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Conservation and Protection of Caves and Karst in the National Parks

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Abstract

Caves and karst features occur in 120 (81 contain caves and an additional 39 contain karst) parks in all regions of the National Park System. Over 3,900 caves are currently known throughout the system.[i] Eleven parks provide some type regular guided tours of caves. The number of caves per park unit ranges from 10 caves—as in the Chesapeake & Ohio Canal National Historic Park, to more than 400 caves—as in the Grand Canyon National Park. The National Park Service's national cave/karst program is coordinated by one person in a central office in Denver Colorado. Servicewide, as of 2002, even though 81 parks have significant cave or karst resources 21 people stationed in 14 park units are devoted to cave and karst management.

A National Park Service cave management plan for an individual park should provide for the following: (1) The protection of natural processes in cave ecosystems, within karst landscapes. (2) Scientific studies and researches in or about cave and karst resources and systems to increase the park's scientific knowledge and broaden the understanding of its cave resources. (3) Detailed cartographic survey of caves and cave systems, and a detailed inventory of resources within cave systems. (4) Educational opportunities for a broad spectrum of park visitors to safely visit, study, and enjoy caves at a variety of levels of interest and abilities. (5) The establishment of regulations, guidelines, and/or permit stipulations that will ensure maximum conservation of cave resources. (6) Direction for cave restoration activities that remove unnatural materials or restore otherwise impacted areas. (7) The establishment of standard operating procedures in the maintenance and upkeep of developed cave passages and monitoring of natural environmental conditions and visitor use impacts. (8) The protection of related cultural resources, and (9) Ensuring the sustainable use of cave resources.

MANAGEMENT OF CAVES AND KARST SYSTEMS

In 1988, the U. S. Congress created a major impetus for the involvement of the United States in cave and karst protection and management by passing the landmark **Federal Cave Resources Protection Act of 1988** (Public Law 100-691;November 18,1988). The act directs the secretaries of the Department of the Interior and the Department of Agriculture to inventory and list significant caves on federal lands and to provide management and dissemination of information about caves. A current, nationwide assessment of significant federally owned caves is cataloging the known caves on federal land and further increasing the impetus for cave management and research.

In 1990, the Congress also directed the Secretary of the Department of the Interior, acting through the National Park Service, to establish and administer a program on cave research and to examine the feasibility of a centralized national cave and karst research institute. The feasibility study was prepared in cooperation with other federal agencies that manage caves, organizations that are involved in cave-related topics, cave experts, and interested individuals and was forwarded to the Congress. Based on the results of the study, a bill (S. 231) was introduced in the 105th Congress to establish the National Cave and Karst Research Institute in New Mexico.

NPS management policies relating to cave and karst management are as follows.

4.8.1.2 Karst

The Service will manage karst terrain to maintain the inherent integrity of its water quality, spring flow, drainage patterns, and caves. Karst processes (the processes by which water dissolves soluble rock such as limestone) create areas typified by sinkholes, underground streams, caves, and springs.

Local and regional hydrological systems resulting from karst processes can be directly influenced by surface land use practices. If existing or proposed developments do or will significantly alter or adversely impact karst processes, these impacts will be mitigated. Where practicable, these developments will be placed where they will not have an effect on the karst system.

4.8.2.2 Caves

As used here, the term "caves" includes karst (such as limestone and gypsum caves) and non-karst caves (such as lava tubes, littoral caves, and talus caves). The Service will manage caves in accordance with approved cave management plans to perpetuate the natural systems associated with the caves, such as karst and other drainage patterns, air flows, mineral deposition, and plant and animal communities. Wilderness, and cultural resources and values will also be protected.

No developments or uses, including those that allow for general public entry, such as pathways, lighting, and elevator shafts, will be allowed in, above, or adjacent to caves until it can be demonstrated that they will not unacceptably impact natural cave conditions, including sub-surface water movements. Developments already in place above caves will be removed if they are impairing or threatening to impair natural conditions or resources.

Parks will strive to close caves or portions of caves to public use, or to control such use, when such actions are required for the protection of cave resources or for human safety. Some caves or portions of caves may be managed exclusively for research, with access limited to permitted research personnel. All recreational use of undeveloped caves will be governed by a permit system. "Significant" caves will be identified using the criteria established in the 43 CFR Part 37 regulations for the Federal Cave Resources Protection Act of 1988 (FCRPA). As further established by the FCRPA, specific locations of significant cave entrances may be kept confidential and exempted from FOIA requests.

6.3.11.2 Caves [in wilderness]

All cave passages located totally within the surface wilderness boundary will be managed as wilderness. Caves that have entrances within wilderness but contain passages that may extend outside the surface wilderness boundary will be managed as wilderness. Caves that may have multiple entrances located both within and exterior to the surface wilderness boundary will be managed consistent with the surface boundary; those portions of the cave within the wilderness boundary will be managed as wilderness.

[i] Ek, David, report to the 2001 Geologic Resources Division Annual Report