HABITAT CONSERVATION PLAN EDWARDS AQUIFER
Steward Newsletter
March-April 2017

Annual Report-Ready for Release

PROGRESS FROM 2016 EAHCP IMPLEMENTATION

When the Edwards Aquifer Habitat Conservation Plan (EAHCP) team members began to gather information for the program's fourth annual report, they knew the end product would be voluminous. They understood that they were producing a technical report, but one they wanted to be accessible to the general public.

"To be completely clear, the EAHCP annual report is one of the things we must produce as part of the permit requirements we have with the Fish and Wildlife Service," said Shaun Payne, EAHCP senior program coordinator. "But, we know that there is a great opportunity to share a ton of information about how the HCP is progressing with the public. There are thousands of hours and major resources being invested in these programs, so we are very thorough in our reporting of the work in order to be as transparent as possible. That means we want everyone who picks up the whole document, or maybe just wants to read the executive summary, to able to understand it. Just because this is a technical document, it doesn't mean that it has to read like one."

Gathering the information for the 200-page document is not only a monumental task, but making it cohesive and consistent sounding is another key component of producing a valuable document to a large audience. The EAHCP sought the help of Blanton and Associates to help with that task.

"This is our third year to work on the EAHCP annual report," Velma Danielson, Blanton and Associates, explained. "A main focus for us is to make the document sound like there was one writer, even though all seven stakeholders author their own components for the report. We also work very hard to include great photos and excellent diagrams that help tell the story in an effective manner. We want this document to be a resource for scientists and policy makers around the Edwards Region."

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ALWAYS LOOKING AT WAYS TO IMPROVE THE REPORTING

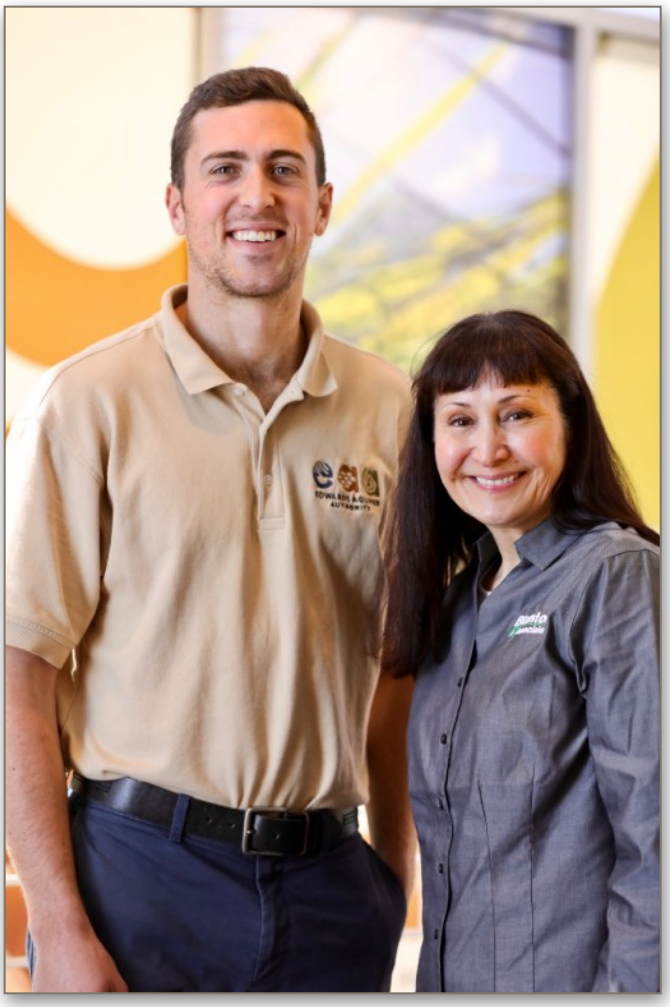
Primary Goals

The document typically addresses two main aspects of the EAHCP. First, a status of the Comal and San Marcos ecosystems is reported on. Then the document details how each of the endangered species and habitat protection programs are being managed. One new aspect of this year's report involves how data is presented.

"The Comal and San Marcos ecosystems are distinctly different," Payne noted. "But what we've tried to incorporate in this year's annual report is a consistent way of producing program results for the year. For example, the Cities of New Braunfels and San Marcos are responsible for removing nonnative vegetation and replanting native plants in the rivers. While that might be accomplished differently in each ecosystem, we think that reporting on that work should be as consistent and uniform as possible. That provides a measure of clarity for regulators as we demonstrate how we're meeting the EAHCP goals, and it also helps the public better understand the bigger picture. We also know that this is a 15-year program and that people working on the EAHCP will change from time to time. So, consistency in reporting over the life of the project will help ensure that we maintain a steady focus over time."

Danielson concurred and said she has seen the team try and raise the bar every year in making the annual report more informative and applicable to ongoing work.

"Every month, the Implementing Committee makes policy decisions on how the overall program will proceed. Researchers are planning their next tasks in meeting program goals. All of that program activity is better served with solid data, and that's a primary reason we take the time to improve the annual report each year, rather than just filling up spreadsheets with data."



Shaun Payne, EAHCP staff, and Velma Danielson from Blanton and Associates.

Plan, Work, Report

There is a continuum that is at the heart of the EAHCP. A constant cycle of implementing existing programs, creating upcoming year's work plans and reporting on progress is how this HCP hums forward. Likewise, the preparation of the annual report has its own course to follow from start to finish.

"We are required to send a finalized report to the Fish and Wildlife Service at the end of March each year," Payne outlined. "In order to meet that deadline, we start working with our partners in the fall of the preceding year. We ask that the first draft of each stakeholder's report is submitted by Thanksgiving. Then we work with Blanton through the end of the year to make sure we have a first draft in January. There are a few rounds of editing with all involved before we get to a document that the Implementing Committee can authorize for submittal."

As the Implementing Committee was officially approving the 2016 EAHCP Annual Report in March, former IC Chairman Roland Ruiz applauded the work he has seen evolve over the last few years.

"Four years ago, the team really started from scratch in trying to create a document that would be valuable to everyone. Every year, they get more efficient and more insightful in how the data and program reports are presented. I think we are in a good place now, and we should congratulate the EAHCP staff and Blanton for their outstanding work."

You can listen to an interesting interview with Shaun and Velma as part of the *EAHCP Steward* podcast. Just go to www.EAHCP.org to get a behind the scenes look at how this year's annual report came together.

WATER QUALITY PROTECTION GETS CLEARER

River sedimentation…it's a dirty job, but someone has to manage it. Specifically, the EAHCP did require a huge amount of sediment removal from the San Marcos River over time. But, new ideas and science about achieving those amounts surfaced, and the EAHCP team has received the go ahead to put some new solutions in place.

Sedimentation has always been part of river systems. Large rain storms cause bank erosion sediment deposits in the stream bed once the flood water subside. The San Marcos River had its own challenges with sedimentation, and mainly as it related to the protection of the endangered species and habitat in the river's ecosystem.

"Prior to the start of the EAHCP, the Meadows Center did a sedimentation study in 2013 and found that there was about 20,000 square meters of silt in the San Marcos River," said Melani Howard, EAHCP representative for the City of San Marcos and Texas State. "That number was used to set annual sediment removal goals in the EAHCP City of San Marcos/Texas State work plans. For the first seven years of the EAHCP, we were anticipating being able to remove about 3,000 square meters per year. In actuality, that planning goal turned out to be way too high given the conditions we found in the river once we got to work."

The sediment removal was meant to create a better growing habitat for the endangered Texas Wild Rice. Mounting silt levels tended to cover the Wild Rice, and in places, the river wasn't deep enough for the plant to survive during drought conditions. But, challenges arose as the team waded into the river to get the job done.

The equipment the team had to work with turned out to be undersized for the job. And, with the river's heavy recreation to work around, the team quickly realized that they would not get anywhere close to being able to meet the sediment removal goals that were in the EAHCP.

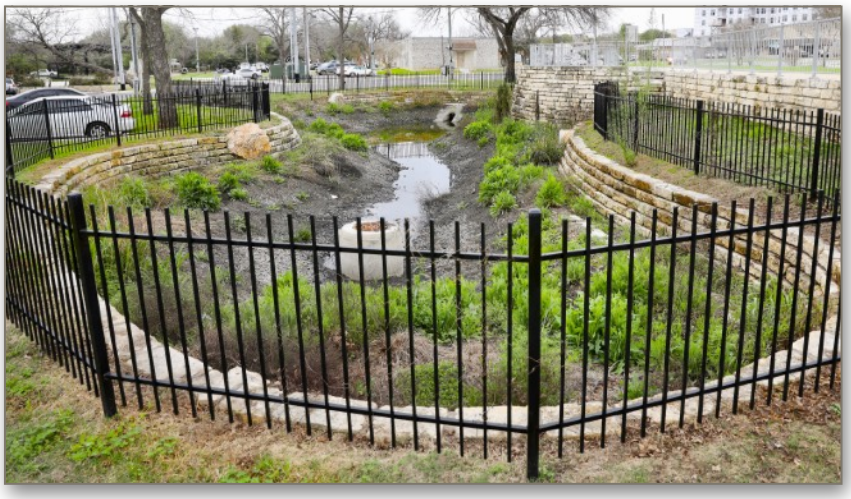
"We essentially came to a fork in the road in figuring out how to meet the sediment removal goals," Howard recalled. "We either needed to increase funding and the size of our operation in the river, or we could go to the source of the sedimentation in the watershed and try to reduce the amount of dirt, debris and pollutants flowing into the river in the first place. We felt that the prevention option was best and it has since been authorized by the EAHCP Implementing Committee."

In addition to the goal of preventing continued sedimentation into the river, the City of San Marcos and Texas State University are required to construct two sedimentation ponds for the EAHCP.

But, in working with the City of San Marcos, two other sites were identified for ponds as being much better locations for protecting the water quality of the San Marcos River. The new sites would capture drainage from a larger area and be able to remove more than 6,000 pounds more total suspended solids each year.

"As it relates to funding, completing the two new sedimentation ponds was going to actually reduce EAHCP expenses in meeting this goal," Howard explained. "The City of San Marcos had already invested in those two sites and the EAHCP would be contributing dollars to complete some engineering and construction work. That, plus we will have the opportunity to receive a federal grant in this whole process. Reducing expenditures is always a good thing."

Melani Howard, right, discusses benefits of new ponds with the EAHCP Science Committee. Downtown Pond, below, is one of the new locations.



With Implementation Committee approval, the EAHCP staff will finalize planning and project engineering in the next several weeks. Completion of the two new sedimentation ponds is anticipated by the end of 2017.

NEW NEWS IS GOOD NEWS ON RIFFLE BEETLE STUDY

Newly hatched larval Comal Springs Riffle Beetle.

Last summer, the EAHCP applied research program began a challenging effort to learn more about the Comal Springs Riffle Beetle. While only about the size of strawberry seed, these tiny insects are endangered and living in the Comal Springs, which means that they are listed in the EAHCP for protection. But, before you can preserve the species, you have to know a lot about them.

Dr. Weston Nowlin studying Comal Springs Riffle Beetle in the lab.

"Essentially, we started from scratch in learning about the Comal Springs Riffle Beetle," said Dr. Weston Nowlin, biology department associate professor at Texas State University. "There was some anecdotal information about these guys, but no one had done any kind of research on this species. We are trying to learn its tolerance to varying water temperature or dissolved oxygen concentrations because low flows in the Edwards Aquifer during droughts can raise water temperature and reduce dissolved oxygen."

Over the past year, Nowlin and his team have learned quite a bit about these tiny creatures. For example, it was thought that a reduction in spring flow that leads to loss of habitat or reduces water quality of occupied riffle beetle habitat, will likely impact their fitness and survival. Lower flows in the springs also brings on higher water temperatures and lower dissolved oxygen (DO) levels, which sometimes can impact this type of wildlife. However, these latest studies show that the Riffle Beetle can tolerate some rapid changes in temperature and DO reductions. It is not known yet how well the beetle would respond to longer periods of low springflows.

One of the first pieces of research that needed to take place was in being able to separate males and females. Previous research suggested there may be a relationship between size and sex in adult Riffle Beetles, but Nowlin's team found some of the largest individuals were found to be male when it was previously thought that females were larger than males. So, after capturing 37 beetles from the Comal Springs openings, the lab had to dissect the beetles to determine their sex. Then an analysis of body characteristics found that the females have a longer sternum than their male counterparts.

Once the beetles were paired, the females began laying their eggs. Researchers did find that the amount of eggs produced declined with time in captivity as did the survival of adults. It is unclear if the beetles were expiring due to age or inadequate nutrition in captivity.

"One of the main objectives in the EAHCP is to determine what it takes to keep a certain population of the species in a refugia," Nowlin explained. That way, if a severe drought were ever to wipe out the majority of the species in the wild, we would be able to reintroduce them into their habitat from captivity. In order to do that for the Riffle Beetle, we needed to understand their mating habits and any affects that living in captivity might bring."

The second year of study will focus on larval development. The beetles need to be able to live in captivity for longer periods of time in order for the these species to be successfully reintroduced into the wild in case a catastrophe hits the Riffle Beetle population currently thriving in the Comal Springs.

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.