas of the park which are now not wilderness are not suddenly treated as wilderness and access is denied to a number of people. And that is a grave concern to me because I think we owe that obligation to people who are interested in using the park and can use it only in their own ways and not in just the purely back-country take a significant block of time and go hike the back country fashion.

I also am concerned—and I'm going to ask questions today, Mr. Chairman—about the process that led us to where we are right now and the timing of that process. I am committed, deeply committed, to public input and I have concerns and intend to ask questions about the ability of the general public to have input on this plan. So suffice it to say, I have concerns. I appreciate the holding of the hearing. I think the hearing is incredibly important. And I look forward to being able to question and talk with the witnesses as we go forward. And I would submit my full statement for the record.

Mr. HANSEN. Without objection, so ordered.

[The prepared statement of Mr. Shadegg follows:]

STATEMENT OF HON. JOHN B. SHADEGG, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Chairman Hansen, first I would like to thank you for holding this important hearing today. As a native Arizonan, I am privileged to live in the Grand Canyon State where the Park has been a part of my life since childhood. Some of my most vivid

memories of the Canyon originated with trips I took as a child and are refreshed with later trips I have taken with my family.

I consider the Grand Canyon to be one of the most stunningly beautiful and pristine natural wonders of the world. Its scenic beauty must be protected and preserved to the greatest extent practicable. At the same time, it is critical that people of all ages, fitness levels and financial means be able to enjoy the Park as well. We must strike a careful balance, preserving and protecting the natural state of the Park while allowing reasonable access for *all* who want to visit it, and we can. My goal is to maintain the awesome beauty of the entire Park—and the unaltered and pristine character of vast portions of it—while still allowing different people to enjoy their Grand Canyon experience in a variety of ways.

Let me be clear: the integrity of the Grand Canyon must be protected. We should set aside significant portions of the Park as wilderness, particularly in areas within the Canyon. I do not support constructing a gondola from rim to river, building casinos, paving roads to the bottom of the Canyon, turning any portion of the rim into a parking lot, or any other desecration or inconsistent development within the Park.

However, I am concerned with the draft Wilderness Management Plan in its present form. First I believe the process leading to its creation was flawed because the plan is in large part based on the 1980 draft. No public hearings on the plan have been conducted in since 1976—22 years ago. To put this in perspective, the last time public hearings were held, the immediate past president of The Sierra Club, Adam Werbach, was in diapers. Some people who would like to hear a presentation of the plan and testify about it had not even been born when the only public hearings on the Plan were held, although they were able to vote in the past two presidential elections. Other people who had the chance to attend these hearings and testify in 1976 have been dead for almost a quarter of a century! Beyond these procedural deficiencies and perhaps because of them, I am concerned that, in its present form, the plan does not strike the proper balance between preserving wilderness and allowing access.

As written, the Plan would set aside nearly 95 percent of the Park as wilderness, including the Colorado River corridor and the vast majority of the land above the North and South Rims of the Canyon. It would limit access by eliminating a number of roads, and as written, almost certainly will lead to a total ban on motorized raft trips on the Colorado River. Finally, some critics argue, and it is not clear that they are incorrect, that the Plan could have a negative effect on the ability of the Park Service to maintain facilities inside the canyon including Phantom Ranch and the cross-canyon water pipeline.

Declaring vast areas of the Park, particularly above the rim, as wilderness when those areas are not "untrammeled by man . . . or 'primeval' [in] character and influence" and are currently being used by recreationalists in a manner inconsistent with wilderness designation, could have a devastating effect on the ability of people, particularly those of different ages and fitness levels, to use and enjoy the Park. It would force the closing of an unknown number of roads above the rim and ban the use of motorized vehicles on these roads. Eliminating most, if not virtually all, roads that have existed historically in the name of preservation is not what the Wilderness Act contemplated or requires. And, it would discriminate against many Park users including individuals who are using these roads as access points for back country backpacking trips, those who are elderly or disabled and families with small children by severely limiting the areas of the Park which they can access. While I respect the right of individuals who are physically fit enough to use and enjoy the vast untouched areas throughout the Park—virtually all of the inner canyon—and I strongly support protecting those areas through wilderness treatment, I believe it may be unnecessary and inconsistent with the language of the Wilderness Act and its spirit to close numerous existing roads currently used by the public, making the vast majority of portions of the park above the rim "off limits."

People who have the time, money and desire to experience the Grand Canyon in a completely natural setting should have the right to do so and their right should be preserved and protected. The Draft Wilderness Management Plan points out that the highest proportion of users of remote areas are young professionals making more than $50,000 a year. But the elderly, disabled and families with small children or those who simply cannot afford an extended vacation should not be unreasonably denied the opportunity to experience the beauty and splendor of other portions of the Park. Simply stated, the Park is big enough to accommodate both if we pursue a balanced and reasonable approach. The intent of the National Parks Act is to ensure that our country's greatest treasures are protected and preserved but that they are also available for *everyone* to enjoy—regardless of age, health, or income level.

Some argue that those who can't enjoy the Grand Canyon in a "wilderness" setting don't deserve to see the Canyon. One of the authors who is cited a number of times in the Draft Wilderness Management Plan has written:

> Those humans who respect the land are willing to walk long distances. If this is an "elitist" attitude, so be it.

This underlying philosophy toward access to the Grand Canyon is incredibly unfair and simply wrong. Many people who, by reason of handicap or age, cannot possibly "walk long distances" nonetheless deeply respect the Park. I would point to the letters in the record from various handicapped individuals which make this point in a far more compelling fashion than I ever could. The Park does not belong only to those who are physically fit enough and financially able to take the necessary time off of work to "walk long distances." The bias in this statement that the disabled, the young, the old and those who cannot afford the time to hike the Canyon therefore categorically do not respect it, is outrageous. The Park belongs to everyone.

In July, I met with Superintendent Robert Arnberger and he assured me that he does not wish to limit access to the Park. I am hopeful that a Plan which maintains the undeveloped character and scenic beauty of the vast untouched portions of the Grand Canyon without unreasonably restricting access to large portions of the Park which are not now wilderness in character can be developed. I am willing to work with Superintendent Arnberger, as well as with other interested groups and individuals, including my constituents, to achieve a consensus which protects the Park while not ureasonably curtailing the right of individuals of all levels of physical ability and financial means to enjoy their national park.

While I am anxious to hear the testimony today, from my review of the procedure leading to the development of the Plan, the Plan itself and the comments and testimony submitted for this hearing, I must acknowledge that it is almost impossible to avoid the conclusion that:

> (1)at a minimum a new Environmental Assessment (EA) must be performed;
> (2) an Environmental Impact Statement (EIS) needs to be prepared in order to comply with the law; and
> (3) that for the benefit of my constituents and others born in the last 22 years, the process should be reinitiated and new public hearings held.

I hope the National Park Service will seriously consider these points and work with Congress and the public and reevaluate its position that this Plan is ready for implementation.

Mr. HANSEN. And thank you for your testimony.

Mr. Alberti, we'll turn the time to you, sir.

STATEMENT OF JOHN R. ALBERTI, JR ENGINEERING

Mr. ALBERTI. Honorable Chairman, members, good morning. My name is John Alberti. If I could, before I go on the clock, I'd like to introduce into the record color copies of two attachments to my testimony. That's attachment two and attachment eight. Attachment two is a diagram of the SFAR 50–2 area, showing the flight-free zones and the flight corridors between those zones and around those zones. Attachment 8 is the same diagram showing the contours of areas where tour aircraft would be audible, according to our study, more than 25 percent of the time.

[The information referred to may be found at end of hearing.]

Mr. ALBERTI. We're back on the clock now, I hope. I first became—my company specializes in aircraft noise and I first became involved in the noise issue in the Grand Canyon not to study it but to reduce it. Elling Halvorson approached me 5 years ago to assist him in developing an ultra-quiet helicopter for use in the canyon.

The product of that work, the S–55QT, which only now, 5 years later, is nearing FAA approval, is 10 decibels quieter than existing aircraft operating in the park. The implication of that is that, at any given point, that aircraft will be audible for about half the time an existing aircraft would be and the area over which it would be

audible would be less than half that of existing aircraft. It's a far more dramatic improvement in the noise environment of the park than the Park Services claims with the rather draconian measures that they propose in their 1994 report.

My point in bringing that up is that quiet aircraft are an extremely desirable solution that continue to make aircraft tours available to the public, while protecting the environment. It's also a very expensive, very time-consuming, and very high-risk undertaking, and very extraordinary for an operator to do that out of his own pocket. It's also very hard to justify that when the goalposts keep moving and when you cannot be sure that the regulatory agencies are going to treat your data and the acoustic situation in a scientifically valid manner.

The 1994 report to Congress is the subject and the principal conclusion of that report is that substantial restoration of natural quiet has not occurred. As Superintendent Arnberger described, they define substantial restoration as having occurred when 50 percent or more of the park is free of audible or noticeable tour aircraft noise 75 percent or more of the time.

Reviewing this report, I find the most prevalent error really is that of non sequitur. Conclusions are drawn which are simply not supported by the data. The very first page starts out with a concern that tour aircraft noise might startle horses and mules and result in injury, yet there's not an iota of evidence that that's ever happened.

If you turn to attachment three, you find this very emotionally evocative diagram of a helicopter sonically bombarding a historic site with the implication that it's doing structural damage to it. Again, there's not an iota of evidence that that's every happened and, in fact, it's an absurd assumption given the sound levels of tour aircraft.

Further, to the substantial restoration of natural quiet, the Park Service has sent observers into the park. They had professional acoustical technicians go to 23 different sites where they expected to find tour aircraft noise. More than half those sites were directly under the flight corridors. And these observers were vigilant observers who were doing nothing but trying to observe aircraft noise; they weren't looking at scenery. At 15 of those 23 sites, they reported observing aircraft noise less than 25 percent of the time.

When the Park Service asked the park's visitors: Were you annoyed by tour aircraft noise? Only 5 percent were. Sixty six percent said: What tour aircraft noise? I didn't even notice any.

The only thing they really have to hang their hat on is the NODSS computer model, which, as Superintendent Arnberger observed, has not been field-validated. And it's very difficult for us to study because we don't know what went into it. Luckily about a year ago we did do a study. And in that study we found that in 93 percent of the park—and this, by the way, our study was done with the FAA's INM program, which is the industry standard for aircraft noise measurements and contour projection around airports—we found that in 93 percent of the park, or the study area which was the eastern half of the park, that tour aircraft would not observable more than 25 percent of the time.

The FAA and the NPS did do an INM study of their own. We did have a chance to review that. We found a number of very alarming assumptions that went into that. One was a very unreasonably low threshold of noticeability. That is, the sound level which, by their analysis, would trigger them to say that an aircraft is now noticeable. They used over most of the park 15 to 17 decibels which most of us have never experienced. It's very near the threshold of human hearing. I'm over the limit; I'll be done in just a second.

It's contrary to a study which the Park Service hired Bolt, Brannick, and Newman to do in 1994 where they again sent trained observers with highly sensitive low-noise level microphones down into the park. If you look on attachment six, you will find the results of that. These observers, again, vigilant observers, noticed that the average level at which they first observed an aircraft was 30 decibels and that's also the average level at which they ceased to be able to identify the aircraft noise. We used 30 decibels in our study.

[The information referred to may be found at end of hearing.]

Mr. ALBERTI. The BB&N report also showed that, for a non-vigilant observer, someone who might be looking at scenery, a level 10 decibels higher was more appropriate as the trigger level. Again, in our study, which, again, you see the results of in attachment 8, we used the 30 decibel level.

[The information referred to may be found at end of hearing.]

Mr. ALBERTI. Just briefly, they've made some incorrect corrections. The speed of the helicopter's flying through the park is different than that in the government noise model and the correction that they made incorrectly increased that level where it should have decreased it. They eliminated the lateral ground attenuation—and I'm going to leave this to Dr. Ahuja because I'm running out of time to discuss. But it's extremely extraordinary to change this computer model, the FAA's own model, they actually had to go in and change the code. Engineering companies like mine cannot do this. It's not a user-changeable thing. When we use this thing under FAA direction, the lateral attenuation of sound is always included. So, as I say, this was very unusual and very unjustified.

They also assumed that a day is 12 hours, not 24 hours, as most of us might suppose. And the effect of that, of course, is that when they calculate the percent time above a certain level, that doubles that percent time.

The net result was, of all these errors, is that they've greatly overstated the noise impact and I think, as a result of that, their study is flawed. It's really contrary to their own observations. It's contrary to our neutral computations. And I think they've failed to make the case that natural quiet has not been substantially restored under SFAR 50–2. Thank you.

[The prepared statement of Mr. Alberti may be found at end of hearing.]

Mr. HANSEN. Thank you.

Dr. Ahuja, we'll turn to you, sir. If you'll bring the mike up to you, please.

STATEMENT OF K. K. AHUJA, PROFESSOR AND REGENTS RESEARCHER, GEORGIA INSTITUTE OF TECHNOLOGY

Dr. AHUJA. Good morning, Mr. Chairman. I am Krish Ahuja. I'm a professor of aerospace engineering at Georgia Institute of Technology. I teach aeroacoustics and rocket propulsion.

I'd like to start out by telling you that, right now, if I wasn't speaking, in this room, the decibel level is about 55 dBA. A typical level in a quiet residence is 40 dBA and, in a recording studio, it's about 30 dBA. And if you were located twice as far away from me now, my sound would go down by 6 decibels. Every time distance is doubled, it (noise) goes down by 6 decibels. So I just wanted to give you a feel for the numbers.

I'll go directly in here. In August 1997, I was asked by Helicopter Association International to provide an unbiased opinion of an engineering analysis report which I believe you have. This would be JR Engineering report which Mr. Alberti prepared. I was asked to give an unbiased opinion on this report. The report is entitled: Analysis of National Park Service Data on Air Overflight Sound at Grand Canyon National Park.

In my written testimony, this is referred to as JR 182, that's the number of the report. Because of the direct relevance of this report and this review to this oversight hearing, the peer review prepared by me forms the backbone of my written testimony.

Mr. Alberti's analysis claims to have shown—and I think he mentioned that, but I'd like to reiterate that. I'm going to quote him: "The government studies were biased and misleading due to several invalid and unscientific assumptions that overstated sound levels and sound detectability." It also claims that, "When these errors are corrected, the result is that over 95 percent of the park will meet the Park Service's own definition of natural quiet in the busiest month of the air tours." That's July. And I agree with these claims made by Mr. Alberti in his report.

Mr. Alberti's report shows very convincingly that, even with the biasing effects introduced by invalid and unscientific assumptions in the government studies, the tour aircraft noise level was below 30 dBA, 75 percent of the time, in about 86 percent of the park. I mentioned earlier that 30 dBA is the typical level in a typical recording studio. And also, if one accepts the findings of BBN study, which was done for the NPS and which is reference three of my written testimony, if one accepts that 30 dBA is the average level of onset and offset of airplane noise detectability at the canyons, the NPS definition of substantial restoration of natural quiet has been met.

[The information referred to may be found at end of hearing.]

Dr. AHUJA. A second study related to computation of the impact of tour aircraft on natural quiet in the eastern Grand Canyon National Park, which is also documented in this report, and is based on 1996 operations with 1996 aircraft. This report provides the contours of time above the threshold of noticeability, that is the time some levels are higher than 30 dBA for each month. I did not compute the predictions, but these computations show that actual 1996 air tour operations in the eastern end of the park easily met the NPS definition of substantial restoration of quiet. The results of

this analysis seem quite reasonable to me and I have explained that in the written testimony.

Most importantly, I question the elimination by FAA of what is referred to as lateral attenuation, and also Mr. Alberti alluded to that. Elimination of lateral attenuation in computing aircraft noise leads to overstatement of sound levels and sound detectability.

Now what is lateral attenuation? Lateral attenuation is defined as the additional sound absorption or attenuation experienced by sound propagating to the side of the flight path by factors that are not readily accounted for. Lateral attenuation is considered to be a function of ground properties, the elevation angle of the vehicle—that's the aircraft or the helicopter, the distance between the source and the receiver, weather conditions near the ground, and the noise source characteristics. Thus, this phenomena includes such effects as ground reflection effects, refraction effects, airplane shielding effects, so on and so forth.

If lateral attenuation is kept in the computation, one would calculate less noise. FAA switched off this portion of the computation in their program, in their calculation of noise at the national park, which provided an overstatement of noise. In summary, my review of Mr. Alberti's report agreed with most of his findings. And what is left in time, I would like to say—mention to you . . . this lateral attenuation is very important.

If it's not clear: If I am flying an airplane toward you, Mr. Chairman, and pretend the airplane has only one helicop—one propeller, on—say on the left-hand side. And this young lady (on the left) is far away on this side and that young lady (on the right) is far away on that side and if the propeller is only on one side, OK? So one propeller. She, (the lady on the left side) would hear more noise than that young lady (on the right side). And the reason for that is that the fuselage of the aircraft is shielding (noise) and that also goes into lateral attenuation.

Whereas, in all these analysis, people have assumed that lateral attenuation is nothing else but absorption by ground, it contains many other factors. It's an empirical expression and that was switched off in their calculations. And that could—and that probably provided about four decibels higher noise in their calculations than it really is.

[The prepared statement of Dr. Ahuja may be found at end of hearing.]

Mr. HANSEN. Thank you, Doctor. Appreciate your comments.

We'll now turn to members for questions and I will limit them to 5 minutes each. And we'll start with the gentleman from American Samoa, Mr. Faleomavaega.

Mr. FALEOMAVAEGA. Thank you, Mr. Chairman. Mr. Chairman, I'm somewhat surprised that here we have the highest technology or the most-advanced technology in the world or I assumed our country has, but we seem to have some very strong disagreements on the acoustics, the engineering, the research. I'm somewhat—I just don't understand—I suppose it's the same as having five engineers and five lawyers you'll have five different opinions on the same issue. I thought engineering or physics was such an exact science, just like adding two plus two equals four. Lawyers might have differences of opinion on different issues, but I thought these

scientific issues ought to be such that you don't question the viability of some of the findings.

Mr. Arnberger, Superintendent Arnberger, I noticed in your statement that you have worked closely with the FAA. I mean have some of these findings gone to both Arizona universities' engineering schools or UC Berkeley or MIT or Cal Poly? I mean, I'm very surprised that there definitely is a very strong disagreement on the findings on the noise.

Mr. ARNBERGER. There is. And I don't think that the science of noise measurement over a natural resource is as finely tuned a science as all of us would hope. In fact, there are models that have been developed that well predict and so forth the noise and the impacts of sounds and so forth around airport environments, but I don't think that the science of doing that type of business around in a natural resource setting, much less a place like the Grand Canyon, is, in fact, a precise science.

As a representation of that, the FAA used their model that they have had—and it's the only model they have, the INM. And the Park Service, believing that, in fact, natural resources was a different type of place, went to the private sector, to the scientific and the engineering sector to develop this other model that, in fact, would give a better representation. And it is that difficulty that forms the crux of the issue.

Mr. FALEOMAVAEGA. Let me ask Mr. Halvorson, I noted that you commented on Public Law 100–91 that's supposed to be the bible of trying to have some sense of factual evidence to determine what is the noise situation here, but it seems that you're suggesting here that the National Park Service keeps moving the goalposts in terms of what requirements—and I can fully appreciate your concerns in private industry, the kind of requirements and restrictions that are given aircraft overflights in the canyon. I mean, you feel that you're really getting a raw deal from the National Park Service in this instance?

Mr. HALVORSON. Yes, I really do. What's happened here, in essence, is that they have gone in and they have aborted the computer program. They're the only people that can go in and they took out lateral, over-the-ground, attenuation, which is the absorption of sound by the ground. They increased the decibels of each of the types of aircraft and they estimated more aircraft than were flying in the canyon. And those are some of the primary things that they have done.

Another thing they did is that they took this audibility factor of the decibels of audibility where their trained people were sitting in the canyon trying to hear a sound. And when they first heard it, it was at 30 decibels and when they last heard it, it was 30 decibels. Well, they then lowered that to 17 decibels, which is twice less sound than these people heard—or a thousand times, it is? I mean, it's an absurd level.

You can do anything with numbers, you know. But if the program is kept clean, if the base to which they're working the program is a reasonable base, then the facts and the findings are going to come out as the JR study shows. Yes, I think we're getting a raw deal and I think that report to Congress should be put on

hold and that this process should be put on hold until we get some accurate data.

Mr. FALEOMAVAEGA. One of ironies of overflights—and I'm not a scientist, but I know on commercial aircraft they have to by requirement of the FAA, you have to put on what is known as noise kits or hush kits. They're about $300,000 to put these hush kits. Now, technologically, this is not possible for diesel-fueled aircraft. I mean, I don't know how else to describe them. Not jets.

Now another thing that I also know for a fact is that the military is exempted from any kind of noise kits to put on their aircraft. Do we have any sound booms or anything in the canyon with these military aircraft overflights?

Mr. HALVORSON. We don't have sonic——

Mr. FALEOMAVAEGA. Nothing?

Mr. HALVORSON. [continuing] sonic booms. They've been cooperating pretty well in recent years on their flight profiles. For a long time, it was a larger problem.

There are things that can be done to make these aircraft more quiet and what the industry has been asking for is, because this is a great expense, give us some incentives to help us to achieve this. We want to achieve it. My own company—we've spent millions of dollars and 5 years of effort to try and get a quiet aircraft certified. Grand Canyons Airlines, Scenic Airlines, and some others have put quiet propellers on their aircraft. And there are more things that can be done. Yes, we can accomplish some sort of——

Mr. FALEOMAVAEGA. I'm sorry. My time's up. Thank you.

Mr. HANSEN. Thank you. Thank the gentleman. The gentleman from Arizona, Mr. Stump.

Mr. STUMP. Thank you, Mr. Chairman. Mr. Harrison, what happened to the original data that was collected that you said showed that there was not a problem with the noise from the tour aircraft?

Mr. HARRISON. Well, in the larger—Congressman, it has been reported to you in the U.S. Forest Service report to Congress. I have a copy which I'd be happy to leave with you and I think there is a copy in the record. What we concluded is that, in the wilderness system, although there are occasional problems with overflights, it is not a broad problem. Admittedly, Grand Canyon has a much more intense problem.

The original data still exists, and it exists in the reports of Bolt, Beranek, and Newman and HMMH, the two original contractors that were selected by the National Park Service. I can't pronounce. I apologize. The gentleman from Samoa. And I'm a Hawaiian too. I'm sorry.

Mr. FALEOMAVAEGA. Call me John Wayne. It'll be all right.

[Laughter.]

Mr. HARRISON. Congressman Wayne has——

[Laughter.]

[continuing] has indicated their—I will agree with Congressman Wayne and disagree with my good friend Rob here. The science does exist.

Mr. ARNBERGER. Rob. I'm Rob. He's Bob.

Mr. HARRISON. The good—the science does exist. It's just that the way the Park Service has applied it is not in accordance with scientific and impartial principles. Part of the reason for this, I think,

is because of a preexisting bias and part of it is because they're badly advised by some of their advisers. But the science does exist. John analyzed it correctly and SFAR 50–2 has restored the natural quiet and the original data does show that.

Mr. STUMP. Thank you. Mr. Arnberger, you stated the Park Service used the latest model experts to come up with these computer devices that recorded all this. Do you have any of those experts here with you today? It was my understanding that Mr. Henry was requested to appear before the Committee.

Mr. ARNBERGER. No, I do not have any of those experts. The letter that we received from the Committee, in fact, invited myself. Mr. Henry is absent. He's on a business trip to Moab, Utah. He was not formally invited. He's not here. Neither were the FAA modeling experts. So I do feel a little bit lonely sitting up here and I'm doing my best with this highly technical information.

Mr. STUMP. Thank you, sir. Thank you, Mr. Chairman.

Mr. HANSEN. The gentleman from Tennessee, Mr. Duncan.

Mr. DUNCAN. Thank you, Mr. Chairman. Dr. Ahuja, I was interested in your comparisons of noise levels. And you said that a 40 dBA level was the typical very quiet residential neighborhood. Is that correct?

Dr. AHUJA. That's correct.

Mr. DUNCAN. And you said a 30 level was the level in a sound recording studio.

Dr. AHUJA. That would be in a recording studio.

Mr. DUNCAN. And then I noticed in your report that you say you agree with the report by JR Engineering that, when the errors are corrected in the government study, the result is that, over 95 percent of the park would meet the Park Service's own definition of natural quiet in the busiest month of air tours, which is July.

Dr. AHUJA. This is—this was a finding of the JR report.

Mr. DUNCAN. But then I noticed, Mr. Alberti—Dr. Alberti, in your report, you say that to go to a level of 15 dBA to 17 dBA, these levels barely exceed the threshold of hearing and would be exceeded by rustling leaves, any hint of wind, or a hiker's footsteps. Is that correct?

Mr. ALBERTI. That is correct. Actually, it's not Dr. Alberti, it's Mr. Alberti, but I thank you for the compliment.

Mr. DUNCAN. OK. Thank you. Thank you very much.

Mr. ALBERTI. That is correct. And that is, I think, an important fact when you consider what constitutes detectability. If a slight amount of breeze is rustling through even past terrain or a brushy area, if the hiker adjusts his pack a little, shuffles his feet in the ground, all those things will make noise levels well in excess of 15 decibels. Fifteen decibels is an extremely low-level. It's very difficult even to achieve in a laboratory. It takes special microphones to measure it.

Mr. DUNCAN. And yet, in your study, you found—or in your research on this, you found that in 15 of the—was it 15 of the 23 locations set up specifically to hear aircraft noise, they couldn't detect any noise over the 30 dBA level? Is that right?

Mr. ALBERTI. That's right. And that's actually not my finding, that's—if you take a look at attachments four and five of my testimony, those are copied right out of the National Park Service re-

port. The NPS—these were people who were contracted by NPS to go and make those measurements.

Mr. DUNCAN. Mr. Harrison, you say in your statement that you were one of the ones who came up with the original concept or idea of protecting natural quiet as a separate resource.

Mr. HARRISON. Yes, sir.

Mr. DUNCAN. And would you consider a level of 30 dBA natural quiet?

Mr. HARRISON. For all practical purposes, yes, sir, I would. The reason for this is that the hearing mechanism is very, very sensitive. It's truly an engineering marvel, our hearing mechanism. Equally important, to the loudness of the aircraft is the loudness of what I've called self noise at the listener's ear. And the very lightest breeze, just breathing—and in the Grand Canyon, you're doing plenty of breathing when you're going up and down there—will mask the aircraft sound.

My big quarrel is not with the data. The guys that got the data—I know them all; I've worked with them; and I agree that the data is excellent. It's the use of the data and that the Park Service just will not consider self noise, background noise, and what is technically known as masking in a definition of natural quiet. They say in their report that natural is compromised when a sound can be heard. That simply is not true. Natural quiet is only compromised when a sound is heard.

Mr. DUNCAN. Superintendent Arnberger, how many complaints—Arnberger, how many complaints are you getting now about aircraft noise?

Mr. ARNBERGER. In the last 2 years, we have received somewhere right around 70 to 78 complaints. I think I testified to that in St. George last year. I would want to amplify on that to say that, while complaints may in fact be statistically low in terms of the numbers of people that actually take the time to write a complaint, we obviously don't manage the resources of the national parks exclusively on the basis of complaints.

Mr. DUNCAN. I'm amazed, though, because there's been so much attention to this issue that people haven't even generated more complaints than that. I mean, you've got what 5 million visitors out there now. Is that right?

Mr. ARNBERGER. That's correct, but you also have to realize that about 95 percent of those visitors are, in fact, visiting areas that are off-limits to aircraft.

Mr. DUNCAN. Well that was going to be my next point. Much of the park is already off-limits to aircraft. Is that correct? I think I was told——

Mr. ARNBERGER. Well, the park is very highly sectored and divided up into corridors and so forth. But the vast majority of the people that visit Grand Canyon National Park arrive by bus or by automobile and spend time in the Grand Canyon Village or on the North Rim. Those particular areas, in fact, are off-limits to aircraft and that aircraft is, in fact, transiting through other areas. Those other areas are where back-country users and river users are visiting. Those people have to go through a significant permitting process and a selection process to get that experience because of the need to protect that type of wild——

Mr. DUNCAN. But aircraft aren't allowed over those areas.

Mr. ARNBERGER. Yes, sir, they are.

Mr. DUNCAN. And what percentage of the park are aircraft allowed over at this time?

Mr. ARNBERGER. Right now, 45—well, right now, I believe it's 45 percent—if I could explain it to you this way. And the reason why I have to explain it to you this way is it's not where the aircraft is there, it's whether the sound of aircraft is there. And, right now, approximately 45—30 to 45 percent, depending on the time that we're talking about here, in fact, experiences some form of quiet that meets the goal.

Mr. DUNCAN. But the most intrusive aircraft noise at this time really is helicopters sent by the National Park Service down into the park to pick up injured hikers, aren't——

Mr. ARNBERGER. No, I—sorry, I would not agree with you on that.

Mr. DUNCAN. You disagree with that. But those are the only aircraft that are allowed directly——

Mr. ARNBERGER. I will admit to you that the National Park Services uses an aircraft to save 487 people per year.

Mr. DUNCAN. Yes, and I'm sure not complaining about that. That's a very good——

Mr. ARNBERGER. All of these are medics. But let me make another point about that. The National Park Service went out and spent a lot of money to, in fact, acquire the first quiet helicopter in use on public lands. It's called the Notard and—the Notel rotor. And we believe that we have to make an effort in this particular effort as well. And I'm proud of that effort. And I think all of you are proud of that effort because, in fact, you helped us to get there as well.

Mr. DUNCAN. Mr. Harrison, I notice you say—I was interested in this—I was—in your statement, you say: I was troubled by my visits to national parks. A meeting—in Hawaii, a meeting with the Park employees was arranged at their request. They wanted to put in front of me their concerns about how the noise of helicopter overflights was distressing them, the employees. They wanted to be sure I knew that—what an unbearable racket they were forced to put up with. When I queried them about the effects on wildlife, about visitor complaints, the compromise to the safety caused by these helicopter overflights, little or no concrete information was forthcoming, merely a reaffirmation that the biggest problem was the effect on the Park employees.

I have a feeling that a lot of this is coming from Park employees and people who are really the most extreme of the extremists on this issue. Because if it wasn't, I mean, it's been said that people who live near airports develop almost superhuman hearing. And it's amazing to me that people who are sent out to hear these noises can't even hear these noises to a degree higher than what we've heard. I'm about to lose my voice and my time's up, so I thank you.

Mr. HANSEN. Thank you. The gentleman from Arizona, Mr. Shadegg.

Mr. SHADEGG. Thank you, Mr. Chairman. I find this testimony fascinating and I quite frankly am not sure where to begin. I want

to begin with one clarification, Superintendent Arnberger. I thought I heard it reported just a few moments ago that in 95 percent of the park, the Park Service has already acknowledged that natural quiet, as defined by the Park, has been achieved. Isn't that what you said?

Mr. ARNBERGER. Relative—no, that's not what I said.

Mr. SHADEGG. OK. Please correct me so I understand.

Mr. ARNBERGER. OK. What I was saying was that in the developed areas of the park, aircraft noise has been specifically routed away from those areas so that aircraft noise is not part of the mix of the noises that you hear in those areas. But to say that natural quiet has been achieved down—right in the middle of the Village for the broad association of natural quiet, that's not what I'm saying. I'm saying, you're not hearing aircraft there because, in fact, the aircraft have been moved away from that particular area.

Mr. SHADEGG. Maybe we don't have time to get the answer to this, but I then understood you to say—maybe I was mistaken. Maybe it was Mr. Duncan who said that the report says natural quiet's been achieved in 95 percent of the park. And I believe he did say that. Then you said, no, you can perceive aircraft noise—or aircraft noise has been removed from 35 to 40 percent of the park. And I find a conflict there which I guess we'll just have to leave for another time. Perhaps you can clarify it in writing afterward.

[The information referred to may be found at end of hearing.]

Mr. SHADEGG. As I listen here, I hear a split between what is a reasonable definition of natural quiet and what is an unreasonable definition of natural quiet. As I heard the testimony, it was that the experts here are saying reasonable definition of natural quiet is somewhere around 30 decibels, I think, and that you have set a standard at something closer to 15 or 17 decibels. I know your expert isn't here, but——

Mr. ARNBERGER. Well, let me take that. Let me take a try at it.

Mr. SHADEGG. Please.

Mr. ARNBERGER. First of all, the ambient levels of sound in the Grand Canyon are some of the lowest threshold types of sounds that are there. And the Grand Canyon is like a giant ear. Some of the quietest of the quietest that you could ever hear. In fact, it is quieter than you suburban street. It can be heard there.

Our particular position is that the ambient levels—and that's measurable and we were able to do that and I understand that there are experts that, in fact, disagree with those levels—were, in fact, made. And we increased those by three decibel points on top of that. I think what's important about that is two things, and I think what's important and it was upheld in the Appeals Court, and that, in fact, the definition of natural quiet and the definition of the goal of restoration is in fact a reasonable articulation of the agency. In fact, it's a reasonable goal. And that, in fact, a three-plus-the-ambient is a reasonable level.

Now, in terms of solving some of the other factual bases that have come up here about sound attenuation and so forth, some of those same questions, I must admit before you, have been from this agency, the National Park Service, to the FAA, relative to the use

of the INM model. In fact, a helicopter speed at 160 miles an hour, I believe, is not something that we have espoused.

Yes, we differ on such things as a 24-hour day. But there are no tour helicopters giving tours at night. The 12-hour day for tour flight and impacts on the visitor is a 12-hour day, not a 24-hour day.

So, yes, there are some differences such as that.

Mr. SHADEGG. I'm not expert, but I went hiking with my son last—weekend before last and I was amazed at—and this has been true on every backpack trip I've taken—I'm amazed at how little you can hear or sense of the natural environment when you're hiking. Now, I grant you, there are other times. I don't want to run out of time.

I take it, you do not agree that, SFAR 50–2 has restored natural quiet. Are you proposing to go further? And can you give me a short answer? They're going to cutoff my time.

Mr. ARNBERGER. The report to Congress clearly stated—and that's the issue at hand here—that, in fact, SFAR 50–2 has not restored natural quiet to the Grand Canyon National Park. And that, in fact, further steps must be taken. And that's the process that we're involved in now, is the further steps to find a reasonable—some reasonable rulemaking actions that, in fact, provide for the substantial restoration of natural quiet.

Mr. SHADEGG. Mr. Harrison, do you agree further steps need to be taken?

Mr. HARRISON. No, sir, it's clear to me that the Park Service has grossly overstated their case and it's clear to me that SFAR 50–2 has substantially restored the natural quiet. And, if I may, just before the red light goes off, there seems to be a tendency, not amongst the agency, but amongst the environmental community, to tar us all with the brush of anti-environment if we espouse helicopters, if we espouse motorized transportation.

I have spent my professional life silencing the off-road vehicles. I have made measurements of every kind of off-road vehicle you can imagine. I have developed silencing systems for the Forest Service.

Everybody on this panel is a hard-core environmentalist. Everyone of us. And it as important to us to keep things as quiet in the natural—in our wildernesses—excuse me; I'm getting excited—and our national parks as we possibly can. But it is counterproductive to keep forcing more and more and more upon the sources: the bikers, the pilots, the tour industry. Because what happens then is we can't continue to make our vehicles quieter. So I think it is time to call a moratorium on anything further and let the industry catch up with what has been required.

Mr. SHADEGG. Mr. Alberti, do you think further steps need to be taken?

Mr. ALBERTI. Well, actually, I would underline what Superintendent Arnberger stated and actually Mr. Harrison observed also that let's do study the methodology. The NODSS program has not been field-validated. He was good enough to acknowledge. But let's don't make policy until we've got it figured out.

Mr. SHADEGG. So you would say no further steps now?

Mr. ALBERTI. That's correct.

Mr. SHADEGG. OK. Dr.——

Dr. AHUJA. To save time, I'll echo the sentiments of both Mr. Alberti and Mr. Harrison.

Mr. SHADEGG. Mr. Halvorson, I was fascinated by your appeal for incentives to achieve quiet. I guess, like my friend Mr. Faleomavaega—Congressman Wayne, that in this incredibly scientific world, we can't make more progress and I think you made an appeal to us that we could make more progress if the standards from the Park were clear and if the quote, unquote, "incentives" were there for you to do that.

Could you expand on that and explain to me what incentives would work? Is it a part of—OK, set—knowing what the standard is so you know if you spend the money, you will have achieved it? Or is it financial incentive that you're looking for?

Mr. HALVORSON. Well, I think it's both. If we have the incentives to know that if we achieve a certain level of sound reduction that we could get some—either some opportunities to fly in certain areas or we—possibly tax benefits. We pay $25 every time we fly over the park. My company paid this year close to $1 million just to fly over the park. In addition to that, we pay a fuel tax; we pay airport taxes. It's an incredible cost to us. To put a quiet aircraft out there, whether it's an airplane or a helicopter, is going to cost hundreds of thousands of dollars for each vehicle.

If we could have some relief, say, in the park tax that we pay, the $25 every time we fly across the border. If that could be applied against some other taxes or excise tax—10 percent per passenger—or fuel taxes or applied against the other taxes we pay, that would be a great incentive.

And, you know, I think that this tax in the first place is an unfair tax, because we're the only thing that doesn't require a rest room, doesn't require a road, takes none of the services of the Park Service. We are not averse to paying it to the Park Service if it can help their programs, but if we could get some relief, if we have quiet aircraft, it would be a great incentive for this industry, I can assure you of that. There would be a scramble to get quiet aircraft.

Mr. SHADEGG. I want to conclude just with a statement—and it's going to include a perhaps off-the-wall thought. I am at times mystified by our inability—public agencies and the Congress and the Nation—to strike a balance in these areas. And I at times have little patience for and am upset by people who are absolutists, who say it absolutely has to be 1,000 percent my way or no way.

And sometimes there are those who I think take that position and do it regardless. That is to say, if they want to enjoy the park in an absolute pristine fashion, I am willing to work very hard to make that possible to the greatest extent possible. But there comes a point where you have to draw the line and say that shouldn't deny others their right to enjoy the park at all.

And yet there are those who say, well, I don't want motors banned sometimes. I want motors banned all the time, forever and ever and ever. I don't want airplane noise diminished or restricted to areas, I want airplane noise gone forever and ever.

And there are so many people that I represent who fall into a different category, who cannot afford the back-country experience, who cannot physically make themselves available. Maybe it took

them a lifetime to save the money to be able to take a vacation in the Grand Canyon National Park and they are simply too old and too physically unfit to have the pristine experience.

I want to throw a thought out. I think the balance is what we have to achieve and I think we ought to open our minds to how we achieve it. And I think that we ought to say to anybody who comes in and says, No, it's my way and nobody's else's way no matter what. I think we ought to just not listen to those people, because they're not being fair.

In that regard, I want to ask a question. And I'm going to ask it about motorized raft trips also, later. Does anybody—has anybody ever given a thought to saying, OK, given that we have different groups of people. The vast majority, quite frankly, want to enjoy the park riding on your buses, so they're not going to get 15 decibels. It isn't going to happen. The vast majority, quite frankly, you said, Superintendent Arnberger, that come by bus or car, I think, a huge number come by airplane. So they're creating noise as they're coming in.

But one other thought that occurs to me—and I don't know if you've ever thought about it—in striking a balance, did anybody ever consider taking a 2- or 3-day window out of every 2 weeks or whatever it might be—I'm just positing that as a hypothetical. Maybe that's too much; maybe that's too little—and saying: OK, during these days, we're going to say noise is dramatically restricted, way below what it currently is now. But during the rest of the time, it's going to be what it is now or maybe a little above what it is.

I just think it's so important for us to strike a balance and that we cannot let the absolutists cut everybody else out. And that's just a rhetorical question. I'm going to raise the question about motorized rafts. And I will tell you, the notion that we should never, ever, ever allow a motorized raft simply is inconsistent with the attitudes of the American people and their ability to use the park in a certain fashion.

Why doesn't anybody talk about taking 1 month a year or 2 weeks, two times a year, whatever it is, and saying, OK, here's a window. We're going to let those who want to raft without a motor and without knowing there's not a motor on their raft, but not a motor on the raft in front of them or behind them, and have that be the time period when there are no motors. But for the rest of time, let the rest of the world enjoy the canyon and the river with a motor. I don't know why we can't use some of those practical aspects, except that some people say, No, nobody, my way or no way. I thank you, Mr. Chairman.

Mr. HANSEN. Thank you. Mr. Arnberger, it's come to the attention of the Committee that there was a couple of groups hired to do this study and eventually came back and said that they had achieved quietness, natural quietness. And that they were rejected by the Park Service—maybe this was before your time; I don't know—they were rejected by the Park Service by the pressure of the environmental community until they found someone to do the study which would say that natural quietness had not been achieved. Have you ever heard that?

Mr. ARNBERGER. I have absolutely no knowledge of any of that.

Mr. HANSEN. Was there anybody that was——

Mr. ARNBERGER. I will certainly carry your question and let me get a reply back to you about the selection process or whatever of the contractors for the study. I have no—absolutely no personal knowledge of any of that.

Mr. HANSEN. To your knowledge, was there any firms, groups, or organizations, engineering firms that were hired and then rejected before the study was done?

Mr. ARNBERGER. To my knowledge, none. But I will check into that.

Mr. HANSEN. Would you mind looking into that?

Mr. ARNBERGER. Yes, sir, I will.

Mr. HANSEN. And give us an answer and give us the names and the reasons that they were rejected, if that is the case?

Mr. ARNBERGER. I sure will.

[The information referred to may be found at end of hearing.]

Mr. HANSEN. I was part of this bill when it went through. I was a past pilot myself and one who has repented from flying down the middle of the Grand Canyon in a Piper Super Cub. But, as I recall the bill—and I have it here in front of me—which is now Public Law 100–91, "the study shall distinguish between the impacts caused by sightseeing aircraft, military aircraft, commercial aviation, general aviation, and other forms of aircraft which affect these units." Did the study do that? I—we haven't been able to put our hand on the distinction that the study was supposed to make, but we don't see it in front of us.

Mr. ARNBERGER. The distinction of also looking at military and commercial flights as well. Is that——

Mr. HANSEN. It specifies all the general aviation——

Mr. ARNBERGER. That's right.

Mr. HANSEN. That would include helicopters under other forms of aviation, it says.

Mr. ARNBERGER. I believe the decision to focus the discussions of the report to Congress in on the tour industry was as a result of some of the history of the issue, I think, up to that point in time, including a tragic mid-air accident and so forth you mentioned in the 1975 legislation and so forth. That the focus of the efforts of restoration of natural quiet was, in fact, to center around the air tour industry.

And I was not the one that made that decision to implement that report to Congress. I was the one that inherited it. But that's what I believe is the reason, the rationale, for, in fact, focusing on that one sector of the issue.

Mr. HANSEN. I can understand your statement, but that's not what the law says. The law says that you will make a distinction between all of these and I'm a little disturbed that's in not in the report.

I guess the most powerful people in Congress are those who interpret the law after we finish it, that kid right out of law school who writes the regulation has become the most important guy around this place. That's why we have report language and legislative intent. When I was speaker of the house in the State of Utah, I insisted upon about a page of legislative intent for every para-

graph in every law because I was tired of getting sued on these things.

Anyway, you allow helicopters to go down into the canyon to take out people who are injured or people off a raft trip. Is that right?

Mr. ARNBERGER. These—they are public safety rescue missions and, yes, sir, we do—we have to have that capacity.

Mr. HANSEN. It is in the law. I put it there. And it was here before us. And, also, when a raft trip is concluded down by what do they call that——

Mr. ARNBERGER. Whitmore Wash.

Mr. HANSEN. That is also allowed, is that correct?

Mr. ARNBERGER. Yes, sir. That's a special provision there that basically says a direct flight to pick up those clients. And it's not tour flight, but a direct flight to pick up those clients at Whitmore Wash is permitted there at that location.

Mr. HANSEN. The law also says that they can make a direct flight across the canyon. Is that right?

Mr. ARNBERGER. There at that location? I mean, they are picking up clients on the south bank of the river, on the Walapai lands and they are coming off the north side of the canyon. So, in effect, they are flying across that inner canyon corridor right there and landing.

Mr. HANSEN. Yes, subheading (c)(1) says, "which fly"—talking about helicopters—"a direct route between a point on the north rim outside the Grand Canyon Park and locations to the Indian reservations and,"—the thing we talked about earlier. So that's allowed, is that right?

Mr. ARNBERGER. Yes, sir.

Mr. HANSEN. Mr. Shadegg said he didn't want to bring up the issue of rafts on the river. But in 1972, there was a group of environmentalists who were trying their best to get motors off the river. Later on Senator Hatch put some language in that one, we have discovered that. And that's come before this Committee periodically, ever year or so someone brings it up.

Mercury did a UGST study on that. They came to this Committee and pointed out that the exhaust went in the water and all that kind of stuff. And they went down the river and took, actually, acoustical things all the way along with various river runners.

Let me turn to our two experts on sound there. What have you heard—or you've concentrated on aircraft. What about other forms that break into silence? Either one of you want to respond to that?

Mr. HARRISON. Well, I'm probably the one who's done the broadest of the experts. And, as I'm sure the chairman knows, an expert is an ordinary guy that's 50 miles from home with a briefcase. But I think of the three of us, probably I'm the one who has done the most work on boat noise. And what I have—although I have not done work specifically in the Grand Canyon—what I have found is that technological measures are very effective on both inboard and outboard boats and that, with careful engineering, either an inboard or an outboard can be made so quiet that the loudest source of noise from the boat is the water slapping the hull and the motor becomes no longer an issue.

Mr. HANSEN. In your expert opinion, would you state that the outboard motors, which are used on the Grand Canyon, do or do

not create a disturbance as far as silence? What would be your opinion?

Mr. HARRISON. I think probably currently the currently used outboard motors certainly some of them do create a disturbance. But I think that's not a large percentage of them. And I think certainly that, with just a little regulatory help, that situation could be greatly ameliorated.

Mr. ARNBERGER. Mr. Chairman, could I give you some——

Mr. HANSEN. Have you ever run the Grand Canyon yourself, Mr. Harrison?

Mr. HARRISON. Not in a motorboat, no.

Mr. HANSEN. So you're speaking not as one who has been there and listened to it, but more of your curbstone opinion, is that right?

Mr. HARRISON. Well, yes. I have made maybe 10,000 boat noise measurements in my life, but never in the Grand Canyon.

Mr. HANSEN. I see. Kind of a noisy canyon. A lot of water goes down that. Doesn't it, Mr. Superintendent?

Mr. HARRISON. That's exactly my point, that the background sound is such that it is very much a masking sound and certainly the boat noise is not any problem remote from the people who are right there in the canyon.

Mr. HANSEN. I perhaps have something to add. In my own opinion, having run it three times, you'd have to have the ears of a Doberman pinscher, but go ahead.

Mr. ARNBERGER. I have, perhaps, some real-time information and it ought to come out in the next panel. In fact, this issue of natural quiet and trying to reduce noise and so forth is not just an aircraft it is a metropolitan issue here as well, with the sound of sirens.

But the Grand Canyon Outfitters Association that represents the professional out there have taken extraordinary steps forward, similar to what Elling Halvorson has made and others, to, in fact, quiet down engines. And, in fact, the Honda 4-cycle engine that is being used by a good number of those folks right now and by the National Park Service down there is contributing to a restoration of natural quiet from that particular sector. And it is an extraordinary difference between a Mercury 2-cycle and a Honda 4-cycle engine to where now the guides can stand in the back and talk in normal voices to their clients as opposed to, in the past, having to wear earmuffs.

So the endeavor to, in fact, restore that type of an environment, to limit the impacts of noise is a widespread one and there is some levels of success occurring on the river itself with the concessionaires. And I would assume that some of that will come out in the next panel.

Mr. HANSEN. Let me just ask one more question of our engineers here. We've also—this Committee has had people complain about noises in Yellowstone, Glacier, Yosemite because of motorcycles going through. Go ahead.

Mr. HARRISON. A very serious problem, Mr. Chairman. The problem does have some parallels and it's interesting that you should bring this up because we had a spirited discussion, the four of us—Elling and the other two engineers—about just this subject this morning.

The problem that occurs with motorcycles and, to some extent, snowmobiles—and, again, I have made probably tens of thousands of measurements of these vehicles—is that, while the bikes and the snowmobiles, when they leave the manufacturers' hands are very quiet—as a matter of fact, snowmobiles are quieter than any other vehicle in normal use—the fact that a certain percentage of the people that use them modify them, if, for no other reason, because they like the loud sound, is the contributor or the main contributor.

Motorcycles are very quiet. Snowmobiles are extremely quiet. There is always downward pressure on the manufacturers of these vehicles to make the bikes and snowmobiles quieter. And this is counterproductive because what it does is it makes them run worse and then the guys take the mufflers off because they want the bikes to run.

The Forest Service has been very successful—and I will take some credit for their success—in a draconian program of noise enforcement. There's a test method that can be run very quickly on motorcycles and if you don't meet it, you don't ride. Load it up, buddy, we're not letting you ride here. And, more importantly, the users themselves have gotten on this bandwagon and have put a lot of pressure on their colleagues to keep the stock mufflers on the bikes.

So I can't tell you with a straight face that we have the problem solved, but I can tell you that the big problem is not the original equipment, but the manufact—but the modifications.

Mr. HANSEN. And if, you know, if I had my druthers, very personally, the one that I would like to tone down is the kid in the car that turns his stereo up so loud you can hear it five blocks away.

Mr. HARRISON. This is much more intractable problem.

Mr. HANSEN. That kid is the one I'd like to get to and I don't how you do that. Excuse the trivia part of that. Take that out of the record, will you?

[Laughter.]

The gentleman from American Samoa.

Mr. FALEOMAVAEGA. Just another quick question, Mr. Chairman. Thank you. I just wanted to ask Superintendent Arnberger, you mentioned that National Park Service has contracted with some expert to model—to build this computer noise model. What's the approximate cost of the National Park Service in doing this?

Mr. ARNBERGER. I believe that the cost of the construction of the first model that was done by BBN cost us significantly, or somewhere between, $500,000 and $1 million.

Mr. FALEOMAVAEGA. And that's just the first phase, right?

Mr. ARNBERGER. Yes, sir. I think it's very obvious that at that first phase, with the report to Congress, that we, in fact, felt that we had a model that was going to work and the values were good and we did our work. And as we have moved through this process, there's clear indications that both the FAA and the Park Service to come together, reevaluate the model and some other models, and see where we need to go further with that.

Mr. FALEOMAVAEGA. Wait, let me see if I get this. You've al—you've expended $500,000 already only on the first phase as——

Mr. ARNBERGER. The first model that—let me see what my colleague here is—yes, $800,000. I knew it was between $500,000 and $1 million. And what it—that was the first model that was done for—that was the NODSS model done for the report to Congress.

Mr. FALEOMAVAEGA. And this is going to be the computer of all computers, the model of all models.

Mr. ARNBERGER. No, it's not the computer. It's the building, the construction of the model, which is basically a series of mathematical equations which it works on and then puts out a GIS product of some sort.

Mr. FALEOMAVAEGA. And—could I ask, Mr. Chairman, to submit for the record? We would like—in fairness to the National Park Service this morning, we would like to have you submit for the record your expert submission to state whatever—what you consider to be, as a different understanding of the science, to compare to our friends here who are testifying this morning. Is that OK with you?

Mr. ARNBERGER. I would be very pleased to do that.

[The information referred to may be found at end of hearing.]

Mr. FALEOMAVAEGA. Now, this money, this $800,000 computer or whatever model that you're doing here, are we looking at something that is going to be finally built in a 10-month period or——

Mr. ARNBERGER. I think that the important thing is that we're going to pull together a panel of people to in fact look at the existing models out there. Not only this model, but, in fact, the NODSS model, the INM model. In fact, we know that the Air Force has a model that is of some substance and look at what pieces we can use and keep and so forth. But for me to be able to make a—to give you a clear approximation of when and how much it's going to cost, I think that that's why we need to have this panel of experts and so forth to help us get there.

I would tell you that we hope to be pulling this particular endeavor together in the next 2 to 3 months. We do not have time to waste on this particular endeavor. And, while we're looking for accuracy and the best thing possible, I think we have to be very careful about recreating the atom here. I think there is some sense that there are experts. There is good information. Now let's get them together and let's solve this.

Mr. FALEOMAVAEGA. Now this is all in the purpose of conforming to the Public Law 100–91?

Mr. ARNBERGER. Yes, sir, it is. It's basically in the mid-life stages of the regulatory effort to, in fact, meet the letter of the law and the regulatory process with the FAA to, in fact, repopulate the air space in some fashion and manage that air space in some fashion. To allow air tourists to continue and also to meet the goal of the restoration of natural quiet.

Mr. FALEOMAVAEGA. And do you feel that the laws that passed in the 100th Congress, the fact that we now have 5 million visitors in the canyon, do you think there's going to have to be some changes in the law? I mean, I'm a little disturbed by this and the fact that what it was 10 years ago is no longer the situation now.

Mr. ARNBERGER. Well, it's not only the visitors, but in those 10 years the air tour industry has doubled, has increased over 100 percent. Which is a contributory to some of the degree of the prob-

lems. I don't think that that's going to require a rearticulation of the law. I think it's going to take more intense effort to, with the FAA and the people involved, to solve the problem.

Mr. FALEOMAVAEGA. Thank you, Mr. Chairman. Thank you, Mr. Arnberger.

Mr. HANSEN. Thank you. Mr. Arnberger, a few last questions and we'll let this panel go. You state in your testimony that the recent Court of Appeals decision declared that it is not unreasonable to use acoustical data to determine the degree of natural quiet. However, assessing natural quiet should not be, quote, "one or the other." That is, all assessed by acoustical measurements or all assessed by visitors complaints. The question is this: Do you believe it is also reasonable to include visitor complaints and surveys along with acoustical data as significant parts of assessing natural quiet?

Mr. ARNBERGER. I think that we have done a significant number of visitor surveys. It's called dose-response surveys, that in fact is part of the mix, yes, it's part of the mix of deciding to what measure we are going to be able to achieve the substantial restoration of natural quiet. I think the acoustic standard is the standard that we are going to stay with to, in fact, make that decision. But, I think we will be very, very seriously considering all of the dose-response studies that are going to be a part of that mix.

Mr. HANSEN. Does it—to what extent do you put any credence or weight to the idea of there are certain people who are limited in time, who are handicapped, who can only see the park by aviation means?

Mr. ARNBERGER. I put credence to the fact of an air tour industry at Grand Canyon is an important part of the mix in the spectrum of visitor activities there. We are not intent on dismantling or eliminating the air tour industry from Grand Canyon. We are simply trying to strike that balance, as Mr. Shadegg brought out the difficulties of finding those places in there is what my life is.

Mr. HANSEN. Do you give equal weight to the people in aircraft as people in cars who have come to the north rim or the south rim?

Mr. ARNBERGER. I think we give equal weight in terms of evaluating all of the wide spectrum of activities. I think it's important to note that, of the 800,000-some people that visit the canyon by air tours, 92 percent of those people also come into the canyon by bus or by car. So, in fact, it is not just an exclusive type of thing of flying over the canyon and leaving. Those people land in Tusayan or else they were there in the park, went out for the air tour. So they leave not only a footprint of some sort through the air, as transitory as it might be, but they also leave one on the ground.

Mr. HANSEN. OK. I'll dismiss—I was going to turn to you, Mr. Hayworth, to give an opening statement or whatever you wanted to do, but I was going to dismiss this committee, but maybe you have something you——

Mr. HAYWORTH. I—just one question that arises, and I apologize for being late and perhaps it's been covered——

Mr. HANSEN. Well, we'll turn the time to you to use as you see fit.

Mr. HAYWORTH. I thank you, Mr. Chairman. And let me just ask this question first and then I'll have a couple of other statements.

First, Mr. Arnberger, and the rest of the panel, can you put down or offer some empirical data as to the number of disabled citizens who visit the park, especially via air tour? Because it seems to be a unique way to see the wonders. Do we have any empirical data on that information?

Mr. ARNBERGER. I don't have any data. I—you know, and the way I would answer that is that the way for citizens who are impaired to see the park is not limited to what might be—to only aircraft. In fact, there are wide, wide spectrum of opportunities for those citizens to, in fact, enjoy that canyon and to see that canyon. And then, second, I would say that I'm sure there are a wide number of impaired citizens that do use aircraft, but that's not the only exclusive way to enjoy that canyon.

Mr. HAYWORTH. No, indeed. But I think we would all agree today, even as we take a look at the different aspects of this decision, having had the privilege of seeing the canyon by air, in addition to being on foot, and the magnificent wonder that compromise that great national park, I think it's vitally important that we don't move to abridge anyone's rights to enjoy it. And especially those who may find the going somewhat challenging on foot or by vehicle.

Mr. Chairman, I don't have any other questions for this panel if we want to move along. I do have some other statements if you would like to have them now.

Mr. HANSEN. Do you have an opening statement that you would like to give at this time?

STATEMENT OF HON. J. D. HAYWORTH, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF ARIZONA

Mr. HAYWORTH. Thank you, Mr. Chairman. I just—I simply want to thank everyone for taking time to be here. And, as we say, Arizona is the Grand Canyon State. Of that, we are proud. And that's why you see three of us here, including my colleague who still serves on the Resources Committee, Mr. Shadegg, from the fourth district.

Just some important points that I think we need to make today. First of all, I do not believe that wilderness designation—I don't believe wilderness designation will add any further protections to the park. It's already receiving protected status because of its affiliation with the National Park Service. I believe wilderness designation will make the park less accessible to certain people and that's not only dealing with air travel here. I just really think we have to ask this question of ourselves today: Should any one segment of society be forbidden to enter a national park that their taxes helped finance?

I also believe the wilderness designation may substantially increase the cost of the Grand Canyon experience. I have heard some talk that there are some at the Interior Department who try to rationalize this by saying, Well, a family of four may go to Disneyland or Disney World and it'll cost them $100. I would point out for the record: The taxpayers don't finance Mickey Mouse and Donald Duck, at least not to my knowledge. And we're not talking about using these natural wonders that exist in our society as some sort of natural amusement park. These are special, incredible natu-

ral wonders and, again, I think we have to ask: Should the American people be priced out of a visit to this wonder of the world?

People in the surrounding areas, private outfitters and others, should be involved in this public process and, indeed, this process should be open and fair and everyone's views, but especially the views of those who have committed no crime, but simply been involved in legitimate economic interchange, should be seriously considered when deciding the future status of this great park.

And, again, I want to thank everyone for coming to testify, but I'd be remiss if I didn't also say that Mark Grisham, who's the executive director of the Grand Canyon Outfitters Association, is here. He is from the great sixth district, up in Flagstaff. We appreciate that as we appreciate all who join us here today. And I see my good friend Bob Lynch back there in one of the rows too.

So, Mr. Chairman, thank you for your indulgence. To the Ranking Member, my good friend from Samoa, Mr. Faleomavaega, we thank you. And to all who have come here to testify today, we appreciate your efforts.

Mr. HANSEN. Thank you, Mr. Hayworth. We'll turn to Mr. Shadegg for two final questions. We're going to run out of time in a little while and we've got one more complete panel to go here, so, Mr. Shadegg, we'll turn to you.

Mr. SHADEGG. I just want to conclude one quick point. Superintendent Arnberger, I believe that I saw you nodding your head when Mr. Alberti indicated that he thought, before further restrictions were put on flights and further regulations driving down the amount of noise which is allowed or the area which is restricted, as expanded, that we should verify the studies that have been done and the scientific analyses that is being conducted. And I thought I saw you nodding your head. And I want to find out if you agree that, before further restrictions, we should kind of double check these studies and get agreement amongst the scientists.

Mr. ARNBERGER. My nodding of my head was for one sector of his comments. And that is that we need verification. Now, I believe that there are—that concurrently, within the regulatory process, as we're moving forward—right now we are moving forward in a route structure, as an example. I believe that, in fact, a route structure, we can move forward on that.

But I believe, as we start getting into another requirement of the regulation, a noise management plan, which is—a way to explain that is how we populate those skies and the routes with planes and how many they can there and when they can be there—that, in fact, we're going to have to have a model that meets the test, the scientific test, and meets—and has the capacity to, in fact, do that. So I don't want to be so precise as to say we should stop everything until such time as we get the model. And I want to say very clearly that we see the importance of that model and we're moving very quickly on that.

But to stop everything I don't think that we need to. I think that we need to move through this in a concurrent basis. And there are going to be some areas that are going to be dependent upon model validation. Those areas are going to come to a stop and there's going to be some areas that, perhaps, don't.

Mr. SHADEGG. So, if I understood that correctly, you agree with me in part and you disagree with me in part. You don't want to stop doing anything. But you agree that, before we do anything dramatic, perhaps it would be good to try to obtain agreement on the science.

Mr. ARNBERGER. I think that that's been a significant blip on the radar screen of both the FAA and the National Park Service and we're moving in that direction.

Mr. SHADEGG. I hope you will commit to that and I would implore you that it is in everybody's interest for there to be a common agreement on the scientific basis. Because then we'll all have—and we'll all, I mean, everybody that has a right to use the park and uses the park—will have greater confidence in whatever levels are then established, based on that science. Thank you, Mr. Chairman.

Mr. HANSEN. Thank you. We appreciate this committee and I appreciate your patience. You gave good answers and we would like to have the opportunity to write further questions to you if we have them. Would that be all right? And we appreciate your answers. Thank you so much.

Superintendent, I think you're on for the next too, aren't you?

Mr. ARNBERGER. Yes, sir, I'm here for the duration.

Mr. HANSEN. All right. Appreciate it. And you're accompanied by David Haskell?

Mr. ARNBERGER. He's not here.

Mr. HANSEN. Senior scientist, Grand Canyon National Park; Robert S. Lynch, chairman of the board, Central Arizona Project; Mark Grisham, executive director, Grand Canyon River Outfit; Brian Merrill, chief of operations, Western Rivers Expeditions; and William C. Reffalt, The Wilderness Society and The Grand Canyon Trust. Would these folks please come up?

Have we got you all in the right place? Superintendent Arnberger, do you want to do another opening statement?

STATEMENT OF ROBERT ARNBERGER, SUPERINTENDENT, GRAND CANYON NATIONAL PARK

Mr. ARNBERGER. Well, I was asked today to separate them into the two areas of concern so I——

Mr. HANSEN. All right. All right. We're going to run out of time on the use of this room, so we're going to try to hold everybody to 5 minutes, including members and panel. If you could possibly, we'd really appreciate it. Go ahead.

Mr. ARNBERGER. The draft wilderness management plan for Grand Canyon National Park was released for public comment in June, 1998. And the comment period ended on September 15, 1998. And that draft plan essentially calls for the National Park Service to manage 1,109,257 acres of proposed wilderness and some 29,000 acres of potential wilderness.

I think that, in the interests of time, we'll say that that draft plan is an internal operational management plan that we believe represents the proposal, the wilderness proposal, made by the National Park Service in 1980. And it is focused most especially on some of the more management-focus operations of the National Park Service, including what we call a minimal tool to assure that,

in fact, we're meeting the intent of the Wilderness Act, and so forth.

And, in the interest of time, you have the statement. And with at least several members of the panel there, including yourself, we've had some good discussion on these things, so we probably ought to get along and then provide for that opportunity.

Mr. HANSEN. Done?

Mr. ARNBERGER. That's it.

Mr. HANSEN. Thank you so much. Mr. Lynch, we'll turn to you, sir.

STATEMENT OF ROBERT S. LYNCH, CHAIRMAN OF THE BOARD, CENTRAL ARIZONA PROJECT ASSOCIATION

Mr. LYNCH. Thank you, Mr. Chairman, members of the Committee. The thing that's missing from Mr. Arnberger's statement that I'd like to see is a commitment to do an environmental impact statement to corral the issues that I think are missing from the draft plan and from the environmental assessment that accompanies it. Frankly, I think they've missed the boat, no pun intended, not only over motorized craft, but over just exactly what the implications are of the proposal for wilderness.

First of all, this is and has to be—and I don't think anybody with a straight face could contradict the fact—that this is a major Federal action significantly affecting the quality of the human environment, the test under NEPA for doing an environmental impact statement. It's there. It has to be there. I mean, a first-year law student would find this and, certainly, the attorneys for the Park Service have to be advising Mr. Arnberger and the Service that they are going to have do an EIS.

The EIS process, in my view, if it's properly handled, will bring out the issues that are missing now. And let me just mention a few of them. The issue with regard to water rights. The reason I'm here. The status of the Wilderness Act, as a tool for claiming reserved water rights, is an open question. It has been litigated over the years since the Act was originally passed in 1964. There is no resolve to that, except that 2 weeks ago, the State of Idaho filed its appeal in a State case that I have referenced in my testimony in which a trial judge in Idaho said the Wilderness Act is a tool for reserving—impliedly reserving water. A disastrous consequence in my view, and one not contemplated by Congress, but, nevertheless, it's there.

This is an open question. It's a serious question in Arizona. It's a serious question on the Colorado River. It is not analyzed. It is not discussed. It is not part of this plan. And the Park Service has sort of stepped in this. I don't think they understood the depth to which these issues would come up for them while they were focusing on the narrow aspect of writing a proposal for designating wilderness in physical areas. But when they designated the river corridor as a potential wilderness, they brought themselves into a whole new world and in one they might not totally understand. One issue has to do with the water rights implications. And that's why I'm here, because, as I said in my testimony, CAP is the last right on the river and anything that implicates water rights on the Colorado River we have to be concerned about, and we are.

We want to see this analyzed. We want to see it discussed. We want to have an opportunity to present a case about why this designation should not disturb the Law of the River. And we want not to have to fight this battle at a later time after a wilderness designation when either the Service or other groups will come in saying, "I'm sorry, but you don't have the water supply you used to think you had." We just can't afford that in Arizona.

We think that they've tripped over some of their own statutes that you have passed that have given them commands, not just of the Service, but the Secretary of the Interior. The 1992 Grand Canyon Protection Act mandates a long-term monitoring and research program. The draft plan says not only—the draft plan admits that they will have to restrict Park Service use of motorized craft on the river.

Now if they're going to restrict them, they're also going to have to restrict the researchers who are on the river taking the scientific measurements. They're going to have to res—I mean, it's not just commercial river runners. There is a mandated plan under the 1992 Act, in section 1805, that will be restricted; there is physical equipment that may not be usable along the river corridor anymore if this is designated as a potential wilderness. The equipment that's used for remote sensing, scientific measurement, and this research program, which you mandated, is going to be adversely impacted by this designation and that is not analyzed in this plan or this environmental assessment.

There are mandatory consultation requirements. In 1992, you put five consultation requirements into the Grand Canyon Protection Act. One of them is specific to the monitoring program. It's a command to the Secretary of the Interior, the same Secretary that Mr. Arnberger answers to, the same program, the same park, not done. And the plan admits they haven't consulted with the affected interests mentioned in the 1992 Act.

The 1992 Act also embellishes on the consultation requirements in the 1968 Lower Colorado River Basin Project Act. That, too, is a mandated consultation if there is going to be a potential effect on the annual operating plan that is mandated by the 1968 Act. That hasn't been done.

A brief mention of the Americans For Disabilities Act issues. I attached some stuff that I recently ran across about a program, Phoenix Parks and Recreation, and, as it turns out, my wife's rotary club helps fund disabled people to take river trips. That has to be analyzed.

There is a statute that you passed, I think in 1986, mandating that the Park Service provide access to Indian tribes and communities for religious purposes to the park. What's the impact of the wilderness designation on that command? It's not been analyzed. What about the Hopi salt caves in the upper canyon? What about the other sites which at least a half a dozen tribes in Arizona and New Mexico and southern Utah consider to have religious significance surrounding the canyon? Not been analyzed.

This whole approach to NEPA, to me, and whether to do an EIS is like throwing a—rolling a boulder off a hill and just saying we won't worry about what it hits until we see what it hits. Now's the

time to do the analysis. Now's the time to do the research. Now's the time to do the EIS and force these issues out into the open.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Lynch may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Lynch. Mr. Grisham.

STATEMENT OF MARK GRISHAM, EXECUTIVE DIRECTOR, GRAND CANYON RIVER OUTFITTERS ASSOCIATION

Mr. GRISHAM. Thank you, Mr. Chairman.

Mr. HANSEN. Pull that mike close to you, please. Thank you.

Mr. GRISHAM. Mr. Chairman and members of the Subcommittee, thank you very much for the opportunity to contribute to this oversight hearing today on the Grand Canyon National Park draft wilderness management plan. I'm the executive director of the Grand Canyon River Outfitters Association, a trade group that represents each of the 16 licensed, commercial river-running concessionaires who operate in Grand Canyon National Park. As we have for the past 2 decades, each year our member companies assist roughly 20,000 people from around the country and from around the world enjoy a Grand Canyon river adventure.

Grand Canyon's river outfitters are proud of our industry and its mission which, in a nutshell, is to make a safe and enjoyable Grand Canyon river experience available to the broadest sweep of the American and international traveling publics as possible. To do this, we offer a diverse range of trip styles. We feel that anyone interested in getting to know the Grand Canyon can find the type of river trip that will suit them and that they will greatly enjoy and appreciate.

The age of our patrons ranges from elementary school kids to retirees in their seventies and, yes, even in their eighties. The outdoor experience level varies from highly proficient and experienced outdoors people to those who have never spent a night under the stars. This diversity of interest is one of the most powerful things about the Grand Canyon river experience. These trips are not just for hardcore outdoor enthusiasts or the wilderness traveling elite of this country. The power of the experience is attested to eloquently by the fact that completion of our trips by those new to the outdoors regularly engenders a lifelong appreciation of the natural world and a recognition of the need to protect special places.

Everyone agrees that the Grand Canyon river experience is a powerful and precious thing, yet its exact nature, what it is today, and what it should be tomorrow are things that elude simple definition and spawn heated debate. The instincts of government administrators continue to be for greater and greater control and regulation. At the same time, our experience leads us to conclude that a wilderness experience is a highly personal thing. We believe that the citizens of this nation should be treated as thinking adults and trusted by their government to find their own way to that type of encounter with the Grand Canyon that best suits their values, temperament, physical limitations, and expectations.

To fully appreciate what is at stake in this debate, it is first helpful to understand what is not at stake. This is not a debate about protecting unprotected lands. The Grand Canyon is, of course, a na-

tional park. It is an intensely managed area, controlled completely by the National Park Service. As the members of this Committee know well, that agency's statutory obligations regarding resource stewardship are substantial. There is no imminent threat from which the Grand Canyon must today be saved.

In addition to the many important details that, together, serve to describe and define the Grand Canyon river experience, there are two fundamental questions that end up really being just a single question. First is the matter of how broad or how narrow should the public's access be to the Grand Canyon river experience. Is the current level which has essentially been in place now for the last two decades just about right? Or is it too much or too little?

Second, there is the issue of whether or not to eliminate the historic presence of low-power outboard motors from the river. Managing the Colorado River corridor as wilderness means banning motors. Is this a good or a bad idea?

To answer that question, we believe one has to understand how removing motors would impact public access. It is the use of motorized watercraft that makes possible the current level of public access, while, at the same time, satisfying the various National Park Service resource protection and wilderness visitor experience prescriptions now in place. It simply is not possible to eliminate motorized watercraft from the river without also sharply reducing the public's historic access to the Grand Canyon river experience. We believe that eliminating motors would reduce public access by 50 percent or more from current levels.

The Grand Canyon River Outfitters Association believes that the river corridor through the park should receive the same treatment as that given the cross-canyon trail corridor in the draft Grand Canyon wilderness management plan. It should be classified as a non-wilderness access corridor. Classifying the river corridor in this fashion would not mean that anything would then be tolerated on the river. It is still a national park, heavily regulated by the Park Service.

The river outfitters are ready, able, and more than willing to sit down with the National Park Service, all other interested parties, the public we serve, the members of this Committee, and to engage in a constructive discussion of how current management of the river corridor can be improved to even further enhance resource protection and visitor experience goals. We are unwilling, however, to lend any support to the notion that motorized use on the Colorado River should be eliminated. We do not believe that the dramatic reduction in public access such management would necessitate—a reduction of 50 percent or more from current levels—is warranted.

If Grand Canyon National Park officials insist that either the immediate or eventual removal of motors is necessary under existing wilderness law and/or National Park Service wilderness management guidelines, we believe the time has arrived for this Committee and Congress as a whole to take up and to decide the Grand Canyon wilderness question once and for all. Thank you very much for the opportunity to be here today.

[The prepared statement of Mr. Grisham may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Grisham. Mr. Merrill.

STATEMENT OF BRIAN I. MERRILL, CHIEF OF OPERATIONS, WESTERN RIVERS EXPEDITIONS

Mr. MERRILL. Thank you, Mr. Chairman, and the members of the Subcommittee. My name is Brian Merrill. I'm chief of operations for Western River Expeditions. Western has been an outfitter in Grand Canyon since 1959 and under current ownership since 1977.

As an industry, I am proud of the record that we have as protectors of Grand Canyon, as educators about Grand Canyon, and as lovers of the resource. And so it's—we are uncomfortable about the position we're put in here as being anti-wilderness. Wilderness is such a romantic concept and without a deep understanding of it, it's easy to just support it in a knee-jerk sort of fashion.

But our understanding of it with regard to the river in Grand Canyon is that it is about access for the American public. If wilderness status is granted to the river, people are going to be shut out of Grand Canyon. And it is, admittedly, an economic issue for us. Are we self-interested? Absolutely. But the reason is because people are going to be kept off our trips. That's why our bottom line is going to be affected. Tons of people are going to be kept off our trips.

For us, it represents—it would rep—carried to its logical conclusion, wilderness for the river in Grand Canyon would represent, at a minimum, a major recapitalization and restructuring of our business. And, for many members of our industry, it would represent quite simply the death knell. They would go out of business. They just couldn't function under extreme wilderness limits.

Our trips—we run two basic trips through Grand Canyon. We run a 6-day trip down to Whitmore Wash that the chairman mentioned before. People helicopter out of the canyon and then another group helicopters in and runs a 3-day trip through the bottom end of the canyon.

If motors were eliminated, the only option would be a minimum of about a 12- up to a 14-day trip down covering basically the same portion that our 6-day trip covers now. If helicopters were eliminated, then virtually half of the people who are experiencing Grand Canyon through our company now would be immediately taken away. We take approximately 2,000 people on our 6-day trip every year and an additional 2,000 on the 3-day trip every year. And those 2,000 on the 3-day would be gone immediately if the helicopters were removed. There are other options that have been proposed: hiking in and out of the canyon, mules. And I won't go into the details right now of why those are not viable options, but they aren't.

Motorized rafts are currently chosen by 75 percent of all of the people who go through Grand Canyon. Wilderness would eliminate that option for them. Motorized rafts provide flexibility in terms of contacts that are had on the river. One of the main goals of the managers of these plans is to reduce and manage the number—the level of contacts that occur between groups in Grand Canyon: How many times you see other people on the river or see them at attraction sites. The guides of motorized rafts have the ability to accelerate, decelerate. They can control their speed, communicate with

other guides on the river, and make sure that these contacts occur less frequently. Motorized rafts also pass other groups relatively quickly whereas in a rowing situation, it could take hours to pass another group and you're contacting them often down the river.

Ironically, wilderness could lead to more contact with the land. Currently we, you know, on a 6-day trip we camp five times. If we had to stretch that out to 12, 13 days, we would be camping 11 or 12 times. And each time you camp, that's more impact with the land.

As these levels of contacts would increase without motors, if you had strictly rowboats, it would take a lot more boats to accomplish the same level of access. You can't put as many people in a rowboat as you can in a motorboat. So if you had that increased level of contact, the next step for the Park is to reduce the level of boats on the river, therefore reducing access even further.

As Mr. Arnberger so graciously stated, our industry has voluntarily committed to convert to quieter engine technology, not only four-stroke, there is direct injection technology coming on line. They are significantly quieter. We're getting compliments from people who run rowing trips that they can barely hear these boats as they're going by now. And we have committed to convert 100 percent by the year 2001, as an industry. Our company will have this technology on our boats 100 percent by next year, by the 1999 season. We're also exploring even quieter, cleaner technology that the ultimate result might be an electric engine on a boat in Grand Canyon and the industry is very committed to that effort. Hopefully it will work out.

With regard to helicopters, they represent a clean and efficient way of getting people in and out of the canyon. They provide access for people who otherwise would not be able to do it. Quite frankly, our demographics reflect the demographics of the nation. We're getting older. We're in less—we're not as physically fit as we ought to be.

And, people, this isn't about parading out the ill and the infirm, although many of those people access our trips—people who are in wheelchairs, people that have extreme physical disabilities are being taken through the Grand Canyon right now. Mr. Lynch mentioned the city of Parks—city of Phoenix Parks and Recreation. We work closely with that group. We have done so for 5 years to provide access to Grand Canyon. But this is about the average American, 70 years old, 80 years old, someone who's not in shape. They cannot hike in and out of Grand Canyon. They can't spend 12 to 15 days in the canyon. It's just a barrier that would placed in front of them, without motors.

To conclude, I believe that we should be about protecting this resource and providing access. It's the dual mandate of the National Park Service. We do not take our partnership with the Park Service lightly. As the person who's in charge of training for our company, I preach it like a religion to our guides. They protect the resource. They interpret the park for the people. They love the people. They love the resource. They practice that religion that I preach to them with great fervor. And I'll stand on that record firmly and proudly. And we shouldn't be about keeping people from that experience in Grand Canyon. Thank you.

[The prepared statement of Mr. Merrill may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Merrill. If you notice, you look back on the clock there, there's two lights that just appeared. We do a lot of things by lights around here. And that means that we've got a vote in about 9 minutes and that's about all the time it takes to get over there. So I would urge the members of the Committee to run over and vote and come right back and we'll turn to Mr. Reffalt at that time. Appreciate your patience, being with us. And we will take your statement. And then we'll turn to the members of the Committee, even I know everyone here has a number of questions. So it will stand in recess for just a few minutes.

[Recess.]

Mr. HANSEN. [presiding.] Order. I'm sure the members will come in soon. A lot of discussion going on on the floor regarding our profile issues around here. So they'll be here, I'm sure.

Mr. Reffalt, could we turn to you, please. I'd hold you awhile, but we're going to run out of time for this room, so I'd appreciate if we could get your testimony on the record. Go ahead.

STATEMENT OF WILLIAM C. REFFALT, THE WILDERNESS SOCIETY AND THE GRAND CANYON TRUST

Mr. REFFALT. Thank you, Mr. Chairman. In the interest of the time, I will try to abbreviate my testimony—my written testimony—severely so we can move onto questions.

Mr. Chairman, my name is Bill Reffalt. I am the director of National Parks and Alaska Lands for The Wilderness Society. I sincerely appreciate this opportunity to testify on behalf of our members and The Grand Canyon Trust regarding the Grand Canyon National Park.

The Grand Canyon is one of the most unique and in many ways grandest wilderness areas in America. Standing on the rim at many locations, you can literally see into the heart of this magnificent national park. And at the heart of this park, of this wilderness and this park, is the Colorado River.

It has been written that, without the flowing river there is no true Grand Canyon. It follows logically that the management of the park must deal effectively with these two functional—foundational elements of the park, that is, wilderness and the river. Many people can claim to be an interested stakeholder regarding park management. This would include all the past users of the park, the present users of the park, and even potential future users of the park.

In its purest form, the management planning process that's currently underway simply grants fulfillment of the expectation of all of these people that they will be listened to and have an opportunity to have input to park management decisions. It supplies the Park Service with the concerns, opinions, ideas, and reactions of people who know and use the park and its resources. It permits interested parties with differing points of view to learn about other views and serves as a forum to make known all of the viewpoints.

We believe that the National Park Service policy guidance on planning and wilderness properly reflects the spirit and intent of the Wilderness Act. Further, the Grand Canyon National Park staff

has made a well-founded, reasoned, and positive effort to provide all stakeholders with the necessary information and an opportunity to respond to management proposals and concepts within the context of the administering laws. The complexities of the legal structure and the changes in park legislation, boundaries, relationships to tribal neighbors, and types and magnitude of visitor usage over the past 20 years bring potential need for changes in past proposals and potential new issues into the management picture. For these reasons, among others, we recognize the need for this public planning process and we are committed, along with many other stakeholder groups, to participating openly and constructively in that process.

We believe that it is important for the future management programs to be discussed between and among the stakeholders in the context of their impacts upon various visitors and their park experience. It is important that the 1.1 million acres recommended to Congress for wilderness designation within the park have an up-to-date, well-designed, and cohesive management strategy, known and understood by the people affected by such designation. And we believe that the interested public deserves to have this opportunity for input and deserves to have their identified concerns and ideas addressed by the Park's professional staff.

We have stated recently in a letter to all members of this Committee that we believe it would be premature and counterproductive for Members of the Congress to initiate legislative actions affecting individual elements of the management issues being considered prior to completion of the final wilderness management plan and Colorado River management plan. Ultimately, the final decisions about wilderness designation and many of these other aspects that are related to that designation will rest with this Committee and with the Congress. Those decisions can be aided and improved by the proper completion of the process that's now underway at the park.

Mr. Chairman, I know there are several other important issues and administrative processes occurring in and around Grand Canyon National Park. To the best of my ability, I would be pleased to answer questions about them also. I again thank you for the opportunity to testify.

[The prepared statement of Mr. Reffalt may be found at end of hearing.]

Mr. HANSEN. Thank you, Mr. Reffalt. We appreciate your statement.

Now, you've all gone into some very interesting areas here. The 1964 Wilderness Act passed through Congress and you may all recall it says: "as if man was never there;" "no sign of man." I think the more interesting part of it is what was brought up on the Senate and the House floor. Kind of like in the court, you get the dicta, you know, what did they really mean by their decision. And, really, as you read what, especially Hubert Humphrey from Minnesota, said, he said, "This would include no sign of man would mean no roads,"—and that's a debatable point what constitutes a road. Two tracks a road?—"no fences, no structures; as if man was never there." An interesting statement, he said, he made this statement,

he said, "If you're like the first man God put on Earth and there's nothing there but you." You see, that's what it would be like.

So, I find it interesting. I've been on this Committee for 18 years and been part of a whole bunch of wilderness bills and a lot of proposals. And I've found it interesting that—the idea of what was the original intent of Congress doesn't seem to be there any longer. I look at wilderness proposals from all of the States and, boy, we've got some that go right over cities, over Class B and C roads. We've got some that have active mines on them. We've got some that have power lines right through the middle.

It also goes on in the Act to talk about mechanized things. People interpret that to say motorized, but it says mechanized. And that is why the trail bike riders want to take their trail bikes into wilderness areas. In the State of Utah, we did the Forest Service bill in 1984. A big piece we put in, and it's beautiful and probably really qualifies, is called the Uinta Mountain. And now there's a big push from a lot of our environmental friends who also ride mountain bikes and they said, well, we would like to deviate for that.

If anything, I think this Congress should do is to go back and look at the wilderness bill and determine what a road is, because that's never been determined. I think it should have a Sunset provision to get things off dead center. And I think we should really define mechanized.

When I look at this, Superintendent, and what the proposal is, you go through the middle of the canyon and so that puts the entire river in the position of a wilderness, if I'm reading this right. I'm not sure I am, but if I'm reading this right, the whole river would be in it. Yet, we've gotten mechanized things and motorized things going right down the canyon. So if we're going to do this proposal, we would have to write in a very strong exemption for this work that's being done as far these—Mr. Merrill's comment about there are rigs with motors on them.

We'd also have to say what a road is. And, if I'm reading this right—I'm not sure I am—where you've gone through a lot of roads in here. So I would assume that what the Park Service is saying is that you would really want to eliminate some of these roads or close them and let them come back to what they originally were, as the Forest Service does on a regular basis.

I think that I've never seen one that will receive more controversy than the Grand Canyon. In the State of Utah, we have about six parks that we are preparing to build to do the wilderness part of it. I thought we'd sneak a little south and get yours in and get it over with. However, I think yours will be more controversial than the next 50 in line.

And I think Mr. Lynch brought up a very interesting point. And another thing we've always talked about is the law of the river. And, boy, we're talking on some sacrosanct things. I mean, you're walking on eggs when you start talking about a man's water. You've heard Mo Udall say—what is it?—you can—Whiskey's for drinking and water's for fighting. And I think that Mo was right. That creates some real problems when we start getting into talking about people's water. I got into this business 40 years ago by working on a water system and have been part of a lot of projects. I can see that yours isn't going to be an easy go.

Mr. Grisham raised a very interesting point. A lot of people don't look at it, but, you know, when we create something in wilderness, we actually bring more people in than was ever there before. When the pioneers went West, a lot of that area hasn't changed one iota, not one smidgeon of it until we declared it wilderness. Just like the present on the Grand Staircase Escalante. It was nothing up until the time it became the Grand Staircase. Now people are coming in there by the millions. Not to be crude, but the papers down there, they call it toilet paper city.

And so you find yourself in a situation where a lot of these designations Mother Nature herself put something in wilderness, man comes along and puts it in wilderness. The next thing we know, we've got people coming from all angles looking at it. So I sometimes wonder and I'd almost wish sometimes we'd left this wilderness stuff alone, we would probably have more area that would be preserved and in wilderness and pristine without man, than highlighting by wilderness.

But it sure has created a lot of jobs for a lot of people and maybe that's the good side of it. Look at all these environmental groups now that have lawyers' retirement plans and all these good things that they've got that work very well. I say that respectfully, my friend from American Samoa.

[Laughter.]

But they raise a lot of money. If I got 10 percent of the money they raise on me, I'd be doing very well. But, anyway, with that meandering said here, I have to go to another meeting. And there's nobody I trust more than the gentleman from American Samoa and when the gentleman from Arizona, who has 2 hours worth of questions, comes back, would you turn the gavel back to him?

Mr. FALEOMAVAEGA. [presiding.] Well, if he does come back. Because if I'm through with my questions and he's not here, I'm going to run this gavel down. Is that OK, Mr. Chairman? So it's—I'll be more than happy to assist. Mr. Chairman, you were mentioning about Mo Udall's famous statement about whiskey for drinking and water for fighting. I like to say whiskey for drinking and water for killing. Because that's—water's even more precious than gold, I'm told, in the western States. So I fully appreciate your comment on that.

And I think, Mr. Arnberger, I have some additional questions now that we're talking about wilderness. Am I correct that the draft proposal on the wilderness was strictly an in-house preparation? There was no consultations with any of the community organizations whatsoever?

Mr. ARNBERGER. No, that's incorrect from our viewpoint.

Mr. FALEOMAVAEGA. OK.

Mr. ARNBERGER. In fact, we have to look at a little bit of the history here. The wilderness recommendation made by the administration was completed in 1980. That went through a public scoping process, four meetings, five meetings around Utah and around Arizona. A lot of input and so forth. That proposal was completed and went through full public involvement process and so forth.

Subsequent to that, the proposal, the official recommendation by the administration, never did come to Congress, was never presented. For what reason, I know not. And, in fact, we've had two

iterations of operational plans taking the wilderness law, the Wilderness Act, coupling it with the administration's proposal, and trying to make some sense as to how we, in fact, manage those lands to protect and preserve those, the wilderness suitability of those lands and not diminish them should any future action be taken.

The present draft document you have is an operational plan in which 1,000 leaflets and requests for comments went out to the public. It's been before the public. We gave an extension of the public review of this particular draft plan. And we have gotten extensive responses and so forth back from the public, which is one reason why we're here.

Mr. FALEOMAVAEGA. Let me ask you another leading question on this, Mr. Arnberger. If I'm correct to say that this was initiated since 1980?

Mr. ARNBERGER. That's correct.

Mr. FALEOMAVAEGA. And then the previous administrations kind of waffled on it?

Mr. ARNBERGER. That's right. In 1975——

Mr. FALEOMAVAEGA. OK.

Mr. ARNBERGER. In 1975, the Grand Canyon Enlargement Act specified that a wilderness recommendation would, in fact, be completed for Grand Canyon pursuant to the 1964 Wilderness Act. We, in fact, accomplished that and then there was a decision to wait until the Colorado River management plan was finished. It was finished. That proposal was sent to the administration. And, in fact, it was basically completed—river management plan and wilderness management plan—in 1980.

Mr. FALEOMAVAEGA. So it would seem that substantively that you've taken this for the last how many years? I mean, with the current draft proposal.

Mr. ARNBERGER. Well, with the current draft, we had the proposal completed in 1980. We did some sociological research in the back-country and we completed our first back-country management plan in 1988. And then in 1994, we began the planning on our second revision, which we chose to call the wilderness management plan, and that's the draft. So we've been involved in public comment or in process since 1976, if you really want to get to it, to the present.

Mr. FALEOMAVAEGA. But, basically, since 1994, did you say?

Mr. ARNBERGER. Yes.

Mr. FALEOMAVAEGA. So it's been about a 5-year period that you——

Mr. ARNBERGER. Yes, we've been involved—and it's only been in the last year that we've got our—the actual documents written and so forth and that's where we're at.

Mr. FALEOMAVAEGA. OK. OK. And it's as a result of this 5-year period in drafting, commenting, and consultations that you're proposing 1.1 million acres for wilderness.

Mr. ARNBERGER. No, that proposal for 1.1 million acres of wilderness is the administration's wilderness proposal made in 1980.

Mr. FALEOMAVAEGA. From 1980?

Mr. ARNBERGER. That's right. This plan is doing nothing more than taking that wilderness proposal that was never acted upon by Congress—is taking that and putting some management and some

operational kinds of context to it. So, yes, we're proposing it in this plan, but it is consistent with the official administration wilderness proposal made in 1980.

Mr. FALEOMAVAEGA. Now, the fact that it was never submitted to the Congress since 1980, the report kind of became dormant, if you will——

Mr. ARNBERGER. Well, it's hard for me to answer that particular question of why the report was not forwarded. I suspect that there were perhaps certain kinds of political reasons at different epochs and eras of history.

Mr. FALEOMAVAEGA. To put it mildly, my friend Ronald Reagan was President at the time, I think, after 1980 for 8 years. But, no, that's OK. I mean there's nothing wrong with that.

Mr. SHADEGG. [presiding.] I thought Mr. Carter was President in 1980.

Mr. FALEOMAVAEGA. No, President Reagan won against President Carter in 1980 elections.

Mr. SHADEGG. Held in November 1980, then.

Mr. FALEOMAVAEGA. Wasn't it President Carter became—1976 and 1980?

Mr. SHADEGG. And President Reagan in January 1981.

Mr. FALEOMAVAEGA. 1981. OK. Well, then, 8 years afterwards he was President. Is that all right?

Mr. SHADEGG. You got it.

Mr. FALEOMAVAEGA. OK. My point here, Mr. Arnberger, is that I'm sure that you heard the comments made earlier by our friends sitting next to you. Am I given the impression that there were no consultations with four of these gentlemen representing these four different interests and concerns?

Mr. ARNBERGER. No, sir. That is not the impression whatsoever. In fact, we'd begun this process and the collateral Colorado River management plan in full concert with these gentlemen. And, in fact, all of us have known the very narrow precipice that we have been walking on. And that is the unanswered issue of the wilderness issue relative to the need to, in fact, devise some management strategies that marches into a new century with some of our needs. And all of us have been looking for a way to assure ourselves that we do not reopen the very damaging issue that happened in the 1980's. And I'm not sure whether we're going to make it.

Mr. FALEOMAVAEGA. So—and I'm sorry, Mr. Chairman, I know you're—and my time's gone over.

Mr. SHADEGG. No, I'll be happy to let you run over it. It appears like this hearing is yours and mine. And I've got about 3 hours worth of questions so I'm very tolerant.

Mr. FALEOMAVAEGA. All right, Mr. Chairman. Just one more brief question. Now I'm sure, Mr. Arnberger, that you've taken serious consideration of what Mr. Lynch has stated in his statement about the water rights. And how seriously was the input on this issue in the drafting of this wilderness proposal?

Mr. ARNBERGER. Well, the wilderness proposal—I think there's an entire section in that wilderness proposal that documents the public involvement process. Now I'm not a water rights lawyer, but in studying that particular proposal, I noted that back in 1977 and 1980 there was substantial comment and consultation with the

water rights interests in that time, including comments from the Arizona Department of Water Resources and Bureau of Reclamation. And those—their comments are on file.

Now relative to the precise document that you have in front of us, once again, it is based on that recommendation and does not depart from the recommendations made in the 1980 proposal.

Mr. FALEOMAVAEGA. I think the concerns expressed by our friends that are sitting next to you is that the train started moving since 1980 and, despite all their recommendations and their suggestions, it seems that the train is not giving heed to their concerns. Is that an accurate depiction of what I'm——

Mr. ARNBERGER. Yes, sir, I think it is. I think that we have to look at an extensive public involvement process that went into developing the wilderness recommendations in 1980. A tremendous amount of controversy. And, in fact, the overwhelming public opinion at that particular time was to proceed ahead with that wilderness proposal.

Now there were interests that disagreed with that and that resulted in the Colorado River management plan and the Hatch amendment that limited some of our funding capacities. Now this is a contentious issue. To say that people haven't been heard. Yes, I disagree with that greatly. To say that everybody's in agreement, I agree—or not in agreement, then I would say, this is a contentious issue that wasn't agreed to in 1980 and it's not going to be agreed to with any ease now.

Mr. FALEOMAVAEGA. And certainly you were not park superintendent in 1980.

Mr. ARNBERGER. No, sir, I was a park ranger running around in Southern California at that time.

Mr. FALEOMAVAEGA. Just one more question, Mr. Chairman, if I might. Am I correct to state, Mr. Arnberger, that this draft wilderness proposal is far, far from being completed in any form or any results? I mean, this is just being proposed?

Mr. ARNBERGER. This is a draft document and it's a draft EA. And there has been substantial public comment and some substantial concerns that have raised not only legal issues, but legislative issues and, quite frankly, I'm not sure exactly what our next step is except to say that there's been substantial questions raised, which is going to require some substantial review before we go further.

Mr. FALEOMAVAEGA. Thank you very much. Thank you, Mr. Chairman.

Mr. SHADEGG. I thank my colleague. And I can assure you, you can have a second round if you're so inclined.

Superintendent Arnberger, let me begin by saying you and I have had some frank conversations about these issues. We're going to have another one today.

Let me walk over history here. My friend, Mr. Faleomavaega, says it started in 1980. In point of fact, it started before that. Your appendix C walks through the time line. One can argue it began in 1971 and I'll bet you maybe it began before that.

But I want to go through the major points here. In 197—well, 1980—no, I'm sorry, 1971, 508,500 acres were proposed. Nineteen seventy five, the National Park Enlargement Act is adopted. Nine-

teen seventy six, a preliminary wilderness proposal is offered with 992,000 acres—right from your document. Nineteen eighty, the first plan is proffered. My understanding, pretty clearly, from your staff, is that the current plan that's before us was developed as a result of an internal review of the 1980 plan and an updating of the 1980 plan which was internal. Is that not correct?

Mr. ARNBERGER. Well, that's correct. It was done in 1993. It was an internal review and it was responding to the wilderness proposal that said that internal review should be done.

Mr. SHADEGG. OK.

Mr. ARNBERGER. And we did that in 1993 and it changed some of those acreage amounts.

Mr. SHADEGG. OK. Internal review. And then we move forward and in—at what point in time did you send out your scoping documents? Nineteen ninety three? Or when were the scoping documents sent out?

Mr. ARNBERGER. For this particular plan?

Mr. SHADEGG. Nineteen ninety five.

Mr. ARNBERGER. It was 1995.

Mr. SHADEGG. OK. At that point in time, no public notice went out. Am I correct?

Mr. ARNBERGER. I believe you're correct. I don't know that for an absolute fact.

Mr. SHADEGG. Which would mean that the first public notice that went out would have been in June 1998.

Mr. ARNBERGER. For the official comment on the draft.

Mr. SHADEGG. And that, then, invited a 45-day comment period.

Mr. ARNBERGER. That's correct.

Mr. SHADEGG. I must tell you that, with all due respect, that history is stunning because the record establishes that the last public hearings at which people could comment on this plan, at which hearings were held—and they were held in four different cities as I understand, both in Utah and in Arizona, including my hometown of Phoenix—were held in—not 1980—but 1976.

Mr. ARNBERGER. That's correct.

Mr. SHADEGG. OK. I've got to tell you. In 1976, Adam Warebach, the immediate past president of the Sierra Club, was in diapers. He was less than a year old. In 19—there are constituents in my district who have been able to vote in the last two presidential elections who have not had a chance to hear you present this at a public forum and have not been afforded a chance to give their testimony on it. And there are people who did appear at the last public hearing on this issue and gave testimony, who had been dead for nearly a quarter of a century.

I suggest that's a huge flaw in this plan and I will tell you, point-blank, I think the Park Service needs to rethink its position and if you agreed to my friend Mr. Faleomavaega, Congressman Wayne, that this thing is no where near done and needs further work, I urge you, in the strongest possible way, to recognize that that means you need to hold hearings. You need to hold hearings around at least the Southwestern United States and Congressman Hansen's State, in my State, preferably in my city, and allow for public comment.

To allow 22 years to intervene between the last hearings, 1976, 4 hearings, and what appears to be the final promulgation of the plan. I know it says draft, but it has a whole table for implementation. I just—I don't understand that. I know that much of the time delay is not your fault. You sent it in 19—I guess following the 1980 development of the plan, you sent it to the Secretary of the Interior. He chose not to send it to the President. Not your problem. I don't think you were superintendent in 1980. You just testified.

But for whoever is to blame for this massive amount of time, I commend you for the internal review of 1993, but I simply think, before you can contemplate adopting this plan, which would have far-reaching implications for the people of Arizona, for the people of Utah, for the people of the entire country, I think public hearings where you explain the plan and its implications and where my regular folks can stand up and say, Gee, I think this is a good idea or a bad idea. They can say what I say, which is it is absolutely essential that we protect the pristine, untrammeled, untouched nature of that portion of the park which is also untrammeled and untouched, as the Wilderness Act contemplates. And that's the vast majority of the inner canyon. But they can also say, Well, wait a minute. Your map shows that we're going to close some roads and keep others.

By the way, I sat with my staff last night and we looked at your map. The map says, OK, these green roads are going to stay open and these black roads are going to be closed. I can show you lots of roads on your map that—lots of roads on earlier maps that are not designated—they're on your map—but they're not designated whether they will stay open or stay closed. So the graphic depiction of that appears that they will not be closed, and yet the language of the plan says they will be closed. So I think there are very, very serious implications and I hope and would urge that you step back and go back to a public comment basis.

Let me ask you—and I should afford you an opportunity to respond, I suppose.

Mr. ARNBERGER. I really only have one response and it's more of a clarification. And, as you and I have discussed, the environmental assessment is dealing with that management plan. OK? Now the issue that you are bringing up of not—of the public input, I believe in fact we have met the requirements of NEPA relative to public input on that particular plan. Now that is a separate issue from——

Mr. SHADEGG. On the environmental assessment——

Mr. ARNBERGER. On the wilderness management plan. Now that is a separate issue from the currency of the NPS wilderness proposal, completed in 1980. The wilderness management plan, in fact, is based upon that proposal and is consistent with that proposal, following those recommendations.

And I'm not disagreeing with you; I'm just trying to, for the sake of clarification, to try to indicate there's two separate pieces of business here. One is a management plan that is based upon a proposal, an administration proposal in 1980. And we went through a process there and we believe that's a consistent process.

But the issue of whether, in fact, you want to take the entire wilderness proposal back to the people, that's a separate issue, in my view.

Mr. SHADEGG. OK. Let's go back to some basics. First of all, let's start at ground zero. What is the legal basis for, whether it's statute or rule, for the Park Service's determination that potential wilderness within a park must be treated as wilderness? Is that statute or rule?

Mr. ARNBERGER. It's based on statute and then it's further articulated—from the Park Service's viewpoint, it's based on statute and then it's further articulated in policy.

Mr. SHADEGG. OK. Yes. Our legal counsel says it's not in statute and that it is in fact in your policy. In arriving at that determination, do you not believe that public input, indeed, I think you said, extensive public comment and public opinion is important? Don't you believe that, in fact, there should be current public input, if you were to adopt such a plan?

Mr. ARNBERGER. I think that, with what is intended with that management plan—and it's founded upon a proposal that's already been made and been through public input—that, in fact, the public input has been sufficient for that plan. And I still say that is a different issue than whether, in fact, it is important to pull the original wilderness proposal out and to take that forth and to begin that process anew. That's a decision that other people will have to make.

Mr. SHADEGG. What other people?

Mr. ARNBERGER. Well, that proposal was put together pursuant to the 1964 Wilderness Act and pursuant to the 1975 Grand Canyon Enlargement Act. That proposal was made. It has been forwarded to the administration. It has not been forwarded to the Congress. There seems to me to be a spectrum of alternatives here. This Congress can ask for the proposal. Congress can take action. The administration can send it forward. The administration cannot. There's a lot of those types of actions that I cannot commit or do not have the capacity to commit anybody to here at this hearing.

Mr. SHADEGG. I really apologize if I seem slow, but I want to get an understanding here. What you are saying is that the proposal to treat certain areas—to designate certain areas as wilderness went forward a long time ago, and that's not the issue now. Not what should or shouldn't be wilderness, but rather how we treat what is wilderness. Correct?

Mr. ARNBERGER. That's a pretty good characterization.

Mr. SHADEGG. OK, then, so I understand it. I want Joe Six-Pack back in Phoenix to be able to understand what we're talking about.

Mr. ARNBERGER. Yes, that proposal went forth and went through the public involvement process. And that proposal was made in 1980. It went through from, as you say, 1976 to 1980. That particular plan is a management plan to basically implement that proposal. And it is the second generation of our management operations at the park. We had a similar plan in 1988. It was known as the back-country management plan.

Mr. SHADEGG. Was not the plan submitted to the Secretary of Interior in 1980 called the wilderness management plan.

Mr. ARNBERGER. Yes, it—no, it was called the wilderness proposal for Grand Canyon National Park.

Mr. SHADEGG. And did it address what should be treated as wilderness——

Mr. ARNBERGER. Yes, sir.

Mr. SHADEGG. [continuing] or how wilderness should be treated?

Mr. ARNBERGER. It addressed what should be treated as wilderness; what roads would be closed; and what kind of uses would be allowed. And it would be consistent with the 1964 Wilderness Act.

Mr. SHADEGG. And this plan is in fact an updating of that 1980 plan, upon which there was ultimately no action.

Mr. ARNBERGER. No, sir, it's not an updating. It is an updating of a 1988 management plan. Let me give you an example. Another——

Mr. SHADEGG. Well, let me just—let's cut to the chase here.

Mr. ARNBERGER. OK.

Mr. SHADEGG. If this isn't an updating of the 1980 plan, the only hearings that were public hearings that were held were held on the 1980 plan and they were held in 1976. So if this isn't an updating of that plan, then, Mr. Arnberger, Superintendent, there have been no public hearings on this plan.

Mr. ARNBERGER. It is——

Mr. SHADEGG. I think you're getting yourself in a box, which you may not want to be in.

Mr. ARNBERGER. Well, I'm not trying to get myself in a box. What I'm trying to understand or help you to understand is the distinction between a management, an operational plan, at the Park level and a proposal made for wilderness designation. Now that particular plan is in every way consistent—and if you want to say it is an updating, it's an updating—but it is consistent with the wilderness proposal made by the administration in 1980. In every way, it is consistent with that proposal.

Mr. SHADEGG. OK. We've now agreed it is an updating and it is consistent and, therefore, public hearings—whatever public hearings were ever held on this were held in 1976.

Mr. ARNBERGER. They were held in 1976, that's correct.

Mr. SHADEGG. Although I guess you're trying to tell me that in part—is there anything in here that's different? I understand the 1976 plan was about a quarter of an inch thick. This plan's about a full inch thick.

Mr. ARNBERGER. The—that particular plan conforms to National Park Service guidelines and policy for, in fact, putting together wilderness management plans pursuant to the wilderness designation. It conforms to the different categories and chapters that we have to have in a plan to look at the cultural resources, how we're going to manage cultural resources, to articulate what trails are going to be stained, to articulate to what standard those trails will be maintained, to articulate to what level roads will be maintained, and so forth.

Mr. SHADEGG. In my office, you told me that this plan was an updating of this plan, the back-country management plan, September 1988. That's what we're talking about?

Mr. ARNBERGER. That's correct.

Mr. SHADEGG. OK. So we're clear here. There have—the only public hearings that my constituents could have participated in occurred back in 1976, 22 years ago.

Mr. ARNBERGER. On the wilderness proposal, that's correct.

Mr. SHADEGG. And it's your contention that that satisfied the law.

Mr. ARNBERGER. It is my contention that satisfied the law, yes, sir.

Mr. SHADEGG. And is it also your contention or is it not your contention that that's an appropriate way, putting the law aside—maybe we technically complied with the law; you apparently believe we did—that that's an appropriate way to develop plans within the Park Service, to hold hearings at which the public can comment 22 years ago, and then act now?

Mr. ARNBERGER. The public commented in 1976 and they commented in 1998 as well. That plan that you have there went through a public involvement process.

Mr. SHADEGG. Good. We've gotten to a point where we now also have a sharp difference of opinion. You sent out 1,100 scoping documents to interested parties. I don't know who those people were, but there was, in fact, no public notice published in 1993 to the constituents of my district, correct?

Mr. ARNBERGER. That's correct.

Mr. SHADEGG. And there has never been, since, I guess, 1976, perhaps, an invitation to the general public for public comment, short of a hearing? In other words——

Mr. ARNBERGER. No, sir, we gave an invitation for the public to comment on that draft plan that you have before you.

Mr. SHADEGG. Sent to those 1,100 people.

Mr. ARNBERGER. There was—we put press releases out and, in fact, you've seen some of those press releases for which there, unfortunately, some headlines that were inappropriately and incorrectly reported.

Mr. SHADEGG. Interested and motivated groups could submit written testimony.

Mr. ARNBERGER. We sent—yes, sir. We provided for that, as we normally do.

Mr. SHADEGG. OK. Let's go to a kind of a basic rule here. The law sets forth the standard for potential wilderness, does it not?

Mr. ARNBERGER. Yes, sir. Yes.

Mr. SHADEGG. And it would require that, for example, on the issue of roads, that there be 500—no, excuse me, 5,000 contiguous acres where there are no roads and where the area is untrammeled by man and unaffected. Is that right?

Mr. ARNBERGER. Yes, sir.

Mr. SHADEGG. OK. Do you know how much of—what proportion of the land above the rim you propose to now designate as wilderness?

Mr. ARNBERGER. I don't know the exact percentages. I can find out for you. But, obviously, because of the size of the canyon, the majority of the acreage is down in the canyon and so forth. But I don't know the breakout of above-rim and below-rim.

Mr. SHADEGG. Now let's talk about inside the canyon for a minute. Quite frankly, I don't think we disagree about inside the

canyon except I'm curious about one issue and some may disagree with me. Why shouldn't—why should the cross-country corridor be designated as not wilderness, if that's to be hiked?

Mr. ARNBERGER. Because the decision was is that it did not meet the wilderness criteria as articulated in the 1964 Act. It has a power right-of-way; it has a water pipeline going down the center of it; and it has historic—it has buildings that are located in it, different ranger stations and historic buildings.

Mr. SHADEGG. Right.

Mr. ARNBERGER. So it, in fact, it did not meet that criteria.

Mr. SHADEGG. I'm just curious here. Could not the pipeline corridor, the power corridor, and the locations of facilities, including Phantom Ranch, be exempted from wilderness, but other portions of the trail considered wilderness?

Mr. ARNBERGER. The way the configuration is, that probably would not work.

Mr. SHADEGG. The pipeline and the power line don't precisely follow the trail, do they?

Mr. ARNBERGER. In several places, they deviate by some small sections and then they come in together. And, of course, there's water that goes up from Indian Gardens to the rim. It gets into an area of practicality and whether that, in fact, meets the intent.

Mr. SHADEGG. Well, let me make it clear, I don't disagree with the designation of the vast majority of the inner canyon, perhaps. We would be completely in agreement on the inner canyon, in your proposal, treating it as wilderness. So we're in agreement on that part of it.

But you just said the reason that that was to be considered not wilderness is because of inconsistent uses. The raft community would say, by that same reasoning, that the river corridor should not be considered wilderness and, in point of fact, in the 19—either the 1971 or the 1980 plan, it was, in fact, specifically not to be treated as wilderness for that reason.

Mr. ARNBERGER. That's correct.

Mr. SHADEGG. OK. So why the change in reasoning now?

Mr. ARNBERGER. In 1975, the Grand Canyon Enlargement Act occurred. It told the Park to, in fact, develop a wilderness—a new wilderness plan that was, in fact, responsive to the Enlargement Act. In fact, we went out and did that. We had hearings and so forth. It was—the river clearly meets the intent of the legislation, relative to its capacity to be designated wilderness. I mean, there's a transitory use there on the river.

That plan was put together and, in fact, it called the 1970's—after the 1976 hearings, the 1977 plan was put together in which it recommended the phase-out of the motorized travel on the river to 1985. Accordingly, that potential wilderness category was put in the proposal because, in fact, it called for the eventual phase-out of motors in 1985. That did not sit well with certain constituencies and, in fact, some changes were required of us, through an appropriations process. And then we redrafted the Colorado River management plan, which it basically delayed or forestalled any decision on the motorized use on the river. And here I am today.

Mr. SHADEGG. If I heard you, one of the points I think you said that would distinguish the river from the trail is that the inconsist-

ent use, i.e. motors, is transient, that is it comes and goes versus the trail corridor, cross-canyon trail corridor, the inconsistent use is permanent.

Mr. ARNBERGER. That's correct.

Mr. SHADEGG. OK. In my office, you talked to me also about the fact that this plan does not determine or foreshadow or even affect an ultimate decision on motors. And that those who are deeply concerned about the motor issue need not be deeply concerned at this point in time.

Mr. ARNBERGER. Both this plan—our attempts with this plan and the concurrent Colorado River management plan was an attempt to get at some management issues we needed to get at, but to defer the question of motors on the river until some future date.

Mr. SHADEGG. OK. Do you have the plan in front of you?

Mr. ARNBERGER. Do I have the plan in front of me? Very quickly, I can. Yes.

Mr. SHADEGG. Would you turn to page 16–152?

Mr. ARNBERGER. Yes, sir.

Mr. SHADEGG. Top right-hand column. This is in the section on wilderness management implementation plan, which is how you implement this plan.

Mr. ARNBERGER. Yes, sir.

Mr. SHADEGG. On the right-hand column at the top it says, "Prepare other park management plans consistent with the wilderness management plan." Does that not indicate—and if it doesn't, why?—that this, in fact, does impact—perhaps some would say decide—but certainly impact the motor issue in the future? Because if the Colorado River plan has to be consistent with this and if this makes the river corridor wilderness and if motors are inconsistent, why doesn't the one, since the future plans have to be consistent with this, foreclose that issue?

Mr. ARNBERGER. The decision was made to put the river issue, the river wilderness issue, into the Colorado River management plan. When we started out that public process, working with the outfitters and working with all the constituency groups, we said, very clearly, up-front, that this plan is not going to open up the motors versus the oars issues. That, in fact, we are going to focus this plan in some other areas. And that's what we have attempted to do, to continue that deferral of this very, very sensitive and ticklish subject.

Now if there is some language that sends some other messages and, to the extent that it does, it has always been the intent of my office to, in fact, defer this particular issue until such time as Congress makes the decision, when and if they do, and if there's some language that does that, then we will be more than happy to look at it to try to fashion language that does not preclude either designation of wilderness or, in fact, the continuation of the present status quo.

Mr. SHADEGG. Great.

Mr. ARNBERGER. We will look at that.

Mr. SHADEGG. I appreciate that very much. I mean, language saying, Look, it is not our intent to foreclose this issue. I'm certain we could—it may not satisfy rafters, but it would be a step in the right direction and they'd have something to point to rather than

language which somebody else can point to that says the Colorado River management plan has to be consistent with this plan. This plan says wilderness. Wilderness means no motors. Sorry, guys, it's over.

Mr. ARNBERGER. There's—yes, I understand the chain there.

Mr. SHADEGG. Next question: The report says that there has been a world heritage designation by the United Nations of the Grand Canyon and that that extends the greatest protection possible. Can you tell me what world heritage designation is and what protections are extended and who has the right to protect them and under what rule of law?

Mr. ARNBERGER. OK. Let me take a stab at that.

Mr. SHADEGG. OK.

Mr. ARNBERGER. The world heritage is a designation established by the World Heritage Convention of which the United States is signatory to that treaty. It is a designation that is simply a designation extended to the most special places on the face of the earth, both cultural and natural places. Places such as the Taj Mahal or the plains of Serengeti and Grand Canyon National Park. It is a designation for the world to notify one another that, in fact, this place amongst the world's nations, in fact, is one of the most special places.

Now, with it, it carries no requirement that we are to conform to any other kind of requirement.

Mr. SHADEGG. Could it?

Mr. ARNBERGER. To my knowledge, no it could not. That there is nothing that would ever supplant the rules and the laws of the United States or the sovereignty of this Nation to, in fact, manage that particular resource.

Mr. SHADEGG. Do you know the—can you cite the United Nations——

Mr. ARNBERGER. Obviously, I cannot. But I can——

Mr. SHADEGG. Get that for us?

Mr. ARNBERGER. [continuing] get that for you, yes, sir.

[The information referred to may be found at end of hearing.]

Mr. SHADEGG. I do have constituents who get very worried about this issue.

Mr. ARNBERGER. I hear about them as well; hear from them as well, so——

Mr. SHADEGG. On page 2–14 of the park, it says, "Congress intended park visitation to be contingent upon the ability of the NPS to preserve the park environments in an unimpaired condition." Taken literally, you, of course, would agree with me that that's impossible.

Mr. ARNBERGER. Well, the unimpaired verbiage is, in fact, has its origins within our own organic legislation of 1916 where, in fact, we will manage these place in an unimpaired fashion for future generations. Its been further held up by the amendments to that organic Act in 1978 with the Redwoods Act where it said we will not do anything in derogation of the values and purposes for which those parks are established.

Now in terms of the ambiguity and so forth of talking about what impairment means, then we get into somewhat of the same kinds of discussions you get into with the overflights issue of what is sub-

stantial? And is 50 percent more or less or is that substantial? And those discussions are, obviously, loaded down with lots of ambiguity.

The framers of the organic legislation, I think, had a clear intent that they wanted people to use the parks to see and enjoy the parks, but they did not want to impair the capacity to pass those parks along in an unimpaired type—unimpaired fashion to future generations. And I think that the framers of that legislation saw recreational use and man's use of the resource to be, perhaps, maybe difficult at times to also taking care of the resource, but not to be inconsistent.

But the idea, the fundamental idea was not to ruin these places so that we couldn't pass them on to our future generations.

Mr. SHADEGG. Unimpaired then meaning not damaged and not damaged so as not to be able to preserve their character.

Mr. ARNBERGER. That would be a good way of getting at it.

Mr. SHADEGG. OK. I want to focus for a little bit on the road issue. Do we have the maps that we brought? I have a concern about the maps that I've seen. Your staff provided us with one map—maybe we should give it to you—with green roads marked as those roads that would remain open and black roads marked as those roads that would be closed. Let me have my staff give you that. I've got it folded up here. Hold on while we find the map.

Let me start first with do you—has the Park Service conducted studies on the effect of road closures on access by either the handicapped or the elderly? Or, for that matter, by backpackers who want to access remote areas of the park, drive in a ways, park, and then hike from there?

Mr. ARNBERGER. Consideration and so forth of those particular issues took place in the wilderness proposal period from 1976 to 1980. Those considerations were worked with. There was public input. And, in fact, the road closures that we have proposed here are consistent with that 1980 proposal.

Mr. SHADEGG. Adam Warebach couldn't comment. Neither could either of my kids or the voters in the last two presidential elections. I just—I'm troubled by this 1976 hearing for a 1998 plan. I must tell you that.

If you look at that map, you can find on it a number of roads which are on the map, but are neither green nor black, inside the park.

Mr. ARNBERGER. Well, according—I must say, I've never seen this map, so I appreciate my staff providing it to you.

[Laughter.]

I've got some maps and I think we can work our way through this. The roads marked in black, by looking at the legend here, say they are roads that are closed to mechanized use.

Mr. SHADEGG. Right.

Mr. ARNBERGER. Then there are in green are roads that are open to mechanized use. Just as a precursor to this, there are some 120 to 130 miles of roads that, in fact, were going to be closed.

These roads, in some cases—as you say, the definitions here are really tough—in some cases never were public access roads. They were, in fact, roads to stock tanks; to certain particular areas that were used primarily in the Kanab Plateau area, prior to the estab-

lish—the enlargement of the Grand Canyon in 1975; to little mining claims; to stock tanks; and so forth. When that use, in fact, was moved out of there, those roads over the last 30 years have gone to, in some cases, barely more than a dirt track.

Now, out of a 130 of those miles of roads, right around 80 miles of those roads are being converted to public access trails. Now there are a total of 10 roads and some 65 miles of roads that, in fact, are designed and permitted, under the wilderness proposal, to be open to mechanized use and to be trail heads. And that is consistent with the 1980 wilderness proposal.

Mr. SHADEGG. The Wilderness Act uses the word "roads." It doesn't say what kind of roads. It doesn't say stock tank roads; it doesn't say former mining claim roads. It says roads. And it says that your evaluation—indeed it says the Secretary of Interior is to review every roadless area of 5,000 contiguous acres or more in the national parks and make a determination.

I am a little troubled by what you call public access roads. I grew up in Arizona. I've driven in two-wheel drive and four-wheel drive vehicles over a whole lot of roads. And I've used a lot of maps, like the one in front of you and like the one up here, topo maps. And it is my experience that, for every road that is shown on a topo map, there are 10 others that are not shown.

And I am concerned, going back to this issue of public input, that if your staff gave me that map saying, oh, these green lines are the roads that are going to stay open. Isn't that wonderful? And these black roads are the only roads we're closing. That that mischaracterizes the fact. It sounds to me like it mischaracterized it a little bit for you. And in a brief period last night my staff and I were able to identify quickly four or five roads shown on that map and on this map for which there is no indication of whether they will be left open or closed.

However, the specific language of the plan answers that question. And the specific language of the plan says: we are leaving these roads open, which I presume are the green lines on your map, and every map is closed—every other road is closed. I would submit to you that a fair argument can be raised that, in that aspect, the plan does not comply with the Wilderness Act. That, in point of fact, there are vast areas where there are roads. There were roads before 1976. And those roads, because of their existence, disqualify those areas from the language of Congress that they put into the Wilderness Act that you have to look at roadless area for 5,000 contiguous acres or more.

Now it may be appropriate, nonetheless, to consider closing some of those roads. But when the last public hearings on this issue where someone could question you about well, what roads did you look at were held in 1976 and the only public comment they could make would be based on a map which I believe we can demonstrate is inaccurate if not demonstrably misleading, I think that raises a serious issue about whether the plan comports with the law, No. 1—which is an important standard—and, No. 2, whether it's well-advised.

Again, I have this view that we should strike a balance between preserving that which is, in fact, wilderness—and I've conceded the interior canyon clearly fits that, the vast majority of it. But I think

we have a careful study to do on the rim area above. And I'm not convinced by what I've seen that that careful study has been done.

I would like, for example to know, has an aerial photograph been taken of the park? And were these roads identified from that aerial photograph or were they—and, if so, how old is that aerial photograph? And who got to see it? I'm sorry, Mr. Reffalt, you wanted to comment on that point.

Mr. REFFALT. Yes, Mr. Chairman, I wanted to comment that I do not completely disagree with your point about the roadless mandate in the Wilderness Act, but I do disagree that that's the definition of wilderness in that Act. And the definition of wilderness—and I'm reading from the Wilderness Act—contains a number of things. This is found in section 2(c) of the Wilderness Act. And it does not mention roadless at all in the definition.

It mentions that it is recognized as an area where the earth and its community of life are untrammeled by man; where man himself is a visitor who does not remain.

Mr. SHADEGG. I used that line untrammeled by man in my own press statement on this issue today.

Mr. REFFALT. That's correct.

Mr. SHADEGG. And I would at least argue that an area where you have extensive roads has been trammeled by man. Now maybe we disagree on that.

Mr. REFFALT. I will respond to that when I finish reading, Mr. Chairman. "An area of wilderness is further defined to mean, in this Act, an area of undeveloped Federal land, retaining its primeval character and influence without permanent improvements or human habitation, which is protected and managed so as to preserve its natural condition and which, one, generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; two, has outstanding opportunities for solitude or a primitive and unconfined type of recreation; three, has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and, four, may also contain ecological, geological or other features."

And I would argue that the statement about permanency is one of the issues that was dealt with repeatedly during the first 10 years of study under the Wilderness Act by the agencies and was discussed in literally thousands of hearings across this country. And it was determined that, in most instances, when you had trails that had been used as, you know, cow paths or driveways to water tanks, et cetera, that they didn't constitute permanence and that they could be recovered and if the area surrounding them was still in a condition that allowed for it to be protected in its primeval condition, and it still was basically untrammeled, unchanged, it hadn't been so mechanized that it was different in nature from the surrounding terrain, that it could qualify as wilderness if the Congress so determined.

And that has happened repeatedly. So I find what they're doing here in the National Park consistent with all of that.

Mr. SHADEGG. Well, at grave risk of embroiling myself in an issue which I do not wish to go into, I will note that when the President doesn't know what "is" means and isn't sure what

"alone" means, it doesn't surprise me that we may have disputes or concerns about the ambiguity of the Act.

There is a definition of wilderness, but there is a separate command to look at roadless areas. I don't know how you square those. And perhaps you do. I don't know that it's worth going too deep into this. But it is my prerogative to at least comment that I appreciate your remarks.

And I think they're—you may be precisely correct except that I find areas where there are extensive roads, whether they go to stock tanks or otherwise, or being used by my constituents who want to go back in there and camp, not to have been untrammeled. And if there's a stock tank, I find them maybe to have been developed. And who knows what permanent is? If permanent improvements meant permanent, there's nothing permanent, I mean, so far as I know, except maybe life or death.

And it talks about with the imprint of man's work substantially unnoticeable. Again, I've driven a lot of Arizona's back country and these roads, you find, precisely because they are noticeable. If they were not noticeable, I think we wouldn't be talking about them.

And to make practical its preservation and use in an unimpaired condition, some would argue that they are in an impaired condition by the roads. As a matter of fact, I guess the point would be, if the roads aren't a big deal, what's the point in closing if closing them means backpackers who want to reach remote areas of the park will not be able to; handicapped individuals who want to reach that part of the rural areas of the park will not be able to; what value do we serve in closing roads that are extant?

And I guess one of the debates is: What roads are extant? Given that all we see from the Park Service is markings on a map which show they're going to close some roads, but leave other roads, not indicated whether they're closing or not, but, in point of fact, in the language of the plan, they are in fact closing them without letting people know they're being closed.

Mr. REFFALT. Well, without getting into that issue, because that's a question for the superintendent, again, I would point out that we have, today, over a 30-year history of this Congress designating wilderness across America. We have areas within that system, such as the Great Swamp National Wildlife Refuge in New Jersey that is 3,600 acres where the Congress of the United States determined that this area of less than 5,000 acres was similar to an island and that the disturbances that had gone on in that area were not sufficient to disqualify it from wilderness. I would argue that we have areas across this country where there have been trails and other things that might have been called roads by some and something else by somebody else, but the fact remains that this Congress or previous Congresses have determined that they weren't permanent.

And so when you pile up this rather long history of the way that it has been dealt with, both in the administrative end of it and in the congressional end of it, I think what we find here is what the Grand Canyon National Park is doing now and what Mr. Arnberger's staff is doing right now, fits nicely within all of that context. And so it's not different. It's not unusual. It is a little late in some respects, but when you look at the number of times that

the Acts have been changed, the boundaries have been changed, the relationships within the park have been changed, then I find cause to say, we agree that they should be addressing these issues. And that's exactly what they're trying to do in this public process, Mr. Chairman.

Mr. SHADEGG. By no means am I saying they shouldn't be addressing this process. What I'm saying is that on its face it appears this plan, although a draft, the public comment period is closed. And there's no reason to believe right now, as we sit here today, that they are going to do a further environmental assessment. There's no reason to believe that they're going to do an environmental impact statement. And there is certainly no reason to believe they're going to hold further public hearings. And my point and my questioning is to show that the record, to date, is I think both outdated and inaccurate.

But, beyond that, I think you made an excellent point in highlighting a concern I had about this. You said in discussing this area in New Jersey, where the Congress has decided that, even though there may have been development in the past and even though there may have been roads or other things inconsistent with wilderness in the past, that Congress has decided to now go back and say, None of that is so permanent that this now cannot be treated as wilderness and we, the Congress, are going to do that.

A substantial problem I have here is with the fact that this is not the Congress acting. This is the National Park Service acting. Acting to treat this as wilderness, even though the Congress has not treated it as wilderness, has not designated it as wilderness.

And a concern that I have that the process which led to the park treating it as wilderness—I mean, at the end of the day, it is not going to matter if this plan moves forward in the absence of this hearing and a chain is put across all of these roads because the Park Service wants to put a chain across all those roads. It's not going to matter whether the Park Service put up the chain or Congress did, the chain's going to be there and people are not going to be able to access those areas if Mr. Arnberger and the Park Service proceed with this plan as proposed and all the roads that I found on this map which the map they've handed out doesn't indicate are going to be closed are, in fact, going to be closed.

And it's not going to be Congress saying, We think that area can be restored. It's not going to be Congress saying, We think it's appropriate to designate this as wilderness. Even though, perhaps, that's inconsistent with the requirement in the Act that they submit to us areas that are 5,000 contiguous acres which are roadless. But, rather, it's going to be the Park Service doing that. And I think that makes a big distinction between those—the treatment of those areas by Congress and the treatment of these areas by the Park Service, particularly when I believe the public input, which Mr. Arnberger says has been extensive and adequate and which I believe has been woefully inadequate. So.

Mr. REFFALT. Mr. Chairman, the—I agree with Mr. Arnberger that there's a distinction to be made here between the management plan and the proposal for wilderness. And that sometimes gets a little bit difficult to deal with in conversation, but I have stated that maybe they're a little bit slow. The fact is that the policy

statements within his agency that require this plan and require many of the features that you find in this management plan have been out for years. And the Park Service is required under the Wilderness Act to have policies of that nature.

And, fundamentally, the question becomes how can the National Park Service or any other Federal agency who is directed under law to study the areas and make recommendations to you, the Congress, about what does qualify and what doesn't qualify and how you should go about dealing with some of the issues that they have to deal with in these areas, how do they do that unless they protect your right as a Congressman to make a series of decisions at some point in time? This area's been waiting since 1971, when it was first reasonably finished as a study. If they allow things to happen in that park that change the fundamental nature of the park from what it was in 1971, they're taking away your right as a Congressman and this Committee's right to make those decisions of what qualifies as wilderness and what doesn't.

And I think what Mr. Arnberger and his staff are trying to do is assure the Congress that they will have an unfettered right to make that decision at some point in the future. And I applaud them for doing that.

Mr. SHADEGG. Thank you very much. Mr. Reffalt, let me tell you, this is not a recommendation. If they begin to implement it—and there's a time table for its implementation at the back of this—it becomes effective as law. It is not a recommendation to the Congress. As I just said, when the chains go up across those roads, it will not matter that the Congress has not acted.

And I, quite frankly, believe that you can study the maps of the area above the rim and you can go out on the ground on the area above the rim and discover that it is not me who is proposing to fundamentally change the nature of those areas above the rim, but rather the Park Service that is proposing to fundamentally change the nature of those areas above the rim.

They are not currently being used as wilderness. They are being driven on by motorized vehicles. They are being used by recreationalists. I know them. They have come and talked to me. And with a very broad brush, I believe the Park Service, for the areas above the rim, in this plan, has said, Forget all those roads that are back there that we haven't bothered to go look at. We're going to ban mechanized use of them based on public hearings held 22 years ago.

So I think if it were simply a recommendation, if this were coming straight to Congress without implementation—and I don't disagree with you that if it's potential wilderness, they should protect it between now and then. That might be a practical thing to do. I don't want to see it despoiled between now and then.

By the same token, I don't want to see their plan, their development of a plan, their development of a plan with, I believe, inadequate public input because the public hearings, for whatever reason, were held 22 years ago, at a time when you may not have been in this business, but I certainly was not, should become effective and change the character of those lands above the rim. And I feel that quite strongly and I hope I've made that clear.

Let's—I want to go to a couple of other questions. There is—an issue has been raised, Mr. Arnberger, that designating the river corridor will—as a wilderness area—will make it more legally probable that you can be sued successfully to force motors off the river. Do you disagree with that?

Mr. ARNBERGER. Forgive—run that argument by me again.

Mr. SHADEGG. Sure. Under the existing law, you are now treating this as wilderness, aren't you?

Mr. ARNBERGER. Under policy, we, in fact, manage this area as a de facto wilderness.

Mr. SHADEGG. OK. Under policy, you manage it as a de facto wilderness. And you have discretion to do that, correct?

Mr. ARNBERGER. Well, I have discretion within the bounds of policy and law.

Mr. SHADEGG. OK. And that discretion includes the discretion to allow motors to be there, right?

Mr. ARNBERGER. That—the allowance of motors to be there was based upon the 1980 Colorado River management recommendation and the reality is is that in the 1980 wilderness recommendation, the motors are to be phased out by 1985. So the decision to defer the motor issue basically says that, until such future date that the motors are—the use is extinguished on the river—and, in fact, this area could stay in a potential wilderness classification because, on that date, then, in fact, it would meet the wilderness stipulations. That was the decision in bringing together the Colorado River management plan and the wilderness plan to the same focus point on the same issue.

Mr. SHADEGG. So are you saying, then, that rivers are now allowed as a—I mean, motors are now allowed on the river as a matter of law or as a matter of discretionary policy?

Mr. ARNBERGER. What I'm saying is that the proposal that the administration made for the wilderness proposal for Grand Canyon National Monument provided for those motors to be phased out in 1985.

Mr. SHADEGG. OK.

Mr. ARNBERGER. That that proposal never was carried through because of the changes in the river management plan, it was never changed. So we are sitting here with basically a proposal that allows that river use—or that motor use until such time as it is extinguished, with no date effective.

Mr. SHADEGG. OK. If I hear you correctly, says, you believe you have the discretion to allow that use because no law says you cannot. No statute says you cannot.

Mr. ARNBERGER. I think it's consistent with the proposals that have been made prior to my tour.

Mr. SHADEGG. OK. It is argued—and this is not necessarily my argument but it is argued by some—that if a written plan is adopted, that that plan will then affect your ability to make this call as a matter of discretion. And that if the plan calls for, in writing, treatment of the river corridor as wilderness and says motors are inconsistent with wilderness as this plan at least states at one point, that the adoption of the plan will enable someone to file a lawsuit and to say that the superintendent no longer has discretion to allow motors because the plan says the corridor is wilderness

and the plan says motors are inconsistent with wilderness. Have you heard that argument? Do you understand it? Do you reject it?

Mr. ARNBERGER. I have not heard that argument. I don't know how that would come about. I would—I guess, you know, I would say that motors are inconsistent with wilderness and this particular area, that river corridor, has been established as a potential wilderness. And it says that there are motors on there that are inconsistent with the wilderness values and when they are removed, then it can become wilderness. So, to the extent that that particular argument is made, I would say that the argument has already been made in 1980.

Mr. SHADEGG. Mr. Grisham or Mr. Merrill, do you want to comment on that?

Mr. GRISHAM. Our understanding, our read of this issue, sir, is that when the Park Service classified the river corridor as a potential wilderness area, it triggered Park Service regulations that say a non-conforming use must be removed at that point. So the legal challenge that could be brought that I think you're making reference to would be that they haven't lived up to their own regulatory obligation to remove a non-conforming use from a potential wilderness area.

Mr. SHADEGG. So the adoption of the wilderness management plan will not advance that legal argument?

Mr. GRISHAM. I'm not sure that it's relevant. I'm not sure that the adoption of the management plan is relevant to that particular legal argument. The relevancy flows from the classification of the area as a potential wilderness area.

Mr. SHADEGG. Mr. Merrill.

Mr. MERRILL. I'd just echo what Mr. Grisham said, that one of the things we're specifically calling for is the removal of that potential wilderness status and classifying the river as a non-wilderness access corridor in the same manner that the cross-canyon corridor is designated, specifically for that reason.

Mr. SHADEGG. And Mr. Arnberger would say that's not an issue in the plan—in the management plan.

Mr. ARNBERGER. That's correct.

Mr. SHADEGG. OK.

Mr. GRISHAM. If I could add to that, sir.

Mr. SHADEGG. Sure.

Mr. GRISHAM. We don't believe the Park Service intended it to be an issue because their desire was to kind of continue this dichotomy in order not to confront the issue, quite honestly. It's become an issue recently because it's been raised by a variety of constituency groups in their comments to the draft management plan.

Mr. SHADEGG. Well, in that regard, would you be satisfied with Superintendent Arnberger's earlier offer to put language in there that clarifies that it is not intended to be affected by this?

Mr. GRISHAM. Our comfort level with that course of action would be dependant on legal reviews coming both from the solicitor's office at the Department of Interior and independent confirmations of that.

Mr. MERRILL. And I would have to also agree with my good friend Mark that my language would have to go through the—through a similar food chain of review and so forth.

Mr. SHADEGG. Well, it's clear that that's your intent and that that would be something that would give them some level of comfort. So, perhaps we find that.

You know, we've been at this a long time. Mr. Arnberger, you would not object if we submitted a few additional questions in writing, would you?

Mr. ARNBERGER. Absolutely not, sir.

Mr. SHADEGG. Well, in that case, in the absence of any other questioners—none of these notes deal with questions, so I thank you all very much. I appreciate your time and your energy put into this.

And I do think, as I said at the outset, No. 1, Superintendent, you have an incredibly difficult job. You are not responsible for the delay since the public hearing, but I feel strongly that public hearings are called for. And, No. 2, I think this is extremely important. I do think there are far-reaching implications. I understand you're kind of just trying to do your job. It's already been designated wilderness, so far as the Park Service is concerned. Now you've got to figure out how to manage it.

And I hope by my comments, I haven't indicated—and I think Mr. Reffalt suggested this—that I am antagonistic to doing what you are trying to do. I am only concerned that we do it in a way that is—that strikes the proper balance that I mentioned at the beginning of the meeting. Now, I'm very anxious, extremely anxious to protect the pristine areas that can and should be protected. I'm a little worried about whether, above the rim, we've overreached and not allowed enough public comment to decide if we've overreached, but I don't know the answers.

But under no circumstances do I want my comments interpreted as saying you shouldn't be trying to do this or that you've done anything wrong in trying to do it. So I hope we can work—continue to work together. You and I have worked together well in the past and I'm sure——

Mr. ARNBERGER. Thank you. We have a good relationship. Yes.

Mr. SHADEGG. I'm sure we'll do so in the future. I thank you gentlemen very much.

Mr. GRISHAM. Thank you.

Mr. SHADEGG. This hearing is closed.

[Whereupon, at 1:51 p.m., the Committee was adjourned, subject to the call of the Chair.]

[Additional material submitted for the record follows.]

STATEMENT OF ROBERT ARNBERGER, SUPERINTENDENT, GRAND CANYON NATIONAL PARK

Mr. Chairman, thank you very much for the opportunity to explain the draft Grand Canyon River Wilderness Management Plan and its association with the Colorado River Management Plan, and the use by the National Park Service of data relating to air tour flights over Grand Canyon National Park.

The Relationship of the Draft Grand Canyon Wilderness Management Plan to the Colorado River Management Plan

The Draft Wilderness Management Plan for Grand Canyon National Park was released for public comment in June 1998. The comment period ended on September 15, 1998. The draft plan essentially calls for the National Park Service to manage 1,109,257 acres of proposed wilderness, and 29,820 acres of "potential" wilderness, in a manner that is consistent with the 1964 Wilderness Act, the 1975 Grand Canyon National Park Enlargement Act, and a 1995 directive issued by the Director of the National Park Service.

Specifically, the draft plan calls for a management program that would focus on providing the public sufficient access to proposed wilderness, the preservation of wilderness resources and values, personal safety, and resource protection. The plan would establish and rehabilitate areas that have been impacted by use, restore to natural condition several four wheel drive dirt roads, and relocate and rehabilitate rim access trails. The plan calls for the retention of ten primitive roads to provide mechanical access to wilderness trailheads and scenic vistas. It also provides for stock use of six rim wilderness trailheads and one inner canyon wilderness trailhead, and defines the criteria for preserving 63 individual trails. The cultural resources component of the draft plan calls for the National Park Service to develop management strategies to determine eligibility of structures for the National Historic Register, and the implementation of archeological surveys, among other things.

Consistent with long-standing NPS policy, the plan calls for proposed wilderness to be managed in the same manner as wilderness that has been designated by Congress. The proposed wilderness of 1,109,000 acres is the land the National Park Service has recommended pursuant to the 1964 Wilderness Act and the 1975 Grand Canyon Enlargement Act to be designated as wilderness. By managing this land to preserve its wilderness qualities, we are preserving the Congressional intent underlying these statutes, which called for the Park Service to recommend areas of the park system (Wilderness Act) and Grand Canyon National Park (Grand Canyon Enlargement Act) for wilderness designation.

The draft plan treats 29,820 acres of Colorado River Corridor as potential, rather than proposed wilderness. The reason for this is that this area experiences significant usage from motorized rafts, which would be inconsistent with future wilderness designation. The draft plan does not propose a phase-out of motorized usage and essentially defers to another planning instrument, the Colorado River Management Plan, for the management of this area.

The Colorado River Management Plan, which has not gone through a meaningful public review since 1980, is in the preliminary stages of revision. A revision is necessary because since 1980 river usage and the demand for river usage has increased, and the impact of usage on the river has become more pronounced. Objectives for the new plan include improvements in the management of visitor use, the protection of river related resources, and ensuring that visitor opportunities are more consistent with the goals established by the 1995 Grand Canyon General Management Plan. As part of this process, Grand Canyon National Park sought ideas from the public as part of a scoping process that took place from September 1997, to December 1997. In addition, five informal public work groups have been formed to address key issues and a method for these groups to seek public involvement through the Internet has been established. We expect a proposed River Management Plan to be issued for public comment within one year.

Analysis of Data from Overflights

I would like to turn now to the second part of this hearing, the analysis of data relating to scenic air tour flights over the Grand Canyon. Public Law 100-91 in 1987 (commonly referred to as the "National Parks Overflights Act") required a plan providing "for substantial restoration of the natural quiet and experience of the park and protection of public health and safety from adverse effects associated with aircraft overflights." This Act also required NPS to submit a report to Congress on "... whether this plan has succeeded in substantially restoring the natural quiet in the park." Extensive acoustical and sociological research was conducted between 1989 and 1993 to provide the information for this report. This report was submitted to Congress in 1994 and published in 1995. In this report the National Park Service

concluded that the phrase "substantial restoration of natural quiet" required 50 percent or more of the park to be without the sounds of aircraft for 75 to 100 percent of the day. In the case of *The Grand Canvon Air Tour Coalition vs. The Federal Aviation Administration* the U.S Court of Appeals for the District of Columbia recently ruled that the use of acoustic data to determine the degree of natural quiet is not unreasonable. No acoustic research has been completed at Grand Canyon since 1993, although the FAA has initiated some visitor-based, dose-response research in the park this past summer.

To predict the acoustic impact of aircraft noise in natural and park-like settings, the NPS contracted with leading modeling experts to design and build a state of the art computer noise model that would accurately model the park acoustic environment. The result was the NODSS (National Park Service Overflights Decision Support System) model, which is able to measure the impacts of aviation noise on ground visitors at a resolution of 300 meters, even with respect to the complex topography of Grand Canyon. Using inputs including the acoustic characteristics of the park and various aircraft types and the number and routing of overflights operations, the model is able to characterize how close the Park is to reaching its goal of substantial restoration of natural quiet.

The FAA uses the "Integrated Noise Model" (INM) to provide predictions of acoustic impacts on communities around airports. The FAA produced an expanded version of the model for the preparation of environmental documents associated with the proposed and final rules. In the Grand Canyon case, the FAA has used INM together with NPS acoustic data and FAA/NPS estimates of the number of overflights and location of operations to produce the results provided in their environmental assessments.

An understanding of how much of the NPS natural quiet restoration goal has been achieved is critical to the rulemaking process in which the NPS and FAA are now engaged. The two models, however, produce somewhat different results. As the two models were developed for use in very different settings and for somewhat different purposes, it is not surprising that they do not produce identical results. Although we believe that the NODSS Model is the best product we could have produced at the time, neither model has been field validated in relation to its ability to precisely accomplish its intended purpose.

To determine how to best model the acoustic impacts of overflights-produced noise at the Grand Canyon, the FAA and the NPS have agreed to conduct a model validation study that should provide additional information regarding the accuracy of these models and perhaps others that we have not tested at all. The design, implementation, and results of this model validation study will be monitored by a panel of internationally acclaimed acoustic experts. By combining the model validation study with review by a technical review committee in an open process, we expect to achieve both better science to enlighten our policy and regulatory decisions and to generate greater public confidence in our processes, results, and future decisions.

This concludes my statement. I would be happy to answer any of your questions.

STATEMENT OF ELLING HALVORSON, PRESIDENT, PAPILLON AIRWAYS, INC., GRAND CANYON, ARIZONA

Honorable Chairman, Members of the Resource Committee, and Others:

My name is Elling Halvorson. I reside in Seattle, Washington, and represent Papillon Grand Canyon Helicopters and Grand Canyon Airlines, as well as members of the United States Air Tour Association and Helicopter Association International.

I have been asked to tell why I commissioned a study, at significant personal expense, to demonstrate the actual impacts of scenic flights over Grand Canyon National Park.

Since all aircraft based out of Grand Canyon National Park Airport operate in the central region of Grand Canyon National Park, the study I authorized was confined to that area.

My reasons were very simple as follows:

When I first read the National Park Service's Report to Congress, which included their sound study, it became apparent to me that the sound study was biased because there is no way that aircraft can be heard in certain areas of Grand Canyon National Park, which were highlighted with red color as areas of impact in the study.

The National Park Service's Report to Congress reports that *less than* ½ of 1 percent of the parks' almost 2,000 square miles is sound free from touring aircraft (approximately 8 square miles). This is an absolute untruth.

As certain as I stand before you today, I can assure you beyond any doubt that there are hundreds of square miles of the Grand Canyon where touring aircraft cannot be heard. The flawed study has misled Congress, the Press, and the Public regarding the impact of touring aircraft at the Grand Canyon.

Over the past several years, I have confronted appropriate Park Service personnel with the fact that there are flaws in their presentation to Congress. I have attempted to advise everyone involved in the issue that there were biases in the study. I did this through my written and verbal responses to the Draft Studies, responses to NPRM's, as well as a formal statement at every major meeting called by either the Park Service, the Senate Aviation Subcommittee, "Finding a Balance" workshops, etc., as well as private discussions with key members in the National Park Service.

I was unable to raise any interest in correcting the inaccurate data supplied by the National Park Service. Therefore, two and a half years ago I commissioned JR Engineering to conduct a factual study of air tour overflight sound at Grand Canyon National Park. I asked JR Engineering to obtain accurate records of type and time of all aircraft that flew in the central region of Grand Canyon National Park. I asked them to take a conservative approach that could not be questioned. The JR Engineering study confirmed my non-scientific observations regarding noise in Grand Canyon National Park.

After the preliminary study was completed, I met individually with key members of the National Park Service and told them that the study existed. I outlined for them the problems with the National Park Service study. I said that I would prefer to *not* go public with my study since we were trying to cooperate with the National Park Service. I recited that it would be most pleasing to myself and everyone involved if the Park Service would correct the errors in their own study and give a corrected presentation to Congress, the Press, and the Public.

I withheld the study for approximately one year hoping that some fruit would come from my discussions so there would not have to be any embarrassment over this issue.

During that interim period of time, I shared the study with leadership of United States Air Tour Association and Helicopter Association International. Although the Helicopter Association International did not question the materials, they felt they needed some reassurance by outside experts. They sent the study for peer review to Dr. Krish Ahuja, a notable technical consultants in this field. Dr. Ahuja is a regent researcher and professor in the field of aviation acoustics at Georgia Tech University.

After reviewing the work that had been performed by JR Engineering, Dr. Ahuja confirmed that aircraft activities in the central region of Grand Canyon National Park already met and exceeded the goals of the National Park Service. This is the heart of the issue *"Aircraft activities in the study already exceeded the National Park Service goals for natural quiet."*

STATEMENT OF ROBIN T. HARRISON, P.E.

Chairman Hansen, members of the Committee. My name is Rob Harrison. I am an engineer trained in aeronautical and acoustical engineering and, until my retirement in 1993 from the U.S. Forest Service Technology & Development Center at San Dimas, California, was the Program Leader for Aviation and Acoustics. My duties included the study of the noise of a large number of vehicle types and their effect on forest visitors. Over my nearly 30 year career, I have made thousands of outdoor noise measurements, assessing the effect of the noise from airplanes, firearms, motorcycles, boats, dune buggies, chain saws and just about anything else you can think of, on visitors to our National Forests and Wilderness areas.

I will take the credit, or the blame, for being, along with my colleagues Drs. George Stankey and Roger Clark, the fellow who first proposed a systematic assessment of natural quiet as a separate resource. The thought that natural quiet was a resource to be protected and managed like wood, water, air, wildlife, recreation, and other accepted resource values, was a radical thought then. The problem that Stankey, Clark and I posed, in 1972, was that there was no accepted definition of the impact of intrusive noise on wilderness visitors. Although almost all outdoor recreation and wilderness management professionals now accept that the acoustic environment is a resource worthy of our protection, the problem that we raised over 20 years ago remains unsolved. Even in our earliest work we realized that any legitimate definition of natural quiet would need to be framed in terms of human impact. The Park Service has rejected this obvious truth, and continues to refuse to consider the park visitor in its attempt to define natural quiet.

As part of my duties at the Forest Service, I was the Technical Adviser to and co-author of the U.S. Forest Service Report to Congress published in 1992. I ask the Committee's permission to append to my comments a copy of that report, along with copies of other presentations that I have made covering this area. They will contain details of some of the points which I hope to articulate today, but cannot expand upon for lack time.

Public Law 100-91 mandated that the Park Service and the Forest Service study the effects of aircraft overflights. In the initial stages of the research effort, the Park Service and the Forest Service worked together and the studies required by the law were considered as a single project. I and my Forest Service colleagues, Bill Makeland Larry Hartmann, were consultants and advisers to the Park Service, as the Park Service recognized that they had inadequate technical expertise to manage such a scientific study. What the Park Service contributed to the joint effort, in addition to a share of the money to fund the various contractors which actually carried out the field studies, was their expertise in contracting. Together, the NPS/USFS core team negotiated the contracts which led to the initial scientific studies underlying the Report to Congress of 1994 which we discuss here today.

The Park Service's initial approach, which I considered admirable, was to look for the best scientific minds that could be found, put them under contract, and have them help us develop impartial scientific data which could be used to develop and support aircraft management strategies for the National Parks and the National Forest Wilderness Areas.

The result of this work was to be two reports to Congress, one by the Forest Service, one by the National Park Service, which represented what both agencies considered to be the best engineering and scientific information which could be gathered. Central to this effort was the development of a definition of natural quiet.[1]

I was excited and honored to be part of this effort, and we worked diligently towards timely fulfillment of the Congressional mandate. I visited many, many Forest Service Wildernesses, and a large number of National Parks, making many measurements of the sounds from aircraft and the background myself, and supervising many more. The measurement work done in the early stages of this project represents the state of the art, and produced a large volume of really excellent data. Concurrently with the measurement work being carried out by our prime contractors, careful research of the literature as to the effects of aircraft noise on wildlife and structures, as well as surveys of park and forest managers regarding safety, etc., were being conducted. Those were great days for me as an acoustical engineer and engineering manager. I finally had at my disposal the money and resources to answer scientific and management questions which I had first raised nearly 20 years before.

I was troubled, however, by some of my visits to national parks. In Hawaii Volcanoes, for instance, a meeting with the park employees was arranged at their request. They wanted to put in front of me their concerns about how the noise of helicopter overflights in and near the park was distressing them, the employees. They wanted to be sure that I knew what an unbearable racket they were forced to put up with. When I queried them about effects on wildlife, about visitor complaints, or about compromises to safety caused by these helicopter overflights, little or no concrete information was forthcoming, merely a reaffirmation that the biggest problem was the effect on the park employees. I did not read Public Law 100-91 to concern itself with the employees' acoustical environment, and so I did not carefully heed the things they had to say at this early stage. In retrospect, I should have realized what I was seeing and hearing.

As the preliminary reports and results started to roll in, the Forest Service team busied itself preparing its Report to Congress. The Park Service, however, seemed to be less impressed with the results received. Payments to contractors were delayed, revisions were demanded, more work was proposed. I found myself being invited to fewer and fewer parks, and being consulted less and less often. By this

[1] When I was a freshman in college, more years ago than I like to remember, I had the pleasure and honor of studying with a truly great engineer, a man named R. A. Wanless. He was, before his tenure as a professor, the State Bridge Engineer of Oregon. In civil engineering circles, the bridges of Oregon developed under Dr. Wanless are known for their esthetic and engineering beauty. Each answers a particular and varied problem, that of bridging a chasm in an esthetic, efficient, and durable manner. Dr. Wanless left imprinted on me a basic truth which has served scientists and engineers since before Archimedes. That is, that a problem well-defined is a problem more than half solved. The Park Service has never permitted the development of a definition of natural quiet. Any definition of natural quiet which does not consider the attributes of the listener, including self noise, is scientifically indefensible. The Park Service recognizes this, and, since their goal of eliminating aircraft flights over national parks cannot be met if natural quiet is so defined, they have waffled this issue to death.

time, it was clear to me what was happening. The Park Service was not happy with the results that it had obtained from its contractors, because these results did not support the preconceived notion that the parks, and Grand Canyon in particular, had a serious natural quiet problem.

The Park Service seems to take the position that *any* non-indigenous acoustic signal, regardless of its level, is a compromise to natural quiet. In this regard, the Report of September 12, 1994, is an instructive document.[2] Referring to Page 3.13, "When visitors *can* hear the sound of an aircraft, natural quiet does not exist." This is simply not so. There is a mature body of literature which indicates that the level of the intrusive sound at the listener's ear is only a part of what affects whether a sound will be heard and reacted to. The background sound at the ear, including the self-noise generated by the listener, and the activities and attitude of the listener, are all equally important in the listener making the decision that, yes, indeed, something has been heard. The listener must take a further step to identify the sound, and then a further step yet that some adverse effect, such as annoyance, results. As noted from the statement at Page 3.13, the Park Service assumes that if a sound *can* be heard . . . not is heard, not will be heard, but can be heard—implying that if it is measurable, or even immeasurable but present . . . it will compromise the natural quiet.

To consider natural quiet as a resource without considering potential human listeners is a serious flaw in logic. The Park Service has presented no scientific evidence that establishes that acoustic vibrations that emanate from tour aircraft (or any other source, for that matter) are harmful to any animal, plant, land form or other natural or cultural feature of the parks. The only harm that can be established is the alleged intrusion into natural quiet as perceived by human visitors.

There is a great deal of disagreement, even amongst knowledgeable professionals, as to how loud a sound must be at the listener's ear in order to provoke annoyance under various circumstances. However, one thing that all professionals agree upon is that the only effect of sound at the very low levels of aircraft overflights in national parks is annoyance. Certainly there are no direct hearing health impacts, no sleep interference, no communications interference.

The Report dismisses any argument that the background sound at the listener's ear should be considered, by saying, "Such areas, however, are likely to have very low ambient levels and hence intruding sound will be more easily heard." Again, completely wrong, without support in the literature, and absolutely incompatible with current scientific thinking.

Compare this to the discussion of aircraft noise effects on wilderness visitors at Page 2.22 in the Forest Service Report. "Few adverse impacts to wilderness users were found resulting from overflights." "Seeing aircraft had less impact on visitors than hearing them." "The principal adverse impact was aircraft noise induced annoyance of a fairly small percentage of outdoor recreationists." The Park Service approach has completely ignored the visitor, and taken the listener out of their assessment of the effect of aircraft overflights. Their misguided attempt to restore "natural quiet," without providing any kind of a scientifically defensible definition of natural quiet, is without scientific support.

There has been, since the Renaissance, a basic paradigm used by the scientific community to determine what is true and correct. It is called the peer review process. Scientific work is intended to be transparent. A scientist or an engineer prepares a plan and observes the physical universe in accordance with this plan to determine whether the proposition that he is investigating is or is not so. He prepares his findings in as unbiased and straightforward manner as he is able, and presents his plan and data to his peers, for review. The peers, hopefully without biases of their own, comment, dispute and reject or accept. While no one can say that the peer review process is perfect, it certainly has served western civilization well. The Park Service's findings not only suffer by lack of any outside review, they are clearly presented with an agenda in mind.[3]

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[2] It is interesting to note that the Report to Congress was first issued in standard government Xerox green, following the time honored adage of government publication: "Make it look cheap no matter how much it costs." In July 1995, the same report was reissued in a very fancy format with much thicker paper, giving the appearance of greater weight. The bias of the preparers of this attractive document shines through. I would refer you to Figure 4.6 where, in the original report, helicopter noise was assaulting an old building but, in the upgraded version, the Statue of Liberty is now under attack by blade slap.

[3] The U.S. Supreme Court has recently established standards by which scientific evidence will be accepted. (*Daubert v. Merrell Dow Pharmaceuticals. Inc.,* 509 U.S. 579 (1993)). Basically, the *Daubert* decision states that scientific evidence will only be accepted when it is of a type that is accepted in the scientific community, and has undergone peer review. My reading of the Park Service report convinces me unequivocally that the conclusions are castles built on sand, and

Since the clear intent of Public Law 100-91 was to assess, with scientific integrity, the extent that natural quiet is compromised in National Parks, and since it is equally clear that the NPS has not done so, I urge you to reject this report. It does not fulfill the Congressional mandate of Public Law 100-91. I further urge you to direct the NPS to develop a definition of natural quiet that considers park visitors and their activities before they, the Park Service, are allowed to further attack legitimate uses of the parks in the guise of restoring natural quiet.

USATA MEETING—16 SEPTEMBER 1997—LAS VEGAS, NEVADA

KEYNOTE ADDRESS

SCIENCE, FEELINGS, AND NATURAL QUIET

ROBIN I. HARRISON, P.E.

It is a great pleasure and honor to address you today. It is a particular honor to be referred to as a keynote speaker. As you have heard from John, I am an engineer, and engineers are seldom called to the high office of keynote speaker. I think I can explain why this is. Here in the west in particular we have always sought dignified, statesmanlike keynote speakers. To carry off a keynote speech one must have an almost Abraham Lincoln-like bearing. We normally see Abraham Lincoln in a high top hat and a frock coat with his right hand carefully grasping the lapel of the frock coat. You will remember from your college days that engineers were the first to embrace the polyester leisure suit with enthusiasm. The slipperiness of this material precludes that pose, and therefore engineers fell out of favor as keynote speakers, a favor, I fear that has never been regained. Normally, as an engineer, I carry two plastic pocket protectors, but I left them home because I thought they would not look statesmanlike.

My friend, and your president, has articulately described the welcome news that things are looking up for us vis a vis the natural quiet issue. I am told that our position is being heard in high places, that the National Park Service functionaries are treating us with more respect and deference, and that the FAA is likewise beginning to see things a little bit more our way. You heard Steve discuss how seemingly everyone in the world was beating on us. It reminds me of a story they told us in law school. If you have the facts, beat on the jury. If you have the law, beat on the judge. If you have neither, beat on the table. Seems like the other side was beating on us, rather than on the table, because clearly they have neither the facts nor the law. I am sure Steve thinks our success has something to do with his tenure as President of USATA. While I certainly will not dispute that, those of you who have known me in the past have probably noticed that I haven't devoted much time to the aircraft noise issue in the last six months or year. I rather suspect that my absence from the deliberations has been more important in achieving this newfound harmony. I would remind you of the words of a true statesman and great keynote addresser, Ronald Reagan: Trust, but verify.

If we are on the threshold of success, as I hope and believe we are, it may be well to review some of the basics of the science of natural quiet. I have observed, in my 30 years with government, that the underlying technical or moral correctness of a particular position is often lost in the chatter of details that necessarily constitute the bureaucratic process. I think it very important that the basic science, and that is just another way of saying the basic truth, of the overflight noise situation be considered in all of our deliberations and negotiations. For this reason, I am going to take about 15 minutes of your time, with your kind permission, to talk about aircraft overflights from the point of view of an engineer who has spent much of his career dealing with them, from what I hope to have been the scientific viewpoint. I would also like to share a few observations about the folks . . . dare I say it, on the other side . . . those who vociferously oppose the use of aircraft in any particular corner of the world in which they consider themselves to have a legitimate special interest. I believe their approach is best described as the "feeling" viewpoint.

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that the report falls far short of *Daubert* standards. I would have more respect for the Park Service if they would simply come out and say that they have made the arbitrary management decision that any atmospheric acoustic signal, regardless of its magnitude or character, and completely independent of whether it is audible or detectable, constitutes a breech of the natural quiet which must be eliminated. They, of course, cannot do this because rational people recognize that such a situation would be completely inappropriate as well as impossible to achieve. So they continue their campaign to restrict uses of the national parks by employing pseudo science, and a shifting target of a definition of natural quiet.

I hope to show that their position cannot be supported by science, by logic, or even by politics.

Some people don't want to hear aircraft ever. Or motorcycles, or rock 'n roll, or any number of other sounds, which signal an activity of which they disapprove. This is true, even if they have to strain to hear these sounds. This attitude is certainly not limited to people who don't like airplanes. As a motorcyclist, I have seen the finest off road motorcycling in the world entirely vanish from Southern California, simply because the people who didn't like motorcycles were better at mobilizing public opinion than the people who did like them. And noise was a major argument, though it is hard for me to understand how even the loudest bike 40 miles from the nearest house, out in the Mojave Desert, could be causing any environmental damage by its exhaust note. But I digress.

The traditional objections to aircraft overflight noise in such natural areas as the Grand Canyon or other national parks, and Forest Service wilderness areas, have been first aimed at the effects of noise on wildlife. The Forest Service studied this quite closely. Let me quote from the final report summary: "Studies of the effects of human intrusions and habitat destruction on animals often find profound impacts of human activity. It is thus commonly assumed that aircraft overflights are equally damaging. The literature suggests that animals respond differently to aircraft overflights. Aircraft overflights are startling, but animals can adapt to them very well under most circumstances. Effects of overflights are subtle because animals adapt by habituating behaviorally and physiologically to the challenge." Further, "Studies of animals of all kinds exposed to noise of all kinds, if scientifically defensible, have generally revealed that though there may be some temporary disturbance to the wildlife, in no case that we were able to find has it been established that populations of wildlife have been diminished by aircraft noise."

Now this is hard to accept for those who take the "feeling" position because they are sure that animals, large and small, share their distaste for airplanes. But science has not yet shown this.

A second concern often voiced is the effect of aircraft overflights on cultural resources, i.e. buildings and ruins. Again, quoting from the Forest Service report, "Cultural resources in National Forest wilderness are not currently threatened by sonic booms (likewise, no sonic booms at Grand Canyon). Measurement programs have been conducted which conclude that there is nominally a minimal risk of damage to structures from light low-flying subsonic jet aircraft and light helicopters." This is not to say tha rotor downwash won't cause erosion or damage to fragile cultural resources, but at the altitudes that all tour helicopters and airplanes fly, direct physical damage to ruins and artifacts is simply a scientific impossibility. Of course, all pilots will want to respect the desires of native Americans with regard to specific cultural locations, especially when ceremonies or services are being celebrated. But the feelers often argue "cultural insensitivity" when trying to indict aircraft noise. Again, no science.

Now another problem of aircraft overflights is that they startle people and animals and therefore compromise safety. It is felt that rock climbers are blasted off cliffs, horse people are thrown from their mounts, hikers are startled into jumping into streams, etc. Although many anecdotes have been circulated, careful investigation of all complaints lodged to the Forest Service indicate that such situations have been extremely isolated. I think two or three people have actually been hurt because their animals were startled by aircraft and I hasten to add these were not air tour aircraft but low flying tactical military aircraft. A subdivision of this complaint is that the health and well being of government employees who have to live around this awful racket is being impaired. When I was in the good graces of the Park Service, some years ago, they sent me to Hawaii to deal with a noise problem at the Hawaii Volcanoes National Park. I made some measurements, and interviewed a large number of employees. Inevitably, the park employees complained not about the effects on visitors, or even on wildlife, but what they felt about their own comfort and enjoyment while they were going about their work. Well, the levels I measured were greatly below those that the FAA considers even marginally annoying, and although I don't always agree with the FAA I do have to thank them for their support in this. I do not read Public Law 100-91 to include as an effect of aircraft overflights the acoustic comfort of government employees.

So this brings us to the current argument over natural quiet as a resource. As we know, the Park Service has the duty, absolutely, to protect natural resources, to enhance them for this and future generations and to keep them insofar as possible in a pristine and un-human altered condition. This is a laudable goal, and one which I personally absolutely support. I think I am probably one of the first guys to consider natural quiet as a separate resource, worthy of scientific assessment. I started working on this problem in about 1972 when I was at the U.S. Forest Serv-

ice Technology and Development Center in San Dimas, and continued doing professional work in this area through my retirement in 1993. I don't know of anyone who has made more measurements of noise under wilderness and park conditions than I have, although my colleagues Paul Dunholter, Dr. Sandy Fidell, and Nick Miller, and their folks, certainly have a significant number under their belts as well.

I remember a meeting many years ago at Kings Canyon National Park which I attended at the request of the Park Service. There was concern there about the effects of aircraft overflight on the park, the aircraft being quite a different nature, Navy tactical jets. I believe that it was at this meeting that I first exposed the Park Service to the work that Roger Clark, George Stanky, and I had done characterizing natural quiet as a wilderness resource. I pointed out that the feelings of the listeners were, as far as our research showed, the most important determinant of the effect of aircraft noise. I must have made quite an impression, because the Superintendent wrote a letter to my boss, his boss, the Chief of the Forest Service, and the head of the National Park Service, all cordially inviting me never to show my face on any National Park again. To this day, I have never learned what I said to so offend him. It may have been his feelings about the fact that I arrived at the meeting on a brand new bright red Italian motorcycle.

In any event, it is well accepted in wilderness and park science circles that natural quiet should be treated as a natural resource. Given this consensus, it then becomes critical to define natural quiet in a way that is scientifically consistent. As I am sure most of you know, both the Forest Service and the Park Service have spent a great deal of time and effort, not to mention your money, in obtaining literally tens of thousands of acoustic measurements throughout the Forest Service wilderness and National Park systems. With the exception of a few inevitable glitches, like the time that I kicked Nick Miller's microphone down the wall of the crater at Haleakala, the data that was gathered is good. Very good. It is technically and scientifically unimpeachable. Some of the work done has pushed back the frontiers of outdoor noise measurement technology. I am proud to have been part of that effort, and will vigorously defend these measurements and how they were made.

However, where and when they were made, and more importantly, how they have been used, should be scrutinized. We haven't time to discuss the difficulties with where and when some of the measurements were made in Grand Canyon. But, how these measurements are interpreted is of grave concern.

The Park Service and its contractors have suggested a number of different ways that natural quiet should be defined. My problem with all of them is that they fail to recognize two basic scientific truths. Everyone has heard the old saw . . . pun intended . . . if a tree falls in the woods and no one is there to hear it does it make a sound? Well, we know from experience that the tree crashing through the branches to the ground sends out vibrations in the air which propagate away from the points of contact in a sinusoidal manner, decreasing their strength in accordance with the inverse square law. In other words, it makes a sound. But does it make a noise? Ah, here we have a different question. One might pose this question, does it disturb the natural quiet? Of course it doesn't, if no human is there to hear the natural quiet. Since we have established that the sound of the tree falling does not bother the animals (unless it falls on them of course), nor the cultural resources, then how could it make a noise?

Let me update this old saw: If a man is walking through the woods and talking and there is no woman there to hear him, is he still wrong? The scientists among us would say no. The wrongness of his conversation can only be judged in the ear, or maybe by the feelings, of the listener. Those who prescribe the feeling view would insist that the man is wrong anyway, that the natural quiet has been violated, and certainly our hiker should shut up to restore same.

Whether or not a person hears, and is annoyed by, the sound of an aircraft flying over is a function of a number of things; how loud the airplane is at the listener's ear is only one of these. Equally important is how loud the background sound is; that is, the rustling of the wind in the trees, the sound of the animals, the sound of the river. Notice I said equally; I mean equally. Using just the sound of the aircraft to assess natural quiet is scientifically indefensible. Further, the background of the regular hiking noises, shuffling of feet, brushing of beards against nylon parkas (probably not too many parkas used in Grand Canyon), clanking of canteens, the noise of pack animals; all of these things contribute to the background which also determines the natural quiet. With the exception of artillerymen and rock 'n roll musicians, the loudest thing most of us ever hear is the sound of our own voice in our ears. This, also, is part of the natural quiet.

And the bias, or motivation, or attitude of the listener is also equally important. How can it be seriously argued that a professional listener, paid to hear them, is no more likely than the average hiker or rafter to "detect" an airplane acoustically?

Yet this is the method the Park Service used to determine if aircraft sounds are destroying the natural quiet.

Congress, in its wisdom, did not define natural quiet in Public Law 100-91. Depending on one's point of view one might logically assume that Congress intended it to be described scientifically, not with reference to feelings. Defining scientific problems with reference to feelings has been the source of great mischief. Ask any apple fammer about the havoc done by that eminent epidemiologist, Meryl Streep, who was allowed to testify that she felt Alar in apples was endangering our children's health, etc., etc., etc. I expect that the National Park Service will contend that it has considered the background sound, self-noise, etc., but with all due respect to my friends there, I don't see the evidence of this. I do understand that we are making progress with this position, and to be scientifically correct, we must continue to do so.

The issues of natural quiet in the National Parks are extremely complex. My viewpoint is admittedly that of an engineer and professional aviator. There will of course be disagreements over how best to resolve these issues. But my—our—position is supported by good science.

I do not mean to be overly critical of those who take a feeling attitude toward our magnificent national parks and wildernesses; I have a feeling, maybe almost religious, attitude about flight. I want for us to be able to continue to share the spiritual feelings of seeing our parks from the air with people from all over the world. I want as many people as possibly can to fly above our parks and wildernesses to enjoy them and to feel them and hold them, without, I might add, causing the slightest environmental impact to the parks. It thrills me to hear that things are looking better, because it would be both scientifically and morally wrong for our industry to be limited or eliminated by feelings about natural quiet and aircraft sound that are neither scientifically nor morally supportable.

Thank you so much.

STATEMENT OF ROBERT S. LYNCH, CHAIRMAN OF THE BOARD, CENTRAL ARIZONA PROJECT ASSOCIATION

Mr. Chairman, Members of the National Parks and Public Lands Subcommittee, thank you for the opportunity to appear here today and testify on the proposal of the National Park Service to designate the Grand Canyon National Park as a wilderness and the implications of that proposal for the Colorado River, the Service's Colorado River Management Plan, the Law of the River, and the Central Arizona Project. I have the pleasure of serving as Chairman of the Board of the Central Arizona Project Association, an Arizona non-profit association established in 1946 to promote authorization, construction and operation of the Central Arizona Project. Our Association membership represents business, resource, local government and agricultural interests throughout the State interested in the continued success of the Central Arizona Project.

The Project itself consists of over 300 miles of canal system and a regulating reservoir that provides an average of 1.5 million acre-feet of water annually to roughly two-thirds of the population of the State, industries, agriculture and Indian communities in central Arizona. That quantity of water represents over half of the entitlement of the State of Arizona to water from the Colorado River and some 20 percent of the entitlement of the three Lower Basin states (Arizona, California and Nevada) to water from the Colorado River.

Our interest in the draft Wilderness Management Plan stems from our concerns about water issues related to the Colorado River. Simply put, the Central Arizona Project is the last water right on the river. Anything that can or might affect its ability to take water from the river and deliver it to the citizens of central Arizona attracts our interest. This draft Wilderness Plan is one of those things.

WATER ISSUES

There is an ongoing dispute over whether designation of public land as a wilderness carries with it an implied reservation of water rights under the so-called Winters doctrine. This remains an unanswered question in Federal law. It is a hot topic and it is currently being litigated. Most recently, a trial court in Idaho issued an opinion in a water adjudication that the Wilderness Act has the effect of impliedly reserving water. In re SRBA, Case no. 39576 DC Idaho, 5th Judicial District, December 18, 1997. That case is on appeal to the Idaho Supreme Court. Obviously, the opinion of a state court in Idaho does not bind the United States but it is the United States in the person of a Justice Department attorney that is promoting the reserved rights claim.

Translated to Arizona and the Lower Colorado River, you can easily see why we are interested. Designation of the Colorado River as "potential wilderness" positions the Service to manage the river corridor as if it were wilderness and precurses the ultimate designation of the river corridor as wilderness. If that intent remains, then the consequences of that clearly visible future action must be included in the present plan and the present environmental analysis. Along the way, the Service will have to address the reserved water rights issue and become educated in what we call the Law of the River. The Law of the River is a collection of compacts, Supreme Court and other court decisions, Acts of Congress and other Federal actions that define the rights of the Basin states to this invaluable resource. The river is also impacted by the 1944 Treaty with Mexico which obligates the system to specified water deliveries and, under certain circumstances, to surplus water deliveries. How a new reserved water right might affect this complex legal system must be analyzed. Anything less would be a piecemeal and inappropriate application of relevant Federal law.

DRAFT WILDERNESS MANAGEMENT PLAN

I have reviewed the Draft Wilderness Management Plan for the Grand Canyon National Park and its accompanying Environmental Assessment. This is a significant new initiative for the Park and one that deserves careful and detailed consideration. It is a major Federal action significantly affecting the quality of the human environment under the National Environmental Policy Act and it is an action that requires consultation under Section 7 of the Endangered Species Act. Consultation under Section 106 of the National Historic Preservation Act is also required. As you will note from my comments below, I believe that consultation under the 1968 Lower Colorado River Basin Project Act and consultation under the 1992 Grand Canyon Protection Act are also required. Given these requirements, I think it is incumbent upon the National Park Service to factor in the comments they are receiving, publish a revised Draft Plan as a proposed action and begin the formal processes that NEPA and ESA require. Other consultations can be programmed to coincide with those processes. I have the following specific comments in this regard.

Scope of the Plan

On page 2 of the Executive Summary, the Service attempts to set aside the riverine corridor of the Colorado River as covered by the Colorado River Management Plan, which it later tells us will be amended to be consistent with this Plan. The Service also tells us that it is proposing the Colorado River corridor as a potential wilderness in this Plan. Then it attempts to end the discussion by saying that issues specific to river management will be addressed in that specific Plan and are not within the purview of this Plan. That is just not true. If the Service is going to conform the river plan to this Plan, then it is impacting that Plan now and making changes to it now.

On page 4, the Service tells us that, among the proposed actions included in this Plan is one to "develop methods for determining suitability of the Colorado River and its tributaries for inclusion in the National Wild and Scenic Rivers system." In spite of that being a part of this Plan, the Service acknowledges that it has not consulted with the basin states, water users and water user organizations, power users and power user organizations or river recreation interests.

Wild and Scenic Rivers designation also implicates water use and the Law of the River. Consultation under the 1968 and 1992 Acts is mandatory. The rights to Colorado River water, including Central Arizona Project water supplies, cannot be implicated in this Plan's intended process without such consultation. The hydropower resources of the river, specifically Glen Canyon Dam, cannot be implicated here without such consultation.

Finally, on page 5 of this Executive Summary, the Service acknowledges that this Plan will provide "specific direction for revising other Park management plans consistent with the wilderness management requirements." In other words, the decision-making will take place in the context of development of this Plan and the Colorado River Management Plan will then merely be conformed to it. Clearly, issues related to the Colorado River in its course through the Grand Canyon National Park are as much a part of this Plan as issues related to terrestrial and riparian management elsewhere in the Park.

These conclusions drawn from the Executive Summary are confirmed at various places in the draft Plan itself, including pages 2-20, 16-158, 16-159, 16-160, 16-161, the latter pages including the implementation schedule. Additionally, the discussion of the National Environmental Policy Act attempts to glide over the "major Federal action" issue (draft Plan, pp. 2-16 and 2-17). It cannot. This is a major undertaking that will have significant long-term consequences for the Grand Canyon National

Park. Its environmental screening requirements cannot merely be shoved aside for another day when site-specific issues come up.

ENVIRONMENTAL ASSESSMENT

On its face, this document is inadequate. The purpose of an environmental assessment is to form the basis for either deciding to do an environmental impact statement or prepare a Finding Of No Significant Impact (FONSI). This document does not do that. It provides no basis for testing the NEPA threshold of whether the proposed plan is a "major Federal action significantly affecting the quality of the human environment." Merely describing the benefits of the Plan as the National Park Service sees it is not adequate. The question is whether or not there will be major impacts, not whether they will be beneficial in the eyes of the writing agency.

Nor has the Environmental Assessment properly identified the use of the NEPA process. This is a classic example of when a programmatic EIS is prepared. On page 3 of the EA, the Service acknowledges that more NEPA and other screening will be necessary for specific projects. The implication is that this significant Plan will see no further screening under NEPA, ESA or NHPA. There is no attempt to analyze why the Plan might not require an EIS.

The EIS requirement would be met, in and by itself, by the statement on page 7 of the EA concerning the Colorado River portion of the Park:

> "The Colorado River Management Plan revision will address implementing wilderness management requirements and strategies within the "proposed potential" wilderness river corridor."

The Service has already acknowledged that the criteria for a proposed Wild and Scenic River designation will be set in this Plan, and acknowledged that it will set the criteria for river corridor wilderness designation in this Plan. Now it admits that the river plan changes will merely implement these prior decisions. If the decisions are made here, the EIS is done here. The dialogue must be expanded to cover the water and power resources the Colorado River supplies. Moreover, the importance of the corridor is acknowledged on page 10 of the EA. Endangered species involvement along the river corridor is acknowledged on page 11. Nevertheless, these subjects are not discussed in any assessment ot environmental impacts in the EA.

Oddly enough, the actions in the proposed Plan related to proposed designation of the Colorado River as a Wild and Scenic River are described but not analyzed in the discussion of the impacts related to the preferred alternative (the draft Plan):

> "This alternative calls for conducting an inventory of all tributary streams to quantify flow data and riparian vegetation. It provides for adopting methods for determining suitability of the Colorado River and its tributaries for inclusion in the National Wild and Scenic Rivers System, ultimately providing an additional protective layer for these rare, intact environments."

Not only is this an impact, it is stated as a foregone conclusion. Yet another reason the proposed Plan is a major Federal action.

Other discussions of the proposed action clearly show that this Plan will deal with the river corridor, administrative practices and the like (page 17). Indeed, Service patrols which now rely on motorized watercraft are identified as probably having to go to non-motorized watercraft as a result of this Plan (page 17). That is an obvious river impact. It also raises the issue of whether commercial and non-commercial permit users will have to do likewise. Yet another river corridor impact. That same discussion is continued on page 18.

Moreover, significant use impacts are totally missing from this analysis. Nowhere in the discussion of visitor use, use of horses and mules or other visitor use is there any discussion of the additional pressure that will be put on the Park from the constraints of current uses that this Plan envisions. There is no discussion of limiting visitors. The additional pressure put on the Park by allowing the same number or more visitors while constraining the current opportunities for experience must be analyzed.

In addition, there is no mention of the proposed development at Tusayan and how that increased population at the edge of the Park will impact wilderness management. Additionally, the Draft Plan at page 2-16 states that "mechanized or motorized equipment is inappropriate for public purposes like recreation, education, or scientific study that is not serving administrative purposes." That statement, if an appropriate application of the Wilderness Act of 1964, would remove from the Grand Canyon Monitoring Research Center the ability to use its mechanized pontoon boats for scientific study. The scientific study is related to the effects of power operations at Glen Canyon Dam and not to administrative purposes related to the Wilderness Act.

Finally, I wish to bring up an issue that just caught my attention last week. The Draft Plan (p.2-16) briefly mentions the Americans with Disabilities Act. It con-

cludes that people in wheelchairs can use their wheelchairs in a wilderness but the Park Service doesn't have to do anything to help them. In the normal case of going out in the middle of nowhere, that sort of statement might make sense. But it doesn't here. I was curious and asked around. I found that the Phoenix Parks and Recreation Department supports a specific program for people with disabilities so they can go on river trips and have access to places like the river corridor of the Grand Canyon. Indeed, I am told that the river running companies must include in permit renewal applications a specific program for providing access to people otherwise protected by the ADA. I don't know if taking motors off the river will totally bar disabled access to river running, but obviously it will limit it. The point is that this is a serious concern and passed over in the Draft Plan and the Environmental Assessment. Yet another reason this is a major Federal action. I have take the liberty of including some materials I acquired only last week about this interesting and worthwhile program for people with disabilities. Having just recently been on a river trip myself, I was fascinated by this obviously worthwhile program.

SUMMARY

The Service needs to start the EIS process as soon as possible. It bands to expand the stated scope of the Plan to cover the riverine corridor and to open a dialogue with the affected interests that enlarged scope will draw into the process. The Service needs to expand the analysis of the Plan to include the additional subjects commenters have brought to its attention.

The Grand Canyon National Park is too important to the country and to the park system to have an overarching plan like this assembled largely out of public view. This Plan deserves more public scrutiny than it has gotten and the Park Service should be diligent in seeing that public scrutiny occurs.

Thank you Mr. Chairman and members of the Subcommittee for the opportunity to comment on this very important National Park Service initiative.

River of Dreams

Mainstream Expeditions
River raft trips for people with disabilities

In this perfect setting, the beauty, power and fragility of the Grand Canyon reflect who we are as a society. Each rock layer within the canyon is a thing of unique beauty. However, it is the contrast of colors, shapes and textures which only in unity become the Grand Canyon. Likewise, when individuals in our society, regardless of color, nationality, ability or disability, work in unity, we, too, become a thing of beauty and wonder.

Eileen S., muscular dystrophy, River of Dreams rafter

The nation's natural environment is the birthright of all citizens, but too often it is reserved only for those who can reach it on foot. In the fall of 1991, Adaptive Recreation Services of the Phoenix Parks, Recreation and Library Department, with Jumping Mouse Camp and Arizona Raft Adventures, co-sponsored the first National Park Service sanctioned Grand Canyon raft trips for people facing significant physical and mental disabilities. This project has brought the Canyon to life for outdoor enthusiasts who previously were not allowed to participate in commercial river trips. Their challenges have included cancer, cerebral palsy, paraplegia, quadriplegia, severe closed head injury, spina bifida, post polio syndrome, neurological disorders, arthritis, multiple sclerosis, cognitive disabilities, and visual and hearing impairments. Their ages have ranged from 14 to 79 years.

Ten trips have been offered, each spanning between one and two weeks, and up to 225 river miles through pristine wilderness and some of the highest rated whitewater rapids in the country. Post trip evaluations have shown that this program has received the enthusiastic support of participants and volunteers alike. Most important, these trips have paved the way for inclusive, accessible outdoor adventure programs, and have provided a dramatic message of what people with disabilities can do, given the chance.

The Mainstream Expeditions program now includes trips in the Grand Canyon, Cataract Canyon and on the San Juan River. The program is a collaborative project of River of Dreams, a nonprofit agency, and Adaptive Recreation Services, which has been providing innovative, accessible recreation programming to the citizens of Phoenix since 1973. The four full-time staff coordinate more than 23,000 volunteer hours annually. Since 1991, this office has received numerous awards including the NRPA's National Gold Medal Award, the National League of Cities Innovation Award, the American Society for Public Administration Superior Service Award, and the Arizona State Therapeutic Recreation Association's Outstanding Organization Award.

The one thing that the trip gave me was much more confidence in my physical activities and endurance. I can do much more now than I used to believe I could do.

Gerald F., multiple sclerosis, River of Dreams rafter

For more information, please call Adaptive Recreation Services
at 602/262-4543 (Voice), or 602/534-2491(TT)

3/11/98
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River Rampage
Raft Trips for Teens with Significant Challenges

I have cerebral palsy. I have a wheelchair. I learned that people's differences or backgrounds don't matter when you're out in the middle of nowhere. Everyone is on equal ground. I would like to say those were the best seven days of my life.

Mandy, River Rampage participant

I found something I really enjoyed doing that isn't against the law. I found that my place to be is in the wild, and River Rampage helped me to find that out about myself by giving me a chance and taking me on the rafting trip.

Josh, River Rampage participant, former gang member and juvenile offender

River Rampage is a pilot outdoor adventure program of the Phoenix Parks, Recreation and Library Department, Adaptive Recreation Services, for young people who face significant challenges. On each trip, half of the teen participants have significant physical or mental disabilities such as cerebral palsy, muscular dystrophy, spina bifida, head injury, blindness, deafness, or Down syndrome. The remainder are at-risk youths, many from neighborhoods overrun with gang activity. On past River Rampage trips ethnicities of participants have included Hispanic, African American, Native American, Bi-racial, and Middle Eastern.

The wilderness is a great equalizer. An extended outdoor adventure such as a River Rampage trip provides a perfect setting for learning acceptance and cooperation. The lessons of life are intensified because of the challenge, the lack of outside influences, and the need for teamwork and trust. When a gang member feeds a young man with cerebral palsy, he learns what it feels like to care and to be appreciated. In turn, the teen with the disability gains trust in others, along with an increased sense of confidence and the ability to succeed.

River Rampage trips have been offered each summer since 1994. Teens participate at no cost to their families. By volunteering hours of community service, participants earn a slot that propels them downriver. The staff works closely with youths before and after the trip to help place each teen in an area of interest which may lead to part-time employment.

An outside evaluation done by Professor Robert Stout of Arizona State University showed that seventy percent of the at-risk and disabled teens who participated together in River Rampage received measurable, lasting benefits from the experience. For many, increases in self esteem and independence were dramatic. Their grades improved, they made more friends at school, and their outlook on the future improved.

Whether their challenge is a dysfunctional family, a significant disability, a life-threatening illness, or living in a gang-infested environment, all teenagers need a chance to see that the world is bigger than their neighborhoods, and that opportunities are available to them if they believe in themselves.

For more information
River Rampage is proudly co-sponsored by City of Phoenix Parks, Recreation and Library Department, Adaptive Recreation Services and River of Dreams, a nonprofit organization.
Please contact Ann Wheat, Project Director, or Sandy Muñoz-Weingarten, Project Coordinator, at 602-262-4542 (Voice) or 602-534-2491 (TDD/TTY), or write to River Rampage, 1946 West Morningside Drive, Phoenix, AZ 85023.

My River of Dreams Journey

I would like to tell you about the magic that happens along a 225 mile Grand Canyon rafting journey - magic that is felt and sensed rather than seen. I was privileged to share my experience with the best group of people I could have hoped for. We ranged in age from teenagers to senior citizens which truly made us a family. Fourteen of us are physically challenged to various degrees due to different causes in our lives. Due to a bout of polio when I was a child, I have limited muscle control and weakness, along with a severe respiratory condition.

When I first heard about this trip, I immediately knew this was something I wanted to do. I realized too the dangers and physical demands this would put on me, but I also weighed the wonders and marvels that I would never otherwise get the chance to see or feel. And believe me - the range of visions and images are beyond words, and well worth the daily struggles and discomfort we had to deal with - each in our own way. Every day brought us into a new chapter in time. To be in the presence of civilizations past is almost a sacred, calming emotion. Then, in the very next moment to be surrounded by nature in its most powerful force, churning the rapids around us, and to know and trust in those committed to our dream is a realization of the power of the human spirit.

The first side trip we took after several days of river floating was to see some Anasazi ruins high atop a mesa. When they pulled the rafts up on some rocks facing this towering wall of canyon and said we were all going to the top - I thought surely these people had lost all sense of mind! As we each took our turn traveling up the rocky trail with very anxious steps and disbelief - I knew this was one unusual group of pioneers. Some of us inched our way as nondisabled volunteers kept us on track, enjoying each step of the way. Others were transported up in unique adapted fashion. We soon gathered at the top of the mesa overlooking the next roaring rapid and in the midst of an Indian culture from long ago. I found a wonderful feeling of connection with these people who struggled to survive here and who left traces of their passing for others to know of their presence.

This is just one of the many special events we shared during our sixteen days of river adventure. If I had to choose one highlight over another, it would be impossible. Each day was filled with happenings that amazed me and made me call upon all my energy and resources. Some I even wished for and hoped would occur. Like experiencing a rain storm and searching for a rainbow. Both wishes came true... only to repeat themselves many times over... to the point of discomfort and discontent! Playing in the water falls at Deer Creek is not the same as a downpour of hail during a lunch break. Slipping and sliding in the mud along the Little Colorado sure beats keeping the mud and rain out of our tents and scrambling for clean dry clothes. Gathering around the campfire each night, sleeping out under the stars. All these magical moments far outweighed and outnumbered the efforts we all put out to be witness to such wonders.

This river trip has been a priceless gift that I wish to pass on to all those who wish to know the world at the bottom of the Grand Canyon - regardless of race, creed, color, or ability.

And I hope that those who hear about this program realize in some way just what people with disabilities can achieve with dignity and self worth. The greatest obstacle to being handicapped, or challenged, or disabled, or whatever label is now in fashion or politically correct, is not the condition but the stigma society still associates with it. The truth is, we are all valuable because of who we are, not because of how we look, or what we can accomplish. This applies to all of us, for nothing in life is perfect, or guaranteed to remain the same.

Lynn Martinka, River Runner

River of Dreams, a nonprofit foundation, gives youths and adults the chance to experience wilderness adventure, regardless of disability, medical illness, or financial need. One hundred percent of contributions are used to provide accessible, medically supervised rafting and camping experiences, creating new opportunities and belief in oneself. For more information on River of Dreams, call the Special Populations Office of the Phoenix Parks, Recreation and Library Department, (602) 262-4543.

River of Dreams

August 8, 1997

Grand Canyon Conservation Fund
Tides Foundation
P.O. Box 29903
Presidio Building 1014
Lincoln Boulevard and Torney Avenue
San Francisco, CA 94129-0903

Dear Members of the Fund:

On February 25, 1997, the Tides Foundation Board of Directors voted a grant to River of Dreams, Inc. in the amount of $6,000.00 for the purpose of providing scholarship funds to facilitate participation of persons with disabilities in commercial rafting trips for the 1997 season. The grant was very timely and made it possible to finalize our plans for an accessible integrated Grand Canyon trip in the spring of this year.

On April 26, 1997 thirteen adults with disabilities, eight support volunteers and one medical staff departed for Marble Canyon on a spectacular flight provided free of charge by Scenic Airlines. The trip launched at Lees Ferry the following day as a result of a unique collaboration between River of Dreams, Inc.; the City of Phoenix Parks, Recreation and Library Department, Special Populations Office; the National Park Service; Expeditions river company and Arizona River Runners, Inc.

The cost of the sixteen day trip, conducted from April 26 - May 11, 1997, was $1,500.00 per person, which represents a significant discount over commercial costs. The participants were screened through an application process. Six of the thirteen participants required differing amounts of financial aide totaling $7,200.00. The remaining $1,200.00 required to meet scholarship requests was obtained through private donations.

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Scholarship awards and participant profiles are as follows:

Susan Y. - age 38, Susan is a quadriplegic resulting from a brain stem infarction in 1981. She requested a $1,500.00 scholarship in order to have a needed personal attendant accompany her on this trip.

Greg G. - age 34, has Myotonic Dystrophy, a disabling disease much like Multiple Sclerosis and Muscular Dystrophy. Greg requested a $550.00 scholarship.

Kathy W. - age 43, Kathy is blind, diabetic, has hypertension and had a kidney transplant in 1988. A scholarship of $1,000.00 was requested.

Wendell W. - age 56, Wendell had a heart agioplasty with stint placement in 1995, has a history of hypertension and coronary artery disease. A scholarship of $1,000.00 was requested.

Robert A. - age 29, Robert sustained a closed head injury, has right side paralysis and a seizure disorder. Robert required a $1,550.00 scholarship.

Kelly Z. - age 26, Kelly has cerebral palsy and uses a wheelchair. Kelly requested a $1,550.00 scholarship.

Participants who were awarded scholarships agreed to complete 40 hours of volunteer community service. This enables everyone to "earn" their trip, by giving back to the community with meaningful work.

Enclosed find samples of the trip application, press release, volunteer service form, comments from rafters and some "Grand" photos.

Thank you for bringing the Canyon to life for those who thought this opportunity was reserved only to those who had the financial and physical ability.

Sincerely,

Robert M. Ritter
President

enclosures

THE
GRAND
CANYON
CONSERVATION
FUND

P.O. Box 22189
Flagstaff, AZ 86002

(520) 556-0669 Telephone
(520) 556-3155 Telefax

GLOECKLER
Co-Chairman

ALLEN HOUSE
Co-Chairman

MARK GRISHAM
Executive Director

March 12, 1998

Robert Ritter, President
River of Dreams
1946 W. Morningside Drive
Phoenix, AZ 85023

Dear Mr. Ritter:

I am pleased to inform you that the Grand Canyon Conservation Fund has approved a grant in the amount of $10,000 for your organization. This award is intended to support your organization's efforts to increase access to the Grand Canyon river experience for people with disabilities, as was requested.

Please find a check enclosed. We would appreciate receiving acknowledgment of your receipt of these funds and any updated information regarding your efforts that you would care to share with us. As we were unable to fully fund your grant request, please know that the Grand Canyon Conservation Fund Board of Directors recommends the purchase of a single redesigned Safari chair and that of one set of retractable wheelchair ramps. Any remaining funds may be used to purchase additional adaptive equipment as you decide.

If you have occasion to make a public announcement regarding this grant-making, please include mention that financial support was provided by the Grand Canyon Conservation Fund, a non-profit grant-making program established and managed by the Grand Canyon river outfitters.

The Grand Canyon Conservation Fund will entertain 1998 grant requests in October. We encourage you to submit additional applications for funding at that time.

Please feel free to contact me if you have questions or if I can be of any additional service.

Sincerely,

Mark Grisham
Executive Director

STATEMENT OF BRIAN I. MERRILL, CHIEF OF OPERATIONS, WESTERN RIVER EXPEDITIONS, INC.

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to represent Western River Expeditions in your consideration of the Grand Canyon Wilderness Management Plan and the Colorado River Management Plan. Western River Expeditions is one of the original whitewater rafting companies in Grand Canyon (established in 1959) and has been managed under current ownership since 1977. We also operate in Canyonlands National Park, Westwater Canyon, and Desolation Canyon in Utah.

We very much appreciate the attention this Subcommittee is giving to Grand Canyon. My comments today address the specific effects the proposed Wilderness and Colorado River Management plans will have on my employer, Western River Expeditions. Although Mark Grisham, Executive Director of the Grand Canyon River Outfitters Association, has been called to testify on behalf of all Grand Canyon River Outfitters, I hope my comments will also paint an accurate picture of the concerns expressed by our colleagues.

In our opinion, the Colorado River corridor through the bottom of Grand Canyon National Park should be specifically designated as a non-wilderness corridor. It should not be included as part of a comprehensive wilderness recommendation for Grand Canyon and should not be left as "potential wilderness" as the National Park Service currently has it listed.

WILDERNESS VALUES?

As Grand Canyon Outfitters, we are dealing with two different processes here. The Grand Canyon Wilderness Management Plan which is actually the renamed Backcountry Management Plan and the Colorado River Management Plan which deals only with the river corridor through the bottom of Grand Canyon. The former deals with the bulk of the land and the latter the river, its banks and side canyons.

Park officials want to manage the entire park as wilderness whether or not it carries official wilderness designation. Most of the backcountry area is proposed for full wilderness status. The cross-canyon corridor (the area including Phantom Ranch and the trails that lead to it from either canyon rim) is proposed as non-wilderness. The river is proposed as "potential" wilderness. Potential wilderness is a National Park Service term that requires the Park to manage the river as wilderness thereby eliminating "non-conforming uses" such as helicopters and outboard engines.

The proposed new Colorado River Management Plan (CRMP) has as its core, "wilderness management." It was the stated intention of the Park to defer the wilderness question on the river to the CRMP. They did not want the controversy involved with the motors/no motors issue to bog down the overall wilderness recommendation. Pressure from environmental groups and Congress are making them deal with the issue of wilderness on the river now rather than later.

All of the issues being discussed by the Park are colored by "wilderness values," as those values are perceived by those drafting the plan. For example, if the NPS planners decide to reduce the size of group that can travel together from the current number of 36 to 20, it will be because people cannot have a "true wilderness experience" in any group larger than 20. If the ability of people to spend just three days seeing part of the canyon is eliminated, it will be because the NPS feels a true "wilderness experience" cannot be had in a short amount of time.

So far, no scientific evidence has been presented indicating that any of the proposed changes are necessary. Likewise, the visitors who are using outfitters to access the resource are not complaining. There is general agreement on the part of everyone involved, including the Park managers, that the river corridor is in better shape today than it was 20 years ago. This appears to be crisis management where no crisis exists.

Outfitters are placed in an interesting position. Our actions show that we are ardent protectors of Grand Canyon and its river corridor. In our hearts, we hold wilderness values and are concerned about protection of the resource. Outfitters have always been on the cutting edge, if not the actual inventors, of most of the low-impact camping technologies used by responsible campers everywhere. The National Park Service has taken our innovations and integrated them into their rules and regulations. We are in the canyon every week and would be insane to behave any differently. However, we are placed in opposition to many environmental organizations. These organizations take extreme positions with regard to motors, trip lengths, group sizes, and other issues that severely limit the general public's ability to see Grand Canyon from the river.

ACCESS TO GRAND CANYON

Millions of Americans access national parks each year, and Grand Canyon is one of the most popular of all the parks in the system. Of the millions who visit Grand Canyon annually, merely 20,000 of them get to do it from the bottom on the river. It is a unique and wonderful experience, and any outfitter can relate tale after tale of individuals whose lives have been changed by a Grand Canyon river trip of any length or type.

For years outfitters have been the means by which most of the visitors access the Colorado River through Grand Canyon. Western River Expeditions has been there from the early days of outfitting and has developed a loyal following and a solid reputation for providing high quality trips which can be enjoyed by a wide variety of people of varying abilities and ages. If you can judge from the comments of our guests, we do a tremendous job.

Plain and simply, if the river corridor through Grand Canyon is given wilderness status or if the Park achieves its clearly stated goal of managing the river as wilderness (even without wilderness status), the amount of people who access the river through our company will immediately be cut by more than half. If the worst case scenario occurs, fully three fourths of our passengers will be kept out of the canyon. Statistics for the entire industry will be presented by Mr. Grisham and are equally grim.

MOTORIZED RAFTS IN GRAND CANYON: A QUESTION OF ACCESS

Motorized rafts are seen as a "non-conforming use" when it comes to wilderness. When managing for wilderness, motors have to be eliminated. There is precedent for allowing motors even in a wilderness. The Frank Church/River of No Return Wilderness in Idaho is the prime example. It is managed by the National Forest Service, and the Wilderness Act grants specific power to the Secretary of Agriculture to authorize such a use. It is not clear, however, that the Secretary of the Interior has the same authority. This point would have to be settled legally. The cleaner option is to simply eliminate the river corridor from the wilderness recommendation.

This will not be the first time the issue of outboard motors on the Colorado River in Grand Canyon has been debated. In the late 1970's the Park decided to eliminate motors from the river and backed off after pressure from Congress. Many members of this Committee were active in that effort and still deserve our gratitude. Amazingly enough, 20 years later, we are right back here debating the same issues of access, and who deserves to be in Grand Canyon.

The Grand Canyon Wilderness Planning Team which is responsible for the plans being discussed here today, has as one of its primary goals keeping the level of contacts between users to a minimum. Motorized rafts provide flexibility when coordinating with other river users. Guides discuss potential stops and campsites with each other, and the motorized rafts are able to adjust their pace accordingly. This one element, cooperation between the guides is the single best method for reducing contacts in the canyon. They are already doing a stellar job.

If motors are eliminated from Grand Canyon, the number of contacts between groups will sharply increase due to the need for so many oar-powered rafts. Motorized rafts and the larger groups they accommodate, require far fewer campsites. It follows that as the number of contacts increase because of the larger number of oar rafts, NPS planners will then want to reduce overall use even further to reduce the number of contacts. The estimates of reduction in access presented by Mr. Grisham and me today may represent merely the tip of the iceberg.

Motorized rafts on the Colorado River through Grand Canyon are necessary and appropriate.

- **Wilderness will reduce access to Grand Canyon dramatically.** Roughly 75 percent of all commercial passengers choose to traverse Grand Canyon on a motorized raft each year. If oar power boats are the only option, appoximately half of these people will not get to go.
- **Wilderness will reduce access for people with physical disabilities.** Individuals with mobility and sensory impairment, older people in their 70's and 80's, and families with younger children often choose the larger motorized rafts because they are more comfortable and perceived to be safer.
- **Wilderness will require a far greater number of watercraft to provide the same access.** To replace all motorized rafts on the river with oar rafts while providing the same level of access, the number of rafts on the river at any one time would have to increase by an estimated 500 percent. The next step would be to reduce that number of rafts thereby reducing access even further.
- **Wilderness will actually create more contact between groups.** Two oar trips passing one another can take half a day. Motorized rafts pass relatively

quickly. When the level of contacts increases, the NPS managers will be compelled to cut use and reduce access.

• **Wilderness will arguably create more impact on the land portion of the canyon.** With a motor, a group can travel faster allowing plenty of time for hiking and exploring, but the amount of camping that occurs is nearly half of that of a rowing trip. More rowing trips means more time spent on the land, therefore more impact. Again, the logical next step would be to decrease use and reduce access.

The Grand Canyon outfitting industry is actively working toward limiting if not eliminating the noise caused by outboard motors. Historically, 2-cycle outboard motors have been used to power rafts through Grand Canyon. Quieter and cleaner outboard motor technology is now available and the industry has voluntarily agreed to convert 100 percent to these motors by the year 2001. One hundred percent of Western River Expeditions' boats will be using the new engines by the start of the 1999 river season. These engines are substantially quieter. Many oar powered rafters have reported that they can barely hear them as they pass.

Another effort being spearheaded by the Grand Canyon River Outfitters Association is the development of a practically noiseless and emission free electric engine which is powered by fuel-cell technology.

There is a false perception put out by extreme wilderness advocates and some Park officials that anything less than wilderness status will result in the proliferation of motor use on the river. This is simply false. Motor use has not increased since the last attempt to eliminate them and it will not in the future. Outfitter efforts to find less and less obtrusive technology, and well-established National Park Service limits also point away from proliferation.

HELICOPTERS AND EXCHANGE TRIPS: ANOTHER QUESTION OF ACCESS

Western River Expeditions provides two basic trips through Grand Canyon. You can spend six days travelling from Lee's Ferry to Whitmore Wash (188 River Miles) or three days travelling from Whitmore Wash to Pearce Ferry on Lake Mead (91 River Miles, 89 of which are within Grand Canyon National Park). At Whitmore, there is a helicopter landing pad located on Hualapai Nation land. The guests from the six-day trip helicopter out to a guest ranch on the rim of the canyon (the Bar 10 Lodge) and the three day guests helicopter in to begin their trip. Many of our guests spend a day and a night at the ranch before beginning the river portion of the trip. There they participate in ranch activities and listen to interpretation about Grand Canyon.

Whitmore has been used as a river access point since 1912. Since 1978, it has been an approved passenger exchange point. Helicopters at Whitmore have been in use since 1985. As early as 1973, there was helicopter use at another pad near Lava Falls (10 miles upstream), but the outfitters voluntarily eliminated that use and consolidated at Whitmore.

The Bar 10 Lodge is owned and operated by the Tony and Ruby Heaton family. It gives employment to the Heaton children as well as providing a $100,000 yearly payroll to other employees. In addition, since 1985, the Bar 10 has added over one million dollars ($1,000,000) of user fee revenue to the Hualapai Tribe. A twelve dollar ($12.00) fee is charged by the Hualapai for each person in or out of the canyon. The elimination of Whitmore would not only limit river access; it would put the Heatons out of business, and eliminate this source of revenue for the Hualapai.

Whitmore is a critical element in the CRMP and in the overall effort to manage Grand Canyon as wilderness. The Park has stated that the exchanges taking place at Whitmore are incompatible with "wilderness values" for two reasons. One: Helicopters disturb the natural quiet, and are incompatible with the "no mechanical devices" requirement of wilderness management; and Two: Three days is not enough time for a person to adequately enjoy and appreciate Grand Canyon.

The debate over helicopters and the noise they make is not nearly as simple as it seems when you consider the alternatives and the numbers of people who will be shut out of the Canyon. The arguments against shorter trip lengths are quite frankly offensive.

Wilderness values are in the heart and mind of the beholder. In meetings with Grand Canyon officials outfitters have been told point blank that some people do not deserve to be in Grand Canyon. Usually, this sort of elitist rhetoric is attributed to fringe elements who would shut everyone out of the backcountry except themselves. So when the very people who are the arbiters of what is fair and appropriate for the river use this exclusionary type of language it causes a great deal of concern.

We have been told the river through Grand Canyon will be managed as part of a "regional" system of rivers that would include the Green and San Juan rivers in Utah as well as the upper stretches of the Colorado in Utah (Westwater and Cataract Canyons). Under this approach people wanting a shorter river trip would have to go to Cataract Desolation or some other "less deserving" stretch of water. We are told that Grand Canyon should be reserved for those people who are willing to spend the appropriate amount of time (8 days with a motor and 13 days without seem to be the minimum numbers). Apparently this will assure that everyone who travels through the Canyon has the proper attitude and reverence toward the Canyon. I am not being facetious here. I am simply repeating the ideas that have been expressed to us by NPS administrators.

This attitude runs contra to the experience had by the thousands of people who enjoy Grand Canyon every year through Western River Expeditions or one of several other outfitters. These guests do it in a short amount of time in the lower end of the Canyon. We can produce thousands of letters from our guests who have had meaningful even life changing Grand Canyon experiences in merely three days. These people believe in their hearts and minds that they have had a valid wilderness experience. Park officials and other extreme wilderness advocates apparently want to save these people from themselves. Now I am being facetious but also accurate.

Whitmore is not the only place where shorter exchange trips occur although it is the only place where helicopters are used. The Park has also identified the need to reduce the frequency of exchanges at other points in the Canyon such as Phantom Ranch. Exchange trips provide an increased opportunity for people to access Grand Canyon from the river. Not everyone can afford the time or the cost involved with a longer trip. Are these people undeserving of Grand Canyon? According to some within the NPS the answer is "yes."

Helicopters provide a clean and efficient means for people to access the lower end of Grand Canyon. One of the primary goals of those writing the CRMP seems to be the elimination or extreme reduction of Whitmore as an exchange point. There have been references to possible alternatives to helicopters such as hiking and mules. Both of these solutions would lead to the elimination of Whitmore because of the logistical difficulties they present.

Many of the people who currently exit and enter the canyon via helicopter would not be physically capable of hiking in or out of the canyon. It is a difficult hike in one of the hottest parts of the canyon where there is no water or shade. Our customer demographics mirror the demographics of the nation in general. People are getting older and not everyone is in top physical condition. Roughly two-thirds of our guests are age 50 or older with some in their 80's. Hiking would create a physical barrier that would keep many people from seeing the canyon. The Park already struggles with the number of people who have to be rescued from the trails leading to Phantom Ranch. Dehydration and physical injury are commonplace.

The option of transporting guests in and out of the canyon via mules is ironically more environmentally damaging than helicopters. To further the irony, mules were once used and helicopters were seen as a cleaner, more efficient approach, so we switched. Hundreds of mules travelling up and down the trail and milling around on a beach on the edge of the river would result in scarring of the landscape, offensive odors, and swarms of flies. Phantom Ranch can be held out as an example of the difficulties presented by mules. There are an equal number of people calling for their elimination from the Park.

The outfitters who use helicopters at Whitmore are not insensitive to the wishes of those who would prefer not to see a helicopter in the canyon. The time of helicopter operation is restricted to the morning hours and the actual time the helicopters are over Park airspace is measured in minutes (2.76 minutes per flight to be exact). We believe this is a very small amount of time relative to the access it provides.

At a recent meeting of a working group of outfitters who use the helicopter pad, means of reducing total airtime were discussed with promising results. We are also investigating quieter, larger capacity helicopter technology that would reduce dramatically the noise levels as well as the number of trips in and out of the canyon.

The helicopter pad is actually located on land owned by the Hualapai Nation and is located in a part of the canyon where there are very few camps, and very little morning traffic. The bottom line is that most of the people who do not use the helicopters never see or hear them. Those visitors who do use them, love them.

FOR WHOM ARE WE SAVING THE CANYON?

If I can brag a bit about our crew, they are as good as it gets in the industry. We have a group of trip leaders and guides who have been doing this for a long

time, are passionate about the river and the canyon, and love sharing their knowledge and skills with their guests. Without guides, most people would not have the skills or knowledge to visit the bottom of Grand Canyon. For those who do choose to use a guide, their experience is enriched through the education and insight provided. Any outfitter in Grand Canyon can make this same claim.

As an industry, the Park has left us with the distinct impression that people who choose to utilize our services and the talents of our guides are less worthy than those who go it alone. Furthermore, if they choose an outfitter, but don't choose the right kind of trip, they are even less worthy. The fact is that most people cannot make it through Grand Canyon by river without the assistance of an outfitter. Likewise, a large percentage of these people cannot afford to spend more than just a few days in the canyon. Grand Canyon is for these people just as surely as it is for the individual who wants to spend a month in the canyon on his/her own raft. To believe otherwise is elitist and offensive.

We should be about preserving Grand Canyon and providing access. The National Park Service is charged with a dual mission: preserve for future generations and provide access to the American public. That mission is currently being accomplished very well. A relatively large number of people get to experience the Colorado River through Grand Canyon each year with no detrimental effect to the resource.

Once again, It is our firm belief that THE COLORADO RIVER THROUGH GRAND CANYON SHOULD BE LISTED AS A NON-WILDERNESS CORRIDOR. Protections that are already in place are more than adequate, and Grand Canyon users (both commercial and private) will always be committed to its protection regardless of the wilderness debate. **Any increased regulation will only result in people being shut out of Grand Canyon.**

Mr. Chairman and members of the Subcommittee, thank you for your time and consideration of Grand Canyon, and thank you for letting us participate in this process

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STATEMENT OF WILLIAM C. REFFALT, DIRECTOR, NATIONAL PARKS AND ALASKA PROGRAMS, THE WILDERNESS SOCIETY AND REPRESENTING THE GRAND CANYON TRUST

> **"The river rolls by us in silent majesty; the quiet of the camp is sweet; our joy is almost ecstasy."** (John Wesley Powell, 1869, as he and his companions completed exploration of the Colorado River and the Grand Canyon)

Mr. Chairman my name is Bill Reffalt; I am Director of National Parks and Alaska Lands for The Wilderness Society. I appreciate this opportunity to testify on behalf of our 225,OOO members and The Grand Canyon Trust about the current National Park Service management planning efforts at the Grand Canyon National Park.

The Grand Canyon, as a geological phenomenon, is one of the most awesome demonstrations of the effects of erosion over time in the world. As a National Park, it is one of the world's most spectacular scenic areas. These characteristics, and many other features and elements combine to make the Grand Canyon one of the most visited parks, and visiting it among the most sought after experiences in the world. We only have one Grand Canyon and it took a very, very long time for it to reach the peak of grandeur for which all mankind recognizes it. Over 5,000,000 people visit the park each year and that level continues to rise.

The Grand Canyon is one of the most unique, and in many ways grandest, wilderness areas left in America. Yes, there are other great canyons, and some are very scenic and have several special features. But, there is only this one that has it all. To stand at the rim of the Grand Canyon and try to take it all in, to cope with its meaning, is a humbling experience. Standing on the rim at many locations one can literally see to the heart of this magnificent National Park. And, at the heart of this wilderness is the Colorado River—Mother Nature's Grand Canyon land-sculpting instrument. Freeman Tilden has written that "Without that flowing river there is no true Grand Canyon."[1] It follows logically that management of the Park must deal effectively with these two foundational elements of the park: the wilderness and the river.

Management of the Grand Canyon National Park is something about which a lot of people can claim to be an interested stakeholder. Hundreds, even thousands, feel that they have a right and an obligation to be involved and to be heard. In its simplest form, the management planning process currently underway at the Grand Canyon National Park grants fulfillment of that expectation. It supplies the Park

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[1] (Freeman Tilden, 1951, *The National Parks.* Alfred A. Knopf, NY.)

Service with the concerns, opinions, ideas and reactions of people who know and use the park and its resources. It permits interested parties with differing points of view to learn about other views and serves as a forum for making known all viewpoints. It is a time-tested process that can lead to greater understanding and support for park programs.

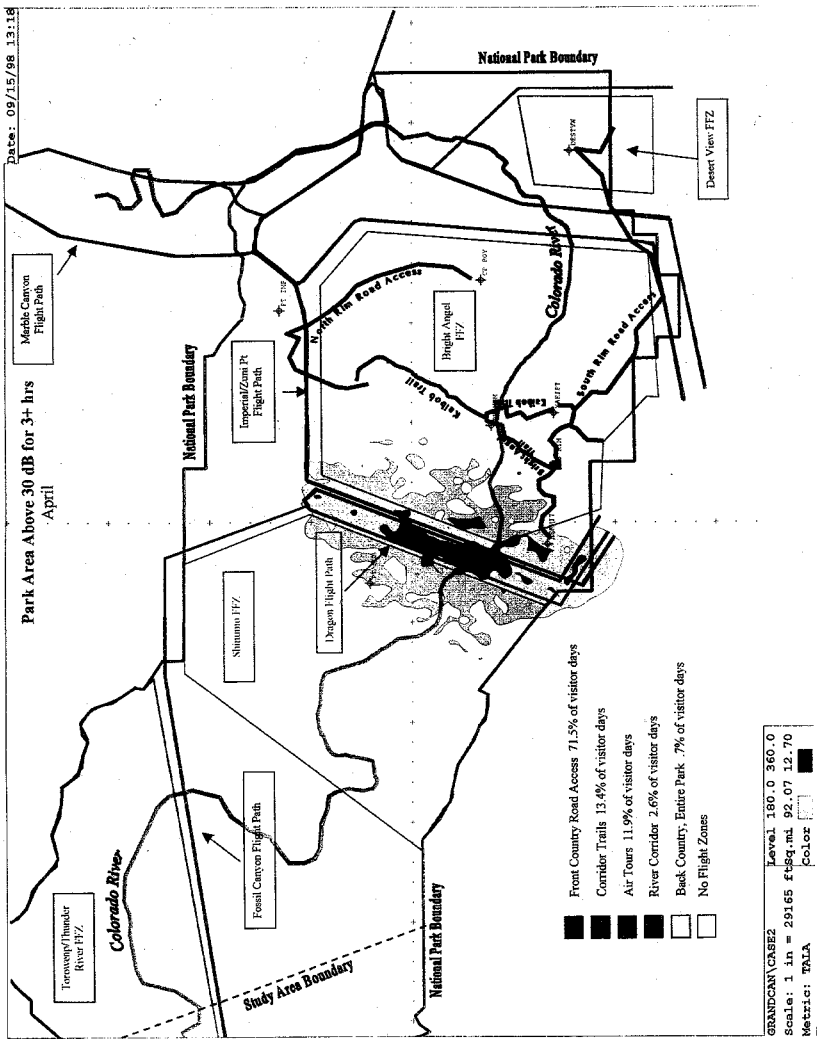
We believe that the National Park Service policy guidance on planning and wilderness properly reflects the spirit and intent of the Wilderness Act (Public Law 88-577; 16 U.S.C. 1131-1136). We also believe that the Grand Canyon National Park staff has made a well-founded, reasoned and positive effort to provide all stakeholders with the necessary information and an opportunity to respond to management proposals and concepts within the context of the administering laws. The complexities of the legal structure and the changes in park legislation, boundaries, relationships to tribal neighbors, and type and magnitude of visitor usage over the past 20 years bring potential need for changes to past proposals and potential new issues into the management picture. For these reasons, among others, we recognize the need for this public planning effort and we are committed, along with many other stakeholder groups, to participating openly and constructively in that process.

We believe that it is important for the future management programs to be discussed between and among the stakeholders in the context of their impacts upon various visitors and their park experience. It is important that the 94 percent of the Park recommended to Congress for wilderness designation has an up-to-date, well designed and cohesive management strategy known and understood by the people affected by such designation. And, we believe that the interested public deserves to have this opportunity for input and deserves to have their identified concerns and ideas addressed by the park's professional staff.

As we have said recently in a letter to all members of this Committee, we believe that it would be premature for Members of Congress to initiate legislative actions affecting individual elements of the management issues being considered prior to completion of the final Wilderness Management Plan and Colorado River Management Plan. Intervention prior to completion of those plans would, in our view, be counterproductive. Ultimately, the final decisions about wilderness designation, its integration with river management, Wild and Scenic River designation and related matters will rest with this Committee and the Congress. Those decisions can be aided and improved by the proper completion of the process now underway at the park.

There are several other important issues and Administrative processes occurring in and around Grand Canyon National Park. For example, we and others continue to be involved in the issues associated with the regulation of air tour overflights. We are deeply concerned about deterioration in major components of the park infrastructure and the urgent need for vastly improved mass transit to the park and a well planned and executed people-mover system within the park. Although I have elected to focus this testimony on the wilderness and river management planning as suggested in the Committee's invitation to testify, I would be happy, to the extent that I have sufficient background and information, to respond on behalf of The Wilderness Society to questions on other matters affecting future park management and visitor experience.

Again, I thank you for the opportunity to comment on matters affecting this important icon of America's National Park System.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April
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National Park Boundary
Imperial/Zoni Pt Flight Path
North Rim Road Access
Bright Angel FFZ
Colorado River
South Rim Road Access
Desert View FFZ
Tuweep/Thunder River FFZ
Fossil Canyon Flight Path
Shinumo FFZ
Dragon Flight Path
Study Area Boundary
National Park Boundary
Front Country Road Access 71.5% of visitor days
Corridor Trails 13.4% of visitor days
Air Tours 11.9% of visitor days
River Corridor 2.6% of visitor days
Back Country; Entire Park .7% of visitor days
No Flight Zones
GRANDCAN\CASE2
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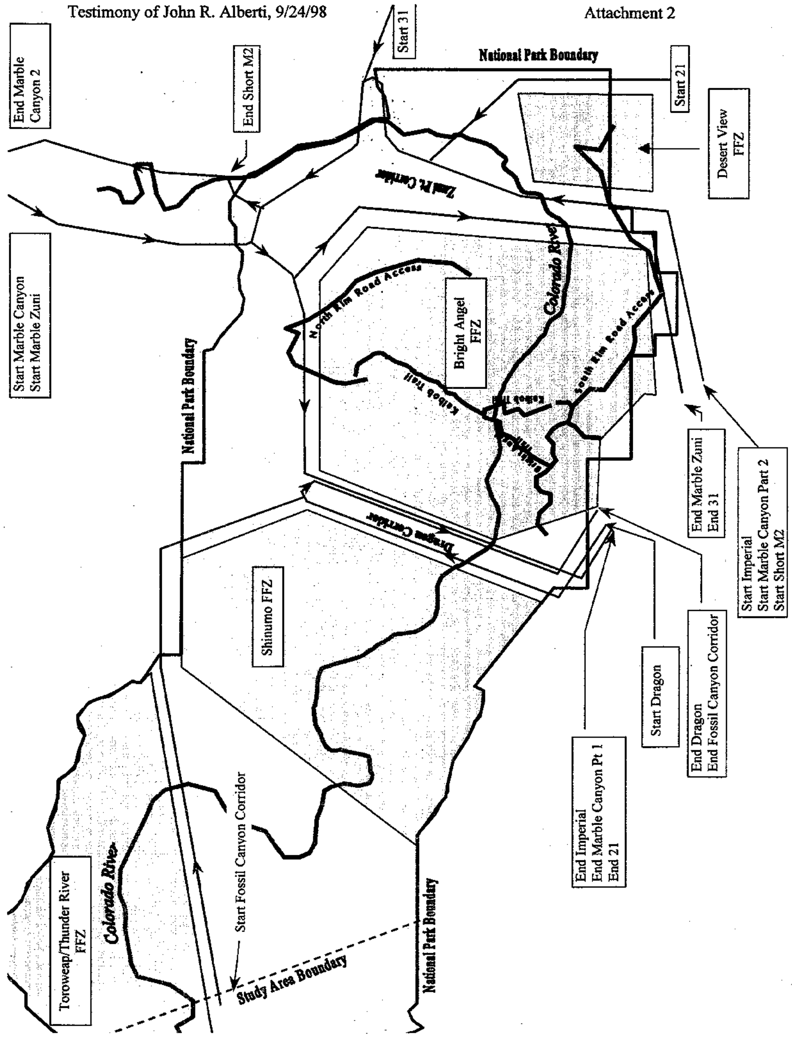
Metric: TAIA
Level 180.0 360.0
Color

Testimony of John R. Alberti, 9/24/98 Attachment 2



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ANALYSIS REPORT

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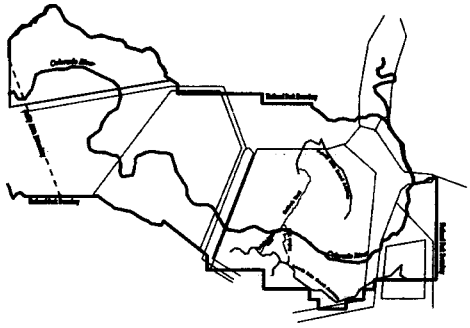

ANALYSIS OF NATIONAL PARK SERVICE DATA ON AIR TOUR OVERFLIGHT SOUND AT GRAND CANYON NATIONAL PARK

Prepared for:

Helicopter Association International
On behalf of:
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ANALYSIS REPORT

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July 25, 1997

LOG OF REVISIONS

Rev	Date	Affected Pages / Changes	Initial

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REFERENCES:

1. *"Draft Environmental Assessment – Special Flight Rules in the Vicinity of Grand Canyon National Park"*, Jeff Griffith (ATA-1), FAA/BIA/NPS, 8/20/96

2. NPOA Report No. 93-1, *"Evaluation of the Effectiveness of SFAR 50-2 in Restoring Natural Quiet to Grand Canyon National Park – Final Report"*, S. Fidell, K. Pearsons, M. Sneddon, BBN Systems and Technologies, 6/23/94.

3. *"Draft Environmental Assessment – Noise Limitations for Aircraft Operations in the Vicinity of Grand Canyon National Park"*, Jeff Griffith (ATA-1), FAA/NPS, 12/24/96

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1.0 INTRODUCTION

1.1 Summary

New restrictions on flight operations have been imposed on tour aircraft in Grand Canyon National Park. The basis for this change is government studies claiming that aircraft noise would be audible in large areas of the park under existing rules.

Our analysis shows, however, that the government studies were biased and misleading due to several invalid and unscientific assumptions that overstate the sound levels and sound detectability. For example, their studies zero out the sound attenuating effects of trees, loose soil and other surface features. Their studies further assume a threshold of detectability that is lower than that shown by the government's own research.

When these errors are corrected, the result is that over 95% of the Park will meet the Park Services own definition of "natural quiet" in the busiest month for air tours (July).

We have evaluated this hypothesis from two different analytical perspectives:

Study A: The INM 5.0 study commissioned by the National Park Service (NPS) and performed by the Federal Aviation Administration (FAA), as reported in the Draft Environmental Assessment, Reference 1. This study was used by the NPS to justify more restrictive flight rules.

Study B: Our INM 5.1 study of operations in the Eastern end of the Park using actual 1996 aircraft operations as reported by the operators. This reflects what actually happened in 1996.

Even tested against the NPS's rather extreme and controversial definition of "substantial restoration of natural quiet," each of these analyses demonstrates that "natural quiet" has been restored under SFAR 50-2. These results are particularly compelling in the case of Study A since:

(a) This study, was conducted on behalf of NPS, using the NPS's and FAA's data, and;
(b) This study was not a neutral analysis and based on generally accepted practices in evaluating aircraft noise. Certain assumptions were made in the methodology of this study. These assumptions systematically bias the results in a manner that has the effect of obscuring the fact that "natural quiet" had been restored under SFAR 50-2.

1.2 Objective

The objective of this report is to explore and illuminate the assumptions underlying the government study of noise in Grand Canyon National Park, and to provide a technically neutral evaluation of the "restoration of natural quiet" therein.

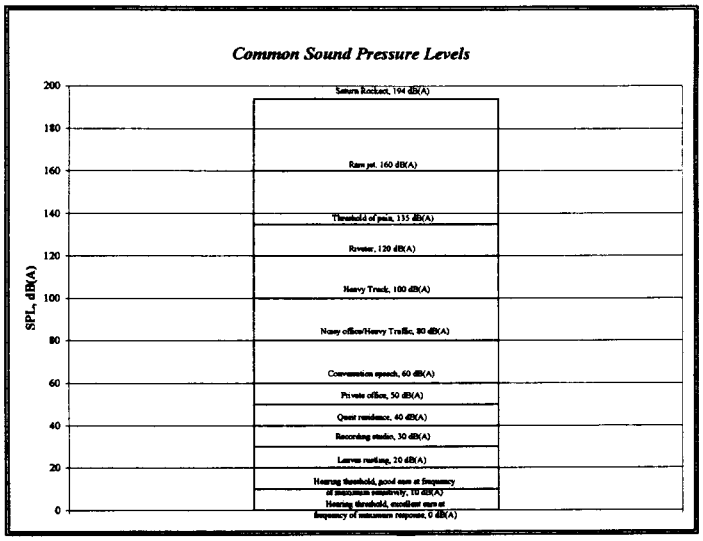
2.0 ANALYSIS

2.1 What Is "Natural Quiet?"

The National Park Service (NPS) in its 1994 Report to Congress, stated that "substantial restoration of natural quiet" will have occurred when at least 50% of the park is free of noticeable noise from sightseeing flights at least 75% of the time. (This definition has been challenged in court as too extreme, but our analysis shows that even this very demanding standard for "natural quiet" has been and is being met. It is being met, in fact, in far more than 50% of the Park.)

The Draft Environmental Assessment that accompanied the new Grand Canyon rules (Reference 3) indicates that the NPS has defined "noticeability" to mean a 3 dB(A) increase above the ambient sound level at any particular location. It has, further, assigned ambient noise levels in the neighborhood of 15 dB(A) to 17 dB(A) to most of the Park. These levels barely exceed the threshold of hearing (See Figure 2.1) and would be exceeded by rustling leaves, any hint of wind, or hikers' footsteps.

FIGURE 2.1: COMMON SOUND LEVELS



The BB&N study conducted in 1994 under NPS contract and reported in Reference 2 provides a more useful data set. This study found that 30 dB(A) is the average level at which observers sent into the Canyon first detected aircraft noise above the ambient level (onset), and were no longer able to detect the aircraft sound (offset). This is shown in Figure 2.2 (Figure E-4 from Reference 2)[1].

Reference 2 also correctly observes (Section 4.8) that noticeability of aircraft noise for someone not specifically engaged in listening for aircraft noise would occur at a 10 dB higher signal to noise ratio than for a vigilant observer. In our INM studies, we, conservatively, used the 30 dB(A) "observed" onset, offset level for vigilant observers.

FIGURE 2.2: MEAN SOUND LEVEL AT ONSET AND OFFSET OF DETECTABILITY
(Figure E-4 from Reference 2)

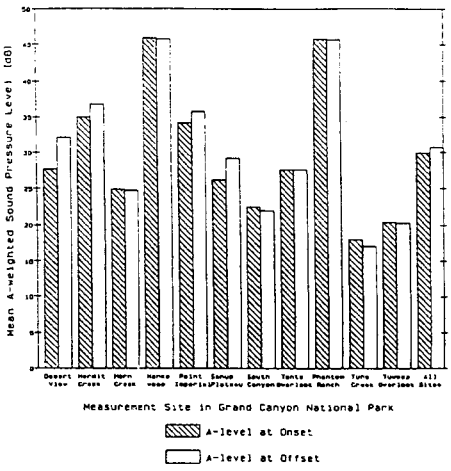


Figure E-4 Mean A-weighted sound pressure levels by site at onset and offset for air tour aircraft.

[1] Note that 30 dB(A) is the average level for onset and offset of detectability, individual sites having higher or lower levels. Since, the NPS criterion for "substantial restoration of natural quiet" requires that a "natural quiet" exist in 50% of the park, an average level is appropriate.

2.2 Noise Projections Using Integrated Noise Model (INM)

FAA developed the Integrated Noise Model (INM) for use in calculating community noise impacts in the vicinity of airports. This model is inherently conservative for application at the Grand Canyon because it does not fully account for the blocking effect of terrain between the source and observer. Version 5.1 is the most recent release of INM.

2.2.1 Study A: FAA INM 5.0 Study (Reference 1):
Assumptions Leading to Overstatement of Noise Impact

The INM 5.0 noise analysis commissioned by the NPS incorporates a number of unusual and erroneous assumptions that consistently cause overstatement of noise impact. These biasing errors include:

2.2.1.1 Incorrect Helicopter Speed Correction

Reference 3, Table 4.1.2a, shows that the government **increased** helicopter sound levels taken from the Helicopter Noise Model (HNM)[2] by 1.1 to 1.5 dB. This ostensibly corrects the Sound Exposure Level (SEL) from test speed (116 – 128 kt) to Grand Canyon tour cruise speed (90 kt)[3].

The HNM, however, shows SEL **decreasing** as airspeed decreases to 90 kt[4]. The effect of this error is to overstate helicopter sound levels in the Grand Canyon.

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[2] HNM is an FAA developed program for computing sound from helicopters. FAA states that it plans to incorporate the HNM in the Integrated Noise Model (INM). The present INM Version 5.1 data base contains only fixed wing aircraft.

[3] This appears to be a correction for sound duration based on 10LOG(Vref/V). It ignores the more powerful effect of advancing tip mach number on helicopter sound. The reduction in advancing tip mach number at lower air speed causes the time integrated sound level, Sound Exposure Level (SEL), to decrease or remain the same, as airspeed decreases.

[4] We computed and averaged SEL directly under the flight path and 500 ft to either side, for a 500 ft flyover using HNM version 2.2. This produced the following:

- Aerospatial AS350D, SEL = 83.2 dB at 116 kt, 83.0 dB at 90 kt, a 0.2 dB reduction.
- Bell 206L, SEL = 82.2 dB at all speeds, no speed correction provided..

2.2.1.2 Elimination of Lateral Ground Sound Attenuation from the INM.
(This is sound absorption by ground and attenuation through disturbed air near the ground, not blocking by a barrier.)

The government **altered the code of INM Version 5.0** to remove the computation of lateral over-ground attenuation[5]. This alters the program's basic computational method in a way that is inconsistent with all other sound studies conducted with this program, including those conducted under FAA regulation. The effect of this alteration is to overstate sound levels of all aircraft in the Grand Canyon.

The reason given for this alteration of the INM is that lateral over-ground attenuation *"is oriented toward acoustically soft, grassy terrain unlike that found at the Grand Canyon"*. This assertion is difficult to reconcile with the following:

1) As noted in Reference 3, much of the terrain above 2000 meters (6560 ft) is covered with conifer forest or other vegetation. These areas are very "soft", acoustically. Further, lateral over-ground attenuation occurs mainly in these higher elevation areas where sound propagation from an aircraft at 7500 to 9500 ft is more nearly horizontal compared with propagation to lower elevation points[6].

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[5] The final EA, Reference 3, states (Section 4.1.2) that *"The INM is the FAA's standard computer methodology for assessing and predicting aircraft noise impacts. It's use in regulatory actions is governed by FAA Order 1050.1D, 'Policies and Procedures for Considering Environmental Impacts', under the National Environmental Policy Act (NEPA)."*

As provided to the acoustical engineering community by the FAA, INM version 5.0 (or the latest version, 5.1) does not have a user selectable input to turn lateral attenuation **OFF**. Thus, when used pursuant to Order 1050.1D, lateral attenuation is always **ON.**

[6] The INM lateral over-ground attenuation model produces maximum attenuation for horizontal propagation, decreasing to zero as elevation angle increases to 60° or more.

- Thus, for an aircraft flying at 9000 ft, MSL, the elevation angle from an observer on the canyon floor (3800 ft, MSL), 3000 ft to the side would be arcTAN((9000-3800)/3000) = 60° and the INM would have calculated zero lateral over-ground attenuation, altered or not.
- For an observer on the forested north rim at 8000 ft, MSL (and 3000 ft to the side), the elevation angle would be arcTAN((9000-8000)/3000) = 18.4° and the unaltered INM would (quite correctly) have calculated a 3.6 dB lateral over-ground attenuation. The FAA-altered INM would, thus, overstate the noise level by 3.6 dB, in this example.

2) Loose, dry dirt and gravel (in addition to grass, shrub and other vegetation) are common in areas of the canyon where people are likely to be (i.e. places other than sheer canyon walls). This terrain is nearly as "soft" acoustically as a grass lawn.[7]
3) In addition to the impedance match of earth and air, lateral over-ground attenuation is affected by disturbance of the atmosphere by the ground, including wind turbulence and temperature gradients.
4) If it is correct to alter the INM such that lateral over-ground attenuation is disabled whenever some acoustically "hard" terrain exists in the area of interest, then: this alteration should be required when the INM is used, under FAA oversight, to predict sound around urban and suburban airports where parking lots, freeways, buildings, bodies of water or other acoustically "hard" areas may be present. This alteration is, of course, never done (outside of the Grand Canyon) and cannot be done by an engineering user outside of FAA.
5) The EA (Reference 1) offers Appendix C (an 8/9/94 Memo from Gregg Fleming) to prove the validity of eliminating of lateral over-ground attenuation in this application. Appendix C compares measured levels in the Grand Canyon with predictions by the altered INM.
6) The data presented in Appendix C, however, shows that the INM predictions (without lateral ground attenuation) usually exceeded the corresponding measurements. Figure 2.3 (Figure 2 from Reference 1, Appendix C) shows this for DHC-6 Twin Otters. The text of Appendix C acknowledges the following over-predictions:

   (a) A 3 dB average over-prediction in this case (DHC-6) at sites 1 and 2[8];
   (b) A 2 dB average over-prediction for a mix of Cessna 182, 207 and 414A aircraft at sites 1 and 2[9];
   (c) A 0.5 dB average over-prediction of a mix of Bell models 206 and 206L and Aerospatiale models 350 and 355 helicopters at sites 1 and 2.[10]
   (d) A 1.7 dB average over prediction for 13 hourly L_{EQ} measurements and predictions at two sites (3 and 15)
   (e) A 9.9 dB average over-prediction for 9 hourly L_{EQ} measurements and predictions at Site 16.

---

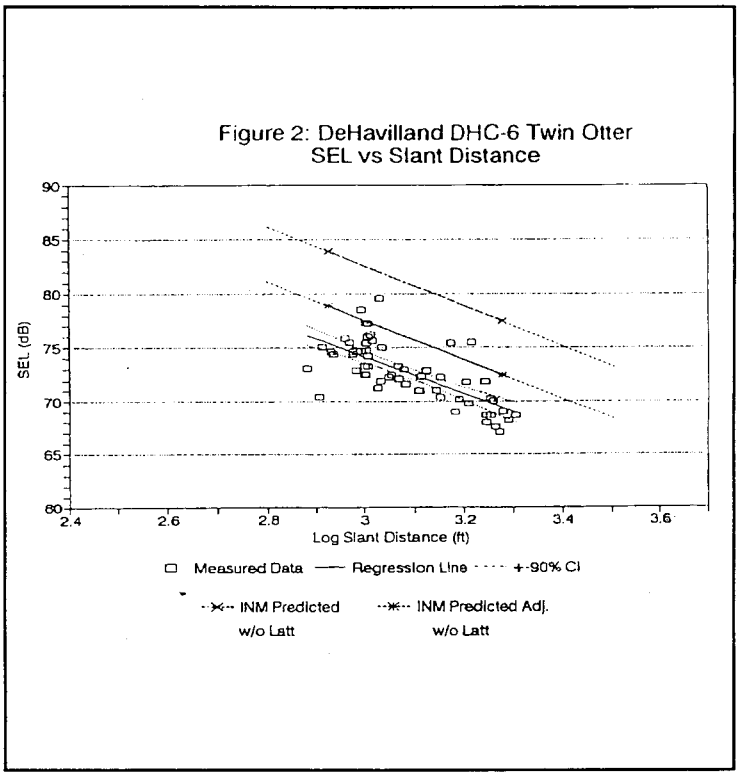
[7] The US Department of Transportation's TNM (Traffic Noise Model), used to compute over-ground sound propagation around highways, assigns a 300 cgs Rayl effective impedance to lawn grass and 500 cgs Rayls to loose soil and gravel. For comparison granular snow is assigned 40 cgs Rayls (very soft) and pavement or water 20,000 cgs Rayls (very hard). From Reference 4.

[8] Slant range varied from about 500 ft to 2000 ft. Elevation angles were not given, but it is probable that many data points were at high elevation angles where the unaltered INM would have calculated little or no lateral over-ground attenuation. Thus the over-prediction could be greater at larger lateral distances.

[9] Slant range varied from about 700 ft to 2500 ft. Comment from footnote 8 applies.

[10] Slant range varied from about 300 ft to 3000 ft, with most of the data points between 300 ft and 1000 ft. Comment from footnote 8 applies.

FIGURE 2.3: COMPARISON OF MEASURED DHC-6 SOUND LEVEL WITH PREDICTION INM 5.0 WITH LATERAL OVER GROUND ATTENUATION DISABLED
(Figure 2 from Reference 1, Appendix C)



2.2.1.3 Assumption of 12-Hour Day

The NPS's INM 5.0 study assumes that a day is 12 hours long, rather than 24 hours long. This assumption increases LAEQ values 3 dB above their 24-hour day values. This also doubles the percent time above a threshold sound level (%TA) values compared with a 24 hour day.

24 - hour users of the Park such as, back country hikers and river corridor users are the most noise sensitive groups.

2.2.1.4 "Natural Quiet" Restored in Spite of Bias

Table 2.1 (Table 4.6 from Reference 1) shows that, even with the biasing effects of the above assumptions, the tour aircraft noise level was below 30 dB(A) 75% of the time in 2267 – 322 = 1945 square miles of the 2267 square mile study area. In other words, **86% of the park was free of noticeable tour aircraft noise 75% of the time**. This more than meets the NPS definition of "substantial restoration of natural quiet."

TABLE 2.1: AREAS WITHIN 25% TIME ABOVE CONTOURS FROM GOVERNMENT INM 5.0 STUDY
(Table 4.6 from Reference 1)

Table 4.6

% Time Above Contour Areas

	1995 Base Case		1995 Alternative		% Change from Base Case
	%TA Contour Area (Sq. Mi.)	% of Analysis Area (2,267 Sq. Mi.)	%TA Contour Area (Sq. Mi.)	% of Analysis Area (2,267 Sq. Mi.)	
10	758.12	33.4%	901.77	39.8%	15.9%
20	549.04	24.2%	516.99	22.8%	-6.2%
25	465.55	20.5%	415.76	18.3%	-12.0%
30	321.67	14.2%	282.59	12.5%	-13.8%
40	136.50	6.0%	149.76	6.6%	8.9%
50	80.03	3.5%	99.91	4.4%	19.9%
60	65.25	2.9%	57.53	2.5%	-13.4%
70	52.77	2.3%	42.82	1.9%	-23.2%

One would have to assume a threshold of noticeability below 10 dB(A) in absolute terms to find that "natural quiet" had been "substantially restored" to less than half of the park. Any reasonable understanding of the science of acoustics cannot support such a low threshold.

2.2.2 Study B: INM 5.1 Study of 1996 Tour Aircraft Operations Using Actual Operations Data

This study was conducted in the eastern end of the Park and encompassed the Fossil Canyon, Dragon, Zuni and Marble Canyon Corridors, an area of 1058 square miles bordered by a line running 2-5 miles east of Route Blue 1 to the east end of the Park. We did not evaluate noise from the Blue 1 route.

Tour operators provided aircraft operations data for the months of January through July. Appendix A provides contours of the time above the threshold of noticeability (30 dB(A)) for each month. Note that the largest time above contour is for 180 minutes (3 hours). The smaller, 360 minute (6 hours) contour is the significant one, representing 25% of 24 hours. Appendix A also details the underlying assumptions and sources of this information.

Table 2.2 shows that actual 1996 air tour operations in the Eastern end of the Park easily met the NPS definition of "substantial restoration of natural quiet." (At least 50% of the Park free of noticeable tour aircraft noise at least 75% of the time.)

TABLE 2.2: COMPUTED IMPACT OF TOUR AIRCRAFT ON "NATURAL QUIET" IN EASTERN GRAND CANYON NATIONAL PARK BASED ON 1996 OPERATIONS WITH 1996 AIRCRAFT

MONTH	Percent Area Above 30 dB(A)	Percent Area "Naturally Quiet"[11]
JANUARY	0%	100%
FEBRUARY	0%	100%
MARCH	0%	100%
APRIL	<0.1%	>99.9%
MAY	2.0%	98.0%
JUNE	3.1%	96.9%
JULY	4.6%	95.4%

Appendix B provides clear overlays showing these contours with respect to the park topographical contours and the areas where visitors actually spend time in the park. Overlaying the latter on the contours of Appendix A shows that, even in the busiest months, only that fraction of back country users (0.7% of visitor days) who choose to use the Dragon Corridor and River Corridor users (2.6% of visitor days), while crossing the Dragon Corridor would experience anything other than "natural quiet" as a result of air tour operations.

[11] Sound level from tour aircraft below 30 dB(A) at least 75% of day.

3.0 CONCLUSIONS

1. The government study shows that "substantial restoration of natural quiet" has occurred under SFAR 50-2 in spite of numerous invalid assumptions tending to bias the result in the opposite direction.

2. A technically neutral study shows that "substantial restoration of natural quiet" has occurred by an overwhelming margin under SFAR 50-2

APPENDIX A: Grand Canyon INM Noise Study

Study Conditions

- Temperature 59° F
- Noise associated with airport activities is not included in test data
- 80% of flights are on flight track, 20% are ± .05 nmi off flight track

Summary of operations on *Average Daily Operations* for 1996 table

Flight Profiles

-
- Per diagram and Tables
- Speed is constant at 90 KCAS (approx. 101.5 KTAS)
- Altitudes per FAA SFAR 50-2 chart

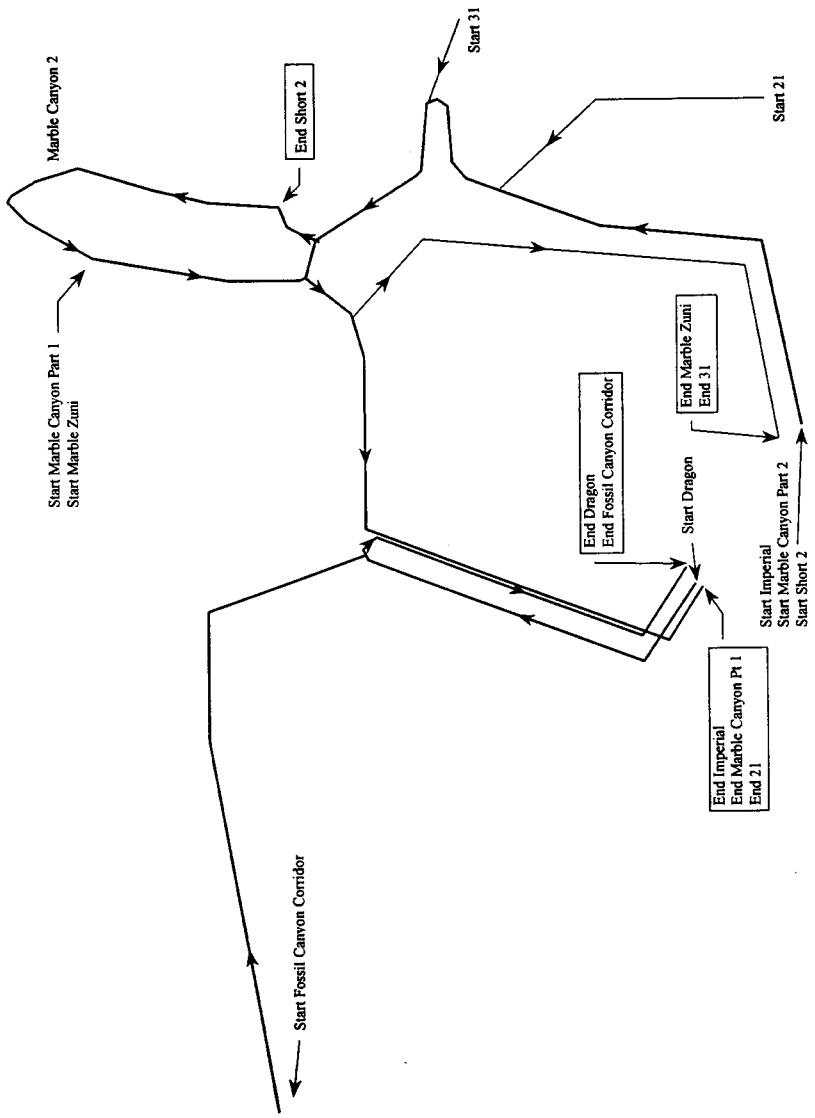
Aircraft Selection and Noise Data Base

A list of the aircraft in use as of 1996 was provided by the tour group operators. The helicopters are the Bell 206B, the Bell 206L-1, the Bell 206L-3, the Bell 206L-4, and the Aerospatiale SA350D. The airplanes were the Cessna 172, 172R, 177, 182, 182R, 207, 208 and the DeHavilland DHC6Q.

Not all of the above aircraft are in the INM database so some aircraft data and noise profiles had to be created. The Cessnas were available as an approved substitute aircraft in INM. No changes were made to its database. The noise curves for the Bell 206B, 206L-1, and 206L-3 were provided by John Daprile of the Volpe National Transportation Systems Center. The 206L-4 was incremented +.6 dB above the 206B.

The DHC6Q noise curves were based on the noise curves in the INM for the DHC6 and reduced 5.1 dB based on data provided by Raisbeck Engineering, the makers of the quiet propellers. Noise data for the SA350D was obtained from the HNM version 1 user's guide. (An average of left, right and center sound levels was used and the advancing tip mach correction was applied to correct to 90 KCAS).

For the NPD data used, see the following tables. Note that the noise identifier for the Cessna 172, 172R, 177, 208 and 210 is GASEPF. That for the Cessna 182, 182R is GASEPVP. That for the Cessna 207 is CT207A.


Marble Canyon 2
End Short 2
Start 31
Start 21
Start Marble Canyon Part 1
Start Marble Zuni
End Marble Zuni
End 31
End Dragon
End Fossil Canyon Corridor
Start Dragon
Start Imperial
Start Marble Canyon Part 2
Start Short 2
End Imperial
End Marble Canyon Pt 1
End 21
Start Fossil Canyon Corridor

Grand Canyon Noise Study with Current Aircraft

Average Daily Operations
Includes Operations by Scenic

GASEPF = sum of operations by Cessna 172,172R,177,208,210
GASEPV = sum of operations by Cessna 182,182R

Plane/	Routes				January					
Helicopter	Imperial	Dragon	FCC	Marble1	Marble2	Short M2	MarZuni	21.0	31.0	Totals
B206B,L	3.8	21.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	26.3
B206L-4	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
GASEPF	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.3	0.1	2.0
GASEPV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CT207A	6.0	0.0	0.0	0.0	0.0	0.2	0.8	0.4	0.1	7.5
DHC6Q	4.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	4.8
MDH600										0.0
S55QT										0.0
SA350B	0.5	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4
Totals	14.4	25.2	0.7	0.0	0.0	0.3	1.7	2.1	0.2	44.6

Plane/	Routes				February					
Helicopter	Imperial	Dragon	FCC	Marble1	Marble2	Short M2	MarZuni	21.0	31.0	Totals
B206B,L	3.0	16.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	20.4
B206L-4	0.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5
GASEPF	0.0	0.0	0.0	0.1	0.1	0.1	0.5	1.2	0.0	2.0
GASEPV	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
CT207A	6.6	0.0	0.0	0.0	0.0	0.2	0.5	0.3	0.1	7.7
DHC6Q	4.4	0.0	0.0	0.0	0.0	0.0	0.6	0.3	0.0	5.4
MDH600										0.0
S55QT										0.0
SA350B	0.5	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4
Totals	15.0	22.8	0.5	0.1	0.1	0.3	1.7	1.8	0.2	42.5

Plane/	Routes				March					
Helicopter	Imperial	Dragon	FCC	Marble1	Marble2	Short M2	MarZuni	21.0	31.0	Totals
B206B,L	7.6	43.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	51.7
B206L-4	1.7	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5
GASEPF	0.0	0.0	0.0	0.1	0.1	0.1	0.7	1.6	0.2	2.7
GASEPV	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2
CT207A	17.4	0.0	0.0	0.0	0.0	0.2	1.2	0.6	0.2	19.7
DHC6Q	7.4	0.0	0.0	0.0	0.0	0.2	1.1	0.5	0.1	9.3
MDH600										0.0
S55QT										0.0
SA350B	2.1	12.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2
Totals	36.2	65.9	1.1	0.1	0.1	0.6	3.1	2.7	0.6	110.3

Plane/	Routes				April					
Helicopter	Imperial	Dragon	FCC	Marble1	Marble2	Short M2	MarZuni	21.0	31.0	Totals
B206B,L	12.6	71.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	85.4
B206L-4	2.4	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8
GASEPF	0.0	0.0	0.0	0.3	0.3	0.4	0.9	1.6	0.3	3.8
GASEPV	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2
CT207A	20.2	0.0	0.0	0.0	0.0	0.5	1.1	0.9	0.4	23.1
DHC6Q	11.1	0.0	0.0	0.0	0.0	0.3	1.5	0.2	0.2	13.2
MDH600										0.0
S55QT										0.0
SA350B	2.1	12.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2
Totals	48.4	96.7	1.6	0.4	0.4	1.2	3.6	2.7	0.8	155.7

Grand Canyon Noise Study with Current Aircraft

Plane/	May									
Helicopter	Imperial	Dragon	FCC	Marble1	Marble2	Short M2	MarZuni	21.0	31.0	Totals
B206B,L	17.4	99.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	118.9
B206L-4	1.9	10.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8
GASEPF	0.0	0.0	0.0	0.4	0.4	1.2	1.6	1.1	1.4	6.1
GASEPV	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.2	1.1
CT207A	25.0	0.0	0.0	0.4	0.4	0.7	1.0	0.8	1.2	29.5
DHC6Q	9.4	0.0	0.0	0.3	0.3	0.6	1.9	0.0	0.6	13.0
MDH600										0.0
S55QT										0.0
SA350B	2.1	12.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.2
Totals	55.8	122.0	2.5	1.3	1.3	2.6	4.7	2.0	3.4	195.5

Plane/	June									
Helicopter	Imperial	Dragon	FCC	Marble1	Marble2	Short M2	MarZuni	21.0	31.0	Totals
B206B,L	18.1	102.8	2.8	0.0	0.0	0.0	0.0	0.0	0.0	123.7
B206L-4	1.8	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.2
GASEPF	0.0	0.0	0.0	0.6	0.6	0.8	0.9	0.5	1.5	4.9
GASEPV	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.0	0.0	0.8
CT207A	26.8	0.0	0.0	0.1	0.1	0.6	0.7	0.5	1.6	30.5
DHC6Q	14.9	0.0	0.0	0.0	0.0	0.9	2.1	0.0	0.5	18.5
MDH600										0.0
S55QT										0.0
SA350B	3.6	20.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.8
Totals	65.2	133.4	2.8	1.0	1.0	2.4	3.8	1.0	3.6	214.3

Plane/	July									
Helicopter	Imperial	Dragon	FCC	Marble1	Marble2	Short M2	MarZuni	21.0	31.0	Totals
B206B,L	19.7	111.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	134.0
B206L-4	1.7	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
GASEPF	0.0	0.0	0.0	0.5	0.5	0.9	1.1	0.4	2.0	5.5
GASEPV	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.4	0.2	1.3
CT207A	33.1	0.0	0.0	0.3	0.3	0.7	0.5	0.4	1.8	37.2
DHC6Q	26.5	0.0	0.0	0.0	0.0	0.9	2.0	0.0	0.7	30.0
MDH600										0.0
S55QT										0.0
SA350B	3.6	20.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.8
Totals	84.6	141.3	3.0	1.1	1.1	2.6	3.7	1.2	4.7	243.3

Only the above routes flown by Papillon,GCA,AGC,Scenic,Airstar, and Kenai are included in study.
All other flights are exlcuded.
Flights for Native Americans are not included.

See attached map for flight path starting and ending points.

JR ENGINEERING

APPENDIX B:

OVERLAYS FOR SOUND LEVEL CONTOURS

1. Grand Canyon Topographical Contours
2. Areas Used by Park Visitors

QUIETLY SUPERIOR.

JR

E N G I N E E R I N G
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TESTIMONY BEFORE THE U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON RESOURCES

SUBJECT: CRITIQUE OF ACOUSTICAL INFORMATION PRESENTED IN, *"Report To Congress – Report On Effects Of Aircraft Overflights On The National Park System"*, NPS, 9/12/1998[1]

DELIVERED BY: John R. Alberti, Thursday, September 24, 1998

Introduction

My name is John Alberti, owner of Quietly Superior, Inc. doing business as J R Engineering. My company specializes in acoustics, particularly aircraft noise. We are authorized by FAA to perform noise certification tests on all categories of aircraft. I have been appointed a Designated Engineering Representative (DER), authorized to represent FAA in the fields of acoustics and performance (flight analyst). (See Curriculum Vitae, Attachment 1)

My company became involved in the Grand Canyon noise issue five years ago when Elling Halvorson, owner of Papillon Grand Canyon Helicopters, approached me to assist in the development of a large, ultra-quiet helicopter. This is an extraordinary undertaking for an operator and is only now nearing FAA approval after more than five years.

Quiet aircraft, such as the S-55QT, offer the best technical solution to making aerial tours available to the public, while protecting the quiet environment of the park. For example, a 10 dB noise reduction, as demonstrated by the S-55QT, reduces the time the aircraft is audible by half and the land area over which it is audible by at least half. Even the very severe flight restrictions proposed by the national Park Service (NPS) cannot begin to approach this level of noise mitigation.

My point is not to sell S-55QT's, but to observe that the development of quiet aircraft is:

1. Extremely desirable;
2. An extremely costly, lengthy and risky undertaking; and
3. Extremely difficult to justify if one cannot be sure of unbiased, scientifically valid treatment of acoustics by the cognizant regulatory agencies.

This brings us to the point of this hearing.

[1] *"Report To Congress – Report On Effects Of Aircraft Overflights On The National Park System"*, NPS, 9/12/1998

Testimony of John R. Alberti, 9/24/98

The 1994 Report to Congress

The principal conclusions of the Subject Report to Congress[1] is that 'substantial restoration of natural quiet' has not occurred under the existing Special Flight Area Rules, SFAR 50-2, that tour aircraft noise is a major problem, and that more stringent flight restrictions are needed. The report defines 'substantial restoration of natural quiet' as being achieved when 50% or more of the park is free of noticeable noise from air tour aircraft 75% or more of the time

SFAR 50-2 sets aside about 45% of the park area as Flight Free Zones (FFZ). Tour aircraft routes are defined by FAA and exist only in the corridors between FFZs. Attachment 2 shows the routes and FFZs in the East End of the park.

In reviewing this report, I find the most prevalent error is that of *non-sequitir*. It states or suggests conclusions not supported by its own data. Examples include:

- On page 1.1: *"The overflight of a single aircraft... produces non-natural sound levels that...may, if flying low enough and fast enough, startle visitors or the horses/mules of horses or mules resulting in some risk of injury."* There is no data to substantiate even one such case.
- On page 4.13 (Attachment 3) Figures 4.6 and 4.7 suggest the sonic bombardment of a historic site and a cultural resource by a helicopter. At length, the text reluctantly admits that there is no evidence whatever of damage to structures by tour aircraft noise.

Further to 'substantial restoration of natural quiet', when NPS sent acoustical technicians into the park to measure noise at locations expected to have high noise, most of the stations reported tour aircraft audible less than 25% of the time. (Note that the operators are doing nothing except looking and listening for aircraft, thus are more sensitive than a typical park visitor.)

- Attachment 4, their Table 9.2 (p 9.9) shows tour aircraft audible less than 25% of the time at 8 of 11 positions (73%) under flight free zones.
- Note that Conclusion 9.4 on the same page states, *"Even when aircraft are audible for relatively low percentages of time, a percentage of the visitors can notice the aircraft and believe that the sound has interfered with their appreciation of natural quiet."* Table 6.5 (p 6.9) gives those percentages. Of all visitors interviewed (and specifically asked about noise): 5% were annoyed or thought the noise interfered with their enjoyment, 10% thought it interfered with 'natural quiet' and 66% did not notice any aircraft noise. In most aircraft noise studies, 5% annoyance is considered no significant impact.
- Note also the emphasis on backcountry, river corridor and cross canyon corridor trail users as the most noise sensitive groups.
- Attachment 5, their Table 9.3 (p 9.10) shows tour aircraft audible less than 25% of the time at 7 of 12 positions (58%) under flight corridors, the noisiest part of the park.

Only their home grown 'National Park Service Overflight Decision Support System ('NODSS') computer program tells a contrary story, claiming that tour aircraft are audible less than 25% of the time in only 34%. of the park (Based on 1989 operations data). Since they do not say how this program computes noise or what inputs were used, it is impossible to review the results except by doing our own study with industry standard software.

We did exactly that for the East end of the park in a report prepared last year[2] and found tour aircraft audible less than 25% of the time in 95% of our study area. (Re-running with updated software lowers that to 93%). In any event we demonstrated 'substantial restoration of natural quiet.

The FAA/NPS Report[3]

Our Reference 2 report (referenced above) began with a request by Elling Halvorson that we review a draft environmental assessment report[3] that drew conclusions that seemed inconsistent with his first hand observations. This report, unlike the earlier Report to Congress[1] included noise projections based on the industry standard Integrated Noise Model (INM 5.0), and was intended to substantiate Reference 1.

The FAA/NPS Draft Environmental Assessment[3] contained several significant errors and invalid assumptions all of which tended to overstate the noise exposure in the park.

(A) Unreasonably Low Threshold of Noticeability: The Draft Environmental Assessment that accompanied the new Grand Canyon rules[4] indicates that the NPS has defined "noticeability" to mean a 3 dB(A) increase above the ambient sound level at any particular location. It has, further, assigned ambient noise levels in the neighborhood of 15 dB(A) to 17 dB(A) to most of the Park. These levels barely exceed the threshold of hearing (See Figure 2.1) and would be exceeded by rustling leaves, any hint of wind, or hikers' footsteps.

The BB&N study conducted in 1994 under NPS contract[5] provides a more useful data set. This study found that 30 dB(A) is the average level at which observers sent into the Canyon first detected aircraft noise above the ambient level (onset), and were no longer able to detect the aircraft sound (offset). This is shown in Attachment 6 (Figure E-4 from Reference 5).

Reference 5 also correctly observes (Section 4.8) that noticeability of aircraft noise for someone not specifically engaged in listening for aircraft noise would occur at a 10 dB higher signal to noise ratio than for a vigilant observer. In our INM studies, we, conservatively, used the 30 dB(A) "observed" onset, offset level for vigilant observers.

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[2] JR Engineering Report, *"Analysis of National Park Service Data on Air Tour Overflight Sound at Grand Canyon National Park"*, J. R. Alberti, K. Mahn, 7/25/1997.

[3] *"Draft Environmental Assessment – Special Flight Rules in the Vicinity of Grand Canyon National Park"*, Jeff Griffith (ATA-1), FAA/BIA/NPS, 8/20/1996

[4] *"Draft Environmental Assessment – Noise Limitations for Aircraft Operations in the Vicinity of Grand Canyon National Park"*, Jeff Griffith (ATA-1), FAA/NPS, 12/24/96

[5] NPOA Report No. 93-1, *"Evaluation of the Effectiveness of SFAR 50-2 in Restoring Natural Quiet to Grand Canyon National Park -- Final Report"*, S. Fidell, K. Pearsons, M. Sneddon, BBN Systems and Technologies, 6/23/94.

(B) Incorrect Helicopter Speed Correction
Reference 4, Table 4.1.2a, shows that the government **increased** helicopter sound levels taken from the Helicopter Noise Model (HNM) by 1.1 to 1.5 dB. This ostensibly corrects the Sound Exposure Level (SEL) from test speed (116 – 128 Kt) to Grand Canyon tour cruise speed (90 kt.)

The HNM, however, shows SEL **decreasing** as airspeed decreases to 90 kt. The effect of this error is to overstate helicopter sound levels in the Grand Canyon.

(C) Elimination of Lateral Ground Sound Attenuation from the INM.
(This is sound absorption by ground and attenuation through disturbed air near the ground, not blocking by a barrier.)

The government **altered the code of INM Version 5.0** to remove the computation of lateral over-ground attenuation. This alters the program's basic computational method in a way that is inconsistent with all other sound studies conducted with this program, including those conducted under FAA regulation. The effect of this alteration is to overstate sound levels of all aircraft in the Grand Canyon.

(D) Assumption of 12-Hour Day
The NPS's INM 5.0 study assumes that a day is 12 hours long, rather than 24 hours long. This assumption increases LAEQ values 3 dB above their 24-hour day values. This also doubles the percent time above a threshold sound level (%TA) values compared with a 24 hour day.

24 - hour users of the Park such as, back country hikers and river corridor users are the most noise sensitive groups.

The cumulative effect of these errors is a substantial over-prediction of noise level.

In our, Reference 2 report we developed sound contours for the East end of the park using INM 5.1 and flight operations data provided by the operators for the first half of 1996. FAA later issued an update, Version 5.1a with improved % time above capability, so we re ran the analysis. In both cases we found 'substantial restoration of natural quiet' for every month.

Attachment 7 compares our flight operations matrix (July 1996) with that used by the FAA in Reference 3. (See Attachment 2) Our study had 25% more total flights per day. We had much higher flight frequency in the Dragon corridor.

Attachment 8 shows the noise contour for July 1996, the busiest and noisiest month. The larger contour is for more than 3 hours (180 minutes) per day above 30 dB (25% of 12 hours). The smaller contour is for more than 6 hours (360 minutes) above 30 dB (25% of 24 hours). Either way much more than 50% of the study area lies outside the noise contours. (This is an INM5.1a contour.)

Conclusion:
The Subject report[1] is flawed and fails to demonstrate that 'substantial restoration of natural quiet' has not been achieved under SFAR 50-2

Resume, John R. Alberti

ACOUSTICAL, AERONAUTICAL ENGINEER
President, J R Engineering
CREDENTIALS:
BS Physics, University of Washington, top 1-2%, Graduate Record Exam
Licensed Professional Engineer (PE), Aeronautical Engineering (No. 19791)
FAA Designated Engineering Representative (DER – No. NM-1256):
- Acoustics, FAR Part 36, Flight Analyst, Performance FAR Parts 25 and 29

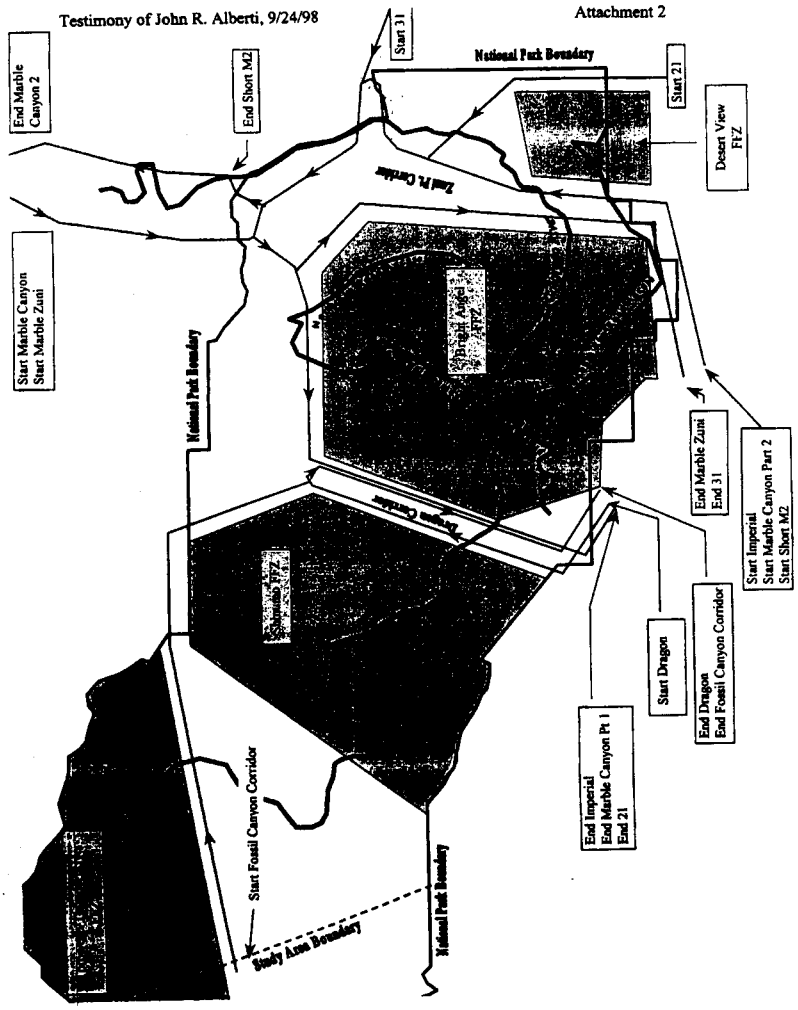
EXPERIENCE:
More than thirty years experience as an Acoustical and Aeronautical Engineer including:

J R ENGINEERING 1983 to Present:
- Started J R Engineering in 1983, part time until July 1988, full time since then.
- Test Director and Principal Engineer, more than thirty-eight acoustical flight-tests, numerous acoustic ground tests. Includes eighteen flight tests for FAA certification -- 16 FAA approved, two pending.
- Wrote noise analysis software to convert raw 1/3 Octave SPL to corrected EPNL per FAR Part 36 Appendices A, B and C -- FAA/DOT approved
- Developed acoustical and aerodynamic design criteria for successful "hush kits" for Boeing 707 and GULFSTREAM AEROSPACE G-II and G-III aircraft.
- Specified interior noise treatment for two 757-200 aircraft refitted with custom interiors (including Paul Allen's 757) and measured in-flight cabin noise.
- Performed seven noise surveys and analyses to determine compliance with the King County Noise Ordinance and eight to determine compliance with HUD or local land use criteria. These included specifying noise mitigation measures, where applicable. Includes:
  - Acoustical enclosures and barriers for heat pumps and large electrical generators.
  - Wall and window construction specifications.
  - Interior sound absorption.
  - Vibrating machinery isolation.
- Performed Field Sound Transmission Loss (FSTC) and Reverberation Time (RT60) measurements to evaluate sound isolation between condominium units.

NORTHROP 1983-1988:
- B-2 Advanced Technology Bomber Contoured Surface Loft/Master Dimensions:
- Consulted with plant security on sound measurements to verify speech privacy to Defense Intelligence Agency standards
- Other military projects

Testimony of John R. Alberti, 9/24/98

Attachment 2



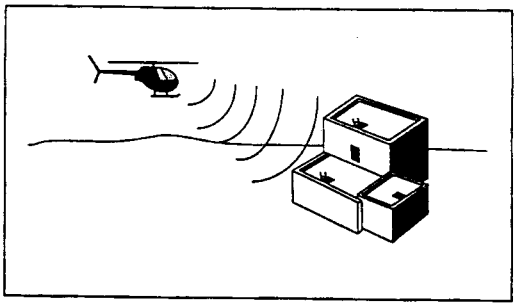


Figure 4.6. Helicopter "Blade Slap" Sound Wave Impinging on a Historical Site

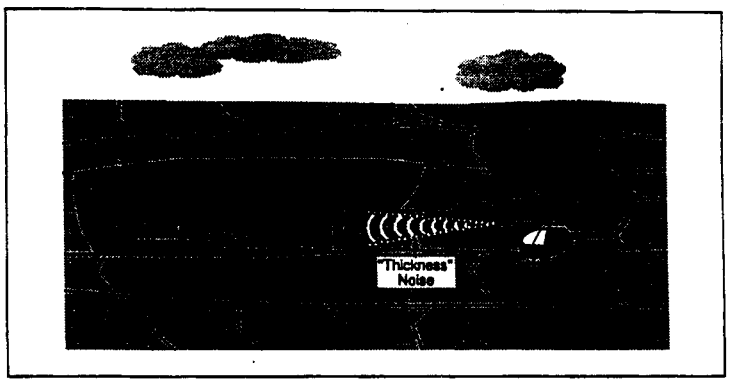


Figure 4.7. Helicopter "Thickness" Noise Radiating to a Cultural Resource

Table 9.3 Percent of Time Aircraft were Audible Under Flight Corridors

Site Number (See Fig. 9.2)	Description	Measured Percent of Time Aircraft are Audible*	Estimated Percent of Time Aircraft are Audible by Operator			
			Tour	Comm Jet	G/A	Military
Dragon Flight Corridor						
3.0	96 Mile Camp	52	51	1	0	0
16.0	Hermit Basin	83	79	18	1	0
Fossil Canyon Corridor						
5.0	Stone Creek Camp	6	2	4	0	0
7.0	Havasu Creek	12	9	1	2	0
Areas Under Minimum Altitude Zones						
1.0	Marble Canyon	13	5	7	0	0
31.0	Marble Canyon / Buck Farm	7	1	6	0	0
13.0	Little Colorado River	50	47	3	0	0
15.0	Pt. Imperial	66	61	8	1	0
8.0	Whitmore Rapids	20	20	1	0	0
23.0	Diamond Creek	13	7	2	0	4
9.0	Separation Canyon	20	16	3	0	0
21.0	Burnt Springs Canyon	50	48	3	0	0

* The measured percent of time audible will not always equal the sum of percents by operator because aircraft of different operators were sometimes audible at the same time.

4. Bennett-Cox Study: The Air Access Coalition (an association of air tour operators) retained Bennett/ Cox, Consultants, to sample sound exposure at 22 sites before (in 1988) and after (in 1993) SFAR 50-2 was implemented over the Grand Canyon (Bennett et al. 1994). The consultants used methods that permitted separate identification of maximum sound levels for different aircraft types and ranges of non-aircraft sound levels. One of the measurement sites chosen, Point Sublime, was also a site where NPS had acoustic information collected in September 1992[3]. The Bennett / Cox data show considerable reduction of (maximum) A-weighted sound levels from 1988 to 1993, attributable to SFAR 50-2. In fact,

[3] Site 19.0 reported in NPOA 93-4, page 150 ff.

Table 9.2 Percent of Time Aircraft were Audible Under Flight-Free Zones

Site Number (See Fig. 9.2)	Description	Measured Percent of Time Aircraft are Audible*	Estimated Percent of Time Aircraft are Audible by Operator			
			Tour	Comm Jet	G/A	Military
Desert View Flight-Free Zone						
12.0	Desert View	20	14	6	1	0
17.0	Lipan Point	43	30	14	1	0
Bright Angel Flight-Free Zone						
2.1	Phantom Ranch Overlook (Edge)	19	7	11	0	0
2.2	Phantom Ranch Overlook	11	8	4	0	0
10.0	Bright Angel Point	20	6	13	1	0
18.0	Yaki Point	12	5	7	0	0
Shinumo Flight-Free Zone						
19.0	Point Sublime	76	69	12	0	1
20.0	117.4 Mile Camp	4	0	4	0	1
Toroweap/Thunder River Flight-Free Zone						
6.1	Deer Creek Falls	9	2	7	0	0
6.2	Deer Creek Falls (1/2 Mi. NE)	7	4	0	3	0
14.0	Toroweap Overlook	54	44	11	0	1

* The measured percent of time audible will not always equal the sum of percents by operator because aircraft of different operators were sometimes audible at the same time.

Conclusion 9.4 **The percent of time aircraft are audible correlates with how visitors feel about aircraft sound. Even when aircraft are audible for relatively low percentages of time, a percentage of the visitors can notice the aircraft, and believe that the sound has interfered with their appreciation of natural quiet. Further, it is likely that visitors who hike away from auto accessible locations are more sensitive to intruding aircraft sounds than are visitors who do not. Hence, the NPS concludes that preservation of natural quiet is of significant value to visitors, especially for the backcountry, river corridor and Cross Canyon Corridor trail system use zones at GCNP.**

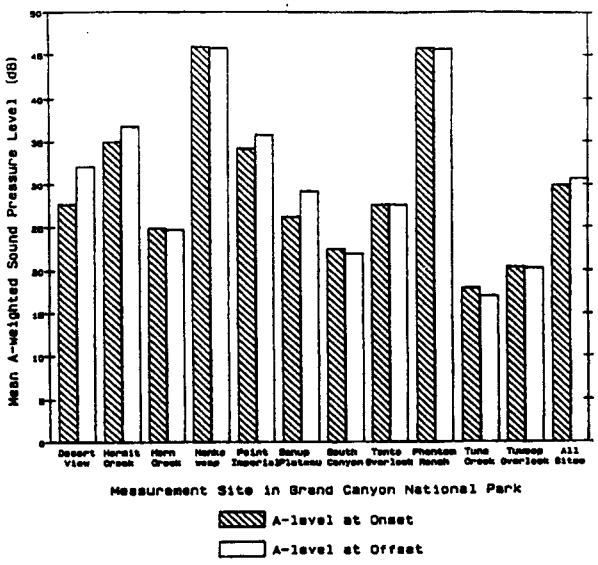
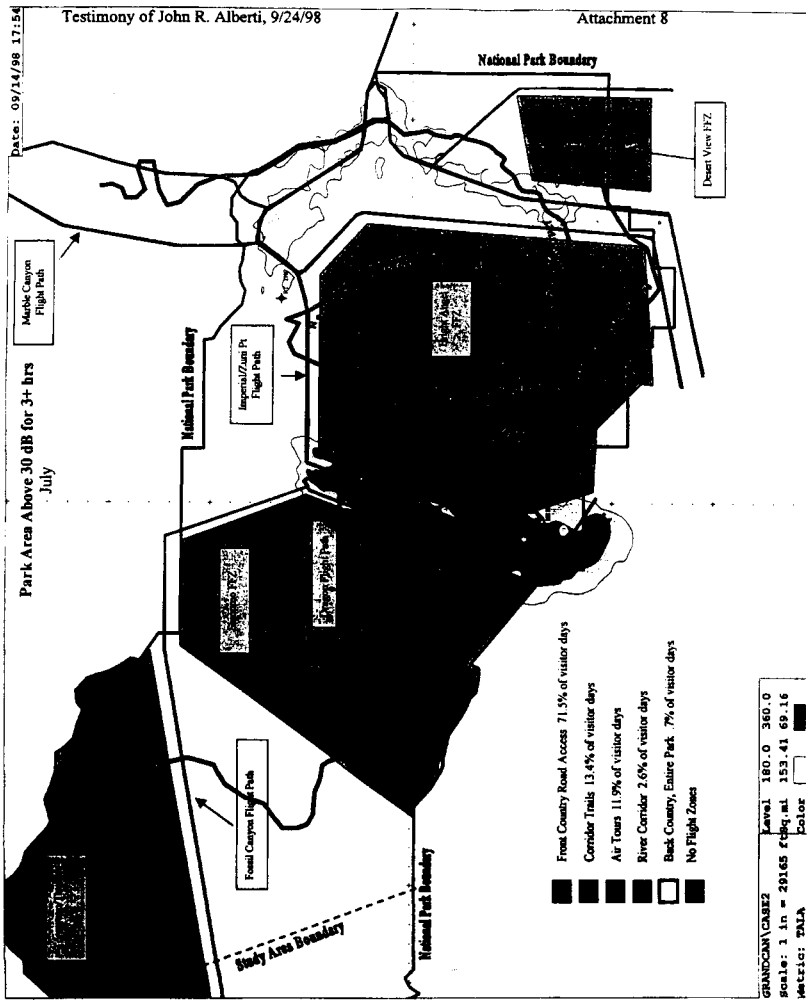


Figure E-4 Mean A-weighted sound pressure levels by site at onset and offset for air tour aircraft.

The following table compares the INM input flight paths for J.R. Engineering's Study and the Study conducted by the FAA
JRE's data was provided by Papillon, GCA, AOC, Scenic, Airstar, and Kenta. Flights in the western end of the Canyon were not considered
FAA data came from the 1996 SFAR study

SFAR Flight Paths	JRE Flight Paths	#JRE Flights (July)	Equivalent FAA Flight Paths	# FAA Flights
Black 1 to Black 1a	IMPERIAL	84.60	0004, 0002	68.93
Black 1[1]	N/A	****	0001, 0033	80.77
Green 2	DRAGON	141.30	0003	42.30
Black 3 to Black 1[2]	31	4.70	N/A	****
Black 2 to Black 1a[3]	21	1.20	N/A	****
Green 3a and Blue 1a to Green 2[4]	FOSSIL CANYON CORRIDOR	3.00	0006, 0027	2.80
Black 4 to Black 1a[5]	MARBLE CANYON 1	1.10	N/A	****
Black 1 to Black 5[5,6]	MARBLE CANYON 2	3.70	N/A	****
Black 4 to Black 1[5]	MARBLE ZUNI	3.70	N/A	****
Totals		243.30		194.80

[1] No operators who provided flight information to JRE indicated that they flew this route except in bad weather
[2] The FAA modeled a Black 3 to Black 1a flight path but did not indicate any flights on it
[3] The FAA modeled a Black 2 to Black 1 flight path but did not indicate any flights on it
[4] JRE did not have data for Blue 1a
[5] The FAA modeled a flight which went up and down Marble Canyon but did not connect with Black 1 or 1a.
The number of flights on this flight path was .75
[6] Some flights break off just after entering Marble Canyon Area (Sheet M2 on JRE Flight Path Diagram)


Testimony of John R. Alberti, 9/24/98
Attachment 8
Date: 09/14/98 17:54
Park Area Above 30 dB for 3+ hrs
July
National Park Boundary
Desert View HZ
Marble Canyon Flight Path
Imperial/Zuni Pt Flight Path
National Park Boundary
Fossil Canyon Flight Path
Study Area Boundary
National Park Boundary
Front Country Road Access 71.5% of visitor days
Corridor Trails 13.4% of visitor days
Air Tours 11.9% of visitor days
River Corridor 2.6% of visitor days
Back Country, Entire Park .7% of visitor days
No Flight Zones
GRANDCAN\CASE2
Scale: 1 in = 20165 ft
Metric: DAIA
Level 180.0 360.0
Sq.mi 153.41 69.16
Color

SHANNON ENGINEERING 1979-1983:

- Responsible for FAA noise tests and analysis for FAA certification of Several Learjet Aircraft,
- Program manager, 707 hush kit preliminary design and evaluation (later developed and successfully marketed as the SHANNON/TRACOR Q707 kit).
- Responsible for performance flight tests and analysis.

BOEING 1966-1970, 1971-1979:

- Responsible for planning, conducting and analyzing the results of about 50 acoustical tests. These contributed to developing noise suppressors for a variety of jet aircraft:
- Lead Engineer of Acoustics group supporting development of an ultra-quiet air freighter.
- Responsible for evaluating and eliminating acoustical detectability of a "low observables" military air vehicle.
- Lead Engineer, 767 Power Plant Contoured Surface Loft Group.

ROHR 1970-1971:

- Research, development, test and evaluation of hush kit components for various aircraft.
- Wrote acoustic lining design procedure.
- Wrote fly-over noise prediction procedure.

WRITTEN REMARKS FOR TESTIMONY AT THE OVERSIGHT HEARING DEALING WITH :

"THE ANALYSIS OF NATIONAL PARK SERVICE DATA ON AIR OVERFLIGHT SOUND AT GRAND CANYON NATIONAL PARK"

Hearing Date: September 24, 1998

Hearing Subcommittee: Subcommittee on National Parks and Public Lands

Subcommittee Chairman: James V. Hansen

Written Remarks Prepared by :

K. K. Ahuja, Ph.D.
Regents Researcher and Professor of Aerospace Engineering at Georgia Institute of Technology
Head: Aerodynamics and Acoustics Branch, GTRI/Aero
Atlanta, GA 3033-0844

Consultant for (and Representing in the Oversight Hearing)

Helicopter Association International
1635 Prince Street
Alexandria
Virginia 22314-2818

24 September 1998

EXECUTIVE SUMMARY

In August 1997, witness Dr. K. K. Ahuja, was asked by Helicopter Association International (HAI) to provide an unbiased opinion of an Engineering Analysis report entitled: "Analysis of National Park Service Data on Air Overflight Sound at Grand Canyon National Park." That report was prepared by JR Engineering and is referred to as **JR 182** in the rest of the written testimony. Because of the direct relevance of **JR 182** and its review to this oversight hearing, the peer review prepared by the witness forms the backbone of this written testimony.

I have over 25 years of rich experience in the field of aircraft noise, have published over 100 technical articles, and have received numerous research awards including a distinguished award from the American Institute of Aeronautics and Astronautics: the 1993 AIAA Aeroacoustics Award, and am well-qualified to review this and other similar reports.

JR 182 analysis claims to have shown that *"the government studies were biased and misleading due to several invalid and unscientific assumptions that overstate the sound levels and sound detectability."* It also claims that *"when these errors are corrected, the result is that over 95% of the Park will meet the Park Service's own definition of "natural quiet" in the busiest month for air tours (July)."* I agree with these claims made by JR 182.

On Page 2.7, JR 182 reproduces table 4.6 of Reference 2 of this written testimony and shows very convincingly that even with the biasing effects introduced by invalid and unscientific assumptions in the government studies alluded to above, the tour aircraft noise level was below 30 dB(A) 75% of the time in about 86% of the park. This reviewer agrees that if one accepts the findings of the BB&N study (see reference 3 of this testimony) that 30 dB(A) is the average level of onset and offset of airplane noise detectability at the Canyons, the NPS definition of "substantial restoration of natural quiet" has been met.

A second study related to computation of impact of tour aircraft on "natural quiet" in Eastern Grand Canyon National Park is documented in JR 182 (page 2.8) and is based on 1996 operations with 1996 aircraft. JR 182 provides the contours of time above the threshold of noticeability , i.e. 30 dBA, for each month. (This reviewer did not recompute the predictions.) These computations show that actual 1996 air tour operations in the eastern end of the Park easily met the NPS definition of "substantial restoration of quiet." The results of this analysis seem quite reasonable to me.

I also question the elimination of the computation of lateral attenuation by FAA in the prediction of the noise at the Grand Canyon. Lateral attenuation is defined as the additional sound attenuation experienced by sound propagating to the side of the flight path by factors that are not readily accounted for. Lateral attenuation is considered to be a function of the ground properties, the elevation angle, the distance between the source and the receiver, the meteorological conditions near the ground and the noise source characteristics. Thus this phenomenon includes such effects as ground reflection effects, refraction effects, and airplane shielding effects, as well as other ground and other engine/airplane installation effects. Elimination of lateral attenuation in computing aircraft noise leads to overstatement of sound levels and sound detectability.

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1.0 INTRODUCTION

1.1 Background

In August 1997, witness Dr. K. K. Ahuja, was asked to provide a peer review of Reference 1 by Helicopter Association International (HAI), and was given an assignment to provide an unbiased opinion of Reference 1, which is an Engineering Analysis report entitled: "Analysis of National Park Service Data on Air Overflight Sound at Grand Canyon National Park." That report was prepared by JR Engineering and is referred to in the rest of this written testimony as **JR 182.** Because of the direct relevance of **JR 182** and its review to this oversight hearing, the peer review prepared by the witness forms the backbone of this written testimony.

1.2 The Original Objective of the Study Reported in JR 182

The study reported in JR 182 was motivated by the new restrictions imposed on tour aircraft in Grand Canyon National Park. The new restrictions were introduced based on government studies claiming that aircraft noise would be audible in large areas of the park under previously existing rules. These claims resulted from the noise levels calculated using a noise prediction program called Integrated Noise Model (INM). INM was developed by the Federal Aviation Administration (FAA) for use in calculating community noise impacts in the vicinity of airports. INM 5.0, which is version 5 of INM, was used in a study commissioned by the National Park Service (NPS) and performed by FAA, as reported in the Draft Environmental Assessment [Ref. 2]. The noise level derived from the use of this program under certain assumptions, which JR 182 claims were invalid and unscientific, were used *"by the NPS to justify more restrictive flight rules."* [1]

The objective of the study reported in JR 182 was to explore and illuminate the assumptions underlying the government study of noise in Grand Canyon National Park, and to provide evaluation of the "restoration of natural quiet" therein.

1.3 A Summary of the Findings of JR 182

The JR 182 analysis claims to have shown that *"the government studies were biased and misleading due to several invalid and unscientific assumptions that overstate the sound levels and sound detectability."* An example of such assumptions leading to the overstatement of the sound levels given in the JR 182 is government's *"altering the code of INM Version 5.0 to remove the computation of lateral overground attenuation."* (This is a reference to what the noise research community commonly refers to as "Lateral Sound Attenuation." Lateral sound attenuation is defined as the additional sound attenuation experienced by sound propagating to the side of the flight path by factors that are not readily accounted for. Lateral attenuation is considered to be a function of the ground properties, the elevation angle, the distance between the source and the receiver, the meteorological conditions near the ground and the noise source characteristics. Thus this phenomenon includes such effects as ground reflection effects, refraction effects, and airplane shielding effects, as well as other ground and other engine/airplane installation effects.)

JR 182 also claims that *" when these errors are corrected, the result is that over 95% of the Park will meet the Park Services own definition of "natural quiet" in the busiest month for air tours (July)."*

---

[1] All text in italics in this review report is a direct quote from JR 182.

1.4 Statement of Reviewer's Qualifications

The reviewer of this report, Dr. K. K. Ahuja, is a Professor of Aerospace Engineering at Georgia Tech where he teaches courses in Aeroacoustics and Rocket Propulsion. He holds the rank of a Regents Researcher and is also the manager of the Acoustics and Aerodynamics Branch of the Aerospace and Transportation Laboratory at Georgia Tech Research Institute (GTRI). Prior to joining Georgia Tech in 1989, he worked at Lockheed Georgia Company for 13 years in various capacities including Head of the Aeroacoustics Research Group and also as the acting manager of Advanced Flight Sciences Department. He started his noise research career in 1969 while working in the noise research department of Rolls Royce Ltd. UK. and has published over 100 articles on various aspects of noise research. He has served as the associate editor for aeroacoustics of the AIAA Journal, has taken part in peer reviews of national programs in acoustics, and has directed over 60 noise-related research projects. Most recently, during the Olympics games in Atlanta, he directed an FAA sponsored study on the impact of helicopter noise on the community in the vicinity of a general aviation airport near Atlanta. He is the recipient of the 1993 AIAA Aeroacoustics Award for his "innovative contributions to the field of experimental aeroacoustics in the areas of jet noise, flow/acoustic interactions, aircraft propulsion system acoustics, and noise control." The reviewer does not know the authors of JR 182 personally and has attempted to provide a totally unbiased opinion of the findings of this report.

1.5 A Note on Acoustics/Aerodynamics Terminology

A detailed glossary of acoustics terminology can be found in References 2 -5. Glossary of the selected acoustics and aerodynamics terms used in this report is provided in Appendix A.

2.0 REVIEW OF THE REPORT

2.1 JR 182 Introduction Section

The introduction section of JR 182 gives both the objective of the analysis performed by JR Engineering (JRE) and a summary of the effort. For the benefit of the readers of the present review, a summary of the JRE objective and findings has been provided above in subsections 1.2 and 1.3, respectively.

2.2 Reviewer's Comments on Various Claims expressed in JR 182

2.2.1 Ambient Noise Levels in the Park

On Page 2.1, JR 182 provides a definition of "substantial restoration of natural quiet" by referring to a statement by the National Park Service in its 1994 report to Congress. According to that statement, "substantial restoration of natural quiet" will have occurred when at least 50% of the park is free of **noticeable** noise from sightseeing flights at least 75% of the time.

The report also mentions that the Draft Environment Assessment [Ref. 2] that accompanied the new Grand Canyon rules indicates that NPS has defined "noticeability " to mean a 3 dB(A) increase above the ambient sound level at any particular location. The report also states that NPS assigned ambient noise levels in the neighborhood of 15 dB(A) to 17 dB(A) to most of the Park. JR 182 claims that *"these levels barely exceed the threshold of hearing and would exceed the rustling leaves, any hint of wind, or hiker's foot step."* This reviewer agrees with this claim by JR 182. It is difficult to maintain these low levels even in properly designed echo-free chambers used by noise researchers in many universities and industries.

2.2.2 BB&N Study

On Page 2.2, JR 182 quotes a study [Ref. 3] performed in 1994 under NPS contract by Fidell, Pearsons, and Sneddon of BB&N Systems and Technologies . The BB&N study found that 30 dB(A) is the average level at which observers sent into the Canyon first detected aircraft noise above the ambient level (onset), and were no longer able to detect the aircraft sound (offset) below this level. In other words, 30 dB(A) is the average level for onset and offset of detectability of aircraft noise, individual sites having higher or lower levels. The BB&N study also observed that the noticeability of aircraft noise for someone not specifically engaged in listening to aircraft noise would occur at a 10 dB higher signal-to-noise ratio than for a vigilant observer. As such, JR 182 conservatively used 30 dB(A) as "observed" onset/offset level for vigilant observers.

This reviewer is familiar with the work of the authors of Reference 3. They are highly respected researchers in the field of psychoacoustics and have considerable experience in the study of human response to noise. A review of the study described in Reference 3 indicated that the BB&N researchers had given a great deal of thought in conducting their work. This reviewer believes that the use of 30 dB(A) as "observed" onset/offset level for vigilant observers by JR 182 in its INM studies is quite reasonable.

2.2.3 Noise Predictions using Integrated Noise Model

On page 2.3, JR 182 claims that *"the INM 5.0 analysis commissioned by the NPS incorporates a number of unusual and erroneous assumptions that consistently cause overstatement of noise impact."*

JR 182 refers to three particular defects in the study reported in Reference 2:

1. Incorrect helicopter speed correction.
2. Elimination of lateral ground attenuation from INM.
3. Assumption of a 12-hour day.

This reviewer agrees with the claims of JR 182 in each of these three cases. Further elaboration appears below:

1. Incorrect Helicopter Speed Correction. JR 182 refers to a table the FAA/NPS study reported in Reference 4 which provides categories of aircraft flying in Grand Canyon National Park. There are various types of aircraft operating in Grand Canyon National Park airspace, some of which are not directly included in the INM data base. In such instances, official INM equivalent aircraft, which performs similarly and has similar Noise-Power-Distance (NPD) data as compared with another aircraft, is used. In computing the INM-predicted SEL for some of the helicopters, the Government used the noise curves in the Helicopter Noise Model (HNM). The predicted values were then normalized to a nominal flyover speed of 90 kts. This required some correction to the sound levels provided by HNM. According to JR 182, *"the government **increased** the helicopter sound levels taken from the Helicopter Noise Model (HNM) by 1.1 to 1.5 dB. This ostensibly corrects the Sound Exposure Levels (SEL) from test speeds (116 - 128 kt) to Grand Canyon tour cruise speed of 90 kt. "*

JR 182 claims that *"this appears to be a correction for sound duration based on LOG(Vref/V) . It ignores the more powerful effect of advancing tip Mach number on helicopter sound."* JR 182 further claims that *"the reduction in advancing tip Mach number at lower air speed causes the time integrated sound level, Sound Exposure Level (SEL), to decrease or remain the same, as airspeed decreases."*

The present reviewer shares this view expressed in JR 182. As mentioned in JR 182, the helicopter noise prediction model HNM also shows the SEL decreasing with airspeed. JR 182 provides (using HNM version 2.2) the predicted changes in SEL on changing the cruise speed from the data base speeds to 90 kts. In addition, it shows that only 0.2 dB needs to be added to the SEL for Aerospatiale AS350D and no change is required for the Bell 206L. In the government's computation, 1.1 dB was added to the predicted SEL for both helicopters.

2. Elimination of Lateral Ground Attenuation from INM: JR 182 uses the term "lateral ground sound attenuation" to refer to "lateral attenuation." (See Reference 5.) Likewise the term "lateral over-ground attenuation" has been used in some of the FAA documents, e.g., Reference 2, in the same manner. Lateral attenuation includes effects other than those associated with sound absorbing characteristics of the ground cover. Therefore, in the remaining portion of this review, the term "lateral attenuation" will be used.

According to JR 182, the second cause of overstatement of noise at the Grand Canyon National Park lies in the elimination of lateral attenuation from INM. Lateral sound attenuation is defined as the additional sound attenuation experienced by sound propagating

to the side of the flight path due to factors that are not readily accounted for. Lateral attenuation is considered to be a function of the ground properties, the elevation angle, the distance between the source and the receiver, the meteorological conditions near the ground and the noise source characteristics. Thus this phenomenon includes such effects as ground reflection effects, refraction effects, and airplane shielding effects, as well as other ground and other engine/airplane installation effects.

On page 2.4 , JR 182 claims that *" the government altered the code of INM Version 5.0 to remove the computation of lateral attenuation. This alters the basic computation method in a way that is inconsistent with all other sound studies conducted with this program, including those conducted under FAA regulation. The effect of this alteration is to overstate sound levels of all aircraft in the Grand Canyon."*

Chapter 2 of Reference 2 describes an analysis conducted by the government to determine the impacts of the existing condition and alternative under consideration to address aircraft noise effects in the vicinity of Grand Canyon National Park. To determine these impacts, the Government used INM version 5.0 to predict noise. The reason for eliminating computation of lateral attenuation appears on page 4-2, of Reference 2: "Based on the FAA review of the technical considerations affecting this study, the FAA modified the INM to eliminate computation of lateral over-ground attenuation, which is oriented toward acoustically soft grassy terrain unlike that found at the Grand Canyon."

Additional comments for the reason given for this alteration of the INM appear in a memorandum dated August 9, 1994 from Gregg G. Fleming of US Department of Transportation to Thomas L. Connor of FAA, AEE-100. The memorandum is titled: Comparison of Measured and Predicted Noise Levels in Grand Canyon National Park , Letter Report : DTS-75-FA465-LR11. A copy of the memorandum appears in References 2 and 4.

According to this memorandum,

> " The modified version of INM neglects the effects due to lateral attenuation. This modification is considered appropriate for predictions at the five sites examined in the current study due to their close proximity to the rim of the Canyon. In addition, the terrain beneath the source-to-receiver propagation path for the five sites is primarily hard-packed sand and rocks - a surface which lends itself to little if any over-ground attenuation."

JR 182 challenges these assumptions made by the government to eliminate the computation of lateral attenuation. Further elaboration of these points appears below.

Both the authors of JR 182 and the Government appear to believe that lateral attenuation is primarily due to the sound-absorbing property of the ground cover. But a quick perusal of Reference 5, which is the industry standard on the topic of lateral attenuation, will indicate that ground characteristics is only one of the many factors responsible for lateral attenuation. Aircraft installation effects and meteorological effects can be quite important in attenuating the sound reaching a receiver at low elevation angles.

The terminology "installation effects" refers to how engines, airplane wings, jet nozzles and other parts of the aircraft are arranged with respect to one another and how various parts are seen by the receiver and how various noise-producing components interact with one another. For example, consider the sound levels at two microphones located at equal

distance from a twin propeller airplane such that one microphone is directly beneath, which sees both propellers, and the second microphone is placed to the side, which sees only one propeller. Much of the noise measured by the microphone to the side will be that from the propeller closest to it since the noise generated by the propeller located on the other side of the fuselage will be shielded by the fuselage. The microphone located directly beneath the aircraft, on the other hand, will see both propellers and will thus receive more noise. The microphone located on the side thus benefits from lateral attenuation. This part of lateral attenuation constitutes installation effects. The amount of lateral attenuation decreases with increasing elevation angle.

An excellent example of the role of installation effects on lateral attenuation can be seen in a paper by Chambers, Reddy, and Bartel [Ref. 6] who measured lateral attenuation as a function of elevation angle and slant range using a Gulfstream Aerospace GII aircraft that was modified for installation of a propeller system only on the left (port side) wing. Lateral attenuation was found to be a function not only of the tilt angle of the nacelle, but it was different on port and starboard side. The attenuation was higher on the starboard side due to the shielding by the fuselage.

The same is true for other noise sources in an aircraft. Noise is shielded not only by solid structures such as the fuselage structure referred to above, fluid shielding can also be obtained. For example, if two jet plumes are exhausted side by side, a microphone mounted below or above the two jets will measure higher noise level compared to a microphone located laterally on the side where only one jet plume can be seen. This type of jet shielding is a function of the number of engines and the configuration of the engine installation. On some airplane configurations, wing wakes and trailing vortices may interfere with sound propagation. All of these effects along with those associated with changes in sound due to the ground characteristics are lumped into the so-called lateral attenuation phenomenon. These effects are expected to be the largest where the attenuation effects of the ground characteristics such as surface cover, soil type, and soil moisture are also the largest.

Clearly, many other factors make up lateral attenuation. To date, it has not been possible to distinguish among the separate effects contributing to lateral attenuation [Ref. 5]. Thus in computing aircraft noise using INM, there is no justification for eliminating the computation of lateral attenuation noise based upon the assumption of acoustically hard ground cover alone. Eliminating the lateral attenuation computation is not justified unless all factors that make up lateral attenuation are shown to be negligible.

This reviewer agrees with the following statements made in JR 182 (Page 2.4) as regards lateral attenuation:

- The effect of elimination of the lateral attenuation is to overstate sound levels of all aircraft in the Grand Canyon National Park.

- For an aircraft flying at 9000 ft, MSL, and 3000 ft to the side INM would have calculated zero lateral attenuation, whether INM was altered or not.

- For an observer on the forested north rim at 8000 ft, MSL, and 3000 ft to the side, the unaltered INM would have calculated 3.6 dB lateral attenuation . The altered INM would, thus, overstate the noise level by 3.6 dB, in this example.

- Lateral attenuation is affected by disturbance of the atmosphere by the ground, including wind turbulence and temperature gradients.

- Reference 2 offers Appendix C to prove the validity of eliminating lateral attenuation in this application. This appendix also compares measured levels in the Grand Canyon with predictions made by the altered INM. The data presented in Appendix C of Reference 2 is not convincing. The predictions usually exceed the measurements. Some of these over-predictions are acknowledged in Appendix C.

In view of the comments made above, this reviewer does not see much value in the contents of the following statement made in JR 182:

> *"If it is correct to alter the INM such that lateral over-ground attenuation is disabled whenever some acoustically " hard" terrain exists in the area of interest, then: this alteration should be required when the INM is used, under FAA oversight, to predict sound around urban and suburban airports where parking lots, freeways, buildings, bodies of water or other acoustically "hard" areas may be present."*

Since lateral attenuation is **not** composed **only** of ground cover characteristics, eliminating the lateral attenuation by altering the INM by anyone, including the government, to account for the ground hardness or softness to accurately predict noise is unscientific.

3. Assumption of 12-hour Day : This reviewer agrees with JR 182's claim on page 2.7 that the assumption of a 12-hour long day, rather than a 24-hour long day, increases the LAEQ values 3 dB above their 24 hour day values. This also doubles the percent time threshold sound level (% TA) values compared with a 24 hour day.

If indeed the back country hikers and river corridor users are the 24-hour users of the Park, then they will be part of the most noise sensitive groups.

2.2.4 Concluding Remarks

JR 182 analysis claims to have shown that *"the government studies were biased and misleading due to several invalid and unscientific assumptions that overstate the sound levels and sound detectability."* It also claims that *"when these errors are corrected, the result is that over 95% of the Park will meet the Park Service's own definition of "natural quiet" in the busiest month for air tours (July)."* The reviewer agrees with these statements. In some cases, the reviewer further supports some of the claims made in JR 182 through additional examples and, where applicable, the reviewer points out the weakness of the arguments made in JR 182.

According to JR 182, one of the causes of overstatement of noise at the Grand Canyon National Park lies in the elimination of lateral attenuation from the noise prediction program used by the Government. Lateral sound attenuation is defined as the additional sound attenuation experienced by sound propagating to the side of the flight path by factors that are not readily accounted for. But in its arguments in favor of eliminating lateral attenuation during computation of the noise levels in the Grand Canyons, the Government seems to imply that the ground cover is the main or the only parameter that makes up lateral attenuation. In its calculations, the Government assumes that the ground cover is mostly acoustically hard (which does not absorb any sound) and hence it assumes that lateral attenuation can be neglected. JR 182 also appears to accept that ground cover is an important factor, but it goes to great pains to explain why it disagrees with the

Government's assumption that the Canyons' ground cover is acoustically hard. It also provides arguments for why the ground cover in much of the Canyons should be assumed to be acoustically soft or semi-soft, thus absorbing much of the sound impinging on it. Using this argument, JR 182 makes the case that the lateral attenuation should not have been eliminated in the noise prediction program used by the Government.

The reviewer points out that attenuation of sound attributable to the ground cover is only part of the story. Lateral sound attenuation is defined as the additional sound attenuation experienced by sound propagating to the side of the flight path by the factors that are not readily accountable. It is considered to be a function of the ground properties, the elevation angle, the distance between the source and the receiver, the meteorological conditions near the ground and the noise source characteristics. Thus this phenomenon includes such effects as ground reflection effects, refraction effects, and airplane shielding effects, as well as other ground and other engine/airplane installation effects. Clearly, many other factors make up lateral attenuation and there is no justification for eliminating lateral attenuation in predicting aircraft noise based upon the assumption of acoustically hard ground cover alone. It can only be done if all factors that make up lateral attenuation are shown to be negligible. To date, it has not been possible to distinguish among the separate effects contributing to lateral attenuation.

3.0 REFERENCES

1. J. R. Engineering, " Analysis of National Park Service Data on Air Overflight sound at Grand Canyon National Park," Report No. JR 182, July 25, 1997.

2. Griffith, Jeff, "Draft Environment Assessment --Special Rules in the Vicinity of Grand Canyon National Park," Report prepared by FAA as the lead agency with the Department of Interior as cooperating agency.

3. Fidell, S, Pearsons, K., and Sneddon, M, " Evaluation of Effectiveness of SFAR 50-2 in Restoring Natural Quiet to Grand Canyon National Park -- Final Report," BBN Systems and Technologies, June 23, 1996

4. Griffith, Jeff, "Draft Environment Assessment --Noise Limitations in the Vicinity of Grand Canyon National Park, NPRM," Report prepared by FAA as the lead agency with the Department of Interior as cooperating agency, December 24, 1996.

5. "Prediction Method for Lateral Attenuation of Airplane Noise During Takeoff and Landing," SAE Aerospace Information Report 1751, March 30, 1981 (Reaffirmed February 1991).

6. F. W. Chambers, Reddy, N. N., and Bartel, H. W., "Lateral Attenuation of Advanced Propeller of Propfan Test Assessment Aircraft," AIAA Paper 89-1057, April 1989.

APPENDIX A: GLOSSARY

Acoustically hard: A material is acoustically hard if it reflects most of the sound incident upon it. Concrete pavement is acoustically hard.

Acoustically soft: A material is acoustically soft if it absorbs most of the sound incident upon it. Fresh snow cover can be considered acoustically soft.

Attenuation: Reduction in acoustic level.

A-weighted sound level : A single number or index of sound that has been subjected to the A-weighted network. A frequency network is a frequency -equalizing function intended to approximate the sensitivity of human hearing to sounds of moderate sound pressure levels. It effectively reduces the measured values of the sound at the lower frequencies and increases the measured values by a smaller amount of sounds at some of the more annoying frequencies. Integrating the resulting sound pressures over a wide band of frequencies results in a single number index or dBA.

dB(A) or dBA: Abbreviation for A-weighted sound level.

Detectability: The ability to correctly assert the occurrence of a given sound in the presence of masking noise.

Elevation angle: The angle made (with the ground) by the line connecting the airborne vehicle and a microphone on the ground. (This term is used in describing lateral attenuation.)

Equivalent sound level or Equivalent level: The average sound pressure level for a specified duration. It is the energy-averaged noise (usually A-weighted) integrated over the specified time. "Equivalent" signifies that the total acoustic energy associated with the fluctuating sound during the prescribed time period is equal to total acoustic energy associated with a steady sound level of L_{eq} for the same period of time. The purpose of L_{eq} is to provide a single number measure of noise averaged over a specified time period.

HNM: Abbreviation for Helicopter Noise Model, which is the Federal Aviation Administration specified computer model for computing sound from helicopters.

INM: Abbreviation for Integrated Noise Model, which is the Federal Aviation Administration's specified computer model for assessing and predicting aircraft noise impacts. It's use in regulatory actions is governed by FAA Order 1050.1D, "Policies and Procedures for Considering Environmental Impacts," under the National Environmental Policy Act (NEPA).

kts: Stands for knots and represents airspeed measured as the distance in nautical miles per hour.

Lateral attenuation: Defined as the additional sound attenuation experienced by sound propagating to the side of the flight path due to factors that are not readily accounted for. (See the text for further elaboration.)

L_{AE}: Symbolic representation of Sound Exposure Level.

L_{AEq12h}: Symbolic representation of Sound Exposure Level over a 12-hour period.

L_{eq} : Symbolic representation of Equivalent Sound Level.

MSL: Mean sea level, a common specification of aircraft altitude.

SEL: Abbreviation for Sound Exposure Level. In decibels, it is equal to ten times the logarithm of the ratio of the squared sound pressure to an agreed upon reference level of 20 micro Pascal and a reference time interval of 1 second. SELs can be summed logarithmically to produce Equivalent Levels, represented by the symbol L_{eq}.

Slant range: The direct distance (along the hypotenuse) between an airborne vehicle and a microphone on the ground. (This term is used in describing lateral attenuation.)

Time Above (TA): The duration in minutes for which aircraft related noise exceeded specified A-weighted sound levels.

Testimony of
Mark Grisham, Executive Director
GRAND CANYON RIVER OUTFITTERS ASSOCIATION

BEFORE THE

SUBCOMMITTEE ON NATIONAL PARKS AND PUBLIC LANDS
COMMITTEE ON RESOURCES
U.S. HOUSE OF REPRESENTATIVES

SEPTEMBER 24, 1998

P.O Box 22189, Flagstaff, AZ 86002 • (520) 556-0669 • Fax (520) 556-3155 • markg@conxnet..com

Mr. Chairman and members of the subcommittee, thank you very much for the opportunity to contribute to this oversight hearing on the Grand Canyon National Park draft Wilderness Management Plan, a document formerly known as the Backcountry Management Plan.

My name is Mark Grisham. I am the executive director of the Grand Canyon River Outfitters Association, a trade association that represents each of the sixteen licensed commercial river-running concessioners who operate in Grand Canyon National Park. As we have for the past two decades, each year our member companies assist roughly 20,000 people from around the country and from around the world enjoy a Grand Canyon river adventure.

Please know that we very much appreciate your consideration of our views and perspective regarding the National Park Service's management of the Colorado River corridor within the Grand Canyon and regarding the draft Wilderness Management Plan now under review.

I would like to emphasize that the implications of wilderness management at the Grand Canyon extend well into the content of yet another park planning document known as the Colorado River Management Plan. This plan, the rulebook that governs every aspect of access to and activities in the Colorado River corridor within the park, is also presently under revision.

Our Mission and Our Diversity

Grand Canyon's river outfitters are proud of our industry and its mission, which in a nutshell is to make a safe and enjoyable Grand Canyon river experience available to the broadest sweep of the American and international traveling publics as possible. To do this, we offer a diverse range of trip styles. We feel that anyone interested in getting to know the Grand Canyon in an intimate way can find the type of river trip that will suit them and that they will greatly enjoy and appreciate.

We offer short trips, long trips, and very long trips using different types of watercraft and requiring differing levels of guest participation. Passengers can come with a group, their family, or just by themselves to make new friends to share in what our patrons time and time again describe as the best outdoor trip they have ever had and a once in a lifetime experience.

Let me emphasize that no one we are aware of takes issue with the fact that our passengers are very pleased and satisfied with, very appreciative of, and very supportive of the services we provide.

The age of our patrons ranges from elementary school kids to retirees in their seventies and yes even in their eighties. The outdoor experience level varies from highly proficient and experienced outdoorspeople to those who've never spent a night under the stars.

This diversity of interest is one of the most powerful things about the Grand Canyon river experience. These trips are not just for hardcore outdoor enthusiasts or for the wilderness travelling elite of this country. Importantly, we also welcome the novice.

The power of the experience is attested to eloquently by the fact that completion of our trips by those new to the outdoors regularly engenders a life-long appreciation of the natural world and a recognition of the need to protect special places.

We consider ourselves partners in our endeavors with the National Park Service and a vital means by which the NPS mission is fully realized at the Grand Canyon. We are partners with the NPS in

providing the means to enjoy and at the same time to protect and preserve one of the most special, unique, and most powerful natural wonders found anywhere on Earth.

Fundamentally, we are purveyors of a backcountry wilderness river experience beyond compare. It is through the services we provide that the vast majority of the American public who wishes to share in an intimate way what the Grand Canyon has to offer finds and exercises the means to do so.

The Grand Canyon River Experience

Everyone agrees that the Grand Canyon river experience is a powerful and precious thing. Yet its exact nature – what it is and what it should be – is something that eludes simple definition and spawns heated debate.

The instincts of government administrators continue to be for greater and greater control and regulation. At the same time, our experience leads us to conclude that a wilderness experience is a highly personal thing. We believe that the citizens of this nation should be treated as thinking adults and trusted by their government to find their own way to that type of encounter with the Grand Canyon that best suits their values, temperament, physical health limits, and expectations.

It is the joy of watching personal growth and transformation progress in someone as a Grand Canyon river trip unfolds that is so rewarding about what we as professional river outfitters do.

What's at Stake in this Debate?

To fully appreciate what is at stake in this debate, it is first helpful to understand what is not at stake.

This is not a debate about protecting unprotected lands. The Grand Canyon is, of course, a national park. It is a heavily protected, intensely managed area controlled completely by the National Park Service. As the members of this committee know well, that agency's statutory obligations regarding resource stewardship are substantial. We need to recognize that there is no imminent threat from which the Grand Canyon must now be "saved."

Thankfully, in the main, those battles are past. The questions today are at the same time more and less troubling, for they have to do with who exactly, which segments of our society to the potential exclusion of others, and by what means is the Grand Canyon by river to be accessed and enjoyed.

There Is No Resource Crisis

Second, there is no resource crisis at the Grand Canyon. The effort to craft and implement proper resource protection techniques and procedures on the river has generally been won over the past three decades. Grand Canyon's river corridor is in good shape. It is clean. It is well cared for.

At its core, the Grand Canyon wilderness debate is not about ecological care-taking, although there are many who would like you to believe that this is the case. We do not believe that the National Park Service needs any new statutory land classifications to protect or preserve the Grand Canyon. They have at their disposal all the legal tools necessary to accomplish this important task.

While improvement is always possible, the fact is that today's river-running program at the Grand Canyon provides an important international model on how fragile desert riverine environments can indeed be both protected and enjoyed in a sustainable fashion. Superintendent Rob Arnberger has himself been called on to travel internationally for this very purpose and I am confident that he completed this task with a justified pride in the successes he and his predecessors have achieved at the Grand Canyon.

Many of the outfitters involved are equally proud of their contributions in this area. A few highlights include the use of fire pans and a no fire season, the removal of all human effluent, and of course leave no trace camping techniques. Our guests completing their second or third trip often tell us that the canyon is cleaner and better cared for than it was twenty years ago. Longtime guides will tell you the same thing.

A more recent example of our commitment to the resource is our industry's decision to voluntarily transition to newly available low emission, low noise outboard motor technology. Keep in mind that to propel and steer our motorized watercraft, we use low power outboard motors in the range of 15 to 40 horsepower. We are not talking about 1200 horsepower jet boats screaming up and down the canyon. Our boats travel only with the current and at about six to eight miles per hour.

In our first year, we have achieved a forty percent conversion to the new motors as part of a $1.5 million capital investment program. Plus, we are continuing our efforts in this vain by looking into the feasibility of building zero emission, nearly silent electric powered watercraft fueled by electric fuel cell technology. It is quite conceivable that within not so many years, traditional outboards will be replaced by this exciting new technology without need for governmental regulation at all.

Our decision to convert to the new motor technology was taken with the active support and encouragement of the most senior officials at Grand Canyon National Park. We will complete the transition by 2001, but the vast majority of the new motors will be in place long before then. We find it troubling, frankly, that the NPS strongly encouraged us to move in this direction only one year ago and that today, after tens of thousands of dollars have already been spent, we are discussing a potential attempt by the NPS to ban motors altogether from the canyon just as they sought to do in the late 1970's.

Because time does not allow a detailed recounting of the history of wilderness management at Grand Canyon National Park, I will instead describe where the process stands today and what is coming next. I will also offer critical information related to the central policy questions of this debate.

What is the Colorado River Management Plan?

There are actually two important planning efforts currently underway at Grand Canyon National Park. The first is the subject of today's hearing: the draft Wilderness Management Plan. The second, as I mentioned, is the pending revision of the Colorado River Management Plan, or the CRMP. This is the rulebook that governs life on the river. It contains regulations covering literally every aspect of access to and activities along the river corridor. A few examples include rules on group size limits, rates of travel, minimum and maximum trip durations, launch limits, and so forth.

It is critical to understand that each of the specific elements of life on the river is now under review. It is also important to understand that Grand Canyon National Park officials have already expressed

their intention and desire to curtail and to tighten, to further limit and control literally every single important aspect of the Grand Canyon river experience.

All of these potentially new rules and regulations, all of which have as a consequence the further reduction of available trip options and a further limiting the public's access to the park, are justified in the eye's of Grand Canyon National Park officials by one thing.

That one thing is the park service's classification of the Colorado River corridor as a "potential" wilderness area and the stated need, therefore, to manage this area as *de facto* wilderness using the criteria spelled out in the Wilderness Act. Park service officials maintain that this potential blizzard of new rules and regulations are not only justified by the "potential" wilderness classification but are in fact mandated by the Wilderness Act.

Because the law has not changed recently, we are still trying to figure out what has changed that led the NPS to these new conclusions.

The National Park Service has made one thing clear. Their wilderness recommendation classifying the river corridor as a "potential" wilderness ("potential" is a NPS regulatory term of art that is not found in the Wilderness Act itself) will be used to determine, to justify, and to defend all the new rules that together serve to define the range of Grand Canyon river trip styles available to the public.

So the content of the wilderness plan and specifically the question, *should the river corridor continue to be classified by the NPS as a "potential" wilderness area*, has profound implications for the very nature, character, and availability of the Grand Canyon river experience.

We believe that the answer to this question is no, the river should not be a "potential" wilderness area under NPS rules and should not be designated a wilderness area by Congress. In fact, it is becoming ever more clear that the time has arrived for Congress to settle the Grand Canyon wilderness debate once and for all.

Two Fundamental Questions Inseparably Linked

In addition to the many important details that together serve to describe and define the Grand Canyon river experience, there are two fundamental questions at stake in the debate over wilderness that rise above all others in importance. As I will demonstrate, these two questions, because they are inseparably linked, end up being really just a single question.

First is the matter of how broad or how narrow should the public's access be to the Grand Canyon river experience. Is the current level, which has essentially been in place now for the last eighteen years, just about right? Or is it too much or too little?

Second, there is the issue of whether or not to eliminate the fifty year-old historic presence of low power outboard motors from the river. Managing the Colorado River corridor as wilderness means banning motors. Is this a good or a bad idea? To answer that question, one has to understand how removing motors would impact public access.

Eliminating Motors Reduces the Public's Access by Half

It is the use of motorized watercraft that makes possible the current level of public access while at the same time satisfying the various NPS resource protection and wilderness visitor experience proscriptions now in place. It simply is not possible to eliminate motorized watercraft from the river without also sharply reducing the public's historic assess to the Grand Canyon river experience. It is not possible to have the former without the latter.

This causality is exactly why many individuals both within and outside of the National Park Service are seeking to eliminate motors from the river. They are well aware that by doing so, the level of visitation along the river would out of necessity be sharply reduced.

Please allow me to bore you with a few numbers. Currently, each year roughly 20,000 commercial passengers complete a Grand Canyon river trip of one type or another. Of these 20,000 passengers, seventy percent or about 14,300 travel the canyon on a motorized raft.

Of this 14,300, about 4,200 visitors complete what we call a lower canyon trip, which commences at the Whitmore helipad located adjacent to the park boundary on Hualapai tribal lands at river mile 187. These trips are made possible through the use of a helicopter facilitated passenger ferry.

Wilderness advocates and some Grand Canyon National Park officials object to the helicopter passenger exchange. It is not compatible in their minds with how the Grand Canyon should be managed as wilderness. By way of background, in the National Parks Overflights Act of 1987, Congress provided for a Whitmore flight corridor that was exempted from NPS overflight regulations expressly to allow this helicopter ferry to continue.

Extreme wilderness management of the river corridor requires the elimination not only of outboard motors but also of the Whitmore helicopter exchange. So right off the bat, each year the 4,200 current passengers whose trip is made possible by the Whitmore helicopter ferry would be shut out of the canyon.

Eliminating outboard motors would, of course, leave only oar-powered rafts on the river. Right now, full canyon motor trips are generally six to eight days in length. Full canyon oar-powered trips are generally twelve to fourteen days long. Because the overall level of use in the canyon as measured in user-days (one person on the river for a day) is expected to remain constant, eliminating motor trips effectively doubles the duration of more than two-thirds of the trips currently operated.

Each person spending twice as long in the canyon reduces available trip slots by half. So in this regard, wilderness management would mean that only about five of the ten thousand full canyon motor trip patrons currently served could continue to find space on the river in an oar-only scenario. So on this point, another five thousand passengers would be shut out of the canyon in the name of wilderness management.

On these two points alone, that's a total of 9,200 citizens out of 20,000 who stand to lose their trip.

While too numerous and complex to detail in this testimony, *there are several other regulations* involving the limits of acceptable change regulatory concept and controls on campsite usage,

attraction site visitation, on-river congestion, and on-river contacts between trips that we believe would further serve to reduce public access under a wilderness management scenario.

Grand Canyon River Outfitters Association believes that managing the Colorado River corridor in the Grand Canyon as *de facto* wilderness as defined by the Wilderness Act would diminish the public's access to the Grand Canyon river experience by at least fifty percent from current levels. If others disagree with our contention, we would very much like to see analysis of the facts and issues at hand. We would be pleased to sit down and talk the matter through.

We point out that to the best of our knowledge the National Park Service has not completed and certainly has not shared publicly any official analysis of their own regarding the impact wilderness management of the river would have on public access to the Grand Canyon river experience.

We find this lack of an official review of this critical question a telling indicator of the agency's priorities.

The River Should Be Classified as a Non-Wilderness Corridor

Grand Canyon River Outfitters Association believes that the river corridor through the park should receive the same treatment as given the cross canyon trail corridor in the draft Grand Canyon Wilderness Management Plan. It should be classified as a non-wilderness access corridor.

Understand that classifying the river corridor in this fashion WOULD NOT MEAN that anything would then be tolerated on the river. It's still a national park after all. The NPS controls the area and has statutory obligations to meet regarding its preservation.

Grand Canyon's commercial river outfitters are ready, able and more that willing to sit down with the National Park Service, all other interested parties, the public we serve, and members of this committee to engage in a constructive discussion of how current management of the river corridor can be improved to further advance resource protection and visitor experience goals.

We are unwilling, however, to lend any support whatsoever to the notion that motorized use on the Colorado River within Grand Canyon National Park should be eliminated. We do not believe that the dramatic reduction in public access to the Grand Canyon river experience such management would necessitate – a reduction of fifty percent or more from current levels – is warranted.

If Grand Canyon National Park officials insist that either the immediate or eventual removal of motors is necessary under existing wilderness law and/or NPS wilderness management guidelines, we believe the time has indeed arrived for this committee and the Congress as a whole to take up and to decide the Grand Canyon wilderness question once and for all.

Mr. Chairman, in our official comments submitted to the National Park Service on the draft Grand Canyon Wilderness Management Plan we provide a greater level of detail outlining what believe are the public benefits provided by motorized use on the river in the Grand Canyon. I ask your permission to submit these comments with my testimony here today so that they to can be included in the official record of today's hearing.

Thank you very much for the opportunity to appear before you here today.

GRAND CANYON

RIVER OUTFITTERS ASSOCIATION
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(520) 556-0669 Phone
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July 10, 1998

Linda Jalbert
Wilderness Planning Team Leader
Grand Canyon National Park
P.O. Box 129
Grand Canyon, AZ 86023

Dear Linda:

On behalf of the sixteen licensed river-running concessioners who operate at Grand Canyon National Park, please accept the following as our formal comments on the draft Wilderness Management Plan now open for public review. We greatly appreciate your consideration of our input in this regard.

To summarize our comments, GCROA believes that:

- The draft Wilderness Management Plan provides additional and ample evidence that the National Park Service will again seek to eliminate commercial motorized whitewater rafting excursions from Grand Canyon National Park;

- Elimination of motorized watercraft from the park would result in a drastic and unacceptable reduction of the American public's ability to interact responsibly with and to enjoy the very wilderness resources and related experiences the draft Wilderness Management Plan seeks to protect and amplify;

- The 1993 Grand Canyon National Park Superintendent's wilderness recommendation which classifies 29,830 acres of the Colorado River corridor in the park as "potential wilderness" should be updated to reclassify this area as a non-wilderness corridor similar in treatment to that given the non-wilderness cross-canyon trail corridor;

- With the draft Wilderness Management Plan, the National Park Service will seek to establish a management pattern that generally reduces the public's access to the Colorado River corridor in the name of wilderness management; and

- The proposed management classification for various river corridor trails used frequently by the river running public should be changed from "primitive" to "threshold."

The Grand Canyon commercial river runners believe in the modern notion of the wilderness experience and in wilderness values. In this view, a wilderness is generally seen as a place of refuge and self-discovery and as a place of escape for

those looking for a time-out from life's other pressures. Making such experiences available in a fashion that brings the experience within reach of average Americans is what this industry does.

A very significant number of the intimate experiences available to the American people at the Grand Canyon are made possible by the virtue of the services we provide. Yet we feel sometimes – increasingly so – that at every turn, our role at the Grand Canyon is under attack.

Why is this?

We generally view ourselves as an extension and complement to the proscribed National Park Service purpose at the Grand Canyon. That purpose is succinctly stated in the National Park Service Organic Act of 1916, which reads in part "to provide for the enjoyment [of national parks] in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

National parks are supposed to be about sustainable use and enjoyment of the outstanding natural, cultural, and/or historic resources and values present in the area. They are not supposed to be about hiding those resources away from the public in the name of wilderness purity or restricting access unnecessarily to such a degree that only a fortunate few can experience them.

The law clearly states that these areas are to be used "for the enjoyment" of this nation's citizens. We strongly object to an interpretation of law that concludes that access to areas managed by the National Park Service such as the Grand Canyon must be restricted to such a degree that only the tiny fraction of Americans who qualify as the self-reliant wilderness elite can go.

So we arrive at the crux of backcountry wilderness management at the Grand Canyon.

Yes, the Grand Canyon is a spectacular primitive environment that deserves great protection. Yet it has a river running through it. Boats can ply the river and that makes access with minimal impact into the very heart of this potentially unforgiving area not only possible without need to suffer substantial physical trial, but actually fun. And once there, the power and mystery of the place works its magic on all unsuspecting comers. In practice this means that a powerful backcountry wilderness experience is available and sought after by thousands each year who would not otherwise venture into such an area.

Based on a perceived management imperative and by capitalizing on congressional inaction, it appears to us that the National Park Service is seeking to turn the vast majority of Grand Canyon National Park into something that it is not: a federally designated wilderness area if not in name than in practical effect. Even the title of the management document has changed. First it was the "Backcountry Management Plan." Now it is the "Wilderness Management Plan" even though congressionally designated wilderness does not exist at Grand Canyon National Park. The shift is subtle but illuminating.

The draft Wilderness Management Plan provides additional and ample evidence that the National Park Service will again seek to eliminate commercial motorized whitewater rafting excursions from Grand Canyon National Park.

Every time GCROA seeks clarification of intent regarding the treatment of motors on the Colorado River, park officials have equivocated in their response. We hear statements such as

the "use of motors on rafts [will] be addressed at a later date" and "that is a matter to be resolved at a later time" and "all specifics will be addressed in the Colorado River Management Plan."

The Plan reads in part that "29,820 [including the river corridor] are proposed for designation as potential wilderness, pending resolution of boundary and motorized riverboat issues...(p. 2-7)" and continues with, "The General Management Plan (1995) treats all proposed wilderness areas as designated wilderness, and anticipates the final resolution of wilderness issues (p. 2-7)." Despite the exact count in acreage, nowhere does the Plan actually identify the boundary of the "potential wilderness." Where is it? And why does the single map provided in the Plan not delineate the "potential wilderness" or differentiate it from the "proposed wilderness" area where non-conforming uses are not present?

What exactly do the Plan's authors mean by "resolution of ... motorized riverboat issues" and "final resolution?" An explication of the Plan's Appendix B, *NPS Management Policies (1988), Chapter 6 Wilderness Management and Preservation* goes a long way toward answering these questions.

On page B-3, "potential wilderness" is defined: "A wilderness review may identify lands that are surrounded by or adjacent to lands proposed for wilderness designation but that do not themselves qualify for immediate designation due to incompatible conditions [in this instance, motorized rafts on the Colorado River]. The legislative proposal may recommend these lands for future inclusion in wilderness when the incompatible condition has been removed." Thus it seems that removal of motorized rafts from the park is the explicit form of "resolution."

Page B-4 is refreshingly clear and unequivocal in answering the question as to the meaning of resolution: "The National Park Service will manage areas of potential wilderness as wilderness, to the extent that existing nonconforming uses will allow, *and will seek to eliminate the temporary conditions that preclude wilderness designation* (emphasis added)." Motorized rafts are obviously a non-conforming use and are clearly regarded as a "temporary" condition which the NPS "will seek to eliminate." If this is not the case, than why has the National Park Service classified the Colorado River corridor as "potential wilderness" in the first place?

Further indications of intent to eliminate motorized rafts are offered in the Plan based on park values. "The presence of ... motorized rafts ... can threaten wilderness values (p. 2-9)" and "Visitors to the backcountry should be able to continue to experience the backcountry with as little influence from the modern world as possible (p. 1.2)."

It is important to point out that one of the more clear cut indicators of the intent to eliminate motorized rafts as a non-conforming use is through the presentation of the map found between pages 1-5 and 1-6 of the Plan. The map neither delineates nor labels the Colorado River and provides no legend for "potential wilderness" at all. The Colorado River is not differentiated through the large block of "proposed wilderness" that constitutes ninety-four percent of the park's area. It seems likely that the map reflects what is seen by the National Park Service as "final resolution" once the non-conforming use of motorized rafts is eliminated.

Regardless of recent statements and the content of the published Guiding Principles for the Colorado River Management Plan (CRMP) revision now underway in which GCNP officials state that "it is not the intention of the NPS to eliminate the use of outboard motors within the time frame covered by this plan," the long-term objective remains strikingly clear: the National

Park Service is currently planning to eliminate motorized watercraft from Grand Canyon National Park at some point in the future.

We point out that the only reason classifying the river corridor as a "potential wilderness" even makes sense is to set the stage for the elimination of what is apparently seen by the National Park Service as an offending non-conforming use. If the National Park Service believed that such use was indeed appropriate and justified, the agency would not identify those areas where such use is taking place as "potential wilderness."

Elimination of motorized watercraft from the park would result in a drastic and unacceptable reduction of the American public's ability to interact responsibly with and to enjoy the very wilderness resources and related experiences the draft Wilderness Management Plan seeks to protect and amplify.

Motorized rafts on the Colorado River in Grand Canyon enhance public access for greater numbers of people with a broader range of physical ability, on fewer rafts with much less contact between groups, with reduced need for passenger exchanges at intermediate points along the river to satisfy public demand, without harm to the resource, and with increasing protections for natural quiet.

- *Motorized rafts provide public access for greater numbers of people.* Today, roughly three-fourths of all commercial passengers see the Grand Canyon via a motorized raft each year. Park officials contend that demand is adequate to fill all this use, as measured in user-days, on non-motorized trips. That may or may not be given that non-motorized trips take significantly more time and cost significantly more than most motorized trips. But it cannot be true without sharply reducing the total number of different people who can enjoy that use each year and not without sacrificing many other compelling advantages as detailed below.

- *Motorized rafts provide access for persons with a broader range of physical ability.* Is this fact in dispute? We refer to persons with mobility and sensory impairment who have a right to participate in a Colorado River experience integrated with persons with fuller physical ability. We also include in this group people physically impaired by age who also have a right to experience the Colorado River even though for whatever reason they have not done so earlier in their lives. Or perhaps they simply wish to again experience the river intergenerationally to share it with their kids and/or grandkids.

- *Motorized rafts provide access for greater numbers of visitors with far fewer watercraft.* This is self-evident, and a critical consideration. An average motor raft holds fifteen passengers while an oar raft holds four. Plus, additional oar rigs are necessary to convey baggage. To replace all motor rigs with oar rigs while providing the same level of access, the number of watercraft on the river at any one time would have to be increased by at least four to five hundred percent. And because oar rigs take roughly twice as long to travel the canyon, eliminating motor rigs, even while keeping use levels constant, would sharply reduce the number and diversity of people capable of visiting the canyon via the river each year by a factor approaching fifty percent.

- *Motorized rafts provide access for greater numbers of visitors with far less contact between groups.* With the advent of quiet outboard technology (see below), the impact on an oar trip and motor trip passing each other, which takes only a few minutes, is far less than the impact

associated with two oar trips passing each other. The latter can often result in a lengthy (up to an hour or more) intermingling of the two trips. Moreover, motor guides have the compelling advantage of an available differential rate of travel. A motor guide may elect to hold back or remain upstream from a trip known to be a few miles downstream. Or alternatively that guide can keep ahead of a trip known to be upstream. Motor guides also have the inherent advantage that comes with the ability to alter their itinerary in order to reduce contacts. They can depart or arrive at camp early or late and make up the time on another day. *This practice occurs more and more frequently as increased cooperation and professionalism among all guides and outfitters has grown over the years.* There is simply no way to remove motorized rafts without creating dramatic increases of on-river group contacts. And the only way to address that subsequent problem would be to sharply reduce the public's overall access to the river corridor.

- *Motorized rafts provide a reduced need for passenger exchanges at intermediate points along the river to satisfy public demand.* In the Colorado River management planning process, park officials have indicated that they regard shorter trips as inappropriate to the unique opportunity for the longer trips available at the Grand Canyon. However, the public wants shorter trips *in the Grand Canyon,* not elsewhere. That is a fact. To date, park officials have dismissed this public demand as irrelevant to their planning process, which is centered on provision of protracted wilderness excursions. While not attempting to debate the wisdom of that approach here, we do point out that the removal of motorized rafts from the river would result in a dramatic increase in demand for the partial canyon or shorter length oar trips the National Park Service has deemed less desirable. The converse is that motorized rafts provide a reduction in need for partial or shorter oar trips to meet public demand.

- *Motorized rafts do not harm the resource.* As they float down the river, neither motorized nor oar rafts at current use levels harm the resource. Additionally, motorized rafts are being managed by outfitters with increasing sensitivity to protecting natural quiet. Our industry has already achieved a voluntary on-river conversion rate of thirty percent to quiet, low emission motor technology and will complete a total transition by 2002. Moreover, we are currently exploring experimentation with and potential development of nearly silent, zero emission alternative propulsion technologies which could in the next several years render obsolete motorized rafts as we know them today.

The 1993 Grand Canyon National Park Superintendent's wilderness recommendation which classifies 29,830 acres of the Colorado River corridor in the park as "potential wilderness" should be updated to reclassify this area as a non-wilderness corridor similar in treatment to that given the non-wilderness cross-canyon trail corridor.

Our concern with the precedents established in the *draft* Wilderness Management Plan centers on the public's access to the resource and the National Park Service's seeming desire to reduce that access in the name of wilderness management. The fact is the National Park Service already has all the legal and regulatory tools necessary to completely protect and control access to and activities within the Colorado River corridor within Grand Canyon National Park. So why is wilderness necessary? Is it because wilderness management can serve as a political justification for limiting the public's access?

It has become apparent that many within the National Park Service simply do not desire to be saddled with the 1916 Organic Act's requirement to balance resource protection with visitor use and enjoyment. They want the park to be a wilderness area with sharply less access to the area than the public has historically enjoyed. Wilderness management, after all, embodies an entirely different statutory purpose than those the park was initially created to accomplish.

Proposed wilderness, potential wilderness, de facto wilderness, or a possible court imposed remedy forcing the National Park Service to live by its own rules and procedures concerning the management of lands to which it has attached various forms of wilderness status *all can only serve to narrow policy options for the park in a manner unnecessary and inappropriate to serving the public's enjoyment and potential enrichment from the broader use this resource has traditionally received.*

With the draft Wilderness Management Plan, the National Park Service will seek to establish a management pattern that generally reduces the public's access to the Colorado River corridor in the name of wilderness management.

Our interaction with National Park Service officials in the context of the Colorado River Management Plan revision convinces us that the draft Wilderness Management Plan will serve as a prelude to the advancement of wilderness management criteria for the river as well. In addition to the motorized boat issue, which we have already discussed at length in these comments, we are concerned with a variety of other management details that revolve around the wilderness issue.

These include sharp limits on party group size, maximum daily travel limitations, limits on the number of multi-day partial trips available to a public with less and less leisure or vacation time to budget, strict limits on allowable inter-party contacts (which may eventually be used as a means to reduce overall pubic access to the resource), and possible requirements to move existing use from desirable times of the year to less desirable times of the year (which could also result in a functional reduction on the public's access to the resource).

Consider potential group size reductions as a representative example of this set of issues. Grand Canyon National Park officials have made it clear that they believe the current commercial river trip group size of thirty-six is far too high.

In practice the average commercial group size is around thirty and many trips commonly run with a group of about twenty passengers. As we have informed various park officials, this industry is ready and willing to examine this question in good faith. However, an unreasonable limit, such as the eleven people per group limit contained in the draft Wilderness Management Plan, is simply not workable.

Too low a limit would result in the same increased group contacts leading to reduced overall public access scenario that we described relative to the possible elimination of motorized watercraft from the river.

We are also concerned that the low group size limit will preclude virtually all river parties from camping off river during the course of their river trip. This is a possible trip option or feature some outfitters may have interest in pursuing – if there is public interest – in response to new mandates to run trips for the public in the winter and early spring months.

The proposed management classification for various river corridor trails used frequently by the river running public should be changed from "primitive" to "threshold."

Pages 3-29 through 3-31 of the Plan describes Recreational Opportunity Classes and pages 7-70 and 7-71 list sixty-three trails with proposed recreational opportunity classifications, chiefly "Primitive" and "Threshold." On this list, six trails appear which are used frequently by river trip passengers, both commercial and non-commercial. Our recommendations for the classification for these trails follows.

Trail	NPS Proposed Classification	Mileage	GCROA Recommendation
Deer Creek/Deer Springs	Threshold	1.3 miles	Ok
Havasu Creek	Primitive	3.3 miles	change to Threshold
Little Colorado River	Primitive	1.6 miles	change to Threshold
Saddle Canyon	Primitive	0.7 miles	Ok
Stone Creek	Primitive	2.1 miles	Ok
Surprise Valley	Primitive	1.6 miles	Ok
Tapeats Creek	Threshold	3.2 miles	Ok

With respect to Havasu Creek and the Little Colorado River, we urge that these trails be classified as threshold rather that primitive (*i.e.* to allow "moderate to high level of use relative to wilderness" instead of "low to moderate use").

Page 2-20, the Plan points out, "The Wilderness Plan emphasizes the difference in experience opportunities through the zoning or spatial concept, while the Colorado River Plan defines opportunities on a seasonal or temporal basis."

When listing trails frequently used by river runners in the Wilderness Plan, it may be helpful also to think of providing different experiential opportunities in a spatial context as well. Professional guides, their guests, and self-outfitted river runners have come to expect contact with other groups at the Little Colorado River, Deer Creek, and Havasu. We believe that within reason, this is acceptable given that a professional guide can easily provide ample opportunity for his or her guests to experience solitude at a significant number of other visitor attraction sites along the river. Moreover, we have committed ourselves to working constructively with National Park Service planners to identify additional strategies to reduce crowding at these areas.

It is important to understand that because outfitters arrive at Havasu Creek spread over a nine hour period from about 7am through about 4pm, and because Havasu Creek lends itself to use by multiple groups separated by reasonable distances, a higher level of use is possible in this area without instigating and unacceptable level of group contacts.

We stress that the only way the Little Colorado River, Deer Creek, and Havasu Creek could realistically be managed in the "Primitive Opportunity Class" would be to allow so little access to the Colorado River corridor generally that much of the river corridor much of the time would not be used at all. We certainly hope that this is not the intent.

We believe that concerning the other trails listed (Saddle Canyon and Stone Creek) that professional guides are typically sensitive to protecting the opportunity for a remote experience

for other groups. Guides will either wait their turn (often accomplished simply by serving lunch) or may pass these areas in favor of visiting others. This common practice also takes place regarding many other trails not on the Plan's list such as North Canyon, Elves Chasm, Blacktail Canyon, and many others. This is occurring more and more frequently because of increasing professionalism and cooperation among the members of our industry.

In closing, let us state that we honestly hope that we are mistaken in our view related to the National Park Service's long-term agendas regarding the public's broad access to the Colorado River corridor and motorized use in this area.

We will learn much in the coming months as the Colorado River Management Plan revision process advances. If we are proved wrong, we will gladly admit our mistake and will happily go about our business of sharing the unique and powerful Grand Canyon river experience with the widest possible range of citizens from this nation and to visitors from around the world.

Sincerely,

Mark Grisham
Executive Director

cc: Arizona congressional delegation
Utah congressional delegation
U.S. Senate Committee on Energy and Natural Resources
U.S. House Committee on Resources
Director and Senior Officials, National Park Service
Secretary Bruce Babbitt, Department of the Interior

September 21, 1998

Congressman John Shadegg
4th District, Arizona
430 Cannon Building
Washington, D.C. 20515

Dear Congressman Shadegg:

Hello, my name is Guy Holmes. I would like to take this opportunity to thank the house committee for holding hearings over the proposed wilderness management plan for the Grand Canyon National Park.

I am the founder and director of the Wilderness Disability Project (W.D.P.) We have been involved in the rights of access of disabled people in the areas of wilderness, national forests, and back country areas. I am a nurse who has specialized in the area of rehabilitation and have been involved with the rights of the disabled most of my life. My experience ranges from clinical to outdoor recreational settings. I also have an extensive background in emergency medical care. I am also an executive board director of the Conservationists With Common Sense. C.W.C.S. is a nationwide conservation organization that supports multiple use of our outdoor natural resource areas.

The Wilderness Management Plan and the Colorado River Management plan for the Grand Canyon does not protect the rights of the disabled to remote areas that have been previously accessible. The road closures, which may not pose as a problem to some, can become a great obstacle for the disabled.

Disabled people have increasingly found value and pleasure in access to our great outdoors. Yes, they to want to enjoy the splendor and beauty of many canyon vistas that are available to the rest of us. The proposed road closures will further serve to restrict access for the disabled. We are not asking for every road to be paved. We are not asking for any road to be paved. We are very troubled to be losing access where it has been previously available.

The eventual loss of motors to the river rafters will cause even greater loss for disabled access. While I have known amputees that could climb mountains and I encourage and admire disabled people that can conquer a challenging quest, we cannot expect this from all. Many disabled find the safety and security that a motor rafting trip can provide. Some may not have the lasting endurance to last the 12-14 days that an orr-powered rafting trip takes.

There are over 40 million physically challenged people with various degrees of disabilities in the United States. We are supposed to be living in an age where we feel compassion and understanding for the less fortunate. We need to be increasing access for the disabled, not decreasing it.

Some people may come before you and say that this is a compromise. I would like you to ask yourselves--haven't the disabled been compromised enough in our lives?

Respectfully submitted,

Guy Holmes

Guy Holmes, Founder-Director
Wilderness Disability Project
27 Merritt Drive
Virginia, MN 55792

TAKE ONLY MEMORIES

LEAVE ONLY FOOTPRINTS

PO Box 3555
Sierra Vista AZ 85636

September 14, 1998

533 Suffolk Drive
Sierra Vista, AZ 85635

Wilderness Planning Team
Grand Canyon National Park
P.O. Box 129
Grand Canyon, AZ 86023

Dear sir:

This letter provides comments to the Draft Wilderness Management Plan (DWMP) and Environmental Assessment (EA). As background, the Grand Canyon National Park (GCNP) has been a favorite destination of the Huachuca Hiking Club over the years. Some of our members have hiked and backpacked extensively throughout remote reaches of the Park. Thus, we have a major interest in the recreational aspects of the DWMP.

We have the following comments/concerns:

1. The genesis of the DWMP wilderness recommendation is basically a 1977 vintage proposal by the National Park Service. In our view, the proposal does not reflect the multi-faceted nature of recreation in the Park and does not provide for adequate semi-primitive motorized corridors. The current wilderness proposal would encompass lands on both North and South Rims that provide important motorized access to scenic overlooks and trails in remote portions of the Park. We have used roads in these areas to pre-position food and water caches for long distance backpacks in the inner canyon and esplanade. For example, we have used roads you plan to close on the Kanab Plateau to access both the 150 Mile Canyon and Tuckup Canyon for below the rim food cache locations for a 17 day backpack on the Esplanade via Hack Canyon to the Toroweap Ranger Station. Without access to the rim and ability to cache food at these locations, we would have been unable to conduct this

backpack. These roads also provide access for shorter hikes in the area.

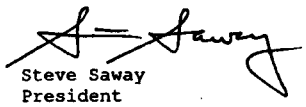
2. Much emphasis is placed in the DWMP on ecosystem management and reintroduction of extirpated species, including large carnivores such as the grey wolf, jaguar, and grizzly bear. This appears to reflect an underlying bias in the DWMP for wildlife management and conservation as opposed to recreation. Yet, the GCNP Establishment Act of 1919 set apart the Park as a "public park for the benefit and enjoyment of the people." In my view, it is not the public's desire that the Park focus its resources and energies to reintroducing large carnivores such as grizzly bears, while effectively locking people out of large portions of the Park by an over-reaching wilderness designation. The DWMP would be more balanced if additional emphasis was placed on non-wilderness based recreational opportunities and allowing the rim areas to support semi-primitive motorized recreation. The remote location and primitive nature of roads in these areas provide a measure of resource protection without the need for wilderness designation. Closing and restoring to natural condition approximately 130 miles of primitive roads does not recognize the value and importance of these motorized corridors for access and backcountry recreation. A better use of the Park's resources would be to reconstruct badly deteriorated trails in the inner canyon.

3. The DWMP mentions the role and function of the GCNP Wilderness Steering Committee, comprised presumably of NPS personnel. Recommend the Committee be structured to also include citizen advisory members (such as outfitters, guides, backpackers, and other users) to provide public input and a broader perspective to implementation of wilderness policies in the Park.

In summary, recommend the Park's proposed wilderness designation be modified to eliminate the rim areas. If the Park insists on wilderness designation in these areas, then existing roads should be cherry-stemmed so that access and motorized recreation can be preserved along these corridors. These areas provide an important means of dispersing visitor use and support the public's desire for a diversity of recreational opportunities. The EA should also be modified to reflect the continued need for semi-primitive motorized recreation in the rim areas.

Thank you for the opportunity to provide these comments. Please keep me on the mailing list for this action and provide me further updates as they occur.

Sincerely,



Steve Saway
President
Huachuca Hiking Club

"Managing and conserving natural, cultural, and recreational resources"

September 15, 1998

Wilderness Planning Team
Grand Canyon National Park
P.O. Box 129
Grand Canyon, AZ 86023

RE: COMMENTS FOR THE DRAFT WILDERNESS MANAGEMENT PLAN--GRAND CANYON NATIONAL PARK

Dear DWMP Planning Team,

We of the Arizona State Parks Off-Highway Vehicle (OHV) Program appreciate the opportunity to review and comment on your Draft Wilderness Management Plan (DWMP) and EA. Many citizens of Arizona have communicated with us in order to encourage our participation in this process. We fully understand the distinction between multiple use lands (such as the Kaibab National Forest to the north and south of the Grand Canyon) and the mission of the National Park Service (NPS). It is in this spirit that we offer comments that advocate the retention of high quality backcountry recreation opportunities in the Semi-Primitive Motorized--Recreation Opportunity Spectrum (ROS) setting.

Upon review of the DWMP we note that vast acreage above the rim is recommended for wilderness designation--including areas that have long established unpaved roads or ways. We find section of the proposal to be inconsistent with the spirit and intent of the 1964 Wilderness Act. We believe that Wilderness designation should be allocated only to those areas that truly manifest the characteristics of a primitive setting. For example, the vast inner gorge is indeed deserving of wilderness designation. On the other hand, areas on the plateaus above the rim that have existing roads represent a semi-primitive setting and thus provide a valuable recreational niche for many who may not possess the physical ability or time to embark upon a backcountry wilderness experience.

We understand that NPS policy dictates that areas identified as wilderness study areas (WSAs) must be managed in a manner that does not compromise the area's wilderness characteristics. Of course such areas are not actually classified as wilderness until they receive Congressional approval. We feel strongly that WSAs should be subjected to *interim* management until such time that they actually receive Congressional Wilderness Designation. Under such a pragmatic interim management approach, we maintain that existing roads and ways be allowed to exist under the same use allocations that

existed at the time the surrounding areas were determined to be WSAs. To do otherwise is to preempt the actual authority to establish designated wilderness areas. A more realistic approach should be to establish corridors or "cherry stems" where the roads and ways are accommodated along with adjacent unimproved areas--as they are now.

The proposed wilderness recommendation includes a number of areas on the Walhalla Plateau, Kanab Plateau, Sanup Plateau and Point Sublime. Each of these areas are currently accessible by roads that have similar characteristics (generally requiring 4-wheel drive or high clearance vehicle and low traffic volume) to dirt roads still open in these same areas. As stated above, these roads do not meet wilderness criteria. Still, the DWMP recommends that these roads be closed and obliterated or converted to wilderness trails. If implemented this action will 1) compromise the quality of genuine wilderness lands such as the inner canyon, 2) concentrate semi-primitive recreation opportunities such as sight seeing, backcountry vehicle camping, and mountain bicycling into diminishing authorized areas, 3) contribute to reducing the diversity of recreation opportunities available to the public, 4) constrain the capability of management to disperse visitor use, which contributes to over crowding and increased cumulative visitor impacts, and 5) eliminate access to these areas to the physically challenged, the growing number of senior citizens as well families with young children.

Wilderness designation and road obliteration above the rim will also have the adverse effect of eliminating the ability for self reliant backpackers to access remote areas--with vehicles--in order to cache food, water and supplies that are essential for extended excursions in the inner canyon.

The following are some specific comments on Chapter 8, Semi-Primitive Access and Facilities:

The prelude to this section sites NPS Management Policies (6.5) which states that permanent roads will not be built or retained in wilderness. Per this section we again reiterate our position that those areas that currently contain existing dirt roads do not qualify as eligible for wilderness designation. Additionally, formal wilderness designation is the prerogative of Congress; therefore the action proposed by the DWMP circumvents due process and assumes that the administrative creation--or re-creation in this case--of wilderness will eventually secure the Congressional designation; after the fact. We believe that any manipulation of the environment, especially road obliteration in the name of establishing wilderness, should only occur after Congress has formally established the area as wilderness.

8.1 Issues and Public Concerns
The DWMP implies that retention of the roads will lead an increase in vandalism to cultural resources. This view strikes us as overly cynical and leads us to inquire what volume of such vandalism has been documented within the Park that is associated with these roads (in proposed wilderness)? We believe that the vast majority of responsible citizens should not lose access and quality recreational opportunities because of the malicious actions of a minuscule criminal minority. A reasonable alternative would be to enlist the assistance of successful programs such as the Arizona Site Steward Program.

We find the statement *...adequate maintenance of primitive roads in remote locations imposes significant costs*, contradicts the statement in section 8.2 which follows:

> *The NPS will maintain these primitive roads in an unpaved condition without major improvements. With the exception of the Tuweep Road, only improvements that reduce resource impacts in keeping the road minimally open for high-clearance or four-wheel-drive vehicles will be considered.*

The statement from section 8.2 clearly indicates that any improvements will be minimal, therefore they should also be economical. Some site specific road stabilization projects can be costly initially, but properly engineered such improvements are long-term solutions to resource impacts and do not require frequent maintenance. Arizona State Parks administers an OHV Grant Program that will fund such projects, the NPS is an eligible entity for this grant program assistance. We would welcome a partnership with the NPS that would preserve public access and protect the environment.

We do not entirely agree with this statement in 8.1:

> *Primitive roads, maintained or not , create adverse impacts on natural resources.*

We say this because the rationale presented following this statement is not entirely applicable to the situation in regard to the setting and roads in question. Rationale expressed in section 8.1 follows in italics:

> • *Vehicular traffic directly destroys biological resources by crushing vegetation and microbiotic crusts, and retard revegetation through soil compaction.*

While this statement is true in the context where vehicular traffic occurs *off-road*, such as a situation where a vehicle were to stray from an existing road, it is misleading as presented because the issue in question is vehicular traffic *on roads*. It is our assumption that the roads in question already are devoid of vegetation by their very nature, in some cases vegetation exists in the middle of typical "two track" routes. Usually this is a stable situation where the road does not receive regular grading or blading--as implied by the road policy in section 8.2. Our experience and observation of roads and ways in the Park are that the topography itself is self-enforcing and thus does not encourage cross country or off-road vehicle traffic. The ignorant or malicious individual who attempts such travel risks severe equipment damage, becoming stranded, and the peril of paying heavy fines or imprisonment for perpetrating resource damage.

> • *Disturbed surfaces provide ideal habitat and avenues for exotic plants to spread (Amor and Stevens 1976). NPS Management Policies (4:12) require management of exotic species whenever prudent or feasible. The restoration of disturbed areas is an important management tool for protecting native biodiversity.*

Again, we find this rationale to be presented out of context. The issue is existing roads and ways, not cross country vehicle travel in a manner that would lead to "disturbed surfaces". Is there currently a problem with exotic plants adjacent to these routes? If so, has this problem been documented? While vehicles do present a potential source for spreading exotic plants, nature provides many more efficient mechanisms of transport such as animal fur, wind and bird droppings for the spread of unwanted plants.

The existing roads and ways in question generally exist in areas where the native soil is compacted from years of use and/or the predominant surface formation is Kaibab limestone rock and derivative soil which is very tolerant of traffic and resistant to erosion. Indeed, the process of road obliteration through ripping long linear routes would lead to much more disturbed surfaces than simply leaving the roads alone.

> • *Other undesirable consequences of road access include illegal collection or rare plants and animals (Noss 1995).*

Again, we are compelled to convey our belief that the vast majority of responsible citizens should not lose access and quality recreational opportunities because of the malicious actions of a minuscule criminal minority. Are incidents of such travesties documented? Can stands of rare plants be avoided by simple relocation of routes rather that outright closure? We recommend an alternative management

direction where backcountry travellers are enlisted to augment your field presence rather than to implement closures due to cynical and misanthropic impulses.

> • *Even though roads occupy a small fraction of the landscape in terms of total area, their influence extends far beyond their immediate boundaries. Roads precipitate habitat fragmentation by dissecting otherwise large patches into smaller ones, and thus creating edge habitat along both sides of the road, potentially at the expense of interior habitat (Reed, Barnard, and Baker 1996).*

Our familiarity with similar studies leads us to note a continuing pattern of this DWMP rationalizing road closures by taking studies out of context. While it is true that roads can fragment habitat, this applies to areas where a specific threshold of road density exists. Generally this would be a situation where there is more than 2.5 miles of road per square mile. The DWMP proposed road closures falls far short of such a threshold. Additionally, the rationale assumes that the traffic volume on the roads is relatively high such as on a state highway or on a dense National Forest road network during hunting season. The routes proposed for closure are extremely remote and historically receive a very low volume of use. Some of the routes actually have had no recent traffic on them because of timber blow down that is not removed per administrative decision. Road density studies usually recommend reduction in mileage in environments where a dense network of roads exist--such as National Forest settings that have been logged--or where new road construction is being considered. Neither of these scenarios applies to the circumstances in the Park.

> • *Roads result in frequent and often negative encounters between wildlife and humans (Buckly and Pannell 1990; Stankey 1980). Wildlife biologists have recognized problems with open roads that expose large mammals such as deer, cougar and bighorn sheep to heavy hunting pressure, poaching, and harassment. Open-road density has been found to be a good predictor of habitat suitability for large mammals, with habitat effectiveness and population viability declining as road density increases (Noss and Cooperrider 1994). Studies have indicated that in order to protect species sensitive to legal or illegal hunting and persecution, habitat must have low road density (Thiel 1985; Mech, Fritts, Raddle, and Paul 1988) .*

Wildlife management and welfare is the prerogative of the Arizona Game and Fish Department, including the Park. After consulting Department wildlife biologists about the above statement we learned that the three large mammals mentioned have very healthy and viable populations in Arizona. Bighorn Sheep prefer habitat on extremely steep slopes and cliff faces not the plateau areas in question. It is also important to note that hunting is not allowed in the Park. Therefore we must ask

what documentation exists to warrant the above statement? As mentioned previously, "road density" is somewhat an oxymoron in regard to the Park's road system as there are not that many roads to begin with.

Section 8.1 concludes with the statement "Very few comment on roads were received." Given the amount of input we've received this does not reflect the current situation. Since the data gathering for the DWMP took place as far back as the 1970s we must conclude that outreach to public on this matter is outdated and inadequate.

In conclusion we stress our support of wilderness management and the designation of lands that genuinely meet the spirit and intent of the 1964 Wilderness Act. The Arizona State Parks OHV Program has a very strong conservation theme that promotes resource protection and social responsibility. Our track record of successful partnerships with local, state, county and federal agencies demonstrates this commitment. We look forward to any opportunity to work with the NPS and Grand Canyon National Park in any endeavor that balances public access and resource protection.

We understand that motorized access is not appropriate for all settings. However there are many other settings such as the Park's existing high-clearance roads and ways, where motorized recreation can continue to exist without compromising resource values. We do not agree with the Planning Team's proposal to close 130 miles of existing roads in the Park. From the material presented in the DWMP, we conclude that such closures cannot be adequately justified without further study.

Thank you for the opportunity to comment on the DWMP. Please include us on the mailing lists for any further actions on this issue. We look forward to a long and mutually beneficial relationship with the Grand Canyon National Park.

Sincerely,

Terry Heslin
OHV Program Coordinator

TKH

cc: Arizona OHV Advisory Group and Concerned Parties