

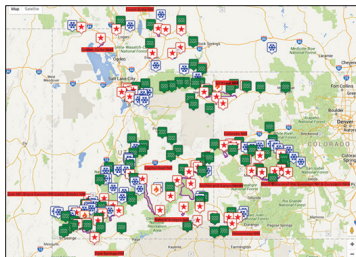


Natural Resource Monitoring at Pipe Spring National Monument

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 [Pipe Spring 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](#).

Landbirds



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Gray flycatcher.

[Landbirds](#) play an important role in the flow of energy through ecosystems and are sensitive to habitat changes, making them good indicators of habitat quality. 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 across the network. At Pipe Spring NM, the NCPN adjusted existing protocols to fit the park’s small size and the specific concerns of park managers. The modified methods will enable park managers to follow bird trends as they change management practices, and be comparable to those used in the larger NCPN bird monitoring study. In 2014, we conducted four point counts and four area searches at Pipe Spring NM. We detected 40 birds of 19

species during point counts and 51 birds and 10 additional species during nocturnal and diurnal area searches of the monument. We also recorded five species that had not been recorded by BCR in previous years at the monument: gray flycatcher (*Empidonax wrightii*), green-tailed towhee (*Pipilo chlorurus*), house wren (*Troglodytes aedon*), MacGillivray’s warbler (*Geothlypis tolmiei*), and pinyon jay (*Gymnorhinus cyanocephalus*). All five species were already known to occur in the monument. 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.

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 Pipe Spring 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.

New Species



Devil's claw.

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NCPN staff continues to update the park species lists as new species are discovered. Nine vascular plant species were recently added based on data obtained from the park curator via the Interior Collection Management System: the natives, California dodder (*Cuscuta californica* var. *californica*), devil's claw (*Proboscidea parviflora*), feather fingergrass (*Chloris virgata*), lesser duckweed (*Lemna minor*), Mohave hedgehog cactus (*Echinocereus triglochidiatus* var. *mojavensis*), and narrowleaf goosefoot (*Chenopodium leptophyllum*);

and the non-natives, field bindweed (*Convolvulus arvensis*), hollyhock (*Althaea rosea*), and yellow sweetclover (*Melilotus officinalis*). In addition, four mammal species were added based on recent bat surveys conducted in the park (Taylor et al. 2014): long-eared myotis (*Myotis evotis*), spotted bat (*Euderma maculatum*), western mastiff bat (*Eumops perotis*), and western red bat (*Lasiurus blossevillei*). Users can generate customized species lists for any network park at <http://go.nps.gov/NCPNspecies>.

Land Surface Phenology



NASA

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.

Social Media



The NCPN is using Instagram to reach a younger demographic.

The NCPN uses social media to reach broader audiences than are available to us via our NPS website. In 2015, posts on the network's [Facebook page](#) had more than 200,000 views. We use Facebook to promote network activities, publications, and parks; participate in agency-level social media efforts; and share links to stories about science in the national parks. The page has more than 2,500

followers, and an average reach of about 1,800 each week. In November 2015, we expanded our social media presence to Instagram (@ncpnps) and quickly became the most-followed Inventory & Monitoring network on that platform. Using [Instagram](#) allows us to reach a younger audience than Facebook, where less than 7% of our audience falls into the 13–24 age demographic.

Additional Efforts

In addition to the projects described in this brief, the NCPN also monitors [landscape dynamics](#) at

Pipe Spring National Monument.

For more information

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