Discussion Proposal:
Ways to Substantially Restore Natural Quiet to Grand Canyon National Park

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19 March 2006

At the January 2006 Grand Canyon Working Group meeting, the Sierra Club presented a proposal for discussion on how to meet the goals of the working group. This paper discusses those ideas. The Sierra Club looks forward to a discussion of this proposal, and other proposals.

♦ KEY PROPOSALS ♦

Please see details in the Discussion Section. Here is an overview:

- While it may be impossible to move all high-flying aircraft from the heart of the park, there must be an honest evaluation.
- Accept highflier noise at the reduced level that results after the honest evaluation, even if audible noise still somewhat exceeds the otherwise allowable limit.
- Half the park completely free from audible lowfliers, primarily airtours.
- Use all the instruments in the toolbox (quiet technology, flight free zones, curfews, caps, etc.) to achieve these objectives.

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"How beautiful the sky, how bright the sunshine, what floods of delirious music pour from the throats of birds, how sweet the fragrance of earth and tree and blossom! … The river rolls by us in silent majesty; the quiet of the camp is sweet; our joy is almost ecstasy."

Major John W. Powell, while exploring the Grand Canyon {Powell, pp. 284, 285}

Now, to experience the birds' music and the silent majesty, as he did.

♦ DISCUSSION ♦

CURRENT SITUATION

Data were presented at the January working group meeting that showed that natural quiet at Grand Canyon National Park is far from restored. For instance, counting general aviation, military, and commercial transport aircraft, only one percent of the park is quiet 75 percent of the day {See Volpe, Table 2, Scenario 2}. And this does not include airtours.

Similar analysis counting airtours, flights related to airtours, general aviation, and military, but excluding commercial transport aircraft, shows only 3.7 percent of the park is quiet 75 percent of the day {Volpe, Table 2, Scenario 1}.

Thus, with all aircraft except airtours, or with all aircraft except commercial transport, we are a long way from "substantial restoration of the natural quiet" and certainly have not restored the soundscape "experience of the park."

The soundscape resource is impacted because there are many high-flying and low-flying aircraft over the park. One obvious way to solve this problem would be to reduce the number of park overflights. However, there are other factors that must be considered.

It may be difficult to move certain high-flying aircraft from the vicinity of the park. High-flying aircraft include commercial transport aircraft (e.g., a Boeing 767 flying from Chicago to Los Angeles) and some general aviation aircraft (e.g., a private Learjet flying high over the park). High-flying aircraft are those that cruise at altitudes above the Special Flight Rules Area (SFRA) boundary, 18,000 feet above mean sea level (MSL). While it may be difficult to move these high-flyers, it would be perverse to the spirit of the working group to not honestly evaluate the practicality of moving them. If the impact turns out to be negligible in some cases, it certainly would be reasonable to move high flying aircraft in those cases.

Nonetheless, some number of high-flyers will likely remain over or near even the half of the park that is to be most substantially restored. While some movement is likely possible, other solutions to the aircraft noise issue will also be required.

Another possibility would be to reduce the noise emitted by airtour related flights, possibly through the use of quieter aircraft and/or fewer park operations. While some would like this option, the reality is that even if the airtours were eliminated, the high-flyers would still cause significant noise. The Congressional intent of the Overflights Act of 1987 was that aircraft noise be substantially reduced; however, the Overflights Act does not preclude airtours at the Grand Canyon.

Thus, at first study, it appears that we have a difficult situation:

1. There are those that want to know that natural quiet, a fundamental park resource, will always remain in a large contiguous area of the park, and that the areas where airtours will be allowed don't get noisier than they are now,
2. There are some park visitors that want to see the park from the air,
3. The National Park Service and the Federal Aviation Administration (FAA) must comply with their legal mandate to substantially restore natural quiet and the appropriate experience of the park,
4. The Park Service has a legal mandate to manage the park in a manner that will protect all its resources,[1] will provide a range of quality visitor experiences consistent with park policies, and will manage land uses to keep compatible activities together,
5. The FAA has a legal mandate to manage the airspace in a safe manner, and has an obligation to not unduly affect the efficiency of the high-flyers.

POSSIBLE RESOLUTIONS

Some may think that they have the upper hand in these negotiations. There is concern that various sides will only accept a compromise if they get all they want. At this point, we should be looking at all real options. We should step beyond posturing. There can be no "sacred cows" if this process is to succeed. Everyone should be part of the solution.

During breaks at the January working group meeting, I discussed possible options to resolve the working group issues. I privately conferred with representatives from the airtour industry, the FAA, the Park Service, the tribes, the conservation organizations, backcountry user groups, etc. Although I did not see these delegates and observers moving from predictable positions, I did sense a fervent desire to successfully resolve the differences and substantially restore natural quiet at the Grand Canyon.

PROPOSED SOLUTION

The following paragraphs summarize the items that the Sierra Club put on the table for discussion at the January working group meeting.

Highfliers – While it may be impossible to move all commercial transport and general aviation high-flying aircraft from the Grand Canyon area, there must be an honest evaluation of what can be done. Building an electrified fence around this option, treating it like a sacred cow, is not acceptable. Thus, the Sierra Club asks that the FAA lead an effort to evaluate the practicality of moving at least some of the commercial and general aviation highfliers away from the park, and to evaluate the other suggestions discussed in the two following paragraphs entitled *JPDP* and *Continuous Descent Approach*.

[1] The required balance between protecting park resources (e.g. natural quiet) and providing recreation (e.g. airtours) is addressed in the *National Park Service Organic Act*, which dictates that conservation is the "fundamental" purpose of the parks.

Particular emphasis should be on the heart of the park, the historic park from Saddle Mountain to Havasu Creek, including the Kanab Basin on the north side of the river. This part of the park is illustrated in the Quiet Canyon Coalition proposal with a polygon on the map. Even if the park can not be avoided completely, the core of the park should be fully protected if possible.

Commercial transport and general aviation aircraft should be considered separately from each other. What might be less practical for one might be more practical for the other.

Preliminary analysis shows that some aircraft could be moved easily. For instance, if an aircraft going from Los Angeles to New York were moved 15 nautical miles north or south, this would add less than a half mile to the route {QCC 2006}. This seems reasonable. Similarly, if a route directly from Phoenix to Salt Lake City were moved 17 nautical miles to the east, it would only add 1.3 miles to the trip length.

JPDP – The FAA has initiated a Joint Planning Development Process (JPDP) that is currently evaluating moving aircraft away from densely populated areas. This same procedure should be used to determine the reasonableness of re-routing highfliers from the park. With *qualitative* analysis, the FAA is purporting that any movement of aircraft away from the park is impossible. However, they have not yet actually demonstrated that some movement is either practical or impractical.

The studies should produce *quantitative* analysis. For instance, we need analysis of the impacts (e.g., economic cost and flight time) as a function of movement distance from the park. If the impacts were minimal, it would be possible to move some flights away from the park. We do not need an overly detailed analysis, but we need at least a first order quantitative analysis. To say that these ideas are impractical, without quantitative analysis, is not defensible. This is especially true in the context of the preliminary analysis already done, as discussed in the last section above.

Continuous Descent Approach – The continuous descent approach procedures should be evaluated to determine if highfliers can be at lower throttle settings while descending over the park. For example, this procedure could be useful for aircraft coming from the east to Las Vegas. Combined with approaches farther away from the park, if practical, lower throttle settings while over the park could make a significant difference. Throttle settings, minor route changes, and altitude changes while over the park could also be significant mitigations for take off and climb procedures.

No Lowfliers Audible in Half the Park – Under the existing definition, the park will be substantially restored to natural quiet when half or more of the park has no aircraft audible 75 percent or more of the day. This criterion can be met while having continuous aircraft noise in the remaining portion of the park. The problem for the working group is that it has seemed difficult to have even half the park free from low-flying and high-flying aircraft noise 75 percent or more of the day.

Under the proviso that there is agreement that as much as possible shall be done about the highfliers, and with understanding that the *75-percent-time 50-percent-or-more-area* criterion must be met to the most possible degree, without eliminating all lowfliers, we propose a compromise. The Sierra Club proposes that the lowfliers do as much as possible under all the existing definitions, but they will still have access to the park. Specifically, we suggested that:

- All available tools (quiet technology, route changes, flight free zones, etc.) be used to assure that half the park is completely free from audible lowfliers, hopefully in a large essentially unfragmented area with a focus on the heart of the park, and that
- The noise of the highfliers would be accepted at the reduced level that results after as much as possible has been done, as discussed in the previous section, even if they exceeded audible noise more than the otherwise allowable limit.

This proposal would require progress from the existing conditions. That, however, is exactly what the working group was to do. The working group was established for one overriding reason: from 1987 to the present, the substantial restoration criteria were not met. The working group is charged with finding meaningful, realistic, and readily implementable solutions to substantially restore natural quiet to the park. It was to do this while allowing an airtour industry and while allowing visitors to see the park from the air, which would be done under this proposal.

This is our key proposal. However, there are related factors, as discussed below.

SFRA Elevation – Currently the Special Flight Rules Area is up to 18,000 feet MSL. However, aircraft are allowed to fly in the flight free zones if above 14,500 feet MSL (8000 feet MSL for the Sanup Flight Free Zone).

There are several concerns. With the existing rule, we often see aircraft that are fairly high, above or in the flight free zones. It is difficult to determine if they are legal or not. Regardless, they are quite annoying and they rob the park of natural quiet. If the ceiling were raised, this situation would be reduced. If the aircraft are actually above the allowable altitude, they are causing noise that is more like the lowfliers than the highfliers. There is also the problem of general aviation pilots taking non-commercial de facto airtours above the park. The Sierra Club proposes raising the no-fly elevation to 18,000 feet MSL, except for airtours and related flights, and general aviation (GA) thru their designated GA corridors. In 1994, the Park Service recommended that the flight free zones be raised to 17,999 feet MSL within one year {NPS, p. 230}.

Military – Before the mid1990s, the park had four low altitude high-speed military training routes, which crossed the park over Marble Gorge and the Shivwits-Sanup Plateaus. At the request of the Park Service, the Air Force voluntarily closed these training routes. However, unauthorized military sightseeing flights occur over or directly thru the flight free zones. Military aircraft are often very loud, so their noise impact is much greater than other forms of aircraft. There are also significant safety concerns.

There is no need for military aircraft to fly over the Grand Canyon, except possibly for purely transportation flights. Even these flights should be kept to an absolute minimum. Much of the country must avoid military zones; it is appropriate that the military avoid the Grand Canyon National Park.

Airtour Caps – There is currently an annual airtour cap, i.e., a cap on the number of airtour flights in a given year. As a tool, an annual cap is essential. Additionally, there needs to be a daily cap to assure that natural quiet is substantially restored every day of the year. The court has ruled that the law must be met every day of the year. This is like highway speed limits, which are enforced continuously. (Try telling a policeman that you were speeding today, but it was legal because yesterday you were under the speed limit.)

The overall cap should be reduced as needed to substantially restore natural quiet. When we consider what level the caps should be at, a starting point would be the level at which airtours operated when Congress first directed the agencies to take action to *reduce from the then-existing* airtour noise – 1975. Another consideration would be the number of airtours there could be while still being able to meet the substantial restoration and experience of the park criteria.

Other park users have daily caps consistent with the need to protect park resources. These include backpackers, river runners, mule riders, camping sites, hotel rooms, Phantom Ranch beds, as well as river and hiking campers at beaches. As discussed elsewhere in this paper, even some of the scenic overlooks accessible by automobile have been closed.

Although backpackers and river runners have difficulty getting permits (sometimes taking decades), they know that it is to protect the park resources and they respect that Park Service decision. It is appropriate that airtour riders have similar respect.

All airtour related flights (repositioning, training, "transportation" flights that look and sound like airtours, etc.) must be counted in the caps. If they are legitimately not airtours, then they should be routed around the SFRA.

Curfews – The existing East End diurnal curfews are essential to backcountry visitors. After hearing close-in aircraft noise for hours on end, it is essential that they be allowed significant respites in the morning and evening. Without the curfews, the level of natural quiet currently existing would be significantly reduced.

Some adjustments in the curfew times should be considered because the length of noise-free time after sunrise and before sunset is sometimes far too short, depending on the relation between the curfew times and the sun time. The overwhelming peace of the morning, as the first whisper of the day emerges, takes time to soak in. The glories and beauties of form, color, and sound need time to unite in the Grand Canyon morning, before a person can transition from the night's rest to the motorized tourism of the midday.

Akin to experiencing the morning in peace, the park visitor also has a right to an evening esthetic climax with engine noise gone for long enough that it has dissipated from the spirit.

Quiet Technology – Best available quiet technology must be part of the solution. Each aircraft's noise footprint must be reduced to the smallest area possible. All newly acquired aircraft should have the latest noise reduction technology. All existing aircraft should have the latest quiet technology or should be phased out for new quiet technology aircraft by an agreed upon date. In 1994, the Park Service recommendation to Congress called for limiting "the entire SFRA to quiet commercial tour aircraft" within 15 years {NPS, p.231, also see p. 226}.

Noise Budgets – We propose a noise budget structure based on the audible noise footprint area, multiplied by the duration of the impact. If operators want to use aircraft with larger seat capacity, that is acceptable so long as the product of time audible multiplied by the footprint area does not increase for the aircraft. With the use of quiet technology, tour operators could increase their seat capacities while reducing total noise emissions by reducing their number of operations. Larger quieter aircraft with fewer flights could be part of a solution that would result in a reduction of total noise emissions.

Operators also have the opportunity to reduce their noise emissions by routing their transportation, repositioning, and maintenance flights outside the SFRA. Lowflyer "transportation routes" between Grand Canyon Airport and Las Vegas, those not considered by their operators to be airtours, should be routed around the park, not over the park.

Flights Below the Rim – The Overflights Act (PL 100-91) specifically states that tour aircraft shall not fly below the rim. The current FAA rules allow aircraft to stay above the south rim while being substantially below the north rim, even when they are quite close to the north rim. They are so far from the south rim that it is irrelevant. For instance, helicopters fly approximately 1300 feet below the rim near Point Imperial on the Green 1 Route. (The helicopters fly at 7500 feet and Point Imperial peaks at 8803 feet.)

We suggest that aircraft stay above a line that would be drawn from the local rim to the far rim. The line would be drawn thru the centerline of the applicable corridor. Thus, aircraft would not fly below this diagonal line. This would be in better agreement with the Overflights Act. The existing rule is completely contrary to the intent of the law.

Flight Altitudes – Lowering the altitude of tours has two effects; it reduces the noise footprint area and it increases the magnitude of noise in the most-affected area. As Alan Stephen pointed out, we should consider lowering routes to reduce the impact area. This should be weighed against the intensification effect, but should be considered.

Routes – To substantially restore natural quiet to the park, one of the best tools will be to consolidate and/or shorten existing routes. The two Blue Direct Routes should be

combined and rerouted to minimize impact. We are open minded about various changes, including realignments, limits, and phase outs of the Dragon and/or Zuni Corridors, as well as other ideas that others may have. We note that the 1994 Park Service recommendation to Congress was to increase flight-free zones to 82 percent of the park, within one year {NPS, p. 230}. This recommendation still has merit.

The working group should be open minded about moving routes. There are several considerations. The heart of the park is largely and unacceptably impacted by the existing route structure. If certain areas are already impacted because of necessary flights, routes might be best located there, rather than impacting otherwise pristine areas.

It is not clear why there are so many GA routes thru the park. It seems logical that some of these should be combined. We should consider closing the Fossil Canyon Corridor; this corridor is not frequently used and almost parallels the river, causing undue impact to river runners. We should consider closing either the Zuni Point or Dragon Corridor because they are quite close to each other and not both needed for GA. Even with these corridors closed, 60 percent of the river miles would be accessible to general aviation. We look forward to Heidi Williams and John Dillon's discussion on this subject.

Temporary Respites – One idea presented at the January working group meeting, would be to provide temporary respites from airtour intrusions. Under their proposal, we would close the modified Dragon for part of the year while the modified Zuni is open (e.g., from 1 July to 16 September), and then to close the modified Zuni while the modified Dragon is open (e.g., 16 September to 1 July). This idea should be reviewed with respect to improvements for special locations such as Point Sublime, the sensitivity of Hopi sacred sites near the Colorado-Little Colorado confluence in October, its impact on various user groups, etc.

It may be that the suggested transition dates are not idealized; there is room for discussion. If there are significant timing or equity problems with this seasonal suggestion, it might be more practical to alternately close one corridor on a one or two year cycle, rather than seasonally. Maybe the shift could be done quarterly or on some other regular cycle. Any of these suggestions would allow backcountry users to schedule trips to noise footprint areas when the tours are absent, consistent with many other factors such as the scarce availability of some backpacking permit areas and river trip permits.

Either suggestion would allow ground-based visitors to visit Point Sublime, and other road-accessible viewpoints, without the intrusion of tour aircraft. Currently, five of the eight best backcountry automobile-accessible park viewpoints are impacted by the Dragon and Zuni airtours. These include Point Sublime, Havasupai Point, Cape Final, Cocopa Point, and Cape Solitude. (The other best backcountry viewpoints are Fire Point, Great Thumb Point, and Kanab Point.) All these points were automobile accessible until the mid-1990s, when the Park Service closed three of them. Point Sublime, Havasupai Point, Fire Point, Great Thumb Point, and Kanab Point are still accessible to handicapped persons in automobiles, some with Dragon/Zuni noise and some without.

The Definitions in Context – The working group has spent a lot of time discussing the importance of definitions, such as the definition of substantial restoration of natural quiet. There is agreement on what this term means, as documented in the Park Service Report to Congress. However, it is clearly a misconception to assume that the Park Service ever intended to limit its efforts to restore the soundscape to just this definition, i.e., just to 50 percent of the park. Here are two pertinent points:

- The definition of substantial restoration includes the words "or more." For reference, the NPS defined "substantial restoration of natural quiet" thusly: "substantial restoration requires that 50% *or more* of the park achieve 'natural quiet' (i.e., no aircraft audible) for 75 - 100 percent of the day" {NPS, p. 182} (parenthetical note from original).

- *Grand Canyon National Park Enlargement Act* of 1975, calls for "appropriate action to protect the park and visitors" from "a significant adverse effect on the natural quiet *and experience of the park*." The Overflights Act of 1987 calls for "substantial restoration of the natural quiet and *experience of the park*." The Park Service has a responsibility to not only substantially restore natural quiet, it has a responsibility to substantially restore the *experience of the park*. The word *experience* should be seen in the context that the park was primarily designated to protect the natural resources of the park, resources such as natural quiet.

These are not new concepts. Review of the 1994 Report to Congress makes it very clear that the Park Service thought it appropriate to improve the natural quiet of Grand Canyon National Park beyond the minimalist definition of substantial restoration. For instance:

- In Figure 10.3 of the report {NPS, p. 233}, they showed that 45 percent of the park would be 100 percent restored to natural quiet, not just to the 75 percent time in the famous definition.
- In Figure 10.4 of the report {NPS, p. 233}, they showed that 70 percent of the park would be substantially restored by the year 2010; i.e., they stated that 70 percent of the park should be quiet 75 to 100 percent of the day.

Thus, in the same report that defines substantial restoration, the Park Service made it completely clear that they intended to make more progress than 50 percent of the park 75 percent of the day. This was appropriate then; it is appropriate now.

We only bring these concepts up to put the definitions in context. With these comments made, we also note that the working group may consider limiting itself to any self imposed constraint. However, comments to the effect that the proposal presented here is beyond the constraints of the pre-existing ground rules, are off base. This can be seen in the Report to Congress and in the law.

♦ SUMMARY ♦

Our proposal seeks to meet all the criteria that existed when the working group was formed. It has something for everyone to like, and something for everyone to dislike. However, it is a legitimate proposal that:

- With the consideration of a number of factors, it will be possible to substantially restore natural quiet and the experience of the park,
- Will allow ground and river visitors to experience the park in as natural a state as possible,
- Will allow the Park Service to better comply with its legal mandate to manage the park in a manner that will protect all its resources,
- Will allow park visitors to see the park from the air,
- Will allow economic development for the tribes, and
- Will not unduly affect the high-flyers.

Some may say that this proposal can not be implemented under the existing regulations. Admittedly, some of the regulations will have to change. However, the proposal is intended to do as much as possible under the existing restraints. Saying that the proposal can not be implemented is not a legitimate excuse for not examining the proposal. If the working group likes the proposal, we can then determine what it would take to implement it.

As we make this proposal, we realize that there are many variables and many conflicting goals. We anticipate that there were be other legitimate proposals put on the table, and we may have fresh ideas ourselves. All reasonable options should be seriously considered in a timely fashion. The deadline for the Park Service to make its recommendations to the FAA is less than six months away.

♦ REFERENCES ♦

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