

The Northern Colorado Plateau Network

Some of our nation's most stunning and remarkable natural landscapes are found in the national parks of the Northern Colorado Plateau. Here, millions of visitors each year gaze up at the towering monoliths of Zion National Park, explore the spindly hoodoos of Bryce Canyon, and quietly marvel at the ancient silence emanating from the rock. This is canyon country, where the Green, the Colorado, the Gunnison, the Virgin, the Fremont, and the Yampa have carved the landscape with force and a thousand minor tributaries have whittled at it with determination.

The lands of the Northern Colorado Plateau have been used by humans for more than ten thousand years, yet in some areas, the region's natural systems remain relatively intact. Desert grasslands, shrublands, forests, caves, large rivers, perennial streams, seeps, springs, and striking structural geology all provide habitat for plants and animals that depend on them for survival. Threatened and endangered species, such as the Utah prairie dog, Mexican spotted owl, humpback chub, San Rafael cactus, and Wright's fishhook cactus live here, alongside the more common species that help to keep ecosystems functioning.

Despite their physical remoteness, Northern Colorado Plateau national parks are subject to a host of environmental stressors. Climate change, air and water pollution, invasive exotic plants, alteration of the fire regime, visitor use, adjacent land use, streamflow regulation, groundwater extraction, livestock grazing, and previous management actions are all capable of producing significant change.

In 16 different units across the Northern Colorado Plateau, the National Park Service is working to monitor environmental changes as part of an effort to ensure that park ecosystems remain intact, and "unimpaired for future generations." The Northern Colorado Plateau Network, or NCPN, comprises 16 parks with diverse cultural and natural resources, distributed across four states and three physiographic regions. Parks in the network range in size from just 40 to more than 336,000 acres, and occur between 3,600 and 10,500 feet in elevation. They include six national parks, eight national monuments, one national historic site, and one national recreation area.

The Northern Colorado Plateau Network gathers baseline information through natural resource inventories and conducts long-term monitoring of key indicators of ecological health, also known as vital signs. The goal of vital signs monitoring is to assess the condition of park ecosystems and provide park managers with the scientific information they need to make sound decisions about natural-resource stewardship and management.

Visitors to network parks may see scientists working both on land and in water. In fields from terrestrial botany to aquatic ecology, NCPN ecologists, in collaboration with park staff and research partners, are collecting data using rigorous scientific methods. The results of this fieldwork will provide park managers with credible scientific information to meet the challenges of preserving and protecting park resources.

The network uses ten peer-reviewed monitoring protocols to guide the collection of vital signs data. In different parks across the plateau, we are monitoring air quality, climate and weather, riparian communities, upland communities, invasive exotic plants, land condition, land cover and land use, landbirds, seeps, springs, and hanging gardens; and water quality.

Over the long term, vital signs will be analyzed relative to one another across space and time to assess ecosystem health. Vital signs data will also provide park managers with early warning of ecosystem changes for which they may need to manage or mitigate.

Before the start of monitoring, natural resource inventories were conducted in network parks. In addition to providing baseline data for future monitoring, those inventories recorded many species new to park lists. New animal records included yellow-billed cuckoo, at Arches National Park; western jumping mouse, at Cedar Breaks National Monument, and Great Basin spadefoot toad, at Golden Spike National Historic Site. Also found at Golden Spike was a rattlesnake that is a hybrid of the western rattlesnake and prairie rattlesnake. Such hybridization is unusual among rattlesnakes in the wild.

Through both inventories and monitoring, the NCPN has added 546 new plant species to park lists—an average of 34 per park. Several of those species are listed as rare, threatened, or endangered by the state or federal government, or appear on State Natural Heritage watch lists. Others were new records for the state in which they were found. Overall, individual network parks are home to between 144 and 982 vascular plant taxa.

Data collection is the network's primary activity, and our ability to organize, structure, maintain, and disseminate relevant natural resource information will largely determine the network's success. To ensure data accuracy, security, longevity, and usability, the NCPN devotes a substantial portion of its resources to data management. A data management plan, which documents methods of data management, quality-checking, and preservation, is available at the network's web site. There, users can also find interactive versions of park species lists, historical climate and water quality data, and monitoring tools.

Communicating the information we collect in a useful, timely manner is crucial to the success of the NCPN program. Through annual monitoring reports and information briefs organized by park and by protocol, the network strives to provide park managers with clear documentation of its efforts and findings, in formats appropriate for and accessible to a variety of audiences. The NCPN will produce more extensive status and trends reports for each protocol in each park every 5–10 years. All of these products are available at the network's web site.

“If future generations are to remember us with gratitude rather than contempt, we must leave them more than the miracles of technology. We must leave them a glimpse of the world as it was in the beginning, not just after we got through with it.” These words from President Lyndon Johnson, at the signing of the 1964 Wilderness Act, may ring even more true today than then, and there are few places where we are better able to glimpse the world's beginnings than on the Northern Colorado Plateau. As national park managers face increasingly complex challenges, the Northern Colorado Plateau Network aims to provide them with the scientifically sound information they need to make decisions today and plan for tomorrow.