TXFWCO Activity Report: July

Pinto Creek

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

Monthly Report

Fish and Wildlife Conservation Office July Activities

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West Texas Monitoring

On 30 June through 3 July 2014, the Texas Fish and Wildlife Conservation Office (TXFWCO) in partnership with Texas Parks and Wildlife Department (TPWD), conducted a West Texas Projects work trip. The trip included monitoring of endangered species Comanche Springs pupfish, *Cyprinodon elegans*, Pecos gambusia, *Gambusia nobilis*, Phantom Springsnail, *Pyrgulopsis texana*, Phantom Tryonia, *Tryonia cheatumi*, and Diminutive Amphipod, *Gammarus hyalleoides*, at Phantom Spring. The information gathered at Phantom will be used to calculate population estimates that will be used to track the species over time at the spring.

TPWD and USFWS crews collecting data at Phantom Spring.

The trip also included monitoring of Pecos pupfish, *Cyprinodon pecosensis*, in Salt Creek near Orla Texas. Pure Pecos pupfish exist only in only 3.2 mile of Salt Creek, and are not found anywhere else in Texas. The pupfish are imperiled due to hybridization with sheepshead minnow, *Cyprinodon variegatus*, loss of habitat due to
drought, and ground and surface water pumping. The flow in the creek had markedly decreased from its usual 10 gallons per minute down to about 5 gallons per minute. The water level was low with various side channels and lateral pools either dry or disconnected.

Significant numbers of both juvenile and adult pupfish were present in the creek. The team had noticed that monitoring data from 2013 that in June, pupfish numbers were very high, with many juveniles and adults present (100s per seine haul), but by September numbers had dropped dramatically (from 100s to 10s). The team collected gulf killifish, *Fundulus grandis*, considered to be an invasive species from the gulf. The continued degradation of water quality of the Pecos River (very high salinity) has allowed the gulf species to move over 500 miles inland into Salt Creek. In all, 35 gulf killifish were collected to conduct gut analysis on this omnivorous species to determine if they are consuming juvenile pupfish. Of the collected fish, 61% of the gulf killifish had consumed fish, fish parts, and fish eggs, some of which were identifiable as Pecos pupfish. This may affect the overall population dynamics of the Salt Creek pupfish population through predation of both fish and their eggs, and is another threat to Pecos pupfish in Salt Creek.

A more positive note, the team also collected 559 adult Pecos pupfish from Salt Creek for relocation to Rillito Spring. These fish were relocated to the Rillito Spring refugia created in January 2014. 180 adult pupfish were released into the new refugia on 18 March 2014, and now both juvenile and adult pupfish can be seen throughout the upper portion of Rillito. The addition of the 559 adult pupfish should ensure the genetic viability of the new population.

In addition to the Rillito Spring refugia, the Fort Worth Zoo has expanded its Pecos pupfish exhibit and has requested more pupfish to increase the genetic variability of their existing population. The zoo has had success reproducing the pupfish in captivity, producing over 300 offspring in the first year. In addition, the San Antonio Zoo is creating a new native fish exhibit and has expressed interest in the Pecos pupfish.
Paddlefish Reintroduction Project

On 21-25 July 2014 Pete Diaz and Cole Webster, 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. Approximately 50 miles of Big Cypress Bayou and Caddo Lake were searched by boat and twenty eight of the forty seven paddlefish were contacted. Twenty 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 June and are suspected to have perished. 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.

Pete Diaz radio tracking paddlefish on Caddo Lake.

**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 and July 2014, the TXFWCO has collected all passive water samplers. Salamander s, crayfish , and aquatic invertebrates are still being collected from a few sites. The TXFWCO has been granted access to three additional sites within the range of the Georgetown salamander and will deploy the passive water samplers and take samples in August 2014. 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 Gulf Coast Prairie Landscape Conservation Cooperative Steering Committee meeting on 9 July 2014. The presentation was well received. A webinar is scheduled for 28 August 2014 to present the findings to the Regional Ecological Services offices during their July conference call.

**Devils River Minnows Found**

On 1 July 2014, Mike Montagne of the TXFWCO and Ken Ostrand of the San Marcos Aquatic Resources Center conducted sampling activities on a section of Pinto Creek that had not been previously sampled for Devils River minnow, *Dionda diaboli*. The team collected 68 Devils River minnow (DRM) in two seine hauls in the upper of the two pools sampled, but did not collect any from the lower, more stagnant pool. The DRM were small and looked to be of the same year class (likely 2013). Due to the drought and dewatering of Pinto Creek, the presence of DRM in this pool is important to the population as there is only one other known section of creek that contains DRM. If water does return to the creek, this pool could help provide the fish that will repopulate Pinto Creek.

*Spring fed pool containing Devils River minnows.*
In addition to the DRM found in the upper pool, species captured in both of the pools were largemouth bass (*Micropterus salmoides*), green sunfish (*lepomis cyanellus*), mosquito fish (*Gambusia affinis*), and Mexican tetra (*Astyanax mexicanus*).

The TXFWCO would like to thank Peggy Postell, of the Kinney County Groundwater Conservation District, for gaining access to the site. We would also like to thank the landowner, for his cooperation and willingness to allow the TXFWCO access to his land. In addition, Peggy Postell has gained access to an additional site that would extend our access further downstream. With this new site, the TXFWCO has access to approximately 7.5 miles of the 11 miles of critical habitat on Pinto Creek.

**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. The fish passed 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 in August 2014. The gambusia are found nowhere else in the world.

Minnow traps set at Wilkinson Spring.

**Capes Dam Removal Meeting**

On 28 July 2014, Mike Montagne met with representatives of the City of San Marcos, TPWD River Studies and A. E. Wood Fish Hatchery, Texas State University, Ecological Services and San Marcos Aquatic Resources Center, to discuss the options for the old failing Capes Dam on the San Marcos River. The City has recently acquired the land adjacent to the dam and the dam with it. All parties in attendance agreed that ecologically speaking, the best option for the dam would be to remove the remaining sections of the dam. The City will ultimately decide the fate of the dam. There is talk of rebuilding the dam into a recreational area similar to Rio Vista Park, with kayaking shunts and heavy use. Mike Montagne will give a presentation to the Parks Board on 26 August
2014 to inform the board of the National Fish Passage Program and the benefits of removing the entire dam.

**Fish Contaminant Sampling for Texas Military Forces**

Patrick (Cole) Webster has been working with the Texas Military Forces at Camps Mabry, Maxey and Bowie to determine the feasibility of allowing recreational harvest of fish in the camps ponds. The Texas Fish and Wildlife Conservation Office (TXFWCO) will collect representative samples of fish species from each of the ponds and send them out for tissue analysis.

The result will be compiled into a final report that will include fish sampling data, contaminant testing results, an analysis/evaluation of human health risks associated with consumption of edible fish tissues by species, and management recommendations for the appropriate harvest strategies based on the human health risk. In addition, basic water chemistry measurements, including dissolved oxygen (mg/l), specific conductance (µS/cm), pH, and temperature data will be collected.

**August Schedule of Activities:**

4 August 2014: Gulf Chat Conference Call

5 August 2014: Sample New Pinto Creek Site (new access)

5 August 2014: Salamander Toxicity Presentation to The Bell County Adaptive Management Funding Coalition

12 August 2014: Visit Houston Zoo to talk about Houston Toad

18 August 2014: Paddlefish Tracking on Caddo Lake

26 August 2014: San Marcos Park Board Meeting concerning Capes Dam