

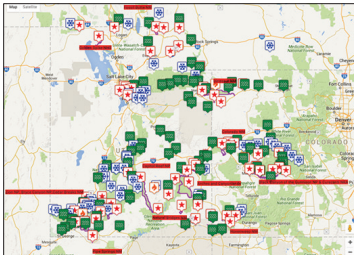


Natural Resource Monitoring at Colorado National Monument

The Northern Colorado Plateau Network

In 16 parks across four western states, the [Northern Colorado Plateau Network](#) (NCPN) is dedicated to providing National Park Service (NPS) managers with the information they need to make sound, science-based decisions. By conducting long-term monitoring of key indicators of ecological integrity, or “vital signs,” we help inform managers about the health of park resources and provide early detection of potential problems. In this way, we support the NPS mission of preserving the resources of America’s most special and treasured places for future generations. This brief describes recent NCPN activities at [Colorado National Monument](#).

Climate



NCPN weather stations.

The NCPN recently moved its [climate](#) monitoring toward interactive, user-defined data presentation. Network staff are working with developers of [The Climate Analyzer](#), an interactive website that allows users to create custom graphs and tables from historical and current weather-station data that update every 24 hours. Parameters include temperature and precipitation, snowfall and snowpack, and stream flow and water temperature. In July 2014, an NCPN version of [The Climate Analyzer](#) was launched, with data now available for each network park. In addition, “Climate

dashboards” for Dinosaur NM and the Southeast Utah Group parks (Arches NP, Canyonlands NP, Hovenweep NM, and Natural Bridges NM) present current conditions, forecasts, and recent data for numerous weather stations in one easy-to-access location. The dashboards also present the current condition of drought severity in the region through a link to the U.S. Drought Monitor. Additional NCPN dashboards are in development, and the page will continue to be refined as we receive feedback from users. More information can be found in our [2015 climate monitoring brief](#).

Invasive Exotic Plants



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Woolly mullein.

In 2013, a total of 14 [invasive exotic plant](#) (IEP) species were detected during monitoring at Colorado NM. IEPs were most prevalent along riparian areas. Yellow sweetclover (*Melilotus officinale*), woolly mullein (*Verbascum thapsus*), field bindweed (*Convolvulus arvensis*), and Siberian elm (*Ulmus pumila*) were the most widespread species found along monitoring routes. Cheatgrass (*Anisantha tectorum*) had the highest percent cover (1.4%) and highest frequency (48%) of all transects. Invasive species were found in reduced numbers than in previous years, presumably due

to park eradication and control efforts. Russian olive (*Elaeagnus angustifolia*) declined to its lowest recorded levels in 2013. Tamarisk (*Tamarix* sp.) continued its decline, reduced by 96% since 2003. Yellow sweetclover also showed a 68% reduction from 2011. Many IEPs were present in small, localized invasions that have a promising chance of successful control and eradication. Network staff returned to re-sample all monitoring routes in 2015. Reports for all years are available at <http://go.nps.gov/ncpnIEPreports>.

Landbirds



Pinyon jay.

The NCPN is partnering with the Bird Conservancy of the Rockies (BCR; formerly the Rocky Mountain Bird Observatory) to assess trends in breeding [bird](#) species in three habitats: lower riparian (LR), pinyon-juniper (PJ), and sage shrubland (SA). In 2014, the tenth year of monitoring was completed. BCR recorded 1,421 birds of 68 species in PJ habitats across nine network parks, including two PJ transects at Colorado NM. Each location was surveyed once. Throughout the network, BCR

recorded 48 bird species of conservation or management concern and estimated densities for 29 of those species. 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. Reports for all years are available at http://go.nps.gov/NCPN_LBreports.

Condition Assessment



Bighorn sheep at Colorado NM.

The NCPN has been working with park and regional staff and St. Mary's University to complete Natural Resource Condition Assessments (NRCAs) for network parks. NRCAs evaluate the current ecological conditions of priority park natural resources and processes. Priority natural resources for Colorado NM include pinyon-juniper woodlands, sagebrush shrublands, riparian habitats, springs and seeps, montane shrublands, canyon walls, reptiles and amphibians, birds, raptors, small mammals, mountain lions, bighorn sheep,

kit foxes, bats, air quality, dark night skies, soundscapes, paleontological resources, and geological features. Draft sections for these priority resources have been reviewed by park and network staff, as well as subject-matter experts. The final report is scheduled for completion in 2016. These documents are used to inform park planning and management decisions, and to provide broad, science-based support for documents, such as State of the Parks reports and Resource Stewardship Strategies.

Archiving Project

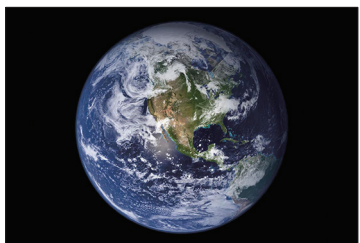


The Western Archeological and Conservation Center.

In fiscal year 2014, the NCPN obtained funding for professional archiving services through an existing agreement between the NPS Intermountain Region Museum Services Program and the University of Arizona School of Information Resources and Library Science. The archiving services include preparation of records for archiving, cataloging of all materials, the creation of finding aids, and physical storage of all records at the Western Archeological and Conservation Center (WACC)

in Tucson, Arizona. The WACC facility provides temperature and humidity-controlled storage conditions and a professional archives staff. As a result of this effort, all final products for the Colorado National Monument vegetation mapping project have been archived. This will help ensure the long-term preservation of these important records, as well as compliance with NPS rules, regulations, and policies related to archiving and records management.

Land Surface Phenology



MODIS image of Earth, with an opening in cloud cover over the Colorado Plateau.

The NCPN is working with cooperators at Pennsylvania State University and Northern Arizona University to develop software that automates processing of MODIS (moderate resolution imaging spectrometer) satellite imagery. The greenness of Earth's surface, as measured by the MODIS satellite, provides a way to [track soil moisture and](#)

[vegetation condition](#) across large spatial scales in remote areas at 16-day intervals. These satellite data are being used to interpret climate effects on vegetation in NCPN parks. The data are being analyzed in conjunction with data from NCPN uplands monitoring to determine if observations from space match what we see on the ground.

Additional Efforts

In addition to the projects described in this brief, the NCPN also monitors [air quality](#) and [landscape](#)

[dynamics](#) at Colorado National Monument.

For more information

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