



The Natural Sounds Program



Soundscapes

Elk bugling in the cool autumn air of Rocky Mountain National Park, birds calling in the Everglades, a cannon shot at Gettysburg National Military Park, the quiet reverence at the Vietnam Memorial ... these are the sounds that make a trip to our national parks a unique and memorable experience. In many cases, visitors choose to recreate in national parks to escape the clamor of everyday life, to hear birds, streams, wind, and other natural sounds. Many parks also contain unique cultural resources: battlefields, historic cabins or homes, preserved evidence of a people or an early lifestyle. These are provided for the contemplation and appreciation of visitors, and it is important that the acoustic quality of these areas is as consistent with the preserved cultural environment as possible.

The term "soundscape" refers to the total acoustic environment of an area and can include both natural and human-produced sounds. The soundscape of a national park is often taken for granted, but it represents an important part of the park environment. Like water, scenery, or wildlife, it is a valuable resource that can easily be degraded or destroyed. As a result, soundscapes require careful management if they are to remain unimpaired for future generations. Protecting and managing the soundscape resources in our national parks is the mission of the Natural Sounds Program Center.



Listen Up!

When you visit a park or wilderness, you enter a world of memorable sights.



When you listen to a park or wilderness you enter a world of inspirational sounds.

“How great are the advantages of solitude! How sublime is the silence of nature’s ever-acting energies! There is something in the very name of wilderness, which charms the ear and soothes the spirit of man.”

Estwick Evans, 1818

Sounds and Wildlife

Appropriate soundscapes are important for animal communication, territory establishment, courtship and mating, nurturing young, and effective use of habitat. Scientific studies have shown that wildlife can be adversely affected by high levels of noise. Although the severity of the impacts varies depending on the species being studied and other conditions, research has found that wildlife can suffer adverse physiological and behavioral changes from noise and other human disturbances. Noise has been associated with suppression of the immune system and increased levels of stress-related hormones in animals. Studies have also shown that songbirds that live in noisy places have to sing louder than birds in quieter environments. Birds forced to sing at a higher volume have to expend increased levels of precious energy to attract a mate or warn of predators. Bighorn sheep are less efficient at foraging for food when they are exposed to aircraft noise, and mountain goats often flee from the sound of helicopters and airplanes. Still other research has demonstrated that noise can adversely affect reproductive success in caribou and communication in whales. When these effects are combined with other stress factors experienced by wildlife such as winter weather, disease, insect harassment, and food shortages, noise can have important implications for the health and vitality of wildlife populations within a park.



Program Overview

Natural and culturally appropriate sounds are an important element of the national park experience. The National Park Service has determined that the soundscape is a resource and a value to be appreciated and protected under the Organic Act in such a way as to leave it unimpaired for enjoyment by future generations. The Natural Sounds Program Center was officially established in October 2000 to assist park and regional staffs in protecting, conserving, or restoring the soundscape resource. An important element of this mission is working with the Federal Aviation Administration (FAA) to develop air tour management plans for the more than 100 parks experiencing commercial air tour operations.



The Natural Sounds Program is founded on the following principles:

- Appropriate natural, cultural and historic soundscapes are integral to visitor experience.
- Appropriateness of sounds is a determination based on the purposes and values for which a specific park unit was established coupled with management objectives and the NPS Organic Act.
- The soundscape of a park unit is a resource necessary for the enjoyment of present and future visitors.
- Appropriate soundscapes are essential for the overall health of park ecosystems including the vitality of specific wildlife communities.

As visitation to parks has increased (from 190 million in 1975 to 429 million in 2000), the effects of noise and the importance of an appropriate soundscape have become more apparent. Since its inception, the mission of the Natural Sounds Program has expanded to address a variety of noise issues affecting units of the National Park Service. The Natural Sounds Program assists parks in addressing noise issues by gathering baseline acoustic data to characterize park soundscapes; identifying intrusive and inappropriate sources of sound; developing soundscape goals, objectives, and standards; and identifying appropriate measures for mitigating noise impacts.

Representative Sound Levels In Some Parks

Threshold of human hearing	0 dBA
Volcano crater	Haleakala NP 10 dBA
Remote trails	Grand Canyon NP 10-20 dBA
Leaves rustling	Canyonlands NP 20 dBA
Crickets (5m)	Zion NP 40 dBA
Suburbs - Night	45 dBA
Suburbs - Day	55 dBA
Conversation (5m)	Whitman Mission NHS 60 dBA
Snowcoach (30 m)	Yellowstone NP 80 dBA
Thunder	Arches NP 100 dBA
Military jet (100 m)	Yukon-Charley Rivers National Preserve 120 dBA

Current Issues

- Air tour management planning for national park units
- Relationship between park operations and baseline acoustic ambients
- Military overflights
- Effects of airport development projects on national park resources
- Potential impacts to cultural, natural, and historic resources from motorized recreation
- Identifying partnership-based solutions to potential impacts to park resources caused by indirect noise sources (i.e., activities outside the boundaries of a unit of the national park system)
- Advancing acoustic monitoring and modeling technology to support park management goals and objectives

For more information about the Natural Sounds Program, visit the National Park Service Internet Website at: <http://www.nature.nps.gov/naturalsounds/index.htm>

“Far more important than the places I have seen or what I have done or thought about is the possibility of hearing the singing wilderness and catching, perhaps, its real meaning.”

Sigurd Olson

