

Geologic Resource Management

Recognizing the interrelationships between the physical (geology, air, and water) and biological (plants and animals) components of the Earth is vital to understanding, managing, and protecting natural resources. The Geologic Resource Inventory helps make this connection by providing information on the role of geology and geologic resource management in parks.

Geologic resources for management consideration include both the processes that act upon the Earth and the features and products formed as a result of these processes.

- Geologic processes include erosion and sedimentation; seismic, volcanic, and geothermal activity; glaciation, rockfalls, landslides, and shoreline change.
- Geologic features include mountains, canyons, natural arches and bridges, minerals, rocks, fossils, cave and karst systems, beaches, dunes, glaciers, volcanoes, and faults.



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*For additional information see,
<http://www.nature.nps.gov/geology/inventory/>

Natural Resource Program Center Geologic Resource Inventory



Geologic resources serve as the foundation of park ecosystems and provide important information needed for park decision making. Helping parks understand the role that geology plays in the environment is a core function of the Geologic Resource Inventory.



Purpose

The Geologic Resource Inventory (GRI) is one of 12 natural resource inventory efforts within the National Park Service (NPS) Inventory and Monitoring Program. The Program strives to advance science-based management of natural resources in the national parks. The GRI aims to raise awareness about geology and the role that geologic features and processes play in the environment. The Inventory and Monitoring Program serves natural resource managers and staff, park planners, interpreters, researchers, and other NPS personnel. The Geologic Resources Division of the NPS Natural Resource Program Center administers the GRI.

Products

The GRI team, working closely with the Colorado State University Earth Science Department and a variety of other partners, provides each of the 270 natural area parks with a geologic scoping meeting, digital geologic map data, and a park-specific geologic report. These products are designed to enhance stewardship of park resources by providing valuable information about geologic formations, hazards, and links between geology and other natural resources. The maps and reports are available for use by a wide variety of audiences.

Scoping Meetings

The GRI team conducts scoping meetings at parks to review available data on park geology and discuss geologic issues. Meeting participants may include the park managers and staff; geologists from the U.S. Geological Survey, state surveys, academic and private sectors; and other interested parties. The team evaluates the extent and quality of existing geologic maps and park-specific geologic resource management issues. In parks that lack or have inadequate map coverage the GRI may provide funds for new mapping.



Digital Geologic Maps

Digital geologic maps reproduce all aspects of traditional paper maps, including notes, legend, and cross sections. Bedrock, surficial, and special purpose maps such as coastal or geologic hazard maps may be used by the GRI to create digital data and meet park needs. These data allow geologic information to be easily viewed or analyzed in conjunction with a wide range of other resource management information in park geographic information systems (GIS). For example,

- Sequoia and Kings Canyon National Parks – Document glacial response to climate change
- Buffalo National River – Explore groundwater and karst interaction
- Dinosaur National Monument – Identify threatened plant habitat
- Coronado National Memorial – Locate threatened animal habitat
- Yosemite National Park – Identify areas with rockfall potential



Geologic Resource Inventory Reports

GRI reports include,

- Identification of key geologic resource management issues.
- Discussion of geologic features and processes important to park ecosystems and management.
- A map unit properties table that identifies characteristics of geologic map units.
- A brief geologic history of the park area.

All GRI products are available on the GRI products web site (http://www.nature.nps.gov/geology/inventory/gre_publications.cfm). Additionally, digital geologic maps are posted on the NPS Data Store (<http://science.nature.nps.gov/nrdata/>).

