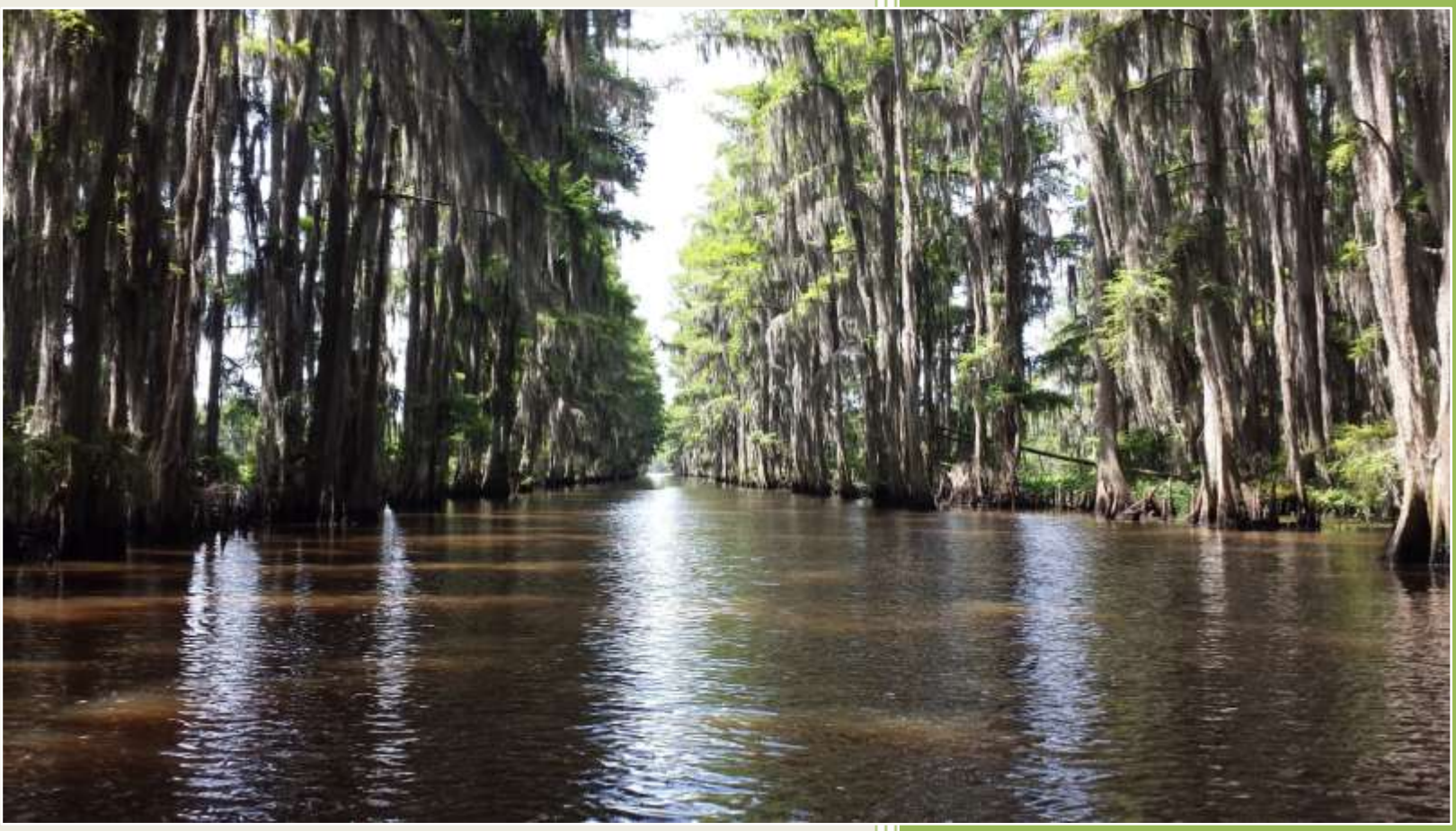
FY 2014

TXFWCO Activity Report: June



The Big Cypress Bayou

Texas Fish and Wildlife Conservation Office

U.S. Fish & Wildlife Service

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Monthly Report

Fish and Wildlife Conservation Office June Activities

Paddlefish Reintroduction Project 2
Salamander Toxicity Project 3
Rio Grande Monitoring in Big Bend National Park 5
Clear Creek Gambusia Collection 6
July Schedule of Activities: 7

Paddlefish Reintroduction Project

On 16-20 June 2014 Mike Montagne and Diego Araujo, with help from TPWD in Marshal TX, conducted American paddlefish (*Polyodon spathula*) radio telemetry monitoring at Caddo Lake and the Big Cypress Bayou. The towers continue to collect data at each of the three locations. Over 50 miles of Big Cypress Bayou and Caddo Lake were searched and twenty four of the forty seven paddlefish were contacted. Eighteen paddlefish were detected just below the spillway of Lake O' the Pines. Eight of these fish at the spillway had not noticeably moved since their last contact in May and are suspected to have perished. If they are in the same location in July, they will be considered dead.

Due to the heavy fishing pressure at the spillway, we have posted signs informing the public that snagging or possessing a paddlefish is illegal and punishable by fines. Thank you to the Army Corps of Engineers for allowing the signs to be posted in the area.

Caddo Lake is full of Cypress Trees and thick with aquatic vegetation (photo by Mike Montagne USFWS)

As part of a broader effort, the TXFWCO and the Partners for Fish and Wildlife Program is now working with landowner Bob Sanders to develop a project proposal to reconnect an 1.75 mile oxbow on the Big Cypress Bayou, and restore 195 acres of his

ranch back to native grasses. If connectivity can be restored, the oxbow will naturally be recolonized by the native fish from the Big Cypress Bayou. The oxbow will only connect at certain flows, but periodic inundation will provide opportunities for aquatic organisms to access the productive off channel oxbow lake, providing important spawning and nursery areas for fish and other aquatic species. If reconnecting the oxbow is not feasible, then native fish from the Big Cypress Bayou will be stocked into the oxbow. Bob Sanders is also working with the Collins Academy to create an outdoor classroom for local schools to learn about ecology and land stewardship. The Collins Academy creates community-focused education and professional development opportunities for students and families that center around nature and the environment.

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 two year 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.

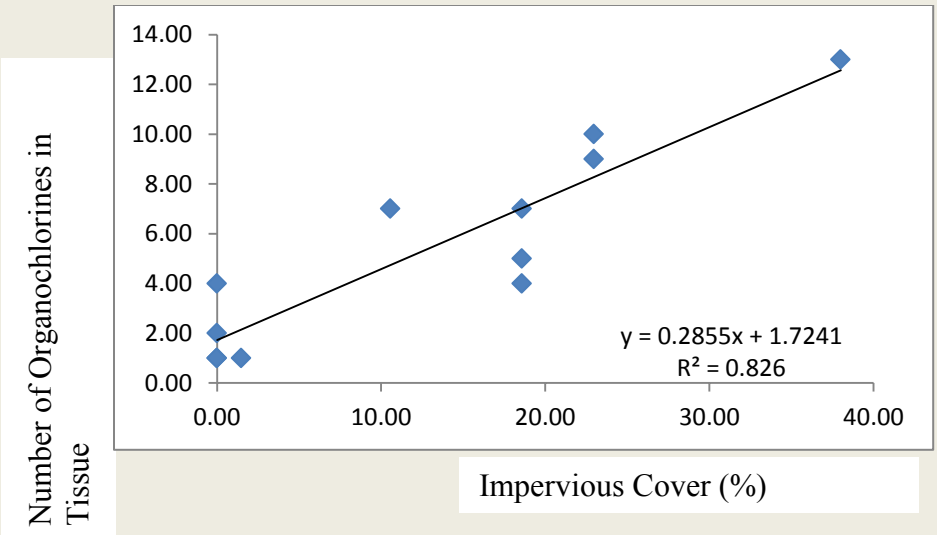
Data from 2013 has shown that the chemical burden upon salamander populations within different catchments is linearly related to the area of impervious cover within that catchment. Based upon the data collected from tissues and water quality samples in 2013, chemical concentrations tested were below 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 storm water, 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.

Throughout June 2014, the TXFWCO has collected all but four passive water samplers. Due to heavy rainfall and washing out of the sites in June, several of the sites will be revisited to collect salamanders and invertebrates. The samplers and specimens will be sent to USGS for chemical analysis and should be completed by January 2015.

Pete Diaz presented the findings at the Eurycea Alliance meeting on 6 June 2014. The presentation was well received by the group. A webinar is scheduled for 7 August 2014 to present the findings to the Regional Ecological Services offices during their July conference call.

USGS has completed analysis of the 2013 organic data of the fish tissue. The results are marginally correlated with the salamander tissue for organochlorines ($r = 0.69$; $p = 0.055$). The graph below demonstrates the linear regression of the fish tissue and impervious cover. Shown on the Y-axis are the number of organochlorines present in the tissue and the percent impervious cover of the catchment on the X-axis.



Rio Grande Monitoring in Big Bend National Park

On 2-5 June 2014, the TXFWCO, Big Bend National Park, and TPWD conducted sampling efforts on the Rio Grande as part of the current ecological monitoring program. Four sites were sampled within Big Bend National Park; Castolon, Terlingua Abajo (Terlingua Creek), Solis, and Hot Springs. The team conducted ten seine hauls at each site (except Terlingua Abajo) in all available habitat types (runs, riffles, back waters, etc). The team also conducted invertebrate sampling at each site using a Hess sampler. Terlingua Abajo is not an official site for monitoring, but usually contains Rio Grande silvery minnows and Chihuahua shiner, *Notropis Chihuahua* (a state threatened species), The team executed three seine hauls and captured multiple silvery minnow and Chihuahua shiner in the small watered area. No silvery minnow or Chihuahua shiners were captured at the other sites.

Cole Webster and Diego Araujo seine a spring run on the Rio Grande at Hot Springs. (Photo by Kenny Saunders TPWD)

Clear Creek Gambusia Collection

On 4 June 2014, the TXFWCO collected 60 gambusia sp. from Wilkinson Spring, near Menard TX, and shipped them to the Dexter Fish Health Unit for a health inspection. If the fish pass the inspection, over 200 Clear Creek gambusia, *Gambusia heterochir*, will be collected and transported to Inks Dam National Fish Hatchery to be held in refugia. The gambusia are found nowhere else in the world.

Minnow traps set at Wilkinson Spring.

July Schedule of Activities:

30 June-3 July 2014: Pecos pupfish monitoring and stocking into Rillito Spring. Sampling of Calamity Creek

1 July 2014: Sample Pinto Creek at Mackey Ranch (new access)

7 July 2014: Pete Diaz to present salamander toxicity findings during Regional ES conference call

21-25 July 2014: Paddlefish radio telemetry at Caddo Lake

28 July 2014: Capes Dam removal meeting