

8 Partnerships for management of noise intrusions

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The National Parks Air Tour Management Act of 2000 (Title VIII of P.L. 106-181) requires, among other things, the U.S. Federal Aviation Administration (USFAA) and the U.S. National Park Service (USNPS) to jointly develop air tour management plans (ATMPs) for all U.S. national parks with commercial sightseeing air tour operations. Military overflights occur at over 100 U.S. national parks, and a number of other noise sources impact park soundscapes. The USNPS Soundscapes Program Center was established in October 2000 to work with the USFAA, military, and other organizations to mitigate noise intrusions and address park soundscapes issues in units of the National Park System. The following discussion presents the overall organization and approach of the USNPS Soundscapes Program Center, some of the major issues the center is addressing, and efforts to enhance the partnerships between the various agencies and interests involved.

Soundscapes Program Center

Natural sounds are an integral part of the resources and values in parks that USNPS is charged by law to preserve unimpaired. Natural sounds are also an inseparable part of what visitors come to national parks to enjoy.

Countless visitors have thrilled to a wolf howl, an elk bugle, Old Faithful in full eruption, or a waterfall on a large river. Few things are more pleasant and soothing than the melodious call of a canyon wren, water bubbling in a small creek, the sighing of wind through the pine forests and aspens, or a chorus of bullfrogs in early evening. The full complement of such sounds can provide superintendents with an indicator of the health of the park ecosystems.

Sounds such as these have, until recent years, been largely taken for granted by both the visiting and interested public and park managers and staff. Intruding noise from such sources as aircraft, cars, buses, snowmobiles, personal watercraft, all-terrain vehicles, etc., was, until 25 years ago, generally minimal in both numbers of events and loudness. With the increase in visitation to parks, from about 190 million in 1975 to 429 million in 2000, both the numbers and loudness of noise events have increased dramatically. In many parks such noise adversely affects the natural soundscape and wildlife, as well as visitors' opportunities to hear natural sounds and to experience solitude and tranquility. Visitor complaints in some parks are increasing. In a few isolated cases, individual parks have addressed noise intrusions: watercraft noise effects on humpback whales at Glacier Bay, outboard motor noise on commercial-river rafts at Grand Canyon, management of snowmobiles in a few parks, negotiations with the military on flight routes in a few parks, and so on. On a Servicewide basis, with the exception of air tour overflights at Grand Canyon, only a few of the more intrusive noise issues have been addressed. Those include establishment of a

general regulation on audio disturbances (addressing campground intrusions), snowmobile noise limits, boating noise limits and a mention of noise in the disorderly conduct regulation (all in Title 36 of the U.S. Code of Federal Regulations). There are also noise restrictions on buses. Only recently has USNPS officially identified soundscapes as a natural resource and initiated development of a comprehensive soundscapes management program.

Within the past decade or so there has been growing attention to soundscapes, which has resulted in congressional passage of P.L. 100-91 (the National Parks Overflights Act of 1987) to manage air tours over Grand Canyon and the National Parks Air Tour Management Act of 2000 to manage air tours over other parks. In the National Park Service Management Policies (e.g., Section 4.9) and the NPS Director's Order 47, natural soundscapes are clearly identified as a natural resource to be protected, and direction is given to park managers to incorporate protection and management of soundscapes into their management programs equal to other park resources and values.

To address these directions, USNPS established a Soundscapes Program Center in late 2000 at Fort Collins, Colorado. The purpose of the center is to provide support and assistance to parks to address soundscapes issues. The primary emphasis for the next several years will be to assist those parks that will need to accomplish ATMPs under the Air Tour Management Act of 2000. The act directs that USNPS work cooperatively with USFAA to prepare ATMPs. Additionally, the Soundscapes Program Center will assist parks in gathering baseline acoustic natural ambient data to characterize their soundscapes and record intrusive noise. The center will also assist parks with other noise issues, including the preparation of soundscapes management plans, military overflights, snowmobiles, personal watercraft, airport noise, and park operational noise (aircraft, heavy equipment, etc.).

In summary, noise created by ever-increasing types and numbers of modern technology, vehicles, and equipment is progressively adversely affecting natural and cultural resources and the quality of visitor experiences in national parks. Congress has given recent direction to address air tours over national parks and USNPS is addressing this by having established policies and directions to protect the natural soundscapes in parks and a branch of the Washington Office to assist parks in those protective efforts.

Soundscape issues

Impact assessment and mitigation. To assess impacts on natural soundscapes, one must cross many scientific, policy, management, and institutional barriers. Difficult questions must be answered. For example, what data are needed to characterize park soundscapes? Is there a single metric that provides enough information? How many soundscapes does a park have, and what criteria separate one soundscape from another? What constitutes a significant impact on a park soundscape? What are the mandates and processes, and who are the players needed to make these decisions? A number of approaches have been used by scientists to assess noise impacts on various environments and populations. However, research has shown that many of the traditional methods and metrics are not applicable in national park environments. USNPS is working with experts in many scientific fields, involved agencies and organizations, interest groups, and the general public to develop policies and guidance to assess and monitor noise impacts on park resources and visitors in the most accurate, efficient, and scientifically supportable manner.

At Grand Canyon, for example, a major study is underway to compare the aircraft noise levels calculated by several aviation noise models with data measured simultaneously at many sites in the field. Mitigation measures such as flight routes, flight-free zones, timing, and numbers of flights are necessarily assessed in large part by using such models. The equipment and methodology for gathering the acoustic data needed for the models and other impact assessment and monitoring are being

updated and improved in efforts involving multiple agencies and experts, but not without some difficulties involving differences in the policies, mandates, and interests of the various parties.

Interpretation and education. Educational efforts are increasingly important in leading to an accurate understanding of park soundscape issues so that meaningful dialogue can take place leading toward issue resolution. While considerable interest has been evident in the U.S. national media regarding park soundscape issues such as air tour overflights, snowmobiles, and personal watercraft, an alarming amount of such information has been less than completely accurate concerning USNPS concerns, mandates, and actions. In a number of cases, the media has contributed to misunderstanding and confusion among many parties. One of the major efforts to address this problem is development by USNPS of a package of tools for interpreters, educators, and managers called "The Nature of Sound." The package consists of an education plan, articles and papers on all sides of the issue, references, brochures, and interpretive tools such as a slide program, electronic files, and an audio tape. The materials can be customized for specific purposes at specific parks. Major themes include: national parks are special places; national parks have many special requirements, such as preserving resources and values in an unimpaired condition; national parks have many special opportunities, often including those for solitude, tranquility, and experiencing the sounds of nature; the natural soundscape is an important resource in many parks; USNPS uses aircraft and other noise sources for essential management purposes; and USNPS preserves and celebrates the history of powered flight in units such as Wright Brothers, Dayton Aviation, and Tuskegee Airmen.

Non-aviation sound issues. Much of the effort of USNPS has been focused on defining or clarifying policies and methodologies, and then applying them to aviation noise sources. However, other noise sources are also important. As previously mentioned, issues involving snowmobiles and personal watercraft have been the most obvious. Other non-aviation sound issues in parks include: transportation means, such as automobiles, trucks, buses, and trains; USNPS equipment use, such as heavy machinery, chainsaws, and other tools, as well as vehicles; electrical generators; audio devices; and events such as concerts and speeches.

Cooperative efforts of USNPS and USFAA

To enhance cooperation and understanding between USNPS and USFAA, several actions were initiated. First, each agency designated a liaison to be a point of contact. Marv Jensen, manager of the Soundscapes Program Center, is the designated person representing USNPS. His counterpart in the USFAA is Barry Brayer, the leader of the effort to develop ATMPs. The agency liaisons communicate on a regular basis. As a result, they have developed a trusting relationship and understanding of the respective agency's missions, policies, and positions. Second, both agencies have worked together to ensure that the language in the USFAA draft regulation to implement the National Parks Air Tour Management Act of 2000 accurately reflects each agency's position. As a result, several contentious issues have been eliminated prior to the draft rule being submitted for public review and comment. Third, an implementation plan was jointly crafted by both agencies. The plan describes the joint organizational structure, procedures, and roles and responsibilities that will be utilized in the development of the ATMPs. The plan also presents a dispute resolution mechanism, joint funding approach, and detailed outline of the ATMP planning process and contents. Finally, the specifics of the implementation plan have been formalized in a draft interagency agreement that will be signed by senior management of each agency. Although the actions initiated will not alleviate all conflicts and misunderstandings between the agencies, it has significantly enhanced the partnership and has laid the groundwork for a less contentious relationship.

Partnerships on military overflight issues

The U.S. Air Force (USAF) and other Department of Defense entities need ranges and airspace to train pilots and weapons and conduct other military operations. Because most of the population of the USA lives east of the Mississippi River and airspace there is extremely congested, many of the military training and operations flights take place over the western USA, where most federal lands are located. Military overflights, whether high and fast, low and slow, in any combination, can have adverse impacts on park natural and cultural resources and visitor experiences. Surveys of park managers have consistently identified at least 100 parks with actual or potential concerns about military overflight issues. Maps prepared for USNPS by USAF's Ranges and Airspace Office support those perceptions, graphically depicting the very high percentage of military training routes and military operations areas that lie over or within 10 miles of national park units. In many cases, congressional designation of military ranges and special use airspace predates the designation of park units, meaning that the military services have a statutory right to fly there.

To enhance cooperation and understanding between the two agencies, USNPS has become a regular and active participant in the six USAF Regional Airspace/Range Council meetings that are held around the country each year. USAF and USNPS have developed a relationship of trust which has led to the prevention or mitigation of adverse impacts at a number of parks, including Big Bend, Biscayne, Everglades, Joshua Tree, Pipe Spring, and Sequoia-Kings Canyon. A number of these agreements were negotiated between individual base commanders and park superintendents. In some instances these agreements were never documented, causing potential confusion when those officials were transferred. The next logical step is for the two agencies to formalize their relationship, which they intend to do by jointly developing regional communication guidebooks. Each guidebook will depict airbase locations, military training routes, military operations areas, and units of the National Park System. The guidebooks will also present each agency's organizational structure, decision-making process, and points of contact, as well as ways to enhance communications and develop relationships between base commanders and park superintendents. Both agencies intend that this concept be extended to other military services and land management agencies in the near future.

References and supporting information for this paper are available from the authors upon request.