Southern Colorado Plateau Network
Project Summary

National Park Service
U.S. Department of the Interior

Intermountain Region
Inventory & Monitoring Program

2007

Monitoring Night Skies and Natural Soundscapes

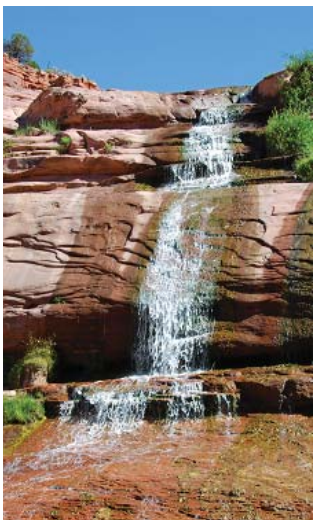
Importance

Many national parks in the Southern Colorado Plateau Network (SCPN) contain large areas of wilderness, where dark night skies and natural soundscapes are important human values. Dark night skies, which depend upon the visibility of stars and other natural components, are diminishing resources in several park units because of anthropogenic activities. Natural soundscapes—that is, the natural sounds of wildlands—are degraded by sounds caused by humans or human technology. Increasing population density and consequent increases in traffic, development, overflights, and other activities are causing direct and indirect effects on night skies and natural soundscapes, even within remote wilderness settings. Monitoring night skies and natural soundscapes will provide further insight into changes that affect both ecological integrity and the human values offered by wildlands.

Long-term Monitoring

Current plans call for monitoring of night skies or natural soundscapes in 12 SCPN parks. Night skies are monitored with cameras that record background-brightness levels. Individual photos are then joined together to show a panorama of sky brightness at a site. Natural soundscape condition is monitored with audio-recording devices that detect and measure the kinds and time periods of natural and anthropogenic sound that occur. Then, an observer listens to the recordings to determine the time during which a targeted sound is audible (referred to as the "percent-time-audible" method). The frequency with which night skies and natural soundscapes will be monitored has not yet been determined.

NPS/C. LAUVER



The sound of falling water is an important component of wildland experience at Navajo NM.

Management Applications

With more than 750,000 hectares designated or proposed as wilderness, dark night skies and natural soundscapes are important natural resources for many SCPN parks. As urban development and associated human activities alter natural viewsheds and contribute to haze and noise pollution at local and regional scales, artificial light sources can impair dark night skies for up to 160 kilometers. Natural soundscapes are primarily affected by vehicular traffic. The first few years of monitoring data will be used to establish current conditions; the focus over the long term will be to detect trends in the condition of these resources. Over time, monitoring data will provide park managers with the information they need to work with park staff, neighboring communities, and regional leaders to address light and noise-pollution issues.

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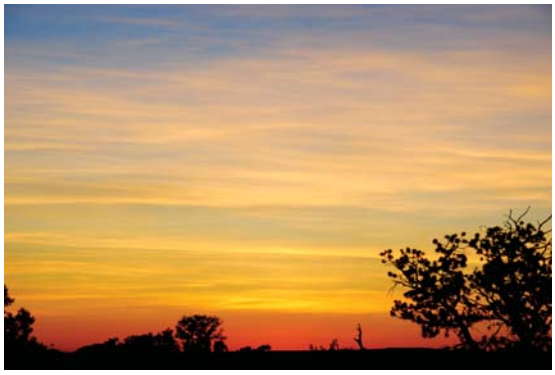

Clear skies at sunset, Navajo NM.

Contact

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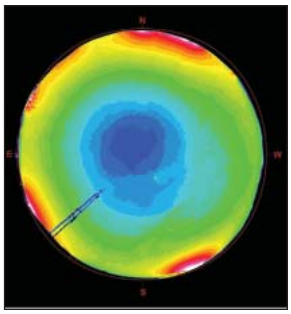
NPS/NIGHT SKY TEAM



An example of night-sky brightness as compiled from cameras, Bandelier NM, 2003. The darkest area is in the center of the graphic; the night sky brightens as the colors change from blue to green, yellow, red, and white.

Network park units where dark skies or natural soundscapes will be monitored

Bandelier NM	Grand Canyon NP
Canyon de Chelly NM	Mesa Verde NP
Chaco Culture NHP	Navajo NM
El Malpaís NM	Petrified Forest NP
El Morro NM	Rainbow Bridge NM
Glen Canyon NRA	Wupatki NM

NP = National Park; NM = National Monument; NHP = National Historical Park; NRA = National Recreation Area

Internet: http://www1.nature.nps.gov/im/units/scpn/index.cfm
Intranet: http://www1.nrintra.nps.gov/im/units/scpn/