

**Report for the Santa Ana Sucker  
(*Catostomus santaanae*) Survey and  
Relocation Effort in the Big Tujunga  
Wash at Oro Vista Avenue  
(W.O. E1907366)**



*Prepared for:*  
**The City of Los Angeles**



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## Title Page Photo Legend

*Background Photo:*

Big Tujunga Wash upstream of Oro Vista Avenue prior to diversion and channel alignment construction

*Right Panel Large Photo:*

Big Tujunga Wash upstream of Oro Vista Avenue following the diversion and channel alignment construction. Flow within the newly wetted channel with undisturbed riparian vegetation.

*Right Panel Small Photo:*

Close-up underwater image of Santa Ana sucker (*Catostomus santaanae*) in temporary holding tank prior to relocation.

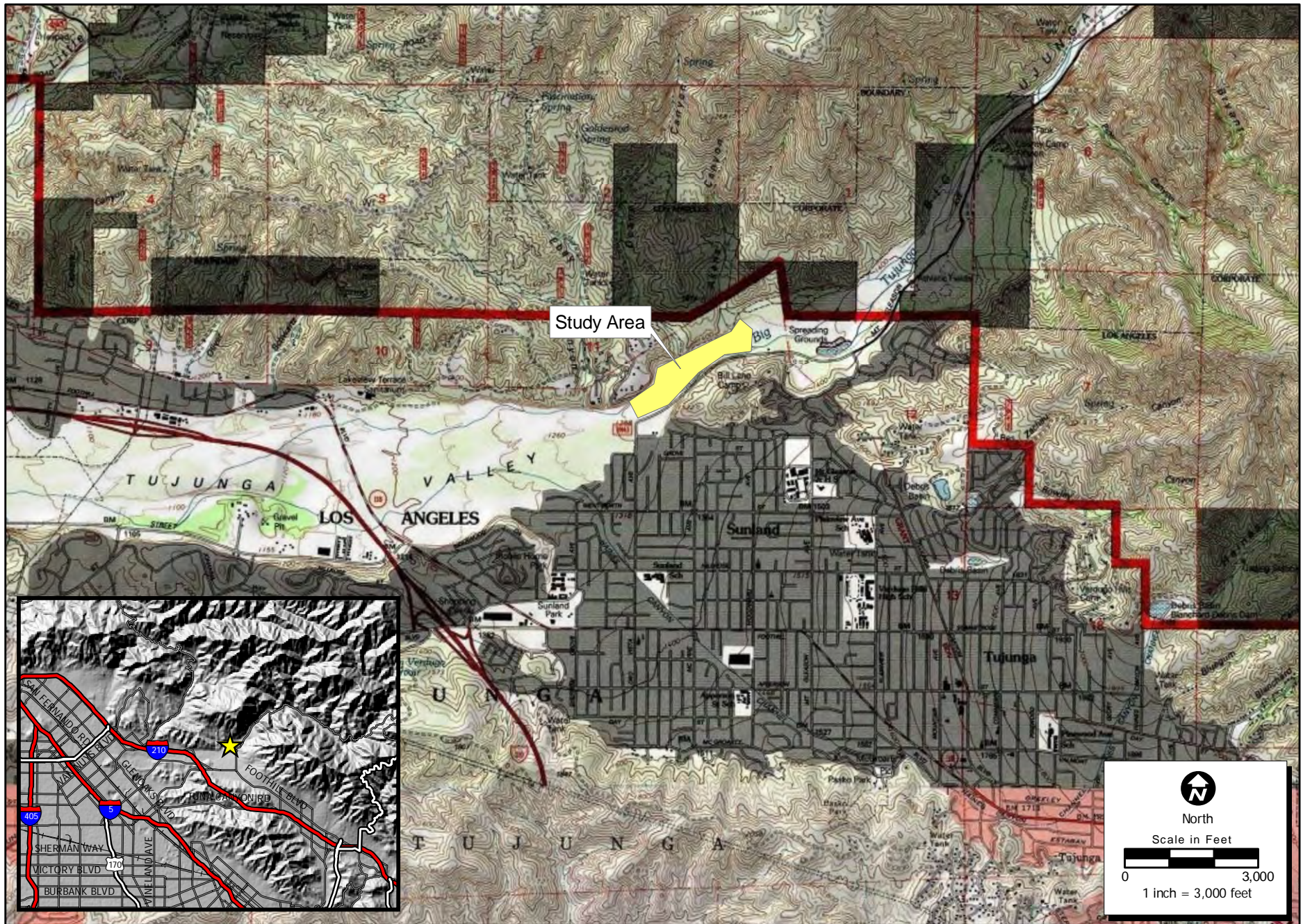
## INTRODUCTION

This letter report presents the results of the focused surveys and relocation efforts for native fishes including the federally threatened Santa Ana sucker (*Catostomus santaanae*) performed in the Big Tujunga Wash at Oro Vista Avenue. Photographs of the prevailing site conditions, the relocation efforts, and the condition of the current channel habitat are provided in Appendix A.

Due to the recent fires in the watershed (Station Fire 2009), and subsequent rain events, large amounts of sediment and debris entered the Big Tujunga Wash. The sediment and debris altered the current channel alignment and buried the emergency overflow culverts. The water flowed over the Arizona crossing portion of Oro Vista Avenue and forced sporadic road closures during high flow events. The Oro Vista Avenue paved "by-road" provides the only access to the private gated community of Riverwood Ranch, which consists of about 35 homes north of the Big Tujunga Wash, in the City of Los Angeles (Figure 1). Under normal conditions water is contained in a channel on the western edge of the wash which passes under the Oro Vista Avenue Bridge. There are also twin culverts which convey the water during high flows. There is an Arizona crossing portion of the road which is intended to carry water over the road only during major flood events. Emergency maintenance after large storm events is necessary to clear the culverts and re-establish the low flow channel beneath the bridge.

The City of Los Angeles obtained a Regional General Permit (RGP) No. 63 from the United States Army Corps of Engineers (USACE), for this emergency debris clearance of the culverts, and the construction of a diversion channel to redirect the existing flows away from the Arizona crossing portion of the road. The presence of the federally listed as threatened Santa Ana sucker and other California species of special concern fishes (arroyo chub [*Gila orcutti*] and Santa Ana speckled dace [*Rhinichthys osculus* ssp. 3]) requires that special measures be adhered to with regard to the capture and clearance of these fishes prior to the diversion and dewatering of the of the active channel, and during any construction within the wetted portions of the channel. The total project construction area is approximately 900 meters (m) in length from the point of the channel diversion upstream, to the downstream extent of the impacts generated by the dewatering activity (Figure 2). The portion of the wash upstream of the road was primarily contained in a single channel, whereas downstream there were three main channels with a complex of secondary braided channels.

Portions of the Big Tujunga Wash are able to support self sustaining populations of these native fish species which could represent some of the last remaining populations within the Los Angeles River system. Southern California coastal freshwater fish species have been heavily impacted by habitat alteration and dewatering and thus their numbers are greatly reduced in distribution and overall abundances (Moyle 2002). Santa Ana suckers are primarily found in small to medium sized streams, usually less than 7 m in width, that flow year-round and may vary in depth from several centimeters to over 1 m deep. They favor cool (<22°C), clear, flowing water where gravel, rubble, and boulder substrates are present. While Santa Ana suckers are commonly found in association with algae, they are not normally found in habitats containing aquatic plants. They use their scraping mouths to feed on algae and detritus, and may also feed on insects. The sucker's natal streams are subject to severe flooding, though these fish are well adapted to re-colonize through early maturity, high fecundity, and extended spawning. Santa Ana suckers rarely live more than four years, but they reach sexual maturity in their second summer. Spawning typically occurs from mid-March till early June in riffle habitats possessing gravel substrates.



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Map Date: 06/10/2010

**Figure 1. Site and Vicinity Map**

2010-059 Big Tujunga Santa Ana Sucker



Location: N:\2010\2010-059 Big Tujunga Santa Ana Sucker\MAPS\SSS\_Survey\_and\_Mapping\Santa Ana Sucker\Maps\BigTSAS\_Survey\_20100610

Map Date: 06/10/2010  
 Photo: Aerials Express April 2010

## Figure 2. Survey Location Map

2010-059 Big Tujunga Santa Ana Sucker

## **METHODS**

Manna Warburton (TE-106908-1) assumed the role as the lead 10(a)(1)(A) permitted biologist for the Santa Ana sucker on this project. He led a team of fisheries biologists including Todd Chapman (TE-110094-2), Brian Zitt, and two additional field technicians. Water quality was measured with a Horiba U-52 Multiparameter Water Quality Checker. Multiple passes were conducted with a Smith Root 12B Backpack Electrofisher unit throughout the project area on June 1, and 2, 2010. Settings were maintained within the recommended guidelines provided by both USFWS and CDFG for the prevailing water quality conditions in the system. A maximum output voltage of 400 volts, pulse rate of 30 Hertz, and a pulse width of less than 5 milliseconds were maintained throughout the duration of the effort.

All of the electrofishing efforts were conducted in an upstream to downstream manner, to "herd" fishes into a downstream 1/8-inch delta mesh seine net which was lifted and checked for fish following the sampling of individual 5 m sections of stream channel. Two biologists with dip-nets mirrored the anode pole and the electrical field to quickly net and capture all fishes. Additional measures which were implemented to avoid potential injury to Santa Ana sucker and native fishes included: moving the anode continuously in a herringbone pattern through the water, avoiding electrofishing in one areas for extended periods of time, and removing fish from the electric field as quickly as possible. All suckers were closely monitored during the sampling efforts for recovery times and signs of any excessive stress or injury. Upon their capture all of the native fish species were placed into oxygenated holding tanks which were continually monitored until they could be safely released into suitable habitat downstream.

Preceding a partial diversion of water from the wetted channel, a single pass was conducted throughout the entire site beginning at the point of the diversion and working downstream. Oro Vista Avenue was used as a habitat break during our sampling to separate passes conducted upstream of the Arizona crossing from those conducted downstream. After this initial fish relocation effort, the construction crew was permitted to complete the diversion of the water into the preferred channel location on the western side of the wash. A second pass was conducted along the entire upstream portion of the previously wetted channel, targeting pools and all other remaining surface waters to ensure that all remaining fishes had been removed from channel upstream of the crossing. The stream habitat downstream of the crossing continued to maintain sufficient surface flows for the completion of a second and third pass through this area on June 1, 2010. An additional two passes were completed through this area downstream of the crossing on June 2, 2010 to ensure that all remaining fishes were captured and safely relocated.

All of the fishes captured were enumerated and checked for injuries or other signs of stress. If time permitted and fish were not showing signs of stress, their lengths were measured to the nearest millimeter, and their weights were measured to the nearest hundredth of a gram with an electronic balance. All of the non-native fishes collected were measured, euthanized, and buried on-site.

## RESULTS

Water temperatures increased from 15.9°C on June 1, 2010 to 18.7°C on June 2, 2010 (Table 1). Both dissolved oxygen and pH dropped, going from 12.18 to 11.95 mg/L and 8.36 to 7.89 respectively. Conductivity and oxidation/reduction potential (ORP) increased, going from 510 to 580 µS/cm and 97 to 110 mV respectively.

The capture and relocation effort for Santa Ana sucker and other native fish species in Big Tujunga Wash at Oro Vista Avenue channel crossing yielded a total of 442 native fish (Table 2), out of a total of 450 fish. The three native fish species comprised 98.2 percent of the total catch. These fish clearance passes were conducted in the channel both upstream and downstream of the road crossing separately. A total of 16 fish were captured upstream of the road crossing, with native species accounting for 56.3 percent of the catch within that reach. A total of 434 fish were captured downstream of the road crossing, with native species accounting for 99.8 percent of the catch within that reach.

Santa Ana sucker were the most abundant species captured with a total of 308 fish, arroyo chub were the next most abundant species with a total of 76 fish, and the third most abundant species captured was the Santa Ana speckled dace with a total of 58 fish. All of these native fish species were relocated in good condition to suitable habitat just downstream of the construction area. Dace displayed signs of sexual maturity and several of the sucker captured exhibited tubercles on their fins, although other signs of recruitment (i.e., larvae or juveniles) in this area were not observed. Several of the Santa Ana speckled dace likewise exhibited bright orange fins and coloration around the lips and face, which is also indicative of breeding activity. The arroyo chub captured during this effort did not exhibit any obvious signs of breeding, although there were several individuals which were extremely large and deep bodied, possibly gravid females.

There were two non-native fish species captured during the relocation effort, the black bullhead (*Ameiurus melas*), and fathead minnow (*Pimephales promelas*). A total of 7 black bullhead were captured in the channel upstream of the road crossing. A single male fathead minnow was captured downstream of the road crossing. This fish was exhibiting breeding tubercles on its head, although the distinctive "dark" breeding coloration was not evident with this individual. Each of these non-native fishes was euthanized and buried on-site.

Overall there were far fewer fishes captured upstream of the road crossing than downstream. The second pass through the upstream portion produced zero fish, although 2 two-striped garter snakes (*Thamnophis hammondi*) were observed, along with several western toad (*Bufo boreas*) tadpoles.

A total of five passes were conducted throughout the entire complex of braided channels downstream of the road crossing, three passes were conducted on June 1, and two additional passes were conducted on June 2, 2010. Good depletion numbers were achieved for all three species during both days of the relocation effort. The number of individuals captured during pass 4 on the second day exhibited an increase over the numbers achieved during pass 3 on the previous day. During pass 5 however, there were only two fish captured which once again established an observable depletion in the numbers.

**Table 1. Water Quality Record, Big Tujunga Wash at Oro Vista Avenue, June 2010**

| <b>Date</b> | <b>Time</b> | <b>Water Column Location</b> | <b>Temp (°C)</b> | <b>pH</b> | <b>Conductivity (µS/cm)</b> | <b>TDS (g/L)</b> | <b>Salinity (ppt)</b> | <b>Dissolved Oxygen (mg/L)</b> | <b>ORP (mV)</b> | <b>Turbidity (NTU)</b> |
|-------------|-------------|------------------------------|------------------|-----------|-----------------------------|------------------|-----------------------|--------------------------------|-----------------|------------------------|
| 6/1/2010    | 7:20 AM     | surface                      | 15.9             | 8.36      | 510                         | 0.327            | 0.20                  | 12.18                          | 97              | 9.4                    |
| 6/2/2010    | 7:05 AM     | surface                      | 18.7             | 7.89      | 580                         | 0.327            | 0.30                  | 11.95                          | 110             | 9.4                    |



Table 2. Fish Species Abundance Table, Big Tujunga Wash at Oro Vista Avenue

| Location           | Date     | Native Fishes |                         |                  | Non-Native Fishes |                | Totals     |
|--------------------|----------|---------------|-------------------------|------------------|-------------------|----------------|------------|
|                    |          | Arroyo Chub   | Santa Ana Speckled Dace | Santa Ana Sucker | Black Bullhead    | Fathead Minnow |            |
| Upstream Pass #1   | 6/1/2010 | 0             | 1                       | 8                | 7                 | 0              | 16         |
| Upstream Pass #2   | 6/1/2010 | 0             | 0                       | 0                | 0                 | 0              | 0          |
| Downstream Pass #1 | 6/1/2010 | 34            | 20                      | 152              | 0                 | 1              | 207        |
| Downstream Pass #2 | 6/1/2010 | 21            | 20                      | 108              | 0                 | 0              | 149        |
| Downstream Pass #3 | 6/1/2010 | 0             | 4                       | 17               | 0                 | 0              | 21         |
| Downstream Pass #4 | 6/2/2010 | 20            | 13                      | 22               | 0                 | 0              | 55         |
| Downstream Pass #5 | 6/2/2010 | 1             | 0                       | 1                | 0                 | 0              | 2          |
| <b>Grand Total</b> |          | <b>76</b>     | <b>58</b>               | <b>308</b>       | <b>7</b>          | <b>1</b>       | <b>450</b> |

## **DISCUSSION**

The capture and relocation effort was completed without any major incidents or fish mortalities. All of the native fishes appeared to be in extremely good condition; there were only a few fishes which had some external leeches, which were removed prior to their release. There were three size classes of Santa Ana sucker captured, primarily second, third year individuals with only a small number of fourth year fish. There were definite signs of sexual maturity in many of the fishes captured, especially the sucker and speckled dace. All of the fish were adult individuals; no juvenile or life stages were observed or captured during all of our relocation efforts.

The main flows of the Big Tujunga Wash have been successfully diverted back into the preexisting channel which goes under the bridge. This project has really served two purposes. The first was to divert the flow away from the Arizona crossing, which was an issue for public safety, but the second was to restore a connection between habitat for the Santa Ana sucker and other native species downstream of Oro Vista Avenue and the habitat upstream which extends up into the Angeles National Forest. It is our opinion that this road crossing was acting as a "barrier" to fish movement within this system when the water was flowing over the road. The diversion of the water beneath the bridge has provided passage. The new channel has provided some great new riffle habitat; there are boulders and cobbles which are already exposed and the banks are bordered with riparian vegetation (mulefat, willows, and cottonwoods). This should be a benefit to all the native fishes in this system providing the ability to gain access to additional habitat and possibly strengthening their overall population strength in the face of impacts sustained as a result of the Station Fire.

The project related construction activities and disturbances to the wash associated with the diversion and realignment of the flows extended approximately 700 m upstream of the road crossing. Heavy equipment was used to remove excess sediments and debris from a small portion of the upper project area, to construct a connection between the point of the diversion and the channel which extends under the bridge. Sediment and debris was also removed from the two emergency overflow culverts and an area directly adjacent to and upstream of the road crossing. Some of the excess material removed from this location was placed along the downstream side of the road crossing to create a shoulder approximately 3 m wide. The operation of heavy equipment was only conducted within dry portions of the wash, and there were no rain events which occurred during the construction to produce any runoff from the project area.

The diversion of water into the new channel was conducted in a controlled manner to allow the disturbed portions of the streambed to adequately acclimate to surface flows and thus minimize the release of large amounts of sediment downstream of the project area. The newly established channel possesses dense riparian vegetation on both banks, exposed boulders and cobbles, and has previously experienced high velocity flows which made it less susceptible to erosion and sediment release downstream. Due to the pre-emptive actions taken during the channel construction and water diversion, there were no additional measures implemented to minimize erosion/sedimentation associated with the project.

## REFERENCES

Moyle, P.B. 2002. Inland fishes of California. University of California Press, Berkeley, California.  
Revised and expanded.

## CERTIFICATION

I certify that the information in this survey report and attached exhibits fully and accurately represent the presence/absence survey work conducted on the Big Tujunga Wash at the Oro Vista Avenue crossing.



\_\_\_\_\_  
Manna Warburton (TE-106908-1)  
Senior Biologist  
ECORP Consulting, Inc.

July 8, 2010

\_\_\_\_\_  
Date



**Appendix A – Site Photos**



**Figure 1. Santa Ana sucker collected downstream of Oro Vista Avenue.**



**Figure 2. Male Santa Ana speckled dace in breeding coloration collected downstream of Oro Vista Avenue.**

**Appendix A – Site Photos**



**Figure 3. Arroyo chub collected downstream of Oro Vista Avenue.**



**Figure 4. Two-stripe garter snake observed upstream of Oro Vista Avenue.**

**Appendix A – Site Photos**



**Figure 5. Post-construction, with water no longer flowing over Oro Vista Avenue.**



**Figure 6. Post-construction looking northeast.**