HABITAT CONSERVATION PLAN EDWARDS AQUIFER

Steward Newsletter

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Gone Fishin'

Removing non-native animal species from Landa Lake helps EAHCP meet its goals

Every fisherman has a great story or two to tell from their adventures on the water. The biologists from SWCA Environmental Consultants (SWCA) have their own successful fishing trip stories. But, you'll never see them whooping it up on the Fishing Channel because a good day at the lake for them is catching fewer and smaller fish.

"As part of our work with the Edwards Aquifer Habitat Conservation Plan (EAHCP), our overall goal is to significantly reduce the numbers of non-native animal species in Landa Lake to minimize their impact on endangered species in the Comal River ecosystem," said Chris Collins, SWCA biologist and project manager. "And we've been making some great progress. When we started this program five years ago, we would literally catch boatloads of non-native fish in a day, but now, catching 50-60 would be considered a busy day."

The targeted non-native animal species include the armored catfish, blue tilapia, nutria and the giant ramshorn snail. These non-native species are believed to compete for food and habitat with the native, endangered species that the EAHCP is designed to protect. **Continued**

Chris Collins, a biologist with SWCA Environmental Consultants, helps string a 300-foot gill net to catch non-native tilapia which have infiltrated Landa Lake in New Braunfels.

Have you listened to the the *EAHCP Steward Podcast* lately? This month we feature Chris Collins on his fishing for non-native species in Landa Lake. Also, Patrick Shriver explains how SAWS and the EAHCP are working together to "listen" for water main leaks which can go undetected for months. Catch the new podcast at www.EAHCP.org.

Fishing for non-native species - continued

“In addition to harm these non-native animals bring to the endangered species and habitat, they also can do damage to the actual river banks and vegetation,” Collins explained. “The armored catfish and nutria like to burrow into the sides of river and lake banks when they nest, which can cause soil destabilization and subsequent erosion along Landa Lake’s embankments.”

Once removed from the water, all invasive fish are eviscerated, in accordance with state laws. The carcasses are measured, weighed and sexed in order to gather data for reporting progress of the program. Any fish caught in nets that are not targeted, such as the many bass found in Landa Lake, are released alive into the lake.

This year, the SWCA team will make five, three-day trips to remove the targeted non-native animals. Traps are set for nutria and the fishing is done with nets. Early on, nets with large hoops (Fyke nets) could be used to catch the tilapia and armored catfish. Now, because the numbers of fish are dwindling, the team must cast large 300-foot gill nets in order to catch the tilapia. Additionally, divers will also use spears to catch fish in certain areas of the lake. The giant ramshorn snail will cling to vegetation in the lake which make them easy to spot and remove by hand.

“We’ve made a significant dent in the tilapia, catfish and nutria levels over the last few years,” Collins noted. “We now only catch a few armored catfish and nutria per trip. And while there are still a good number of tilapia in the lake, we’re seeing smaller fish overall which tells us we’re disrupting the breeding habits some. The ramshorn snail are really too numerous for us to remove all of them by hand and so we might have to look at some biological removal means in the future.”

Overall, the team has removed about 13,000 pounds of biomass since the program began. In addition to continuing the removal non-native animal species, they will also observe the impacts that removal has on the existing eco-system.

“The thought is that removing these non-native species will help native and endangered species have less competition for food and habitat. But, because this effort is the first of its kind in Landa Lake, we’ll be paying very close attention to any other impacts to the eco-system we might observe.”

Just a few of the giant ramshorn snails collected by SWCA divers in Landa Lake.

Can You Hear Me Now?

SAWS and EAHCP team up to listen for and repair water main leaks

There are those made for TV water system leaks with water spraying high in the air, and then there are the smaller water leaks hidden underground, leaking sometimes for several months at a time. Patrick Shriver, who coordinates San Antonio Water System's water loss control program, has set his sights on stopping the smaller ones, and for good reasons.

A contractor repairs an 8-inch water main break on San Antonio's southside.

"While we are concerned about those very visible main breaks you see on TV, our focus there is to get the water shut off and the water main quickly repaired," Shriver said. "The smaller leaks that never surface are ones that can go undetected for years. The amount of lost water in those scenarios can really add up, and so we're focused on tracking that type of water leak down through listening devices and then getting the repairs done quickly."

SAWS is using acoustic water leak detection technology which allows its crews to "listen" for water leaks and pinpoint leak locations. Water leaks in underground, pressurized water pipes make hissing sounds as water rushes out of a broken spot on water lines. By placing a special rod that picks up sound against a fire hydrant, valve or water meter, the operator can hear the hissing sound. With the help of the portable sound measuring device, the operator can then begin to hone in on the exact spot of the leak. That area in the street is marked, and a crew is called out to repair the leak.

Shriver, who also is one of SAWS representatives on Edwards Aquifer Habitat Conservation Plan (EAHCP) technical committees, noted that the EAHCP's Regional Water Conservation Program (RWCP) and SAWS' need to scan more of San Antonio's 7,000 miles of water mains each year fit perfectly with each other.

The goal of the RWCP is to help protect springflows by conserving 20,000 acre feet of permitted Edwards Aquifer water withdrawals over the life of the EAHCP's existing15-year permit from the federal Fish and Wildlife Service. One half of that amount is to remain in a groundwater trust, meaning that water will not be pumped from the Edwards Aquifer. The other half of the conserved water is to remain available to the participating entity. Ownership of the water permits always remains with the participating entity (SAWS in this case).

"A few years ago, we were scanning about 20 percent of our service area for water leaks," Shriver explained. "Our water loss control consultant said that we should be able to get to 50 percent in a year and that would be cost effective. And while we agreed with that assessment, we didn't know where we would find the extra repair crews and dollars to actually fix the additional water leaks we knew we would find. That is where the EAHCP's program funding could assist."

As part of a detailed agreement between the EACHP and SAWS, the EAHCP is funding about $4.5 million worth of water leak repairs each year through 2020 and SAWS is committing 9,806 acre feet of its Edwards Aquifer water permits to the RWCP. Essentially, that large volume of conserved water completes the requirements the EAHCP's RWCP has under its federal permit.

"It is important for people to know that the dollars we receive from the EAHCP goes only to repairing water leaks above and beyond what SAWS has traditionally been doing each year," Shriver points out. "In fact, we are using outside contractors, not SAWS crews, to complete those repairs. We also prioritize repairs in that larger leaks are handled by SAWS crews, as not to sacrifice response times, and lower priorities, slower leaks, are assigned to contractors."

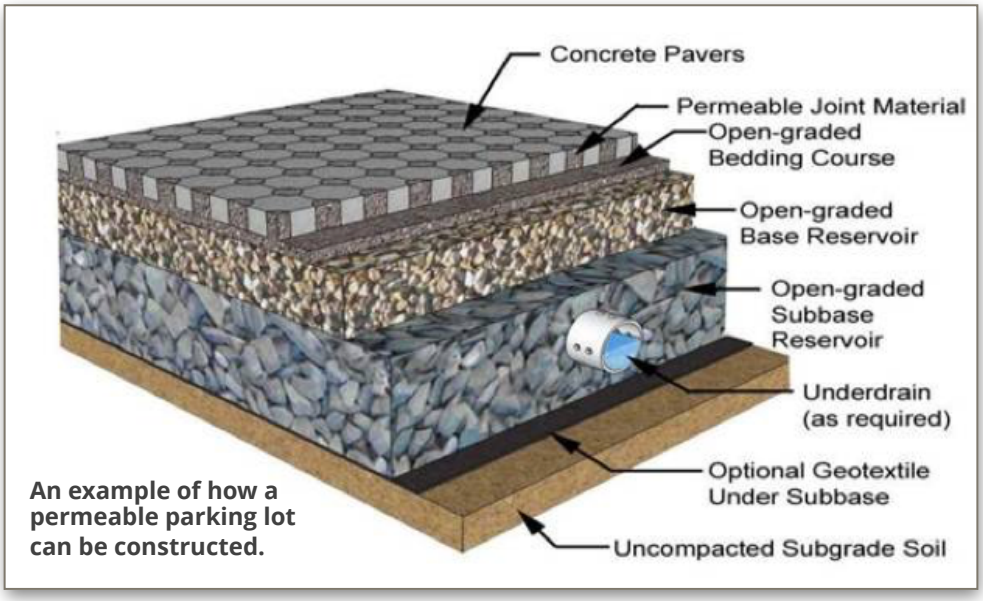
"I'm currently working on a statewide technology committee looking at advancements in leak detection," Shriver said. "I've seen some interesting satellite technology that could be implemented someday. While we don't know what the future holds for finding leaks, we do know that water systems all over the country will continue to focus attention and dollars in doing so."

Keeping a *LID* on Stormwater Pollutants

The City of New Braunfels and the Edwards Aquifer Habitat Conservation Plan (EAHCP) are teaming up to enhance the quality of stormwater runoff that is flowing into Landa Lake and the Comal River. The cooperative effort is targeting two projects for startup in 2018 and five others in future years.

"As the City has developed its Water Quality Protection Plan (WQPP) in the last year, we have really focused our eyes on areas that have direct impact on unfiltered stormwater runoff flowing into environmentally sensitive areas in Landa Lake and the Comal River," City of New Braunfels Watershed Program Manager and EAHCP representative Mark Enders explained. "There is a street near the upper spring run in Landa Lake which essentially carries stormwater runoff directly into into that area of the lake during rainstorms. And, the Landa Park Golf Course parking lot sits adjacent to the Comal River Old Channel. Both of these areas have the potential to carry sediment and auto-related pollutants like oil and grease directly into the water, and so we've identified ways to filter that runoff before the water hits the lake and river."

To enhance water quality in the area of Landa Lake near the upper spring run, New Braunfels is recommending that a bio-retention bed or rain garden be constructed between the street and the lake. Those types of structures are essentially vegetated shallow depressions that can collect and filter stormwater runoff from the first half-inch to inch of a rain event.



An example of how a permeable parking lot can be constructed.

"The stormwater runoff would flow into the bio-retention bed and seep into the ground before collecting in a perforated pipe which would empty into the lake," Enders said. "The bio-retention bed will function primarily by allowing stormwater runoff to infiltrate into the ground surface. As the stormwater infiltrates into the ground, pollutants are filtered out and removed. These are great structures for capturing and treating the "first-flush" of a storm event. The "first-flush" is the initial runoff from a storm event that typically transports the most pollutants from paved and impervious surfaces such as streets and parking areas.

The City is also looking at building a permeable parking lot at the Landa Lake Golf Course. These types of structures also allow stormwater runoff to filter into the ground where the pollutant filtration can take place.

"Our goal is to design and construct the street bio-retention bed in 2018. We plan to get the design work for the permeable parking lot done in 2018 and then constructed in 2019," Enders noted.

These water quality improvement projects are part of the work plans that the City of New Braunfels will be accomplishing under its agreement in the EAHCP. The EAHCP will be funding the $135,000 cost for these two water quality improvement projects.

"The City of New Braunfels is now requiring developers to install these Low Impact Development plans, which go by the acronym LID. We're hoping that the EAHCP's two projects can be models for new development that New Braunfels continues to experience."

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.