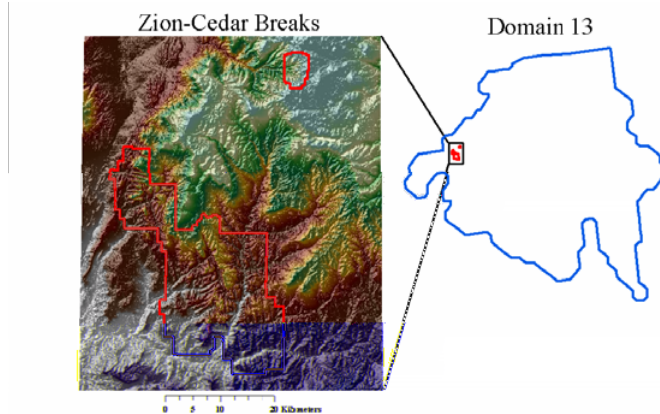


## Zion – Cedar Breaks (ZCB)

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**Websites:** <http://www.nps.gov/zion/> ; <http://www.nps.gov/cebr/>

**Location within Domain:**



**History:** National Park Service (NPS) units first established in 1909 (Zion National Park; expanded to current size in 1956) and 1933 (Cedar Breaks National Monument), in part for their potential to support scientific research; managed to preserve and protect natural features and processes, as well as to provide opportunities for scientific research; each unit with a long history of ecological studies.

**Key Characteristics:** Steep elevation / precipitation gradient from < 1200 m / 38 cm yr<sup>-1</sup> at the edge of the Mojave Desert in Zion to > 3200 m / 75 cm yr<sup>-1</sup> in Cedar Breaks over a horizontal distance of < 60 km; geologic, edaphic, and ecological heterogeneity characteristic of the Colorado Plateau Physiographic Province; tremendous biotic diversity attributable to landscape heterogeneity and location at the confluence of the Colorado Plateau, Great Basin, and Mojave Desert; current vegetation (riparian woodlands, blackbrush shrublands, sagebrush steppe, pinyonjuniper woodlands, montane coniferous forests, subalpine meadows), water resources (springs / hanging gardens, Virgin River), land-ownership patterns (high-value private lands within and surrounding Zion), encroaching urbanization (population growth in Washington County is 5th highest in nation), and on-going invasive plant programs can support ecological research resources related to climate, land use, and invasives; partnerships with the U.S. Geological Survey, USDA Forest Service, several regional universities, and local volunteer and educational institutions.

**Existing Infrastructure:** Participant in several existing networks including National Weather Service (NWS) Cooperative Observer Program (since 1948 for Zion; since 1964 for Blowhard Mountain near Cedar Breaks), NWS SOWNET, NPS Northern Colorado Plateau Inventory and Monitoring Network (<http://www1.nature.nps.gov/im/units/ncpn/index.cfm>), and Interagency Monitoring of Protected Visual Environments (IMPROVE; <http://vista.cira.colostate.edu/improve/>); airborne particulate monitoring since 2000 and ozone monitoring since 1995; 289 permanently marked vegetation plots last sampled in late 1980s; USGS stream gauge on Virgin River; nine research natural areas in Zion, representing 6 percent of Park area and range of major ecological units; extensive GIS data library (<http://science.nature.nps.gov/nrdata/>); archive of historical landscape and aerial photographs.

**Facilities:** Network, meeting, greenhouse and nursery facilities in Zion (at south end of gradient); potential for providing low-cost housing and primitive camp sites to support research; potential staff support from NPS or associated volunteer groups for data collection and infrastructure maintenance.