

Northern Colorado Plateau Network

Monitoring Brief

National Park Service
U.S. Department of the Interior

Intermountain Region
Inventory & Monitoring Program



2008

Integrated Upland Monitoring

Importance

Uplands represent the vast majority of land area in the Northern Colorado Plateau Network (NCPN), and include rock outcrops, badlands, shrublands, grasslands, woodlands, and forests. Upland vegetation provides energy to other trophic levels, habitat structure for various organisms, and is a significant component of species diversity. The ability of uplands to retain soil and nutrients, absorb and release water, and buffer high-runoff precipitation events is a major influence on riparian condition. Upland ecosystems are easily disturbed and slow to recover, yet several NCPN units contain relatively undisturbed examples of grasslands and shrublands. Historic land uses include livestock and timber production; more recently, recreational use has increased. To effectively manage uplands, the National Park Service needs to know the impacts of these uses.



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Vegetation transect used for upland monitoring at Canyonlands National Park.

Long-term Monitoring

Integrated upland monitoring includes measuring soil and site stability, hydrologic function, biotic integrity, vegetation composition and structure, and biological soil crusts. The NCPN is working collaboratively with the Southern Colorado Plateau Network to monitor upland ecosystems. A complex survey design incorporates plots that are visited in two consecutive years, followed by a relatively long interval between revisits, with plots that are visited only once every 5–10 years. This design minimizes the chances that sensitive, arid ecosystem plots will be damaged by repeated visits in successive years and is a cost-effective way to estimate the health of the upland ecosystem across a large area. NCPN upland monitoring is intended to strike a balance between increasing fundamental understanding of these systems and providing managers with early warning of undesirable change.



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Alkali sacaton bunchgrass at Capitol Reef NP.

Status and Trends

Upland monitoring began in Canyonlands NP (CANY) in 2006, and has been expanded each year since. In 2008, 40 plots at CANY were re-visited, along with 21 plots at Capitol Reef NP (CARE). An 39 additional plots were established at CARE in 2008, and 37 plots were established at Black Canyon of the Gunnison NP and Curecanti NRA. The NCPN will monitor each of these sites for three consecutive years to obtain an estimate of the variance in the parameters listed above. This information will help to determine how many plots are needed for monitoring. The pilot sites are selected in a manner that ensures they will be included in monitoring after the initial three field seasons and incorporated into the analysis of data in future full-scale efforts; analysis of the first three years of data collected at Canyonlands NP will begin in winter 2008–2009.

Contact

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Network park units where uplands are being monitored

Arches NP	Cedar Breaks NM
Black Canyon of the Gunnison NP	Curecanti NRA
Bryce Canyon NP	Dinosaur NM
Canyonlands NP	Timpanogos Cave NM
Capitol Reef NP	Zion NP

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