

## Reynolds Creek Experimental Watershed (RCE) [USDA-ARS]

The Reynolds Creek Experimental Watershed was established nearly 50 years ago to address critical water issues on western rangelands (<http://ars.usda.gov/>). The RCE watershed (239 km<sup>2</sup>) is located on rangeland in the north flank of the Owyhee Mountains ca. 80 km southwest of Boise, ID (Fig. A1-66). Primary land use is livestock grazing with some irrigated fields along the creek at the lower elevations, and timber harvesting at higher elevations. Semi-arid sagebrush communities typical of the Great Basin are found at lower elevations while aspen and Douglas fir stands increase with elevation on deep soils.



Fig. A1-66. Reynolds Creek Experimental Watershed (RCE USFS) is located in southwestern Idaho, and includes Great Basin rangeland at low elevations with aspen and Douglas fir communities at higher elevations. Streamflow is measured using a drop-box weir. Photo: RCE photo gallery.

**Research focus.** Research on the watershed has changed focus over the past 40 years, starting initially with monitoring and describing hydrologic processes, and migrating toward development of computer-based tools to address critical water supply, water quality and rangeland management problems.

These tools are developed in an environment of intense monitoring and field experimentation. Currently, there are 104 data collection sites in the RCE measuring environmental parameters such as streamflow, snow depth, precipitation, soil water, and temperature. Specific research projects include: (1) studies of pre- and post-fire hydrology to evaluate the hydrologic impacts of juniper invasion and juniper removal, and to evaluate prescribed-fire impacts on other vegetation, soil and animal resources. Our results show that erosion is reduced after juniper removal and recovery of grasses. (2) Research of snow accumulation and melt dynamics in mountainous terrain. We are working with the Natural Resource Conservation Service to use the snowmelt modeling tools to improve streamflow forecasting. (3) Research on cattle behavior is being evaluated using telemetry tracking collars to determine how prescribed fire treatments for juniper and brush control affect cattle distribution and activity patterns.