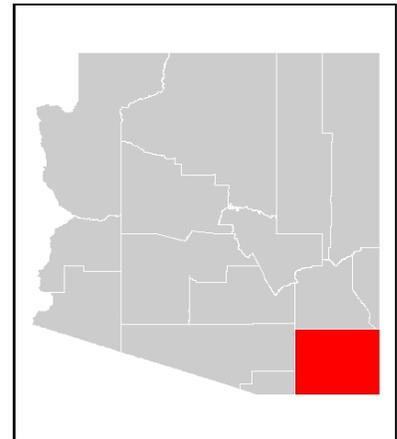


CASE STUDY

San Pedro River, Arizona | Partnering to Restore River Flows through Near-Stream Recharge, Flood Risk Reduction and Voluntary Retirement

Summary: Water replenishment efforts along Arizona's [San Pedro River](#) are working. Groundwater levels are rising, enhancing river flows that help provide water supply to rural communities and reversing stream depletions that have compromised habitat for millions of migratory birds.



The Nature Conservancy in Arizona has been testing three methods to improve flows in a river that historically featured perennial flows, but has been going dry in reaches for parts of the year due to surface water depletions from groundwater use. The projects include recharging groundwater adjacent to the river, capturing stormwater runoff to reduce flood risk and acquiring lands from willing sellers to retire pumping.

These projects are being undertaken by a diverse partnership of public and private funders, local agencies and The Nature Conservancy. Together, these partners are combining expertise and funding to return flows to the San Pedro River.

Program: Portions of the San Pedro River, which once flowed perennially, now run dry. To address these stream depletions, a partnership formed to develop and implement projects to improve river flows while providing additional benefits including better water supply for rural residents who rely on groundwater wells and reduced flood risk from stormwater runoff. Two recharge facilities are storing water in the ground thanks to the efforts of the Cochise Conservation and Recharge Network. Given the success of these efforts, the network is planning two additional recharge projects.

"Instead of losing the extra runoff that is generated in developed areas, or losing treated wastewater to evaporation, Cochise County and Sierra Vista are recharging almost 1 billion gallons of water back into the aquifer each year," says Holly Richter, water projects director of The Nature Conservancy, a network member.

Near-Stream Recharge

The first aquifer replenishment project was the City of Sierra Vista's Environmental Operations Park; its recharge facilities became operational in 2002. That facility demonstrated that it could increase groundwater supplies and protect the river's flows. "Monitoring data show that groundwater levels have risen for miles around that facility since it first became operational," says Richter.

Flood Risk Reduction & Recharge

The second facility – the Palominas Flood Control and Recharge Project – came on-line in 2014. It is capturing stormwater runoff and increasing the amount of water going into the ground to sustain the aquifer.

The Conservancy purchased part of the Palominas site after research showed it was along a reach of the river where aquifer replenishment would be needed to sustain the river's flows. The county already owned a parcel adjacent and downstream closer to the river, and was interested in flood reduction in that area in addition to recharge. The two parcels together were the perfect site for the project.

The facility – designed, constructed and now owned and operated by Cochise County – was completed in 2014. It has received several awards for its unique design and construction.



"This project is truly a win-win. It not only reduces flood hazards in the neighborhood, including the roads, homes and the school, but it also recharges the aquifer in an area where it can help the most," she says.

The San Pedro projects are unique in that they are the "first to be designed specifically to sustain the flows of a river system and to help rural communities," says Richter. "The benefits to the aquifer, in terms of increases in groundwater, will be as important for water users on wells, as it will be for the river."

Based on the success of the first two recharge efforts, the network is looking to bring additional projects on line, on properties that also show great potential for water replenishment.

The Conservancy, with funding from the U.S. Army's Compatible Use Buffer Program, purchased the 2,984-acre Bella Vista property and the 1,811-acre Riverstone property. These properties were recently transferred to Cochise County, and planning for an additional facility is focused on the Bella Vista property, which includes Coyote Wash and other major tributaries that drain downtown Sierra Vista. Engineering studies are underway to determine how to best harness the increased runoff from downtown, to get it back into the ground and to help replenish the aquifer on this property.

Voluntary Retirement

Almost 1 billion gallons annually are being conserved on the lands now under management by Cochise County. That's because well near the river that had the most impact on its flows are no longer pumping water, and no additional wells will be allowed to pump in these sensitive areas in the future. The properties containing the wells, purchased by the network from willing sellers, encompass more than 6,000 acres. Given extended drought, increasing the amount of water stored in the underground aquifer is a "no regrets" strategy for both local communities and the San Pedro River. "It's

an investment for both current and future generations, and today's wildlife," said Richter, whose well at her home also depends on these same limited groundwater supplies.

Partnership

The Cochise Conservation and Recharge Network – whose partners include the Conservancy, Cochise County, the cities of Sierra Vista and Bisbee, and the Hereford Natural Resource Conservation District -- plans to launch another project at Horseshoe Draw this year on the privately owned Ladd ranch. That project will also recharge stormwater and prevent destructive flooding and erosion downstream, including roadways like Paloma Trail that have completely washed out in the past.

"Partnerships have been the key to these projects – particularly the Palominas and Horseshoe Draw efforts," said Pat Call, Cochise County Vice-Chairman of the Board and Supervisor of District 1. "Without significant funding from the Walton Family Foundation and the Howard G. Buffett Foundation, completion of these projects might never have happened."

He adds: "By providing leadership through partnerships, the members of the network are committed to protecting the river as well as the quality of life for all residents living in the Sierra Vista subwatershed."

Additional Resources:

[San Pedro River replenishment program](#)

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