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Back-Up Plan

Uvalde Fish Hatchery Site of Redundant EAA Refugia

With construction of the new EAHCP refugia buildings at the San Marcos Aquatic Resources Center in high gear, the next step in establishing a long-term refugia program will be the finish-out of the refugia facility in Uvalde. Situated on 100 acres of former mesquite grasslands a few miles outside of downtown Uvalde, staff at the Uvalde National Fish Hatchery are preparing for the renovation of the “tank house” to meet the needs of the Edwards Aquifer Habitat Conservation Plan.

“This facility is one of two like it in the State of Texas, the other being our facility in San Marcos,” said Dr. Dave Britton, who serves as deputy director for the Uvalde and San Marcos centers. “And while our Uvalde facility carries the name of being a fish hatchery, our mission has evolved so that we focus on providing refugia for imperiled species and the type of research needed to make programs like the EAHCP successful.

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Dr. Dave Britton and Bio-Tech Makayla Blake in the Uvalde “tank house” which will serve as backup to the main EAA refugia in San Marcos.

Have you listened to the the *EAHCP Steward Podcast* lately? This month we feature Alicia Reinmund-Martinez on the EAHCP grants program. Also, Ecologist Casey Williams explains how his team removed massive amounts of non-native plants from targeted areas in the Comal River system. Catch the new podcast at www.EAHCP.org.

Uvalde Refugia story - continued

We deal with species federally listed as threatened and endangered, and some that are not yet listed, found only in Texas springs. They exist nowhere else in the world except in those locations.”

Britton noted that once the San Marcos and Uvalde refugia are completed, they will be similar in terms of staffing and housing for the endangered species associated with the Edwards Aquifer.

“Both refugia facilities will have quarantine buildings, Edwards Aquifer well water, equipment to condition the water, separate operations structures to house Edwards Aquifer species and personnel to include a group of bio-technicians, a supervisor and project leaders,” Britton explained. “The idea behind refugia is to collect imperiled species from the

wild, simulate their habitats in captivity as best we can, and grow the populations in the refugia so that we can reintroduce the species back into the wild in the event of some catastrophic event. The refugia at the Uvalde Fish Hatchery will mirror the refugia at the San Marcos facility, each serving as a backup to the other.”

In addition to the refugia, the Uvalde facilities at the hatchery include 50 ponds, a newly completed intensive culturing facility and a high-tech water supply system. The two-acre wildlife pond located across from the visitor center features a walking path with several points for bird watching and wildlife observation. The hatchery also features an outdoor classroom as part of its environmental education program. The tank house which will house the Edwards

Aquifer endangered species is located adjacent to the main office building.

“Simply put, our goals are to keep the endangered species alive in captivity, provide the healthiest conditions so they can reproduce, and then learn how to successfully reintroduce them into the wild so they survive,” Britton explained. “We know a good deal about the fountain darter and Texas Wild Rice. But, we have a lot to learn about the salamanders, beetles and amphipods. So, we’re developing a research plan to help us fill in those knowledge gaps.”

Britton said that the plans for the renovation are done and that he expects all construction work to be completed in 2018.



Photo inside the tank house. Uvalde NFH is adding 2,000 square feet here for exclusive use of the EAA refugia project. Another 1,200 square feet of separate quarantine space will also be constructed.

Funding Wishes Granted

EAHCP grant program receives \$725,000 in new funding

Every dollar counts. And that's especially true when working with public dollars. With that view established among EAHCP team members, the group recently announced a successful round of federal and state grant applications that tallied nearly \$725,000.

"Pooling resources has been a way of doing business in this Edwards Aquifer Habitat Conservation Plan (EAHCP), and so acquiring federal and state grants is something we do focus on with our EAHCP partners," said Alicia Reinmund-Martinez, EAHCP Director.

"Maintaining the federal permit associated with the EAHCP is critical to the Edwards Region, and that expansive effort is expensive. Grant dollars do help relieve a bit of those financial commitments of all partners."

The City of New Braunfels was awarded a grant of \$443,000 to implement water quality protection measures in its Dry Comal Creek and

Comal River Watershed Protection Plan (WPP). The grant funding is a federal 319 grant which is part of the Clean Water Act. Those federal funds are distributed to states, and in the State of Texas are administered by the Texas Commission on Environmental Quality. The New Braunfels WPP is focused on reducing bacteria loading to the Dry Comal Creek and Comal River and the environmental management measures that address urban wildlife management, pet waste management, and public education.

The Meadows Center in San Marcos received \$279,000 to apply toward the city's downtown bio-filtration pond, which

is an EAHCP project, and Sessom Creek watershed restoration. The work funded by the grants is composed of non-native, invasive vegetation removal and native plant restoration, as well as the installation of vegetation filters to

capture stormwater runoff. The Sessom Creek watershed, located in the upper San Marcos River, carries stormwater runoff directly into areas where San Marcos Spring openings and endangered species are located. Unfiltered urban runoff would negatively impact water quality over time, so San Marcos and the EAHCP developed projects to clean up that water before it empties into those environmentally sensitive areas.

"The grants are divided into 60 percent federal and 40 percent local match," Reinmund-Martinez explained. "The EAHCP is part of that local match contributing dollars and in-kind services. These specific federal grant programs are perfectly

suited for the EAHCP partners because we are addressing two major federal programs, the Clean Water Act and the Endangered Species Act. That, plus federal grants always require a local match, which in this case are provided by the EAHCP members. As a former federal employee who monitored these types of grants, I can tell you that the federal agencies like seeing their money go further as they are with the EAHCP."

The awarded grant dollars will become available in 2018 and will cover a two-year period. While this last round of grant applications was quite successful, another set of grant requests is already in the pipeline.



Photo of endangered Texas wild-rice which grant funds will go toward protecting.

Out with the Old, In with the New

“In 2013, when we first started to take on the removal of the non-native plants in Landa Lake and adjacent reaches of the Comal River, I thought we wouldn’t be able to get it all done,” said BIO-WEST Ecologist Casey Williams. “The invasive *Hygrophila* was the most pervasive plant there. It was very dense and looked like huge swaths of muck in the river. In some places, it controlled the river from bank to bank. Eventually, we were able to cleanse the lake and river of that huge mess, but it sure seemed like an insurmountable task in the beginning.”



Williams explained that the big picture goal of this program was to decrease the dominance of non-native vegetation in Landa Lake and the Comal River and restore those environments with native plants that would be more conducive to the health of endangered species living there. In the two decades before the EAHCP began its implementation, the Comal River and a part of Landa Lake were overcome with non-natives, especially the *hygrophila*.

“*Hygrophila* originates from India, Burma and Malaysia. There is documentation that shows it was transported to Ohio as part of the aquarium trade around World War II,” Williams noted. “From there, it was shipped to different locations including here in South Texas. When people started to dump their

aquariums in the river, we found out how invasive this stuff really is. *Hygrophila* is kind of a rare invasive in that it only really did well in Texas and Florida, but it can quickly overcome an ecosystem, and so it needed to be removed.”

At the start of the project in 2013, Williams’ team mapped the Comal system to get a baseline of where the non-native vegetation was in anticipation of doing comparative mapping in subsequent years. To create the map, Williams would head out in a kayak equipped with a GPS system, paddle around a patch of plants and then add the GPS coordinates to a map. Additional information would be added to the map to describe the mix of plants there and the total area of the patch. Knowing the size of each patch also

helped program managers know how much more natural habitat could be restored, which in turn helps endangered fountain darter populations grow.

“In 2018, we will be creating another map similar to the original base map we did in 2013,” Williams said. “Once we finish this year, we’ll have an excellent means of demonstrating the progress we’ve made in changing out the non-natives for native plants. I’d say that at this point, we’ve removed almost all of the *hygrophila* in the target area. We’ve also planted 50,000 native plants to get us a lot closer to restoring the ecosystem. We do use drones in the mapping process. And some of the aerial photos show very clearly how the native plants are thriving again in the Comal system.”

The Edwards Aquifer Habitat Conservation Plan e-newsletter, “Steward,” is published to highlight the efforts underway to protect the Comal and San Marcos Springs and ensure a healthy habitat for the threatened and endangered species.