

Rocky Mountain Network

RESOURCE BRIEF

National Park Service
U.S. Department of the Interior

Natural Resource Stewardship and Science
Rocky Mountain Inventory & Monitoring Program



Wetland Well Removal Project at Rocky Mountain National Park

2018 Status Update

Groundwater Wells and Wetland Health

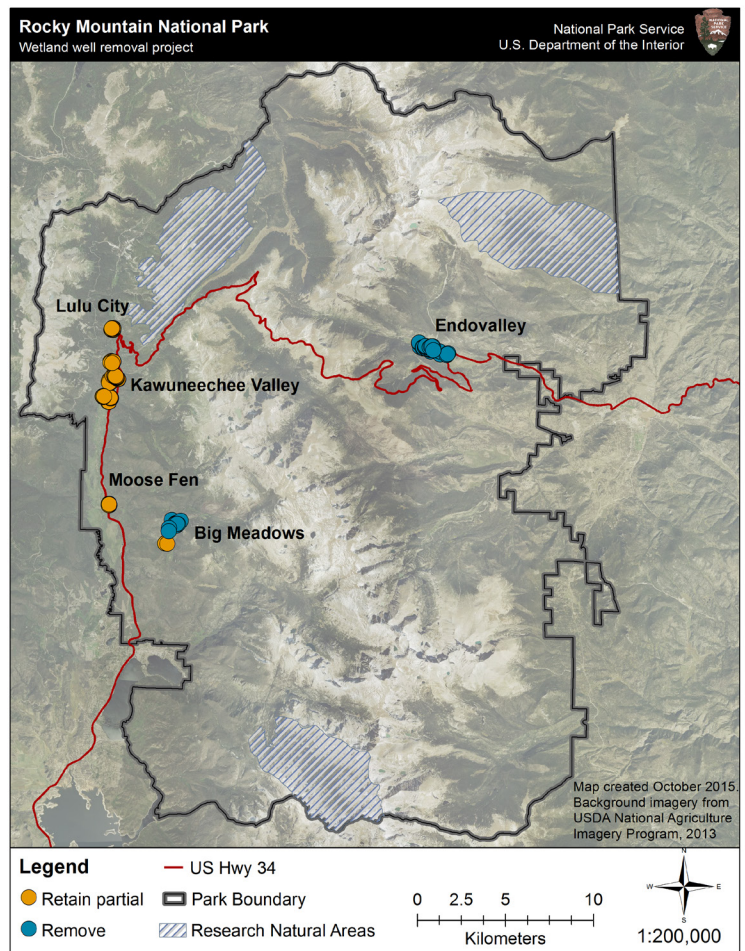
The cyclic pattern of water entering and exiting wetland habitat—its hydrologic regime—fundamentally shapes wetlands. It controls what types and amounts of plants grow and can be an early warning of disturbance when it fluctuates extremely. Changes in groundwater levels reflect the hydrologic regime, and are readily measured with groundwater wells.

At Rocky Mountain National Park, a network of wells—2-inch diameter PVC pipes set 1–3 m into the ground—has contributed to decades of wetland research and monitoring. These wells were installed by various researchers and park staff. In 2007, the network began vital signs monitoring in the park and installed additional wells. These wells help

- monitor the effectiveness of restoration efforts, such as the Grand Ditch Restoration project and the Elk and Vegetation Management Plan
- track “wetland ecological integrity”—one of the vital signs monitored in the park by the Rocky Mountain Network Inventory & Monitoring Program
- monitor specific wetland complexes that have served as benchmark or reference wetlands by researchers over many years

Retiring Old or Legacy Wells

Some wells, however, are no longer needed for research, or they overlap with existing well coverage. The Rocky Mountain Network, as a long-term partner of the park in wetland monitoring, committed to removing unused research equipment—whether installed by the network or other researchers—from the park. Accordingly, they began working with park staff to remove wells in 2015¹.



Master plan for well removal. Blue wells were to be removed because research project was complete. Orange represents well complexes where a majority were to be removed but some retained because of a long history of research and monitoring and their value as reference sites.

¹ [Rocky Mountain Network. 2016. Wetland well removal project: a partnership with the Rocky Mountain Inventory and Monitoring Network and Rocky Mountain National Park](#)

Progress to Date

Between 2015 and 2018, network staff, with park and research partners, targeted 192 wells to assess for removal. They examined the original purpose, location, and monitoring history of each well (or cluster of wells) and recommend one of three options:

1. Remove the well—no longer needed for research or monitoring
2. Retain the well—for ongoing research or monitoring
3. For multiple wells in a wetland complex: Retain a small portion (~3) of wells in an area for ongoing research or monitoring and remove redundant wells

To remove wells, a team of network and park staff relocate and dig out the well pipe. The area is restored by refilling the resulting hole with nearby soil and native plant material.

As of July 2018

- 81 wells have been removed, with the following personnel effort:
 - 2015: 50 hours, 2 people (total of 100 person hours)
 - 2016: 20 hours, 3 people (60 hours)
 - 2017: 30 hours, 3 people (90 hours)
 - Planned 2018: 40 hours, 2 people (80 hours)
- 30 final wells are scheduled for removal this September
- 33 wells have been retained for future monitoring
- 48 wells were “lost”—either washed out or buried by flooding, or previously removed without documentation

The network will continue to work with park staff to evaluate ground-water well coverage in the park and target unneeded wells for removal.



Well just before removal at Endovalley.

More Information

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Ready, set, dig at an Endovalley well.



Well successfully removed at Endovalley.

About ROMN

The Rocky Mountain Network is one of 32 vital signs monitoring networks across the National Park Service. It monitors status and trends in upland vegetation and soils, wetlands, streams, alpine vegetation, and other systems at six parks throughout Montana and Colorado.