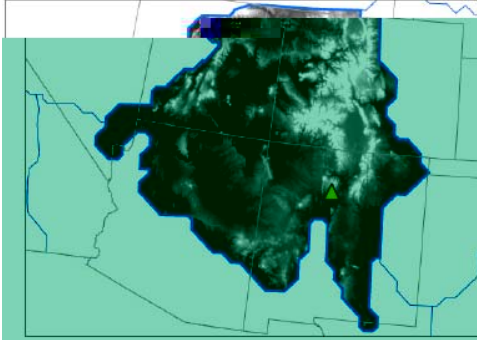


## Jemez Mountains (VCD)

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The Jemez Mountains in northern New Mexico are located at the southern tip of the Rocky Mountains, and form a significant portion of the upper Rio Grande watershed. The area is a volcanic caldera (1.25 my bp), and forms the headwaters of the Jemez River and numerous other smaller tributaries to the Rio Grande. The proposed research areas are all Federal properties, and are comprised of the **Valles Caldera National Preserve (VCNP)**, **Bandelier National Monument**, **Los Alamos National Laboratory (LANL)**, and the **Santa Fe National Forest (SFNF)**. Elevations range

from 1,585 m at the Rio Grande on Bandelier, to over 3,500 m on the Valles Caldera. Ecosystem types include semi-arid and montane grasslands, and forests grading from low-elevation piñon-juniper woodland through Ponderosa pine to mixed-conifer/aspen to high-elevation spruce forests. Forests include a mix of previously logged (20<sup>th</sup> century) and old-growth stands. Recent climate dynamics have resulted in large-scale changes in woodland/forest tree



**View of Jemez Mts. caldera on VCNP.**

composition and dominance (e.g., high mortality of piñon pines and some Ponderosa pines at lower elevations). Grasslands are still dominated by native species, although ~10% of grass/forb species are non-natives. The Jemez Mountains contain numerous 1<sup>st</sup> and 2<sup>nd</sup>-order perennial streams, one 3<sup>rd</sup>-order stream (Jemez River), and the Rio Grande; ephemeral streams also are present.

Existing research infrastructure and biological long-term studies include: AmeriFlux site in VCNP grassland (operated by LANL); 2 ET Flux towers from U. Arizona SAHRA NSF-STC program in VCNP forests; 4 ET Flux towers at LANL in piñon-juniper; Stable isotopes composition CO<sub>2</sub> exchange monitoring at LANL (2004 to date); NOAA CRN station on VCNP; 5 Campbell met stations on VCNP; 4 weather stations at Bandelier; 6 weather stations at LANL; 1 RAWS weather station on SFNF; NADP site on Bandelier; IMPROVE Program modular aerosol sampler at Bandelier; two 1<sup>st</sup>-order streams gauged at Bandelier; one 1<sup>st</sup>-order stream and two 2<sup>nd</sup>-order streams to be gauged in summer 2007 on VCNP; 6 ephemeral streams gauged on LANL; one 3<sup>rd</sup>-order stream gauged on SFNF Jemez District; Rio Grande gauged just above Bandelier/LANL; streamwater chemistries monitoring at VCNP and LANL; Soil/ground-water data at LANL (1960s-present); Soil microbe studies/monitoring at LANL; Tree dendrometer measures (1992-present) at Bandelier/LANL; ongoing long-term field studies on plants and animals in both terrestrial and aquatic ecosystems; museum voucher specimens archived at Univ. New Mexico; GIS already developed for LANL, Bandelier, VCNP, and SFNF. Laboratory space (~3,000 sq. ft) is available on site, with visiting resident housing on site and in Jemez Springs at VCNP HQ. Wireless cloud for instrument data transmission to be installed in 2007. T-1 internet connection to VCNP field laboratory (Union Building).