

## NAU helping to restore Fossil Creek

Come this December, Fossil Creek in the Mogollon Rim country of central Arizona will flow like it once did nearly a century ago before a dam diverted the water to the state's first hydroelectric plant.

Several agencies are involved in restoring the riparian habitat of Fossil Creek by removing the dam that fed water to the historic Childs-Irving power plants. Keeping track of the many effects of these restoration activities will be a team of faculty and students from Northern Arizona University led by **Charlie Schlinger**.

Other agencies with active roles in this complex and historic monitoring program include Arizona Public Service, which owns the plants; U.S. Forest Service; U.S. Bureau of Reclamation; U.S. Fish and Wildlife Service; Arizona Game and Fish Department; and the Federal Energy Regulatory Commission.

Schlinger and **Bill Auberle** of NAU's engineering faculty, along with NAU faculty scientists in biology, geology and parks and recreation, recently received a \$145,000 grant from the Nina Mason Pulliam Charitable Trust to support the Fossil Creek study. This is the first grant awarded by the trust to NAU.

"This project is to monitor and evaluate many of the actions that will come about as a result of decommissioning these hydroelectric facilities, especially the dam," Schlinger said. "The grant from the Nina Mason Pulliam Charitable Trust signifies the importance of this project to Maricopa County and, indeed, all of Arizona."

Schlinger said the project is of interest to many others, including the Yavapai-Apache Nation, the communities of Pine, Payson and Strawberry, the Nature Conservancy, American Rivers, Center for Biological Diversity, Audubon Society and Sierra Club.

After water flows are restored to Fossil Creek, and once the facilities are completely decommissioned, APS will transfer full control of the area to the U.S. Forest Service, which will maintain it for wildlife habitat, endangered species protection and creek-side recreation.

Fossil Springs, just above the power plant dam, once provided year-round water flow to Fossil Creek of about 300 gallons per second. When the dam was built in the early 1900s, a series of canals, pipes and tunnels diverted the water to the power plant at Childs and later a second plant at Irving, which generated electricity for the mining community of Jerome. As a result, a 14-mile stretch of Fossil Creek below the dam went dry.

At full capacity, five megawatts of power were produced at both power plants, compared to the thousands



Fossil Creek above the diversion dam.  
Photo by Charlie Schlinger.

of megawatts produced at modern coal and nuclear plants, according to Schlinger. "Even so, the Childs-Irving facilities remain viable. Yet APS is committed to the restoration of flows to Fossil Creek and signed an historic agreement to do so," he said.

The NAU team will collect baseline data during 2004 before the decommissioning begins so they can track changes over time. Anticipated changes include the reintroduction of native fish, which became isolated upstream of the dam, and the reestablishment of travertine pools created by the calcium-rich water of Fossil Springs. Schlinger's team also will be monitoring the release of sediments that are now trapped behind the dam and looking at the entire creek system, from the diversion dam down to the confluence with the Verde River.

In addition to evaluating the state of the Fossil Creek watershed and monitoring the impacts of decommissioning, the group also will work with the Forest Service on possible adaptive management strategies.

"No one knows the full set of effects of restoring flows to Fossil Creek ahead of time, so the land management agency, in this case the Forest Service, will have to be flexible in how the area is managed to accommodate changing circumstances. This is the essence of adaptive management," Schlinger said.

After the restoration of flows in December, Schlinger said, the plan is to fully decommission the Childs-Irving facilities and restore, to the greatest extent practical, the disturbed areas to their natural splendor by 2009.