

FY 2014

TXFWCO Activity Report: February/March



Paddlefish Release at Caddo Lake State Park

Texas Fish and Wildlife Conservation Office
U.S. Fish & Wildlife Service

Texas Fish and Wildlife Conservation Office

Monthly Report

Fish and Wildlife Conservation Office February/March Activities

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National Fish Passage Program (NFPP)

Uvalde County Low Water Crossing

The Uvalde County Road Department has completed the new concrete low water crossing on County Road 416. The new fish friendly crossing will allow the river to pass through the crossing unimpeded, even at low flows. The new design should also keep the river from widening at the crossing and reduce maintenance for the county. A final inspection is scheduled to take place on 9 April 2014.



Uvalde County has completed the low water crossing on CR 416.

Ottine Dam Removal Project

The dam removal project has been delayed several times due to contracting issues, flooding, and equipment delays. The TXFWCO is now working with Robert Baca (Region 2 Engineer) to develop specifications so that the project can be put out for bid for the entire removal.



The Ottine Dam Removal Project continues to face delays and setbacks.

Capes Dam Removal Initial Meeting

On 27 March 2014, Mike Montagne met with Melani Howard (City of San Marcos), and Thom Hardy (Texas State University), to discuss the possibility of the removal of Capes Dam on the San Marcos River. Three options were discussed: removal, partial replacement, and full replacement of the dam. The group discussed funding opportunities and who should be invited to the initial planning meeting. The planning meeting will be scheduled for April or May 2014.

Desert Fish Habitat Partnership (DFHP)

Rillito Spring Pecos Pupfish Project

On 17-18 March 2014, Kenny Saunders (TPWD) and Diego Araujo (TXFWCO) conducted quarterly monitoring in Salt Creek, Reeves County Texas, on the last known wild population of Pecos pupfish (*Cyprinodon pecosensis*) in Texas, using minnow traps and seines. The team noticed a decline in spring flow at Salt Creek. Areas that had side pools in late January 2014 were dry and or cut off from the main course of the stream. We did however collect both adult and young of the year pupfish during sampling.

A total of 180 adult pupfish were removed from Salt Creek and transported to the recently created Rillito Spring refugium. Upon acclimation to Rillito Spring, the pupfish were released into the upstream most refugium pool (Pool # 1). Within 15 minutes of introduction, males colored up with iridescent blue and began courtship. The landowner informed us two days later that the pupfish had moved down stream approximately 60 yards into the downstream refugium pool (Pool #2) and lower canal.



Newly created Pool #1 at Rillito Spring.

It is our opinion this population will thrive in this new environment thus increasing the likelihood the species will persist into the future. Together, the Rillito refuge and the pupfish held in refugia at the Fort Worth Zoo greatly increases the security of the Salt Creek Pecos pupfish population

Spring discharge at Rillito was measured at 47.13 gpm. This is an increase of approximately 10 gpm since 2012. Water quality measurements were as follows:

Rillito Spring, Reeves County Texas Water Quality, 18-March-2014

Spring head	Pupfish Pool 1	Pupfish Pool 2	Downstream Cienega
pH 7.00	pH 7.41	pH 7.54	pH 7.73
cond. 2686 uS/cm	cond 2696 uS/cm	cond 2702 uS/cm	cond 2709 uS/cm
temp 27.29 C	temp 26.51 C	temp 26.28 C	temp 19.36 C
D.O. 0.65 mg/l	D.O. 3.47 mg/l	D.O. 4.66	D.O. 6.91 mg/l

The next monitoring effort will be conducted in June 2014 at which time another 320 adult pupfish will be collected for transfer to Rillito Spring to increase the refugium population to a more genetically stable population of 500 individuals.



Pecos pupfish in the Upper Pool.

We remain grateful and indebted to our cooperative landowners at Salt Creek and Rillito Spring.

Woodward Ranch (Calamity Creek) Sampling Trip



Kenny Saunders collects data at Calamity Creek.

On 12 February 2014, Kenny Saunders (TPWD) and Diego Araujo (TXFWCO) sampled Calamity Creek, a Rio Grande tributary in Brewster County, Texas, for the first time. Approximately 600 feet of pool, run and riffle habitats, were sampled for aquatic invertebrates and fish. Calamity creek is a minimally impacted spring driven creek with high quality water and habitat as evidenced by the variety of aquatic invertebrates and fish species collected, in particular the roundnose minnow (*Dionda episcopa*). The roundnose minnow is not listed as threatened or endangered by either the federal

government or the state of Texas, but is a species of special concern given its very limited distribution and loss of habitat. This species inhabits spring ecosystem tributaries and portions of the Rio Grande, although its presence in the Rio Grande has diminished and few if any remain in the Big Bend portion of the Rio Grande. The population of roundnose minnows found in Calamity Creek appeared very healthy and could be the most viable population remaining in Texas.

We hope to return to sample another sections of Calamity Creek in late spring or summer in order to catalogue aquatic plants and further sample the fish and aquatic invertebrate population and complete the biological inventory for this high quality stream ecosystem. We want to thank the landowner, Mr. Will Wood, for this opportunity and greatly appreciate his assistance in this effort.



Roundnose minnow captured in Calamity Creek.

Salamander Toxicity Project

The TXFWCO, the Arlington Ecological Services Field Office, Austin Ecological Services Office, TPWD, USGS, and the City of Austin have partnered for a project, funded by a Science Support Program Grant, to examine the relationship between the federally endangered Barton Springs salamander, (*E. sosorum*), threatened San Marcos salamander, (*E. nana*), candidate Georgetown salamander, (*E. naufragia*), candidate Jollyville Plateau salamander, (*E. tonkawae*), a candidate species Salado Springs salamander, (*E. chisholmensis*), Texas salamander, (*E. neotenes*), the Blanco River Spring salamander, (*E. pterophila*), and an as yet unnamed salamander from Val Verde Co., the Devils River Spring salamander, (*Eurycea* sp.), and land use including, impervious cover and other urban multi-metric indicators in the Edwards Plateau region.

The project is a screening-level assessment to identify the contaminants that may bioaccumulate in salamander tissue. The study provides some of the first information on bioaccumulation of contaminants in populations of central Texas aquatic *Eurycea*, and how these populations may be affected by future anthropogenic modifications. The results from this study will aid in the current proposed listing process for the candidate species and in the reviewing process for listed species. The study objectives were accomplished through a combination of geographic watershed analysis, field surveys, and tissue analysis. Examining the concentrations of bioaccumulative and persistent pollutants (metals and organic chemicals) directly in salamanders provide insight into the decrease of salamander densities surrounding areas affected by human land use.

Data from 2013 has shown that the chemical burden upon salamander populations within different catchments is linearly related to the area of impervious cover within that catchment. Based upon the data collected from tissues and water quality samples in 2013, chemical concentrations tested were below the regulations of the Environmental Protection Agency (EPA) and Texas Center for Environmental Quality (TCEQ), although the chronic interactive or additive effects of these chemicals to the salamanders are not known.

In addition to the higher chemical load within urban catchments, the detrimental effects of urbanization to the ecological processes of the creeks and springs are well documented within the literature and include loss of optimal habitat due to sedimentation,

decreases in flow, changes in retention time of the surrounding area causing less time for dilution of stormwater, and scouring of habitat from changes to natural flow paths.

Finally, the interactive effects caused by urbanization (chemical and habitat effects) may cause typically nonlethal amounts of chemicals present to negatively impact salamander populations locally on a temporal scale.

Based on sampling from 2013, there are clear and distinct relationships between impervious cover and the number and amount of chemicals present within the critical habitat of the associated salamanders. These relationships were seen not only within the tissue of the salamanders, but were also measurable within the water column.

Organochlorines and polybrominated diphenylether (PBDE) found within the tissue of the salamanders were both correlated positively with impervious cover (Figures 1 and 2).

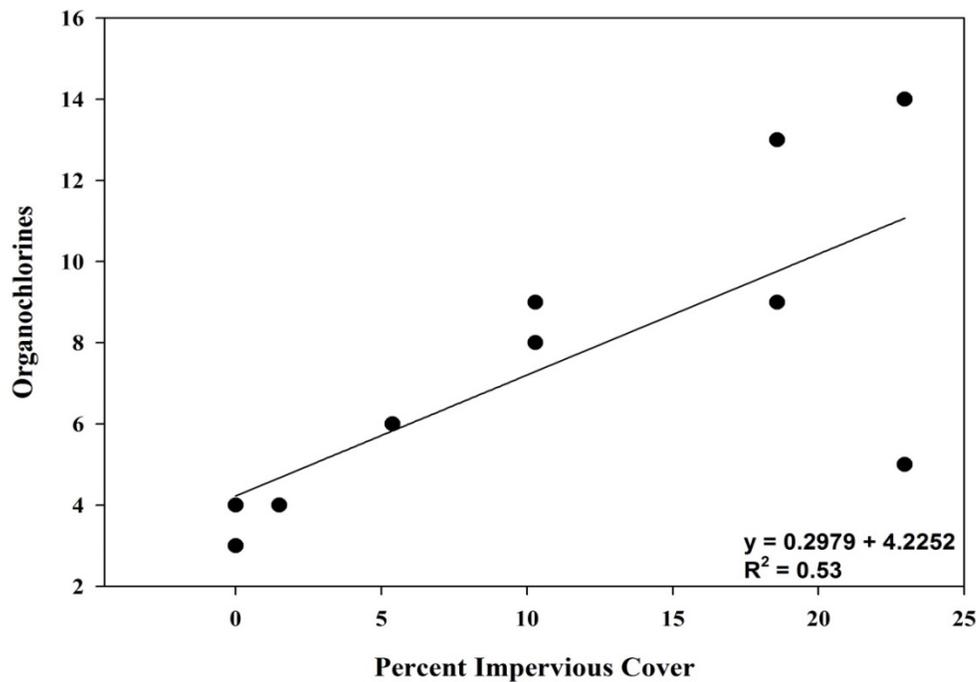


Figure 1 Impervious cover and total number of detections from organochlorines within salamander tissue taken from eleven sites in 2013.

Water quality data from the passive water quality samplers was positively correlated with impervious cover and in particular the number of polycyclic aromatic hydrocarbons detected increased as impervious cover increased (Figure 3).

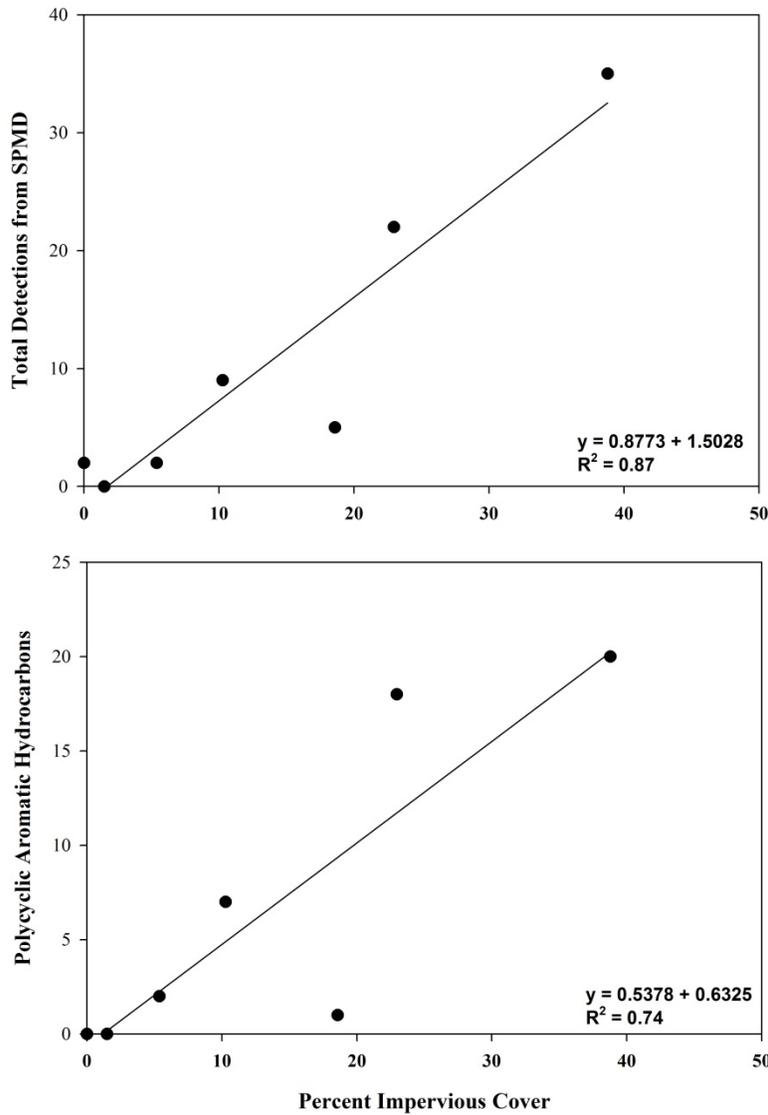


Figure 2 Data from the semipermeable membrane devices and impervious cover taken from sites in 2013. Polycyclic aromatic hydrocarbons are nested within the total detection graph, and are driving the relationship seen in graph a.

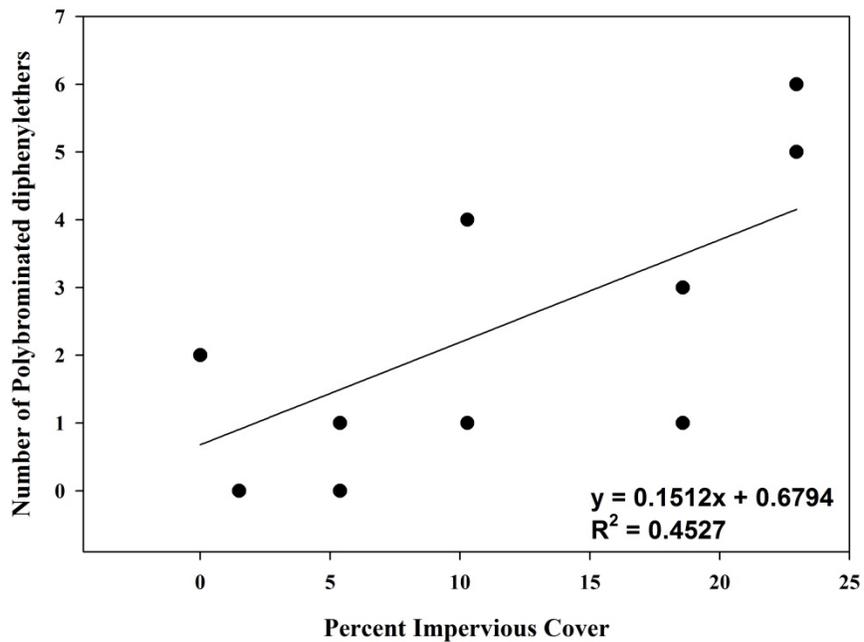
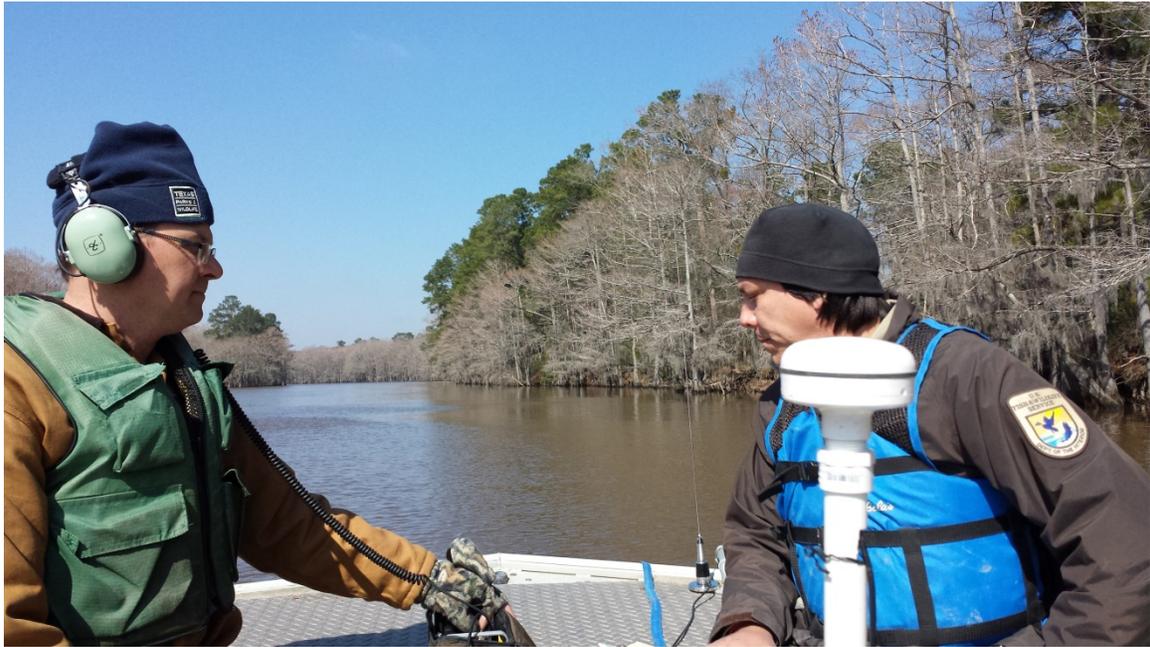


Figure 3 Impervious cover and total number of detections from polybrominated diphenylethers (ng/g) within eleven salamander's tissue taken from seven sites in 2013.

Sampling in 2014 has been modified based upon the data collected and analyzed from 2013. Based upon the results from the salamander tissue analyses, the sample size of salamanders collected in 2014 will be decreased and passive water quality samplers will be increased, resulting in a larger sample size of catchments and providing more information on water quality within this area of the Edwards Plateau.

Paddlefish Reintroduction Project



Tim Bister (TPWD) and Pete Diaz (TXFWCO) scanning for paddlefish tags on the Big Cypress Bayou.

On 18-21 February 2014, Pete Diaz (TXFWCO) traveled to Tishomingo National Fish Hatchery (TNFH) to implant 47 American Paddlefish (*Polyodon spathula*) with radio tags for the Paddlefish Reintroduction Project. Kerry Graves, the project leader at TNFH, provided most everything for the surgeries including supplies, surgical experience, support crews, and the paddlefish. The surgeries went extremely well, with all 47 paddlefish surviving to the stocking date two weeks later and beyond. The TXFWCO extends its gratitude to Kerry and his staff for the support they provided for this project.

The fish were transported to the Big Cypress Bayou and Caddo Lake on 5 March 2014 by staff from the Texas Freshwater Fisheries Center (Athens, TX), using two new circular tank trailers made specifically for hauling paddlefish. The trip took about 4.5 hours and the fish arrived in terrific shape for the public release.

The release was a huge media event with multiple news outlets and media groups present. There were two releases planned for the day: one, a more “private” prerelease at Caddo Lake State Park, that was designed to make sure the fish survived the trip in good shape without all of the attention, and then the “public” event in Jefferson TX. Well, the

word got out and there were actually more people at the “private” release than were at the “public” release. Luckily, the fish were in great shape for both releases and the media coverage was great. All 47 fish swam away and 45 of the 47 have been contacted by radio in the first two weeks since release.

Tim Bister and Lynn Starns of TPWD out of Marshal have been downloading data from three telemetry towers with data loggers inside them once or twice a week since the release. The TXFWCO then interprets the data and sends it to USGS who in turn update a web site <http://nwrwebapps2.cr.usgs.gov/paddlefish/Map> that has been created to follow the paddlefishes movement.

For more information and outreach on the project go to http://caddolakeinstitute.us/paddlefish_press.html

Fish Collection for the Southwestern Native Aquatic Resource and Recovery Center (SNARRC)

On 25 March 2014, the TXFWCO and TPWD collected approximately 80 Texas shiners (*Notropis amabilis*) from the San Marcos and Blanco Rivers for development experiments at the SNARRC. The Center sent a truck and driver to transport the shiners back to New Mexico. This was the second group of Texas shiners collected for the Center.

April Schedule of Activities:

6-13 April 2014: Rio Grande Lower Canyons Monitoring Trip

9 April 2014: Uvalde County Road 416 Replacement Project Inspection

21-25 April 2014: Paddlefish Field Tracking Trip

April 2014: Meeting with partners on the removal of Capes Dam (date to be determined)