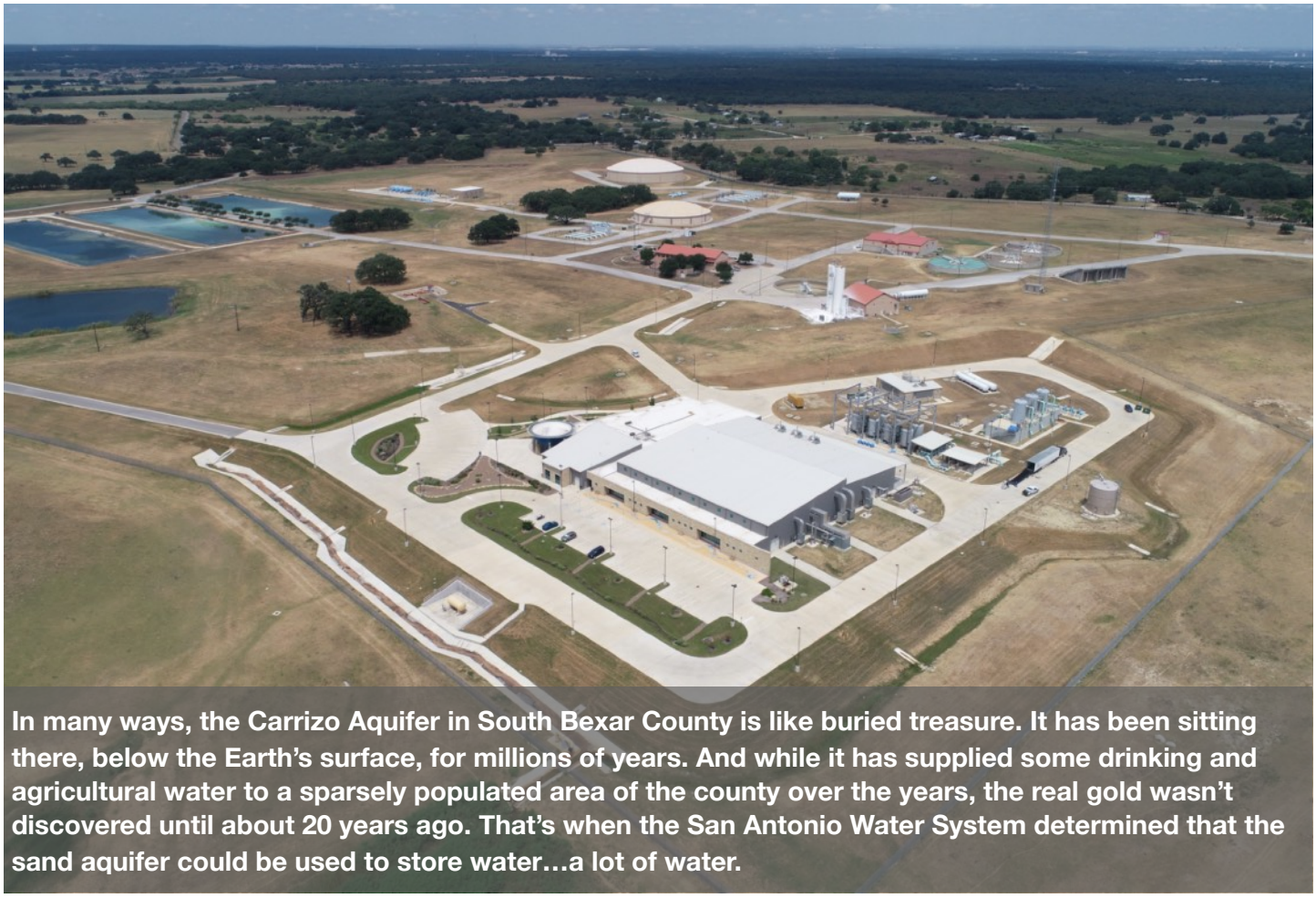
What's in "Store" for ASR

Aquifer Storage and Recovery a major component in protecting endangered species



In many ways, the Carrizo Aquifer in South Bexar County is like buried treasure. It has been sitting there, below the Earth's surface, for millions of years. And while it has supplied some drinking and agricultural water to a sparsely populated area of the county over the years, the real gold wasn't discovered until about 20 years ago. That's when the San Antonio Water System determined that the sand aquifer could be used to store water…a lot of water.

"The Aquifer Storage and Recovery (ASR) facility we operate has turned out to be quite the gem, not only for SAWS' water resource plans, but also for the Edwards Aquifer Habitat Conservation Plan (EAHCP)," said Patrick Shriver, SAWS Water Resources Project Coordinator. "Our pilot program from the late 1990s showed that the Carrizo Aquifer would safely hold about 20,000 to 30,000 acre-feet of water. However, more recent studies have put the total storage capacity as high as 230,000 acre-feet with a planning volume of 200,000 acre-feet. And that new storage number became a game changer for the entire Edwards Aquifer Region."

Aquifer Storage and Recover - Continued

Today, the SAWS ASR site, called H2Oaks Center, is the third largest aquifer storage and recovery facility in the nation. Storing water underground is environmentally friendly and is not subject to evaporation as is water found in a surface water reservoir. Additionally, water stored in a sand aquifer like the Carrizo Aquifer is less susceptible to contamination as compared to water stored in a traditional reservoir.

Early in the EAHCP's formulation, the SAWS ASR facility was targeted as a potential tool in the EAHCP's overall goal of keeping the Comal and San Marcos Springs flowing during a drought of record, which in turn would help protect the endangered species living there. Once developed, the EAHCP's programs and projected outcomes gave the U.S. Fish and Wildlife Service (FWS) the confidence to issue what is called an "incidental take permit." That would allow the Edwards Region to continue pumping water from the Edwards Aquifer, albeit at lower amounts, during a drought of record. But, how could the FWS be certain that the Comal Springs wouldn't go dry during a repeat of the drought of record (1949-1956) in which the water did stop flowing in 1956 for six months?

Jim Winterle, left, and Patrick Shriver show the agreements between EAHCP and SAWS that helped make the ASR facility a central component in protecting endangered species.

"Computer modeling, which is essentially very sophisticated number crunching, helped us determine how much water would continue to flow from the Comal and San Marcos Springs if we implemented the various springflow protection measures outlined in the EAHCP," said Jim Winterle, EAA director of modeling and data management. "While there was a very good groundwater model used to produce the first HCP, we've spent the last five years updating that original groundwater model. The first model only captured data from 2001-2011. However, we have added more data and refined data through 2015. The significance there is that we now have solid rainfall, water use and springflow data which were affected by a major drought 2011-2014 included in the groundwater model."

Winterle described the way the groundwater model runs various scenarios as a "bottom up analysis." That means his team runs the model first using a drought of record scenario with the entire Edwards Region pumping the full amount of water allowed by law. When that occurs, the springs go dry. Next, they layer on the springflow protection measure of water use restrictions implemented in Stages 1-4 in the drought management plan. That scenario also produces dry springs.

Aquifer Storage and Recover - Continued

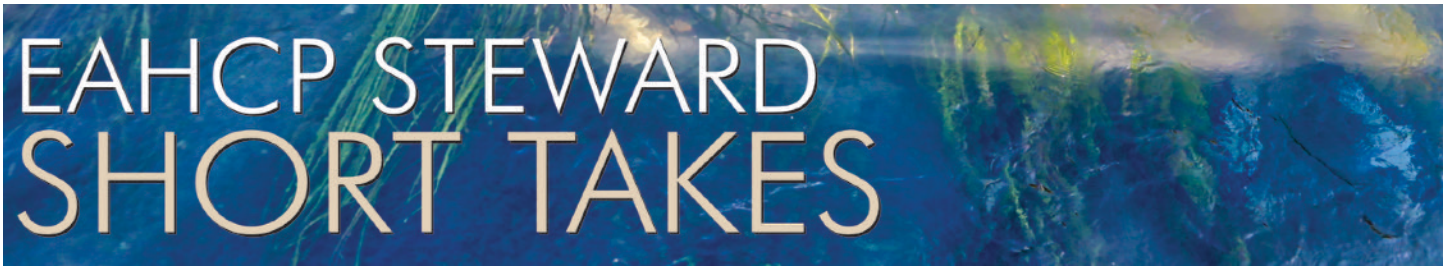
The next step is to apply results from the EAHCP's Voluntary Irrigation Suspension Program Option (knows as VISPO) and ASR Programs. The models show that after the ASR Program is added to the mix, the springs will continue to flow during a drought of record.

"I know this seems a bit complicated, but the main point people should know is that the ASR Program is the key component in helping us protect the endangered species in the driest of times and thus comply with the federal permit," Shriver said. "That really wouldn't be possible without that large water storage capacity the ASR affords SAWS and the EAHCP."

Early in the ASR Program's history, Edwards Aquifer water rights holders were paid to lease their water to the Edwards Aquifer Authority, which is a member of the EAHCP. SAWS would then pump that amount of water from their wells into the Carrizo Aquifer. Now that program has nearly reached its goal of storing 125,000 acre-feet of actual water (40.7 billion gallons) at ASR on behalf of the EAHCP, the ASR Program now is contracting with water rights holders to agree not to pump their water when certain aquifer conditions exist. So, during a drought of record, large amounts of water would not be pumped directly from the Edwards Aquifer as they are during normal periods. The significantly reduced pumping means that the Comal and San Marcos Springs will continue to produce the fresh water which supports the endangered species and their habitats.

"Now, just because SAWS had this great storage facility, it didn't mean that they would automatically give the EAHCP access to it," Winterle noted. "It took us a couple of years to work out a mutually beneficial operating agreement. At the beginning of the agreement, the EAHCP and SAWS teams would get together quarterly to assess operations and make adjustments as necessary. Now, things are running very smoothly and we don't need to meet quite as often. But, if we find ourselves in another extended dry stretch, the operating agreement calls for weekly meetings."

Both Winterle and Shriver acknowledge that the success of the ASR Program heavily depends on good science and good will between the EAHCP and SAWS. However, they also know that the good fortune of having access to the natural treasure of the Carrizo Aquifer made it all possible in the first place.



Saturday Oct 26 - Sessom Natural Area Workday

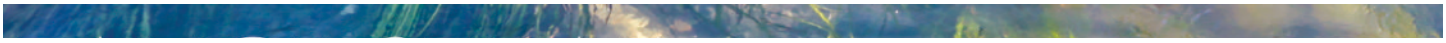
Where: Sessom Natural Area (meet at Vie Lofts parking lot- 817 Chestnut; 6 spaces are designated for park users)

When: Saturday, October 26, 9-11 a.m.

Activity: removing invasive ligustrum, constructing contour terracing, dragging small brush to be chipped; pulling invasive seedlings, broadcasting native see and removing trash.

Special Instructions: wear closed toed shoes; tools will be provided.

Contact: Eric Weeks (eweeks@sanmarcostx.gov) to volunteer



ASR and VISPO Sign Up Deadlines Extended

The deadlines for signing up for the Voluntary Irrigation Suspension Program Options (VISPO) and the ASR Program have been extended to the end of this year. If you have Edwards Aquifer water rights permits to enroll, please contact Javier Hernandez at:

jhernandez@edwardsaquifer.org or 210-222-2204.

You can read more about the ASR Program here.

You can read more about the VISPO Program here.