



2013

Natural Resource Monitoring at Dinosaur National Monument



National Park Service

Island Park, Dinosaur National Monument.

The Northern Colorado Plateau Network

The Northern Colorado Plateau Network (NCPN) covers a geologically and biologically diverse region comprising 16 national parks in four western states. These parks contain desert grasslands, shrublands, forests, caves, large rivers, perennial streams, seeps, springs, and striking geology. Invasive species, trampling and grazing by livestock, and adjacent land-use activities are some of the most significant threats to NCPN parks. The NCPN is designing and implementing a long-term monitoring program to measure key indicators of ecological integrity, or “vital signs.” Multiple monitoring efforts will help inform managers of the health of park resources and provide early detection of potential problems. This brief describes recent NCPN activities at Dinosaur National Monument.

Landbirds



Canyon wren.

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The NCPN is partnering with the Rocky Mountain Bird Observatory to assess breeding bird species trends in three habitats: lower riparian (LR), pinyon-juniper (PJ), and sage shrubland. In 2012, the eighth year of monitoring was completed, including three LR, four PJ, and five sage-shrubland transects at Dinosaur NM. The third year of trend analyses was completed this year, with significant trends detected for 10 species. Seven species exhibited declines in population density, one species showed an

increase, and two species showed a quadratic trend (e.g., increased in population density in early years, then decreased in later years). Canyon wren declined in two different habitats. Only gray vireo, in pinyon-juniper habitat, showed a steady increase. As additional years of data accumulate, long-term trends underlying annual fluctuations will be revealed. Long-term monitoring will continue to be necessary for interpreting population status and trends for avian species of the NCPN.

NCPN on Facebook



Since its inception in July 2012, the [NCPN Facebook page](#) has quickly become the most popular I&M page on the site. What started out as an effort to keep park staff better informed about our activities has turned into an opportunity to talk to several hundred people each day about science in the national parks and our contribution to it. Photos and posts from the field (our most popular content) help people to know who we are and what we do, and put

a human face on our program. As of October 2013, the NCPN page had 975 followers. Most lived in the Colorado Plateau area, but 16% hailed from 44 foreign countries. We usually reach about 1,000–1,500 people each week, but that number has risen into the several thousands on occasion. The goals of the page, and the barometers by which we gauge success, are evolving, but to this point we feel that the rewards have been worth the effort.

Nutrient Enrichment



Yampa River.

Nutrient impairment by nitrogen (TN) and phosphorus (TP) deposition is a primary cause of water-quality degradation nationwide. In response to recent state efforts to develop numeric nutrient water-quality criteria, the U.S. Geological Survey and NCPN published a report on nutrient concentrations in streams and rivers near and in NCPN parks during 1972–2007. Most sites showed either no trends or downward trends in TN or TP concentrations, which may be linked to improved management

of water resources. Although negative changes may indicate cause for concern, some cases of elevated nutrient concentrations were likely the result of natural processes, such as geologic weathering. At Dinosaur NM, two study sites persistently exceeded TN criteria and one site persistently exceeded TP criteria. Three sites had downward trends in TN; three showed no trend and one an upward trend. There were no trends observed for TP. The full report is available at <http://pubs.usgs.gov/sir/2012/5043/>.

Uplands

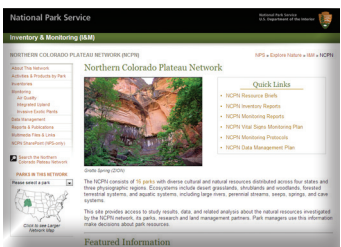


Grazing allotment.

NCPN uplands monitoring is intended to strike a balance between increasing fundamental understanding of upland systems and providing managers with early warning of undesirable change. This protocol measures soil stability, hydrologic function, and plant community characteristics. Sagebrush, grasslands, and, to a lesser extent, pinyon-juniper woodlands were selected for integrated uplands monitoring at Dinosaur NM. Monitoring began in 2009, the first of a three-year pilot study (2009–2011) to obtain an estimate of the variance in key parameters. The results of a power analysis performed on the three years of pilot data were

used to create a full operational sampling design, implemented in 2012. In 2013, network staff completed the fifth year of monitoring at the park. Pinyon-juniper woodlands were not sampled in 2013 due to cuts resulting from the federal budget sequester. In March 2013, data from the 2011 field season were published in a [summary report](#). This is the last summary report the NCPN will produce for uplands monitoring at Dinosaur NM, as the focus of our reporting will now shift to more detailed trends analysis. A status and trends report for Dinosaur NM will be produced after at least five years of data are collected.

Website Re-design



It's now easier to find everything you need from us at the [NCPN website](#). The network staff has completed the website re-design process planned for all 32 I&M networks. The result is a streamlined site that is easier to navigate. Each network park also has its own page where users can go to find out what the network is do-

ing at that park and access all NCPN products and publications relative to that park. The site continues to offer interactive features, such as the ability to retrieve a current park species list, and is more tightly integrated with the IRMA Data Store, which allows new publications to be posted to the site more quickly.

Budget Sequester Impacts



U.S. Capitol.

Sequestration took place in March for Fiscal Year 2013. This had a large impact on NCPN monitoring activities. NCPN had discussions with each park about which vital signs needed to be suspended in 2013. Dinosaur NM staff chose to cut invasive plant monitoring and the pinyon-juniper portion of uplands monitoring.

If the sequestration budget cuts are continued into Fiscal Year 2014, then network staff, park staff, the Technical Committee, and Board of Directors will have to have a detailed discussion that re-examines all vital signs and develops a strategic, longer-term approach to monitoring activities under the reduced funding levels.

Additional Efforts

In addition to the projects described in this brief, the NCPN also monitors air quality, landscape dynamics, land surface phenology,

climate, water quality, big rivers, invasive exotic plants at Dinosaur National Monument.

For more information

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