

Celebrating Arizona's Rivers

Each month during Arizona's centennial year, we will profile a different river in celebration of the state's precious natural resources. From the mighty Colorado to the smallest ephemeral streams, these waterways have supported Arizona's people and places for thousands of years. With good stewardship and thoughtful planning, they will continue to flow into Arizona's next 100 years.

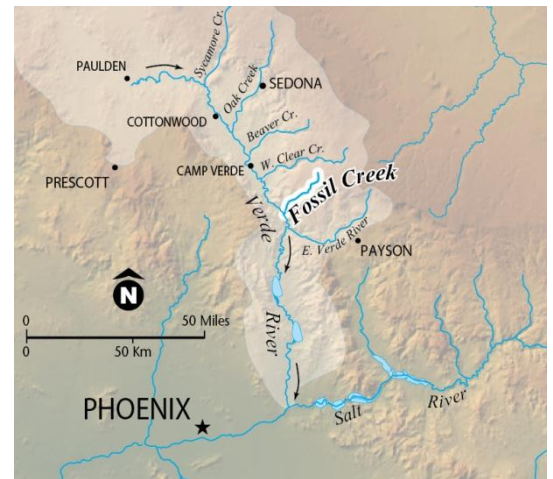
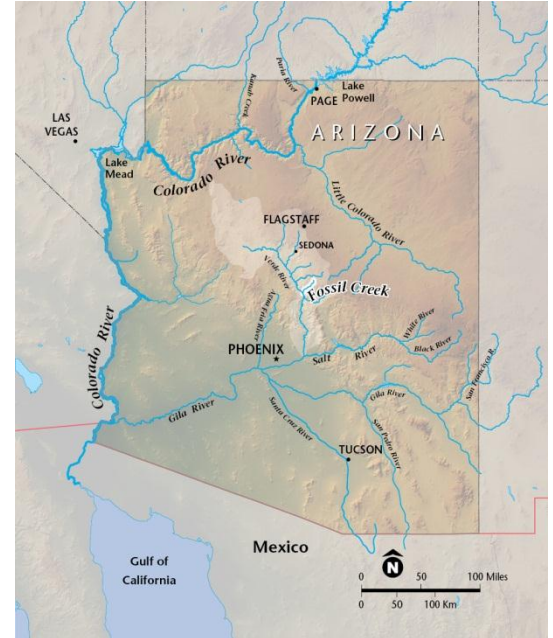
December 2012: Fossil Creek

For nearly one hundred years, a dam and flume on Fossil Creek, a major tributary of the Verde River, diverted water to the Childs and Irving power plants. Owned and operated by Arizona Public Service Company (APS), these plants powered mining operations in the Jerome and Bradshaw Mountains areas, and later sent power to Prescott and Phoenix as well. However, the diversion significantly reduced flows in all but a half mile of the nearly 17-mile creek, damaging the unique and fragile riparian ecosystem it once supported. And while the Childs-Irving plants had once been an important source of electricity, by the early 1990s they provided only a very small percentage of the power going to the APS grid. In 1999, in light of the unique natural resources being impacted by the dam and after years of activism and collaboration among diverse stakeholders, APS decided to decommission the dam and shut down the power plants – enabling the restoration of Fossil Creek.

This decision was especially remarkable because it was made not through litigation, but through collaboration and dialogue among APS, state and federal agencies, the Yavapai-Apache Nation, and many others, including a number of environmental groups. In 2005, the dam was decommissioned and restoration efforts began. These efforts culminated in 2009 when Fossil Creek became the second river in Arizona to receive federal designation as a “Wild and Scenic River” and was designated an Outstanding Arizona Water by the state – significant achievements considering that for 100 years Fossil Creek was often completely dry.

Today, Fossil Creek once again flows year-round for its entire length and supports re-introduced native fish species that had been eradicated by the loss of flow in the creek. The story of the restoration of Fossil Creek is symbolic of a larger story: a new paradigm that recognizes that it is possible to balance human use of waterways with the health of the natural environment.

Geography. Fossil Creek originates north of the community of Pine at Fossil Springs, a series of springs at the bottom of a deep canyon of the Mogollon Rim. Fossil Springs provides approximately three-quarters of the creek's water, with the remainder added by widely variable runoff from rainfall and snowmelt. The springs flow at an impressive 20,000 gallons per minute out of over 100 fractures and holes in the canyon walls, and emerge at a constant temperature of 72 degrees Fahrenheit.



Top image: Watershed of the Verde River in relation to other Arizona rivers. **Bottom image:** Detail showing Fossil Creek in the Verde River watershed.



Fossil Creek. Photo courtesy U.S. Forest Service.

From Fossil Springs, Fossil Creek flows southwest, primarily through national forest lands – including several designated wilderness areas – and forms the boundary between Gila and Yavapai Counties. The creek’s channel runs through a gradually widening canyon, and joins the Verde River approximately 20 miles southeast of Camp Verde.

Throughout the creek’s course, deposition of travertine is once again creating the deep pools and waterfalls that had been disrupted by the presence of the dam. Over time, this limestone deposit gradually encases anything that falls into the creek, creating the fossil-like features for which it is named.

Ecology. Fossil Creek supports a lush variety of vegetation, including many deciduous trees and six sensitive and endangered plant species. The revitalized creek is now considered to be the prime native-fish restoration area in Arizona. Species supported by Fossil Creek include:

- Threatened and endangered native fish species, such as the loach minnow and spikedace, which were once eradicated from Fossil Creek but were re-introduced in 2007 and are now thriving;
- The Fossil Spring snail and Page caddisfly, both unique to Fossil Creek;
- Many threatened and endangered bird species, such as the Mexican spotted owl, southwestern willow flycatcher, and western yellow-billed cuckoo; and
- Reptile and mammal species that rely on the year-round flow of water and associated habitat.

Use. Since the decommissioning of the dam, diversion of water from Fossil Creek has decreased significantly. Ongoing uses include:

- Livestock grazing on national forest lands throughout the watershed; and
- Recreational activities, including hiking, swimming, sunbathing, and bird- and wildlife-watching. Fossil Creek’s flowing water serves as an oasis for people and wildlife in contrast to the desert that surrounds it.



Threats to Fossil Creek include:

- Invasive species, such as crayfish, which thrived below the dam before it was decommissioned. Since the dam prevented these species from moving upstream to Fossil Springs, a concerted effort to remove them was undertaken before the decommissioning in 2005; however, invasive species are an ongoing problem in riparian ecosystems.
- Increased impacts from recreation as the restored creek attracts more visitors, including overuse of campsites and trails.

The restoration of Fossil Creek has garnered national attention among resource and land managers, scientists, and the public, and is a notable example of ecosystem restoration achieved through widespread collaboration and dialogue. Ongoing protection and restoration efforts will ensure that Fossil Creek remains a thriving oasis for people and wildlife for years to come.

