

SOUTHWEST

The Southwest Regional Office, in conjunction with the University of Colorado and the NPS Water Resources Division in Fort Collins, Colorado, has initiated a water infiltration study at Carlsbad Caverns National Park in New Mexico. Several years ago, cave specialists became concerned about runoff from parking lots and the possibility of sewage leaks from park facilities. In fact, recent videography of existing sewerlines indicates that the lines may have been leaking for many years. This is a servicewide concern, since the majority of NPS-administered caves, Carlsbad Caverns among them, are solution caves. That is, they are formed by water dissolving away limestone. The geologic features, such as joints, bedding planes, and faults, which facilitated water flow

to create these caves, can become the routes of travel for other pollutants, as well.

Scientists have made several discoveries from the research and inventory trips to Carlsbad Caverns. Fecal coliforms have been found in an undeveloped section of the cavern which is associated with drippings from the cave ceiling. Additionally, researchers have noticed unusual molds and fungi growing on walls and ceilings of the cave in remote areas. The water infiltration study will examine the possible correlation of the discovery of fecal coliforms and the molds and fungi to these sewage leaks.

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After two full seasons of fieldwork, the inventory phase of the Montezuma Castle National Monument, Arizona, inventory and monitoring project is now completed. This multidisciplinary effort of researchers from Northern Arizona University and the Colorado Plateau Research Station (National Biological Survey Cooperative Parks Studies Unit) has been supported by small park Natural Resources Preservation Program (NRPP) funds. Some important results of the inventory include: 1. characterization and mapping of the desert riparian and associated upland vegetation communities, 2. discovery of additional new aquatic invertebrate species from the unique limestone sink spring at Montezuma Well, 3. documentation of state listed sensitive fish species (desert sucker and Sonoran sucker) in stream habitats at the park, 4. detailed description of the bird community in the area, which includes nesting common black-hawks and yellow-billed cuckoos, and 5. documentation of the loss of several native mammal species from

the area in historic times, probably due to long-term habitat change.

Montezuma Castle and the Western Regional Office are providing funding to begin long-term monitoring, concentrating on riparian and associated habitats. The inventory and monitoring effort at the park has received the continued support and commitment of the superintendent and staff, and also regional office staff (Southern Arizona Group, and the Western Regional Office). This sustained commitment is crucial to any extended project, and is particularly important as we move into the long-term monitoring phase which will begin in spring 1995.