

NUECES RIVER COLLECTION REPORT

Dr. Gary Garrett

On 7 August 2001, at the request of the Nueces River Authority, Dr. Bob Betsill and I visited two representative sites on the Nueces River and made fish collections from equivalent pools and riffles in each location.

The first site (Lyles Ranch) is near state highway 83 and has been heavily used by off-road vehicles. Their impact was dramatically evident. There was little to no aquatic vegetation, virtually no riparian vegetation and the substrate had the appearance of heavy scouring (mostly cobble and bedrock). I have enclosed photos of each site.

The second site (Mirasol Ranch) was used for comparison. It is relatively near the first site and has similar topography. The sites differ in that there is no public access adjacent to the site and thus, no vehicular traffic in the river. This location was more typical of what I would expect of normal conditions for this stream (e.g., aquatic and riparian vegetation, gravels and sand as well as cobble and bedrock).

In addition to the extreme visual contrast between the two areas, the fish collections also reflect a sharp disparity. We expended equivalent effort at each site (about 30 minutes of seining at each), yet caught more than twice as many fish at the un-impacted location. More importantly, the species present and their relative abundance indicate a difference between the two sites.

At the impacted site:

- 79% of the fish were comprised of species we consider highly tolerant to pollution and environmental perturbations (blacktail shiner, red shiner & Texas shiner).
- No gambusia were taken. Although they too, are environmentally tolerant, they require edge habitat with vegetation.
- Environmentally sensitive species (and thus good indicators of habitat health) were either rare or missing (Nueces roundnose minnow, flathead catfish, largemouth bass, Guadalupe bass & greenthroat darter).

At the un-impacted site:

- Nueces roundnose minnow made up almost 1/3 of the fish. This species is a good “indicator species”, requiring clean, flowing water, aquatic macrophytes and sand/gravel for spawning.
- Other species that are dependent on habitat quality (flathead catfish, largemouth bass, Guadalupe bass & greenthroat darter) were present in typical, normal abundance.
- Gambusia also made up a percentage of the population that would be considered normal.

Note:

- Although Guadalupe bass were introduced in the Nueces River in the 1970s, it is now one of the last refuges for our state fish.
- The Nueces roundnose minnow is a Nueces River basin endemic. It’s closest relative is the federally threatened, Devils River minnow (*Dionda diaboli*).

Hwy 83 @ Lyles Ranch 8/7/01
riffle & pool

		#	%
<i>Campostoma anomalum</i>	central stoneroller	4	5
<i>Cyprinella venusta</i>	blacktail shiner	45	56
<i>Cyprinella lutrensis</i>	red shiner	6	7
<i>Dionda serena</i>	Nueces roundnose minnow		
<i>Notropis amabilis</i>	Texas shiner	13	16
<i>Astyanax mexicanus</i>	Mexican tetra	7	9
<i>Ictalurus punctatus</i>	channel catfish	1	1
<i>Pylodictis olivaris</i>	flathead catfish		
<i>Gambusia affinis</i>	Western mosquitofish		
<i>Poecilia latipinna</i>	sailfin molly		
<i>Lepomis megalotis</i>	longear sunfish	3	4
<i>Micropterus salmoides</i>	largemouth bass		
<i>Micropterus treculi</i>	Guadalupe bass		
<i>Etheostoma lepidum</i>	greenthroat darter	1	1
<i>Cichlasoma cyanoguttatum</i>	Rio Grande cichlid	1	1
TOTAL		81	

Mirasol Ranch 8/7/01
riffle & pool

		#	%
<i>Campostoma anomalum</i>	central stoneroller	4	3
<i>Cyprinella venusta</i>	blacktail shiner	18	12
<i>Cyprinella lutrensis</i>	red shiner		
<i>Dionda serena</i>	Nueces roundnose minnow	45	29
<i>Notropis amabilis</i>	Texas shiner		
<i>Astyanax mexicanus</i>	Mexican tetra	26	17
<i>Ictalurus punctatus</i>	channel catfish	1	<1
<i>Pylodictis olivaris</i>	flathead catfish	3	2
<i>Gambusia affinis</i>	Western mosquitofish	33	21
<i>Poecilia latipinna</i>	sailfin molly	1	<1
<i>Lepomis megalotis</i>	longear sunfish	12	8
<i>Micropterus salmoides</i>	largemouth bass	1	<1
<i>Micropterus treculi</i>	Guadalupe bass	1	<1
<i>Etheostoma lepidum</i>	greenthroat darter	7	4
<i>Cichlasoma cyanoguttatum</i>	Rio Grande cichlid	4	3
TOTAL		156	

IMPACTED SITE



UN-IMPACTED SITE

