

by Doug Duncan and  
Lynn Slagle

# The Upper San Pedro Partnership



**Upper San Pedro River**

Photo by William G. Kepner/EPA

People have lived in the desert Southwest for thousands of years. To survive in this arid land, early settlers had to develop special skills and adapt to a desert-based way of life. Today, communities throughout the region face a similar challenge: learning how to grow sustainably while conserving water and functioning ecosystems.

This part of the country has an old saying: “Whiskey’s for drinkin’ and water’s for fighting.” There are no easy answers for managing water resources in the arid Southwest, but cooperative approaches have made fighting unnecessary. In southeastern Arizona, 21 government agencies and private organizations have banded together as a group to ensure that the region will continue to have an adequate ground water supply for area residents and the natural resources of the San Pedro River. They call this group the Upper San Pedro Partnership.

The purpose of the Partnership is to cooperate in identifying, prioritizing, and implementing policies and projects to assist in meeting water needs in the Sierra Vista Subwatershed of the Upper San Pedro River Basin.

## The Challenge

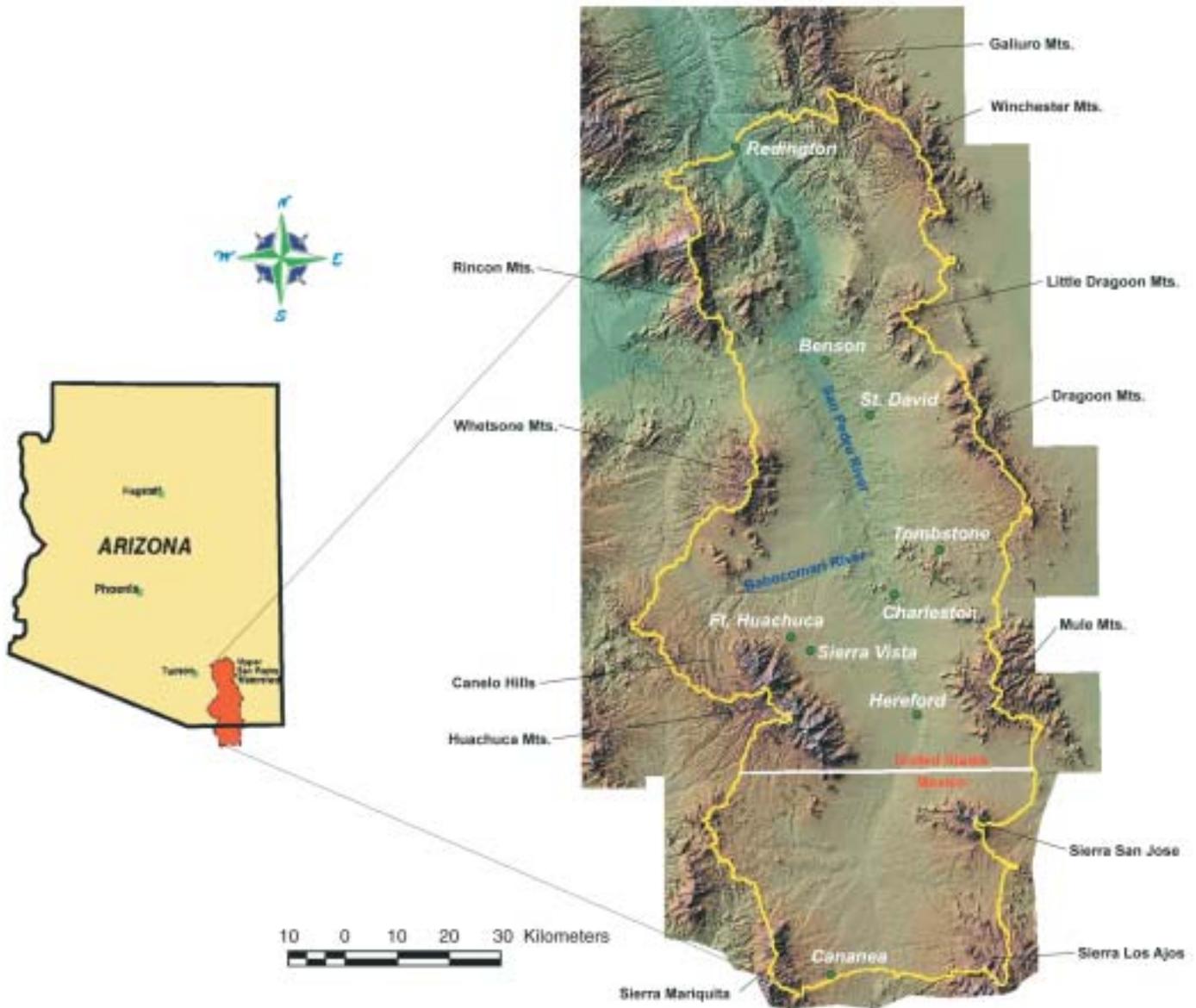
The San Pedro is considered one of the most significant perennial undammed desert rivers in the United States. It provides important habitat for almost 400 species of migratory birds, 80 species of mammals, and 40 species of reptiles and amphibians. Many of these animals rely on the riparian vegetation of the Bureau of Land Management’s San Pedro Riparian National Conservation

Area (SPRNCA), which Congress designated in 1988. This area includes marshland, cottonwood-willow forest, mesquite forest, and various shrub lands. The water stored in the aquifer supports this vegetation and the perennial flow of surface water.

The Upper San Pedro River Basin and the San Pedro River are home to several listed species and provide suitable or potential habitat for several more. The river provides most of the occupied habitat for the endangered Huachuca water-umbel (*Lilaeopsis schaffneriana* var. *recurva*). This small, cryptic, semi-aquatic plant has 33 miles (53 km) of designated critical habitat along the San Pedro River. The San Pedro River also contains critical habitat for two threatened fish species, the spikedace (*Meda fulgida*) and loach minnow (*Tiaroga cobitis*), and potential habitat for a host of other native fishes.

The Upper San Pedro Basin uplands provide significant habitat for the threatened Mexican spotted owl (*Strix occidentalis lucida*) and the nectar-feeding lesser long-nosed bat (*Leptonycteris curusoae yerbabuena*). This endangered bat occurs seasonally in protected roosts on Fort Huachuca and the Coronado National Memorial. The watershed also provides potentially

# Upper San Pedro Watershed



Congress addressed the importance of preserving both the San Pedro River and Fort Huachuca in Section 321 of the National Defense Authorization Act for 2004. The bill acknowledges the importance of “collaborative water use management” and gives congressional recognition to the Upper San Pedro Partnership and its continuing efforts to eliminate deficit groundwater pumping by 2011. The legislation also requires that the Secretary of the Interior, in consultation with the Secretary of

Agriculture, the Secretary of Defense, and the Partnership, prepare annual reports on local water mitigation efforts to restore and maintain sustainable yield of the aquifer by 2011.

The U.S. Geological Survey will generate much of the science-based information for the report, while the Bureau of Land Management, which administers the San Pedro Riparian National Conservation Area, will contribute much of the management-based

information. The first report is due to Congress by December 31, 2004. The 2004 Defense Authorization Act precludes the consideration of cumulative effects of water use in future ESA-section 7 consultations regarding Fort Huachuca, although the Fish and Wildlife Service will still address water use that is an indirect effect or an interrelated or interdependent action. It is anticipated that funding for future projects will take into account whether the Partnership has met its goals.



**Loach minnow**

Illustration © Joseph Tomelleri

suitable but currently unoccupied habitat for species such as the black-tailed prairie dog (*Cynomys ludovicianus*) and the endangered northern aplomado falcon (*Falco femoralis septentrionalis*).

Average yearly rainfall in the subwatershed ranges from 14 inches (36 centimeters) in the valley to 36 inches (91 cm) in the Huachuca Mountains. Most of the precipitation falls as heavy, almost daily rainstorms between July and September. The period between the summer and winter rains is very dry.

About 70,500 people share the Sierra Vista Subwatershed with the San Pedro Riparian NCA. Residents of the city of Sierra Vista, Fort Huachuca, and the surrounding area depend on the same groundwater resources that support the river's riparian vegetation. The combined demand for water is currently greater than the area's natural recharge. Inter-agency consultations between the Department of the Army (for Fort Huachuca) and the Fish and Wildlife Service have estimated an annual water deficit of 5,000 ac-ft (6,167,500 m<sup>3</sup>). As a result of each year's deficit, the decrease in total water storage since about 1940 is about 100,000 to 200,000 ac-ft (123,350,000-246,700,000 m<sup>3</sup>). This change is reflected in the continuing decline of the water table in some areas.

Without an adequate long-term water supply, neither the people of the area nor the river will thrive. The Partnership and its members are dedicated to meeting the long-term groundwater needs of both residents and the San Pedro River. Responsible use of groundwater involves managing it in a way that

can be maintained for an indefinite period of time without causing unacceptable environmental, economic, or social consequences.

Balancing the needs of the San Pedro River with the needs of current and future residents must also take into account the framework of state and federal legal issues and statutes that pertain to groundwater withdrawals from the upper San Pedro River basin. These include:

- Gila River Adjudication and Sub-flow Technical Report: Arizona Department of Water Resources;
- Arizona Groundwater Management Act;
- Arizona Corporation Commission Certificate of Convenience and Necessity issued to private water utilities;
- SPRNCA enabling legislation;
- National Defense Authorization Act of 2004-Section 321;
- Sikes Act;
- Federal Land Policy and Management Act;
- National Environmental Policy Act; and
- Endangered Species Act.

### **The Nature of the Partnership**

The Upper San Pedro Partnership includes representatives of agencies and organizations that own or control land or water use in this portion of the Upper San Pedro River Basin. They have the authority and resources to identify reasonable, cost-effective projects and policies and the ability to implement them. This broad coalition believes that

working together, pooling available resources, and using the best available science will ultimately lead to long-term, sustainable solutions to water challenges.

To reach its overall goal of meeting the long-term water needs of the area, the Partnership has defined the most important things it needs to do:

1. *Develop an annual water management and conservation plan.*
2. *Provide leadership* by speaking with one voice to get funding for projects, form good water policy, and lend support to the conservation efforts of member agencies.
3. *Find ways to collaborate with Mexico* whenever possible. Because the San Pedro River flows north into the United States from headwaters in Mexico, a bi-national element is essential for long-term conservation.
4. *Encourage activities* that will ensure an adequate groundwater supply to support a diverse economic environment for the people of the region and meet the needs of the SPRNCA.
5. *Clearly define the range of hydrological conditions* that are needed for maintaining a healthy subwatershed.
6. *Develop useful ways for the public to get involved*, provide ideas and methods for using water wisely, and find ways for the public to help plan its own future.

### **Partnership Research**

The Partnership is committed to using the best available scientific research to understand the intricacies of basin hydrology and to help identify conservation and management actions that will

have the greatest impact with the least cost. Learning how water moves underground and how the aquifer and the river interact will help prioritize conservation strategies. That's why the Partnership has sponsored several studies to provide the foundation for a science-based planning effort. The research is carried out by the U.S. Geological Survey, Agricultural Research Service, universities, and consulting firms.

The aquifer is more complex than once assumed. Partnership studies are exploring these complexities to better describe how the system responds to climate change, groundwater pumping, and riparian zone changes. Additional research is underway to determine the relative economic costs and water yields for about 60 different water conservation and management options. This research is an important step in developing guidelines for sound water policy.

### **Developing a Water Conservation Plan**

The Partnership established as its highest priority the development of a Water Management and Conservation Plan. The overall intent of the plan is to



**Huachuca water-umbel**

Photo by Jim Rorabaugh

identify those areas that need to be addressed immediately, identify additional opportunities, and provide direction for subsequent years. In February 2003, the Partnership adopted its first annual plan. Recently, the Partnership developed its 2004 Water Management and Conservation Plan. It includes a summary of 2003 accomplishments, a review of member agency activities, recommended water management and conservation actions, background on the state of the subwatershed, and tasks to be undertaken by the partnership in 2004.

Because of their complexity, water conservation issues in the San Pedro Basin cannot be resolved quickly. The work of the Partnership will continue indefinitely. Since its inception in 1999, the Partnership has produced an array of objectives, strategies, studies, water conservation and management alternatives, and recommendations for future agency activities. The Partnership currently has a \$33.9 million, five-year financial plan that pulls together the resources of several agencies.

The work of the Upper San Pedro Partnership and its member groups provides a model on how to address water conservation issues. If the model works as planned, and the water resources in the Sierra Vista subwatershed are used sustainably, the health of the river will be maintained, the water needs of area residents will be met, and the species that rely on the river will be one step closer to recovery.

---

*Doug Duncan is a fisheries biologist in the Service's Tucson, Arizona, Ecological Services Office (520-670-6114 ext. 236; doug\_duncan@fws.gov). Lynn Slagle is the outreach coordinator for the Upper San Pedro Partnership (lsm@theriver.com). Additional information is available from the Partnership's web site: <http://www.uspppartnership.com/>.*

---

**"The collaborative efforts of the Partnership have allowed us to harness significant resources for research and monitoring that no one entity could have brought to the table alone. That has given member agencies the kind of information needed to begin making water conservation and management decisions based on sound science." – Holly Richter, Upper San Pedro Project Manager, The Nature Conservancy, Chair USPP Technical Subcommittee**

**"The Upper San Pedro Partnership is a stellar example of a federal, state, and local public-private partnership working together. The Partnership has completed some very successful water conservation projects, such as saving at least 2,200 acre-feet/year of water through a reclamation project and 1,000 acre-feet/year through a recharge project." – Congressman Jim Kolbe (R-Az)**