Rocky Mountain National Park
Fact Sheet
May 2006

Title: Air Quality

Status/Background:

The National Park Service (NPS) is mandated by several legislative acts to maintain and preserve natural conditions at Rocky Mountain National Park for future generations. These acts include the 1915 Act that established Rocky Mountain National Park, the NPS Organic Act (1916), the Wilderness Act (1964) and the Clean Air Act amendment (1977). Rocky Mountain National Park is classified as a Class 1 air shed as defined by the Clean Air Act. The following is a list of issues currently affecting park resources and visitor experiences.

Atmospheric Deposition

Atmospheric deposition at Rocky Mountain National Park includes potentially harmful elements such as, sulfur and nitrogen. Over 23 years of scientific research indicates that nitrogen deposition is at elevated levels, potentially 18 to 20 times greater than natural background levels. If this current trend continues unabated, sensitive aquatic species, including fish, could be affected in the next several decades. Artificially elevated levels of nitrogen deposition may also affect unique alpine tundra plant communities, changing the delicate plant composition.

Ozone

During the past four summer seasons, Rocky Mountain National Park has experienced 13 exceedances of the 1-hour EPA health standard. There are two primary concerns related to high ozone levels in the park. First, visitors come from all around the world to explore, hike and climb in the park. Visitors with preexisting respiratory ailments may be affected when exerting themselves at high elevations and high ozone levels. Second, there are eleven different plant species present at Rocky Mountain National Park that are known to become injured with elevated ozone levels. The eastern portion of the park has been included in a seven-county Ozone Non-Attainment zone and Early Action Compact to address ozone issues. The entire park will implement ozone/health advisories consistent with the State of Colorado ozone alerts.

This Rocky Mountain National Park air quality monitoring station measures ozone, elements of visibility, other gaseous pollutants and meteorological events.

Regional Haze

Visibility impairment is one of the most basic indicators of pollution in the air. Haze occurs as a result of the scattering and absorption of light by particles and gases in the atmosphere. Two of the leading agents impacting visibility at Rocky Mountain National Park are ammonium nitrate and ammonium sulfate. Without the effects of pollution, a natural visual range is approximately 140 miles at Rocky Mountain National Park. The current average visual range for RMNP is approximately 33-90 miles. The worst days of visibility continue to worsen. The park will continue to monitor haze and visibility through a variety of methods and continue to work with the Colorado Department of Public Health and Environment on long-range goals for reducing haze along the Colorado Front Range.

Collaborative Effort

In September 2004, the Department of the Interior (DOI) and National Park Service (NPS) were petitioned by Environmental Defense and Trout Unlimited to respond to the mounting weight of evidence indicating that effects of atmospheric deposition are occurring within the park. In December 2005, the NPS, the Colorado Department of Public Health and Environment, and the Environmental Protection Agency signed a Memorandum of Understanding demonstrating a collaborative approach to address these serious air quality issues. The Colorado Air Quality Control Commission has formed a separate subcommittee to specifically address the nitrogen deposition issue of the park. Information about the Rocky Mountain National Park Initiative can be found at the website for the Department of Public Health and Environment's Air Pollution Control Division at: http://www.cdphe.state.co.us/ap/rmnp.html

Ponderosa pine (foreground) and quaking aspen are two of the 11 different plant species present at Rocky Mountain National Park that are known to become injured with elevated ozone levels.

Critical Load

One of the objectives of the recently signed Memorandum of Understanding between the National Park Service, Environmental Protection Agency and the Colorado Department of Public Health and Environment, was for Rocky Mountain National Park to define and propose a management goal to reduce atmospheric nitrogen deposition in the park. Recent peer-reviewed scientific research has determined that a threshold of nitrogen deposition has been exceeded and direct injury to natural resources and associated processes has occurred. This threshold or critical load of atmospheric nitrogen deposition was found at 1.5 kg N/ha/yr and occurred in the late 1950s. Natural concentrations are estimated at approximately 0.2 kg N/ha/yr. Current levels are approximately 4 kg N/ha/yr. In May 2006, a letter was sent from Rocky Mountain National Park to the Colorado Department of Public Health and Environment to identify a critical load related to nitrogen deposition and propose a management goal to reverse the trend of current nitrogen levels.

Next Step

The next step in the process is for the collaborative working group (which consists of members from each agency mentioned above) to formally "endorse" the park recommended management goal and begin to evaluate options to reverse the current trend of nitrogen deposition to a level that is no longer harmful to the resources of the park.