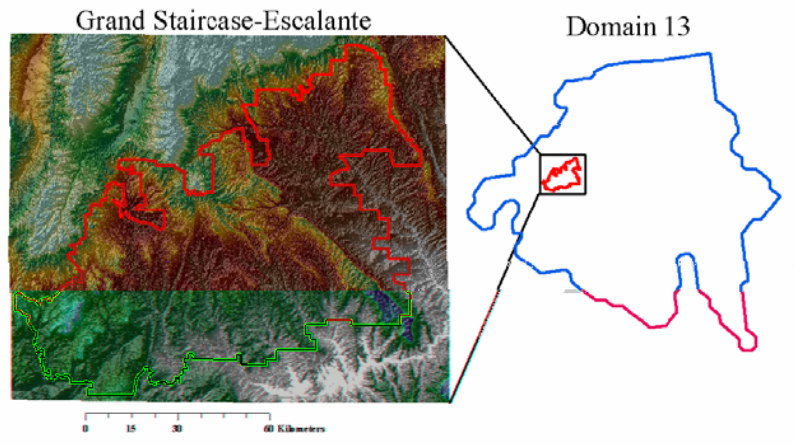
Grand Staircase-Escalante National Monument (GSE)

Contact Person: Mark Miller; e-mail: mark_miller@usgs.gov; Voice: 435-644-4325**;**
Website: http://www.ut.blm.gov/monument/
Location within Domain:



History: The "Grand Staircase" is a stepped sequence of sedimentary geologic formations rising north from the Grand Canyon, first described by geologist Clarence Dutton in 1870s; designated for its scientific and historic values in 1996 as the first and largest national monument managed by the Bureau of Land Management; managed according to two principles – (1) to protect the primitive character of Monument wildlands, and (2) to provide opportunities for scientific research in the context of a multiple-use management mandate; increasingly a focus of broadscale, applied ecological research on the Colorado Plateau.

Key Characteristics: Tremendous geologic, edaphic, and ecological heterogeneity are characteristic of the Colorado Plateau Physiographic Province; current vegetation (riparian woodlands, sagebrush steppe, pinyon-juniper woodlands, and montane coniferous forests), edaphic and climatic gradients, land-use legacies, and contemporary management activities (livestock grazing; broad-scale restoration efforts) can provide a rich framework for investigating ecological research themes associated with climate, land use, and invasives; elevation / precipitation range from 1650 m / 35 cm yr-1 at the base of the Vermillion Cliffs to > 3100 m / 70 cm yr-1 at the top of the Pink Cliffs in the Dixie National Forest; partnerships with the U.S. Geological Survey (USGS research ecologist on-site), USDA Forest Service, Northern Arizona University, the National Park Service, and local volunteer and educational institutions.

Existing Infrastructure: Network of 18 automated weather stations installed in 1997, with upgrades to soil-moisture sensors in 2006; new soil survey completed by USDA in 2005 (data on-line at http://soildatamart.nrcs.usda.gov/); on-line GIS data library; additional geospatial data include digital true-color aerial photography and predictive models of potential biological soil crust composition and contributions to ecosystem function (e.g., spatial patterns of potential N fixation); network of 386 permanently marked modified-Whittaker vegetation plots, last sampled during 1998-2003; separate data sets describing condition of upland (> 600 plots) and riparian / wetland (> 500 plots) ecosystems collected 2000-2003; USGS streamgauge data; distributed network of livestock exclosures expected to increase in number over the next five years.

Facilities: Laboratory, network, and meeting facilities exist in BLM offices in Kanab (15 km west of Monument at southwestern end of elevation gradient) and Escalante, Utah (near northeastern end of elevation gradient); potential staff support from BLM and USGS for data collection and infrastructure maintenance.