

Horseshoe Draw Project

Local conservation partners developed an effective project to reduce erosion and sedimentation that also increases local water supplies.

The Horseshoe Draw Sediment Control and Stormwater Recharge Project is located on the San Jose Ranch, on the east side of the San Pedro River near the international border. The project is one of eight projects in the Cochise Conservation and Recharge Network that are increasing local groundwater supplies and enhancing river flows along 25 miles of the San Pedro River.

Horseshoe Draw is an ephemeral stream channel in the Upper San Pedro River Basin that drains approximately 10,700 acres. The recharge project receives accelerated runoff that originates in the San Jose Mountains in Mexico. Before the project was constructed, a large head-cut had been steadily eroding Horseshoe Draw upstream of its confluence with the San Pedro River. An 8-acre detention basin now collects and slows the runoff, enhances infiltration to the aquifer, and improves downstream water quality.

The project has multiple goals: to prevent further erosion of a healthy sacaton grassland, control excessive sediment and E. coli from being flushed into the San Pedro River, as well as enhancing groundwater supplies by recharging stormwater underground into the aquifer.

Through agreements executed in 2016 between Cochise County, the Hereford Natural Resource Conservation District (NRCD) and San Jose Ranch, Cochise County accepted responsibility to operate and maintain the structure, and has license and access to do so.

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Project Funding

Project funding was secured with the help of the Hereford NRCD, through a public-private partnership that included support from the Arizona Department of Water Resources Arizona Water Protection Fund, the Arizona Department of Environmental Quality (Section 319 funds) and the Howard G. Buffett Foundation. The total project construction cost was \$1.5M and was completed in 2017.



Hydrologic Monitoring

Drone survey technology was used to provide baseline monitoring for the project allowing for comparisons of the geomorphology – the shape and size of the draw – before and after construction and over longer periods of time.

For more information on the project, including drone video of the channel, visit:

<https://ccrsanpedro.org/horseshoe-draw/>

Surface water monitoring began in 2016, one year before project construction, and is ongoing. To

estimate the amount of aquifer recharge from the project the detention basin was instrumented with inlet and outlet flow monitoring, a rain gauge, and a groundwater well in 2018. Hydrologic data will be evaluated annually, including the annual volume of stormwater flow at the site and the amount recharged.

The Power of Collaboration

CCRN recharge projects, including Horseshoe Draw, help nature replenish groundwater by storing more **stormwater** and/or **treated effluent** back underground in the locations where it can benefit the flows of the San Pedro River and enhance water supplies for local communities. The best available science using hydrologic monitoring, groundwater

modeling, and engineering studies, inform CCRN projects to ensure that the most effective and feasible projects are implemented.

CCRN projects are successful because its members collaborate on common goals and effectively leverage limited resources. CCRN members include Cochise County, the Cities of Sierra Vista and Bisbee, The Nature Conservancy, and the Hereford NRC. Other partners that have provided significant funding for projects include the U.S. Army / Department of Defense, the Natural Resource Conservation Service / U.S. Department of Agriculture, the Arizona Department of Environmental Quality, the Arizona Water Protection Fund, and the Walton Family Foundation.

The Horseshoe Draw Project provides multiple benefits for both the watershed and the groundwater aquifer, and was a collaborative effort made possible through support by both public and private interests.



The Upper San Pedro watershed is defined by the San Jose Mountains in Mexico, that drain northward across the international border into Horseshoe Draw on the Ladd Ranch. (Photo courtesy of Dale Turner)

About the CCRN

The purpose of the Cochise Conservation and Recharge Network (CCRN) is to implement a regional network of water-management projects that meet the long-term needs of the Sierra Vista Subwatershed. The vision of the CCRN is a flowing San Pedro River, the conservation of water resources, and a vibrant local economy (ccrnsanpedro.org).