NEWS DROP

MAGAZINE

A QUARTERLY PUBLICATION

EDWARDS AQUIFER
AUTHORITY

COVER: **Ann-Margaret Gonzalez,** EAA Communications Specialist
& Brent Doty, EAA Research Manager

SUMMER ISSUE

EDWARDS AQUIFER strong

Roland Ruiz

EAA General Manager

From The General Manager

Stay Safe, Work Smart

IF THERE IS A SILVER LINING TO THE DARK CLOUDS HANGING OVER THESE UNUSUAL, TRYING TIMES, IT IS PERHAPS INSPIRATION

The resolve, resilience, and compassion demonstrated by my EAA coworkers, neighbors, family members and friends – that collection of people we call community – has been, at times, inspiring.

Reflecting on the past few months, I am reminded that it was about a year ago that I began sharing a vision of the EAA that had begun to coalesce around three simple-yet-evocative words – Inclusion, Imagination, and Innovation. Today, I offer that "inspiration" merits consideration as a fourth "I" word in our vision of the work before us.

#AquiferStrong

"The three "I" words collectively comprise an ambitious ideal to redefine the approach to our work over the next 10, 20, and 30 years and beyond, resulting in a legacy that could transcend our generation. No one could have known, however, that these idea words, aspirational as they are, would have been pressed into duty so soon after their conception. The effects of an unforeseen pandemic challenged us on all three fronts – inclusion, imagination, innovation – and put to the test our commitment and resolve to these high-minded principles in very real and meaningful ways. The response, however, has been inspiring."

Effective March 18, early at the onset of a breaking pandemic, the EAA became a telecommuting workforce, almost overnight. Ever since, our employees have undertaken their work remotely, from the safety of their homes, hardly skipping a beat. In this, our employees, partly of necessity as well as communal care, have been inclusive of one another and our community, intentionally reaching across circumstances and conditions beyond our control that could divide us, but instead have united us in our work. The world that emerged around us brought out of them an imagination that led to innovation in achieving our mission through creative connectedness via technology and more open and intentional communication across our organization and to the community we serve.

Not until June 8, did we begin to allow some of our staff to return to the physical workspace, albeit on a limited basis. This move, of course, is conditioned upon changing circumstances around us that could require us to change course again, if necessary. Nonetheless, we hope this is the first step toward a return to what will eventually become a more "normal" operation where we can resume interfacing with one another and with our community in a more familiar and routine manner.

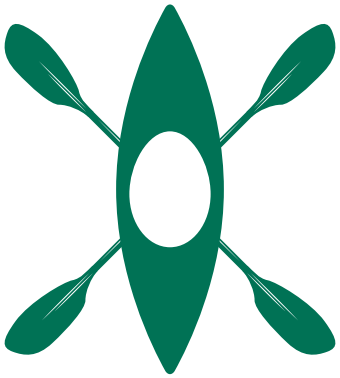
For the time being, we continue to carry out our work with a **"Stay Safe, Work Smart"** mindset, eager to serve, but ever careful and cautious in our approach.

The challenges have been daunting. But the reaction of our people: ***inspirational.***

Here's wishing you good health, and a safe summer,

Roland Ruiz


INCLUSION IMAGINATION INNOVATION



Edwards Aquifer Habitat Conservation Plan

Spring Forward

VEGETATION MAPPING SHOWS IMPROVEMENTS IN SPRING LAKE

Archaeologists tell us that humans inhabited the land around Spring Lake in San Marcos as long ago as 12,000 years. But it wasn't until about 170 years ago that people living in the area decided to dam up the San Marcos River near its headwaters to create Spring Lake. Once that happened, the landscape of aquatic vegetation began to change, and not so much on the positive side of the ledger.

Casey Williams

BIOWEST biologist

To reduce the dominance of nonnative vegetation in Spring Lake and San Marcos River downstream of the lake, the Edwards Aquifer Habitat Conservation Plan (EAHCP) participants, with assistance from the Meadows Center aquatic restoration team, initiated a comprehensive program to remove nonnative vegetation from the river and lake. That work also included the replanting of native plants where nonnatives were removed. And, over the past seven years that once-detrimental trend of nonnative vegetation prevalence has been slowly but surely been reversing course.

An important part of that program includes a process called "vegetation mapping," which essentially is like taking an inventory of all of the types of vegetation in an area like Spring Lake. The plants in the lake and river are often referred to as submerged aquatic vegetation (SAV). And the latest SAV survey says Spring Lake is in great shape.

Spring Lake is considered a refugium since it is the habitat for several endangered species...

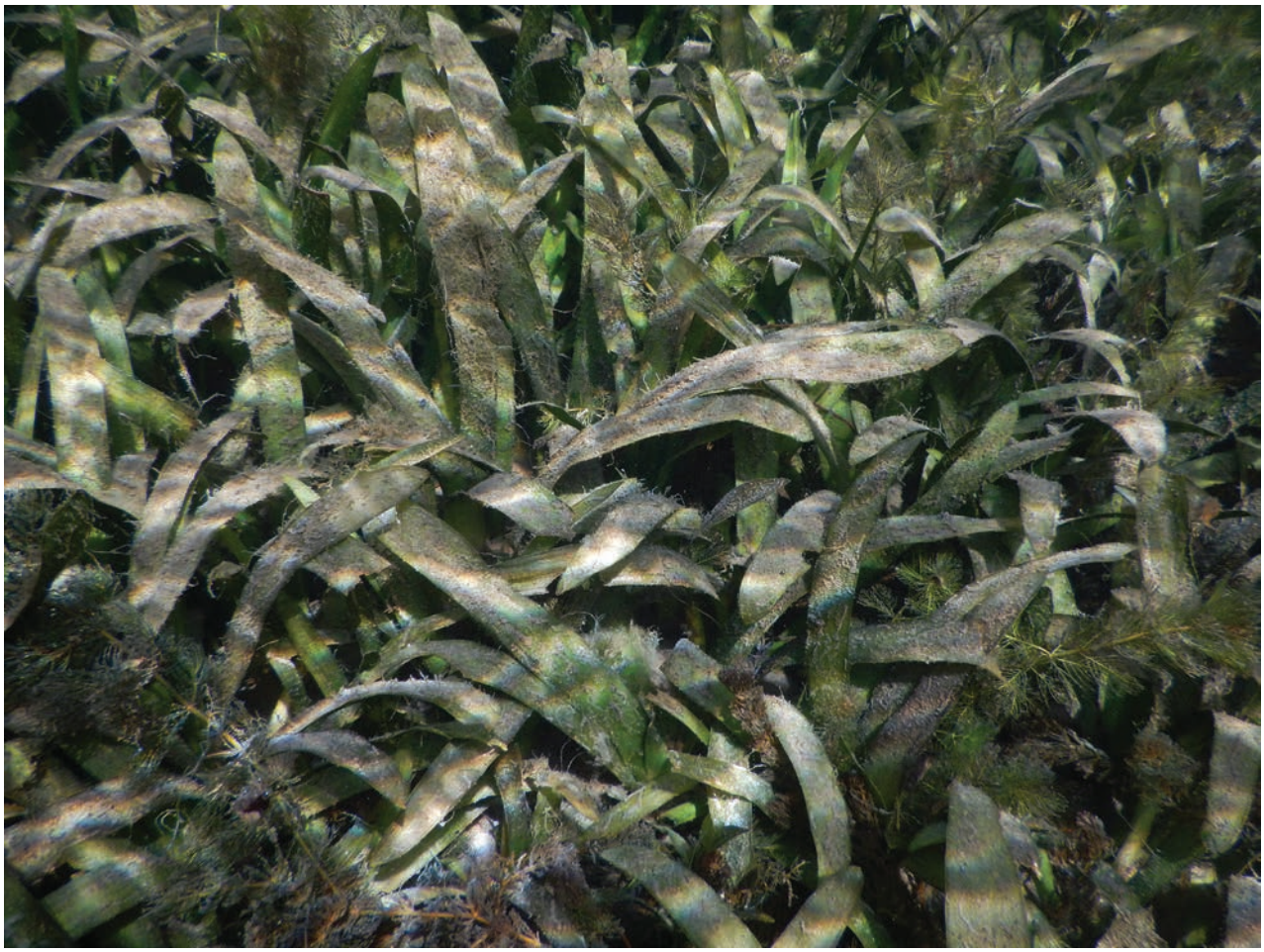
“Spring Lake is considered a refugium since it is the habitat for several endangered species that thrive on the high-quality water that pours out of the springs,” said Casey Williams, a biologist for BIO-WEST who recently completed the SAV mapping of the lake. “Because of its environmentally-sensitive nature, keeping Spring Lake healthy over the long run will be a priority for everyone involved. Our latest mapping effort showed that more than 99 percent of the nonnative water-hoarding elephant ear plants have been removed. Additionally, nonnative tallow and ligustrum trees have all but been eliminated from the banks surrounding the lake. Overall, I’d say it’s game on for the endangered fountain darter, salamanders and Texas wild- rice that make their home in Spring Lake.”

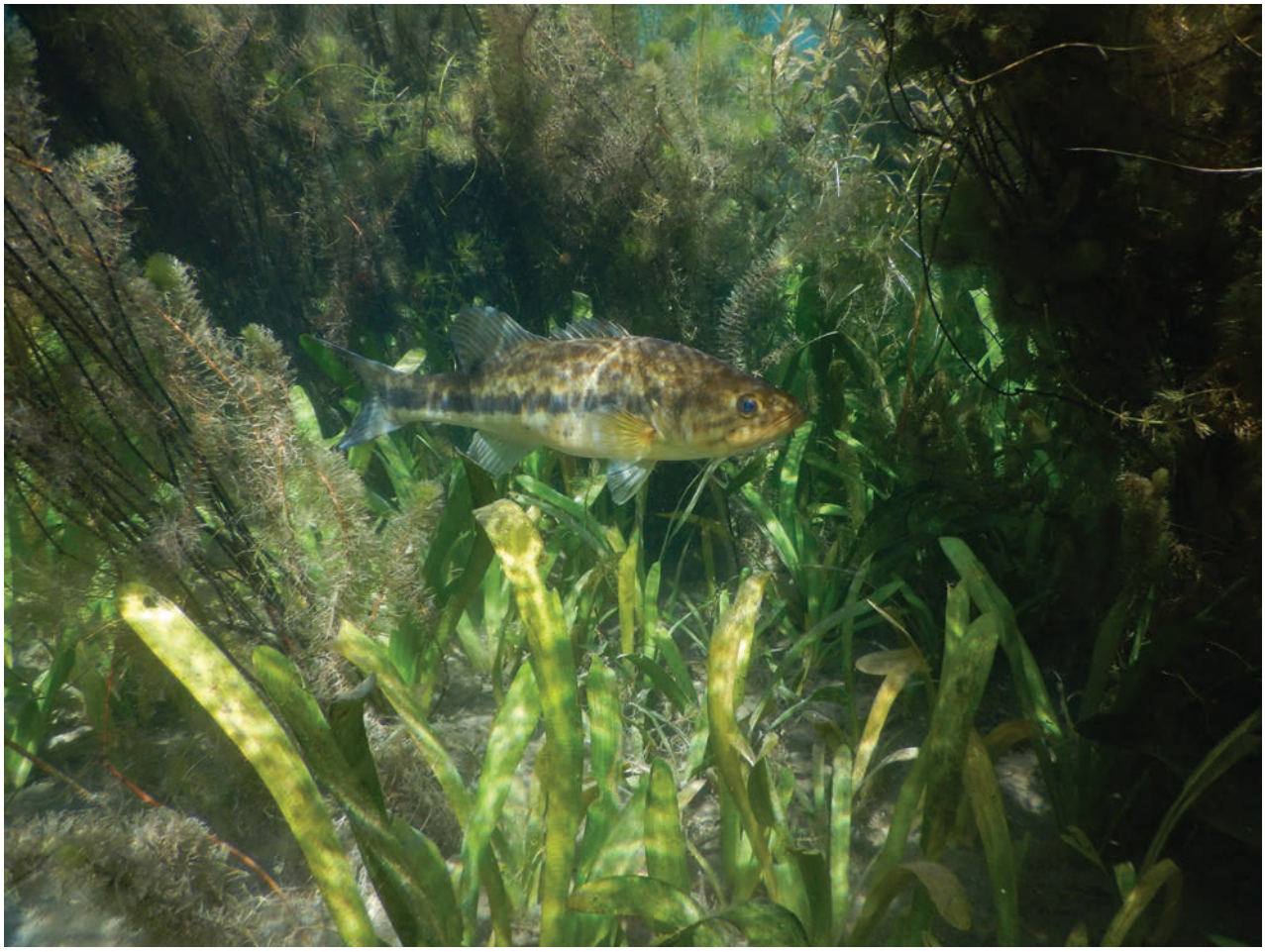
EAHCP Coordinator Kristina Tolman, who was the project manager for this effort, explained that Spring Lake had not been mapped since 2009, and that it was not included in the last major system-wide mapping effort that occurred in 2013 and in 2018.

“It’s important to the EAHCP program to understand the SAV composition and its location so our contractors can effectively remove nonnatives such as hygrophila, and identify Texas wild-rice planting zones in Spring Lake,” she explained. “Spring Lake was identified as a source of hygrophila that was impacting native SAV removal efforts downstream. But, once we remove it from Spring Lake, we are expecting to see a reduction in new stands of hygrophila downstream of Spring Lake in the coming years. Maintenance and routine removal of hygrophila fragments will be required to effectively remove it from the system.”

Williams added that the problem with hygrophila is that it resembles the native ludwigia plant but it doesn’t protect the endangered species as effectively as the native plants. Additionally, the hygrophila plant is very brittle. A handful of hygrophila can fragment into thousands of pieces and easily spread across the lake and river. Once rooted, hygrophila is not easily overtaken by native plants.

LEFT: **Kristina Tolman,** EAA Habitat Conservation Coordinator
& Casey Williams, BIOWEST biologist





Spring Lake covers approximately 22 surface acres and was originally created to power a saw mill in the mid-1800s. With the impoundment of water there, the lake covered over the spring openings that deliver Edwards Aquifer water to the lake and ultimately the San Marcos River. The San Marcos Springs are the second-largest springs system in Texas. Spring Lake can be divided into three main sections, with two arms flowing south and eventually joining and forming a small bay area. The spring arm of the lake is located along the western shore and is the location of most of the spring openings. The water quality there is excellent and always of a consistent, cool temperature. That creates the perfect habitat for the endangered species, which includes the Texas blind salamander which lives in the spring openings.

While a 22-acre lake with 80 percent vegetation cover seems like a large task to take on, Williams was able to create the Spring Lake SAV map in about a week. To gather data for the map, he paddled out on the lake in a kayak with his portable GPS system, maneuver around a patch of plants and record the GPS coordinates into his device. In addition to the plant location information, he would make notes of the plant mix there and the total area of the patch. Knowing the size of each patch also helped program managers know how much natural habitat could be restored.

The findings from Casey's survey were promising. While we've seen a definite increase in Texas wild-rice, we still have about 760 square meters to plant to reach our long-term goal of 1,000 square meters of Texas wild-rice in Spring Lake," Tolman concluded. "Before BIO-WEST began their work, they hired Baylor University to fly the lake with a drone and capture high-resolution aerial imagery of current distribution of SAV in the lake. That was a first for our program. The mosaicked imagery plus Casey's veg data will be invaluable to us over the next several years as the City of San Marcos and Texas State University continue their SAV restoration efforts in Spring Lake the San Marcos River." ■

The final report is available at:
edwardsaquifer.org/habitat-conservation-plan/

Edwards Aquifer Conservancy

Beautification, Nature, & Science At The Field Research Park

FRP DEMONSTRATION GARDEN

PICTURED *Female Cardinal at the FRP*

Jesse Chadwick

EAA Hydrologic Coordinator

Thomas Marsalia

EAA Aquifer Protection Supervisor

"We brought in compost and that will help retain a lot of water, which will help the plants get established a little faster. So, it's a good mixture of flowering plants and trees, that are all be beneficial for pollinators."

– Thomas Marsalia, EAA Aquifer Protection Supervisor

In April, EAA staff planted approximately 110 native and drought tolerant plants on a portion of rocky hillside adjacent to the lawn area of the Field Research Park Homestead that overlooks Cibolo Creek. The demonstration area was previously an unkept area with a variety of weedy species growing on it. However, some desirable shrub and tree species were already present in the area such as Red Buckeye, Mountain Laurel, and Texas Persimmon.

Due to the hillside being on a northeast facing hillside and shaded by large trees, it created a challenging site to plan for, as many popular flowering plants enjoy and abundance of sun.EAA staff researched many shade and drought tolerant grasses, forbs, shrubs, and trees and finally selected 24 species that have potential to thrive in the demonstration area.

Once established, the variety of plants should provide beauty through a succession of blooms and color from each species throughout the growing season, while also providing food and habitat for pollinator insects and birds.

Prior to planting, EAA prepared the area by manually removing weedy species that were present and created small rock berms that would create planting beds that were filled with locally produced compost. The rock berms also assist in slowing and retaining water and additionally stabilizing soil on the site during rain events, which should accelerate the establishment of the plants and reduce watering over time.

PICTURED *Summer Tanager at the FRP*

As all of the plants that were planted are perennial plants, it will take a few seasons for the plants to reach maturity, and even more years for the larger trees and shrubs; however, the garden should provide education and beauty for visitors to the FRP for many years to come!

FRP Landscaping Plants:

- *Mexican Buckeye*
- *Texas Redbud*
- *Anacancho Orchid*
- *Kidneywood*
- *Turk's Cap*
- *Tropical Milkweed*
- *Rock Rose*
- *Beauty Berry*
- *Cedar Sage*
- *Gregg's Mistflower*
- *White Mistflower*
- *Inland Sea Oats*
- *Lindheimer Muhly*
- *Mexican Bush Sage*
- *Mexican Mint Marigold*
- *Goldenball Lead Tree*
- *Skullcap*
- *Beargrass*
- *Cardinal Flower*
- *Lyre Leaf Sage*
- *Hill Country Columbine*
- *Yellow Columbine*
- *Violet*
- *Tropical Sage*

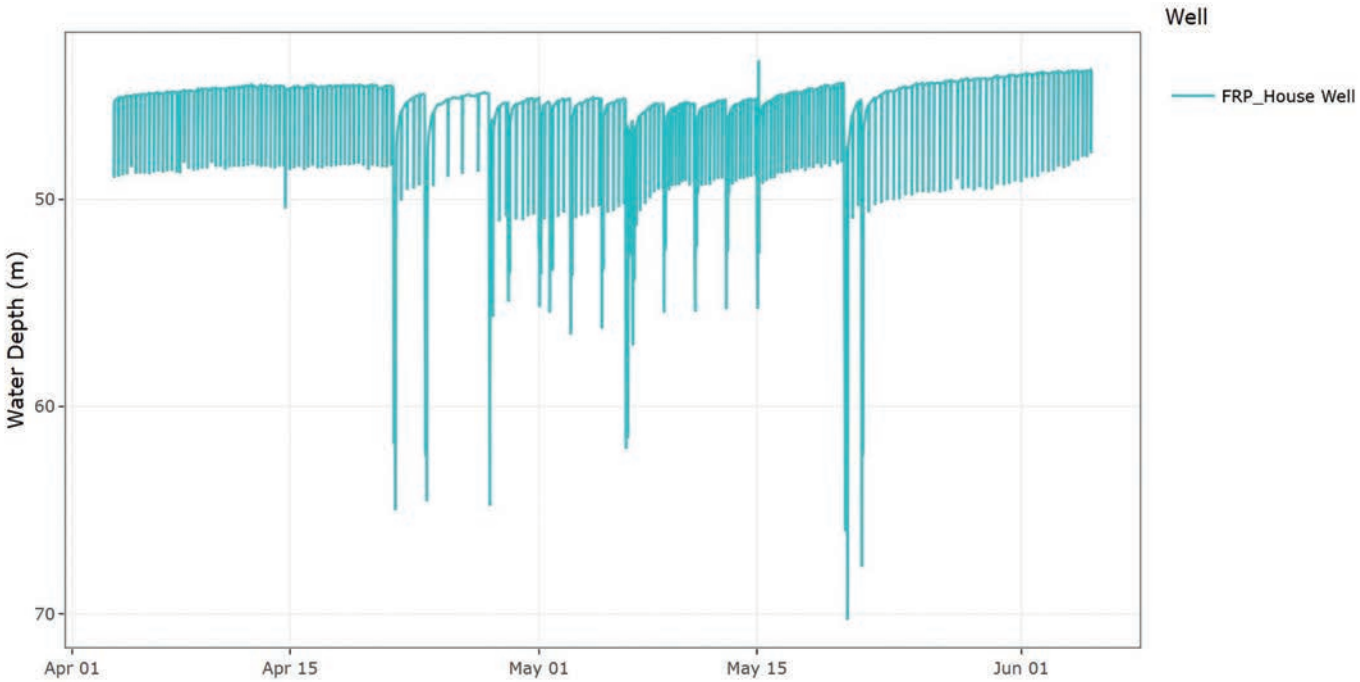
Field Research Park Well

SYSTEM USES ACOUSTIC SIGNAL TO BOUNCE OFF OF THE WATER LEVEL

The well that supplies water to the villa and garden has a Wellntell sensor, which tracks water levels by providing readings that contribute to the greater network of wells throughout the region.

“This is a system that uses an acoustic signal to bounce off of the water level, and it’s sent back to the instrument to produce the water level reading” explained Brent Doty, EAA Field Research Manager.

Some of the advantages of this system are the ability to instantly display the readings through the internet on a dashboard and produce hydrographs, which is a record of the water level at a specific point in time.



The hydrograph shows real time water levels at the Field Research Park.

Brent Doty

EAA Research Manager

Edwards Aquifer Authority

ASR, Not To Be Confused with ASMR

THE RECHARGE ZONE PODCAST EPISODE 2

Aquifer Storage and Recovery (ASR) is a water resource management technique for storing or injecting water underground for recovery in the future – typically during dry periods. In the second episode of the Recharge Zone podcast, hosts Ann-Margaret and Brent discuss the topic of ASR with Jenny Adkins-Schudrowitz, EAA Hydrogeologist, and Javier Hernandez, EAA Special Programs Liaison with mentions of New Braunfels Utilities and San Antonio Water System's H_2Oaks Center.

To listen to the podcast visit **https://bit.ly/rechargepodcast2**

LEFT: **Ann-Margaret Gonzalez,** EAA Communications Specialist
& Brent Doty, EAA Research Manager

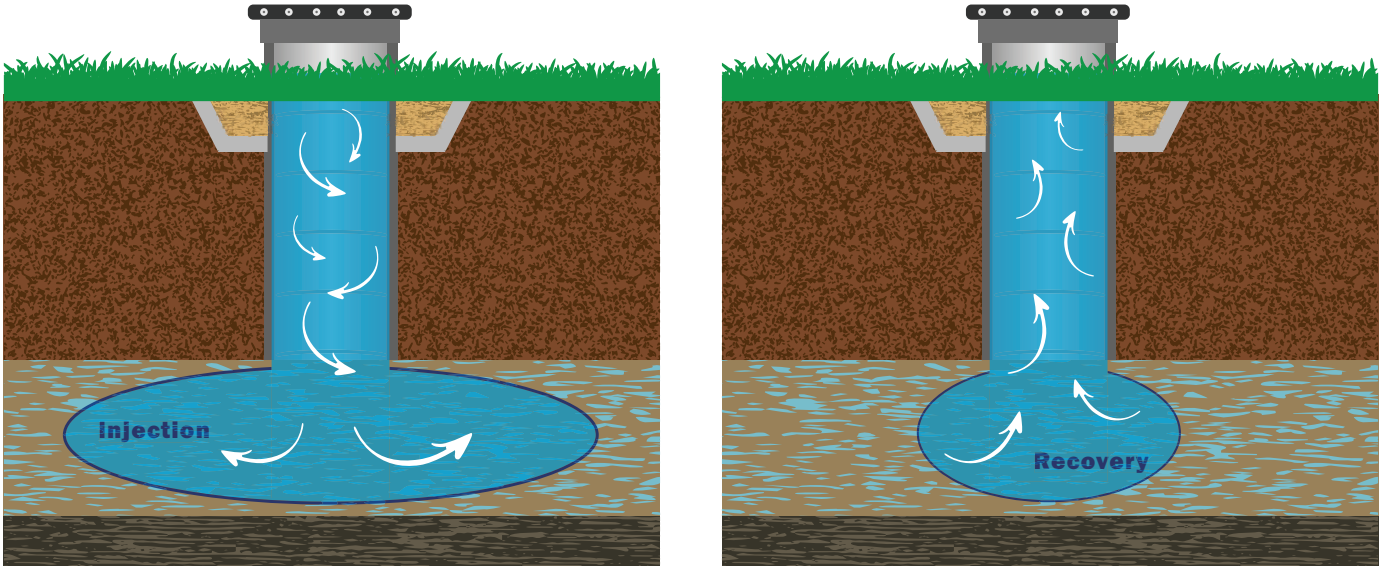


ILLUSTRATION ASR Well

The EAHCP Aquifer Storage and Recovery (ASR) Program is one of four springflow protection measures within the Edwards Aquifer Habitat Conservation Plan (EAHCP) designed to reduce withdrawals during a repeat of drought of record conditions similar to the drought of 1951-1956. This water conservation program is designed to protect springflow from the Comal Springs in New Braunfels, Texas and the San Marcos Springs, in San Marcos, Texas - during times of severe, long-term droughts. Specifically, for federally listed threatened and endangered species that live in the Edwards Aquifer.

The goal of the ASR Program is to have 126,000 acre-feet stored in SAWS H_2Oaks center found in southern Bexar County. The stored water is to remain unused until drought of record conditions reoccur and at that time withdrawals from certain Edwards Aquifer water wells owned by SAWS will go unused. In turn, stored ASR water will be distributed to SAWS customers instead. The process would relieve stress on the aquifer during this type of drought. In addition to having stored water available the program also requires that an additional 50,000 acre-feet of Edwards Aquifer water rights be under contract and remain conserved (unused) during the same drought of record conditions.

DID YOU KNOW? 1 acre-foot of water is equivalent to **325,851** gallons of water.

Jenny Adkins-Schudrowitz

EAA Hydrogeologist

Javier Hernandez

EAA Special Programs Liaison

The success of this program would not be possible without the cooperation or enrollment from municipal, industrial, and irrigation permit holders who enrolled all or part of their groundwater withdrawal rights for the benefit of the Edwards Aquifer Habitat Conservation Plan (EAHCP). A huge thanks to permit holders that enrolled in the program, because this year the program storage requirement of 126,000 acre-feet will be met! ■

SAWS H_2Oaks Center

Edwards Aquifer Authority

Who You Gonna Call?

SUCCESS WITH THE STAY SAFE WORK HOME INITIATIVE IS DUE TO THE EFFORTS OF THE INFORMATION TECHNOLOGY (IT) DEPARTMENT

When members of the EAA Staff were informed in Mid-March that, due to the impact of the COVID-19 Pandemic, they would be expected to work remotely from home, concern arose whether the appropriate software and hardware systems, and personnel, were in place to support such an endeavor. After all, EAA staffers normally report to the physical headquarters and largely manage, coordinate and collaborate their work through face-to-face meetings and encounters. Hence, the concern was quite understandable. Now, almost three months later, it is quite clear that the EAA was properly prepared, and systems were in place to make the transition of work, from office to home, a resounding success.

Much of the success with the *Stay Safe Work Home* initiative is due to the efforts of the Information Technology (IT) Department, and specifically with Jared Morris, the Director of the IT division. Jared reports to Felix Marquez the Executive Director of Administrative & Financial Services and has been in his post for nearly five years.

Additionally, with Felix' support, Jared has been busy securing reserve hardware long before the pandemic and which has been utilized to support the Stay Safe Work Home initiative. Jared has also worked hard at establishing relationships with other business and governmental entities of like size and purpose.

Jared has endeavored to secure talented people with abilities that have dynamically transformed the technical capacity and capability of the EEA.

Over that period Jared has endeavored to secure talented people with abilities that have dynamically transformed the technical capacity and capability of the EEA. Each of his team members have brought a seasoned professional portfolio that has contributed to the success of IT. Currently, Jared's team includes: Martin Hernandez, Network Administrator; Mounika Dereddy, Database Administrator; Stephanie Rosendahl, System Administrator; and Victor Hutchinson, Systems Technician.

He has leveraged those relationships to improve not only our standing in the community, but also our ability to call on others for support when needed. "I've been empowered to hire career professionals and work in the community with peers and learning more about their operations and how I can improve ours," states Jared. "With these inter-governmental relationships, we can now chart a path to ensure that we are planning ahead and prepared for unforeseen events."

Certainly, the 2020 Pandemic was an unforeseen event for most of us. With major sectors of our community shuttering their offices, the Edwards Aquifer Authority was no exception. With the support of IT, EEA staffers were provided access to the EAA Network, either through company-issued laptops or walked through set-ups on their own personal desktops and other personal mobile devices. Access to the EAA's virtual protocol network was granted, affording a secure and certain pathway into the EAA data systems.

The promise and potential of the Microsoft Teams application was finally realized, with EAA staff members using it to hold a variety of meetings, from one-on-one audio-video chats, to company-wide virtual breakfast sessions – and everything in-between, including the monthly Board of Directors meetings facilitated via the use of the Zoom application. Administrative tasks involving Human Resources and Accounting have also been facilitated by the efforts of our IT team.

As a result, the EAA has been able to maintain its usual levels of productivity and has mitigated the potential downsides of not convening as a full staff in the building per usual.

As the EAA has continued to grow, especially in scientific research and data collection, the need to ensure that our Information Technology assets and personnel are able to respond to the challenges has been critical, states Felix Marquez. "With Jared and his team, and the support of GM Roland Ruiz and the EAA Board of Directors, we've been able to secure the right people and the right resources, to get the job done. And the successful response to EAA staff needs, in light of the Pandemic, is overwhelming positive proof. Moving forward, we'll continue to do what we need to meet today's known expectations and anticipate the future challenges and opportunities."

Felix Marquez

EAA Executive Director,

Administrative & Financial Services

Jared Morris

EAA IT Director

"There has been a legacy of people before me who helped to establish the EAA's Information Technology capacity," adds Jared. "I'm fortunate to walk in their footsteps, and I look forward to our continued growth in capacities and capabilities so that we truly realize the dreams of our great EAA team members, as they navigate the next decade of aquifer research, education and outreach activities."

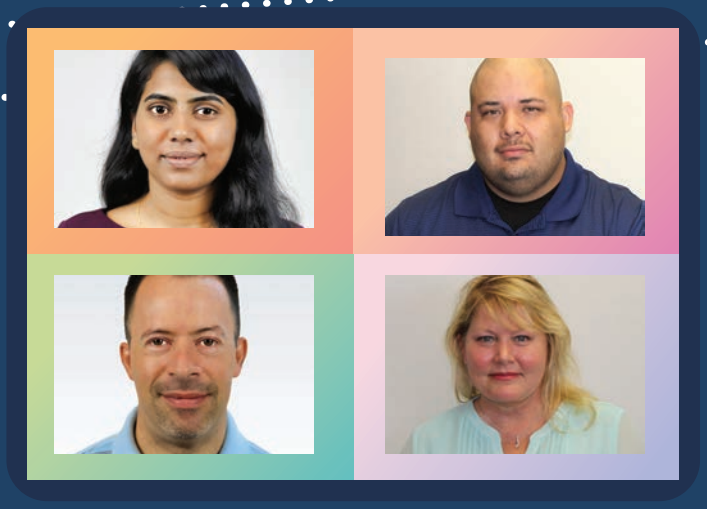
- Jared Morris, EAA IT Director

Martin Hernandez

Network Administrator

Mounika Dereddy

Database Administrator



Stephanie Rosendahl

System Administrator

Victor Hutchinson

System Technician

FROM LEFT TO RIGHT: **EAHCP Conservation Crew Members, Devan Green, Derek Hausmann & Elena Middleton (CC Leader)**

Edwards Aquifer Habitat Conservation Plan

Going Viral

EAHCP ADAPTS TO THE NEW WAY OF WORKING AMIDST A WORLD PANDEMIC

COVID. Only a handful of months ago, that term would have drawn quizzical looks from most people. Today however, every American life has been disrupted in some fashion by the highly-contagious COVID-19 virus and the impact of its presence is omnipresent. And while virology experts around the world are learning more each day about its capacity to infect the human body, the American society is coping with this pandemic in creative ways. For the Edwards Aquifer Habitat Conservation Plan partners, the show has gone on. Here's how.

“There is no doubt that the overall EAHCP operations had to quickly adapt to the social distancing and other safety guidelines set out by all levels of government entities to protect the people working here and those we come in contact with,” said Scott Storment, senior director of the EAHCP.

“Essentially, we’ve had one foot in the digital world and the other in the real world. But, due to the professionalism of the team and our stakeholders, we have been able to forge ahead in all EAHCP research projects. The Edwards Aquifer Authority closed its offices in mid-March like most other government entities, and we have all been working from home.

But, we moved our meetings to online versions and adjusted field activities to comply with all guidelines. The biggest impact to our operations has been that our group has not been able to physically be a part of the biomonitoring field work with consultants and also to interact directly with the springs communities’ teams. Much of our quality assurance, quality control work has been done that way, so that has been a new hill to climb.”

Melani Howard, the EAHCP principal for the City of San Marcos noted that the City did not immediately close down the local parks where much of the EAHCP research work is being conducted.

“Even though the City paused for a bit on closing parks, they eventually did. Our EAHCP partner Texas State University shut down immediately,” she said. “I didn’t pull our contractors off of the jobs they were doing right away because we considered them essential. However, park police had some issues with the work we were doing because it made it look like the public had access to the park. So, we had to shut down for about a month while we developed a process acceptable for everyone involved.
For example, we sent photos of all contract employees to park police. We obtained a letter from the City

designating contractors as essential employees. And probably most importantly, the contractors stay in constant contact with park police on what they are doing and where they're working. Unfortunately, Texas State University, which includes the Meadows Center on Spring Lake, is still shut down and we're a little concerned that if we can't back to work soon that we will lose some ground in our research there."

Howard said that while her job is one you can take with you, she has been going into the office two days a week and working from home the other three. She explained that most of her interactions are with contractors and EAHCP staff in San Antonio so much of her work was already being accomplished virtually. One huge difference to normal operations she observed had to do with volunteers and their contributions to the EAHCP.

"We have shut down all volunteer work for now. Our Sessom Creek workdays where volunteers help us remove invasive plants are not happening.. The litter cleanups and aquatic invasive plant removal activities in Spring Lake are gone as well. And even when the parks do reopen, we will probably not have the Conservation Crew members, who are Texas State University students, go back out into the public for awhile. Overall, the loss of those volunteer hours is a major issue for us."


ONSERVATION
CREW

In the City of New Braunfels, EAHCP lead Mark Enders said that the timing of closings mirrored the San Marcos experience fairly closely.

"We got those few 90-degree days in March and the parks filled up, so the City quickly moved to shut things down," he expressed. "However, one big difference from San Marcos is that the City reopened the parks toward the end of May whereas the parks in San Marcos were still closed. The two employees that work with me on EAHCP business are mostly out in the field, so their daily routines were not impacted much. I have been working mainly from home, but the City of New Braunfels has had to keep a minimum number of people in the office to supply city services.

Overall, I'd say we haven't missed a beat when it comes to getting our HCP and watershed protection work done either by video conferencing or the occasional field meeting. We huddled up with our contractors immediately and worked out plans for them to continue their efforts.

The removal of invasive plants and replanting with native vegetation doesn't require people working side by side, so we've managed to keep things there on task so far. As Melani noted, we also made arrangements with park rangers so they would know who has authority to be in the park at all times. In regard to volunteers, we don't have the type of ongoing activities and crews that San Marcos has, but we did have to cancel a few annual clean up events we typically hold in the spring."

Storment summed up the whole experience so far with some positive words for everyone involved. "I've been very thankful for the patience people have shown in allowing us to change our methods of operating while we're actually learning how to do that at the same time. I think that has been a major catalyst for us being able to keep progressing during these truly uncertain and unprecedented times." ■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