

Importance of the River and Riparian Habitat in the Upper Verde River Threatened by Diminished Base Flow

CWAG Science Committee

INTRODUCTION

The Verde River headwaters originate below Sullivan Lake near the terminus of Granite Creek. The Upper Verde River receives about 80% to 86% of its current base flow from springs that draw from the Big Chino groundwater sub-basin. Major transient flows above the base flow generally occur as the result of surface runoff from seasonal precipitation.

The Upper Verde runs approximately 24 miles from its source through US Forest Service and Arizona Game and Fish land to Perkinsville in the Verde Valley. The relatively stable hydrologic and thermal regimes of the headwaters that exist today in the Verde River complex are unique, yet follow basic hydrological principles of all river systems in the southwestern United States.

The Verde River is one of Arizona's remaining key riparian areas, and is heavily relied upon by wildlife. Seventy-five percent of animals rely on riparian areas for at least a part of their life cycle, yet a high percentage of river riparian areas in Arizona have been lost. The Verde River supports various distinct ecosystems, which include diverse mixtures of vegetation, animals, and other organisms of special concern including those threatened, such as the spikedace, and endangered, such as the razorback sucker.

The ecological value of the Upper Verde River results in significant economic, recreational, and aesthetic benefit to the citizens of Yavapai and Coconino counties, as well as the State of Arizona, and has earned international attention as well. The river flows and habitat along the Verde River headwaters remain in relatively natural states for now, but vigilance and action are important for maintaining this rare habitat.

PHYSICAL DESCRIPTION

The Verde River begins perennial flow downstream from Sullivan Lake in a vertical walled canyon of volcanic rock. As it proceeds downstream, the surrounding terrain becomes hilly, and the river alternately flows through meadows and narrow steep canyons with large bluffs. Downstream from Perkinsville, the riverbed widens forming gravel bars, particularly where side canyons join the mainstem. Below Sycamore Canyon, the floodplain narrows, and the river cuts through a fairly steeply walled canyon until it emerges into the relatively broad and populated Verde Valley.

HABITAT DESCRIPTION

The Verde River provides a home for a great number of diverse animal and plant species. The riparian zone ("ribbon of green") of the Upper Verde River headwaters is characterized by a community of trees and shrubs dominated by willow, ash, walnut, juniper, mesquite, and invasive salt cedar. These are areas of great plant diversity and provide homes for a large collection of wildlife species. Riparian vegetation along the Upper Verde River provides habitat critical for native fish species. The trees provide shade, which reduces water temperatures and allows the water to hold more oxygen, permitting the fish to thrive. This shade is especially important in the summer when the flows in the Upper Verde River are at their lowest.

The Upper Verde River maintains a significant native fish community in its headwaters. It provides sanctuary for existing native fish and for the recovery of other native fish listed as threatened or endangered. Several listed species thought to occur historically in the Upper Verde River are now being reintroduced on an experimental basis. The razorback sucker is a federally-listed endangered species that has been reintroduced throughout the Upper Verde River. The Colorado pike minnow, a federal endangered species, has been reintroduced as an experimental population below Perkinsville. Other no-longer-present fish species, such as the woundfin and loach minnow, are being studied for reintroduction in the lower and upper Verde River, respectively.

Spikedace and loach minnow are also listed as threatened species. The Upper Verde River is federally designated as critical habitat defined by the Endangered Species Act as “specific geographic areas, whether occupied by a listed species or not, that are essential for its conservation and that have been formally designated by rule published in the Federal Register.” Of the large streams where spikedace were historically recorded in Arizona, the only recent detection has occurred on the Upper Verde River. The loach minnow, missing for 65 years from the Upper Verde River, is a candidate for reintroduction.

The Verde River is an excellent place to observe wildlife because of its high density and great diversity of wildlife. Many wildlife species are found only near water and riparian areas, such as beaver, raccoon, muskrat, and river otter. The presence or suspected presence of 30 threatened, endangered, or special interest wildlife species demonstrates the uniqueness of the Upper Verde River. The Arizona Game & Fish Department has designated the habitat of the Verde River “to be of the highest value to Arizona wildlife species, and (the habitats) are unique and/or irreplaceable.” Other native desert and woodland species gravitate to the river for water, food, shelter, and travel. One can expect to see mule deer, white-tailed deer, javelina, black bear, bobcat, mountain lion, coyote, and gray fox. Small rodents also provide key food for bird and animal predators. In the early 1980s, the Louisiana river otter was introduced into the Verde and has survived and reproduced, and the southwestern river otter, an Arizona endangered species, might still exist in the Verde River headwaters. Bald eagles use the river for nesting during the spring and summer while others winter on the river. A multitude of other bird species, including the southwestern willow flycatcher and yellow-billed cuckoo, utilize the lush riparian habitat for breeding, feeding, or as a migratory stopping point.

CONCLUSION

A reduction in base flow of the Upper Verde River will negatively impact habitat and likely lead to a reduction or elimination of many species that currently depend on its perennial flow. Preservation of this fragile environment should be a major goal for Arizona’s long-term environmental planning.