

**Transcribed Field Notes of Robert A. Leidy, U.S. Environmental Protection Agency, San Francisco, CA 94618 ([leidy.robert@epa.gov](mailto:leidy.robert@epa.gov)) from March 5-6, 2012 and June 27-28, 2013, pertaining to observations made within the Cienega Creek Watershed, including Davidson Canyon and Empire Gulch, Pima Co., AZ (photocopy of original notes available upon request)**

**03/05/2012, Cienega Creek at Davidson Canyon Wash (DC), Pima County, AZ (11:30a).** Overcast. Walked with Julia Fonseca, Pima County, from Gabe Zimmerman Trailhead to Davidson Canyon. Hiked to spring on DC that lies approx. 0.2 mi. upstream from the confluence of DC and Cienega Creek. Wetted channel length approx. 200 feet. Maximum water depth approx. 3 inches. Sand, gravel, small cobble substrate in bedrock controlled reach. According to Julia Fonseca, this reach typically supports surface water lasting well into year prior to the onset of the monsoon. Filamentous algae covering approx. 80% of water surface. No fish observed. Mesquite beginning to leaf out. Small area of jurisdictional wetland along left bank sandbar. Photo taken looking in downstream direction [refer to PowerPoint file].

Continued downstream to where Gabe Zimmerman Trail meets DC. This reach lies approx. 450 ft. upstream from confluence with Cienega Creek. Wetted channel length estimated at approx. 225 ft. Maximum depth est. at 4 in. Filamentous algae covering much of the wetted surface. Mesquite riparian along right bank. No fish observed.

Walked to Cienega Creek to large pool immediately upstream from confluence of DC. Sediment deposited from Davidson Canyon has formed a sandbar that extends into Cienega Creek channel that functions as a natural dam that impounds flows in Cienega Creek thereby creating a large, deep pool. Est. dimensions 150 ft. x 20 ft. Observed in pool Gila chub (approx. 25-30 adults estimated at 4.5-6.0 in total length), longfin dace (est. >250 individuals, 2.0-3.0 in TL), and Gila topminnow (approx. 50, 1.0-2.0 in TL). Larger size class Gila chub with breeding tubercles on head. Gila topminnow primarily in shallow tail of pool and within connecting riffle immediately downstream from pool. Maximum pool depth approx. 4 ft. Water clarity to bottom. Pool contains extensive mats of filamentous algae. Several landscape and close-up photos taken.

Banks vegetated primarily with *Muhlenburgia*, Goodings willow, monkey flower and Fremont cottonwood (three age classes with 30-ft trees dominating right bank). Wetted channel dominated by watercress.

From large confluence pool wetted channel extends approx. 600 ft. upstream to the base of a small head-cut where groundwater discharges to the surface. This reach is dominated by long runs connected by short, shallow riffles. Cienega Creek is dry immediately upstream of the head-cut. Gila chub (3-5 observed), longfin dace (common) and Gila topminnow (7-10 within riffles). Maximum depth est. 6-8 in. Refer to photos.

Walked from confluence of DC and Cienega Creek in downstream direction approx. 250 ft. Reach contains shallow pools/runs (max. depth 5 in.) and riffles (max. depth 2 in.). Gila topminnow (approx. 25) observed in upper reaches nearest confluence with DC along rock outcrop. Note what appears to be shallow groundwater seeping from DC into Cienega Creek along left bank at confluence as evidenced by shallow wetted channel. Watercress in wetted channel.

Cooper's hawk (? refer to photos) and nest in cottonwood tree approx. 200 ft. downstream from confluence of DC. Cottonwood turning brown likely from water stress.

Depart 12:00 p for car.

**03/06/2012, Cienega Creek at confluence of Davidson Canyon Wash (DC), Pima County, AZ (10:00a).**

R.A. Leidy only. Clear. Physical and biological conditions observed at confluence similar to 03/05/2012. Gila topminnow observed (5 individuals) in Cienega Creek in riffle-runs at confluence near bedrock outcrop.

Cienega Creek, large pool at confluence of Davidson Canyon (32° 1'5.23"N, 110°38'34.15"W.). Observed in this pool were Gila chub, longfin dace, and Gila topminnow all in abundances similar to numbers observed on 03/05/2012. Gila topminnow were observed primarily in shallow tail of pool and within connecting riffle reach immediately downstream from pool. Maximum pool depth approx. 4 feet.

Walked upstream along Cienega Creek from large pool at confluence of DC approx. 0.5 mi. Wetted channel extends approx. 500-600 ft. upstream from confluence of DC to low (1 ft. elevation) head-cut. Groundwater discharges from toe of head-cut. Stream channel dry upstream from head-cut. Gila topminnow and longfin dace observed in this reach (refer to 03/05/2012 description). Refer also to various landscape photos.

Walked downstream from confluence of Cienega Creek with DC approx. 0.5 mi. Perennial reach est. at 0.5-1.0 cfs. Shallow pools (2.0-5.0 in. max. depth) comprise 60% of reach while shallow riffles and runs (1.5 in. max. depth) make up the remaining 10% and 30%, respectively. Observed far fewer fish within this reach. No Gila chub observed. About 15 longfin dace and a few Gila topminnow observed. Gila topminnow observed opposite rock outcrop at confluence as on 03/06/2012.

**03/06/2012, Cienega Creek at confluence of Davidson Canyon Wash (DC), Pima County, AZ (3:40p).**

**EPA, Pima County, NGO Tour.** Clear. Observed at DC confluence within large pool longfin dace (approx. 200), Gila chub (est. 50 adults 3.5-5.0 TL, with breeding tubercles), and Gila topminnow (approx. 30-50 individuals scattered locations from pool upstream). Walked from pool at confluence upstream approx. 300-400 ft.

**06/28/2013, Cienega Creek at Pantano Dam, Pima County, AZ (11:00 a).**

R.A. Leidy and Grace Ma, EPA. Partly cloudy. Est. air temp 32°C. Walked upstream approx. 0.25 mi. along dry streambed to Cienega Creek to Pantano Dam. Small pool (est. at 15 x 4 ft., max depth 4 in.) at base on Pantano Dam contained Gila chub (6 individuals at 3.0-4.0 in TL) and longfin dace (10-15, 1.5-2.0 in. TL). Small, shallow (max. depth 4 in.) pool immediately upstream from dam along right bank near water diversion point contained Gila chub (approx. 10 observed, max. 4.5 in. TL), longfin dace (3-5 individuals) and 1 adult lowland leopard frog. All surface flow being diverted into drop grate and into canal. Walked 300 ft. upstream from Pantano Dam and observed evidence of recent surface flow that likely resulted from overnight thunderstorm. Vegetation flattened and several small puddles remained. Channel substrate moist and saturated to surface. Riparian and herbaceous jurisdictional wetlands present from Pantano Dam upstream 100-200 linear feet.

**06/28/2013, Cienega Creek at confluence with Davidson Canyon (DC), Pima County, AZ (1:00 p).**

R.A. Leidy and Grace Ma, EPA. Cienega Creek at confluence with DC and upstream to head-cut area dry except for two very small pools (est. 2ft. x 2 ft.) approximately 200 ft. downstream from confluence. One

longfin dace observed in uppermost pool. Fremont cottonwood and Gooding's willow leaves yellowing and dropping.