# 2023 ANNUAL REPORT FOR THE BIG TUJUNGA WASH MITIGATION AREA LOS ANGELES COUNTY, CALIFORNIA

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## GUIDE TO COMPLIANCE WITH STREAMBED ALTERATION AGREEMENT

**Guide to Compliance with the Terms and Conditions in the California Department of Fish and Wildlife Streambed Alteration Agreement #1600-2008-0253-R5 for the Big Tujunga Wash Mitigation Area, Dated January 29, 2009; Expired March 31, 2014**

A draft Streambed Alteration Agreement (SAA; #1600-2008-0253-R5) was issued to Los Angeles County Public Works (Public Works) from California Department of Fish and Wildlife (CDFW) on January 29, 2009 (Appendix A). The SAA remained in effect through March 31, 2014. Since the expiration of the SAA, activities conducted at the Big Tujunga Wash Mitigation Area (Mitigation Area) have been under the direct supervision of CDFW biologists Matthew Chirdon, Steve Gibson, or David Lin (current). The following key provides a quick reference as to how the conditions were addressed in 2023 and where the explanations of activities associated with the conditions are located in this document.

**Resource Protection**

**Condition 1:** Vegetation removal activities occurred between January 3 and December 29, 2023. Breeding bird pre-activity surveys were conducted prior to each exotic vegetation removal activity occurring within nesting bird breeding season (March 1 through September 1) in 2023. In addition, a qualified biological monitor was present during all exotic vegetation removal activities during the breeding season to ensure that no impacts to nesting birds occurred (see Section 4.0). As a result, no negative impacts occurred to breeding/nesting birds within the Mitigation Area.

**Condition 2:** Nesting raptor surveys were conducted prior to all vegetation removal activities occurring within the Mitigation Area in 2023. No nesting raptors were observed during the pre-activity nesting raptor survey conducted on January 12, 2023. On June 2, 2023, an American kestrel (*Falco sparverius*) nest with nestlings was observed just east of the Cottonwood Avenue bluff. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individuals. The nestlings fledged on June 9. The same day, a Cooper's hawk (*Accipiter cooperii*) nest located northeast of the Cottonwood Avenue bluff was observed to have nestlings. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individuals. The nestlings fledged on June 26. No negative impacts occurred to nesting raptors, and the fencing of nests was not required in 2023; however, a 500-foot avoidance buffer was established around each nest until the young were no longer using the nests (see Section 4.0).

**Condition 3:** Active bird nests were neither destroyed nor disturbed during the 2023 breeding season, in accordance with the Migratory Bird Treaty Act (MBTA) of 1918. Appropriate measures including pre-activity surveys and biological monitoring were employed to prevent impacts to breeding/nesting birds protected under the MBTA.

**Condition 4:** Pre-activity surveys for special status species potentially occurring in the Mitigation Area were conducted prior to exotic vegetation removal activities (see Section 4.0).

**Condition 5:** CDFW was notified of the presence of all listed and special status species occurring within the Mitigation Area.

**Condition 6:** A qualified biological monitor was on site during clearing, enhancement, and restoration activities (see Section 4.0 and Section 8.0). The biological monitor conducted the appropriate pre-activity surveys on site prior to each activity occurring in an area.

**Condition 7:** All native vertebrate species encountered during clearing, enhancement, and restoration activities were safely relocated, as necessary. No native wildlife vertebrate species were harmed because of activities occurring in the Mitigation Area. No wildlife exclusionary devices were necessary; thus, none were constructed. The existing exotic fish exclusionary screens were inspected throughout 2023 to identify any damage and make any necessary repairs. The fish exclusionary screens were replaced on October 10, 2023, with assistance from LA County Parks. No work was conducted on-site without the presence of a biological monitor (see Section 4.0, 6.0, and 8.0).

**Condition 8:** A contractor education brochure with information in both English and Spanish was distributed to all contractors and subcontractors working on the site. This brochure also serves as an informational brochure that is handed out to recreational user groups when conducting Public Outreach (see Section 10.0). In addition, the biological monitors conducted tailgate worker education sessions prior to exotic vegetation activities occurring on the site. A copy of the contractor education brochure is included as Appendix B.

**Condition 9:** A copy of the 2023 annual report will be submitted to CDFW.

**Condition 10:** CDFW did not determine that any threatened or endangered species will be affected by the implementation of the Master Mitigation Plan (MMP); therefore, an application for a State Incidental Take Permit was not prepared.

**Condition 11:** One wildlife-proof trash receptacle is located at the northwest corner of the Mitigation Area near Interstate (I-) 210 Freeway, and an additional trash receptacle is located at the Cottonwood Avenue site entrance.

**Condition 12:** Hunting was neither permitted nor authorized within the Mitigation Area in 2023.

**Work Areas and Vegetation Removal**

**Condition 13:** Disturbance and removal of non-native vegetation did not exceed the limits approved by CDFW, as stated in the MMP (see Section 4.0).

**Condition 14:** All personnel who conducted activities within site boundaries were provided maps, and no live native vegetation was removed from the boundaries of the site. The work areas were clearly delineated, and unnecessary impacts did not occur to ephemeral streams or riparian habitats. Activities conducted at the site did not result in any permanent adverse impacts to Haines Canyon Creek or the Big Tujunga Wash.

**Condition 15:** Live vegetation with a diameter at breast height (dbh) larger than 3 inches was not removed, except as stated in the MMP and approved by CDFW.

**Condition 16:** Live native vegetation was not removed from the channel, bed, or banks of the stream except as provided for in the SAA or as proposed in the MMP.

**Equipment and Access**

**Condition 17:** Vehicles and equipment were neither operated within nor driven through water-covered portions of the stream.

**Condition 18:** Access to the site occurred solely via existing roads and established trails for all site maintenance and monitoring activities.

**Fill and Spoil**

**Condition 19:** Fill was not placed in any area of the Mitigation Area in 2023 as it is not authorized per the SAA.

**Structures**

**Condition 20:** Materials associated with the MMP activities were not placed in any seasonally dry portions of the stream in 2023.

**Condition 21:** Installation of erosion control structures was not conducted during 2023, nor was there a need for such structures.

**Condition 22:** Bridges, culverts, and other structures were not constructed in 2023 as part of activities associated with the MMP.

**Condition 23:** No construction of any temporary or permanent dams, structures, or flow restrictions occurred as part of the activities associated with the MMP. However, recreational users of the site periodically built rock dams in Haines Canyon Creek to create pools. Chambers Group, Inc. (Chambers Group) biologists or trained Public Works Flood Maintenance workers carefully removed the illegal dams when encountered to restore the natural flow in Haines Canyon Creek.

**Pollution, Sedimentation, and Litter**

**Condition 24:** All litter and pollution laws were adhered to by the contractors, subcontractors, and employees of Public Works. Trash pickup was conducted regularly by employees of Public Works, the restoration contractor, and the site users.

**Condition 25:** Equipment maintenance was not conducted in the Mitigation Area in 2023.

**Condition 26:** No hazardous spills of any kind occurred in the Mitigation Area during 2023.

**Condition 27:** Activities conducted within the Mitigation Area in 2023 did not result in any turbid water (from dewatering or other activities) entering existing water courses.

**Condition 28:** Activities involving equipment washing (or other similar activities) that would have resulted in the production of water containing mud, silt, or other pollutants were not conducted in the Mitigation Area in 2023.

**Condition 29:** Alteration to the stream's low-flow channel, bed, or banks was not conducted as a result of the implementation of activities in the Mitigation Area.

**Condition 30:** As stated under Condition 23, the only movement of rocks within the bed or banks of the stream occurred during the removal of rock dams and unauthorized day-use areas (where rocks had been removed from the creek and used as "landscape") created by recreational site users. Removal of the rock dams was conducted by biologists who are familiar with the sensitive fishes in the stream or by trained Public Works Flood Maintenance workers. These activities were conducted with as little silt generation as possible, and the rocks were placed back into the stream in a natural arrangement. Removal of the rock dams is critical for the federally listed (threatened) and California Species of Special Concern (SSC) Santa Ana sucker (*Catostomus santaanae*) that occurs in Haines Canyon Creek. Rock dam removal eliminates habitat that is better suited for exotic wildlife (e.g., American bullfrogs [*Lithobates catesbeianus*], largemouth bass [*Micropterus salmoides*]) that pose a threat to this species.

**Permitting and Safeguards**

**Condition 31:** The CDFW, United States Army Corps of Engineers (USACE), and Regional Water Quality Control Board (RWQCB) were consulted early in the development of the implementation plan for the Mitigation Area (referred to in the SAA as the Big Tujunga Conservation Area). The USACE stated that they did not need to issue a permit because there would not be any fill within their jurisdiction. The continued implementation of the MMP for the Mitigation Area is not expected to have any impact on USACE jurisdiction, nor will it have any water quality impacts. No additional permits or certifications are required from the RWQCB or the USACE.

**Condition 32:** Public Works submitted the Conservation Easement (CE) on December 23, 2010. Additional work on the CE was not conducted in 2023.

**Administrative and Miscellaneous**

**Condition 33:** No amendments to the SAA were submitted to CDFW during the 2023 reporting period. CDFW did not identify any breaches of the SAA during the 2023 period.

**Condition 34:** No violations of any terms or conditions of the SAA occurred during the 2023 period.

**Condition 35:** Copies of the SAA were provided to all the biologists, subcontractors, and workers who conducted activities in the Mitigation Area in 2023.

**Condition 36:** A pre-enhancement restoration meeting/briefing was held on November 11, 2009, prior to any exotic vegetation removal activities occurring in the Mitigation Area. Additional meetings were not necessary during 2023.

**Condition 37:** CDFW was notified prior to the start of exotic vegetation removal activities occurring within the Mitigation Area during the breeding bird season in 2023 (see Section 4.0).

**Conditions 38 and 39:** To the knowledge of Public Works and Chambers Group, no CDFW department employees conducted site visits in 2023.

**Conditions 40 through 42:** CDFW did not issue a suspension or cancellation of the SAA in 2023.

# SECTION 1.0 – INTRODUCTION

## 1.1 PURPOSE

The purpose of this report is to provide a summary of the management activities conducted at the Big Tujunga Wash Mitigation Area (Mitigation Area) from January to December 2023. These activities were conducted in accordance with the Master Mitigation Plan (MMP) for the Mitigation Area (Chambers Group 2000). The MMP was first created in 2000 to serve as a five-year guide for implementation of various enhancement programs and to fulfill the California Department of Fish and Wildlife (CDFW) requirement for the preparation of a management plan for the site. The Mitigation Area serves as a mitigation bank for impacts to state and federal jurisdictional waters from Los Angeles County Flood Control District (LACFCD) project activities and provides for long-term preservation, management, and enhancement of biological resources for the benefit of the state's fish and wildlife resources. The MMP encompasses strategies to enhance and protect existing habitat for wildlife and to create additional natural areas that could be used by native wildlife and numerous user (recreational) groups. In addition, the MMP includes programs for the removal of exotic fishes and reptiles, American bullfrogs, and red swamp crayfish (*Procambarus clarkii*) from the Tujunga Ponds; removal of exotic and invasive plants; trapping to control brown-headed cowbirds (*Molothrus ater*); development of a formal trails system; and development of a public awareness and education program at the site. Implementation of the MMP began in August 2000 and was completed five years later. An additional year of limited maintenance and surveys was added between late summer 2006 and late summer 2007. ECORP Consulting, Inc. (ECORP) was contracted by Public Works in July 2007 to continue the implementation of MMP activities. In June of 2017 Chambers Group, Inc. was again contracted by Public Works to continue the implementation of the MMP. This report summarizes all activities conducted in the Mitigation Area by Chambers Group between January and December 2023.

## 1.2 LOCATION AND SETTING

The Mitigation Area is located in Big Tujunga Wash, just downstream of the I-210 Freeway overcrossing, near the City of Los Angeles' Sunland community in the San Fernando Valley, Los Angeles County. The site is bordered on the north by I-210, on the east by I-210 and the Los Angeles County Department of Parks and Recreation's (LA County Parks) Tujunga Ponds, and on the south by Wentworth Street (Figure 1-1). The west side of the site is contiguous with the downstream portion of Big Tujunga Wash. The Mitigation Area supports two watercourses: Big Tujunga Wash and Haines Canyon Creek. Big Tujunga Wash, in the northern portion of the site, is partially controlled by Big Tujunga Dam (Dam). Flow is intermittent based on rainfall amounts and water releases from the Dam. Haines Canyon Creek, located in the southern portion of the site, is a tributary that conveys water flow from Haines Canyon to Big Tujunga Wash. Flow is perennial and may be fed by groundwater and/or runoff from adjacent residential areas. The two drainages merge near the western boundary of the property and continue into the Hansen Dam Flood Control Basin, located approximately 0.5 mile downstream of the site. The site is located within a state-designated Significant Natural Area (LAX-018) and a Los Angeles County Significant Ecological Area (Designation No. 25, Tujunga Valley/Hansen Dam); and the biological resources found on the site are of local, regional, and statewide significance (Safford and Quinn 1998; CDFW 2016). The Mitigation Area also falls within designated Critical Habitat for the federally listed Santa Ana sucker and the federally and state listed southwestern willow flycatcher (*Empidonax traillii extimus*). The nearby Tujunga Ponds and surrounding habitat are located adjacent to the northeast corner of the site. An aerial photograph showing Big Tujunga Wash, Haines Canyon Creek, the Tujunga Ponds, and other geographic features as well as designated Critical Habitat in the Mitigation Area can be found in Figure 1-2.

**Figure 1-1. Project Location**

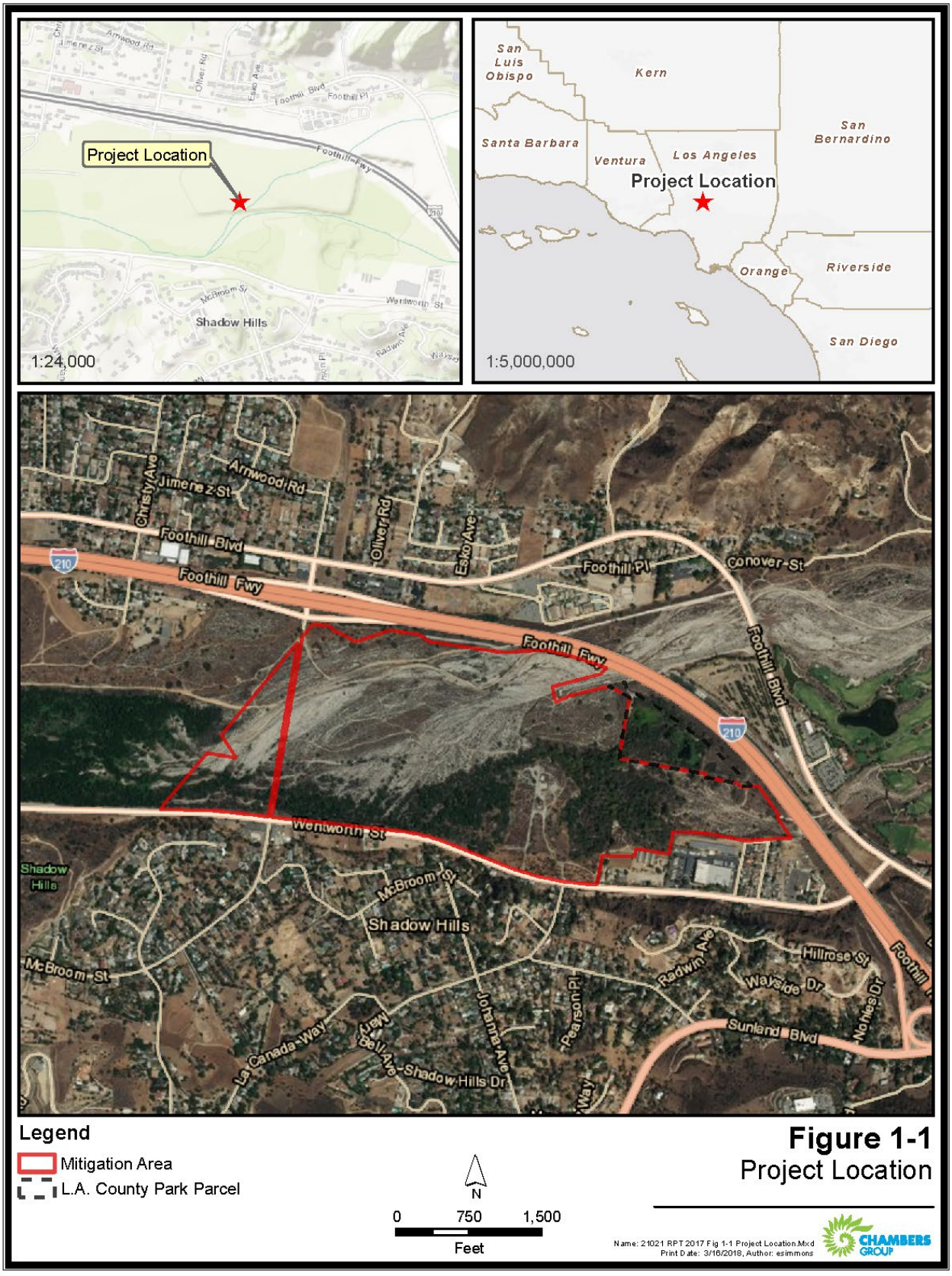
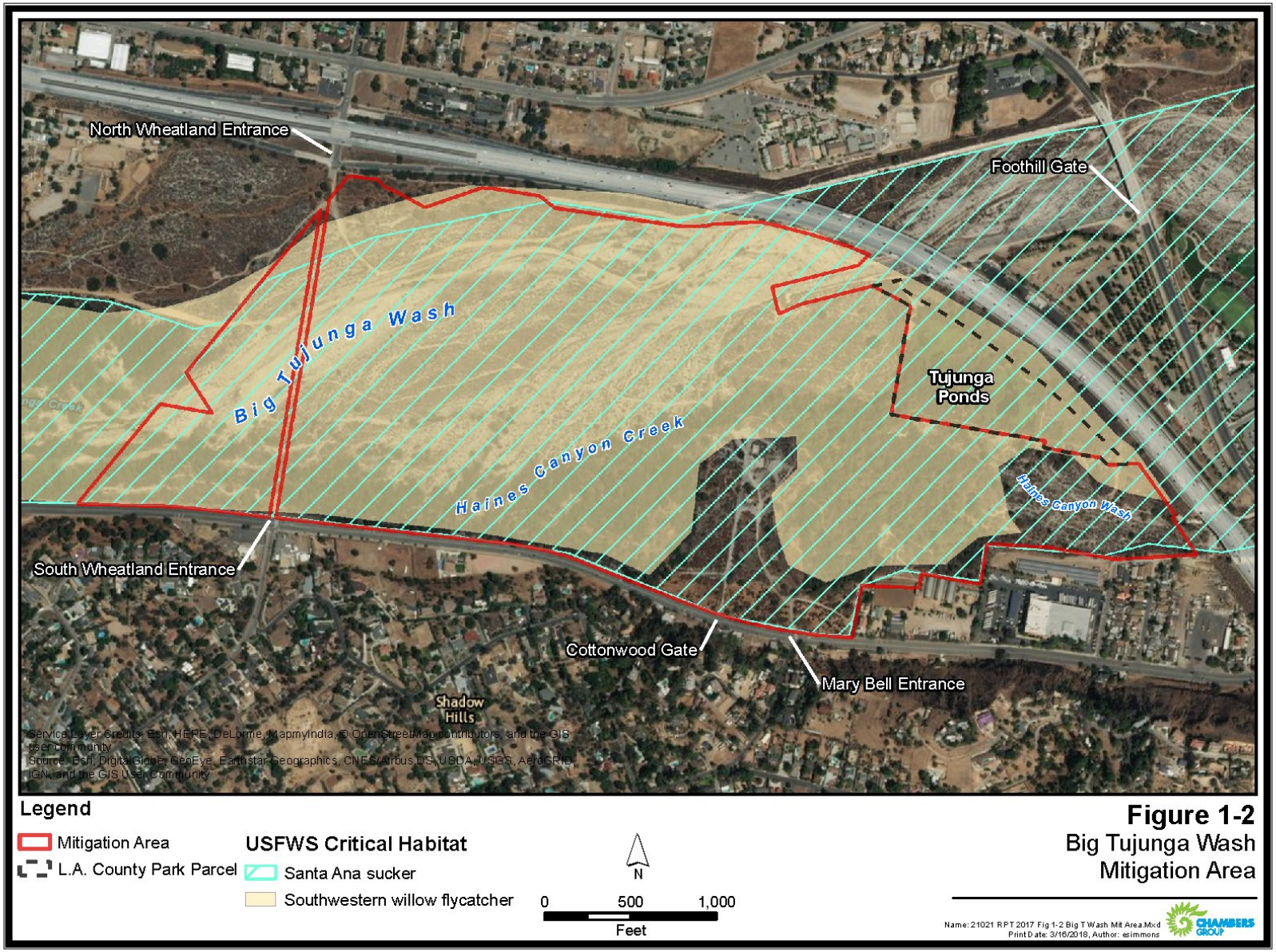


**Figure 1-2. Big Tujunga Wash Mitigation Area**



## 1.3 SUMMARY OF THE ANNUAL REPORT

Table 1-1 provides a list of the tasks described in the MMP that were implemented between January and December 2023. Certain tasks in the MMP were not conducted in 2023 because the scope of work requires that they be done once during a three-year period and that they be conducted during an average or better than average rainfall year. Examples of these include the focused surveys for sensitive native fishes, arroyo toad (*Anaxyrus californicus*), least Bell's vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher. This suite of surveys was last conducted in 2015 and, under typical conditions, would have occurred in 2018 and 2021; however, due to the loss of habitat for these species following the Creek Fire which occurred in December of 2017 compounded by several drought years, the schedule for these surveys remains tentative. No water lettuce (*Pistia stratiotes*) was observed in the Mitigation Area during 2023; and thus, no Water Lettuce Control Program tasks were conducted in 2023. The Community Awareness Program that includes the annual Community Advisory Committee (CAC) meeting and biannual newsletters was implemented in 2023; the CAC meeting took place on May 4, 2023, and the Spring and Fall Newsletters were prepared and distributed to the public in June and November, respectively. The Water Quality Monitoring Program was implemented in 2023 and included water sample collection on November 1, 2023, and the subsequent preparation of the Water Quality Monitoring Results Report. Public Outreach efforts were conducted by Chambers Group biologists during peak use days in September and October 2023, and the subsequent Public Outreach Report was submitted to Public Works in December 2023. The Annual Trail Cleanup Day, which is conducted as part of the Trails Monitoring Program, took place on December 2, 2023. Chambers Group also tracked reported illegal encampments, dams, and other incidents throughout 2023. The 2023 mitigation and monitoring tasks are summarized below starting in Section 1.3.1.

Compendia of all plant and wildlife species observed in the Mitigation Area are included as Appendix C.

**Table 1-1. Mitigation and Monitoring Tasks Implemented and/or Continued in 2023**

| Implemented and/or Continued in 2023 | Task |
|---|---|
| | **Task 1 — Continue Brown-headed Cowbird Trapping Program** |
| ✓ | Brown-headed Cowbird Trapping Program |
| ✓ | Final Trapping Report |
| | |
| | **Task 2 — Continue Exotic Plant Eradication Program** |
| ✓ | Exotic Plant Removal and Maintenance Program |
| ✓ | Exotic Plant Removal Letter Reports |
| | |
| | **Task 3 — Water Lettuce Control Program** |
| ✓ | Water Lettuce Monitoring |
| - | Water Lettuce Herbicide Application |
| - | Water Lettuce Removal Letter Reports |
| | |
| | **Task 4 — Continue Exotic Wildlife Eradication Program** |
| ✓ | Exotic Wildlife Removal Efforts |
| ✓ | Exotic Wildlife Removal Letter Reports |
| | |
| | **Task 5 — Water Quality Monitoring Program** |
| ✓ | Annual Water Quality Monitoring |
| ✓ | Annual Water Quality Monitoring Results Report |

**Table 1-1. Mitigation and Monitoring Tasks Implemented and/or Continued in 2023**

| Implemented and/or Continued in 2023 | Task |
|---|---|
| | |
| | **Task 6 — Trails Monitoring Program** |
| ✓ | Trails Maintenance and Monitoring Efforts |
| ✓ | Trails Maintenance and Monitoring Letter Reports |
| ✓ | 15th Annual Trail Cleanup Day |
| ✓ | Encampment Cleanup Monitoring |
| | |
| | **Task 7 — Community Awareness Program** |
| ✓ | Biannual Newsletters |
| ✓ | Community Advisory Committee Meeting Agenda |
| ✓ | Community Advisory Committee Meeting |
| ✓ | Community Advisory Committee Meeting Minutes |
| ✓ | Mitigation Area Incident Map 2022 |
| | |
| | **Task 8 — Public Outreach Program** |
| ✓ | Public Outreach Site Visits |
| ✓ | Distribute Educational Brochures (to public and maintenance crew) |
| ✓ | Public Outreach Letter Report |
| | |
| | **Task 10 — Special Assessments** |
| ✓ | Illegal Encampment and Dam Tracking |
| | |
| | **Task 11 — Annual Report** |
| ✓ | 2023 Draft Annual Report |
| - | 2023 Final Annual Report |
| | |
| | **Task 12 — Meetings** |
| ✓ | Meetings with Public Works, Agencies, the Public, and Consultants |
| | |
| | **Task 13 — Coordination with LA County Parks** |
| ✓ | Coordination with LA County Parks |

### 1.3.1 Continuation of Brown-headed Cowbird Trapping Program

Brown-headed cowbird trapping was conducted in and around the Mitigation Area in 2023. This program is outlined in the MMP as a method to enhance the ecological value of the site by reducing and ultimately eliminating the occurrence of brood parasitism of native riparian bird species. Brown-headed cowbird trapping did not occur in 2018 due to lack of nesting habitat after the Creek Fire but was continued in 2019 after it was determined that vegetation regrowth sufficient to support nesting birds had occurred. Details of the brown-headed cowbird trapping program can be found in Section 2.0.

### 1.3.2 Continuation of Exotic Plant Eradication Program

This task consists of ongoing monitoring of past exotic plant removal efforts and continued removal of exotic and invasive plants. Periodic site visits were conducted to determine the locations of exotic plant species removal efforts, to strategize the best course of action, and to determine if and where additional

removal efforts were necessary. The removal of exotic plants was conducted throughout the year to ensure that removal techniques would coincide with the exotic plant species' growth cycles. The major focus of this task for the 2023 monitoring period was removal of exotic plants such as mustard species, castor bean (*Ricinus communis*), tree tobacco (*Nicotiana glauca*), tree of heaven (*Ailanthus altissima*), and non-native brome grasses using a mix of herbicidal and mechanical removal methods. The herbicide ban on County property by the Los Angeles County Board of Supervisors (that went into effect in April 2019) remained in effect through the beginning of 2023. On June 9, 2023, after approval from Public Works, Chambers Group resumed the use of select (approved) herbicides to help control exotic plants in the Mitigation Area. Exotic plant eradication efforts occurred from January through December for the 2023 monitoring period. The exotic plant eradication activities that were conducted in 2023 are summarized in Section 4.0.

### 1.3.3 Water Lettuce Control Program

Water lettuce removal was added to the Exotic Plant Eradication Program in 2011 due to an infestation of this aquatic, non-native plant in the Tujunga Ponds. Following manual removal in early January 2012, remaining patches of water lettuce were treated with CDFW-approved herbicide in January, July, August, and September 2012 and again in July and August 2013. A small amount of water lettuce was observed on site in June and August 2016 but was manually removed from the ponds by biologists and maintenance crews and did not require herbicide treatments. No water lettuce was observed at the Tujunga Ponds during any of the site visits conducted from 2017 through 2022. The Tujunga Ponds were searched for water lettuce during all exotic wildlife removal efforts in 2023, and no water lettuce was observed. Details of the water lettuce program are summarized in Section 5.0.

### 1.3.4 Continuation of Exotic Wildlife Eradication Program

This task consists of the continued removal of non-native, invasive wildlife species. Efforts were focused on the removal of exotic, aquatic wildlife species, primarily bluegill (*Lepomis macrochirus*), green sunfish (*Lepomis cyanellus*), largemouth bass, red swamp crayfish, and western mosquitofish (*Gambusia affinis*) from perennial waters at the Tujunga Ponds and Haines Canyon Creek. Exotic wildlife removal efforts target all life stages of exotic fishes and amphibians (such as American bullfrogs) to maximize the efficiency of the removal program. Exotic wildlife removal methods were revised in 2016 to increase effectiveness through additional removal efforts. Exotic wildlife removal efforts occurred in January through March, May through August, and October through December for the 2023 monitoring period. Exotic wildlife removal efforts conducted in 2023 are summarized in Section 6.0.

### 1.3.5 Water Quality Monitoring Program

Water quality sampling for the Mitigation Area was conducted by Chambers Group on November 1, 2023. All samples were tested by Enthalpy Analytical LLC or their subcontractors ESB BABCOCK Laboratories, Inc., and Eurofins CalScience LLC. This task is discussed in Section 7.0.

### 1.3.6 Trails Monitoring Program

The Trails Monitoring Program aims to allow recreational use of the Mitigation Area while still preserving sensitive wildlife and native habitats. Trail maintenance efforts were conducted in the months of January, May, August, September, and October 2023, to look for areas that might qualify for trail closures; identify and clear areas where trails were blocked by fallen trees, branches, trash, or other debris; and identify

and clear locations of extensive stands of poison oak (*Toxicodendron diversilobum*) and other vegetation overgrowing the trails. The major focus of 2023 trail maintenance efforts included trail repairs due to storm events, efforts to clear and delineate authorized trails and block off unauthorized trails, the clearing of overgrown vegetation from authorized trails, and reconditioning trails (e.g., removing rocks that had turned up over time) to make trails more comfortable for horses under foot. If needed, trail areas requiring extensive maintenance and/or problematic trail areas were mapped and reported to Public Works for maintenance or repair at a later time. The 15th Annual Trail Cleanup Day occurred on December 2, 2023. Trail maintenance tasks implemented in 2023 and further information about the Trail Cleanup Day are summarized in Section 8.0.

### 1.3.7 Community Awareness Program

This program consists of the continued implementation of the CAC meeting. The meetings were previously held semiannually, in the spring and fall of each year, but changed in 2014 to be held only in the spring. However, due to ongoing COVID-19 restrictions, the CAC meeting was held virtually via WebEx in the fall of 2020 and 2021. The CAC meeting was not held in 2022 but resumed in spring 2023. Chambers Group will continue to assist Public Works with developing meeting agendas and any supporting handouts (such as Mitigation Area Incident Maps), summarizing CAC meeting minutes, and producing biannual newsletters (typically distributed in the spring and fall) for distribution by Public Works. The status of the Community Awareness Program and activities conducted in 2023 are summarized in Section 9.0.

### 1.3.8 Public Outreach Program

The Public Outreach program was implemented in 2009 to educate various recreational user groups about the sensitivity of native plant communities and wildlife species present in the Mitigation Area. This program was not conducted in 2022 but was continued in 2023 due to its past success. Outreach efforts consist of on-site interviews and education about the Mitigation Area conducted during peak summer site use weekends by Chambers Group's bilingual biologists. The biologists hand out bilingual education brochures describing the ecological purpose of the Mitigation Area, the importance of protecting sensitive biological resources, and approved recreational uses and prohibited activities within the Mitigation Area. While on-site, the biologists document any unusual observations or circumstances such as the presence of rock dams in Haines Canyon Creek or other unauthorized activities. This task is further discussed in Section 10.0.

### 1.3.9 Special Assessments

Chambers Group staff are available to provide special assessments on an on-call basis. Special assessments include damage assessments (e.g., fire damage, vandalism) and other site issue assessments and the subsequent coordination and response. No special assessments were conducted in 2023. This task is further discussed in Section 11.0.

### 1.3.10 Preparation and Submittal of Annual Report

This task refers to the preparation of the annual report and the individual task reports that are included as appendices to the annual report.

### 1.3.11 Attendance at Meetings with Agencies, Public, and Consultants

Chambers Group was available to attend meetings with Public Works, agencies, the public, and other consultants as necessary regarding various aspects of the MMP implementation. This task is further discussed in Section 12.0.

### 1.3.12 Coordination with LA County Parks.

Chambers Group staff informs and coordinates with LA County Parks concerning activities that take place within the Mitigation Area and the Tujunga Ponds LA County Parks parcel. Chambers Group biologists coordinated with LA County Parks employees prior to replacing the fish exclusionary screens located in Haines Canyon Creek just downstream from the Tujunga Ponds on October 10, 2023.

## SECTION 2.0 – CONTINUATION OF BROWN-HEADED COWBIRD TRAPPING PROGRAM

The brown-headed cowbird trapping program was established at the Mitigation Area to decrease and ultimately eliminate nest parasitism on sensitive songbird species present or potentially present in the Mitigation Area, such as least Bell's vireo and southwestern willow flycatcher. Trapping and eradicating brown-headed cowbirds increases the ecological value of the site by enhancing the reproductive success of these sensitive riparian songbirds and promoting general breeding activity within the Mitigation Area. Trapping was initiated in the Mitigation Area in 2001 and was conducted yearly between 2001 and 2006 and again between 2009 and 2017. Trapping was not conducted in 2007 and 2008, as it was one of the tasks originally scheduled to occur once every three years. CDFW requested that this task be completed every year in the most recent Streambed Alteration Agreement (SAA) issued for the site (dated January 29, 2009). Brown-headed cowbird trapping was not conducted for the Mitigation Area in 2018 due to a lack of suitable nesting habitat after the Creek Fire. It was decided that the continuation of the trapping program would be commensurate with the re-establishment of suitable nesting habitat as determined by qualified Chambers Group avian biologists or as required by CDFW. As suitable habitat had established within the year immediately following the Creek Fire (2018), the brown-headed cowbird trapping program resumed in 2019 and continued through 2023. Griffith Wildlife Biology operated two cowbird traps within the Mitigation Area and two traps adjacent to the Mitigation Area between April 2 and June 29, 2023 (12 weeks and 5 days [89 days]). The methods, results, and discussion of the 2023 trapping program are presented below; and the full report is included as Appendix D.

### 2.1 BROWN-HEADED COWBIRD NATURAL HISTORY

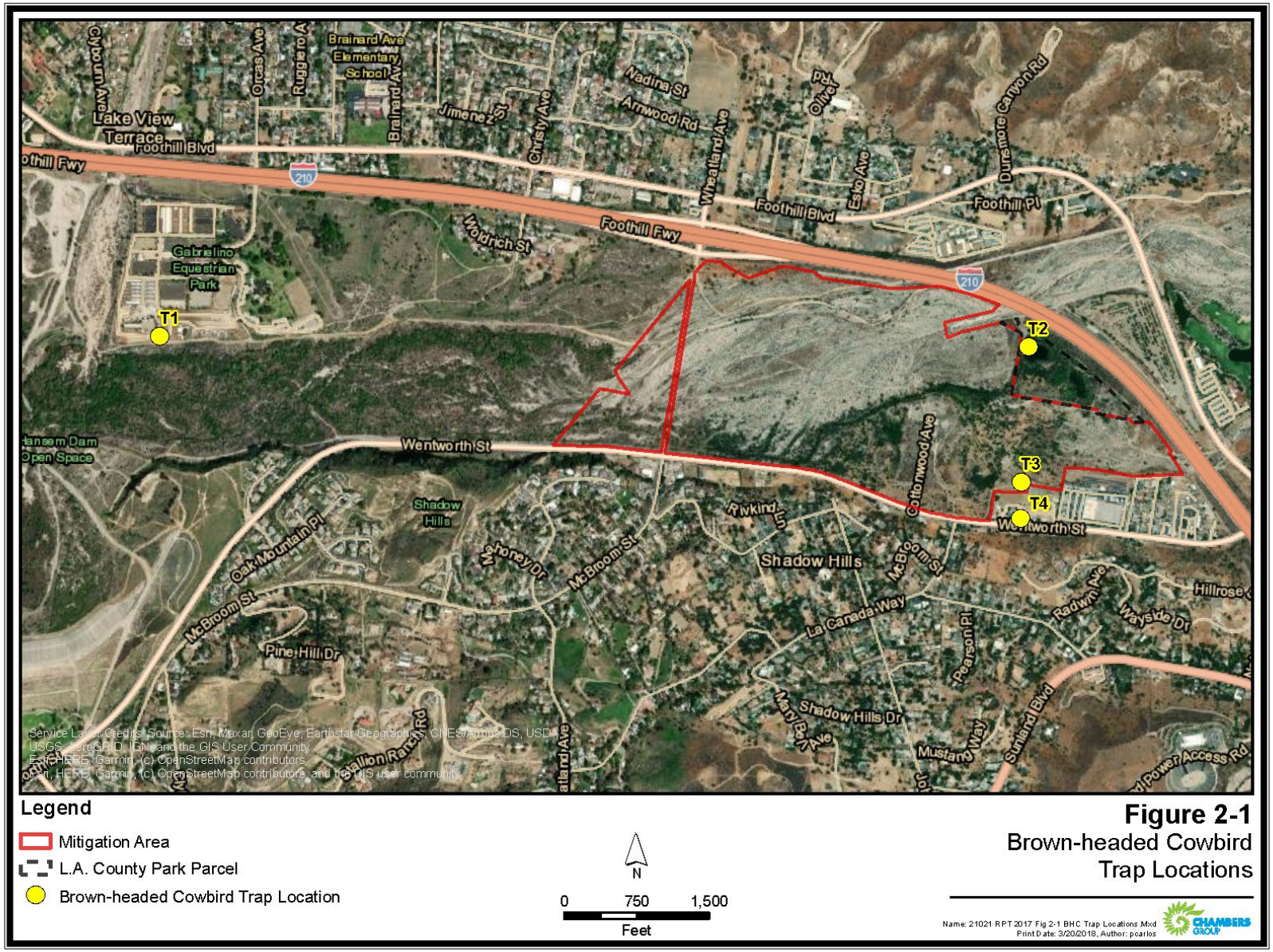
Brown-headed cowbirds are brood parasites. Cowbirds do not make a nest of their own, nor do they contribute to raising their young. This species parasitizes the nests of native host species by laying their larger egg(s) in the host species' nests and leaving the egg(s) and chick(s) to be reared by the native host. Brown-headed cowbird young are often larger and more demanding than their host's offspring, often resulting in the host birds raising the cowbird chick and neglecting their own young. Female cowbirds can lay more than 40 eggs during the breeding season (Scott and Ankney 1983; Holford and Roby 1993; Smith and Arcese 1994), which can last between two and four months. Population declines of sensitive native songbirds such as the least Bell's vireo and the southwestern willow flycatcher can be partially attributed to high nest parasitism rates by brown-headed cowbirds. In many areas, the reduction or elimination of brown-headed cowbirds through trapping has been directly related to increases in native bird populations.

### 2.2 METHODS

Brown-headed cowbird trapping was conducted by Griffith Wildlife Biology according to the Brown-headed Cowbird Trapping Protocol, the standard protocol accepted by the U.S. Fish and Wildlife Service (USFWS) and CDFW (Griffith Wildlife Biology 1992). Four traps were established in and around the Mitigation Area: Trap 1 at the Hansen Dam Stables, Traps 2 and 3 inside the Mitigation Area (upstream of the Hansen Dam Stables just west of the Tujunga Ponds [Trap 2] and just outside of Gibson Ranch [Trap 3]), and Trap 4 at Gibson Ranch (Figure 2-1). Trap 2 was located in riparian habitat and Traps 1, 3, and 4 were located at foraging areas adjacent to riparian habitat.

The traps measure approximately 6 feet wide, 8 feet long, and 6 feet tall and were constructed at each trap site. Food, water, perches, and shade were provided inside each trap. A sign was prominently placed

**Figure 2-1. Brown-headed Cowbird Trap Locations**



outside each trap explaining the significance of the trap and urging recreational users of the area to refrain from tampering with the trap. Each trap contained live decoy birds by April 8, and two to three male and five to six female decoy birds by April 12. Trap operation began on April 2 and continued every day (including weekends and holidays) until June 29. Each trap was serviced daily by a qualified biologist. Servicing activities included:

- Replenishing and/or cleaning the water source
- Refilling the feed tray with bait seed
- Repairing the perches, foraging pad, sign, shade cloth, lock, and damage from vandals, as needed
- Repairing damage as needed
- Wing clipping newly captured female cowbirds
- Adding/removing decoy cowbirds to maintain the appropriate male to female ratio (2:3)
- Removing and releasing non-target native bird species in the traps
- Recording all activities and appropriate data on a data sheet

Traps were disassembled and returned to storage on June 29. Cowbirds not used as decoys were humanely euthanized and were provided as forage to raptor rehabilitation/reintroduction facilities.

## 2.3 RESULTS

A total of 58 brown-headed cowbirds were removed during the 2023 trapping season (17 males, 41 females, and 0 juveniles). The male brown-headed cowbird capture peak occurred between Week 2 and Week 6 (April 8 to May 12) with 15 of the 17 male brown-headed cowbirds captured and removed. The female brown-headed cowbird capture peak also occurred between Week 2 and Week 6 (April 8 to May 12) with 35 of the 41 female brown-headed cowbirds captured and removed. On April 15, Trap 2 was vandalized, and one male decoy escaped after an opening was cut in the trap mesh. Trap 2 was repaired immediately, and the male decoy was recaptured the next week. No trapping days were lost during the 2023 trapping season.

A total of 38 non-target birds (i.e., all species except brown-headed cowbirds) of four bird species were captured in the traps in 2023. The four non-target species that were captured included California towhee (*Melozone crissalis*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), and red-winged blackbird (*Agelaius phoeniceus*). No banded brown-headed cowbirds or banded non-target species were captured during the trapping season. No sensitive or endangered, threatened, or candidate non-target species were captured. No decoy or non-target birds died due to lack of food or water, or unclean conditions. All the non-target birds captured during the trapping period were released unharmed, and none were preyed upon.

Chambers Group biologists observed one to two territorial least Bell's vireo males throughout the peak nesting season at the 2020 least Bell's vireo nesting area at Tujunga Ponds, and confirmed at least three nests, but did not confirm any nests in 2021. Maintenance activities were limited in 2022 and largely occurred outside of least Bell's vireo breeding season; however, Chambers Group biologists did observe least Bell's vireos flying around, chasing, and showing territorial behavior towards each other during trail maintenance efforts in the western riparian area in August 2022. In 2023, Chambers Group biologists identified the general location of two least Bell's vireo nests, one in the eastern riparian area near the south Wheatland Avenue entrance, and one in the central riparian area just north of the Cottonwood Avenue bluff; however, the exact locations of these nests were never identified as the nests were well concealed and the biologists took care to monitor from a distance so as not to be intrusive or lead

potential predators to the nests. In addition, multiple detections of least Bell's vireos were recorded by Chambers Group biologists during the 2023 nesting season and into late August, the majority of which were concentrated in riparian areas north and east of the Cottonwood Avenue bluff. On August 7, an adult least Bell's vireo and two fledglings were observed in the riparian area north of the Cottonwood Avenue bluff, indicating that least Bell's vireo young were successfully raised in or in the vicinity of the Mitigation Area in 2023.

## 2.4 DISCUSSION

The number of cowbirds removed from each trap site and each program varies year to year, sometimes independently. The 2023 total capture number of 58 was almost identical to capture numbers in 2017, 2019, 2020, and 2021 (54 to 55 annual total in those years), after a drop in capture numbers in 2022 (30 total).

The removal of 41 cowbird females precluded up to 1,630 to 2,460 parasitism events (40 to 60 eggs per female). As mentioned, one of the four Big Tujunga traps was moved next to the Tujunga Ponds least Bell's vireo nesting area in 2021; in 2020 least Bell's vireo had 3 parasitized nests in the area. Though no least Bell's vireo nests were observed in the area in 2021, the new trap location did remove one female in 2021 (and as noted earlier, 1 female cowbird could lay 40 to 60 eggs in a season, and so impact as many as 60 nests of native songbirds). Trap 2 was again operated in the same location next to the Tujunga Ponds in 2022, and no female cowbirds were captured; however, in 2023, the third year of operating the trap in the location, Trap 2 caught 16 females, the most of the 4 traps. Because of the parasitism on least Bell's vireo nests in 2020, the trap should continue to be operated in the area and will most likely capture any free-flying cowbirds (unless they have already been captured at the Gibson Stables, approximately 0.25 mile to the south, where Traps 3 and 4 are operated).

Locally raised cowbirds are easily and quickly captured after fledging and are therefore good indicators of the efficacy of a trapping program. The fact that no juvenile cowbirds were captured in 2023 indicates that not many cowbirds were raised in the area in 2023. However, that could be due to nest abandonment after parasitism, as was observed with the least Bell's vireo pairs at Big Tujunga in 2020; only direct nest monitoring can give the exact rate of parasitism in an area.

Trapping at Big Tujunga Wash and elsewhere has reduced or eliminated cowbird parasitism in targeted habitat and increased the reproductive success of host species present. Targeted topical trapping has not, however, impacted the regional cowbird population, primarily because cowbirds are removed from so few sites where cowbirds breed. If the regional cowbird population had been reduced, the number of cowbirds captured at each site would decrease over time. Instead, the number of cowbirds captured at each site has remained fairly consistent over time (notwithstanding typical annual fluctuations).

Unless and until cowbirds are absent from the study area for several years, by regional cowbird control or other means, the Mitigation Area topical cowbird trapping program will be required indefinitely to control local brood parasitism and allow native birds to reproduce naturally.

# SECTION 3.0 – HABITAT RESTORATION PROGRAM

The habitat restoration program was originally established to preserve, improve, and create habitat for sensitive and/or listed species including Santa Ana sucker, Santa Ana speckled dace (*Rhinichthys osculus* ssp. 3), arroyo chub (*Gila orcuttii*), arroyo toad, least Bell's vireo, and southwestern willow flycatcher (all are known to occur or have a high potential to occur in the Mitigation Area), that would be suitable for mitigating impacts from LACFCD project activities. These species are associated with aquatic and/or riparian habitats; therefore, the habitat restoration program focused on the restoration of cottonwood-willow riparian habitat. The goal of the initial habitat restoration plan was to remove invasive, non-native, and weedy species, such as giant reed (*Arundo donax*), and to replant these areas with native riparian species. The enhancement plan consisted of various tasks designed to remove the non-native species, prepare the areas prior to planting, install cuttings and container plant materials, and monitor the success of the plantings. Initial installation of cottonwood-willow riparian habitat along Haines Canyon Creek occurred in 2000 and 2001. The habitat restoration program was ongoing through the first part of 2007, when the last plantings were installed. Failure of the plantings due to environmental conditions and vandalism initiated a reevaluation of the restoration program in late 2007.

When ECORP took over the contract for the implementation of the MMP in mid-2007, the habitat restoration plan was revised to address the changing needs of the Mitigation Area and to address the long-term maintenance needs of the restoration areas. The habitat restoration plan was updated in 2009 (ECORP 2009) and is included in Appendix C of the 2009 Annual Report for the Mitigation Area (ECORP 2010).

## 3.1 SUMMARY OF THE ORIGINAL HABITAT RESTORATION EFFORTS

The original habitat restoration efforts conducted in the Mitigation Area are addressed in detail in Section 2.2 of the 2009 Annual Report for the Big Tujunga Wash Mitigation Area (ECORP 2010). During the first five years following the implementation of the original MMP, habitat restoration efforts within the Mitigation Area focused on planting new riparian woodland overstory and understory plants in existing canopy openings or in openings that were created after extensive stands of invasive exotic species were removed. Container plantings and cuttings of native plant species were placed throughout the Mitigation Area and watered on a regular basis to promote survival. In 2004, the cuttings and container plantings were found to have a low survival rate, presumably due to the lack of naturally available water. It was concluded at that time that natural recruitment was more effective at filling openings in the riparian canopy than the active planting program, so no new planting efforts were conducted until 2007.

Additional planting efforts occurred in 2007; however, 2007 was a severe drought year and none of the native plant cuttings survived. A watering program was immediately implemented to promote survival, and the planted container plants did survive. No additional losses of these container plants were noted following the watering program.

## 3.2 CURRENT STATUS OF THE HABITAT RESTORATION PROGRAM

The planting and maintenance portions of the habitat restoration program were terminated in 2010 (ECORP 2011); however, the exotic plant removal component of the habitat restoration program was continued, and the exotic plant removal task was absorbed into the new exotic plant eradication and maintenance program during the contract revision in 2012. The exotic plant eradication and maintenance program activities conducted in 2023 are discussed in Section 4.0.

## SECTION 4.0 – CONTINUATION OF EXOTIC PLANT ERADICATION AND MAINTENANCE PROGRAM

The purpose of the exotic plant eradication and maintenance program at the Mitigation Area is to increase the ecological value of the existing native vegetation communities. The original exotic plant removal program targeted the riparian communities in and around Haines Canyon Creek, Big Tujunga Wash, and the Tujunga Ponds. This program was expanded in 2012 due to a contract revision and now encompasses the cottonwood-willow restoration area maintenance and oak-sycamore woodland weeding activities. From 2017 to present, all communities within all portions of the Mitigation Area have been monitored and weeded by Chambers Group, as necessary. By removing exotic plant species and continually performing maintenance in restoration areas throughout the Mitigation Area, native plant species can flourish due to reduced competition for resources such as light and water. This ultimately allows for the natural recovery of native plant communities and increased chances of success within the restoration areas, which results in an improvement in the ecological function of the entire area. Improved habitat function benefits both common and sensitive species of plants and wildlife that either occur or have the potential to occur at the Mitigation Area. Table 4-1 lists the exotic plant species targeted for eradication.

**Table 4-1. Target Non-Native Weed Species**

| Common Name | Scientific Name |
|---|---|
| eupatory | *Ageratina adenophora* |
| palm species* | *Arecastrum* sp., *Washingtonia* sp., etc. |
| giant reed* | *Arundo donax* |
| mustard species* | *Brassica* spp., *Hirschfeldia incana, Sisymbrium* spp. |
| Italian thistle* | *Carduus pycnocephalus* |
| non-native thistle* | *Cirsium* spp. |
| umbrella plant* | *Cyperus involucratus* |
| water hyacinth | *Eichhornia crassipes* |
| gum tree | *Eucalyptus* spp. |
| fennel | *Foeniculum vulgare* |
| white sweetclover* | *Melilotus albus* |
| tree tobacco* | *Nicotiana glauca* |
| common plantain | *Plantago major* |
| castor bean* | *Ricinus communis* |
| pepper tree | *Schinus terebinthifolius, S. molle* |
| Spanish broom | *Spartium junceum* |
| milk thistle* | *Silybum marianum* |
| Mediterranean tamarisk | *Tamarix ramosissima* |
| **Non-Native Annual Grasses** | |
| wild oat | *Avena fatua* |
| slender wild oat | *Avena barbata* |
| foxtail chess | *Bromus madritensis* subsp. *madritensis* |
| ripgut grass* | *Bromus diandrus* |
| soft chess* | *Bromus hordeaceus* |
| glaucous foxtail barley | *Hordeum murinum* |
| annual beard grass* | *Polypogon monspeliensis* |
| **Non-Native Perennial Grasses** | |
| pampas grass | *Cortaderia selloana* |
| Bermuda grass | *Cynodon dactylon* |
| Italian ryegrass | *Festuca perennis* |

**Table 4-1. Target Non-Native Weed Species**

| Common Name | Scientific Name |
|---|---|
| fountain grass | *Pennisetum setaceum* |
| smilo grass | *Stipa miliacea* var. *miliacea* |

*Observed in 2023

Table 4-2 lists additional non-native plant species observed within the Mitigation Area in 2023.

**Table 4-2. Additional Non-Native Plant Species Observed in the Mitigation Area in 2023**

| Common Name | Scientific Name |
|---|---|
| tree of heaven | *Ailanthus altissima* |
| black mustard | *Brassica nigra* |
| red brome | *Bromus madritensis* subsp. *rubens* |
| tocalote | *Centaurea melitensis* |
| lamb's quarters | *Chenopodium album* |
| poison hemlock | *Conium maculatum* |
| red-stemmed filaree | *Erodium cicutarium* |
| Russian thistle | *Salsola tragus* |
| Mediterranean schismus | *Schismus barbatus* |
| London rocket | *Sisymbrium irio* |
| sow thistle | *Sonchus oleraceus* |
| broad-leaved cattail | *Typha angustifolia* |

The revised approach to the exotic plant eradication and maintenance program also includes a more aggressive program for targeting and eliminating large, non-native trees that can create a dense overstory within the Mitigation Area. Though most of the trees in the Mitigation Area were burned during the Creek Fire in 2017, native trees have largely recovered, and the continued and diligent removal of exotic tree species as they develop will allow more sunlight to reach the native plant species growing beneath the redeveloping native tree canopy. The tree species targeted under the exotic plant eradication and maintenance program are listed in Table 4-3.

**Table 4-3. Target Invasive Exotic Tree Species**

| Common Name | Scientific Name |
|---|---|
| acacia species | *Acacia dealbata* and *Acacia* spp. |
| silktree | *Albizia julibrissin* |
| southern catalpa | *Catalpa bignonioides* |
| gum tree | *Eucalyptus* spp. |
| edible fig | *Ficus carica* |
| shamel ash | *Fraxinus uhdei* |
| Japanese privet | *Ligustrum japonicum* |
| sweetgum | *Liquidambar stryraciflua* |
| white mulberry | *Morus alba* |
| tree tobacco* | *Nicotiana glauca* |
| castor bean* | *Ricinus communis* |

**Table 4-3. Target Invasive Exotic Tree Species**

| Common Name | Scientific Name |
|---|---|
| Peruvian pepper tree | *Schinus molle* |
| Brazilian pepper tree | *Schinus terebinthifolius* |
| Chinese elm | *Ulmus parvifolia* |
| palm species* | *Washingtonia* sp., *Phoenix canariensis,* etc. |

*Observed in 2023

## 4.1 METHODS

Exotic plant eradication activities took place throughout the Mitigation Area, focusing on riparian and upland portions of the site along Haines Canyon Creek and around the Tujunga Ponds. Notification to commence planned exotic plant removal and maintenance activities was sent to CDFW on January 12, 2023 (Appendix E). Pre-activity surveys were conducted by qualified biologists prior to each exotic plant eradication effort to document exotic plant locations and any sensitive biological resources to avoid during the removal efforts. During the pre-activity surveys, the biologists conducted a walkthrough of all trails in the riparian and upland areas. Coordinates of new exotic plant species locations or sensitive biological resources (such as active bird nests) were recorded with Field Maps for ArcGIS mobile application (Field Maps; an Esri-based application) on either a tablet or smartphone. All captured points, including but not limited to sensitive species observations, nesting bird locations, boundaries of environmentally sensitive areas, authorized and unauthorized trails, and photographs, are geo-referenced (Global Positioning System [GPS] coordinate associated with a point), time-stamped for accurate inventory, and catalogued. The data is automatically posted to the server and is available for all field crew to review throughout the eradication efforts. CDFW was notified prior to the commencement of removal activities, in accordance with the Mitigation Area's SAA.

During the exotic plant eradication efforts, a biological monitor was present to monitor that crews conducted work within the appropriate predefined work areas and that the removal activities did not result in negative impacts on sensitive biological resources such as nesting birds. The biological monitor also participated in morning tailgate sessions to remind the crews about the sensitive biological resources present in the Mitigation Area. A bilingual contractor education brochure (last updated and redesigned in spring 2019) that contains general information and guidelines pertaining to the site was distributed to all new workers entering the site (Appendix B). The biological monitor or restoration biologist was responsible for showing crew members locations of exotic plant species that had been recorded during previous site visits and pre-activity surveys. Newly identified stands of exotic vegetation were manually removed or treated with herbicide as they were discovered or were mapped with Field Maps for removal/treatment on a subsequent day when necessary. All work areas were documented by the biological monitor, restoration biologists, or restoration foreman, and digital photographs were taken to document removal efforts. At the end of each month in which eradication efforts were conducted, a letter report was prepared that documented the date, locations, and details of the eradication activities conducted and the presence and locations of any sensitive biological resources (Appendix E). All exotic plant removal efforts were conducted according to the terms and conditions of the SAA.

In March 2019, a moratorium (and ultimately a ban) on the use of glyphosate on Los Angeles County property by the Los Angeles County Board of Supervisors was enacted. After April 23, 2019, the use of herbicide within the Mitigation Area ceased. Thereafter, only manual removal methods (e.g., hand pulling

or hand tools) were used to eradicate weeds within the Mitigation Area for all exotic removal efforts occurring through May 2023. On June 9, 2023, the use of select, California-approved herbicides was resumed. Only California aquatically approved herbicides were used within 15 feet of waterways. No herbicides were used during high winds or rain to prevent herbicide drift and runoff. Glyphosate (Roundup®) was not used during 2023 maintenance efforts, nor is it currently planned to be used in any future efforts. Herbicide applications were mixed according to manufacturer instructions and included a penetrant, deposition, and drift control agent, and a blue indicator dye. All herbicide applications were conducted via backpack sprayers and applied by a hand-directed spray nozzle to control herbicide distribution and to avoid non-target species.

During manual removal methods, large stands of annual weed species were either cut down to the ground or completely removed to disrupt or end their growth cycle and reduce the likelihood of them producing seeds in the future. Eradication efforts for longer-lived annual species (e.g., large mustards and poison hemlock [*Conium maculatum*]) and perennial species required complete removal of the plant from the roots to prevent regrowth. Seedless plant material was left on the ground in the same area to decompose on-site.

During the late summer and fall, manual removal methods were coupled with seed head collection to decrease the future germination of exotic species and reduce the fire fuel present within the target areas. Mature and potentially viable seed heads for all types of non-native species were collected in 3-mil black contractor bags. Collection barrels were used to help manage the large volumes of seed heads and vegetation. Collected materials were condensed in the barrels to maximize density without compromising the plastic and were later transferred into the contractor bags for removal from the site.

## 4.2 NON-NATIVE EXOTIC PLANT ERADICATION EFFORTS IN 2023

Chambers Group conducted site-wide exotic plant eradication throughout 2023: between January 3 and 31, February 14 and 28, March 2 and 22, April 17 and 28, May 1 and 31, June 1 and 30, July 3 and 31, August 1 and 31, September 1 and 26, October 3 and 31, November 1 and 30, and between December 1 and 29. Pre-activity sweeps for sensitive resources were conducted by qualified biologists ahead of the work crew, and after February 15 these sweeps included nesting birds and raptors. Surveys for nesting raptors and other early nesting bird species were conducted by avian biologists Corey Jacobs on February 14, Alisa Muniz on February 20, and Heather Madera on March 3, 2024. All pre-activity sweeps were conducted within a 500-foot radius of planned work areas. Chambers Group biologists Alisa Muniz, Austin Burke, Corey Jacobs, Cristhian Mace, Eliana Maietta, Heather Madera, Jessica Calvillo, Mauricio Gomez, and/or Valerie Alcantar conducted the pre-activity sweeps and/or the biological monitoring for all exotic plant eradication efforts. Prior to the start of work each day, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. Following the pre-activity sweeps and instructional tailgate meetings, exotic plant removal efforts were led by Jay Belmonte, or crew leads Jimmy Gomez, Joshua Euan, or Maklin Bado. In addition, biologists traveled with the work crew each day to monitor that no native plant or wildlife species were negatively impacted by work activities.

January exotic plant eradication efforts were conducted at the easternmost portion of the Mitigation Area, along Haines Canyon Creek, around the Tujunga Ponds, and along the fence line at the Cottonwood Avenue entrance. On January 12, a raptor survey was conducted by avian biologist Corey Jacobs in portions of the Mitigation Area where raptors have been known to nest. No nesting raptors or nests of early nesting bird species were observed. Exotic plant removal efforts were focused on clearing long-lived,

late-germinating, and rapidly developing non-native species. Only mechanical removal methods were used during the January efforts, including using motorized weed trimmers in areas where they would not disturb sensitive resources, and hand-pulling exotic species that were growing near native vegetation.

In February and March, exotic plant removal efforts were conducted along the fence line at the Cottonwood Avenue entrance and on adjacent slopes within the easternmost portion of the Mitigation Area, around the equestrian center, and along central Haines Canyon Creek. Nesting raptor surveys were conducted by avian biologists Corey Jacobs on February 14 and by Heather Madera on March 3 in planned work areas and areas where raptors have been known to nest. A nesting bird survey was conducted by avian biologist Alisa Muniz on February 20 to identify any potential early nesting birds. No nesting birds or raptors were identified during the February and March nesting bird and raptor surveys. Exotic plant removal efforts were focused on clearing early germinating and rapidly developing non-native species along the fence line at the Cottonwood Avenue entrance and on adjacent slopes within the easternmost portion of the Mitigation Area, around the equestrian center, and along central Haines Canyon Creek. Native species that were overgrowing authorized trails were also trimmed back. Crews relied on hand pulling and hand tools to completely remove any non-native perennial species encountered. Only mechanical removal methods were used during the February and March 2023 efforts, including using motorized weed trimmers in areas where they would not disturb sensitive resources, and hand-pulling exotic species that were growing near native vegetation.

In April, exotic plant removal efforts were focused in the eastern riparian area and on the bluff around the Cottonwood Avenue entrance. In addition, the Mitigation Area was monitored for the germination of exotic annual species encouraged by warmer weather conditions. Germinating weeds were targeted as soon as they sprouted, to prevent the development of seeds. Nesting bird surveys were conducted by Chambers Group avian biologists throughout the month to identify any active nests in planned work areas. Several active nests were identified in April; an appropriate avoidance buffer was established and flagged around each active nest. In addition, least Bell's vireos were observed/detected on site in April and 500-foot avoidance buffers were established around the observation/detection areas. Removal efforts focused on clearing rapidly developing non-native species in the eastern riparian area and on the bluff around the Cottonwood Avenue entrance. To efficiently cover the large area, the crew performed removal efforts using motorized weed trimmers and utilized hand-pulling methods when weeds were intermixed with native plants and for longer-lived annual and perennial weeds. Only mechanical removal methods were used during the April 2023 efforts, including using motorized weed trimmers in areas where they would not disturb sensitive resources, and hand-pulling exotic species that were growing near native vegetation.

In May, exotic plant removal efforts were focused in the areas around the Tujunga Ponds, in the western portion of the Mitigation Area, in Haines Canyon Wash between the Tujunga Ponds and equestrian center, and in the eastern riparian area. Nesting bird surveys were conducted by Chambers Group avian biologists throughout the month to identify any active nests in planned work areas. The biologists observed at least one least Bell's vireo pair, and at least one individual displaying nesting and territorial behaviors in May. Five-hundred-foot avoidance buffers were established around all least Bell's vireo observation/detection areas and areas with suspected least Bell's vireo nests. Removal efforts focused on clearing rapidly developing non-native species around the Tujunga Ponds, in the western portion of the Mitigation Area, in Haines Canyon Wash between the Tujunga Ponds and equestrian center, and in the eastern riparian area. To efficiently cover the large area, the crew performed removal efforts using motorized weed trimmers and utilized hand-pulling methods when weeds were intermixed with native plants and for longer-lived annual and perennial weeds. Only mechanical removal methods were used during the May

2023 efforts, including using motorized weed trimmers in areas where they would not disturb sensitive resources, and hand-pulling exotic species that were growing near native vegetation.

In June, exotic plant removal efforts were focused on the Cottonwood Avenue bluff, the Mary Bell Avenue entrance fence line, the areas around the Tujunga Ponds, and near the north Wheatland Avenue entrance. Nesting bird surveys were conducted by Chambers Group avian biologists throughout the month to identify any active nests in planned work areas. Several active nests were identified in June; an appropriate avoidance buffer was established and flagged around each active nest. On June 2, two raptor nests were identified including an American kestrel nest in nestling stage east of the Cottonwood Avenue bluff, and a Cooper's hawk nest in the nestling stage north of the Cottonwood Avenue bluff. In addition, the biologists observed at least one least Bell's vireo pair and observed single least Bell's vireos on several occasions. The pair observed north of the Cottonwood Avenue bluff was believed to be building a nest based on behavior, though, the nest was not found as the biologist did not approach the area to minimize risk of nest abandonment or predation. Five-hundred-foot avoidance buffers were established around all least Bell's vireo observation/detection areas and areas with suspected least Bell's vireo nests. Exotic plant removal efforts were focused on the Cottonwood Avenue bluff, the Mary Bell Avenue entrance fence line, around the Tujunga Ponds, and by the north Wheatland Avenue entrance. Warmer temperatures and little precipitation had caused many exotic species to naturally expire by June. These dry plants were targeted for removal to reduce the fuel load within the Mitigation Area. To efficiently cover large areas, the crew performed removal efforts using motorized weed trimmers and utilized hand-pulling methods when weeds were intermixed with native plants. As discussed in Section 4.1, crews resumed herbicide usage within the Mitigation Area on June 9 after halting the use of herbicides in May 2019 in response to Los Angeles County's moratorium on the use of certain herbicides. Non-natives were targeted with a foliar application of herbicide using backpack sprayers. Mechanical, manual, and chemical removal methods were used during the June efforts, including using motorized weed trimmers in areas where they would not disturb sensitive resources, hand-pulling exotic species that were growing near native vegetation, and foliar application of herbicide, where appropriate.

In July, exotic plant removal efforts were focused on the Cottonwood Avenue bluff, the eastern slopes and bottom of the Cottonwood Avenue bluff, the Cottonwood Avenue entrance, the Mary Bell Avenue entrance fence line, the bluff near the Mary Bell Avenue entrance, and the area around the Tujunga Ponds. Nesting bird surveys were conducted by Chambers Group avian biologists throughout the month to identify any active nests in planned work areas. No new nests were identified; however, least Bell's vireos were observed/detected in the eastern riparian area during the July 13 pre-activity survey. Five-hundred-foot avoidance buffers were established around all least Bell's vireo observation/detection areas to avoid disturbance to the individuals. Similar to June, many exotic species were observed expired within the Mitigation Area due to warmer temperatures and little precipitation in the months prior. These plants were targeted for removal to reduce the fire fuel load within the Mitigation Area. To efficiently cover the large area, the crew performed removal efforts using motorized weed trimmers and used hand-pulling methods when weeds were intermixed with native plants.

In August, exotic plant removal efforts were focused along the authorized trails in the eastern and western riparian area, the Mary Bell Avenue entrance fence line, the bluff near the Mary Bell Avenue entrance, and the easternmost portion of the Mitigation Area. Nesting bird surveys were conducted by Chambers Group avian biologists throughout the month to identify any active nests in planned work areas. No new nests were identified; however, least Bell's vireos were observed/detected in the riparian habitat along Haines Canyon Creek on several occasions in August. Five-hundred-foot avoidance buffers were established around all least Bell's vireo observation/detection areas to avoid disturbance to the

individuals. On August 7, the least Bell's vireo nest north of the Cottonwood Avenue bluff was determined to have fledged as an adult and two fledglings were observed in the area. Warmer temperatures and rain events (including tropical storm Hilary) had allowed for the germination of non-native species late in the season. These plants were targeted and removed early in their growth cycle to prevent development and seed maturation. To efficiently cover the large area, the crew performed removal efforts using motorized weed trimmers and used hand-pulling methods when weeds were intermixed with native plants.

In September, exotic plant removal efforts were focused in the eastern and western riparian areas, Cottonwood Avenue bluff, Cottonwood Avenue entrance, the southernmost portion of the Tujunga Ponds area, Haines Canyon Wash, the equestrian center bluff, and the south Wheatland Avenue entrance. September 1 is the end of the recognized breeding, nesting, and fledging season for most bird species in the San Gabriel Valley, and thus, no nesting bird surveys were conducted in September; however, biologists continued to sweep planned work areas for sensitive resources prior to working in new areas throughout the month. The crews focused on removing perennial species such as castor bean and expired mustard species to reduce the fire fuel load on-site. To efficiently cover larger areas, the crew performed removal efforts using motorized weed trimmers and used hand-pulling methods when weeds were intermixed with native plants.

In October, exotic plant removal efforts were focused in the eastern riparian area, the areas around the Tujunga Ponds, central Haines Canyon Creek, the southern riparian area, the westernmost portion of the Mitigation Area, the western riparian area, and the Cottonwood Avenue bluff and equestrian center bluff. A biologist swept planned work areas for sensitive resources prior to working in new areas throughout the month. Due to the rains that occurred in mid-August (tropical storm Hilary) followed by warm weather with temperatures in the mid-80s, newly germinating exotic plants were emerging throughout the Mitigation Area. Emergent and flowering plants are not typical in the fall, and areas that were previously maintained required additional maintenance for the remainder of the year. To efficiently cover large areas, the crew performed removal efforts using motorized weed trimmers and used hand-pulling methods when weeds were intermixed with native plants.

In November, exotic plant removal efforts were focused on central Haines Canyon Creek, the eastern riparian area, Haines Canyon Wash, the eastern and western slopes of the Cottonwood Avenue bluff, along the Cottonwood Avenue entrance fence line, and along trails near the equestrian center and near central Haines Canyon Creek. A biologist swept planned work areas for sensitive resources prior to working in new areas throughout the month. Removal efforts focused on clearing long-lived, late-germinating, and rapidly developing nonnative species. Crews relied primarily on mechanical tools and/or hand pulling to completely remove perennial species like castor bean that were able to germinate and grow quickly near perennial water sources. Newly germinated and expired mustard and brome species were also removed.

In December, exotic plant removal efforts were focused on central Haines Canyon Creek, the Tujunga Ponds, the eastern riparian area, the northern edge of central Big Tujunga wash, along the fence line by the Mary Bell Avenue entrance, along the fence line north of the equestrian center, and throughout Haines Canyon wash. A biologist swept planned work areas for sensitive resources prior to working in new areas throughout the month. Removal efforts focused on clearing long-lived, late-germinating, and rapidly developing nonnative species. Crews relied primarily on mechanical tools and/or hand pulling to completely remove perennial species like castor bean that can germinate and grow quickly near perennial water sources. Crews also trimmed native vegetation that was encroaching on the trails.

### 4.2.1 Special Status Species

The exotic plant eradication activities did not result in negative impacts to any sensitive biological resources in 2023. Surveys for nesting raptors and other early nesting bird species were conducted starting in January. Active bird nests, potential bird nests, and/or birds behaving territorially or exhibiting nesting behaviors were documented during exotic plant removal activities occurring within nesting bird season (March 1 through September 1). Nine active nests were discovered during pre-activity sweeps and exotic plant removal monitoring occurring between April 20 and June 22. The nests were determined to belong to bushtit (*Psaltriparus minimus*; two individual nests), California scrub-jay (*Aphelocoma californica*), Cooper's hawk, least Bell's vireo (two individual nests, though the exact locations of the nest were not found as the nesting areas were not approached), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), and phainopepla (*Phainopepla nitens*). No-work buffers were established around all active and potential bird nests until it could be determined that the nestlings had successfully fledged, and the nest was no longer being used (active nests), or that no nest was present (potential nests). The biological monitors were present during all work activities occurring near active nest buffers to monitor that the adults and young associated with each nest were not negatively affected. No active bird nests were identified, and no breeding or nesting behaviors were observed prior to or during exotic plant eradication efforts occurring between January and March. The exotic plant eradication efforts occurring between September and December took place outside the nesting bird breeding season.

Four special status bird species were observed during survey and monitoring efforts in 2023: Cooper's hawk, a state Watch List species; least Bell's vireo, a federal and state-listed endangered species; and yellow breasted chat (*Icteria virens*) and yellow warbler (*Setophaga petechia*) which are both SSC while nesting. Arroyo chub, which is a state SSC, were also observed during exotic wildlife removal efforts in Haines Canyon Creek in 2023.

Two active least Bell's vireo nests were monitored during the 2023 nesting season; however, the exact locations of these nests were never found as the biologist only monitored the birds from a distance and did not approach the nests to minimize the chance of nest abandonment or predation. Five-hundred-foot avoidance buffers were established and flagged around the presumed nesting areas. At least one of the presumed active nests fledged as evidenced by an adult and two fledglings observed in the area on August 7. Several other observations of least Bell's vireos were recorded during maintenance efforts occurring between April 18 and August 24 including individuals flying around, singing, calling, and showing territorial behavior towards each other. The post-fire riparian successional habitat that has developed since the Creek Fire, combined with regular maintenance efforts to reduce non-native plant species and invasive brown-headed cowbirds, has helped create the necessary conditions for least Bell's vireo to forage and nest in the Mitigation Area. Least Bell's vireos have nested and/or been observed using the Mitigation Area every year since they were first observed on site in 2020.

During each exotic plant removal effort notes and representative site photographs were taken, and the coordinates of exotic plant locations were recorded using Field Maps on either smartphones or tablets.

Letter reports documenting 2023 CDFW notification, pre-activity surveys, exotic plant removal efforts, and photographs taken during removal efforts are included in Appendix E.

## SECTION 5.0 – WATER LETTUCE CONTROL PROGRAM

During an exotic wildlife removal effort in March 2011, aquatic biologists noticed that the Tujunga Ponds were becoming infested with water lettuce, an invasive plant commonly used in aquariums and ponds. Within one month of the initial observation, the entire East Tujunga Pond was completely covered with the surface-growing plant. Within two months the entire West Tujunga Pond was covered. The infestation was so great that the waterways between the ponds and Haines Canyon Creek became suffocated. Without management, water lettuce at the Tujunga Ponds has the potential to threaten the habitat and endangered species in Haines Canyon Creek, such as the Santa Ana sucker, as well as negatively impact the native turtle and bird species that use the ponds as habitat. ECORP and Public Works created a plan for water lettuce removal from the Mitigation Area waterways.

Intensive water lettuce removal efforts were immediately initiated to control the infestation. Physical removal efforts were conducted between June and December 2011 and between January and September 2012. Detailed descriptions of the physical removal efforts can be found in the 2011 and 2012 Annual Reports for the Big Tujunga Wash Mitigation Area (ECORP 2012, 2013).

Following the initial physical removal of the water lettuce, a monitoring and maintenance program was established in 2012 to keep the water lettuce populations in check and prevent another infestation from occurring in the Tujunga Ponds and the channel that connects the ponds. The program consisted of monthly herbicide applications conducted on an as-needed basis paired with follow-up site inspections to monitor the success of the herbicide application. Four herbicide application efforts were conducted in 2012 after the physical removal effort, and two additional applications were conducted in 2013 (ECORP 2013, 2014). Renovate®, an herbicide designed for use within aquatic environments and approved by CDFW for use within the Mitigation Area, was applied to patches of hard-to-reach water lettuce within southern cattails (*Typha domingensis*) and other vegetation around the pond perimeters. During regular site visits following the treatments, biologists did not observe any evidence of water lettuce. The absence of water lettuce during the site visit provided evidence that the herbicide applications to the water lettuce were successful. Water lettuce was again observed in the East Tujunga Pond on two occasions during 2016. On both occasions, onsite biologists and exotic plant removal crews were able to remove the small patches of water lettuce by hand. The ponds were monitored regularly during subsequent site visits between 2016 and 2022, and no other water lettuce was observed.

In 2023 the Tujunga Ponds were inspected for water lettuce during both exotic plant eradication efforts and exotic wildlife removal efforts at the Tujunga Ponds. The Tujunga Ponds were searched extensively for water lettuce during these visits, and no water lettuce was observed. The Tujunga Ponds will continue to be monitored in 2024 for any reoccurrence of water lettuce.

## SECTION 6.0 – CONTINUATION OF EXOTIC WILDLIFE ERADICATION PROGRAM

The purpose of the exotic wildlife removal program is to restore, create, and maintain suitable habitat for native aquatic species and to remove and eliminate ecological pressures resulting from the presence of exotic species. The program consists of the removal of non-native wildlife species including fishes, turtles, American bullfrogs, and red swamp crayfish from the Tujunga Ponds (East Tujunga Pond and West Tujunga Pond) and Haines Canyon Creek.

To protect and enhance the existing habitat at the Mitigation Area for native wildlife species, Chambers Group continued the effort to remove exotic aquatic species as described in the MMP. The MMP provides direction for the eradication of exotic wildlife from the Tujunga Ponds and Haines Canyon Creek to relieve some of the negative impacts to native species. Due to the fecund nature of exotic species and their ability to inhabit various habitat types while tolerating extreme environmental conditions, exotic species can outcompete natives for available space and food resources. Exotics can also directly affect native species through predation of adults and their young, or indirectly through the transmission of pathogens or parasites.

During the 2015 Native Fishes Survey in Haines Canyon Creek, the number of Santa Ana suckers was observed to have declined from 119 to 17 individuals between May and October 2015. The decline during this period was largely attributed to the absence of juveniles. During the previous Native Fishes Survey in Haines Canyon Creek in 2012, 592 Santa Ana suckers (502 adults and 90 juveniles) were detected. Despite ongoing exotic wildlife removal efforts, the exotic aquatic species remained widespread throughout Haines Canyon Creek with source populations located both upstream (Tujunga Ponds) and downstream (Hansen Dam). The 2015 Native Fishes Survey report noted a greater abundance of exotic wildlife species nearest the Tujunga Ponds with fewer individuals detected further away from the Tujunga Ponds. At the time, the distribution of Santa Ana sucker in Haines Canyon Creek was patchy and restricted to the lower half of the Mitigation Area below the Cottonwood Avenue equestrian trail crossing.

Based on the declining numbers of native species and the increasing number of exotic species, the exotic wildlife removal program was reevaluated and modified in 2016. The modification of the exotic wildlife removal program increased the level of effort with fewer days between each visit. Other than the increase in frequency, the methods and techniques of exotic wildlife removal remained the same as in previous efforts.

In addition, a Santa Ana Sucker Working Group was formed which included representatives from CDFW and USFWS. The purpose of this group was to discuss issues pertaining to the Santa Ana sucker in Haines Canyon Creek and brainstorm solutions to better aid in the species' recovery. After some discussion within the group, a decision was made to allow electrofishing as a removal method for capturing exotic aquatic species in Haines Canyon Creek in 2016, a technique that had not been previously allowed for exotic wildlife removal in the Mitigation Area. While this removal method is approved, it has not been utilized as a method to remove exotic, aquatic species since Chambers Group assumed the implementation of the MMP in 2017.

In June 2016, a fish exclusionary screen was installed downstream of the Tujunga Ponds to limit the potential for migration of exotic aquatic species from the Tujunga Ponds into Haines Canyon Creek. The fish exclusionary screen was funded through a USFWS grant (Cooperative Agreement F15AC 00800).

The results of the exotic wildlife removal efforts conducted in 2023 are summarized in the following sections.

## 6.1 EXOTIC WILDLIFE ERADICATION 2023

### 6.1.1 Methods

The 2023 removal of exotic aquatic species from the Mitigation Area was conducted monthly by Chambers Group from January through March, May through August, and October through December under the direction of Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-2). Each effort consisted of one to four days each month. Safety precautions were discussed prior to the start of each removal effort. During nesting bird breeding season, least Bell's vireo surveys were conducted prior to any exotic removal activities occurring near any active least Bell's vireo territories and no work occurred in any nest avoidance buffer. Removal methods used in the Tujunga Ponds included seining (most often seines were deployed from a small, non-motorized boat) and spearfishing. Spearfishing methods were employed during removal efforts to target larger fish in the deeper areas of the Tujunga Ponds. Spearfishing efforts were successful and resulted in the capture and removal of adult largemouth bass, green sunfish, bluegill, common carp (*Cyprinus carpio*), and one goldfish (*Carassius auratus*) from the Tujunga Ponds. Wildlife biologists also conducted exotic aquatic species removal in Haines Canyon Creek using seining, dip net, Hawaiian sling, and hand capture methods. Trapping and electrofishing removal methods were not used during wildlife removal efforts in 2023. Prior to using any specific gear types, reconnaissance surveys (visual surveys from banks) were conducted to identify the locations and relative abundance of both invasive target species and native non-target species.

Occupied Santa Ana sucker reaches are not fished between March 1 and July 31, to avoid disturbing the species during the breeding season and potential negative impacts to any juvenile individuals. After July 31, when Santa Ana suckers are absent within a reach, the less invasive seining and dip-netting removal methods may be used. Removal efforts were extremely limited in Haines Canyon Creek during 2021 and 2022 due to severe drought conditions and several portions of the creek having dried up at the surface between late spring and fall. In 2023, Haines Canyon Creek flowed the entire year and experienced multiple flood events. Sufficient flows throughout the season allowed for continued exotic aquatic species removal in the creek outside of Santa Ana sucker breeding season. All wetted portions of the Mitigation Area were monitored and/or surveyed to locate and remove exotic wildlife during 2023 (Figure 6-1).

### 6.1.2 Results and Discussion

A total of 22,733 individuals consisting of 8 exotic aquatic species (6 fishes, 1 amphibian, and 1 invertebrate) were captured and removed from the Tujunga Ponds and Haines Canyon Creek during 2023 removal efforts. Of the total individuals captured and removed in 2023, 95.95 percent (number of individuals [n]=21,812) were red swamp crawfish and 3.04 percent (n=692) were western mosquitofish. The remaining approximately 1 percent of exotic aquatic species captured and removed included largemouth bass (n=198), green sunfish (n=13), common carp (n=11), American bullfrog (n=3), bluegill (n=3), and goldfish (n=1). Approximately 95 percent of the exotic aquatic species removed in 2023 were captured in the East Tujunga Pond (n=21,568), followed by Haines Canyon Creek where approximately 5 percent of the exotic aquatic species were captured (n=1,149), and the West Tujunga Pond where less than one-tenth of a percent of the exotic aquatic species were captured (n=16). Table 6-1 shows the number of exotic aquatic species captured by month and the total number of exotic aquatic species captured during 2023.

**Figure 6-1. Exotic Aquatic Wildlife Survey Locations**

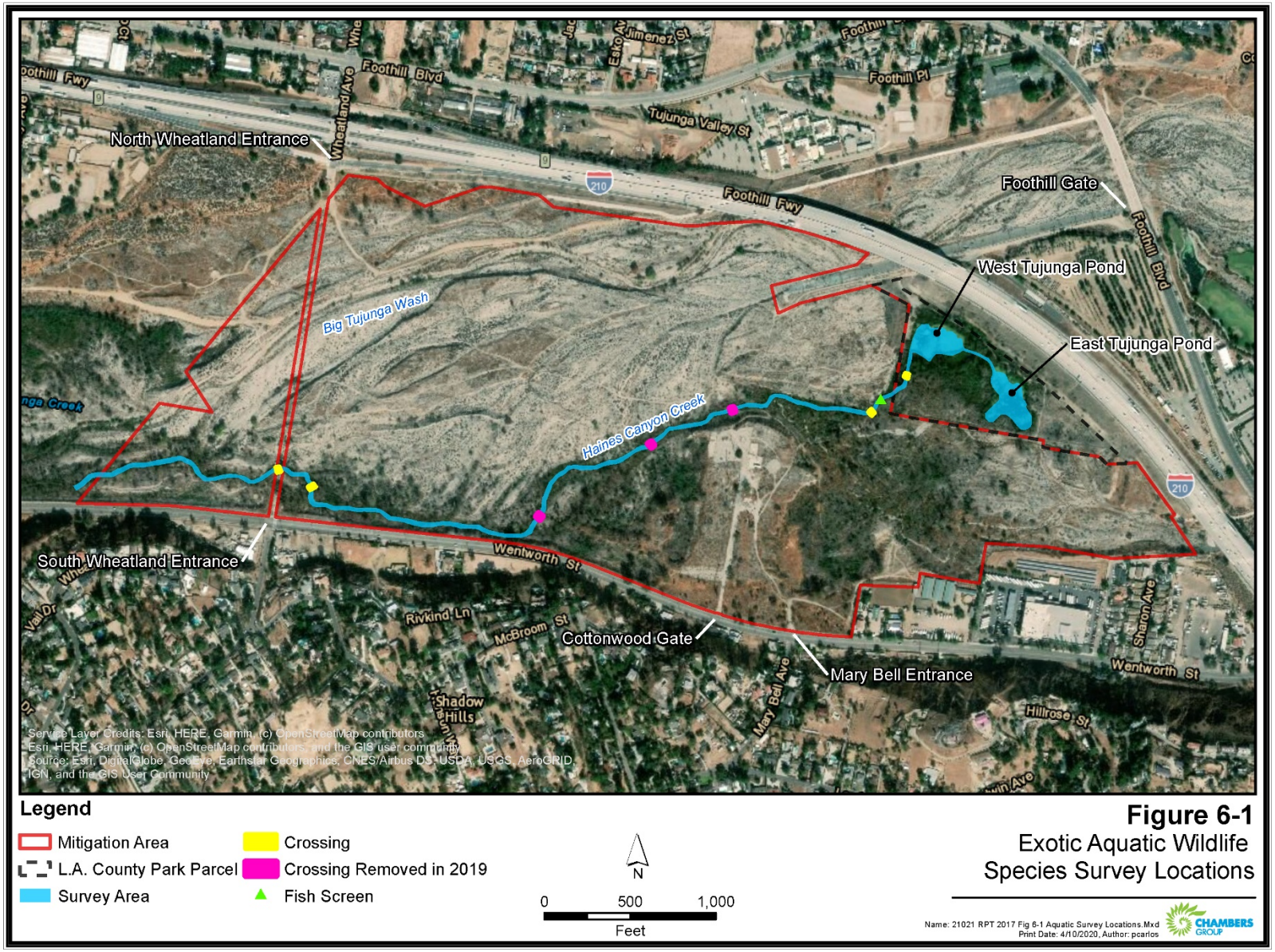


**Table 6-1. Exotic Aquatic Species Captured by Month 2023**

| Species Captured | Jan | Feb | Mar | May | Jun | Jul | Aug | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| American bullfrog | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 3 |
| bluegill | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 3 |
| common carp | 0 | 1 | 1 | 0 | 0 | 1 | 5 | 3 | 0 | 0 | 11 |
| goldfish | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| green sunfish | 0 | 0 | 0 | 2 | 6 | 3 | 0 | 2 | 0 | 0 | 13 |
| largemouth bass | 25 | 4 | 2 | 14 | 32 | 42 | 54 | 10 | 1 | 14 | 198 |
| red swamp crayfish | 143 | 30 | 0 | 5 | 100 | 100 | 2,648 | 627 | 538 | 17,621 | 21,812 |
| western mosquitofish | 5 | 0 | 0 | 0 | 0 | 0 | 228 | 45 | 25 | 389 | 692 |
| **TOTAL** | 173 | 35 | 3 | 21 | 138 | 150 | 2,937 | 668 | 564 | 18,024 | 22,733 |

During the January effort, the water levels of Haines Canyon Creek and the Tujunga Ponds were high due to winter storms earlier in the month. Western portions of the creek that had dried up during the summer months were flowing once again, and Chambers Group biologists observed approximately 300 arroyo chub within the creek. This was the first sighting of arroyo chub since the creek had dried up in the summer of 2022. However, there were no observations of Santa Ana sucker or Santa Ana speckled dace during the effort.

During the February effort, the water level of the creek remained high due to winter storms earlier in the month. Chambers Group biologists observed approximately 500 arroyo chub within the creek. There were no observations of Santa Ana sucker or Santa Ana speckled dace during the effort. Two dams were removed from the creek that were preventing native fish from migration within the creek. One of the largemouth bass captured in the East Tujunga Pond was a gravid female. A gravid female largemouth bass can produce, on average, 4,000 eggs per pound of body weight. However, a large, healthy adult could lay up to 80,000 eggs. The removal of a gravid female largemouth bass greatly helps to reduce their numbers. No fish were captured within the West Tujunga Pond due to most of the fish hiding within the reeds making spearfishing difficult.

During March, the biologists captured and removed two adult largemouth bass and one common carp from the West Tujunga Pond during spearfishing efforts. One of the largemouth bass captured and removed was a gravid female.

Due to rain events and flash flooding in April, no exotic aquatic species removal efforts were conducted.

During the May effort, the water levels in the Tujunga Ponds were high and the ponds were free of aquatic vegetation which was ideal for spearfishing. A total of 16 exotic fish including 12 adult bass, 2 juvenile bass, and 2 adult green sunfish were removed from the East Tujunga Pond during spearfishing efforts. On May 4 Chambers Group biologists repaired the fish exclusionary screens that were damaged during the recent flash floods that occurred in April, on May 1, and early that morning on May 4. Debris was removed from the upstream side of the screens, and the screens were repaired or replaced as needed. Towards the end of the repair effort, another flash flood event occurred, and the biologist had to quickly leave the area and move to higher ground. Water levels rose 1.5 to 2 feet and widened 15 to 20 feet. Surface water flows occurred outside of the creek and along the trails and wash areas. Due to higher than normal water levels within the ponds, an increased amount of vegetative debris had been flowing toward the

exclusionary screens, which quickly blocked the screens and increased the risk of screen failure (water levels can rise more than 15 inches on the upstream side of the screens, forcing water above the banks and around the screens, and/or increasing the pressure on the screens enough that they tear or become undercut). After the May 4 repairs, Chambers Group biologists increased inspections of the fish exclusionary screens to make sure the repairs were holding and coordinated any necessary repairs with LA County Parks. LA County Parks inspected the screens weekly while water levels remain high.

During the June effort, the water levels in the Tujunga Ponds were still high and the East Tujunga Pond had approximately 60 percent vegetation cover on the surface. A total of 38 exotic fish including 32 adult largemouth bass and 6 adult green sunfish were removed from the East Tujunga Pond during spearfishing efforts. One of the green sunfish removed was a gravid female. A female green sunfish is capable of laying between 2,000 and 10,000 eggs in a season depending on size. Thus, removal of gravid exotic fish is crucial to reducing the overall exotic fish population within the Tujunga Ponds and Haines Canyon Creek. In addition, removal of adult exotic fish is important to reduce the number of young-of-the-year and juvenile bass that are a food source for larger bass and other exotic fish species. Chambers Group biologists continued to inspect the fish exclusionary screens and remove debris from the screens as needed. LA County Parks continued their weekly inspections of the screens while water levels remain high.

During the July effort, the water levels in the Tujunga Ponds were still high and the East Tujunga Pond had approximately 70 percent vegetation cover on the surface. A total of 50 adult exotic fish were removed from the East Tujunga Pond including 42 adult largemouth bass, 3 adult green sunfish, 3 adult bluegill, 1 adult goldfish, and 1 adult common carp. Two of the green sunfish and two of the largemouth bass removed were gravid females. The fish exclusionary screens located at the outlet of the West Tujunga Pond were inspected for damage, and accumulated debris was cleared away from the screens. No damage was observed but a portion of the screens was twisted upward along the bottom of the creek; this portion of the screens was re-secured by adding additional rocks to the base of the screens.

During August efforts, the water levels in the Tujunga Ponds were still high and both ponds were covered in algae. Two biologists swam the West Tujunga Pond and determined that there was approximately 1 foot of visibility which was insufficient for spearfishing, and thus, August spearfishing efforts were focused on the East Tujunga Pond. The biologists also walked Haines Canyon Creek from the western boundary of the Mitigation Area working upstream to the fish exclusionary screens at the outlet of the West Tujunga Pond looking for areas with exotic fish. Seines and dip nets were used to capture and remove any exotic fish observed. A total of 116 adult exotic fish were removed from the East Tujunga Pond. One of the common carp and two of the largemouth bass removed were gravid. A common carp is capable of laying between 100,000 and 300,000 eggs in a season depending on size, and thus, removal of gravid exotic fish is crucial to reducing the overall exotic fish population within the Tujunga Ponds and Haines Canyon Creek. In addition to exotic species removal efforts, the biologist removed three rock dams observed in Haines Canyon Creek. The fish exclusionary screens were also checked for any damage. No damage was observed, but similar to July observations, a portion of the screens was twisted upward along the bottom of the creek; this portion of the screens was re-secured by adding additional rocks to the base of the screens.

During the October efforts the water levels in the Tujunga Ponds were still high and both ponds were covered in algae. Two biologists swam the ponds and determined that there was approximately 1 foot of visibility which was insufficient for spearfishing. Thus, October spearfishing efforts were focused on the West Tujunga Pond outlet leading to Haines Canyon Creek, which had better visibility. Seine fishing was conducted in the East Tujunga Pond. Adult exotic fish species removed during the October spearfishing

and seine fishing efforts included 10 largemouth bass and 2 adult green sunfish, and 45 western mosquitofish.

During invasive species removal efforts in the creek on October 9, 50 native arroyo chub were observed during seining efforts and any arroyo chub incidentally captured in the seine were released unharmed. Three rock dams were removed from the Haines Canyon Creek during the October efforts. The fish exclusionary screens located at the West Tujunga Pond outlet were replaced on October 10 with assistance from LA County Parks. Metal tiedowns and zip ties were used to fasten the new screens to the existing poles. Rocks were added to the base of the exclusionary screens to prevent fish from migrating downstream from the Tujunga Ponds.

During the November efforts the water levels in the Tujunga Ponds were still high and both ponds were covered in algae. Two biologists swam the Ponds and determined that there was approximately 1 foot of visibility which was insufficient for spearfishing, and thus, November spearfishing was only conducted in the West Tujunga Pond outlet leading to Haines Canyon Creek which had better visibility. Nine rock dams were removed from Haines Canyon Creek during the November efforts. Only two seine pulls were conducted at the East Tujunga Pond due to the presence of decaying algae that had created a thick layer of mud/decomposing vegetation. Adult exotic fish species captured during the November removal efforts included 1 largemouth bass and 25 western mosquitofish.

During the December efforts thee water levels in the Tujunga Ponds were still high and both ponds were covered in algae, which was not typical for the time of year (pond algae typically dies off during the colder months from November through April). Two biologists swam the West Tujunga Pond and determined that there was approximately 1 foot of visibility which was insufficient for spearfishing, and thus, December spearfishing efforts were focused on the East Tujunga Pond, which had better visibility. Only two seine pulls were conducted at the East Tujunga Pond due to the presence of thick, decaying algae that made seine pulls difficult. Adult exotic fish species captured during the December efforts included 14 adult largemouth bass. During removal efforts in the Haines Canyon Creek on December 1, 30 native arroyo chub were observed during seining efforts and any arroyo chub incidentally captured in the seine were released unharmed. In addition, two rock dams were encountered within the creek during December removal efforts and were removed.

The Tujunga Ponds were inspected for invasive aquatic plants during all exotic wildlife removal efforts in 2023, and none were observed.

Letter reports with photographs documenting each exotic wildlife species removal effort conducted in 2023 can be found in Appendix F.

## SECTION 7.0 – WATER QUALITY MONITORING PROGRAM

Chambers Group qualified biologists conducted the annual water quality sampling for the Mitigation Area on November 1, 2023. The monitoring program has been designed specifically to address inputs to the site from upstream land uses such as the Angeles National Golf Club (previously named Canyon Trails Golf Club). Potential impacts to aquatic species from run-on to the site that contains excessive nutrients or pesticides are of primary concern. Four sampling locations have been identified for the monitoring program for the Mitigation Area. In 2023, Sample Station 3 was dry which is typical for Sample Station 3 as the Big Tujunga Wash only flows briefly after rain events. The locations of the water quality sampling stations can be found in Appendix G, Figure 1.

A series of sampling parameters was collected at each location using a Milwaukee MW102 PRO+ 2-in-1 Temperature and pH Meter to sample temperature and pH, a Milwaukee MW600 PRO Dissolved Oxygen Meter to sample dissolved oxygen, and a Hanna Instruments HI98703 Turbidity Portable Meter to sample turbidity. Water samples were taken at mid-depth, along a transect perpendicular to the stream channel alignment. All analyses were performed by Enthalpy Analytical LLC located in Orange, California, and their subcontractors ESB BABCOCK Laboratories, Inc. located in Riverside, California and Eurofins CalScience LLC located in Garden Grove, California. Quality assurance/quality control (QA/QC) procedures followed the methods described in their respective quality assurance manuals.

### 7.1 BASELINE WATER QUALITY

Sampling and analysis conducted by Public Works prior to implementation of the MMP is considered the baseline for water quality conditions at the site. The results of baseline analyses conducted in April 2000 are listed in Table 7-1 and are provided in the 2023 Water Quality Monitoring Report that is included as Appendix G. Higher bacteria and turbidity observed in the April 18, 2000, baseline samples were attributed to a rain event. Phosphorus levels were also high in the April 18, 2000, samples, perhaps due to release from sediments.

**Table 7-1. Baseline Water Quality Sampling Results 2000**

| Parameter | Units | Date (2000) | Tujunga Ponds | Haines Canyon Creek, Outflow from Tujunga Ponds | Big Tujunga Wash | Haines Canyon Creek, just before exit from site |
|---|---|---|---|---|---|---|
| Total coliform | MPN/ 100 ml | 4/12 | 3,000 | 5,000 | 170 | 1,700 |
| | | 4/18 | 2,200 | 170,000 | 2,400 | 70,000 |
| Fecal coliform | MPN/ 100 ml | 4/12 | 500 | 300 | 40 | 80 |
| | | 4/18 | 500 | 30,000 | 2,400 | 50,000 |
| Ammonia-N | mg/L | 4/12 | 0 | 0 | 0 | 0 |
| | | 4/18 | 0 | 0 | 0 | 0 |
| Nitrate-N | mg/L | 4/12 | 8.38 | 5.19 | 0 | 3.73 |
| | | 4/18 | 8.2 | 3.91 | 0.253 | 0.438 |
| Nitrite-N | mg/L | 4/12 | 0.061 | 0 | 0 | 0 |
| | | 4/18 | 0.055 | 0 | 0 | 0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Kjeldahl-N | mg/L | 4/12 | 0 | 0.1062 | 0.163 | 0 |
| | | 4/18 | 0 | 0.848 | 0.42 | 0.428 |
| Dissolved phosphorus | mg/L | 4/12 | 0.078 | 0.056 | 0 | 0.063 |
| | | 4/18 | 0.089 | 0.148 | 0.111 | 0.163 |
| Total phosphorus | mg/L | 4/12 | 0.086 | 0.062 | 0 | 0.066 |
| | | 4/18 | 0.113 | 0.153 | 0.134 | 0.211 |
| pH | SU | 4/12 | 7.78 | 7.68 | 7.96 | 7.91 |
| | | 4/18 | 7.18 | 7.47 | 7.45 | 7.06 |
| Turbidity | NTU | 4/12 | 1.83 | 0.38 | 1.75 | 0.6 |
| | | 4/18 | 4.24 | 323 | 4070 | 737 |

## 7.2 WATER QUALITY SAMPLING RESULTS FOR 2023

Results of laboratory analyses conducted by Enthalpy Analytical and their subcontractors are summarized in Table 7-2 and are provided in the 2023 Water Quality Monitoring Report included as Appendix G. Note that the yields (percent recoveries) of quality control samples were within acceptable limits (percentages) for all samples. In addition, some of the water quality constituents that are tested on an annual basis after the implementation of the MMP were not included in the baseline water quality sampling. Tests for herbicides and pesticides were added to determine whether these chemicals were being transported downstream to the Mitigation Area.

**Table 7-2. Summary of Water Quality Results 2023**

| Parameter | Units | Inflow to Tujunga Ponds | Outflow from Tujunga Ponds | Big Tujunga Wash | Haines Canyon Creek, just before exit from site |
|---|---|---|---|---|---|
| Temperature | °C | 18.1 | 16.8 | NA | 15.1 |
| Dissolved Oxygen | mg/L | 3.0 | 3.0 | NA | 9.3 |
| pH | SU | 7.37 | 7.70 | NA | 7.96 |
| Total residual chlorine | mg/L | ND | ND | NA | ND |
| Ammonia-Nitrogen | mg/L | ND | ND | NA | ND |
| Kjeldahl Nitrogen | mg/L | ND | ND | NA | ND |
| Nitrite-Nitrogen | mg/L | ND | ND | NA | ND |
| Nitrate-Nitrogen | mg/L | 5.9 | 3.5 | NA | 3.3 |
| Orthophosphate-P (dissolved phosphorus) | mg/L | ND | ND | NA | ND |
| Total phosphorus-P | mg/L | 0.047 | 0.028 | NA | 0.035 |
| Glyphosate | µg/L | ND | ND | NA | ND |
| Chlorpyrifos* (and other Organophosphorus | µg/L | ND | ND | NA | ND |

| Parameter | Units | Inflow to Tujunga Ponds | Outflow from Tujunga Ponds | Big Tujunga Wash | Haines Canyon Creek, just before exit from site |
|---|---|---|---|---|---|
| Pesticides) | | | | | |
| Pesticides (EPA 608)** (Organochlorine Pesticides) | µg/L | ND | ND | NA | ND |
| Turbidity | NTU | 0.44 | 0.35 | NA | 0.35 |
| Fecal Coliform Bacteria | (MPN/100 ml) | 140 | 240 | NA | 43 |
| Total Coliform Bacteria | (MPN/100 ml) | >1600 | 1600 | NA | 1600 |

**NA** – data not available; station dry on the sample date **NTU** – nephelometric turbidity units **µg/L –** micrograms per liter
**MPN** – most probable number **ND** – non-detect **mg/L –** milligrams per liter
**>** - Value exceeds indicated concentration **SU** – standard unit
***** The analytical method used for chlorpyrifos (EPA 8141A) also tests for the following chemicals: azinphos-methyl, bolster, coumaphos, demeton, diazinon, dichlorvos, disulfoton, ethoprop, fensulfothion, fenthion, merphos, methyl parathion, mevinphos, naled, phorate, ronnel, stirophos, tokuthion, and trichloronate.
****** EPA method 608 tests for aldrin, BHC, Chlordane, DDD, DDE, DDT, dieldrin, endrin, endosulfan, heptaclor, methoxychlor, and toxaphene.

### 7.2.1 Comparison of Results with Aquatic Life Criteria

Table 7-3 provides the results of the 2023 water quality sampling conducted by Chambers Group on November 1, 2023, compared to objectives established by the Los Angeles Regional Water Quality Control Board for protection of beneficial uses in Big Tujunga Wash (including wildlife habitat) and the Environmental Protection Agency (EPA) criteria for freshwater aquatic life. The 2023 Water Quality Monitoring Report is included as Appendix G.

None of the 2023 parameters tested were substantially different from the baseline conditions recorded in 2000 and/or were still within the recommended range for each parameter as provided in the Basin Plan and/or EPA objectives. The first water sampling for Glyphosate, Chlorpyrifos, and other organophosphorus and organochlorine pesticides did not occur until 2004. None of these pesticides were detected in 2004 nor were they detected in 2023. In addition, none of the parameters were substantially different between pre- and post-Creek Fire conditions (2016/2017) and parameters continue to fall largely within or below the recommended range for each parameter as provided in the Basin Plan and/or EPA objectives. Three of the parameters tested in 2023 (DO, Fecal Coliform, and Total Coliform) were outside the recommended range for at least one of the sample locations and are discussed in Table 7-3.

**Table 7-3. Discussion of November 2023 Big Tujunga Wash Sampling Results**

| Parameter | Discussion |
|---|---|
| Temperature | • Observed temperatures were below levels of concern for growth and survival of warmwater fish species at all stations (example species in Table 12). However, growth criteria are based on the maximum weekly average temperature during the summer and only a single temperature reading was taken at each sampling station in the fall. The weekly summer average temperature is unknown. The reference maxima provided in Table 12 for the |

**Table 7-3. Discussion of November 2023 Big Tujunga Wash Sampling Results**

| Parameter | Discussion |
|---|---|
| | growth and survival of juvenile and adult fishes during the summer are provided by the EPA and mainly apply to sportfishing species and not the native fish species that occupy the Mitigation Area. According to the US Fish and Wildlife's Recovery Outline for Santa Ana Sucker, Santa Ana sucker are typically most abundant in clear water, at temperatures generally less than 22°C and have experienced mortality at temperatures greater than 26.7 °C (USFWS 2017). According to UC Davis' California Fish Website, Santa Ana speckled dace prefer summer water temperatures below 20°C (Moyle et al. 1995) but have also been able to survive temperatures as high as 31°C (UC Davis 2024a). Arroyo chub are most common in streams with temperatures between 10 and 24°C (UC Davis 2024b). All temperatures recorded were below or within the range for survival of sensitive fish species that occur in the Mitigation Area. |
| Dissolved oxygen | • DO levels were 3.0 mg/L at the Tujunga Ponds, 3.0 mg/L at the outflow from the Tujunga Ponds, and 9.3 mg/L where Haines Canyon Creek exits the site. DO levels at both the Tujunga Ponds and outflow from the Tujunga Ponds were below the minimum recommended level (5.0 mg/L) for Basin Plan objectives and EPA's criteria for warmwater fish species. DO levels where Haines Canyon Creek exits the site were above the minimum recommended level.<br>• Low DO at the Tujunga Ponds and outflow from the Tujunga Ponds is likely a result of no surface water inflow into the ponds in addition to the decaying algae and aquatic plant material that was noted in the Tujunga Ponds by Chambers Group biologists during the summer and fall. Water enters the ponds through a subsurface groundwater system and direct rainfall, and feeds into Haines Creek. The decomposition of plants and other organic waste requires a high oxygen demand, especially in stagnated or slow-flowing systems. Turbulent flows naturally aerate the water which is consistent with the higher DO levels recorded where Haines Canyon Creek exits the site; presumably, the low DO water flowing from the ponds has had sufficient travel time and churning to reoxygenate by the time it exits the site. Once the organic matter in the ponds has cleared, DO at the Tujunga Ponds and outflow from the Tujunga Ponds will likely increase to normal levels. |
| pH | • pH readings were 7.37 at the Tujunga Ponds, 7.70 at the outflow from the Tujunga Ponds, and 7.96 where Haines Canyon Creek exits the site. The pH readings at all three sample stations were within the recommended range of 6.5 to 8.5 identified in the Basin Plan objectives and were within the recommended range of 5.0 to 9.0 for EPA's criteria for human health. |
| Total residual chlorine | • No residual chlorine was detected at any sample station. |

**Table 7-3. Discussion of November 2023 Big Tujunga Wash Sampling Results**

| Parameter | Discussion |
|---|---|
| Nitrogen | • Nitrate-Nitrogen measurements at all sample stations were below the drinking water maximum standard of 10 mg/L for both Basin Plan standards and EPA criteria for human health.<br>• Nitrite-Nitrogen was not detected at any sample station.<br>• Ammonia-Nitrogen was not detected at any sample station. |
| Phosphorus | • The observed Total Phosphorus-P concentration was 0.047 mg/L at the Tujunga Ponds, 0.028 mg/L at the outflow from the Tujunga Ponds, and 0.035 mg/L where Haines Canyon Creek exits the site. The Total Phosphorus-P concentration at all sample stations was below the lower end of the EPA's recommended maximum range of 0.05 to 0.10 mg/L for the desired goal of preventing plant nuisances in streams. |
| Glyphosate | • Glyphosate was not detected at any sample station. |
| Chlorpyrifos and other Organophosphorus Pesticides | • Organophosphorus Pesticides including Chlorpyrifos that were analyzed by EPA method 8141A were not detected at any sample station. |
| Organochlorine Pesticides | • Organochlorine pesticides analyzed by EPA Method 608 were not detected at any sample station. |
| Turbidity | • Turbidity readings were 0.44 NTU at the Tujunga Ponds, 0.35 NTU at the outflow from the Tujunga Ponds, and 0.35 NTU where Haines Canyon Creek exits the site. Turbidity levels were below the EPA's secondary drinking water standard of 5 NTU and below the EPA's drinking water maximum standard of 1.0 NTU for systems that use conventional or direct filtration; however, waters within the Mitigation Area are not filtered systems intended for human consumption.<br>• The EPA's turbidity narrative criterion for freshwater fish and other aquatic life states "Settleable and suspended solids should not reduce the depth of the compensation point for photosynthetic activity by more than 10 percent from the seasonally established norm for aquatic life." All November 2023 turbidity readings were below the baseline data for the respective sample stations. |

**Table 7-3. Discussion of November 2023 Big Tujunga Wash Sampling Results**

| Parameter | Discussion |
|---|---|
| Coliform Bacteria | • Per the Basin Plan objectives, the freshwater bacteria standard for water contact recreation is for *E. coli* (126 MPN/100 ml geometric mean, 235 MPN/100 ml single sample limit). Fecal coliform levels were 140 MPN/100 ml at the Tujunga Ponds, 240 MPN/100 ml at the outflow from the Tujunga Ponds, and 43 MPN/100 ml where Haines Canyon Creek exits the site. Fecal coliform levels detected at the Tujunga Ponds and where Haines Creek exits the site were below the single sample limit. The fecal coliform level detected at the outflow from the Tujunga Ponds was slightly above the single sample limit. Sampling specifically for *E. coli* was not conducted.<br>• Total coliform levels were equal to or greater than 1600 MPN/100 ml at all sample stations. [Note that recreation standards are for *E. coli*. Per the Basin Plan, total coliform standards apply to marine waters and waterbodies where shellfish can be harvested for human consumption.]<br>• The presence of coliform bacteria indicates fecal contamination by warm-blooded mammal and avian species including waterfowl. While not all coliform bacteria are harmful, elevated levels of coliform bacteria indicate an increased likelihood that harmful coliform bacteria such as *E. coli*, may be present. Sources of coliform pollution in the Mitigation Area may include run-off from surrounding residential areas; horses (equestrian) that utilize the trails; waterfowl that occupy the Tujunga Ponds; other birds, aquatic organisms, and mammals that use the ponds and creek; and illegal human uses of the ponds and creek such as swimming and bathing. Organic materials that carry coliform bacteria have the potential to be harmful to aquatic life, as oxygen in the water may become low during aerobic decomposition of organic materials. Spikes in the levels of coliform bacteria in the Mitigation Area have not been uncommon since water quality sampling began in 2000. |

**mg/L** – milligrams per liter **NTU** – nephelometric turbidity units **MPN** – most probable number

# SECTION 8.0 – TRAILS MONITORING PROGRAM

## 8.1 TRAIL SYSTEM MAINTENANCE

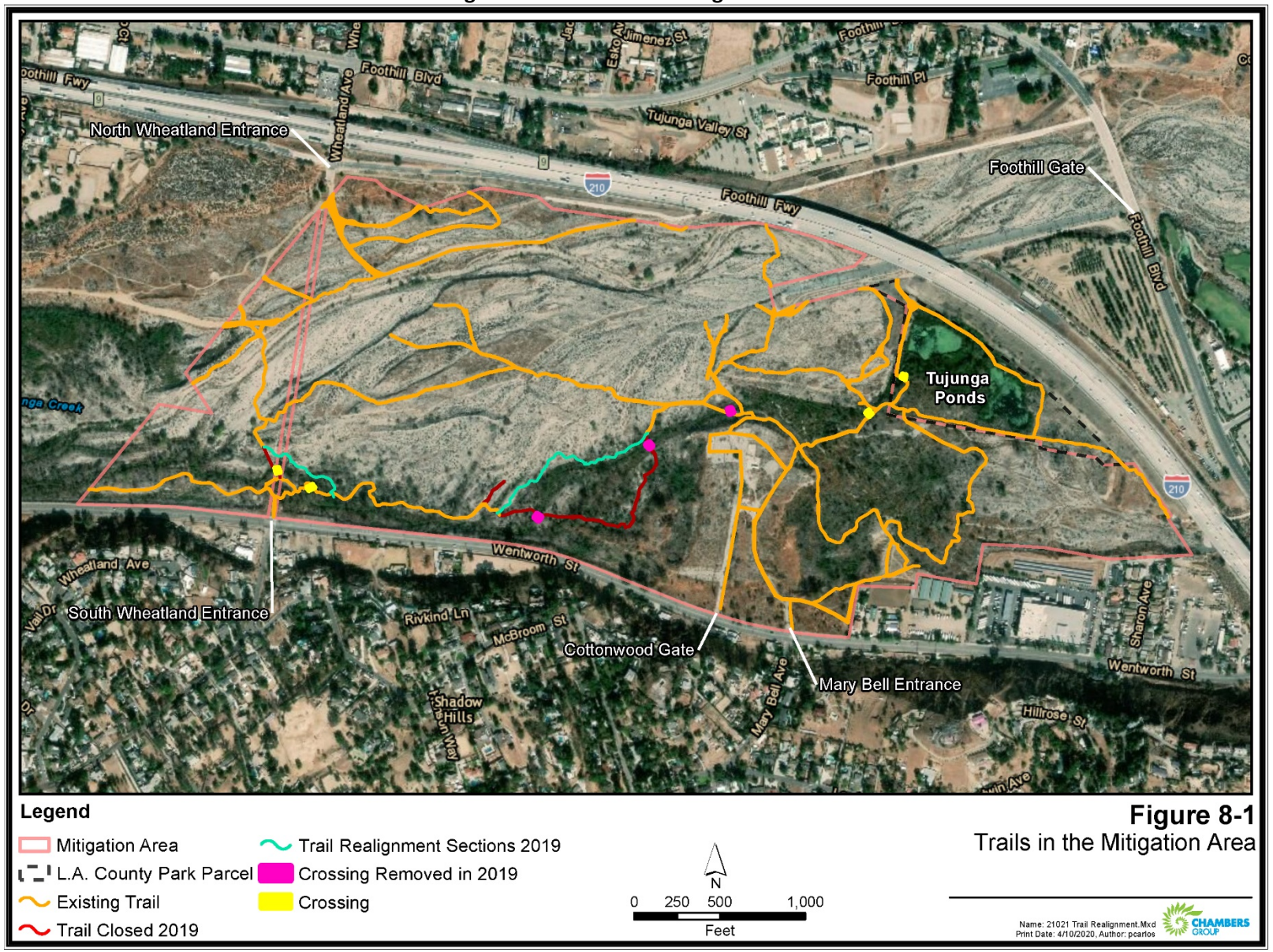
The goal of maintaining a formal trail system at the Mitigation Area is to allow recreational use of the Mitigation Area while still preserving sensitive wildlife and their habitats. The Mitigation Area contains trails for both equestrian use and hiking. Figure 8-1 depicts the current trail alignment since the 2019 trail realignment efforts. The preservation of authorized trails is an essential component in the success of the restoration and enhancement of the site. This program has been continued to discourage the establishment of unauthorized trails in the Mitigation Area. By monitoring that the authorized trails are kept clear and can be readily used by equestrians and hikers, the creation of new, unauthorized trails will be reduced. The maintenance and monitoring of the trail system are necessary components of the overall restoration and enhancement program.

### 8.1.1 Trail Maintenance Efforts in 2023

Trail maintenance efforts were conducted during five months in 2023. These efforts occurred on January 17 and 23 through 26; May 5; August 15 and 16, 23 through 25, and 31; September 20 and 21; and October 3 through 6, 19 and 20, and 26 and 27. All pre-activity site sweeps were conducted by Chambers Group biologists Alisa Muniz, Jessica Calvillo, Corey Jacobs, Austin Burke, and/ or Mauricio Gomez. Subsequent trail maintenance was conducted by Chambers Group's restoration department and was supervised by habitat restoration foreman Jay Belmonte; crew leads Maklin Bado, Joshua Euan, Jimmy Gomez, and/or Michael Godoy; and/or the restoration biologists who monitored that regulations and requirements were closely followed. Prior to the start of work each day, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings also discussed where sensitive resources such as nesting birds and associated avoidance buffer areas were located. No trail work occurred within any nest avoidance buffer.

The focus of the trail maintenance efforts was to look for areas that might qualify for trail closure, identify areas where trails were blocked by trash or debris and restore them to a safe condition, block off any unauthorized trails, and trim back extensive stands of poison oak or other vegetation overgrowth found in proximity to the trails. Snag trees (trees burned in the Creek Fire) continued to come down in 2023; though less frequently than in the years following the Creek Fire. Efforts to clear and delineate authorized trails and block off unauthorized trails continued, as necessary. Assessment of trail signs, portable toilets, site fencing, and gated entrances was conducted during maintenance efforts. Any minor repairs were remedied during the site visits or in combination with site visits for other maintenance tasks. More extensive problem areas were mapped for repair at a later time or were reported to Public Works for repair if necessary.

**Figure 8-1. Trails in the Mitigation Area**



The mobile application Field Maps was used to navigate and work along authorized trails and to avoid disturbance to any documented sensitive plants and wildlife in areas requiring maintenance. Trail maintenance efforts were focused on maintaining high-traffic areas of the authorized trails for public use and safety. All debris and obstructions were cleared from the established trails, allowing for safe passage. Where bypassed sections of the authorized trail system were observed, snag tree debris and/or seedless exotic plant debris from the surrounding areas were used to block off entry points and discourage further deviations from authorized trails. In addition, downed snag tree debris, seedless exotic plant debris, and/or stones were used to delineate the authorized trails, helping to guide site visitors along the permitted course. Debris obstructions such as downed trees that blocked portions of trails were cut with chainsaws and dragged clear of the trail.

During the 2023 maintenance efforts, the restoration specialists and biologists assessed trail conditions and identified locations that needed maintenance. Examples of maintenance issues identified and addressed in 2023 included:

- Removing trees and branches obstructing trails
- Removing large dead trees or loose branches with the potential to fall on the trail
- Trimming dense native and non-native vegetation crowding authorized trails
- Removing loose rocks from authorized trails
- Raking and delineating trails for safer passage
- Blocking off unauthorized trails
- Removing trash
- Addressing general safety concerns

In January, crew members conducted trail monitoring and maintenance activities along the trails near central Haines Canyon Creek and progressed west along the trail system through the western riparian area. Crew members swept the site for obstructions, accumulations of cobble, and erosion along the trails caused by winter storms. Substantial cobble and debris accumulation was observed within the trail systems in the western riparian area. Maintenance activities focused on raking the debris and removing the cobble from the trails. Hand tools were used to level out eroded trails. Crew members further raked the rock and debris creating a distinguishable and suitable path for both equestrians and hikers. on January 24, 2023, crew members came across a downed snag tree that was obstructing the trail along central Haines Canyon Creek creating hazardous conditions and making the trail impassable. The crew used chainsaws to reduce the tree and used the cut material to delineate trail boundaries to ensure the path was well defined and to help prevent trail users from entering unauthorized areas.

After January, trail maintenance efforts were conducted as needed in conjunction with exotic plant eradication efforts as much of the maintenance required in 2023 included trimming native and non-native vegetation away from authorized trails to allow for clear passage. Crew members also cleared debris and delineated authorized trails to help prevent deviations and damage to native habitat.

In addition to regular trail maintenance efforts, Chambers Group biologists documented illegal encampments and potential safety concerns and communicated their findings to Public Works to determine if any follow-up actions were needed.

January trail maintenance efforts are summarized in a letter report that is included as Appendix H. All other trail maintenance efforts are summarized in the exotic plant eradication reports included as Appendix E.

## 8.2 ENCAMPMENT MONITORING AND CLEANUP

Chambers Group biologists recorded the locations of illegal encampments, day-use areas, rock dams, and site incidents throughout 2023. The biologists mapped and reported the locations of illegal encampments, day-use areas, and rock dams in January, July, September, October, and November. By November 21, 2023, Chambers Group had recorded 9 encampments and 12 rock dams distributed across 12 sites. Of the 12 sites recorded, 6 sites had an active encampment and a rock dam, 3 sites consisted of only an encampment and 4 sites had rock dams only, which were removed by the biologists upon discovery. All nine encampment sites appeared active and two of the encampments were confirmed occupied at the time of initial observation. In late August, Public Work's Stormwater Maintenance Division (SWMD) conducted public outreach and cleanup at two of the sites. By September 22, one of the sites that was cleaned up appeared to be reoccupied. Chambers Group will continue to track and monitor illegal encampments, day-use areas, rock dams, and site incidents in 2024 and communicate with Public Works and local law enforcement (if necessary) regarding any urgent issues or site needs.

## 8.3 TRAIL CLEANUP DAY

The 15th Annual Trail Cleanup Day occurred on December 2, 2023. Chambers Group worked with Public Works to modify the flyers that provided the information for the 15th Annual Trail Cleanup Day. The flyer was posted on Public Works' website and was distributed to interested parties. The flyer was mailed to the individuals and organizations included in the Mitigation Area mailing list. A copy of the flyer that was distributed to the public is included below as Figure 8-2.

The trail cleanup day event was conducted on Saturday, December 2, 2023, between the hours of 8 a.m. and 12 p.m. Several volunteers from Public Works, Chambers Group, and members of the public came together to clean up the trails and Haines Canyon Creek. Volunteers collected between 50 and 60 large bags of trash and debris items and many large, bulky items including a 60-gallon drum, gas, oil, and paint containers, tires, bed mattresses, and 12 shopping carts. Cleanup of larger debris items that would take more manpower to remove, (including temporary structures) and hazardous materials were coordinated with Public Works for proper removal at a later date. A photograph depicting some of the trash and debris it collected during the cleanup day is included in Figure 8-3.

**Figure 8-2. Trail Cleanup Day Flyer 2023**

# Join us for the 15th annual

## Big Tujunga Wash Mitigation Area

# TRAIL CLEANUP DAY

## December 2, 2023 | 8 a.m.

Water, snacks, and trash bags will be provided.

**PLEASE BRING:**

- Comfortable shoes
- Closed-toe shoes
- Gloves
- Hat
- Sun block
- Bug repellent

If there is rain or poor weather, the event will be rescheduled.

**For more information call (626) 458-6134 or email btwma@dpw.lacounty.gov**

ADA and Title VI Accommodations: Individuals requiring reasonable accommodations, interpretation services, and materials in other languages or in an alternate format may contact the Public Works coordinator at (626) 458-7901. Requests must be made one week in advance of the scheduled meeting date. Individuals with hearing or speech impairment may use California Relay Service 711.

Public Works
LOS ANGELES COUNTY

COUNTY OF LOS ANGELES FLOOD CONTROL DISTRICT

**Figure 8-3. Trail Cleanup Day Photograph 2023**

Some of the debris items collected during the 15th Annual Cleanup Day on December 2, 2023.

# SECTION 9.0 – COMMUNITY AWARENESS PROGRAM

The CAC was formed in early 2001 as part of MMP requirements for a community awareness program. Between 2001 and 2013, the CAC met semiannually to update the community on the progress of ongoing restoration activities, ongoing exotic eradication activities, and upcoming scheduled activities at the Mitigation Area and to discuss any issues that the community would like to see addressed. In 2014, the CAC meetings changed from being held on a semiannual basis to being held annually in the spring. In July 2007 ECORP assumed the responsibilities of preparing the spring and fall newsletters and assisting with the preparation of meeting agendas and handouts and recording meeting minutes. In June 2017 Chambers Group assumed these responsibilities once again and has continued this role through 2023. All deliverables were submitted to Public Works electronically for posting on the Public Works web page (https://dpw.lacounty.gov/wrd/Projects/BTWMA/index.cfm).

Community members and representatives from local community organizations serve as the major components of the CAC; but the committee also includes law enforcement, agency, and elected official representatives from various local, California state, and federal organizations. A list of the key stakeholders included as part of the most recent mailing is included in Appendix I.

## 9.1 NEWSLETTERS

Chambers Group drafted two newsletters during 2023. The spring edition was distributed to the public on July 18, 2023, and the fall edition was distributed to the public on November 21, 2023. An electronic version of the newsletter was submitted to Public Works for distribution to the public and stakeholders and to incorporate on their web page. Hard copies of the newsletters were also mailed to stakeholders and organizations. The 2023 Spring and Fall Newsletters are included in Appendix J.

## 9.2 CAC MEETING

The CAC meeting was held on Thursday, May 4, 2023, and was hosted by Public Works and Chambers Group. The meeting was held virtually from 5:30 to 7:30 p.m. via Zoom. The meeting reminder/invitation, meeting agenda, and minutes from the previous meeting were mailed to the most recent CAC mailing list approximately three weeks prior to the scheduled meeting. In addition, the meeting agenda and the minutes from the previous CAC meeting were posted on the Mitigation Area website. Approximately one week prior to the CAC meeting, a final meeting reminder was sent via email that included a link to the materials posted on the Mitigation Area web page and information on how to attend the virtual Zoom meeting.

Public Works representatives and Chambers Group representatives Paul Morrissey and Jackie Mayfield attended the Zoom meeting. The names of all attendees were recorded. Chambers Group biologist Paul Morrissey provided a presentation, reviewed the 2022 implementation efforts with the group, discussed the status and implementation of the enhancement programs for 2023, and was available to discuss various site issues and answer questions from attendees along with Public Works. The meeting was recorded by Public Works. Chambers Group shared a map that documented the location and nature of all observed incidents that occurred within the Mitigation Area between January 2022 and December 2022 (Figure 9-1). The map included locations of rock dams, prohibited activities observed (such as fishing and swimming), vandalism, and public safety concerns. The 2023 CAC meeting proceedings were summarized in the meeting minutes and were submitted to Public Works for review and commenting on June 15, 2023,

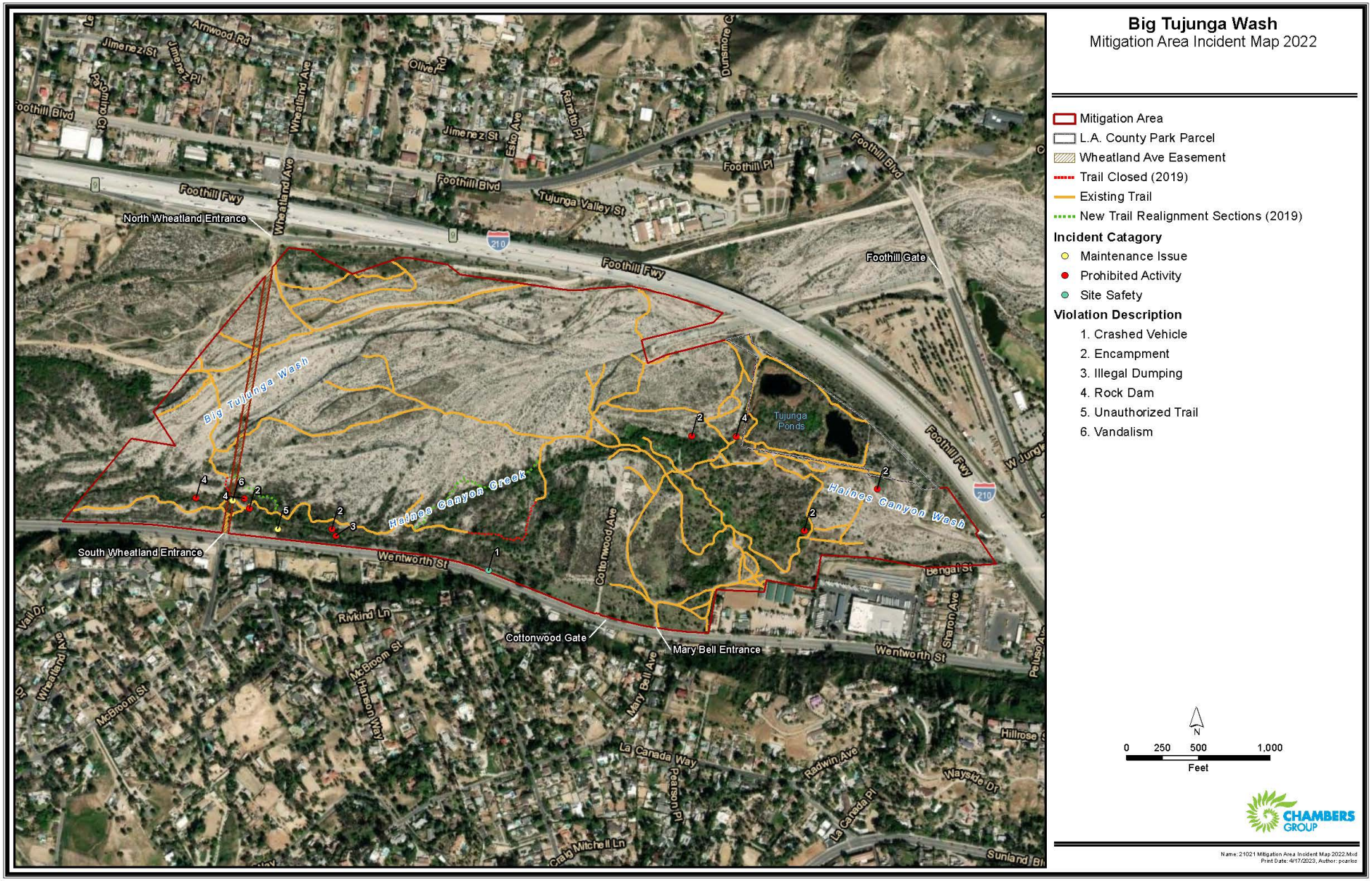
prior to posting on the Mitigation Area web page. The 2023 meeting minutes are included in Appendix K. Below is a summarized list of agenda items discussed during the 2023 CAC meeting.

- **Summary of Maintenance Programs in 2022**
  - Brown-headed cowbird trapping
  - Exotic Plant Eradication Program
  - Exotic Wildlife Removal Program
  - Trails Maintenance Program and Cleanup Day
  - Public Outreach/Community Awareness Program
  - Continued Incident Monitoring

- **Status of Maintenance Programs for 2023**
  - Brown-headed cowbird trapping
  - Exotic Plant Eradication Program
  - Exotic Wildlife Removal Program
  - Trails Maintenance Program and Cleanup Day
  - Public Outreach/Community Awareness Program
  - Continued Incident Monitoring

- **Comments, Questions, and Answers**

**Figure 9-1. Big Tujunga Wash Mitigation Area Incident Map 2022**



## SECTION 10.0 – PUBLIC OUTREACH PROGRAM

In an ongoing effort to enhance and protect existing wildlife and habitats at the Mitigation Area, the Public Outreach Program was developed and implemented during the 2009 contract year and has been conducted each year since, except for 2022. This creation of this task was the direct result of increasing evidence of problematic areas associated with recreational use throughout the Mitigation Area. ECORP and Public Works developed public outreach efforts to educate all types of recreational user groups about the importance of the Mitigation Area as a conservation area and to inform users of approved and prohibited types of recreational activities.

During site visits in the spring and summer of 2009, ECORP biologists observed increasing problems with site visitors using the waterways (Haines Canyon Creek and the Tujunga Ponds) in the Mitigation Area for recreational activities such as picnicking, fishing, swimming, and wading. In rare cases, cooking, barbequing, and alcohol consumption were observed. In areas popular for swimming, recreational users were using rocks, large boulders, and branches from nearby dead trees to dam the creek to create larger and deeper pools for swimming. Not only are these types of recreational activities prohibited on site, but they can result in damage to the waterways and native riparian habitats, which can reduce the ecological value of the site as a Mitigation Area. After observing and understanding the various problems associated with the recreational user groups in the Mitigation Area, ECORP and Public Works created and implemented a bilingual recreational user education program to expand public outreach for the Mitigation Area. The program consisted of site visits conducted by a bilingual biologist on peak-use weekends in the spring and summer to educate the various user groups about the approved and prohibited activities within the Mitigation Area. A bilingual educational brochure was developed and distributed to the various user groups during the weekend site visits. The bilingual educational brochure was last updated by Chambers Group in the spring of 2019 to highlight current issues and to revise the overall appearance and language in the educational brochure. The current educational brochure is included as Appendix B.

Chambers Group helped implement the Public Outreach program between 2017 and 2021 and continued to do so in 2023. While formal outreach efforts were not conducted in 2022, Chambers Group biologists and restoration specialists were still onsite implementing maintenance programs throughout the year and were available to interact with the public, answer any questions, and pass along any site user concerns to Public Works.

By interacting with the public directly through Public Outreach efforts, Chambers Group and Public Works have been able to identify and address site issues early and are able to respond immediately to trail issues or site safety issues that may have otherwise gone unnoticed until regular trail maintenance efforts could occur. In addition, site users contribute valuable information to Chambers Group biologists on the nature and locations of prohibited and illegal activities they observe while recreating in the Mitigation Area. This allows for a more rapid and coordinated response as issues arise.

### 10.1 PUBLIC OUTREACH EFFORTS 2023

Public outreach efforts including onsite interviews and education about the Mitigation Area were conducted on four occasions in 2023 by Chambers Group bilingual biologists Mauricio Gomez, Cristhian Mace, Jessica Calvillo, and Eliana Maietta. Outreach efforts took place on September 16, 23, and 30, and October 13. All outreach efforts took place during the peak site use hours of 8:00 a.m. to 12:30 p.m.

During public outreach efforts, Chambers Group biologists walked the authorized trails system and visited popular swimming/wading locations along Haines Canyon Creek and around the Tujunga Ponds, speaking with visitors they encountered. Visitors that were interviewed fell into one of two groups: equestrian or non-equestrian.

During the four outreach efforts, all equestrian and non-equestrian visitors encountered were offered an educational brochure outlining Public Works' conservation goals for the Mitigation Area. The educational brochure contains the Mitigation Area's rules and regulations and discusses special status species found on the site. During each outreach effort, Chambers Group biologists provided information to site users on why specific activities are prohibited in the Mitigation Area and how prohibited activities can negatively impact native habitats and wildlife species. Outreach efforts mainly consisted of informal interviews and short question and answer sessions. Questions from site users were primarily about the purpose of the Mitigation Area's rules and regulations, the types of special status resources found in the Mitigation Area, community clean-up efforts, and the trail system/trail maintenance. Most equestrian users expressed appreciation towards the outreach efforts, the ongoing maintenance activities throughout the site, and the information presented in the educational brochure. In general, equestrian and non-equestrian users were receptive to the public outreach efforts.

## 10.2 EQUESTRIAN USER GROUPS

A total of 26 equestrian users were approached and interviewed during the 4 public outreach efforts in 2023. All but one of the equestrian users interviewed lived locally. All equestrian users were encountered along the authorized trails of the Mitigation Area along the creek and near the ponds. Equestrian users were offered an educational brochure and were informed about various aspects of the Mitigation Area. Outreach interactions with equestrian users were usually brief as most of the equestrians are frequent users of the Mitigation Area and are receptive to the outreach efforts. Many equestrian users appreciated the outreach efforts and contributed information to the biologists.

Concerns raised by the equestrian users interviewed included trail maintenance, particularly vegetation overgrowth, the presence of large rocks/boulders in the trails, an eroding portion of the trail north of the Cottonwood Avenue bluff, narrow trails, the new trail alignment (2019), the presence of illegal encampments, trash, individuals drinking alcohol on site, and motorcyclists using the trails. During the Public Outreach effort on September 23, equestrian users voiced concern about the condition of the trail entrance at the north end of the Cottonwood Avenue bluff where the existing blacktop meets the dirt trail. The blacktop is wearing away in this area creating an abrupt edge/drop-off and some erosion to the dirt portion of the trail. Equestrian users mentioned that this area has become a safety issue for horses when entering/exiting the trail. Chambers Group and Public Works are working on a solution to repair and improve this trail section. During Public Outreach efforts on October 13, one equestrian user mentioned observing an individual riding a Harley Davidson from near the creek on the west end of the site towards the north Wheatland Avenue entrance. They noted that the motorcycle had caused disturbance to the trail and surrounding vegetation. Equestrian users also voiced concerns regarding the presence of illegal encampments and associated prohibited activities including individuals drinking alcohol on site. The biologists asked the individuals to contact local law enforcement and Public Works if suspicious or illegal activities are observed in the Mitigation Area.

Recommendations provided by the equestrian users interviewed included repairing the damaged trail area north of the Cottonwood Avenue bluff, widening the trails, removing rocks and boulders from the

trails, more frequent trash cleanups, and reopening the old trail alignment (pre-2019) to allow for creek crossings and to give horses more access to water.

Additional interactions with equestrian users that occurred outside of Public Outreach efforts (during other site maintenance efforts) usually consisted of equestrian users thanking the work crews for maintaining and beautifying the site and trails, and their acknowledgment that they understood the importance of restoring native habitat.

Equestrian site users can negatively affect sensitive terrestrial habitat by traveling off from the established trail systems and can disturb sensitive aquatic habitat when traveling through the creek. Riders were reminded to cross the creek single file to minimize erosion along the banks and to stay on the authorized trails. Chambers Group biologists discussed the importance of the 2019 trail realignment, designed to avoid stream crossings to minimize negative impacts on special status fish species, with concerned equestrian users to provide a better understanding of why the realignment was a critical component of species protection. The creation of new trails and traveling off from the authorized trails can be minimized with continued trail maintenance and continued equestrian site user education.

### 10.3 NON-EQUESTRIAN USER GROUPS

A total of 10 non-equestrian site users were encountered during public outreach visits in 2023. Two of the 10 non-equestrian site users interviewed did not live locally. All 10 of the site users were encountered along authorized trails or near the ponds. All site users were offered an educational brochure about the site, were informed about activities that are prohibited in the Mitigation Area and were asked if they had any questions regarding any of the information presented.

Individuals that were encountered during the outreach visits were generally receptive to the information provided on the sensitive resources and rules within the Mitigation Area. Individuals who were unaware of and/or violating rules were respectful and receptive to the information provided by the biologists. During Public Outreach efforts on September 16, a site user was observed dressed in camouflage and had a shotgun (break-action style in open state) and a dog with them and looked to be possibly preparing to hunt. The site user acknowledged the biologists and did not appear threatening, but the biologists did not approach the individual for safety reasons. The incident was reported to Public Works and the Los Angeles County Police Department. During the September 23 effort, the biologists came across an equestrian rider who communicated and spoke to the person dressed in camouflage carrying the shotgun. The equestrian rider was told that it was a pellet air shotgun. Two site users encountered during Public Outreach efforts on September 23, mentioned that they come from Palmdale to fish at the ponds. The biologists provided the individuals with an educational brochure and explained why fishing is not permitted in the ponds or creek. The two users were not aware of the site rules and were receptive to the information provided by the biologists.

The primary usage of the Mitigation Area as described by the non-equestrian site users interviewed included hiking, walking, dog walking, and fishing. Concerns raised by non-equestrian users interviewed included trash, fires within the Mitigation Area, the presence of illegal encampments, and illegal fishing. The biologists asked the individuals to contact local law enforcement and Public Works if suspicious or illegal activities are observed in the Mitigation Area. Recommendations provided by non-equestrian site users interviewed included cleaning up trash throughout the Mitigation Area and posting more signage with the Mitigation Area rules.

The most substantial impacts on sensitive habitat by non-equestrian user groups are caused by swimming, bathing, and building rock dams within the creek. Rock dams are constructed by individuals to make swimming areas deeper. There are a few unauthorized day-use areas that have become popular spots for non-equestrian users to congregate, picnic, and swim.

Several rock dams, both large and small, have been encountered in the creek and were removed during 2023 maintenance and monitoring efforts. Most of the rock dams are associated with an illegal encampment or day-use area. Rock dams are usually constructed with boulders and tree branches and are often found reinforced with tarps, plastic, and other materials that reduce the natural flow of the creek and create a buildup of water upstream of the dam. The changes to the natural flow of the creek can be detrimental to the sensitive species of fish within the creek. Rock dams reduce the flow of the creek and create large pools of water that are favorable habitat for the exotic, invasive aquatic species such as the red swamp crayfish, largemouth bass, green sunfish, bluegill, mosquito fish, and American bullfrogs, that prey on or compete for the same food sources as native species such as the federally listed threatened Santa Ana sucker, and state SSC Santa Ana speckled dace and arroyo chub. The reduced water flow traps trash/debris, reduces suitable breeding habitat, and harbors parasites that negatively affect the fishes' ability to breathe. Native fish trapped by rock dams have been observed "flashing" their gills in an attempt to rid themselves of parasites. In addition, the dams prevent migration of fish upstream and downstream along the creek reducing available food sources and breeding opportunities. To reduce these effects, non-equestrian users were approached and educated about the Mitigation Areas' sensitive resources during the outreach site visits. However, site users who are encountered hiking and walking along the authorized trails are typically not the same individuals who build illegal dams and day-use areas. In the past, the individuals building day-use areas and damming the creek have typically been less receptive to site rules and education. All rock dams encountered by Chambers Group biologists during maintenance efforts were documented and removed. Larger rock dams were reported to Public Works for removal, as necessary.

The 2023 Public Outreach Letter Report is included as Appendix L.

## SECTION 11.0 – SPECIAL ASSESSMENTS

Chambers Group staff was available to provide special assessments on an on-call basis in 2023. Special assessments include damage assessments (e.g., fire damage, vandalism) and other site issue assessments and the subsequent coordination and response. No special assessments were required to be conducted by Chambers Group in 2023.

## SECTION 12.0 – ATTENDANCE AT MEETINGS WITH AGENCIES, PUBLIC, AND CONSULTANTS

Chambers Group was available on an on-call basis to attend meetings with agencies, the public, and other consultants as a representative of Public Works in 2023. Additional conference calls, meetings, and email correspondence were held on an as-needed basis throughout the year between Public Works and Chambers Group. Details of coordination and meetings with Public Works and LA County Parks are detailed below.

Chambers Group staff informed and coordinated with LA County Parks concerning activities that took place within the Mitigation Area and the Tujunga Ponds LA County Parks parcel. Chambers Group biologists coordinated with LA County Parks employees prior to replacing the fish exclusionary screens located in Haines Canyon Creek just downstream from the Tujunga Ponds on October 10, 2023.

## SECTION 13.0 – REFERENCES

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**2023 ANNUAL REPORT**

**APPENDIX A – STREAMBED ALTERATION AGREEMENT #1600-2008-0253-R5**

Big T Draft 1600

CALIFORNIA DEPARTMENT OF FISH AND GAME
South Coast Region
4949 Viewridge Avenue
San Diego, CA 92123

January 29, 2009

Notification No. 1600-2008-0253-R5


AGREEMENT REGARDING PROPOSED STREAM OR LAKE ALTERATION

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and County of Los Angeles, Department of Public Works Water Resources Division (LACoDPWWRD), represented by Mr. Christopher Stone, 900 S. Fremont Avenue, Alhambra, California, 91803, (626) 458-6102, hereinafter called the Applicant or LACoDPWWRD, is as follows:

WHEREAS, pursuant to Section 1602 of California Fish and Game Code, the Applicant, on the 23rd day of July, 2008, notified the Department that they intend to divert or obstruct the natural flow of, or change the bed, channel, or bank of, or use material from: Big Tujunga Wash and Haines Canyon Creek, named tributaries to Hansen Dam Flood Control Basin, in Los Angeles County, to conduct extensive invasive species management and routine maintenance activities within the approximately 247-acre Big Tujunga Conservation Area. Jurisdictional streambeds and waters of the state regulated under Department authority which are to be impacted as a result of the Applicant's project-related activities include: Haines Canyon Creek, wash and ephemeral streambed(s), and wetlands, including vegetated riparian habitats. The portion of Haines Canyon Creek, wash and unnamed ephemeral streambed(s), and wetland to be impacted as a result of the Applicant's project-related activities can be located using the following resources: 1) United States Geological Survey 7.5 Minute Quad Map, Sunland, Township 2 N, Range 14 W, Los Angeles County; 2) Latitude: 34.16.80 North Longitude: 118.20.53 West 3) County Assessor's Parcel Number(s): MR 29-51-52, MB 16-166-167, MB 662-44, and MB 198-8-10

WHEREAS, the Department (represented by Jamie Jackson) during a site visit conducted on August 05, 2007, and based on information received by the Applicant, has determined that such operations may substantially adversely affect those existing fish and wildlife resources within the Haines Canyon Creek and Big Tujunga Wash watershed(s), the project site, and the vicinity of the project site, specifically identified as follows: **Fishes:** arroyo chub (*Gila Orcutti*), Santa Ana speckled dace (*Rhinichthys osculus*), Santa Ana sucker (*Catostomus santaanae*); **Amphibians:** arroyo southwestern toad (*Bufo microscaphus californicus*), California red-legged frog (*Rana aurora*), mountain yellow-legged frog (*Rana muscosa*), western toad (*Bufo boreas*); **Reptiles:** southwestern pond turtle (*Emys marmorata pallida*), San Diego horned lizard (*Phrynosoma coronatum blainvillii*), western fence lizard (*Sceloporus occidentalis*), side-botched lizard (*Uta stansburiana*); **Birds:** California gnatcatcher (*Polioptila californica californica*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*bellii pusillus*), black-crowned night heron (*Nycticorax nycticorax*), mourning dove (*Zenaida macroura*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Carduelis psaltria*), black-headed grosbeak (*Pheucticus melanocephalus*), great blue heron (*Ardea Herodias*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), black-chinned hummingbird (*Archilochus californica*), rufous hummingbird (*Selasphorus rufus*), western scrub jay (*Aphelocoma californica*), Bullock's oriole (*Icterus bullockii*), California quail (*Callipepla californica*), loggerhead shrike (*Lanius ludovicianus*), barn swallow (*Hirundo rustica*), California towhee (*Pipilo crissalis*), Wilson's warbler (*Wilsonia pusilla*), Bewick's wren (*Thryomanes ludovicianus*), Cooper's hawk (*Accipiter cooperii*); **Mammals:** coyote (*Canis latrans*), brush rabbit (*Sylvilagus Bachmani*), muledeer (*Odocoileus hemionus*), California ground squirrel (*Spermophilus beecheyi*); **Native Plants:** slender-horned spineflower (*Dodecahema leptoceras*), Nevin's barberry (*Berberis nevinii*), Plummer's mariposa lily (*Calochortus plummerae*), Mt. Gleason Indian paintbrush (*Castilleja gleasonii*), San Fernando Valley spineflower (*Chorizanthe parryi* var.

*fernandina*), Davidson's bush mallow (*Malacothamnus davidsonii*), Orcutt's linanthuis (*Linanthus orcuttii*),California sycamore (*Platanus racemosa*), white alder (*Alnus rhombifolia*), Fremont cottonwood (*Populus fremontii*), mulefat (*Baccharis salicifolia*), Scale-broom (*Lepidospartum squamatum*), cattails (*Typha latifolia*), California sagebrush (*Artemisia californica*), willow (*Salix* sp.), Southern Sycamore-Alder Riparian Woodland; and all other aquatic and wildlife resources in the area, including the riparian vegetation which provides habitat for such species in the area.

These resources are further detailed and more particularly described in the reports entitled "California Department of Fish and Game Streambed Alteration Application Big Tujunga Wash Mitigation Bank" dated July 2008, prepared by Gonzales Environmental Consulting, LLC, prepared for County of Los Angeles, Department of Public Works Water Resources Division; "The Final Master Mitigation Plan for the Big Tujunga Wash Conservation Area (FMMP)", dated April 2000, prepared by Chambers Group, prepared for the County of Los Angeles Department of Public Works, and shall be implemented as proposed, complete with all attachments and exhibits.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife resources during the Applicant's work. The Applicant hereby agrees to accept and implement the following measures/conditions as part of the proposed work. The following provisions constitute the limit of activities agreed to and resolved by this Agreement. The signing of this Agreement does not imply that the Operator is precluded from doing other activities at the site. However, activities not specifically agreed to and resolved by this Agreement shall be subject to separate notification pursuant to Fish and Game Code Sections 1600 *et seq*.

If the Applicant's work changes from that stated in the notification specified above, this Agreement is no longer valid and a new notification shall be submitted to the Department of Fish and Game. Failure to comply with the provisions of this Agreement and with other pertinent code sections, including but not limited to Fish and Game Code Sections 5650, 5652, 5901, 5931, 5937, and 5948, may result in prosecution.

Nothing in this Agreement authorizes the Applicant to trespass on any land or property, nor does it relieve the Applicant of responsibility for compliance with applicable federal, state, or local laws or ordinances. A consummated Agreement does not constitute Department of Fish and Game endorsement of the proposed operation, or assure the Department's concurrence with permits required from other agencies.

This Agreement becomes effective the date of the Department's signature and the restoration and enhancement portion terminates on 03/31/2014. This Agreement shall remain in effect to satisfy the terms/conditions of this Agreement and all mitigation obligations associated with the FMMP. Any provisions of the Agreement may be amended at any time provided such amendment is agreed to in writing by both parties. Mutually approved amendments become part of the original agreement and are subject to all previously negotiated provisions.

Pursuant to Section 1600 et seq., the Applicant may request one extension of the Agreement; the Applicant shall request the extension of this Agreement prior to its termination. The one extension may be granted for up to five years from the date of termination of the Agreement and is subject to Departmental approval. The extension request and fees shall be submitted to the Department's South Coast Office at the above address. If the Applicant fails to request the extension prior to the Agreement's termination, then the Applicant shall submit a new notification with fees and required information to the Department. Any construction/impacts conducted under an expired Agreement are a violation of Fish and Game Code Section 1600 et seq. For complete information see Fish and Game Code Section 1600 et seq.

**Project Location:**

The approximately 247-acre project site is located within the Big Tujunga Wash, just downstream of the 210 Freeway over-crossing, near the City of Los Angeles' Sunland community in the San Gabriel Valley in Los Angeles County. The site is bordered on the north and east by the I-210 freeway and on the south by Wentworth Street. The west side of the site is contiguous with the downstream portion of the Big Tujunga Wash (2007 Thomas Brothers Guide page 503-B2:C2:D2).

**Project Description:**

The Final Master Mitigation Plan for the Big Tujunga Wash Conservation Area (FMMP), dated April 2000, prepared for the County of Los Angeles Department of Public Works, prepared by Chambers Group, shall be implemented as proposed. The FMMP proposes the long-term mitigation and management guidelines for the 247 acre Big Tujunga Site. Proposed works described within the FMMP includes elements designed to restore and enhance existing habitats on the Big Tujunga Wash site by removing non-native plant, fish, amphibian, and reptile species. In addition, the FMMP includes future plans to create a diverse coast live oak-California sycamore woodland and coastal sage scrub habitat in an area that is currently heavily disturbed. The FMMP proposes to target the Haines Canyon Creek and Big Tujunga Wash for removal of invasive plant (Arundo (*Arundo donax*), tamarisk (*Tamarix* spp.), eucalyptus (*Eucalyptus* spp.), pepper tree (*Schinus molle*), castor bean (*Ricinus communis)*, umbrella sedge (*Cyperus eragrostis* Nutsedge), mustards (*Brassica* spp.), tree tobacco (*Nicotiana* glauca), water hyacinth (*Eichornia crassipes*), cape ivy (*Delairea odorata*), etc.) and animal (brown-headed cowbird (*Molothrus ater*), bull frog (*Rana catesbeiana*), crayfish (*Theragra Chalcornma*)) species, management, enhancement, and reclamation of existing equestrian and hiking trails, brown-headed cowbird eradication, water quality monitoring, riparian habitat enhancement, site inspection and maintenance, and success monitoring (fish and wildlife) for the Big Tujunga Conservation Area. Contact: Mr. Christopher Stone at Phone: (626) 458-6102 for additional information.

The Department believes that a newer FMMP exists for the Big Tujunga Wash Conservation Area (BTWCA), prepared by Chambers Group for Los Angeles County Department of Public Works Water Resources Division (LACoDPWWRD), dated October 2006, which was not included with the Streambed Notification. The Department is in receipt of a FMMP dated April 2000. The Department requests a copy of the FMMP dated October 2006.

The Applicant shall provide clarification for the following items, as found in the FMMP dated October 2006, PRIOR to the Execution of this Agreement. If the following items are already adequately addressed within the FMMP the Applicant shall identify the location of the items within the FMMP. The Department shall determine if they have been adequately addressed or require further information. Once these items have been verified within the FMMP they may be removed from this draft document PRIOR to its execution.

- Conservation Credits Remaining.

Listed below is a table summarizing the mitigation acres already used within the BTWCA by LACoDPWWRD projects.

| 100 Channel Clearing | Friendly Wood Drain | Thompson Creek Dam Seismic Rehab | Puddingstone Diversion Cleanout | San Dimas Cleanout | Big Dalton Cleanout | Burro Canyon Debris Basins | Live Oak | Big Tujunga Dam Seismic Rehab | Devil's Gate Cleanout |
|---|---|---|---|---|---|---|---|---|---|
| 62.7 | 1.6 | 1.7 | 5.1 | 5.1 | 3.34 | 0.3 | 2.0 | 0.43 | 2.68 |

The Department has not yet finalized the total number of credits available for use by LACoDPWWRD in the BTWCA. The Applicant estimates a total of 247 acres including both jurisdictional and upland areas. The total acreage for the BTWCA that the Department currently acknowledges is 207 acres with 122.05 remaining for credit. It has been determined that 84.95 acres have already been used. The Department requests that LACoDPWWRD provide detailed maps depicting total acres, acres remaining for mitigation purposes, additional acres utilized not accounted for in the above table, acres representing areas that are not, or will not, be restored to functional habitat. The primary area of concern is found in and around the Cottonwood entrance, where the old gravel mining pad occurred. Some of this area is not going to be restored and will remain in use as parking.

- Existing Public Use

The number of horse trails remains a concern to the Department. The density of trails, side loops, and duplication is a concern, as these areas do not support habitat and reduce wildlife's ability to utilize adjacent habitat. The trail running parallel to Haines Creek, the only perennial water source in this area is also a concern. Acreage for trails used by equestrian groups in the area, particularly wider trails in the alluvial scrub, shall be explicitly identified. Areas beyond five feet in width that are being impacted by trail use shall be calculated and deducted from the total remaining acres as determined by the Applicant available for future mitigation credit. Trail widths in alluvial areas could be narrowed. The LACoDPWWRD shall define and restrict use on pre-determined paths for equestrian uses. Similarly, continued public access to the two large ponds found adjacent to the BTWCA, owned by the Army Corps of Engineers, but maintained by LACoDPWWRD, create an ongoing management problem. Since the ponds were mitigation for wetland impacts to the 210 freeway, the continued presence of visitors disrupting the ecology and the introduction of exotic animals is a concern. Further efforts to explore whether this area can be closed to public access other than special uses, education visits, and similar types of activities need to be addressed.

- Functional Analysis Ratings

Page 10, Sec 2.3.1- indicates the functional condition of alluvial scrub increased from .79 to .88 (although it is unclear if this is the whole area, or just alluvial scrub, and the last paragraph discusses riparian habitat despite an alluvial scrub header). Please clarify what changed to account for this increase in functional condition of alluvial scrub? In addition, please describe the method that was used to determine the functional values of the habitat.

- Invasive Plants

Table 3-1 shows the list of targeted weeds for control. Please add eupatory (*Ageratina adenophora*) to this list (note on page 7 that control of this species is occurring).

- Patrolling

This section does not contain much information. The Department requests LACoDPWWRD provide the following information: What will be the patrol frequency? Who is anticipated to do patrolling? Will they have authority to write tickets? How do they access the site? How much of the site is anticipated to be viewed during a two-hour visit? The Department would like a commitment to regular patrols within the BTWCA.

- Water Quality Monitoring

If conducted annually, the most optimum time of year or hydrologic condition should be specified to maximize the effectiveness of the monitoring.

- Section 3.4- Contingency Measures-wildfire related

A pro-active Wildfire Emergency Response Plan should be included. Wildfire suppression (bulldozing, backfires, firelines, and retardants) can cause substantial damage to resources. This Plan could take the form of a good map that is provided to the local fire stations, with legends indicating: access points, areas of high sensitivity, contacts, request to minimize any ground disturbance, etc. A meeting with the Fire Department to refine the strategy should also occur.

- Site Maintenance Issues:

There is little or no information on maintenance of infrastructure, particularly fencing and gates. Please include this information.

- Arroyo toad surveys:

We suggest these occur ONLY in years of relatively normal rainfall, or wetter. If surveys are conducted every third year as proposed in the plan, and that year happens to be very dry, too much time could pass between surveys. The Department recommends a more flexible plan.

- Santa Ana Sucker

We suggest these occur ONLY in years of relatively normal rainfall, or wetter. If surveys are conducted every third year as proposed in the plan, and that year happens to be very dry, too much time could pass between surveys. The Department recommends a more flexible plan.

- Cowbird trapping

Cowbird trapping should continue each year. The cowbird trapping program was instituted to restore the BTWCA as potential habitat for least Bell's vireo and southwestern flycatcher. The Department requests a detailed analysis of the Applicant's proposed cowbird trapping and reporting program. The Department also requests the report due date for the brown-headed cowbird trapping reports be adjusted to eliminate two separately dated reports. Currently, the due dates are different for the Department versus the United States Fish and Wildlife Service (USFWS).

- Reporting

There are a number of reports that are shown as being sent only to the USFWS. The Department would also like to receive copies of these reports.

- Costs

There is no information on costs contained within the FMMP. Normally, this type of plan would include an operation and maintenance budget estimate. The Department requests that LACoDPWWRD provide a detailed cost analysis and budget outline for funding all future long-term maintenance and restoration efforts within the BTWCA.

**IMPACTS**

**Temporary Impacts:**

Temporary, minor impacts are anticipated in Department jurisdictional areas as a result of the Applicant's activities. The FMMP will improve the habitat quality of approximately 60 acres of southern willow woodlands along Haines Canyon Creek and the Big Tujunga Ponds. The Department shall be notified immediately if unforeseen temporary impacts occur within Department jurisdictional areas not previously considered as part of this Agreement or the FMMP as a result of the Applicants project-related activities. Conditions may need to be added or revised, based on new information, to prevent further temporary impacts from occurring in Department jurisdictional areas.

**MITIGATION**

**Mitigation for all Temporary Impacts:**

The Applicant shall implement the FMMP as proposed.

**CONDITIONS**

**Resource Protection:**

1. The Applicant shall not remove, or otherwise disturb vegetation or conduct any other project-related activities on the project site, to avoid impacts to breeding/nesting birds from March 1st to September 1st, the recognized breeding, nesting and fledging season for most bird species in the San Gabriel Valley.

2. Prior to any project-related activities during the raptor nesting season, January 31st to August 1st, a qualified biologist shall conduct a site survey for active nests two weeks prior to any scheduled project-related activities. If breeding activities and/or an active bird nest(s) are located and concurrence has been received from the Department, the breeding habitat/nest site shall be fenced a minimum of 500 feet in all directions, and this area shall not be disturbed until the nest becomes inactive, the young have fledged, the young are no longer being fed by the parents, the young have left the area, and the young will no longer be impacted by the project.

3. Be advised, migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918(50 C.F.R. Section 10.13). Sections 3503, 3503.5 and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the Federal MBTA). This Agreement therefore does not allow the Applicant, any employees, or agents to destroy or disturb any active bird nest (§3503 Fish and Game Code) or any raptor nest (§3503.5) at any time of the year.

4. Due to the potential presence of arroyo chub, Santa Ana speckled dace, Santa Ana sucker, arroyo southwestern toad, California red-legged frog, mountain yellow-legged frog, southwestern pond turtle, San Diego horned lizard, black-crowned night heron, great blue heron, great egret, snowy egret, Cooper's hawk, southwestern willow flycatcher, California gnatcatcher loggerhead shrike, and least Bell's vireo, pre-restoration and enhancement field surveys for these species must be concluded no sooner than three-days prior to any site preparation, clearing, or other project-related activities. Findings, including negative findings, shall be submitted to the Department in written format prior to any site preparation activities.

5. If any of the species identified in condition 4 of this Agreement, any other threatened or endangered species or species of special concern are found within 150 feet of the Haines Canyon Creek or Big Tujunga Wash, the Applicant shall contact the Department immediately of the sighting and shall request an on-site inspection by Department representatives (to be done at the discretion of the Department) to determine if work shall begin/proceed. If work is in progress when sightings are made,

the Applicant shall cease all work within 500 feet of the area in which the sighting(s) occurred and shall contact the Department immediately, to determine if work shall recommence.

6. A qualified biological monitor, with all required collection permits, shall be required on site during clearing, enhancement and restoration activities, and shall conduct surveys sufficient to determine presence/absence for species identified as occurring, or potentially occurring, on site and immediately adjacent to the project location.

7. If any life stages of any native vertebrate species are encountered during clearing, enhancement or restoration activities, the monitor shall make every reasonable effort to relocate the species to a safe location. Exclusionary devices shall be erected to prevent the migration into or the return of species into the work site. If no biological monitor is available, project-related activities shall not begin, or shall be halted, until the biological monitor is present.

8. The Applicant shall have a qualified wildlife biologist and qualified botanists prepare for distribution to all Applicants contractors, subcontractors, project supervisors, and consignees a "Contractor Education Brochure" with pictures and descriptions of all sensitive, threatened, and endangered plant and animal species, known to occur, or potentially occurring, on the project site. Applicant's contractors and consignees shall be instructed to bring to the attention of the project biological monitor any sightings of species described in the brochure. A copy of this brochure shall submit to the Department for approval prior to any site preparation activities.

9. Electronic and written annual reports shall be required. An annual report shall be submitted to the Department by Jan. 1st of each year for 5 years after implementation of the FMMP for all plantings associated with the Applicants mitigation. This report shall include the survival, % cover, and height by species of both trees and shrubs. The number by species of plants replaced, an overview of the revegetation and exotic plant control efforts, and the method used to assess these parameters shall also be included. Photos from designated photo stations shall be included. If after several years it becomes apparent that plants are not surviving, additional mitigation shall be determined at that time, and Applicant shall be responsible for implementation and costs of additional mitigation. Annual reports shall include site enhancement and restoration progress, species encountered during biological surveys, and current conditions of all trails and trail activities. The Annual Report shall include graphics for vegetation communities and trails systems. Electronic reports shall be submitted to the Department no later than January 1st of each year and should be submitted to the following email address: jjackson@dfg.ca.gov. Hard copies shall be submitted to the address that appears on the header of this Agreement with the same deadline as electronic version.

10. If the Department determines that any threatened or endangered species will be impacted by the implementation of the FMMP, the Applicant shall contact Environmental Scientist Scott Harris at (626) 797-3170 to obtain information on applying for the State Take Permit for state-listed species, or contact the San Diego Regional office for the current point of contact. The Applicant certifies by signing this Agreement that the project site has been surveyed and shall not impact any state-listed rare, threatened or endangered species.

11. The Applicant shall install and use fully covered trash receptacles with secure lids (wildlife proof) in all work areas that may contain food, food scrapes, food wrappers, beverage containers, and other miscellaneous trash.

12. No hunting shall be authorized/permitted within the Big Tujunga Wash Conservation Area.

**Work Areas and Vegetation Removal:**

13. Disturbance or removal of vegetation shall not exceed the limits approved by the Department as stated in the FMMP.

14. The work area shall be flagged to identify its limits within the project footprint to avoid unnecessary impact to ephemeral streams and riparian habitat not included in the FMMP. Vegetation shall not be removed or intentionally damaged beyond these limits.

15. No vegetation with a diameter at breast height (DBH) in excess of three (3) inches, not previously described in the FMMP shall be removed or damaged without prior consultation and Department approval.

16. No living native vegetation shall be removed from the channel, bed, or banks of the stream outside the project footprint, except as otherwise provided for in this Agreement or as proposed in the FMMP.

**Equipment and Access:**

17. Vehicles shall not be driven or equipment operated in water covered portions of a stream or lake, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed, except as otherwise provided for in the Agreement or as described in the FMMP, and as necessary to complete authorized work. It is understood that conditions may need to be revised or added based on new information, if the Department becomes aware of activities outside the FMMP.

18. Access to the work site shall be via existing roads and access ramps. If no ramps are available in the immediate area, the Applicant may construct a ramp in the footprint of the project. Any ramp shall be removed upon completion of the project.

**Fill and Spoil:**

19. This Agreement does not authorize the use of any fill.

**Structures:**

20. Any materials placed in seasonally dry portions of a stream or lake that could be washed downstream or could be deleterious to aquatic life shall be removed from the project site prior to inundation by high flows.

21. Areas of disturbed soils with slopes toward a stream or lake shall be stabilized to reduce erosion potential. Planting, seeding and mulching is conditionally acceptable. Where suitable vegetation cannot reasonably be expected to become established, non-erodible materials, such as coconut fiber matting, shall be used for such stabilization. Any installation of non-erodible materials not described in the original project description shall be coordinated with the Department. Coordination may include the negotiation of additional Agreement provisions for this activity.

22. Installation of bridges, culverts, or other structures shall be such that water flow (velocity and low flow channel width) is not impaired. Bottoms of temporary culverts shall be placed at or below stream channel grade. Bottoms of permanent culverts shall be placed below stream channel grade.

23. This Agreement does not authorize the construction of any temporary or permanent dam, structure, flow restriction except as described in the FMMP.

**Pollution, Sedimentation, and Litter:**

24. The Applicant shall comply with all litter and pollution laws. All contractors, subcontractors and employees shall also obey these laws and it shall be the responsibility of the Applicant to insure compliance.

25. No equipment maintenance shall be done within or near any stream channel or lake margin where petroleum products or other pollutants from the equipment may enter these areas under any flow.

26. The clean-up of all spills shall begin immediately. The Department shall be notified immediately by the Applicant of any spills and shall be consulted regarding clean-up procedures.

27. Silty/turbid water from dewatering or other activities shall not be discharged into the stream. Such water shall be settled, filtered, or otherwise treated prior to discharge. The Applicant's ability to minimize turbidity/siltation shall be the subject of pre-construction planning and implementation of the FMMP.

28. Water containing mud, silt, or other pollutants from equipment washing or other activities, shall not be allowed to enter an ephemeral stream or flowing stream or placed in locations that may be subjected to high storm flows.

29. If a stream channel offsite or its low flow channel has been altered it shall be returned, as nearly as possible, to pre-project conditions without creating a possible future bank erosion problem, or a flat wide channel or sluice-like area. The gradient of the streambed shall be returned to pre-project grade unless such operation is part of a restoration project, in which case, the change in grade must be approved by the Department prior to project commencement.

30. Rock, gravel, and/or other materials shall not be imported to, taken from or moved within the bed or banks of the stream, except as otherwise addressed in this Agreement.

**Permitting and Safeguards:**

31. The Department believes that permits/certification may be required from the Regional Water Quality Control Board and the Army Corp of Engineers for this project, should such permits/certification is required, and a copy shall be submitted to the Department.

32. The Department requires that the 247-acre Big Tujunga Wash Conservation Area be preserved in perpetuity by way of a conservation easement (CE). The Department shall be listed as the sole third party beneficiary, if the Applicant retains fee title, on mitigation lands. The Applicant shall arrange to obtain the CE. Current templates for the Department's approved CE format, along with mitigation banking templates, can be downloaded from the Department's website, www.dfg.ca.gov . The legal advisors can be contacted at (916) 654-3821. The Conservation Easement process must be completed prior to December 31, 2010, or as extended by the Department, or the Applicant shall be in violation of the terms and conditions of this Agreement.

**Administrative:**

33. All provisions of this Agreement remain in force throughout the term of the Agreement. Any provisions of the Agreement may be amended or the Agreement may be terminated at any time provided such amendment and/or termination are agreed to in writing by both parties. Mutually approved amendments become part of the original Agreement and are subject to all previously negotiated provisions.

34. If the Applicant or any employees, agents, contractors and/or subcontractors violate any of the terms or conditions of this Agreement, all work shall terminate immediately and shall not proceed until the Department has taken all of its legal actions.

35. The Applicant shall provide a copy of this Agreement, and all required permits and supporting documents provided with the notification or required by this Agreement, to all contractors, subcontractors, and the Applicant's project supervisors. Copies of this Agreement and all required permits and supporting documents, shall be readily available at work site at all times during periods of active work and must be presented to any Department personnel, or personnel from another agency upon demand. All contractors shall read and become familiar with the contents of this Agreement.

36. A pre-enhancement restoration meeting/briefing shall be held involving all the contractors and subcontractors, concerning the conditions in this Agreement.

37. The Applicant shall notify the Department, in writing, at least five (5) days prior to initiation of restoration enhancement (project) activities and at least five (5) days prior to completion of enhancement and restoration (project) activities. Notification shall be sent to the Department at PO Box 92890, Pasadena, California, 91109. Attn: Jamie Jackson. FAX Number (626) 296-3430, Reference # 1600-2008-0253-R5.

38. The Applicant herein grants to Department employees and/or their consultants (accompanied by a Department employee) the right to enter the project site at any time, to ensure compliance with the terms and conditions of this Agreement and/or to determine the impacts of the project on wildlife and aquatic resources and/or their habitats.

39. The Department reserves the right to enter the project site at any time to ensure compliance with terms/conditions of this Agreement.

40. The Department reserves the right to cancel this Agreement, after giving notice to the Applicant, if the Department determines that the Applicant has breached any of the terms or conditions of the Agreement.

41. The Department reserves the right to suspend or cancel this Agreement for other reasons, including but not limited to, the following:

a. The Department determines that the information provided by the Applicant in support of this Agreement/Notification is incomplete or inaccurate;

b. The Department obtains new information that was not known to it in preparing the terms and conditions of this Agreement;

c. The condition of, or affecting fish and wildlife resources change; and

d. The Department determines that project activities have resulted in a substantial adverse effect on the environment.

42. Before any suspension or cancellation of the Agreement, the Department will notify the Applicant in writing of the circumstances which the Department believes warrant suspension or cancellation. The Applicant will have seven (7) working days from the date of receipt of the notification to respond in writing to the circumstances described in the Department's notification. During the seven (7) day response period, the Applicant shall immediately cease any project activities which the Department specified in its notification as resulting in a substantial adverse effect on the environment and which will

continue to substantially adversely affect the environment during the response period. The Applicant may continue the specified activities if the Department and the Applicant agree on a method to adequately mitigate or eliminate the substantial adverse effect.

CONCURRENCE

County of Los Angeles
Department of Public Works Water Resources Division
Represented by Mr. Christopher Stone
900 S. Fremont Avenue
Alhambra, California, 91803
(626) 458-6102

_____
Name (signature) Date

_____
Name (printed)

_____
Title

California Department of Fish and Game

_____
Helen R. Birss Date
Environmental Program Manager
South Coast Region

This Agreement was prepared by Jamie Jackson, Environmental Scientist, South Coast Region.

**2023 ANNUAL REPORT**

**APPENDIX B – PUBLIC OUTREACH AND CONTRACTOR EDUCATION BROCHURE**

### Big T's future depends on you!

Over time, small changes add up. Changing the Big T habitat – making new trails, swimming in the stream, or leaving behind litter – adds up over time. In many cases, the changes are irreversible or require a great deal of time and money to return habitat to what it was like before. These are changes that harm Big T's animals.

### Protect Big T for future generations.

When people who visit Big T act to protect its animals and their habitat, everyone wins. Help safeguard Big T's future by sharing this information with a friend or becoming involved in community projects to preserve Big T. Check the county website for Big T updates and volunteer opportunities.

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### ¡El futuro de Big-T depende de usted!

Con el tiempo, pequeños cambios se acumulan modificando el hábitat de Big T, por ejemplo: haciendo nuevos caminos, nadando en el arroyo, o dejando basura, la cual se acumula a lo largo del tiempo. En muchos casos, los cambios son irreversibles o requieren una gran inversión de tiempo y dinero para regresar el hábitat original. Estos son los cambios que perjudican a los animales de Big T.

### Proteja Big-T para las futuras generaciones.

¡Cuando las personas que visitan Big T siguen las regulaciones que lo protegen, les comunican a otros acerca de la importancia de las regulaciones, o participan en proyectos comunitarios para preservar este lugar, los animales que viven en Big T y la gente que lo visita ganan! Revise el sitio web del condado por anuncios de Big T y oportunidades para ser voluntario.


**¿Preguntas? / Questions?**

**LACPW: Melanie Morita**
**(626) 458-6183**
**Water Resources Division Los Angeles County Public Works**
**P.O. Box 1460**
**Alhambra, CA 91802**
**dpw.lacounty.gov/wrd/Projects/BTWMA**

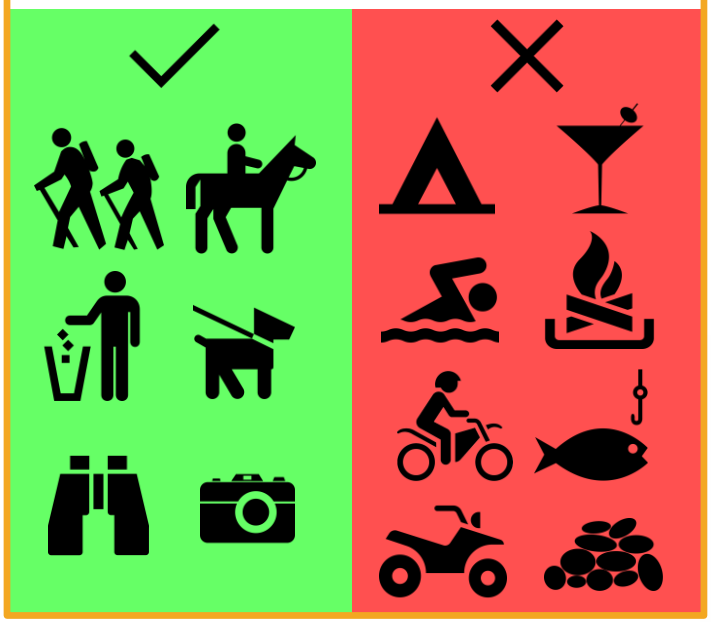

## *Regulations/Reglas*

All visitors must obey these regulations or a citation will be given:

- Hours of Operation: sunrise to sunset
- No fires of any kind
- No swimming
- No wheeled vehicles
- No camping
- Dogs must be on leashes
- No fishing in the creek or ponds
- No damming of the creek to create swimming ponds
- No hiking or equestrian riding off trail

Todos los visitantes del Big T deben obedecer todas las reglas, los que no observan las re las serán multados:

- Horas de visita: amanecer al atardecer
- No fogatas de ningún tipo
- No nadar
- No vehículos
- No acampar
- Los perros deben estar con correas
- No pescar en el arroyo o lagos
- No represar el arroyo para crear estanques de natacion
- No excursionismo o montage a caballo fuera de los caminos



# Big Tujunga Wash Mitigation Area (Big T)

## Did you know that Big T is protected?

Big T, as we like to call it, is maintained by the **Los Angeles County Public Works** (Public Works). Big T is so unique that there are regulations to protect it from destruction and abuse. We hope that by learning more about Big T, you'll agree that these regulations make sense.

## ¿Sabía usted que Big T esta protegida?

Big T, como nos gusta llamarlo, es mantenido por el Departamento de **Obras Públicas del Condado de Los Angeles (Obras Públicas).** Big T es tan único que hay regulaciones para protegerlo de la destrucción y el abuso. Estas regulaciones provienen del Gobierno Federal, el Estado de California, y del gobierno local. Esperamos que al aprender más sobre Big T, estará de acuerdo en que estas regulaciones tienen sentido.

Public Works
LOS ANGELES COUNTY

LOS ANGELES COUNTY FLOOD CONTROL DISTRICT

## Big T is like a small island

It is surrounded by a large city. Roads, highways, and houses can be found just outside of Big T that are not suitable habitat for Big T's animals.

The plants and many of the animals that live here stay here. For several species of birds, Big T provides valuable nesting habitat, and is an important resting place during their migration. For fish, Big T is their only home.

Over time the island has gotten smaller and smaller. Big T is sensitive to changes that come from altering or changing the habitat such as increased wildfires due to human activities, pollution, damming or swimming in the creek, and traveling off from authorized trails – trampling native plants and spreading invasive weeds.

These changes can cause important habitat to disappear. When habitat disappears, animals disappear.

## Big T es como una isla pequeña

Está rodeado de una ciudad grande. Caminos, carreteras, y casas se pueden encontrar a los alrededores de Big T que no ofrecen hábitat adecuado para los animales de Big T.

Las plantas y muchos de los animales que habitan este lugar se quedan aquí. Para varias especies de aves, Big T es un importante lugar de descanso durante su migración. Para los peces, Big T es su único hogar.

Con el tiempo la isla se ha hecho más pequeña. Big T es sensible a los cambios que surgen al alterar y cambiar el hábitat, como un aumento en los fuegos silvestres causados por las actividades humanas, la contaminación, el represar o nadar en el arroyo, y el viajar fuera de los caminos autorizados – que causa el pisoteo de plantas nativas y el esparcimiento de hierbas malas.

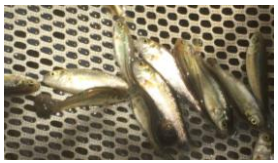
Estos cambios pueden causar que un hábitat tan importante desaparezca. Cuando esto sucede los animales y las plantas también pueden desaparecer.

## There is no place like Big T

Big T is unique because of the plants and animals that live here. Several of these animals are so rare that regulations have been made to protect where the live. This means that the plants, water, soil, and rocks that make up their homes (or habitat) must not be disturbed or altered.

**Santa Ana sucker**
(*Catostomus santaanae*)

**Santa Ana speckled dace/ Carpita pinta**
(*Rhinichthys osculus*)



**Arroyo chub**
(*Gila orcutti*)

Jim Rorabaugh/USFWS

**Southwestern willow flycatcher**
(*Empidonax traillii extimus*)

Steve Maslowski/USFWS

**least Bell's vireo**
(*Vireo bellii pusillus*)

2016 Zoya Akulova

**California Sycamore**
(*Platanus racemosa*)

2015 Richard Spellenberg

**Goodding's black willow**
(*Salix gooddingii*)

## No hay lugar como Big T

Big T es único por las plantas y los animales que viven aquí. Varios de estos animales son tan únicos que se han hecho regulaciones para proteger el lugar donde viven. Esto significa que las plantas, el agua, la tierra, y las piedras que componen sus hogares (o hábitat) no debe ser dañado.

Did you know that these plants and animals rely on each other to survive? And did you know that this community could one day disappear if we don't protect it?

¿Sabía usted que estas plantas y animales dependen de unos a otros para sobrevivir? ¿Y sabía usted que un día esta comunidad podría desaparecer si no la protegemos?

El represar y nadar en el arroyo es estrictamente prohibido en Big T. Represar el arroyo evita que las especies nativas de peces naden libremente en su hábitat. Con ningún lugar para escaper, las especies de peces pequeñas caen victima de especies más grandes, depredadoras e invasoras como la lobina. Especies nativas de peces necesitan agua corriente para mantenerse sanos y libres de parásitos. Agua estancada alberga parásitos y bacterias que son perjudiciales para la salud de los peces nativos. Nadando en el arroyo contribuye a las bacterias dañinas en el agua y trastorna el lecho del arroyo al agitar el sedimento, y descargar nutrientes que pueden causar una falta de oxígeno en el agua. Tan divertido que nadar en el arroyo puede ser para las personas, puede causar la muerte de los peces nativos que llaman Big T su hogar.

Damming and swimming in the creek is strictly prohibited at Big T. Damming the creek prevents native fish species from swimming freely in their habitat. With nowhere to escape, small native fish often fall victim to larger, predatory, invasive species such as largemouth bass. Native fish species need flowing water to stay healthy and free of parasites. Ponded water harbors parasites and bacteria that are detrimental to the health of native fish. Swimming in the creek contributes harmful bacteria to the water and disrupts the stream bed by churning up sediment, and releasing nutrients that can lead to a lack of oxygen in the water. As fun as a swimming hole can be for people, it can mean death for the sensitive native fish species that call Big T home.

# 2023 ANNUAL REPORT
# APPENDIX C – PLANT AND WILDLIFE COMPENDIA

**APPENDIX C – PLANT SPECIES LIST**

| Scientific Name | Common Name |
|---|---|
| **GYMNOSPERMS** | |
| **CUPRESSACEAE** | **CYPRESS FAMILY** |
| *Cedrus deodara** | deodar cedar |
| **PINACEAE** | **PINE FAMILY** |
| *Pinus halepensis** | Aleppo pine |
| **ANGIOSPERMS (EUDICOTS)** | |
| **ADOXACEAE** | **MUSKROOT FAMILY** |
| *Sambucus mexicana* | blue elderberry |
| **AMARANTHACEAE** | **AMARANTH FAMILY** |
| *Amaranthus albus** | tumbling pigweed |
| **ANACARDIACEAE** | **SUMAC OR CASHEW FAMILY** |
| *Malosma laurina* | laurel sumac |
| *Rhus integrifolia* | lemonadeberry |
| *Schinus molle** | Peruvian pepper tree |
| *Schinus terebinthifolius** | Brazilian pepper tree |
| *Toxicodendron diversilobum* | poison oak |
| **APIACEAE** | **CARROT FAMILY** |
| *Conium maculatum** | poison hemlock |
| *Foeniculum vulgare** | fennel |
| **APOCYNACEAE** | **DOGBANE FAMILY** |
| *Vinca major** | greater periwinkle |
| **ARALIACEAE** | **GINSENG FAMILY** |
| *Hedera helix** | English ivy |
| **ASTERACEAE** | **SUNFLOWER FAMILY** |
| *Ageratina adenophora** | eupatory |
| *Ambrosia acanthicarpa* | annual bur-sage |
| *Ambrosia artemisiifolia* | common ragweed |
| *Artemisia californica* | California sagebrush |
| *Artemisia douglasiana* | mugwort |
| *Artemisia dracunculus* | tarragon |
| *Baccharis salicifolia* subsp. *salicifolia* | mulefat |
| *Carduus pycnocephalus* subsp. *pycnocephalus** | Italian thistle |
| *Centaurea melitensis** | tocalote |
| *Cirsium occidentale* var. *occidentale* | cobwebby thistle |
| *Cirsium* sp.* | non-native thistle |
| *Encelia californica* | California bush sunflower |
| *Encelia farinosa* | brittlebush |
| *Erigeron bonariensis** | flax-leaved horseweed |
| *Erigeron canadensis* | horseweed |
| *Gutierrezia californica* | California matchweed |
| *Helianthus annuus* | common sunflower |
| *Heterotheca grandiflora* | telegraph weed |

| Scientific Name | Common Name |
|---|---|
| *Heterotheca sessiliflora* | golden aster |
| *Hypochaeris glabra** | smooth cat's ear |
| *Lactuca serriola** | prickly lettuce |
| *Lactuca virosa** | poison wild lettuce |
| *Lepidospartum squamatum* | scalebroom |
| *Malacothrix saxatilis* | cliff malacothrix |
| *Pluchea odorata* var. *odorata* | salt marsh fleabane |
| *Pseudognaphalium biolettii* | bicolored cudweed |
| *Pseudognaphalium californicum* | California everlasting |
| *Pseudognaphalium canescens* | felty everlasting |
| *Rafinesquia californica* | California chicory |
| *Senecio flaccidus* var. *douglasii* | bush groundsel |
| *Silybum marianum** | milk thistle |
| *Sonchus asper* subsp. *asper** | prickly sow thistle |
| *Sonchus oleraceus** | common sow thistle |
| *Stephanomeria exigua* | small wirelettuce |
| *Stephanomeria pauciflora* | wire lettuce |
| *Tanacetum parthenium** | feverfew |
| *Taraxacum officinale** | common dandelion |
| *Xanthium strumarium* | cocklebur |
| **BETULACEAE** | **BIRCH FAMILY** |
| *Alnus rhombifolia* | white alder |
| **BIGNONIACEAE** | **BIGNONIA FAMILY** |
| *Catalpa bignonioides** | southern catalpa |
| **BORAGINACEAE** | **BORAGE FAMILY** |
| *Amsinckia menziesii* | small flowered fiddleneck |
| *Echium candicans** | pride of Madeira |
| *Eriodictyon crassifolium* | thick leaved yerba santa |
| *Eriodictyon parryi* | poodle-dog bush |
| *Eriodictyon trichocalyx* | hairy yerba santa |
| *Phacelia ramosissima* | branching phacelia |
| **BRASSICACEAE** | **MUSTARD FAMILY** |
| *Brassica nigra** | black mustard |
| *Hirschfeldia incana** | shortpod mustard |
| *Lepidium latifolium** | peppergrass |
| *Lobularia maritima** | sweet alyssum |
| *Nasturtium officinale* | watercress |
| *Raphanus sativus** | radish |
| *Sisymbrium altissimum** | tumble mustard |
| *Sisymbrium irio** | London rocket |
| **CACTACEAE** | **CACTUS FAMILY** |
| *Cylindropuntia bernardina* | cane cholla |
| *Cylindropuntia* sp. | cholla |

| Scientific Name | Common Name |
|---|---|
| *Opuntia littoralis* | coastal prickly pear |
| *Opuntia parryi* | cane cholla |
| **CARYOPHYLLACEAE** | **PINK FAMILY** |
| *Stellaria media** | common chickweed |
| **CHENOPODIACEAE** | **GOOSEFOOT FAMILY** |
| *Chenopodium album** | lamb's quarters |
| *Chenopodium* sp. | goosefoot |
| *Salsola* sp.* | Russian thistle |
| *Salsola tragus** | Russian thistle |
| **CONVOLVULACEAE** | **MORNING GLORY FAMILY** |
| *Convolvulus arvensis** | bindweed |
| *Cuscuta* sp. | dodder |
| **CRASSULACEAE** | **STONECROP FAMILY** |
| *Dudleya lanceolata* | Southern California dudleya |
| **CUCURBITACEAE** | **GOURD FAMILY** |
| *Cucurbita pepo** | pumpkin |
| *Cucurbita* sp.* | squash |
| *Marah macrocarpa* | wild cucumber |
| **EUPHORBIACEAE** | **SPURGE FAMILY** |
| *Croton californicus* | California croton |
| *Croton setiger* | doveweed |
| *Euphorbia maculata** | spotted spurge |
| *Euphorbia peplus** | petty spurge |
| *Ricinus communis** | castor bean |
| **FABACEAE** | **LEGUME FAMILY** |
| *Acacia baileyana** | Cootumundra wattle |
| *Acacia cyclops** | cyclops acacia |
| *Acacia melanoxylon** | perennial blackwood acacia |
| *Acmispon glaber* | deerweed |
| *Albizia julibrissin** | silktree |
| *Medicago sativa** | alfalfa |
| *Melilotus albus** | white sweetclover |
| *Melilotus indicus** | sourclover |
| *Parkinsonia aculeata** | Mexican palo verde |
| *Pisum sativum** | garden pea |
| *Spartium junceum** | Spanish broom |
| **FAGACEAE** | **OAK FAMILY** |
| *Quercus agrifolia* | coast live oak |
| *Quercus berberidifolia* | scrub oak |
| **GERANIACEAE** | **GERANIUM FAMILY** |
| *Erodium cicutarium** | red stemmed filaree |
| *Geranium rotundifolium** | roundleaf geranium |
| **GROSSULARIACEAE** | **GOOSEBERRY FAMILY** |

| Scientific Name | Common Name |
|---|---|
| *Ribes aureum* | golden currant |
| **HALORAGACEAE** | **WATER-MILFOIL FAMILY** |
| *Myriophyllum spicatum** | Eurasian milfoil |
| **HAMAMELIDACEAE** | **WITCH-HAZEL FAMILY** |
| *Liquidambar styraciflua** | sweet gum |
| **JUGLANDACEAE** | **WALNUT FAMILY** |
| *Juglans californica* | California black walnut |
| **LAMIACEAE** | **MINT FAMILY** |
| *Marrubium vulgare** | horehound |
| *Salvia apiana* | white sage |
| *Salvia mellifera* | black sage |
| *Stachys* sp. | hedge nettle |
| **LOASACEAE** | **LOASA FAMILY** |
| *Mentzelia laevicaulis* | smoothstem blazingstar |
| **MALVACEAE** | **MALLOW FAMILY** |
| *Malacothamnus davidsonii* | Davidson's bush mallow |
| *Malva parviflora** | cheeseweed |
| *Malva sylvestris** | high mallow |
| **MONTIACEAE** | **MINER'S LETTUCE FAMILY** |
| *Claytonia parviflora* | miner's lettuce |
| **MORACEAE** | **MULBERRY FAMILY** |
| *Ficus carica** | edible fig |
| *Ficus nitida** | Indian fig |
| *Ficus* sp.* | fig |
| *Morus alba** | white mulberry |
| **MYRSINACEAE** | **MYRSINE FAMILY** |
| *Anagallis arvensis** | scarlet pimpernel |
| **MYRTACEAE** | **MYRTLE FAMILY** |
| *Callistemon citrinus** | crimson bottlebrush |
| *Eucalyptus* sp.* | gum tree |
| **NYCTAGINACEAE** | **FOUR O'CLOCK FAMILY** |
| *Mirabilis jalapa** | marvel of Peru |
| **OLEACEAE** | **OLIVE FAMILY** |
| *Fraxinus uhdei** | shamel ash |
| *Fraxinus velutina* | velvet ash |
| *Ligustrum japonicum** | Japanese privet |
| *Ligustrum lucidum** | glossy privet |
| **ONAGRACEAE** | **EVENING PRIMROSE FAMILY** |
| *Camissoniopsis bistorta* | California sun cup |
| *Clarkia unguiculata* | elegant clarkia |
| *Epilobium brachycarpum* | parched fireweed |
| *Eulobus californicus* | California evening primrose |
| *Oenothera elata* | evening primrose |

| Scientific Name | Common Name |
|---|---|
| **PAPAVERACEAE** | **POPPY FAMILY** |
| *Argemone munita* | prickly poppy |
| *Dendromecon rigida* | bush poppy |
| *Eschscholzia californica* | California poppy |
| **PASSIFLORACEAE** | **PASSION FLOWER FAMILY** |
| *Passiflora caerulea** | bluecrown passionflower |
| **PHRYMACEAE** | **LOPSEED FAMILY** |
| *Erythranthe guttata* | yellow monkey flower |
| *Mimulus cardinalis* | scarlet monkey flower |
| **PLANTAGINACEAE** | **PLANTAIN FAMILY** |
| *Plantago arenaria** | Indian plantain |
| *Plantago major** | common plantain |
| *Veronica anagallis-aquatica** | water speedwell |
| **PLATANACEAE** | **SYCAMORE FAMILY** |
| *Platanus racemosa* | western sycamore |
| **POLYGONACEAE** | **BUCKWHEAT FAMILY** |
| *Eriogonum fasciculatum* | California buckwheat |
| *Eriogonum gracile* | slender woolly buckwheat |
| *Persicaria hydropiperoides* | water pepper |
| *Pterostegia drymarioides* | woodland threadstem |
| *Rumex crispus** | curly dock |
| *Rumex pulcher** | fiddle dock |
| *Rumex* sp. | dock |
| **RANUNCULACEAE** | **BUTTERCUP FAMILY** |
| *Delphinium cardinale* | scarlet larkspur |
| **RHAMNACEAE** | **BUCKTHORN FAMILY** |
| *Ceanothus* sp. | ceanothus |
| *Rhamnus crocea* | redberry buckthorn |
| **ROSACEAE** | **ROSE FAMILY** |
| *Heteromeles arbutifolia* | toyon |
| *Prunus ilicifolia* subsp. *ilicifolia* | holly leaf cherry |
| *Rosa californica* | California wild rose |
| *Rubus armeniacus** | Himalayan blackberry |
| *Rubus leucodermis* | white bark raspberry |
| *Rubus ursinus* | California blackberry |
| **SALICACEAE** | **WILLOW FAMILY** |
| *Populus fremontii* subsp. *fremontii* | Fremont cottonwood |
| *Salix exigua* | narrow leaved willow |
| *Salix gooddingii* | black willow |
| *Salix laevigata* | red willow |
| *Salix lasiolepis* | arroyo willow |
| **SAPINDACEAE** | **SOAPBERRY FAMILY** |
| *Acer negundo* | boxelder |

| Scientific Name | Common Name |
|---|---|
| **SCROPHULARIACEAE** | **FIGWORT FAMILY** |
| *Verbascum virgatum** | wand mullein |
| **SIMAROUBACEAE** | **QUASSIA FAMILY** |
| *Ailanthus altissima** | tree of heaven |
| **SOLANACEAE** | **NIGHTSHADE FAMILY** |
| *Datura wrightii* | jimson weed |
| *Lycopersicon esculentum** | tomato |
| *Nicotiana attenuata* | coyote tobacco |
| *Nicotiana glauca** | tree tobacco |
| *Solanum americanum* | small flowered nightshade |
| **TAMARICACEAE** | **TAMARISK FAMILY** |
| *Tamarix ramosissima** | Mediterranean tamarisk |
| *Tamarix* sp.* | tamarisk |
| **ULMACEAE** | **ELM FAMILY** |
| *Ulmus parvifolia** | Chinese elm |
| **URTICACEAE** | **NETTLE FAMILY** |
| *Urtica dioica* | stinging nettle |
| **VITACEAE** | **GRAPE FAMILY** |
| *Parthenocissus quinquefolia** | Virginia creeper |
| *Vitis girdiana* | desert wild grape |
| **ZYGOPHYLLACEAE** | **CALTROP FAMILY** |
| *Tribulus terrestris** | puncture vine |
| **ANGIOSPERMS (MONOCOTS)** | |
| **AGAVACEAE** | **AGAVE FAMILY** |
| *Agave americana** | century plant |
| *Hesperoyucca whipplei* | our Lord's candle |
| **AMARYLLIDACEAE** | **AMARYLLIS FAMILY** |
| *Amaryllis belladonna** | Belladonna lily |
| **ARACEAE** | **PHILODENDRON FAMILY** |
| *Colocasia gigantea** | giant elephant ear |
| **ARECACEAE** | **PALM FAMILY** |
| *Arecastrum romanzoffianum** | queen palm |
| *Phoenix canariensis** | Canary Island date palm |
| *Washingtonia* sp. | fan palm |
| **ASPHODELACEAE** | **ASPHODEL FAMILY** |
| *Aloe* sp.* | aloe |
| **CYPERACEAE** | **SEDGE FAMILY** |
| *Cyperus eragrostis* | tall cyperus |
| *Cyperus involucratus** | umbrella plant |
| *Cyperus odoratus* | fragrant flatsedge |
| *Cyperus* sp. | sedge |
| **POACEAE** | **GRASS FAMILY** |
| *Agrostis stolonifera** | redtop |

| Scientific Name | Common Name |
|---|---|
| *Agrostis viridis** | water bentgrass |
| *Arundo donax** | giant reed |
| *Avena barbata** | slender wild oat |
| *Avena fatua** | wild oat |
| *Bromus diandrus** | ripgut grass |
| *Bromus hordeaceus** | soft chess |
| *Bromus madritensis* subsp. *madritensis** | foxtail chess |
| *Bromus madritensis* subsp. *rubens** | red brome |
| *Cortaderia selloana** | pampas grass |
| *Cynodon dactylon** | Bermuda grass |
| *Echinochloa crus-galli** | barnyard grass |
| *Ehrharta calycina** | perennial veldt grass |
| *Eleusine indica** | goose grass |
| *Festuca myuros** | rattail sixweeks grass |
| *Festuca perennis** | Italian ryegrass |
| *Hordeum murinum** | foxtail barley |
| *Hordeum vulgare** | barley |
| *Panicum dichotomiflorum* subsp. *dichotomiflorum** | fall panicgrass |
| *Pennisetum setaceum** | fountain grass |
| *Polypogon monspeliensis** | annual beard grass |
| *Polypogon viridis** | water beard grass |
| *Schismus barbatus** | Mediterranean schismus |
| *Stipa miliacea* var. *miliacea** | smilo grass |
| *Triticum aestivum** | wheat |
| **PONTEDERIACEAE** | **PICKEREL-WEED FAMILY** |
| *Eichhornia crassipes** | water hyacinth |
| **TYPHACEAE** | **CATTAIL FAMILY** |
| *Typha angustifolia** | narrowleaf cattail |
| *Typha latifolia* | broadleaf cattail |
| *Typha* sp. | cattail |

*Non-Native Species

**APPENDIX C – WILDLIFE SPECIES LIST**

| Scientific Name | Common Name |
|---|---|
| **CLASS MALACOSTRACA** | **CRUSTACEANS** |
| **CAMBARIDAE** | **CRAYFISH** |
| *Procambarus clarkii** | red swamp crawfish |
| **CLASS INSECTA** | **INSECTS** |
| **DIPTERA** | **FLIES** |
| Culicidae family | mosquito sp. |
| **HYMENOPTERA** | **ANTS, BEES, AND WASPS** |
| *Apis mellifera*+ | honey bee |
| *Bombus vandykei* | Van Dyke's bumble bee |
| Megachilidae family | leafcutter bee |
| *Xylocopa sonorina* | valley carpenter bee |
| *Xylocopa* sp. | carpenter bee sp. |
| **ODONATA** | **DRAGONFLIES AND DAMSELFLIES** |
| Anisoptera suborder | dragonfly sp. |
| **PAPILIONIDAE** | **PARNASSIANS, SWALLOWTAILS** |
| *Papilio rutulus* | western tiger swallowtail |
| **PIERIDAE** | **WHITES & SULPHURS** |
| *Pieris rapae* | cabbage white |
| **CLASS OSTEICTHYES** | **BONY FISH** |
| **ATHERINOPSIDAE** | **SILVERSIDES** |
| *Menidia beryllina** | inland silverside |
| **CYPRINIDAE** | **CARPS AND MINNOWS** |
| *Carassius auratus** | goldfish |
| *Cyprinus carpio** | common carp |
| *Cyprinus rubrofuscus** | koi |
| *Gila orcutti* | arroyo chub |
| *Micropterus salmoides** | largemouth bass |
| *Rhinichthys osculus* ssp. | Santa Ana speckled dace |
| **CATOSTOMIDAE** | **SUCKERS** |
| *Catostomus santaanae* | Santa Ana sucker |
| **CENTRARCHIDAE** | **SUNFISHES** |
| *Lepomis cyanellus** | green sunfish |
| *Lepomis macrochirus** | bluegill |
| **CICHLIDAE** | **CICHLIDS** |
| *Oreochromis mossambicus** | Mozambique tilapia |
| **ICTALURIDAE** | **BULLHEAD CATFISHES** |
| *Ameiurus melas** | black bullhead |
| *Ameiurus natalis** | yellow bullhead |
| **POECILIIDAE** | **TOOTH-CARPS** |
| *Gambusia affinis** | western mosquitofish |
| **CLASS AMPHIBIA** | **AMPHIBIANS** |
| **BUFONIDAE** | **TRUE TOADS** |

| Scientific Name | Common Name |
|---|---|
| *Anaxyrus boreas* | western toad |
| **HYLIDAE** | **TREEFROGS** |
| *Pseudacris hypochondriaca* | Baja California chorus frog |
| **RANIDAE** | **TRUE FROGS** |
| *Lithobates catesbeianus** | bullfrog |
| **CLASS REPTILIA** | **REPTILES** |
| **CHELYDRIDAE** | **SNAPPING TURTLES** |
| *Chelydra serpentina** | common snapping turtle |
| **EMYDIDAE** | **BOX AND WATER TURTLES** |
| *Trachemys scripta elegans** | red-eared slider |
| **TRIONYCHIDAE** | **SOFTSHELL TURTLES** |
| *species unknown** | softshell turtle |
| **PHRYNOSOMATIDAE** | **ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE,** |
| *Phrynosoma blainvillii* | coast horned lizard |
| *Sceloporus occidentalis* | western fence lizard |
| *Uta stansburiana* | side-blotched lizard |
| **TEIIDAE** | **WHIPTAIL LIZARDS** |
| *Aspidoscelis tigris* | western whiptail |
| *Aspidoscelis tigris stejnegeri* | coastal whiptail |
| **COLUBRIDAE** | **COLUBRID SNAKES** |
| *Coluber flagellum piceus* | red racer |
| *Coluber Mormon* | western racer |
| **CLASS AVES** | **BIRDS** |
| **PODICIPEDIDAE** | **GREBES** |
| *Podilymbus podiceps* | pied-billed grebe |
| **PHALACROCORACIDAE** | **CORMORANTS** |
| *Phalacrocorax auritus* | double-crested cormorant |
| **ARDEIDAE** | **HERONS AND BITTERNS** |
| *Ardea alba* | great egret |
| *Ardea Herodias* | great blue heron |
| *Butorides virescens* | green heron |
| *Egretta thula* | snowy egret |
| *Nycticorax nycticorax* | black-crowned night heron |
| **ANATIDAE** | **DUCKS, GEESE, AND SWANS** |
| *Anas americana* | American wigeon |
| *Anas clypeata* | northern shoveler |
| *Anas crecca* | green-winged teal |
| *Anas cyanoptera* | cinnamon teal |
| *Anas platyrhynchos* | mallard |
| *Aythya collaris* | ring-necked duck |
| *Aythya valisineria* | canvasback |
| *Branta canadensis* | Canada goose |
| *Bucephala albeola* | bufflehead |

| Scientific Name | Common Name |
|---|---|
| *Lophodytes cucullatus* | hooded merganser |
| *Oxyura jamaicensis* | ruddy duck |
| **CATHARTIDAE** | **NEW WORLD VULTURES** |
| *Cathartes aura* | turkey vulture |
| **ACCIPITRIDAE** | **HAWKS, KITES, AND EAGLES** |
| *Accipiter cooperii* | Cooper's hawk |
| *Accipiter striatus* | sharp-shinned hawk |
| *Buteo jamaicensis* | red-tailed hawk |
| *Buteo lineatus* | red-shouldered hawk |
| **FALCONIDAE** | **FALCONS** |
| *Falco peregrinus* | peregrine falcon |
| *Falco sparverius* | American kestrel |
| **PSITTACIDA** | **NEW WORLD PARROTS** |
| *Amazona viridigenalis** | red-crowned parrot |
| **ODONTOPHORIDAE** | **NEW WORLD QUAIL** |
| *Callipepla californica* | California quail |
| **RALLIDAE** | **RAILS, GALLINULES, AND COOTS** |
| *Fulica americana* | American coot |
| *Porzana Carolina* | sora |
| **SCOLOPACIDAE** | **SANDPIPERS** |
| *Gallinago delicata* | Wilson's snipe |
| **COLUMBIDAE** | **PIGEONS AND DOVES** |
| *Columba livia** | rock pigeon |
| *Patagioenas fasciata* | band-tailed pigeon |
| *Streptopelia decaocto** | Eurasian Collared-Dove |
| *Zenaida macroura* | mourning dove |
| **TYTONIDAE** | **BARN OWLS** |
| *Tyto alba* | barn owl |
| **STRIGIDAE** | **TRUE OWLS** |
| *Bubo virginianus* | great horned owl |
| **CAPRIMULGIDAE** | **NIGHTHAWKS** |
| *Chordeiles acutipennis* | lesser nighthawk |
| *Chordeiles minor* | common nighthawk |
| **APODIDAE** | **SWIFTS** |
| *Aeronautes saxatalis* | white-throated swift |
| **TROCHILIDAE** | **HUMMINGBIRDS** |
| *Archilochus alexandri* | black-chinned hummingbird |
| *Calypte anna* | Anna's hummingbird |
| *Selasphorus sasin* | Allen's hummingbird |
| **ALCEDINIDAE** | **KINGFISHERS** |
| *Megaceryle alcyon* | belted kingfisher |
| **PICIDAE** | **WOODPECKERS** |
| *Colaptes auratus* | northern flicker |

| Scientific Name | Common Name |
|---|---|
| *Dryobates nuttallii* | Nuttall's woodpecker |
| *Dryobates pubescens* | downy woodpecker |
| *Dryobates villosus* | hairy woodpecker |
| *Melanerpes formicivorus* | acorn woodpecker |
| **ESTRILDIDAE** | **ESTRILID FINCHES** |
| *Lonchura punctulata** | scaly-breasted munia |
| **TYRANNIDAE** | **TYRANT FLYCATCHERS** |
| *Contopus cooperi* | olive-sided flycatcher |
| *Empidonax difficilis* | Pacific-slope flycatcher |
| *Empidonax traillii* | willow flycatcher |
| *Empidonax wrightii* | gray flycatcher |
| *Myiarchus cinerascens* | ash-throated flycatcher |
| *Sayornis nigricans* | black phoebe |
| *Sayornis saya* | Say's phoebe |
| *Tyrannus vociferans* | Cassin's kingbird |
| **HIRUNDINIDAE** | **SWALLOWS** |
| *Hirundo rustica* | barn swallow |
| *Petrochelidon pyrrhonota* | cliff swallow |
| *Stelgidopteryx serripennis* | northern rough-winged swallow |
| *Tachycineta bicolor* | tree swallow |
| **PYCNONOTIDAE** | **BULBULS** |
| *Pycnonotus jocosus** | red-whiskered bulbul |
| **CORVIDAE** | **JAYS AND CROWS** |
| *Aphelocoma californica* | California scrub-jay |
| *Corvus brachyrhynchos* | American crow |
| *Corvus corax* | common raven |
| **PARIDAE** | **CHICKADEES AND TITMICE** |
| *Baeolophus inornatus* | oak titmouse |
| **AEGITHALIDAE** | **BUSHTITS** |
| *Psaltriparus minimus* | bushtit |
| **SITTIDAE** | **NUTHATCHES** |
| *Sitta carolinensis* | white-breasted nuthatch |
| **TROGLODYTIDAE** | **WRENS** |
| *Campylorhynchus brunneicapillus* | cactus wren |
| *Cistothorus palustris* | marsh wren |
| *Salpinctes obsoletus* | rock wren |
| *Thryomanes bewickii* | Bewick's wren |
| *Troglodytes aedon* | house wren |
| **SYLVIIDAE** | **OLD WORLD WARBLERS** |
| *Chamaea fasciata* | wrentit |
| *Regulus calendula* | ruby-crowned kinglet |
| **POLIOPTILIDAE** | **GNATCATCHERS** |
| *Polioptila caerulea* | blue-gray gnatcatcher |

| Scientific Name | Common Name |
|---|---|
| *Polioptila californica* | California gnatcatcher |
| **TURDIDAE** | **THRUSHES** |
| *Catharus guttatus* | hermit thrush |
| *Sialia mexicana* | western bluebird |
| *Turdus migratorius* | American robin |
| **MIMIDAE** | **MOCKINGBIRDS AND THRASHERS** |
| *Mimus polyglottos* | northern mockingbird |
| *Toxostoma redivivum* | California thrasher |
| **BOMBYCILLIDAE** | **WAXWINGS** |
| *Bombycilla cedrorum* | cedar waxwing |
| **PTILOGONATIDAE** | **SILKY-FLYCATCHERS** |
| *Phainopepla nitens* | phainopepla |
| **STURNIDAE** | **STARLINGS** |
| *Sturnus vulgaris** | European starling |
| **VIREONIDAE** | **VIREOS** |
| *Vireo bellii pusillus* | least Bell's vireo |
| *Vireo cassinii* | Cassin's vireo |
| *Vireo gilvusty* | warbling vireo |
| *Vireo huttoni* | Hutton's vireo |
| **PARULIDAE** | **WOOD WARBLERS** |
| *Cardellina pusilla* | Wilson's warbler |
| *Geothlypis trichas* | common yellowthroat |
| *Leiothlypis celata* | orange-crowned warbler |
| *Leiothlypis ruficapilla* | Nashville warbler |
| *Setophaga petechia* | yellow warbler |
| *Setophaga coronata* | yellow-rumped warbler |
| *Setophaga nigrescens* | black-throated gray warbler |
| **ICTERIDAE** | **BLACKBIRDS** |
| *Agelaius phoeniceus* | red-winged blackbird |
| *Euphagus cyanocephalus* | Brewer's blackbird |
| *Icterus cucullatus* | hooded oriole |
| *Icterus bullockii* | Bullock's oriole |
| *Molothrus ater** | brown-headed cowbird |
| *Quiscalus mexicanus* | great-tailed grackle |
| *Sturnella neglecta* | western meadowlark |
| *Xanthocephalus xanthocephalus* | yellow-headed blackbird |
| *Icteria virens* | yellow-breasted chat |
| **PASSERELLIDAE** | **NEW WORLD SPARROWS** |
| *Aimophila ruficeps* | rufous-crowned sparrow |
| *Chondestes grammacus* | lark sparrow |
| *Junco hyemalis* | dark-eyed junco |
| *Melospiza lincolnii* | Lincoln's sparrow |
| *Melospiza melodia* | song sparrow |

| Scientific Name | Common Name |
|---|---|
| *Melozone crissalis* | California towhee |
| *Passerculus sandwichensis* | savannah sparrow |
| *Pipilo maculatus* | spotted towhee |
| *Zonotrichia atricapilla* | golden-crowned sparrow |
| *Zonotrichia leucophrys* | white-crowned sparrow |
| **CARDINALIDAE** | **CARDINALS** |
| *Passerina amoena* | lazuli bunting |
| *Piranga ludoviciana* | western tanager |
| *Pheucticus melanocephalus* | black-headed grosbeak |
| **FRINGILLIDAE** | **FINCHES** |
| *Haemorhous mexicanus* | house finch |
| *Spinus psaltria* | lesser goldfinch |
| *Spinus tristis* | American goldfinch |
| **PASSERIDAE** | **OLD WORLD SPARROWS** |
| *Passer domesticus** | house sparrow |
| **CLASS MAMMALIA** | **MAMMALS** |
| **LEPORIDAE** | **HARES & RABBITS** |
| *Sylvilagus audubonii* | desert cottontail |
| **SCIURIDAE** | **SQUIRRELS** |
| *Spermophilus beecheyi* | California ground squirrel |
| **MURIDAE** | **MICE, RATS, AND VOLES** |
| *Neotoma fuscipes* | dusky-footed woodrat |
| **CANIDAE** | **WOLVES AND FOXES** |
| *Canis familiaris+* | domestic dog |
| *Canis latrans* | coyote |
| **MEPHITIDAE** | **SKUNKS** |
| *Mephitis mephitis* | striped skunk |
| **EQUIDAE** | **HORSES AND BURROS** |
| *Equus caballus+* | horse |

*Non-Native Species, +Domesticated Species

# 2023 ANNUAL REPORT
# APPENDIX D – BROWN-HEADED COWBIRD TRAPPING REPORT

# 2023 BROWN-HEADED COWBIRD TRAPPING REPORT FOR THE BIG TUJUNGA WASH MITIGATION AREA LOS ANGLES COUNTY, CALIFORNIA

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**March 2024**

## SECTION 0.0 – EXECUTIVE SUMMARY

Four cowbird traps were operated in the vicinity of the Big Tujunga Wash Mitigation Area (Mitigation Area) near Hansen Dam in 2023. The purpose of the trapping was to reduce the incidence of brown-headed cowbird (*Molothrus ater*) brood parasitism among local native host species, particularly endangered, threatened, or special status host species including the least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and coastal California gnatcatcher (*Polioptila californica californica*). The traps were operated from April 2 to June 29 (89 days, 13 weeks). Each trap contained live decoy cowbirds by April 8, and 2 to 3 males and 5 to 6 female decoys as April 12 and subsequently.

Fifty-eight cowbirds were removed, including 17 males, 41 females, and 0 juveniles. The 2001 through 2017; 2019 through 2023 average is 96.6, including 45.1 males (r=8 to 103), 48.6 females (r=11 to 111), and 3.0 juveniles (r=0 to 18). The 2023 captures were higher than in 2022, and back to the consistent and nearly identical 2017, 2019, 2020, and 2021 results (54, 55, 55, and 54 captures, respectively).

The 2023 male to female capture ratio was 0.41:1. The male capture peak was Weeks 2 through 6 (April 8 to May 12) with most males, 15 of 17 (88 percent) removed, and the female capture peak was also Weeks 2 through 6 (April 8 to May 12), when 35 of 41 females (85 percent) were removed. No banded cowbirds or other banded birds were captured. The traps were vandalized once in 2023; one male decoy escaped (and was recaptured the next week), and no trap days were lost. In addition to cowbirds, local birds of four non-target species were captured, released, and recaptured a total of 38 times; all were released unharmed (none were preyed upon). No endangered, threatened, candidate, or otherwise special status, non-target species were captured.

The least Bell's vireo declined due to habitat loss but became endangered due to cowbird parasitism and would not be recovering without cowbird trapping. The only stable or growing least Bell's vireo populations exist where cowbird trapping has been consistently performed. Topical trapping (multiple traps placed approximately 1 mile apart along linear riparian habitat plus at nearby foraging areas, during the host nesting season) is the only method proven to eliminate cowbird parasitism. Full-density topical trapping removes nearly all cowbirds present and allows all local host species (not just the endangered host target) to increase productivity and populations. Because so few areas are trapped (any site 1/2mile or more from a trap is "untrapped"), annual topical trapping has a negligible effect on the regional cowbird population; approximately the same number of cowbirds disperse to and are removed from trapped areas every year. In the absence of proven regional cowbird control (resulting in the elimination of cowbirds from least Bell's vireo breeding habitat), topical trapping will be required indefinitely.

In 2021 through 2023, Trap 2 was placed adjacent to several 2020 least Bell's vireo nesting territories so as to preclude cowbird parasitism in this area. In 2023, Trap 2 removed 1 male and 16 female cowbirds (the highest female capture total of the 4 traps).

Key words: Big Tujunga Wash, brood parasitism, brown-headed cowbird (*Molothrus ater*), California, least Bell's vireo (*Vireo bellii pusillus*), riparian, southwestern willow flycatcher (*Empidonax traillii extimus*).

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# SECTION 1.0 – INTRODUCTION

The objective of this study was to remove brown-headed cowbirds (cowbird) from riparian habitat at Big Tujunga Wash Mitigation Area (Mitigation Area) near Hansen Dam to decrease or eliminate cowbird brood parasitism among the federally endangered least Bell's vireo (LBVI) and southwestern willow flycatcher (SWFL), and other riparian host species present including the indicator species yellow-breasted chat (*Icteria virens*) and yellow warbler (*Setophaga petechia*). Similar mitigation trapping was previously performed in 2001 through 2006, 2009 through 2017, and 2019 through 2022 (trapping was not performed in 2018 due to the Creek Fire that burned through the Mitigation Area in 2017).

## 1.1 LEAST BELL'S VIREO

LBVI is a small gray and white migratory songbird that winters in the Cape District of Baja California Sur, Mexico, and nests in willow-dominated riparian (streamside) habitat in northwestern Baja California, Mexico, and Southern California. LBVI arrive in breeding habitat in mid-March through early April, initiate most nests by mid to late April, and fledge most young by late May to mid-June. Nest building usually takes four days. The typical clutch of 3 to 4 eggs is incubated for 14 days; the young fledge 12 days after hatching. Double brooding (renesting after fledging young) is not uncommon. LBVI are quite fecund (90 percent of pairs produce 4 to 8 young per year); they are not endangered due to low reproduction ability. Multiple nesting attempts (up to seven) after nest failure are common. Very few nests are initiated after June. Young LBVI can forage on their own after 2 to 3 weeks, although family groups may remain associated into August or September, after which they migrate south (Griffith and Griffith 2000).

LBVI was formerly abundant and bred as far north as Red Bluff in Tehama County (approximately 130 miles north of Sacramento) (Cooper 1874), but due to habitat loss (agriculture, flood control, livestock) (Smith 1977, USFWS 1986, Wilbur 1981) and brood parasitism by the brown-headed cowbird, by the 1940s there was "a noticeable decline in numbers... apparently coincident with an increase of cowbirds" (Grinnell and Miller 1944). In 1978, only 90 territories could be found, mostly in San Diego and Riverside Counties and none in the Central Valley, which had supported upwards of 80 percent of the historic population (Goldwasser et al. 1980, Franzreb 1989). Because of the persistent cowbird parasitism and associated low reproductive success causing local extirpations of populations already reduced and fragmented by habitat loss, the LBVI was declared endangered by the California Department of Fish and Wildlife (CDFW) in 1980 and by the United States Fish and Wildlife Service (USFWS) in 1986.

After listing and with habitat protection and cowbird trapping, LBVI populations at each drainage expanded to carrying capacity, then became source populations as excess first-year emigrants began to reoccupy drainages and habitat that had been vacant for decades, expanding slowly northward, with colonizers usually settling within 10 kilometers (km) of their natal home ranges (Griffith and Griffith 2000). New colonizers in suitable habitat established new populations, existed in low numbers, or were extirpated within a few years, depending upon two factors: distance from source populations, and more importantly, whether cowbird trapping was implemented. Without trapping, LBVI colonizers are re-extirpated.

Willow-dominated LBVI habitat at the Santa Ana River

Former habitat (now paved), lower Santa Ana River

Adult male LBVI on nest

LBVI nest hung in mulefat (*Baccharis salicifolia*)

Hatch-day LBVI chick

Hatch-day cowbird chick in LBVI nest

Habitat is a critical component for any species, and habitat loss decidedly decimated the historic LBVI population. However, throughout the decades-long decline, at the time the LBVI was listed as endangered, and today, there were and are thousands of acres of vacant, LBVI-quality riparian habitat available. Habitat loss caused the initial decline of LBVI, but persistent cowbird parasitism extirpated the species from all but a few locations and caused the LBVI to become endangered, and cowbird trapping (in suitable/ protected habitat) is the primary cause of the ongoing recovery. The goal of the LBVI recovery plan is the re-establishment of LBVI in the Central Valley and Central Coast, the center of the LBVI's historic range (USFWS 1998); it will not happen without cowbird trapping.

LBVI nestlings three days after hatching

Twelve-day-old LBVI chicks ready to fledge

## 1.2 SOUTHWESTERN WILLOW FLYCATCHER

The SWFL was listed as endangered by the U.S. Fish and Wildlife Service (USFWS) in February 1995 for reasons similar to those cited for the LBVI: severe habitat loss and degradation exacerbated (though to a lesser degree) by cowbird brood parasitism.

The SWFL is one of four *Empidonax traillii* subspecies that occur in the United States and one of three that occur in Southern California during migration. The only reliable way to discern between the three subspecies in the field is by breeding chronology and geography: if a willow flycatcher breeds in Southern California or is reliably territorial after June 21, it is *E. t. extimus*. All other sightings before or after could be, and likely are (based upon their much larger populations) northbound or southbound migratory *E. t. brewsteri* or *E. t. adastus*.

In southern California, SWFLs nest in habitat similar to that of the LBVI, although usually near running water and with larger canopy trees, and their general breeding biology is similar but 1 to 2 months "behind" the LBVI. SWFLs arrive on breeding grounds from late April through mid-June. Nests are active from mid to late May through early August. Double brooding is uncommon. Extensive information regarding flycatcher natural history and legal status is available in Tibbetts et al (1994) and USFWS (1995).

Southwestern willow flycatcher (image courtesy of Utah Department of Natural Resources)

## 1.3 YELLOW-BREASTED CHAT AND YELLOW WARBLER

The yellow-breasted chat and yellow warbler are migratory songbirds that breed in willow-dominated riparian woodland in Southern California. Both are listed by the CDFW as California bird Species of Special Concern (CDFW 2009) due to declining numbers and local extirpations, again associated with habitat loss and cowbird brood parasitism. The USFWS and CDFW consider the chat and yellow warbler as indicator species for the LBVI and to a lesser extent, SWFL. That is, their presence indicates that the habitat is of a type and quality suitable for use by the LBVI and SWFL.

Yellow-breasted chat nest

Yellow-breasted chat nestlings

## 1.4 BROWN-HEADED COWBIRD

The brown-headed cowbird is an obligate brood parasite; they never make nests or raise young. Cowbirds lay eggs in the nests of other birds, called hosts, which then incubate and raise the cowbird. Female cowbirds defend breeding territories (Darley 1968, 1983; Raim 2000) and can lay 40 to 60 eggs each spring

(Scott and Ankney 1983, Holford and Roby 1993, Smith and Arces 1994). Like many birds, cowbirds lay 3- to 5-egg clutches, but each year they lay 10 to 15 clutches each separated by only a few days. Cowbirds may remove or puncture host eggs during parasitism events and may kill older host nestlings to initiate host renesting and create parasitism opportunities. Cowbirds are extreme generalists and parasitize nearly every species (at least 220) with which they are sympatric (Friedmann 1963, Friedmann and Kiff 1985). Most cowbird young are fledged from similar-sized hosts (such as red-winged blackbirds [*Agelaius phoeniceus*]). This lack of host specificity allows the extirpation or extinction of rare species (like the LBVI) without harm to the cowbird.

Brown-headed cowbirds (males dark, females light)

Two cowbird eggs in a LBVI nest

Cowbirds are native to the Great Plains and were closely associated with bison. It is possible that brood parasitism developed because cowbirds traveled with bison and seldom remained in one locale long enough to build a nest, lay and incubate a clutch of eggs, raise nestlings, and care for fledglings. Host species that co-evolved with cowbirds on the Great Plains and margins have behavioral defense mechanisms against parasitism, including cowbird egg recognition, cowbird egg removal, cowbird egg covering, nest abandonment, and re-clutching. Hosts in the Far West generally do not.

Cowbirds were first documented in California at Borrego Springs in 1896; the first cowbird egg found in California was in a vireo nest on the San Gabriel River (Unitt 1984). By 1930, cowbirds were "well established" throughout the region (Willett 1933); by 1955 they had reached British Columbia (Flahaut and Schultz 1955). Cowbirds may or may not have reached the Far West without the unwitting aid of man. Regardless, massive anthropogenic landscape alteration, particularly the provision of year-round cowbird forage by agricultural and livestock operations and the coincident wholesale destruction of native habitats, allowed the establishment of an artificially large cowbird population, and the resulting devastating impact upon local hosts.

In contrast to the increase in distribution and abundance of cowbirds in California over the last century, populations of most native birds are in decline, primarily due to their dependence upon increasingly reduced, fragmented, and degraded native habitats in which they are less productive and more susceptible to predation and parasitism (Gaines 1974, Goldwasser et al 1980). Thus, there is an inverse relationship between the amount of native habitat and associated avian populations, such as the LBVI and SWFL, and the number and subsequent impact of brown-headed cowbirds and predators upon such populations.

Cowbird eggs hatch sooner than host eggs and the young are larger and more aggressive. Therefore, cowbird chicks are able to outcompete their host nestmates; small host chicks are often simply smothered or starved to death. Large host species can raise a cowbird without significant harm to their own reproductive effort (Weatherhead 1989, Robinson et al. 1995). Small host species like the endangered LBVI, SWFL, and coastal California gnatcatcher (CAGN) can raise only a cowbird chick, if that, and none of their own young from parasitized nests (Grzybowski 1995). For these small hosts, parasitism and predation have the same result (no young produced), but after predation the host pair often successfully renests in 2 to 14 days, while a parasitism event consumes the time and energy of an entire breeding season (Griffith and Griffith 2000). Decreased productivity caused by persistent cowbird parasitism caused or contributed to the endangered/threatened status of these host species (USFWS 1986, 1993, 1995, 1998).

Cowbird chick in CAGN nest

Cowbird chick and smothered/starved CAGN chick

## 1.5 COWBIRD TRAPPING

The recipe for LBVI recovery is simple: habitat protection (including land acquisition, exclusion of motorized vehicles and domestic/feral animals, and removal of invasive plants such as giant reed (*Arundo donax*) and *Tamarisk* species combined with cowbird trapping. Without habitat, cowbird trapping is not worthwhile. Without trapping, LBVI habitat is vacant. Cowbird parasitism can be eliminated from any targeted area by topical trapping; operating approximately one cowbird trap per mile along a typical riparian corridor and at nearby cowbird foraging areas (dairies, stables, golf courses) during the LBVI breeding season (typically April 1 through June 30, although non-breeding season trapping can also be helpful).

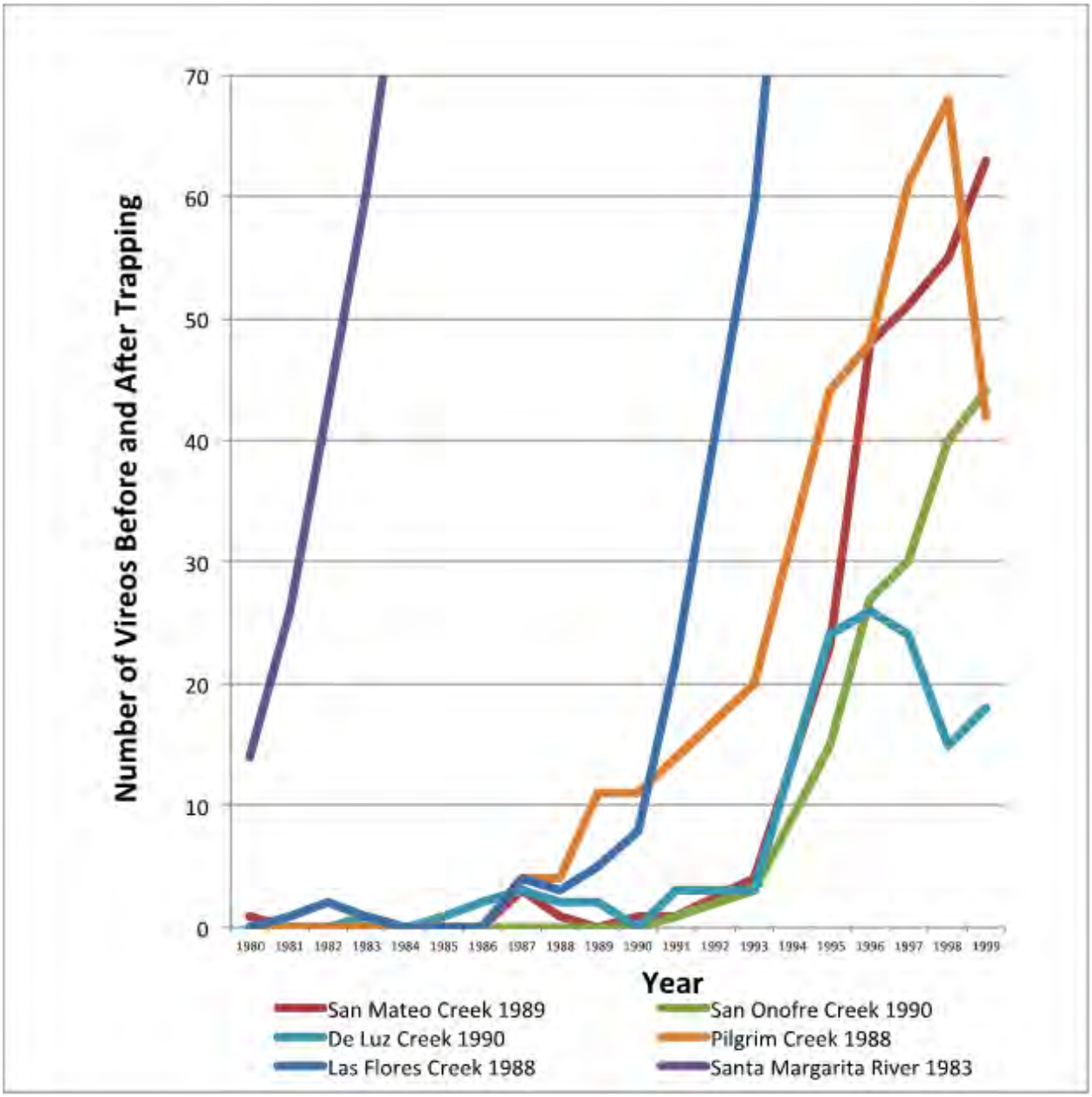
Topical trapping reduces parasitism rates among the LBVI from pre-trapping levels of 50 to 100 percent to at or near 0 percent, and unlike LBVI nest monitoring and cowbird egg removal, trapping benefits the entire avian host community. For LBVIs, cowbird trapping increases per-pair productivity from approximately 1.3 young per pair to approximately 3.5 per pair; the difference between decreasing populations/extinction and increasing populations/recovery (Griffith and Griffith 2000).

Cowbird control has not been accomplished unless: 1) Few or no cowbirds are detected during the breeding season in trapped areas during formal or informal surveys, censuses, and point counts; 2) The parasitism rate among the endangered host species decreases from pre-trapping levels to near zero, as

evidenced by finding few to no cowbird eggs or young in host nests, few to no cowbird fledglings in host family groups, and few to no juvenile cowbirds are captured in the trapped area in June; and 3) Host per-pair productivity increases and host populations begin to grow and expand. If the three consequences noted above are not recorded (the first two immediately), then efforts to reduce cowbird parasitism (non-topical trapping, shooting, netting) may have been performed, to some positive effect, but cowbird control has not been accomplished (Griffith and Griffith 2000).

The effectiveness of topical trapping (as well as the limited range of each trap) is best illustrated with 1980 through 1999 data from Marine Corps Base Camp Pendleton (Base), California, during which period the location and fate of every individual and pair of LBVI and nearly every LBVI nest was known, and where the number and location of cowbird traps grew from 5 traps on one drainage to 40 traps on 6 drainages (Griffith and Griffith 2000). Data from the LBVI distribution and abundance and cowbird parasitism data, combined with the de facto experiments in trap placement and density, established that approximately one trap per mile eliminates parasitism and fewer traps does not (i.e., the effective range of each trap is approximately a 1/2mile radius). These comprehensive data conclusively demonstrate that without trapping, LBVIs are absent or sporadically present in low numbers in suitable habitat for years (e.g., Las Flores Creek), even when quite near to occupied habitat where parasitism has been eliminated and the LBVI population is large and growing (e.g., the Santa Margarita River). Conversely, with trapping, LBVIs grow to habitat carrying capacity then become source populations (produce more fledglings each year than settle in the drainage), and the overflow colonizes vacant habitat (closest first and in highest numbers) where the growth/capacity/source-population cycle is repeated.

The best illustration of how cowbird trapping increases LBVI numbers and allows for LBVI recovery (increase in number and expand into vacant historic habitat) comes from Camp Pendleton, California (since repeated at many locales, and repeatable at any site with LBVI habitat) (Griffith and Griffith 2000). From 1980 through 1999, all suitable LBVI habitat on six separate drainages was surveyed, and the number, location, and fate of every LBVI and nearly all LBVI nests was recorded (by Jane and John Griffith, 1987 through 1999). During the same period, the number, location, and density of cowbird traps was experimentally altered, increasing from 5 on the Santa Margarita River (SMR) in 1983, to ultimately, 40 traps Base-wide. At each drainage, LBVI numbers grew (at remarkably similar rates, see slopes) to habitat carrying capacity, but only after full density topical trapping was initiated (trap initiation dates shown for each drainage). The number of LBVI increased from 15 on 2 drainages in 1980 to 779 on 6 drainages in 1999. These data show 1) The effective range of each trap is a radius of approximately 1/2-mile (leading to the “approximately one trap per mile long the river/topical trapping” rule) and 2) LBVIs simply do not and will not recover or expand into vacant habitat unless topical cowbird trapping is performed. See graph below.


Number of Vireos Before and After Trapping
70
60
50
40
30
20
10
0
1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999
Year
San Mateo Creek 1989
De Luz Creek 1990
Las Flores Creek 1988
San Onofre Creek 1990
Pilgrim Creek 1988
Santa Margarita River 1983

Male cowbird interacts with decoys before entering trap

Cowbirds foraging for seed and insects at a dairy

The traps are baited with live decoy cowbirds, abundant bait seed and clean water, shade, and perches to attract cowbirds whether they are seeking food, water, shelter, companionship, and/or sex. Because female cowbirds lay the eggs, they are the primary targets of trapping programs. Males are also important as they may participate in egg removal and host nest destruction activities and are required to fertilize each egg before it is laid. The sex ratio of the at-large cowbird population is assumed to be 1:1. The goal of trapping programs is to capture as many females as possible and achieve a capture sex ratio at or below 1:1.

Male cowbirds are more active and vocal (and therefore, more attractive as decoys) when at least two are present; female cowbirds are more likely to enter traps containing more females than males (GWB 1992). Therefore, at least two male and three female decoy cowbirds are utilized in each trap, and often 3 male and 5 to 6 female, if available; the small flock attracts more cowbirds and discourages or prevents some non-target birds from entering the trap.

The capture of non-target birds (non-cowbirds) is undesirable yet unavoidable. Many non-target birds are less hardy than cowbirds. To reduce non-target mortality and per state live-trap law, the traps are checked daily, and non-target species are handled with care and released immediately. To reduce non-target captures, the capture slot is only 1 3/8 inches wide (large enough for cowbirds, small enough to exclude many non-target species), 1-inch hardware cloth is used for the trap panels (small enough to contain cowbirds yet large enough to allow smaller species to exit), and bait seed without sunflower seed is utilized (sunflower seed attracts some non-target species but not cowbirds; cowbirds prefer millet).

The goal of the trapping programs is to achieve no non-target species mortality. Rates below two percent (due to unavoidable intraspecific competition within the traps, and predation) are acceptable; rates above two percent are usually indicative of unacceptable trap conditions and poorly managed programs (GWB 1992).

## 1.6 COWBIRD TRAPPING AT THE MITIGATION AREA

The cowbird control project at the Mitigation Area was initiated in 2001 and performed in 2001 through 2006, 2009 through 2017, and 2019 through 2022 (not performed in 2018 due to lack of vegetation and

sensitive riparian bird nesting habitats). Its purpose is to enhance reproductive success among the LBVI and other host species by decreasing or eliminating cowbird brood parasitism by removing cowbirds from riparian habitat.

Additional cowbird traps were also operated downstream of the Mitigation Area at Hansen Dam Basin (two traps) in 1996, 1997, and 2001 through 2023 (GWB 2023), and upstream of Interstate 210 at Angeles National Golf Course (three traps) in 2008 through 2023 (GWB 2023a).

## SECTION 2.0 – STUDY AREA

The Mitigation Area is located in the northwestern portion of the Los Angeles basin in Los Angeles County, California (Figure 1). The site has a typical Mediterranean climate with warm, dry summers and cool, wet winters. The Mitigation Area supports healthy stands of high-quality willow-dominated habitat of the type preferred by the LBVI and SWFL. Some coastal sage scrub of the type preferred by the CAGN is found in the wash and surrounding hills.

A stable population of LBVI is found immediately downstream within the Hansen Dam Basin. In 2009 (the last Griffith Wildlife Biology [GWB] full survey), 44 sites occupied by LBVI (39 pairs, 5 single males) were detected within the Hansen Dam Basin (GWB 2009). LBVIs are expanding their range upstream from the Basin and have been documented adjacent to the Hansen Dam Stables (GWB, field observations 2019 through2023 and before) and are now known to occupy the Mitigation Area and the contiguous Tujunga Ponds Wildlife Sanctuary, north of Gibson Ranch (J. Mayfield, Chambers Group, personal communication) (Appendix 2).

A complete natural history of the study area is available in Big Tujunga Wash Master Mitigation Plan (Chambers Group, Inc. 2000).

## SECTION 3.0 – METHODS

Four cowbird traps were placed, activated, operated, serviced, disassembled, and stored per the *Brown-headed Cowbird Trapping Protocol* (GWB 1992, updates) and state and federal permit requirements (Figures 2 through 4). Trap 1 (Hansen Dam Stables), Trap 2 (adjacent to the Tujunga Ponds), Trap 3 (just outside Gibson Ranch), and Trap 4 (Gibson Ranch) were in all in riparian areas (Traps 1, 3, and 4 at foraging areas adjacent to riparian habitat). The traps were placed, assembled, and activated on April 2, then operated until June 29 (89 days, 13 weeks).

Each trap is 6 feet wide, 8 feet long, and 6 feet tall, with a 1 3/8-inch-wide capture slot on top through which cowbirds can drop down and in but cannot fly up and out. The traps include: one floor, two side, two end (door and back), and two top panels, and a plywood slot board.

Transporting cowbird trap panels to the trap site

Cowbird trap placed and "flowered" for easy assembly

Each trap was aligned in the field on a north-south axis. A foraging tray was placed on the front portion of the floor panel centered under the capture slot. Four perches made of dead giant reed or 1/2-inch diameter dowel were installed in each trap: one in each trap corner at chest height (except above the door) and one in a rear corner at knee height (for subordinate birds). A warning/informational sign was stapled to the front of each trap (Appendix 1). Shade cloth was applied to the west-facing side panel. Finally, a 1-gallon water guzzler, approximately 1 pound of sunflower-free wild birdseed (on the foraging tray), and live decoy cowbirds were added to each trap, as available, and the trap was locked.

Each trap contained live decoy cowbirds by April 8, and 2 to3 males and 5 to 6 female decoys as of April 12 and subsequently. The right primary wing feathers of each female decoy were kept clipped to ensure their demise upon accidental release or escape. Most of the live decoys used to stock the traps in the early season were captured on site or off site at other programs nearby.

Trap assembly supplies

Bait seed ready to be added through the capture slot

Shade cloth on the west-facing panel

Adding live decoy cowbirds to trap from transport cage

Unclipped cowbird wing

Clipped cowbird wing

The traps were serviced daily from April 2 to June 29. Daily servicing consisted of releasing all non-target birds, adding bait seed, adding water and/or cleaning the water guzzler as needed, wing-clipping newly captured female cowbirds, adding or removing decoy cowbirds to maintain the preferred decoy ratio, repairing or replacing the perches, foraging pad, sign, shade cloth, slot board wire, or lock as needed, repairing damage from vandals, if any, and recording all activities on a data sheet. Data sheets were submitted daily to the project manager. The traps were deactivated, disassembled, and transported to off-site storage on June 30.

The number of cowbirds removed is a net number calculated by subtracting from the gross number of cowbirds captured: the number of banded cowbirds released, cowbirds released by vandals, cowbirds accidentally released, and unexplained missing decoy cowbirds. Captured cowbirds not utilized as decoys were humanely euthanized and provided as forage to raptor rehabilitation/reintroduction facilities. This project was performed under the authority of USFWS Federal Endangered Species Permit TE 758175-14 and a Letter Permit from the California Department of Fish & Wildlife. The Principal Investigator was K.T. Griffith. The Project Manager was J.C. Griffith. The Trap Technician was K.T. Griffith.

# SECTION 4.0 – RESULTS

## 4.1 COWBIRDS REMOVED

Fifty-eight cowbirds were removed, including 17 males, 41 females, and 0 juveniles (Tables 1 and 2). The 2001 through 2017, 2019 through 2023 average is 96.6, including 45.1 males (r=8 to 103), 48.6 females (r=11 to 111), and 3.0 juveniles (r=0 to 18). The 2023 male to female capture ratio was 0.41:1.

The first adult cowbirds were captured on April 9 in Trap 2 (two females); no juveniles were captured. The male capture peak was Weeks 2 through 6 (April 8 to May 12) with most males, 15 of 17 (88 percent) removed, and the female capture peak was also Weeks 2 through 6 (April 8 to May 12), when 35 of 41 females (85 percent) were removed. No banded cowbirds or other banded birds were captured.

## 4.2 NON-TARGET SPECIES

In addition to cowbirds, local birds of four non-target species including California towhee (*Melozone crissalis*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), and red-winged black bird were captured, released, and recaptured a total of 38 times; all were released unharmed (0 preyed upon) (Table 3). No endangered, threatened, candidate, or otherwise special status, non-target species were captured. No decoy or non-target birds died due to lack of food or water, or unclean conditions.

## 4.3 TRAP SITE PERFORMANCE

All trap sites performed well. Trap 3 removed the most total cowbirds: 19 (12 males, 7 females, 0 juveniles). Trap 2 removed the most females, 16 (after removing only 1 female in 2021 and 0 in 2022), which is very important, being adjacent to the area that had 3 cases of cowbird parasitism on LBVI nests in 2020 (1 cowbird female may lay 40 to 60 eggs, so each may impact up to 60 nests; 16 females removed is high for a riparian trap).

## 4.4 VANDALISM

The traps were vandalized once in 2023; one male decoy escaped from Trap 2 after an opening was cut in the trap mesh on April 15 (the male was re-captured the next week), and no trap days were lost, as the trap was repaired immediately.

## 4.5 TRAP DAYS

The traps were operational for 356 (4 traps x 89 days) of the 364 (4 traps x 91 days) contracted trap days (98 percent). Wet roads precluded April 1 set up.

## 4.6 LEAST BELL'S VIREO

Chambers Group observed one to two territorial LBVI males throughout the peak nesting season at the 2020 LBVI nesting area at Tujunga Ponds, and confirmed at least three nests, but did not confirm any nests in 2021 (J. Mayfield, personal communication). Chambers Group biologists observed LBVIs flying around, chasing, and showing territorial behavior towards each other during trail maintenance efforts in the western riparian area in August 2022 (previous to this in 2022, the biologists did not have much time in the nesting areas, J. Mayfield, personal communication). In 2023, Chambers Group biologists identified the general location of two LBVI nests, one in the eastern riparian area near the south Wheatland Avenue

entrance, and one in the central riparian area just north of the Cottonwood Avenue bluff; however, the exact locations of these nests were was never identified as the nests were well concealed and the biologists took care to monitor from a distance so as not to be intrusive or lead potential predators to the nests. In addition, multiple detections of LBVI were recorded by Chambers Group biologists during the 2023 nesting season and into late August, the majority of which were concentrated in riparian areas north and east of the Cottonwood Avenue bluff. On August 7, an adult LBVI and two fledglings were observed in the riparian area north of the Cottonwood Avenue bluff, indicating that LBVI young were successfully raised in or in the vicinity of the Mitigation Area (J. Mayfield, personal communication).

## SECTION 5.0 – DISCUSSION AND CONCLUSIONS

The number of cowbirds removed from each trap site and each program varies year-to-year, sometimes independently. The 2023 total capture number of 58 was almost identical to capture numbers in 2017, 2019, 2020, and 2021 (54 to 55 annual total in those years), after a drop in capture numbers in 2022 (30 total).

The removal of 41 cowbird females precluded up to 1,630 to 2,460 parasitism events (40 to 60 eggs per female). As mentioned, one of the four Big Tujunga traps was moved next to the Tujunga Ponds LBVI nesting area in 2021; in 2020 LBVI had 3 parasitized nests in the area. Though no LBVI nests were observed in the area in 2021, the new trap location did remove one female in 2021 (and as noted earlier, 1 female cowbird could lay 40 to 60 eggs in a season, and so impact as many as 60 nests of native songbirds). Trap 2 was again operated in the same location next to the Tujunga Ponds in 2022, and no female cowbirds were captured; however, in 2023, the third year of operating the trap in the location, Trap 2 caught 16 females, the most of the 4 traps. Because of the parasitism on LBVI nests in 2020, the trap should continue to be operated in the area and will most likely capture any free flying cowbirds (unless they have already been captured at the Gibson Stables, 1/4 mile to the south, where Traps 3 and 4 are operated).

Locally raised cowbirds are easily and quickly captured after fledging and are therefore good indicators of the efficacy of a trapping program. The fact that no juvenile cowbirds were captured in 2023 indicates that not many cowbirds were raised in the area in 2023. However, that could be due to nest abandonment after parasitism, as was observed with the LBVI pairs at Big Tujunga in 2020; only direct nest monitoring can give the exact rate of parasitism in an area.

Trapping at Big Tujunga Wash and elsewhere has reduced or eliminated cowbird parasitism in targeted habitat and increased the reproductive success of host species present. Targeted topical trapping has not, however, impacted the regional cowbird population, primarily because cowbirds are removed from so few sites where cowbirds breed. If the regional cowbird population had been reduced, the number of cowbirds captured at each site would decrease over time. Instead, the number of cowbirds captured at each site has remained fairly consistent over time (notwithstanding typical annual fluctuations; see Table 1 and the previous comments).

Unless and until cowbirds are absent from the study area for several years, by regional cowbird control or other means, the Mitigation Area topical cowbird trapping program will be required indefinitely to control local brood parasitism and allow native birds to reproduce naturally.

## SECTION 6.0 – MANAGEMENT RECOMMENDATIONS

1. No changes in the number of traps (four), operation dates (April 1 to June 30), or operation protocol are recommended.

2. Trap 2 should remain directly adjacent to the 2020 LBVI nesting areas (or adjusted before the season or within the season so as to be adjacent to the 2023 LBVI nesting areas if they have shifted).

3. If during the nesting season LBVI or other native birds are observed to be parasitized, one of the four cowbird traps should be moved to a spot directly adjacent, or as close as practical, to the nest that was parasitized.

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## SECTION 8.0 – FIGURES

**Figure 1. 2023 Mitigation Area brown-headed cowbird control project study area.**

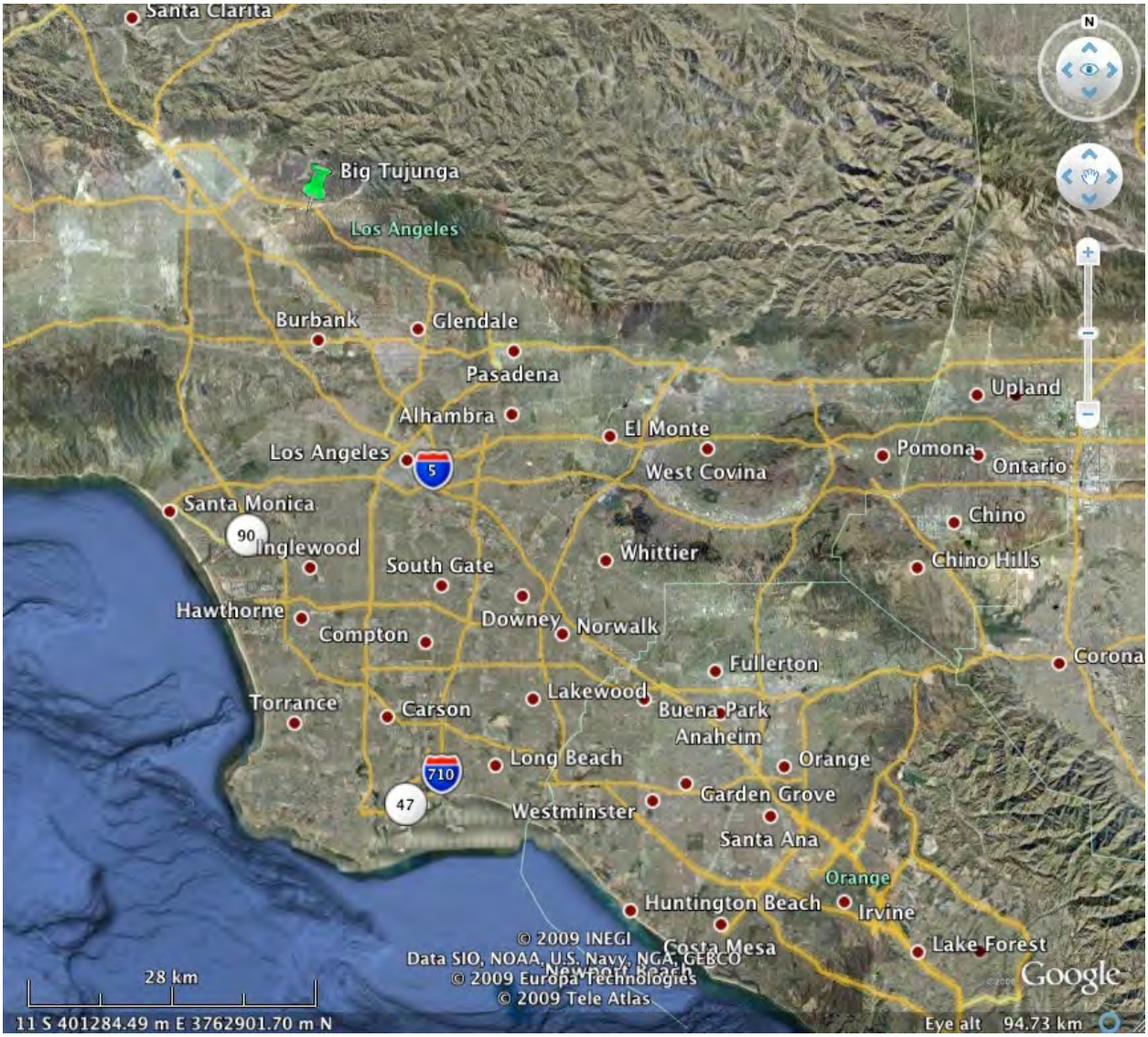


**Figure 2. 2023 Mitigation Area brown-headed cowbird trap locations, Traps 1 through 4.**

**Figure 3. 2023 Mitigation Area brown-headed cowbird Traps 1 and 2 photos.**

**Trap 1**

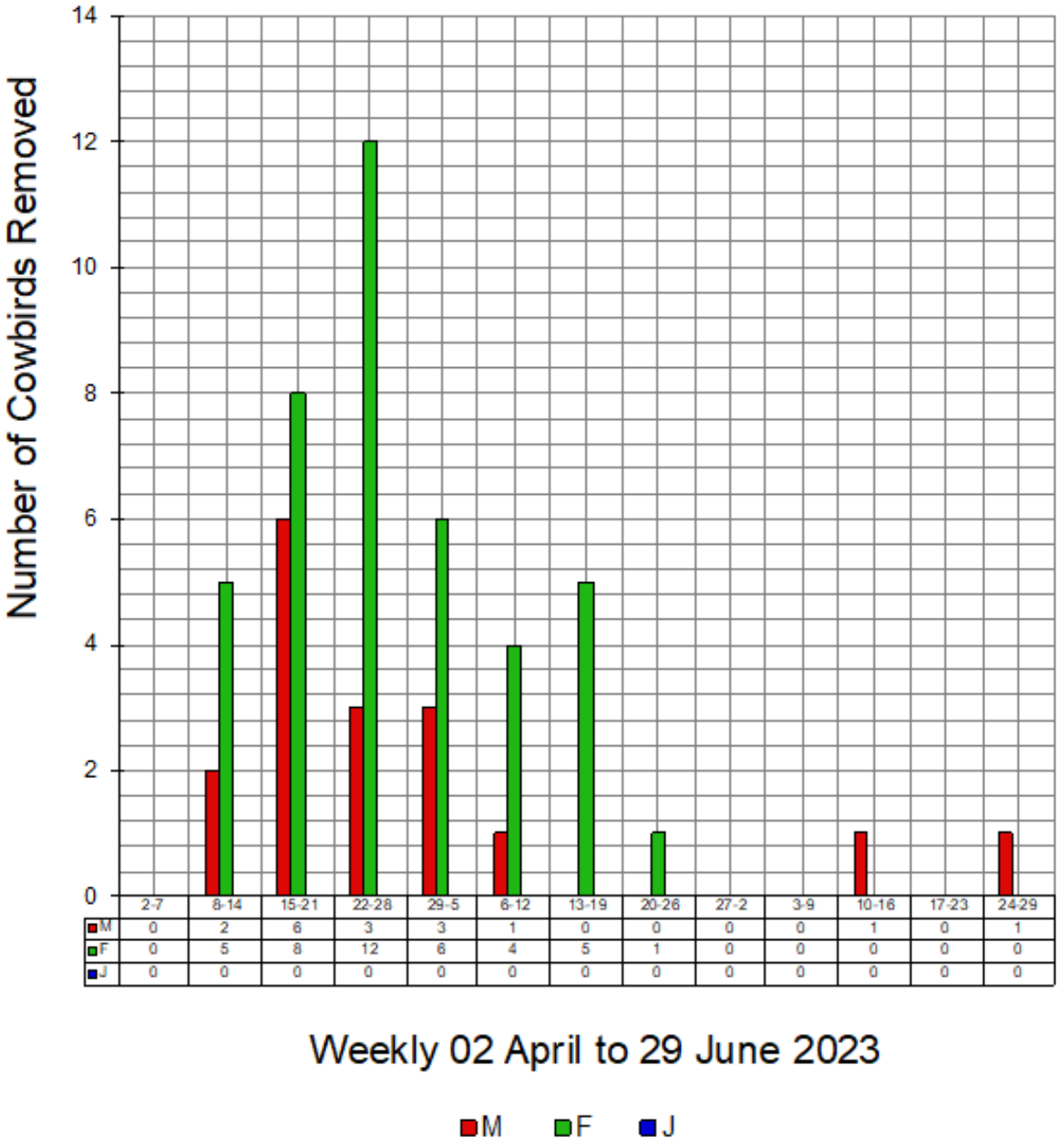
**Trap 2**

**Figure 4. 2023 Mitigation Area brown-headed cowbird Traps 3 and 4 photos.**

**Trap 3**

**Trap 4**

**Figure 5. Number of male (M), female (F), and juvenile (J) cowbirds removed per week at and in the Vicinity of the Mitigation Area in 2023.**




| | 2-7 | 8-14 | 15-21 | 22-28 | 29-5 | 6-12 | 13-19 | 20-26 | 27-2 | 3-9 | 10-16 | 17-23 | 24-29 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| M | 0 | 2 | 6 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| F | 0 | 5 | 8 | 12 | 6 | 4 | 5 | 1 | 0 | 0 | 0 | 0 | 0 |
| J | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## SECTION 9.0 – TABLES

**Table 1. Number of brown-headed cowbirds captured at and in the vicinity of the Mitigation Area, 2001 through 2017; 2019 through 2023.**

| Year | Number of Traps | Trapping Period | Number of Cowbirds Captured | | | | Number Per Trap | M:F Ratio |
|---|---|---|---|---|---|---|---|---|
| | | | Male | Female | Juvenile | Total | | |
| 2001 | 7 | 3/15 - 7/15 | 37 | 24 | 9 | 70 | 10.00 | 1.54 |
| 2002 | 7 | 3/15 - 7/16 | 66 | 105 | 2 | 173 | 24.71 | 0.63 |
| 2003 | 7 | 3/15 - 6/19 | 9 | 11 | 0 | 20 | 2.86 | 0.82 |
| 2004 | 7 | 3/15 - 7/15 | 46 | 37 | 6 | 89 | 12.71 | 1.24 |
| 2005 | 7 | 3/30 - 8/1 | 53 | 66 | 18 | 137 | 19.57 | 0.80 |
| 2006 | 4 | 4/6 - 6/29 | 30 | 24 | 2 | 56 | 14.00 | 1.25 |
| 2009 | 4 | 4/1 - 6/30 | 78 | 111 | 3 | 192 | 48.00 | 0.70 |
| 2010 | 4 | 4/1 - 6/30 | 78 | 67 | 1 | 146 | 36.50 | 1.16 |
| 2011 | 4 | 4/1 - 6/30 | 103 | 99 | 9 | 211 | 52.75 | 1.04 |
| 2012 | 4 | 4/2 - 6/30 | 68 | 68 | 1 | 137 | 34.25 | 1.00 |
| 2013 | 4 | 4/1 - 6/30 | 54 | 42 | 1 | 97 | 24.25 | 1.29 |
| 2014 | 4 | 4/1 - 6/30 | 51 | 24 | 0 | 75 | 18.75 | 2.13 |
| 2015 | 4 | 3/30 - 6/29 | 48 | 41 | 1 | 90 | 22.50 | 1.17 |
| 2016 | 4 | 3/30 - 6/29 | 47 | 86 | 0 | 133 | 33.25 | 0.55 |
| 2017 | 4 | 3/30 - 6/29 | 27 | 26 | 1 | 54 | 13.50 | 1.04 |
| 2019 | 4 | 3/29 - 7/1 | 26 | 28 | 1 | 55 | 13.75 | 0.93 |
| 2020 | 4 | 4/2 - 6/30 | 28 | 26 | 1 | 55 | 13.75 | 1.08 |
| 2021 | 4 | 4/1 - 7/1 | 27 | 27 | 0 | 54 | 13.50 | 1.00 |
| 2022 | 4 | 3/31 - 6/30 | 8 | 19 | 3 | 30 | 7.50 | 0.42 |
| 2023 | 4 | 4/2 - 6/-29 | 17 | 41 | 0 | 58 | 14.50 | 0.41 |
| TOTAL | 95 | 20 | 901 | 972 | 59 | 1932 | 20.34 | 0.93 |
| AVG | 4.8 | | 45.1 | 48.6 | 3.0 | 96.6 | | |

2001-2005: Chambers Group, Inc. 2005
2006-2017; 2019-2022 Griffith Wildlife Biology (GWB) 2022
2018: the Big T traps were not operated

**Table 2. Number of male (M), female (F), and juvenile (J) cowbirds captured per day, per week, per trap, and total at and in the vicinity of the Mitigation Area in 2023.**

| Date | Trap 1 | | | Trap 2 | | | Trap 3 | | | Trap 4 | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | J | M | F | J | M | F | J | M | F | J | M | F | J |
| Apr | | | | | | | | | | | | | 0 | 0 | 0 |
| 2 | | | | | | | | | | | | | 0 | 0 | 0 |
| 3 | | | | | | | | | | | | | 0 | 0 | 0 |
| 4 | | | | | | | | | | | | | 0 | 0 | 0 |
| 5 | | | | | | | | | | | | | 0 | 0 | 0 |
| 6 | | | | | | | | | | | | | 0 | 0 | 0 |
| 7 | | | | | | | | | | | | | 0 | 0 | 0 |
| wk 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | | | | | | | | | | | | | 0 | 0 | 0 |
| 9 | | | | | 2 | | | | | | | | 0 | 2 | 0 |
| 10 | | | | | | | 1 | | | | | | 1 | 0 | 0 |
| 11 | | | | | 2 | | | | | | | | 0 | 2 | 0 |
| 12 | | | | | 1 | | | | | | | | 0 | 1 | 0 |
| 13 | | | | | | | 1 | | | | | | 1 | 0 | 0 |
| 14 | | | | | | | | | | | | | 0 | 0 | 0 |
| wk 2 | 0 | 0 | 0 | 0 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 0 |
| 15 | | | | -1 | | | | 1 | | 1 | | | 0 | 1 | 0 |
| 16 | | 1 | | | | | | | | | | | 0 | 1 | 0 |
| 17 | 1 | | | | | | 1 | | | | | | 2 | 0 | 0 |
| 18 | | 2 | | | | | 2 | | | | | | 2 | 4 | 0 |
| 19 | | 3 | | | | | 1 | 1 | | | | | 1 | 4 | 1 |
| 20 | | | | | | | 1 | | | | | | 1 | 0 | 0 |
| 21 | | | | | | | | | | | | | 0 | 0 | 0 |
| wk 3 | 1 | 6 | 0 | -1 | 0 | 0 | 5 | 2 | 0 | 1 | 0 | 0 | 6 | 8 | 0 |
| 22 | | | | | | | | | | | | | 0 | 0 | 0 |
| 23 | | | | | 6 | | 1 | 1 | | | 1 | | 1 | 8 | 0 |
| 24 | | | | 1 | 1 | | | | | | | | 1 | 1 | 0 |
| 25 | | | | | | | | 1 | | | | | 0 | 1 | 0 |
| 26 | | | | | 1 | | | | | | | | 0 | 1 | 0 |
| 27 | | | | | | | 1 | | | | | | 1 | 0 | 0 |
| 28 | | | | | 1 | | | | | | | | 0 | 1 | 0 |
| wk 4 | 0 | 0 | 0 | 1 | 9 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 3 | 12 | 0 |
| 29 | | | | 1 | | | | | | | | | 1 | 0 | 0 |
| 30 | | 1 | | | | | | | | | | | 0 | 1 | 0 |
| May 1 | | | | | | | | | | | | | 0 | 0 | 0 |
| 2 | | 1 | | | | | | | | | | | 0 | 1 | 0 |
| 3 | | | | | | | | | | | 2 | | 0 | 2 | 0 |
| 4 | | | | | | | | | | | | | 0 | 0 | 0 |
| 5 | | | | | | | 2 | 2 | | | | | 2 | 2 | 0 |
| wk 5 | 0 | 2 | 0 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 0 | 3 | 6 | 0 |
| 6 | | | | | | | | | | | | | 0 | 0 | 0 |
| 7 | | | | | | | | | | | | | 0 | 0 | 0 |
| 8 | | 1 | | | | | | | | | | | 0 | 1 | 0 |
| 9 | | 1 | | | 1 | | | | | | 1 | | 0 | 3 | 0 |
| 10 | 1 | | | | | | | | | | | | 1 | 0 | 0 |
| 11 | | | | | | | | | | | | | 0 | 0 | 0 |
| 12 | | | | | | | | | | | | | 0 | 0 | 0 |
| wk 6 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 4 | 0 |
| 13 | | | | | | | | | | | 1 | | 0 | 1 | 0 |
| 14 | | | | | | | | | | | | | 0 | 0 | 0 |
| 15 | | | | | | | | | | | | | 0 | 0 | 0 |
| 16 | | | | | 1 | | | 1 | | | 1 | | 0 | 3 | 0 |
| 17 | | | | | | | | | | | | | 0 | 0 | 0 |
| 18 | | | | | | | | | | | | | 0 | 0 | 0 |
| 19 | | 1 | | | | | | | | | | | 0 | 1 | 0 |
| wk 7 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 5 | 0 |

| Date | Trap 1 | | | Trap 2 | | | Trap 3 | | | Trap 4 | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | M | F | J | M | F | J | M | F | J | M | F | J | M | F | J |
| 20 | | | | | | | | | | | | | 0 | 0 | 0 |
| 21 | | | | | | | | | | | | | 0 | 0 | 0 |
| 22 | | | | | | | | | | | | | 0 | 0 | 0 |
| 23 | | | | | | | | | | | 1 | | 0 | 1 | 0 |
| 24 | | | | | | | | | | | | | 0 | 0 | 0 |
| 25 | | | | | | | | | | | | | 0 | 0 | 0 |
| 26 | | | | | | | | | | | | | 0 | 0 | 0 |
| wk 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 27 | | | | | | | | | | | | | 0 | 0 | 0 |
| 28 | | | | | | | | | | | | | 0 | 0 | 0 |
| 29 | | | | | | | | | | | | | 0 | 0 | 0 |
| 30 | | | | | | | | | | | | | 0 | 0 | 0 |
| 31 | | | | | | | | | | | | | 0 | 0 | 0 |
| Jun 1 | | | | | | | | | | | | | 0 | 0 | 0 |
| 2 | | | | | | | | | | | | | 0 | 0 | 0 |
| wk 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | | | | | | | | | | | | | 0 | 0 | 0 |
| 4 | | | | | | | | | | | | | 0 | 0 | 0 |
| 5 | | | | | | | | | | | | | 0 | 0 | 0 |
| 6 | | | | | | | | | | | | | 0 | 0 | 0 |
| 7 | | | | | | | | | | | | | 0 | 0 | 0 |
| 8 | | | | | | | | | | | | | 0 | 0 | 0 |
| 9 | | | | | | | | | | | | | 0 | 0 | 0 |
| wk 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | | | | | | | | | | | | | 0 | 0 | 0 |
| 11 | | | | | | | | 1 | | | | | 1 | 0 | 0 |
| 12 | | | | | | | | | | | | | 0 | 0 | 0 |
| 13 | | | | | | | | | | | | | 0 | 0 | 0 |
| 14 | | | | | | | | | | | | | 0 | 0 | 0 |
| 15 | | | | | | | | | | | | | 0 | 0 | 0 |
| 16 | | | | | | | | | | | | | 0 | 0 | 0 |
| wk 11 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| 17 | | | | | | | | | | | | | 0 | 0 | 0 |
| 18 | | | | | | | | | | | | | 0 | 0 | 0 |
| 19 | | | | | | | | | | | | | 0 | 0 | 0 |
| 20 | | | | | | | | | | | | | 0 | 0 | 0 |
| 21 | | | | | | | | | | | | | 0 | 0 | 0 |
| 22 | | | | | | | | | | | | | 0 | 0 | 0 |
| 23 | | | | | | | | | | | | | 0 | 0 | 0 |
| wk 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | | | | | | | | | | | | | 0 | 0 | 0 |
| 25 | | | | | | | | | | | | | 0 | 0 | 0 |
| 26 | | | | | | | | | | | 1 | | 1 | 0 | 0 |
| 27 | | | | | | | | | | | | | 0 | 0 | 0 |
| 28 | | | | | | | | | | | | | 0 | 0 | 0 |
| 29 | | | | | | | | | | | | | 0 | 0 | 0 |
| wk 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| | | | | | | | | | | | | | | | |
| TOTAL | 2 | 11 | 0 | 1 | 16 | 0 | 12 | 7 | 0 | 2 | 7 | 0 | 17 | 41 | 0 |

**Table 3. Number of non-target species captured & released (C&R) or preyed upon (PU) in cowbird traps at and in the vicinity of the Mitigation Area in 2023.**

| Species | Week 1 | | Week 2 | | Week 3 | | Week 4 | | Week 5 | | Week 6 | | Week 7 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C&R | PU | C&R | PU | C&R | PU | C&R | PU | C&R | PU | C&R | PU | C&R | PU |
| CATO | | | 1 | | | | | | | | 1 | | | |
| RWBL | | | | | 1 | | | | | | | | | |
| HOFI | | | | | | | 1 | | 1 | | | | 2 | |
| HOSP | | | 1 | | | | 4 | | 1 | | 1 | | | |
| TOTAL | 0 | 0 | 2 | 0 | 1 | 0 | 5 | 0 | 2 | 0 | 2 | 0 | 2 | 0 |

| Species | Week 8 | | Week 9 | | Week 10 | | Week 11 | | Week 12 | | Week 13 | | **TOTAL** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | C&R | PU | C&R | PU | C&R | PU | C&R | PU | C&R | PU | C&R | PU | **C&R** | **PU** |
| CATO | | | 1 | | 4 | | 6 | | 6 | | 4 | | **23** | **0** |
| RWBL | | | 1 | | | | | | | | | | **2** | **0** |
| HOFI | | | | | | | | | | | 1 | | **5** | **0** |
| HOSP | | | | | | | | | | | 1 | | **8** | **0** |
| TOTAL | 0 | 0 | 2 | 0 | 4 | 0 | 6 | 0 | 6 | 0 | 6 | 0 | **38** | **0** |

| | |
|---|---|
| CATO | California towhee |
| RWBL | red-winged blackbird |
| HOFI | house finch |
| HOSP | house sparrow |

## APPENDIX A – WARNING/INFORMATIONAL SIGN

# COWBIRD TRAP

## *PLEASE* DO NOT DISTURB

**This trap removes *non-native* brown-headed cowbirds so that *native* songbirds can reproduce naturally.**

***Cowbirds NEVER make their own nests; they ONLY lay eggs in the nests of other birds.**

***Each female cowbird lays 40-60 eggs each spring; the cowbird eggs hatch first and the cowbird chick smothers the songbird young as they hatch.* Each female cowbird removed = 160-240 more songbird young in this area.**

***To attract other cowbirds, this trap contains live male (shiny black body, brown head) and female (plain brown) decoy cowbirds.***

***THIS TRAP IS SERVICED DAILY* to care for the live decoy birds, release non-cowbirds, and add fresh seed & water.**

**If you have questions about the operation of this trap, please call 906.337.0782 or visit www.griffithwildlifebiology.com**

**Operated by GWB under authority of the U.S. Fish & Wildlife Service and the California Department of Fish & Wildlife.**

## THE LOCAL SONGBIRDS THANK YOU FOR YOUR COOPERATION

2 cowbird eggs in songbird nest.

Cowbird chick, smothered songbird chick.

Songbird adult feeding cowbird chick.

**GRIFFITH WILDLIFE BIOLOGY**

# APPENDIX B – LEAST BELL'S VIREO NESTING AREAS

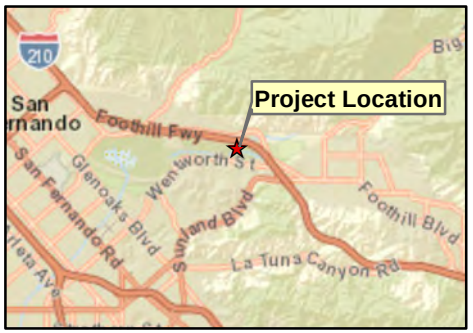

# 2023 Least Bell's Vireo Nesting Areas

- Mitigation Area
- L.A. County Park Parcel
- Wheatland Ave Easement
- LBVI Pair Sighting
- 500ft Buffer

N

0 400 800 1,600

Feet




Name: 21021 Fig 1 Least Bell's Vireo Sighting.Mxd
Print Date: 5/26/2023, Author: pcarlos

CHAMBERS GROUP

**2023 ANNUAL REPORT**

**APPENDIX E – CDFW NOTIFICATION  EXOTIC PLANT REMOVAL LETTER REPORTS**

**Notice to Proceed: Draft Notification No. 1600-2008-0253-R5 Big Tujunga Wash Mitigation Area Exotic Plant Removal and Maintenance Activities**

California Department of Fish and Wildlife

January 12, 2023

David T. Lin, Senior Environmental Scientist
California Department of Fish and Wildlife
4665 Lampson Avenue, Suite C
Los Alamitos, CA 90720

**Site: Big Tujunga Wash Mitigation Area, City of Sunland, Los Angeles County, California**

Dear Mr. Lin,

The purpose of this letter is to provide notification that exotic plant removal and trail maintenance activities will be conducted at the Los Angeles County Public Works' Big Tujunga Wash Mitigation Area beginning the week of January 16, 2023. Nesting raptor surveys will be conducted prior to the start of maintenance activities, to identify any active raptor nests that may require an avoidance buffer. Biologists will also conduct a pre-activity survey for potential early nesting migratory birds and will identify and record areas where weeds, including non-native grasses and forbs and invasive exotic plant species, will be mechanically removed. Once work commences, daily sweeps for nesting birds will occur in the planned work areas prior to each day's exotic plant removal efforts through the end of nesting bird season (September 15). The locations of all sensitive biological resources that are found will be recorded using a Global Positioning System (GPS) unit. If active bird nests are identified, then an appropriately sized buffer will be established and flagged as a "no work" zone. Special care will be taken to identify potential least Bell's vireo nests as early as possible during their breeding season and a 500-foot no-work buffer will be promptly established around any nest identified to protect the species. If a least Bell's vireo nest is discovered, signs will be posted along authorized trails at the edges of the established avoidance buffer that read "Stay on Trails, Sensitive Species Present". In the event a least Bell's vireo nest is identified, we will notify CDFW immediately.

In addition, the biologists will walk the trails to identify any trail maintenance issues. Any urgent trail issues observed will be addressed as soon as possible and all other trail issues will be addressed during scheduled trail maintenance which is also planned to begin in January. Areas that will require maintenance will be recorded using a GPS unit. A biological monitor will be on site during all site maintenance and exotic plant removal activities, and will discuss sensitive biological resources and avoidance measures with the work crew(s) prior to the start of work each day.

Please do not hesitate to contact me to discuss any questions or concerns.

Sincerely,
**CHAMBERS GROUP, INC.**

**Paul Morrissey**
*Principal* | *Director of Biology*
pmorrissey@chambersgroupinc.com
(949) 261-5414 ext. 7288
5 Hutton Centre Drive, Suite 750
Santa Ana, CA 92707

February 27, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the December 2022 and January 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) during for December 2022 and January 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that all mitigation and avoidance measures were followed by the work crews. Details of the for December 2022 and January 2023 exotic plant eradication efforts including, dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

Pre-activity sweeps for sensitive resources were conducted by qualified biologists ahead of the work crew. Nesting raptor surveys were conducted on January 12, 2023, prior to late January maintenance efforts that were conducted in areas where raptors have been known to nest. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologists Austin Burke and/or Corey Jacobs. Following the pre-activity sweeps and instructional tailgate meetings, exotic plant removal efforts were led by restoration foreman Jay Belmonte and crew lead Joshua Euan. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

For December 2022 and January 2023, exotic plant removal efforts were conducted at the easternmost portion of the Mitigation Area, along Haines Canyon Creek, and along the fence line at the Cottonwood Avenue entrance. Exotic species removal efforts along Haines Canyon Creek helps to support the availability of water for native plants and to provide more available surface water with greater oxygenation for native aquatic species including native fish. In addition to the removal efforts described below, these areas were monitored for early germination of exotic annual species encouraged by recent rain events. As resources (e.g., rain, mild temperatures) become more available, crews will continue to monitor for germination and development of annual grasses and forbs to determine the most effective timing for weed abatement efforts. Some of the non-native, long-lived, and late germinating species targeted included tree tobacco (*Nicotiana glauca*), Mexican fan palm (*Washingtonia robusta*), castor bean (*Ricinus communis*), and tree of heaven (*Ailanthus altissima*). Additional target species included poison hemlock (*Conium maculatum*) and short-pod mustard (*Hirschfeldia incana*). The crew used only mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers) when removing weeds. Removal efforts were concentrated on late germinating and developing species that have access to water resources via Haines Canyon Creek, and opportunistic species that were able to germinate and rapidly grow due to recent rain events. Eradication efforts for longer-lived annual and/or perennial species (e.g., castor bean) required complete removal of the plant from the roots. Seedless plant material was left on the ground in the same area to decompose on site. When target species were discovered to have already

matured, the seed heads were collected in heavy-duty contractor bags and were removed from the Mitigation Area in order to decrease future germination of exotic species and reduce the fire fuel present on the site.

## *Execution*

On December 22, 23, and 27 crews worked along Central Haines Canyon Creek just downstream of the Tujunga Ponds targeting castor bean, Mexican fan palm, tree tobacco, and tree of heaven. Haines Canyon Creek provides a perennial water source that allows these non-native species to germinate from the seedbank year-round. Recent rains have also contributed to weed germination and development. Removal of these species is crucial to alleviate the competition they pose on native species (Photos 1 through 4).

On January 3 and 4 crews worked along the fence line at the northeastern edge of the Mitigation Area surrounding the Tujunga Ponds. Primary targets included castor bean and tree tobacco. Eradication efforts required complete removal of the plants from the roots. Crews used shovels and other hand tools to remove the full root structures to prevent regrowth. Removing large quantities of perennial, invasive species early in the season creates opportunities for light and space which is conducive to the growth and development of native species (Photos 5 and 6).

On January 16 crews worked along the fence line outside of the Cottonwood Avenue entrance removing exotic species and trimming overgrown natives using weed whippers. Primary targets included native California buckwheat (*Eriogonum fasciculatum*) and non-native castor bean (Photos 7 and 8).

On January 23 through January 26 crews worked through the eastern riparian area just below the equestrian center where red-shoulder hawks (*Buteo lineatus*) and least Bell's vireo (*Vireo bellii pusillus*) have previously nested to complete weed abatement efforts prior to the start of breeding activities and nests potentially becoming active. Crews progressed north towards Haines Canyon Creek throughout the week. Crews used weed whippers and other hand tools to remove non-native vegetation including short-pod mustard and poison hemlock. Large areas of non-native species were cut down as a means to disrupt or end their growth cycle and reduce the likelihood of them producing seeds in the future. This removal also relieves competition for resources that these species would have with developing native species (Photos 9 through 12).

On January 31, crews worked at the easternmost edge of the Mitigation Area and focused weed abatement efforts on the slopes adjacent to the 210 Freeway. This portion of the Mitigation Area experiences drier conditions, and opportunistic species including tree tobacco and castor bean were able to grow and develop with limited resources on the rocky slopes. Crews used shovels and hand tools to remove the entire plant including the roots to reduce the potential for regrowth (Photo 13).

## *Summary and Results*

All exotic plant eradication activities were supervised Jay Belmonte and Joshua Euan, who monitored that regulations and requirements were closely followed. The crew averaged five members per day during exotic plant eradication efforts.

Biologist Austin Burke and/or Corey Jacobs inspected work areas prior to the start of each effort. The biologist surveyed ahead of the crews for sensitive species in proposed work areas and monitored exotic plant removal near Haines Canyon Creek and the Tujunga Ponds so that sensitive species were not negatively impacted by removal efforts.

The December 2022 and January 2023 exotic plant removal efforts focused on clearing long-lived, late-germinating, and rapidly developing non-native species along the banks of Haines Canyon Creek, in the eastern riparian area, near the Cottonwood Avenue entrance, and at the easternmost edge of the Mitigation Area. Crews relied on hand pulling and hand tools to completely remove perennial species. In many of these areas, exotic species were adventitiously growing among native species where abundant resources (e.g., water, light, space, shade) allowed them to develop late into the growing season and compete with native species. Rapidly developing perennial species require substantial quantities of water for growth and development, reducing resource availability for native species.

Only mechanical removal methods were used during the December 2022 and January 2023 efforts, including using motorized weed trimmers in areas where they would not disturb sensitive resources, and hand-pulling exotic species that were growing near native vegetation. Continuous and consistent weeding will deplete the exotic plant seed bank over time, reduce the amount of competition posed by non-native species, and continue to encourage the development of native species needed to restore the habitat.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please feel free to contact me at (626) 437-9935, or at twood@chambersgroupinc.com, if you have any questions or would like further information.

Sincerely,

**CHAMBERS GROUP, INC.**

**Tim Wood**

*Habitat Restoration Superintendent*

**SITE PHOTOGRAPHS**

Photo 1: Crew members removing Mexican fan palm along Haines Canyon Creek on December 22, 2022.

Photo 2: The same area along Haines Canyon Creek following the removal of Mexican fan palm on December 22, 2022.

Photo 3: Crew members removing Mexican fan palm along central Haines Canyon Creek on December 27, 2022.

Photo 4: Same area along central Haines Canyon Creek following exotic species removal on December 27, 2022.

Photo 5: Tree tobacco growing along the fence line within the northeastern portion of the Mitigation Area on January 3, 2023.

Photo 6: Same area along the fence line within the northeastern portion of the mitigation Area following exotic species removal on January 3, 2023.

Photo 7: Area along the fence line at the Cottonwood Avenue entrance prior to exotic species removal and trimming of native species on January 16, 2023.


Photo 8: Fence line along the Cottonwood Avenue entrance following exotic species removal and trimming of native species on January 16, 2023.

Photo 9: Crew members weed whipping non-natives growing in the eastern riparian area below the equestrian center on January 23, 2023.

Photo 10: Eastern riparian area below the equestrian center following weed abatement efforts on January 23, 2023.

Photo 11: Non-natives (including poison hemlock) growing along Haines Canyon Creek prior to removal efforts on January 25, 2023.

Photo 12: Same area along Haines Canyon Creek following removal efforts on January 25, 2023.

Photo 13: Crew members removing castor bean from the eastern slopes of the Mitigation Area on January 31, 2023.

Arpil 20, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the February and March 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) for February and March 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that all mitigation and avoidance measures were followed by the work crews. Details of the February and March 2023 exotic plant eradication efforts including dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

Pre-activity sweeps for sensitive resources were conducted by qualified biologists ahead of the work crew. Nesting raptor surveys were conducted on February 14 by Corey Jacobs and March 3 by Heather Madera in work areas and areas where raptors have been known to nest. A nesting bird survey was conducted by Alisa Muniz on February 20 to identify any potential early nesting birds. All pre-activity sweeps for sensitive resources in February and March included surveying for nesting birds and raptors. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologists Valerie Alcantar, Corey Jacobs, and/or Eliana Maietta. Following the pre-activity sweeps and instructional tailgate meetings, exotic plant removal efforts were led by restoration foreman Jay Belmonte and crew leads Maklin Bado and Joshua Euan. In addition, a biologist traveled with the work crew to conduct additional nesting bird sweeps and monitor that no native plant or wildlife species were negatively impacted by work activities. The crew averaged eight members per day during February and March exotic plant removal efforts.

For February and March 2023, exotic plant removal efforts were conducted along the fence line at the Cottonwood Avenue entrance and on adjacent slopes within the easternmost portion of the Mitigation Area, around the equestrian center, and along central Haines Canyon Creek. In addition to the removal efforts described below, these areas were monitored for early germination of exotic annual species encouraged by recent rain events. Crews will continue to monitor for germination and development of annual grasses and forbs to determine the most effective timing for weed abatement efforts. Primary target species included brome grasses (*Bromus* spp.), poison hemlock (*Conium maculatum*), Mediterranean schismus (*Schismus barbatus*), short-pod mustard (*Hirschfeldia incana*), castor bean (*Ricinus communis*), and black mustard (*Brassica nigra*). The crew used only mechanical removal methods (e.g., hand-pulling, shovels, motorized weed trimmers) when removing weeds. Removal efforts were concentrated on early germinating and developing species that have access to water resources via Haines Canyon Creek, and opportunistic species that were able to germinate and grow rapidly due to rain events. Eradication efforts for longer-lived annual and/or perennial

species (e.g., castor bean) required complete removal of the plant from the roots. Seedless plant material was left on the ground in the same area to decompose on site.

## *Execution*

On February 14 and 20, crews worked along the fence line near the Cottonwood Avenue entrance, using motorized trimmers to trim overgrown native plants including California buckwheat (*Eriogonum fasciculatum*) and to remove non-native grasses and weeds. Primary non-native target species included Mediterranean schismus and black mustard. Recent rains have contributed substantially to weed germination and development. Removal of these species is crucial to alleviate competition with native species (Photos 1 through 3).

On February 23, crews worked along the easternmost portion of the Mitigation Area, focusing weed abatement efforts on the slopes adjacent to the 210 Freeway. This portion of the Mitigation Area experiences drier conditions, and opportunistic species including tree tobacco (*Nicotiana glauca*) and castor bean were able to grow and develop with limited resources on the rocky slopes. Eradication efforts required complete removal of the plants from the roots. Crews used shovels and other hand tools to remove the full root structures to prevent regrowth. Removing large quantities of perennial, invasive species early in the season creates opportunities for light and space, which is conducive to the growth and development of native species (Photos 4 and 5).

On February 28, crews used motorized trimmers on the slope east of Cottonwood Avenue, removing non-native weeds and reducing overgrowth of California buckwheat. Primary non-native targets included Mediterranean schismus, and black mustard (Photos 6 and 7).

On March 2 and 3, crews returned to the fence line near the Cottonwood Avenue entrance and progressed west using motorized trimmers to trim non-natives encroaching on the fence line. Primary targets included mustard species, non-native grasses, and London rocket (*Sisymbrium irio*). Crews were careful to keep debris out of the road and away from oncoming traffic. The removal of non-native species along the perimeter of the Mitigation Area will help prevent the spread of weeds further into the Mitigation Area, which will help protect sensitive areas including the Tujunga Ponds and Haines Canyon Creek (Photos 8 and 9).

On March 10, crews used motorized trimmers to remove dense patches of black mustard and non-native grasses around the equestrian center. The proximity of these dense patches of non-native species to large native shrubs growing in the area created competitive conditions and reduced the availability of resources for native plants (Photos 10 and 11).

On March 14, crews worked on the slope northeast of the Cottonwood Avenue entrance. Crews removed black mustard and red brome (*Bromus madritensis*) from the slope using a combination of motorized trimmers and hand pulling. Large areas of non-native species were trimmed to disrupt or end their growth cycle and reduce the likelihood of them producing seeds in the future. (Photos 12 through 15).

On March 20 and 22, crews focused weed abatement efforts on the area south of central Haines Canyon Creek. Dense patches of immature poison hemlock had sprouted quickly due to recent rains. Crews used motorized trimmers to remove poison hemlock and mustard species, working their way west along the creek. Exotic species removal efforts along Haines Canyon Creek help to support the availability of water for native plants and to provide more available surface water with greater oxygenation for native aquatic species including native fish (Photos 16 and 17).

## *Summary and Results*

All exotic plant eradication activities were supervised by Jay Belmonte, Maklin Bado, and Joshua Euan, who monitored that regulations and requirements were closely followed. The crew averaged eight members per day during exotic plant eradication efforts.

Biologist Valerie Alcantar, Corey Jacobs, and/or Eliana Maietta inspected work areas prior to the start of each effort. The biologist surveyed ahead of the crews for sensitive species in proposed work areas and monitored exotic plant

removal near Haines Canyon Creek so that sensitive species were not negatively impacted by removal efforts. No nesting birds or raptors were identified during the February and March nesting bird and raptor surveys. On one occasion, the biologist observed a red-shouldered hawk (*Buteo lineatus*) taking nesting material from the Mitigation Area to any area south of Wentworth Street, but no other nesting behaviors were observed within the Mitigation Area.

The February and March 2023 exotic plant removal efforts focused on clearing early germinating and rapidly developing non-native species along the fence line at the Cottonwood Avenue entrance and on adjacent slopes within easternmost portion of the Mitigation Area, around the equestrian center, and along central Haines Canyon Creek. Crews relied on hand pulling and hand tools to completely remove any perennial species encountered. In many of these areas, exotic species were adventitiously growing among native species where abundant resources (e.g., water, light, space, shade) allowed them to develop early in the growing season and compete with native species. Rapidly developing perennial species require substantial quantities of water for growth and development, reducing water availability for native species.

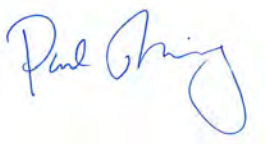
Only mechanical removal methods were used during the February and March 2023 efforts, including using motorized weed trimmers in areas where they would not disturb sensitive resources, and hand-pulling exotic species that were growing near native vegetation. Continuous and consistent weeding will deplete the exotic plant seed bank over time, reduce the amount of competition posed by non-native species, and continue to encourage the development of native species needed to restore the habitat.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOGRAPHS**

Photo 1: Black mustard and non-native grasses growing along the Wentworth Avenue fence line on February 14, 2023.

Photo 2: The same area along the Wentworth Ave fence line following removal of non-natives on February 14, 2023.

Photo 3: Crew members weed whipping non-natives and trimming natives along the Wentworth Avenue fence line on February 20, 2023.

Photo 4: Crew members removing castor bean in the easternmost portion of the Mitigation Area on February 23, 2023.

Photo 5: The same area after removal of the castor bean plant from the easternmost portion of the Mitigation Area on February 23, 2023.

Photo 6: Black mustard growing to the east of Cottonwood Avenue on February 28, 2023.

Photo 7: The same area to the east of Cottonwood Avenue following removal of exotic species on February 28, 2023.

Photo 8: Area along the fence line near the Cottonwood Avenue entrance prior to weed abatement efforts on March 2, 2023.

Photo 9: The same area along the fence line near the Cottonwood Avenue entrance following weed abatement efforts on March 2, 2023.

Photo 10: Crews using motorized trimmers around the equestrian center on March 10, 2023.

Photo 11: Area around the equestrian center following weed abatement efforts on March 10, 2023

Photo 12: Black mustard, red brome, and other non-natives growing to the east of Cottonwood Aveneue entrance prior to trimming on March 14, 2023.

Photo 13: The same area east of the Cottonwood Ave entrance after trimming of non-natives on March 14, 2023.


Photo 14: Crew member weed whipping non-natives outside the Wentworth Street fence line on March 14, 2023.


Photo 15: The same area outside the Wentworth Street fence line after removal of non-natives on March 14, 2023.

Photo 16: Crew member using motorized trimmers to remove poison hemlock growing around central Haines Canyon Creek on March 20, 2023.

Photo 17: Same area around central Haines Canyon Creek following weed abatement efforts on March 20, 2023.

May 17, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the April 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) for April 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that all mitigation and avoidance measures were followed by the work crews. Details of the April 2023 exotic plant eradication efforts including dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

Pre-activity sweeps for sensitive resources were conducted by qualified biologists ahead of the work crew. Nesting bird surveys were conducted on April 17, 18, 20, 24, and 26 to identify any active nests. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologists Corey Jacobs and/or Austin Burke. Following the pre-activity sweeps and instructional tailgate meetings, exotic plant removal efforts were led by restoration crew lead Jimmy Gomez. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

For April 2023, exotic plant removal efforts were focused in the eastern riparian area and on the bluff around the Cottonwood Blvd entrance. In addition to the removal efforts described below, the Mitigation Area was monitored for germination of exotic annual species encouraged by warmer weather conditions. Germinating weeds were targeted as soon as they sprouted, to prevent the development of seeds. Primary target species included brome grasses (*Bromus* spp.), Italian thistle (*Carduus pycnocephalus*), tree tobacco (*Nicotiana glauca*), black mustard (*Brassica nigra*) and other mustard species (*Brassica* spp., *Hirschfeldia incana*, *Sisymbrium* spp.), poison hemlock (*Conium maculatum*), and castor bean (*Ricinus communis*). The crew used only mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers) when removing weeds and concentrated on newly germinating, regenerating, and maturing exotic plant species in areas where resources supported their continued development. Eradication efforts for longer-lived annual and/or perennial species (e.g., castor bean) required complete removal of the plant from the roots. Seedless plant material was left on the ground in the same area to decompose on site.

## Execution

Pre-activity nesting bird sweeps were conducted each morning where the work was proposed. The biologist surveyed within and adjacent-to planned work areas and documented the locations of any active bird nests or nesting behavior, as well as any sensitive species observations. The locations of any active nests, notable bird activities, and sensitive species were recorded using Field Maps for ArcGIS (Field Maps), a Geographic Information Systems (GIS) application that all monitors, crew leads, and the foreman have downloaded on their mobile phones. All active bird nests were flagged for avoidance and discussed daily with the crew at morning tailgate meetings.

On April 17 through 21, crews worked in the eastern riparian area progressing from the bottom of the slopes flanking the Cottonwood Avenue entrance towards the equestrian center. Crews used a combination of motorized trimmers and hand pulling to target Italian thistle, mustard species, and brome grasses. Crew efforts focused on relieving the choke that these exotic species impose on developing native species and the direct competition for sparse resources (Photos 1 through 8).

- A single least Bell's vireo (*Vireo bellii pusillus*) was observed flying in the eastern riparian area adjacent to the equestrian center on April 18. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual. Due to the presence of least Bell's vireo, the crew immediately transitioned their removal efforts to the slopes flanking the Cottonwood Avenue entrance and progressed towards the equestrian center and away from the detection area buffer.
- A bushtit (*Psaltriparus minimus*) was observed nest building just west of the Mary Bell Avenue entrance on April 20. A buffer was implemented and flagged for avoidance.

On April 24 through 28, crews worked along the bluff at the Cottonwood Avenue entrance progressing west away from active nests and the area where the least Bell's vireo was observed. Crews used motorized trimmers to target mustard species and brome grasses. Newly germinating castor bean and tree tobacco were fully removed when encountered. Crews used shovels and other hand tools to remove the full root structures to prevent regrowth. Removing these perennial, invasive species early in the season prevents the development of seeds that can spread to other portions of the Mitigation Area (Photos 9 through 14).

- A single least Bell's vireo was heard calling at two locations approximately 50 feet apart along central Haines Canyon Creek on April 26. A 500-foot avoidance buffer was implemented around the detection area to reduce potential disturbance to the individual(s).
- A northern mockingbird (*Mimus polyglottos*) was observed nest building near the Mary Bell Avenue entrance on April 26. A buffer was implemented and flagged for avoidance.
- A mourning dove (*Zenaida macroura*) nest was observed to be in incubation stage in the western riparian area on April 26. A buffer was implemented and flagged for avoidance.
- A phainopepla (*Phainopepla nitens*) nest was observed to be in incubation stage near the Mary Bell Avenue entrance on April 26. A buffer was implemented and flagged for avoidance.
- A European starling (*Sturnus vulgaris*) nest with nestlings was observed just west of the Cottonwood Avenue entrance on April 26. No buffer was implemented for avoidance since this is a non-native avian species and does not receive protection from CDFW Code or the federal Migratory Bird Treaty Act.

## Summary and Results

All exotic plant eradication activities were supervised by Jimmy Gomez, who monitored that regulations and requirements were closely followed. The crew averaged 3 members per day during exotic plant eradication efforts.

Biologist Corey Jacobs and/or Austin Burke inspected work areas prior to the start of each effort. The biologist surveyed ahead of the crews for sensitive species in proposed work areas and monitored exotic plant removal so that sensitive species were not negatively impacted by removal efforts.

The April 2023 exotic plant removal efforts focused on clearing rapidly developing non-native species in the eastern riparian area and on the bluff around the Cottonwood Avenue entrance. To efficiently cover the large area, the crew performed removal efforts using motorized weed trimmers and utilized hand-pulling methods when weeds were intermixed with native plants and for longer-lived annual and perennial weeds. The crew will continue to target germinating and developing stands of exotic species to reduce the potential for an accumulation of non-native seed banks throughout the Mitigation Area. Trimming and weeding these exotic species early in their growth cycle prior to seed production effectively reduces the seed bank, reduce fire fuel load, and supports habitat restoration. Crews will continue to monitor for germination and development of annual grasses and forbs to determine the most effective timing for weed abatement efforts.

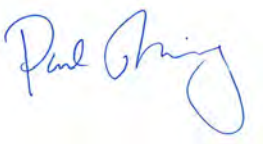
Only mechanical removal methods were used during the April 2023 efforts, including using motorized weed trimmers in areas where they would not disturb sensitive resources, and hand-pulling exotic species that were growing near native vegetation. Continuous and consistent weeding will deplete the exotic plant seed bank over time, reduce the amount of competition posed by non-native species, and continue to encourage the development of native species needed to restore the habitat.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOGRAPHS**

Photo 1: Black mustard growing in the eastern riparian area prior to weed abatement efforts on April 17, 2023.

Photo 2: The same area following removal of non-natives on April 17, 2023.

Photo 3: Area adjacent to the equestrian center overgrown with mustard prior to weed abatement efforts on April 18, 2023.

Photo 4: The same area adjacent to the equestrian center following non-native removal on April 18, 2023.

Photo 5: Non-natives growing on the Cottonwood Avenue bluff prior to weed abatement efforts on April 20, 2023.

Photo 6: The same area on the Cottonwood Avenue bluff following weed abatement efforts on April 20, 2023.

Photo 7: Area just east of the Cottonwood Avenue entrance prior to weed abatement efforts on April 21, 2023.

Photo 8: The same area east of the Cottonwood Avenue entrance following weed abatement efforts on April 21, 2023.

Photo 9: Non-natives growing near the Cottonwood Avenue entrance prior to weed abatement efforts on April 24, 2023.

Photo 10: The same area near the Cottonwood Avenue entrance following weed abatement efforts on April 24, 2023.

Photo 11: Non-native grasses and mustard growing along the Wentworth Avenue fenceline on April 25 prior to weed abatement efforts, 2023

Photo 12: Wentworth Avenue fenceline following weed abatement efforts on April 25, 2023.

Photo 13: Castor bean and mustard growing on the Cottonwood Avenue bluff prior to weed abatement efforts on April 26, 2023.

Photo 14: Crew member removing tree tobacco from the slopes on the east side of the Cottonwood Avenue entrance bluff on April 28, 2023.

June 8, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the May 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) for May 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that the work crews followed all mitigation and avoidance measures. Details of the May 2023 exotic plant eradication efforts including dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

Pre-activity sweeps for sensitive resources were conducted by qualified biologists ahead of the work crew. Nesting bird surveys were conducted on May 1, 3, 5, 16, 22, 24, 26, 30, and 31 to identify any active nests. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologists Corey Jacobs, Eliana Maietta, Heather Franklin, and/or Austin Burke. Following the pre-activity sweeps and instructional tailgate meetings, restoration crew lead Jimmy Gomez led exotic plant removal efforts. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

For May 2023, exotic plant removal efforts were focused around the Tujunga Ponds, in the western portion of the Mitigation Area, in Haines Canyon Wash between the Tujunga Ponds and equestrian center, and in the eastern riparian area. In addition to the removal efforts described below, the Mitigation Area was monitored for germination of exotic annual species encouraged by warmer weather conditions. Germinating weeds were targeted as soon as they sprouted, to prevent the development of seeds. Primary target species included brome grasses (*Bromus* spp.), Italian thistle (*Carduus pycnocephalus*), tree tobacco (*Nicotiana glauca*), black mustard (*Brassica nigra*) and other mustard species (*Brassica* spp., *Hirschfeldia incana*, *Sisymbrium* spp.), poison hemlock (*Conium maculatum*), and castor bean (*Ricinus communis*). The crew used only mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers) when removing weeds and concentrated on newly germinating, regenerating, and maturing exotic plant species in areas where resources supported their continued development. Eradication efforts for longer-lived annual and/or perennial species (e.g., castor bean) required complete removal of the plant from the roots. Seedless plant material was left on the ground in the same area to decompose on site.

## *Execution*

Pre-activity nesting bird sweeps were conducted each morning where the work was proposed. The biologist surveyed within and adjacent-to planned work areas and documented the locations of any active bird nests or nesting behavior, as well as any sensitive species observations. The locations of any active nests, notable bird activities, and sensitive species were recorded using Field Maps for ArcGIS (Field Maps), a Geographic Information Systems (GIS) application that all monitors, crew leads, and the foreman have downloaded on their mobile phones. All active bird nests and sensitive species breeding territories were flagged for avoidance and discussed daily with the crew at morning tailgate meetings.

From May 1 through 4, crews worked around the Tujunga Ponds beginning northeast of the ponds and progressing south of the ponds throughout the week (Photos 1 through 6). Motorized trimmers were used to cut down developing mustard species and non-native brome grasses. These annual species were cut low to the ground to halt seed head development and to discourage further vegetative growth. On May 5, crews transitioned to the western portion of the Mitigation Area and began weed abatement efforts west of the Wheatland Avenue entrance (Photos 7 and 8). Efforts were focused on removing non-native species encroaching along the trails. Primary targets included mustard species and brome grasses. Removal of non-native species along the trails prevents further dispersal of non-native plant material via trail users and creates clear passable trails which helps to prevent unauthorized trail use.

- On May 5, a pair of least Bell's vireo (*Vireo bellii pusillus*) were observed near the Wheatland Avenue entrance. Both individuals were observed flying in and out of the trees several times carrying nesting material, though, no nest was located. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individuals.

From May 8 through 12, crews returned to the area south of the Tujunga Ponds and in the eastern riparian area to focus weed abatement efforts where dense patches of mustards, poison hemlock, and Italian thistle were developing. Weed species found to be in late vegetative developmental stage were targeted prior to producing seed to minimize their contribution to the seed bank. These species were targeted using motorized trimmers to exhaust their growth. Greater access to water in the area south of the Tujunga Ponds allows for non-native species to develop quickly. Targeting these areas reduces competition and allows native plants greater access to resources (Photos 9 through 14).

From May 16 through 19, crews worked through Haines Canyon Wash between the Tujunga Ponds and equestrian center, progressing southeast throughout the week. Developing mustard species and brome grasses continue to be the primary targets in these areas, and eradication efforts were achieved using motorized trimmers. Developing castor bean was encountered sporadically throughout the site and hand tools were used to completely remove all parts of the plant to prevent regrowth of these opportunistic species (Photos 15 through 18).

- On May 16, the least Bell's vireo pair near the Wheatland Avenue entrance was detected again. Although no individuals were observed, faint calling was heard from the trees. The 500-foot avoidance buffer remained in place around the detection area to reduce potential disturbance to the individuals.

From May 22 through 26, crews worked their way through the eastern riparian area, targeting mustard species, poison hemlock, and Italian thistle. Crews progressed towards the equestrian center throughout the week. Crews used motorized trimmers to target dense patches of non-native annual species, taking care to not negatively impact native vegetation growing within the patches. Removal of these non-natives provides greater access to light for native species and relieves the choke that the non-natives pose. Crews also worked along the trail system within the eastern riparian area, using motorized trimmers to clearly delineate the authorized trails and to help prevent the spread of non-native plant material throughout the site (Photos 19 through 23).

- On May 26, the least Bell's vireo pair near the Wheatland Avenue entrance was observed again. Both individuals were observed displaying territorial behavior and scolding a California scrub jay (*Aphelocoma californica*) that entered their territory. Although the pair was displaying nesting behavior, the exact location

of their presumed nest had still not been observed as the biologist was observing from a distance and did not approach the birds. The 500-foot avoidance buffer remained in place around the observation area to reduce potential disturbance to the individuals.

On May 30 and 31, crew members worked along trails in the eastern riparian area, targeting non-natives encroaching on the trail, to create clearly delineated authorized trails. Ensuring that trails remain safe and passable contributes to the enjoyment of trail users and is also imperative to the protection of sensitive species. Unauthorized trail usage becomes more common when authorized trails are overgrown, which can negatively impact native vegetation and sensitive wildlife species including nesting birds. To further discourage the deviation from authorized trails, crew members posted signage in areas where authorized trails cross through least Bell's vireo avoidance buffers informing the public that protected species are present and reminding them to stay on the trails (Photos 24 and 25).

- On May 30, a single least Bell's vireo was observed calling, perching, and flying between trees north of the Cottonwood Avenue bluff in the eastern riparian area. The vireo was displaying nesting behavior but because the biologist only observed from a distance to minimize disturbance to the bird, confirmation of an active nest was not possible. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s).
- On May 31, a single least Bell's vireo was again observed calling, perching, and flying between trees north of the Cottonwood Avenue bluff in the eastern riparian area. A 500-foot avoidance buffer remained in place around the observation area to reduce potential disturbance to the individual(s).

## *Summary and Results*

All exotic plant eradication activities were supervised by Jimmy Gomez, who monitored that permit requirements were closely followed. The crew averaged three members per day during exotic plant eradication efforts.

Biologist Corey Jacobs, Heather Franklin, Eliana Maietta, and/or Austin Burke inspected work areas prior to the start of each effort. The biologist surveyed ahead of the crews for sensitive species in proposed work areas and monitored exotic plant removal so that sensitive species were not negatively impacted by removal efforts.

Late season scattered showers occurred through May, with the heaviest rains on May 1 and May 4. The rains have encouraged new growth including areas that were maintained earlier in the year. Repeat maintenance has been necessary to control newly emerging non-native species.

The May 2023 exotic plant removal efforts focused on clearing rapidly developing non-native species around the Tujunga Ponds, in the western portion of the Mitigation Area, in Haines Canyon Wash between the Tujunga Ponds and equestrian center, and in the eastern riparian area. To efficiently cover the large area, the crew performed removal efforts using motorized weed trimmers and utilized hand-pulling methods when weeds were intermixed with native plants and for longer-lived annual and perennial weeds. The crew will continue to target germinating and developing stands of exotic species to reduce the potential for an accumulation of non-native seed banks throughout the Mitigation Area. Trimming and weeding these exotic species early in their growth cycle prior to seed production effectively reduces the seed bank, reduces fire fuel load, and supports habitat restoration. Crews will continue to monitor the germination and development of annual grasses and forbs to determine the most effective timing for weed abatement efforts.

Only mechanical removal methods were used during the May 2023 efforts, including using motorized weed trimmers in areas where they would not disturb sensitive resources, and hand-pulling exotic species that were growing near native vegetation. Continuous and consistent weeding will deplete the exotic plant seed bank over time, reduce the amount of competition posed by non-native species, and continue to encourage the development of native species needed to restore the habitat.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**

**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOGRAPHS**

Photo 1: Area adjacent to the Tujunga Ponds prior to weed abatement efforts on May 1, 2023.

Photo 2: The same area following removal of non-natives on May 1, 2023.

Photo 3: Dense patch of mustard found growing near the fencline surrounding the southern edge of the Tujugna Ponds on May 2, 2023.

Photo 4: The same area following exotic species removal on May 2, 2023.

Photo 5: Eastern riparian area prior to weed abatement efforts on May 3, 2023.

Photo 6: Eastern riparian area following weed abatement efforts on May 3, 2023.

Photo 7: Exotic species growing along trails in the western portion of the Mitigation Area on May 5, 2023.

Photo 8: Western portion of the Mitigation Area following exotic speces removal on May 5, 2023.

Photo 9: Mustards growing in the eastern riparian area on May 8, 2023.

Photo 10: Eastern riparian area following weed abatement efforts on May 8, 2023.

Photo 11: Eastern riparian area prior to weed abatement efforts on May 10, 2023

Photo 12: Eastern riparian area following weed abatement efforts on May 10, 2023.

Photo 13: Dense patch of poison hemlock growing in the eastern riparian area on May 12, 2023.

Photo 14: Crew member using weed whippers to remove poison hemlock in the eastern riparian area on May 12, 2023.

Photo 15: Castor bean growing in Haines Canyon Wash on May 16, 2023.

Photo 16: Same area following the removal of castor bean on May 16, 2023.

Photo 17: Mustards growing in Haines Canyon Wash on May 18, 2023.

Photo 18: Same portion of Haines Canyon Wash following weed abatement efforts on May 18, 2023.

Photo 19: Mustards growing along trails in the eastern riparian area prior to weed abatement efforts on May 22, 2023.

Photo 20: Same portion of the eastern riparian area after to weed abatement efforts on May 22, 2023.

Photo 21: Crew members using weed whippers to remove non-natives from around the slopes of the equestrian center on May 25, 2023.

Photo 22: Trail overgrown with non-natives on May 26, 2023.

Photo 23: The same trail, now clear and passable following exotic species removal on May 26, 2023.

Photo 24: Crew member trimming native vegetation to allow for safe trail passage on May 30, 2023.

Photo 25: Example of signange posted by restoration crew members to protect nesting least Bell's vireo in the eastern riparian area on May 31, 2023.

July 12, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the June 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) for June 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that the work crews followed all mitigation and avoidance measures. Details of the June 2023 exotic plant eradication efforts including dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

Pre-activity sweeps for sensitive resources were conducted by qualified biologists ahead of the work crew. Nesting bird surveys were conducted on June 2, 9, 12, 13, 15, 16, 19, 20, 23, and 26 through 29 to identify any active nests. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologists Corey Jacobs, Heather Franklin, Christhian Mace, Jessica Calvillo, Alisa Muniz, and/or Austin Burke. Following the pre-activity sweeps and instructional tailgate meetings, restoration crew lead Jimmy Gomez led exotic plant removal efforts. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

For June 2023, exotic plant removal efforts were focused on the Cottonwood Avenue bluff, the Mary Bell Avenue entrance fence line, around the Tujunga Ponds, and by the north Wheatland Avenue entrance. In addition to the removal efforts described below, the Mitigation Area was monitored for germination of exotic annual species encouraged by warmer weather conditions. Both developing and expired annual plant species contributing to the fuel load were targeted during the June efforts. Primary target species included brome grasses (*Bromus* spp.), Italian thistle (*Carduus pycnocephalus*), black mustard (*Brassica nigra*) and other mustard species (*Brassica* spp., *Hirschfeldia incana*, *Sisymbrium* spp.). The crew used a combination of chemical (Polaris™ and Activator 90) and mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers). All herbicides used during exotic plant eradication efforts were California-approved aquatic herbicides approved for use within 15 feet of any water source, including permanent (Haines Canyon Creek, Tujunga Ponds) and temporary (Big Tujunga Wash, ephemeral ponds from rains) sources. For the June efforts, the herbicide treatments applied contained 1.6 percent Polaris™, 0.5 percent Activator 90 (an aquatically approved penetrant, deposition, and drift control agent), and 0.5 ounce of Turf Trax® (a blue indicator dye) per gallon of herbicide mixture. A total of 117 ounces of Polaris™ and 36 ounces of Activator 90 were applied onsite for the month of June. All herbicide application was conducted via backpack sprayers and applied by a hand-directed spray nozzle to control herbicide distribution and to avoid non-target species. Removal efforts were concentrated on newly germinating, regenerating, and maturing exotic plant species in areas where resources

supported their continued development as well as expired annual species contributing to the fuel load on site. Seedless plant material was left on the ground in the same area to decompose on site.

## *Execution*

Pre-activity nesting bird sweeps were conducted each morning where the work was proposed. The biologist surveyed within and adjacent-to planned work areas and documented the locations of any active bird nests or nesting behavior, as well as any sensitive species observations. The locations of any active nests, notable bird activities, and sensitive species were recorded using Field Maps for ArcGIS (Field Maps), a Geographic Information Systems (GIS) application that all monitors, crew leads, and the foreman have downloaded on their mobile phones. All active bird nests and sensitive species breeding territories were flagged for avoidance and discussed daily with the crew at morning tailgate meetings.

On June 1 and 2, crews focused exotic removal efforts on trails north of the Cottonwood Avenue bluff and in the eastern riparian area. Non-natives that encroached on the trails were cut back creating clear passage for equestrian riders. In the eastern riparian areas where non-native growth was dense, efforts were focused on clearing a buffer along the trail system to prevent the spread of non-native seeds by trail users as weeds mature. Primary targets included Italian thistle, mustard species, and brome grasses. Removal efforts utilized hand tools including motorized trimmers to clear larger areas of non-natives (Photos 1 through 3).

- On June 2, an active American kestrel (*Falco sparverius*) nest with nestlings was observed just east of the Cottonwood Avenue bluff. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s). The nestlings fledged on June 9 and this nest is no longer considered active.
- On June 2, an active Cooper's hawk (*Accipiter cooperii*) nest located northeast of the Cottonwood Avenue bluff was observed to have nestlings. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s). The nestlings fledged on June 26 and this nest is no longer considered active.
- On June 2, a pair of least Bell's vireo (*Vireo bellii pusillus*) was observed perching and scolding northeast of the Cottonwood Avenue bluff in the riparian habitat along Haines Canyon Creek. It is presumed that the pair had built or was actively building a nest in the area. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s).

On June 9, crews resumed herbicide usage within the Mitigation Area after halting the use of herbicides in May 2019 in response to Los Angeles County's moratorium on the use of certain herbicides. Non-natives were targeted with a foliar application of herbicide using backpack sprayers. Crews focused efforts along the fence line at the Mary Bell Avenue entrance working their way east. Trimmers were used to cut back dense growth of non-natives followed by herbicide application via backpack sprayers to prevent new growth. Primary targets included mustard species, Italian thistle, and brome grasses. The usage of herbicide within the Mitigation Area will substantially reduce the overall weed population, preventing the spread of invasive species and reducing the need for additional control methods in the future (Photo 4).

On June 12 through 15, crews continued weed abatement efforts where they left off the previous week working along the fence line around the Mary Bell Avenue entrance. Dense patches of mustard species and brome grasses were trimmed back using mechanical trimmers and were then treated with herbicide applied via backpack sprayers to prevent regrowth. The Mary Bell Avenue entrance fence line is along a major road which acts as a vector for exotic seeds, resulting in dense growth of non-natives along the fence line. Weed abatement efforts in this area will help prevent the migration of non-native plants further into the Mitigation Area while also depleting the seed bank of exotic species (Photos 5 through 8).

On June 16 and 19 the crew moved to the Cottonwood Avenue bluff, and spot treated smaller patches of mustard species, still early in their development, with herbicide. Motorized trimmers were used to cut down areas where mustard was dense to allow for the effective application of herbicide to prevent regrowth. Targeting weeds early in their growth cycle with herbicide will prevent competition for resources with native plants and greatly reduce the frequency for repeated future weed abatement efforts (Photos 9 through 11).

- On June 16, a potential active lesser nighthawk (*Chordeiles acutipennis*) nest was discovered on the Cottonwood Avenue bluff. The nighthawk was displaying nesting behavior but because the biologist only observed from a distance to minimize disturbance to the bird, confirmation of an active nest was not possible. A buffer was implemented around the observation area and flagged for avoidance.
- On June 19, a single least Bell's vireo was heard calling from willow trees along Haines Canyon Creek in the western riparian area just east of the Wentworth Avenue entrance. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s).
- On June 19, a single least Bell's vireo was heard calling from willow trees in the eastern riparian area just below the equestrian center bluff. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s).

On June 20 crews transitioned their focus from herbicide treatments to the manual removal of expired non-natives contributing to the fuel load within the Mitigation Area. This effort began around the Tujunga Ponds, clearing out non-natives growing along the northern fence line. Only motorized trimmers were used to clear out matured, expired plants, primarily mustard species, that would be unaffected by chemical treatment. The presence of non-native vegetation, especially when it reaches the end of its life cycle, can contribute to increased fuel levels, making the area more susceptible to wildfires. In addition, removing these fully expired annual species creates opportunities for the establishment and growth of native plants by creating space and access to resources (Photos 12 and 13).

- On June 20, a single least Bell's vireo was observed perching and singing within willow trees and mule fat along the trail in the eastern riparian area. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s).
- On June 20, an active bushtit (*Psaltriparus minimus*) nest was observed near the north Tujunga Ponds entrance. The nest was presumed to be in the incubation phase. An avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s).

On June 21 through 27, crews moved to the northwestern corner of the Mitigation Area. Weeds in this portion of the Mitigation Area were able to germinate and mature early in the season due to winter rains. However, due to seasonal dry conditions and limited water resources in this portion of the Mitigation Area, these plants have quickly expired, contributing to the fuel load and creating potentially dangerous fire conditions. Crews strategically removed expired non-natives around the north Wheatland Avenue entrance, progressing east. Motorized trimmers were used to remove non-native vegetation, creating conditions more conducive for native plants to establish and grow (Photos 14 through 19).

- On June 22, an active western scrub jay (*Aphelocoma californica*) nest was observed to be in the nest building phase in the northwestern portion of the Mitigation Area just east of the north Wheatland Avenue entrance. An avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s).
- On June 26, a single least Bell's vireo was observed perching and singing at the top of willow trees along the trail in the eastern riparian area. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s).

- On June 27, a single least Bell's vireo was observed frequently calling, perching, and flying across the trail in the riparian habitat along Big Tujunga Creek just north of the Cottonwood Avenue bluff. The vireo was displaying nesting behavior but because the biologist only observed from a distance to minimize disturbance to the bird, confirmation of an active nest was not possible. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual(s).

On June 28 through June 30, crews focused weed abatement efforts on the eastern slopes of the Cottonwood Avenue bluff. The focus continued to be on clearing out expired annual species contributing to the fuel load. Motorized trimmers were used to trim dense patches of expired mustard species growing along the edges and down the slope of the bluff. Following removal efforts, native shrubs growing within the dense patches of mustard were relieved of choke and gained greater access to light and other resources (Photos 20 and 21).

## *Summary and Results*

All exotic plant eradication activities were supervised by Jimmy Gomez or Michael Godoy, who monitored that permit requirements were closely followed. The crew averaged three members per day during exotic plant eradication efforts.

Biologist Corey Jacobs, Heather Franklin, Christhian Mace, Jessica Calvillo, Alisa Muniz, and/or Austin Burke inspected work areas prior to the start of each effort. The biologist surveyed ahead of the crews for sensitive species in proposed work areas and monitored exotic plant removal so that sensitive species were not negatively impacted by removal efforts.

The June 2023 exotic plant removal efforts were focused on the Cottonwood Avenue bluff, the Mary Bell Avenue entrance fence line, around the Tujunga Ponds, and by the north Wheatland Avenue entrance. Warmer temperatures and limited access to resources has caused many exotic species to naturally expire within the Mitigation Area. These plants were targeted for removal to reduce the fuel load within the Mitigation Area. To efficiently cover the large area, the crew performed removal efforts using motorized weed trimmers and utilized hand-pulling methods when weeds were intermixed with native plants. Follow up treatment with herbicide was performed in these areas to greatly reduce the potential for regrowth. The crew will continue to target germinating and developing stands of exotic species to reduce non-native seed banks throughout the Mitigation Area. Trimming and weeding these exotic species early in their growth cycle prior to seed production effectively reduces the seed bank, reduces fire fuel load, and supports habitat restoration. Crews will continue to monitor the germination and development of annual grasses and forbs to determine the most effective timing for weed abatement efforts.

Mechanical, manual, and chemical removal methods were used during the June 2023 efforts, including using motorized weed trimmers in areas where they would not disturb sensitive resources, hand-pulling exotic species that were growing near native vegetation, and foliar application of herbicide, where appropriate. Continuous and consistent weeding will deplete the exotic plant seed bank over time, reduce the amount of competition posed by non-native species, and continue to encourage the development of native species needed to restore the habitat.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**

**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOGRAPHS**

**Photo 1**: Crew member using hand tools to cut back non-native vegetation encroaching on trails north of the Cottonwood Avenue bluff on June 1, 2023.

**Photo 2**: Dense patches of mustard growing along trails in the eastern riparian area and choking out natives on June 2, 2023.

**Photo 3**: The same area following non-native species removal leaving clear and navigable conditions on June 2, 2023.

**Photo 4**: Crew member spraying herbicide along the Mary Bell Avenue entrance on June 9, 2023.

**Photo 5**: Area along the Mary Bell Avenue entrance fence line prior to weed abatement activities on June 12, 2023.

**Photo 6**: The same area along the Mary Bell Avenue entrance fence line following weed abatement activities on June 12, 2023.

**Photo 7**: Dense patch of mustard growth near the Mary Bell Avenue entrance on June 14, 2023.

**Photo 8**: The same area following weed abatement efforts on June 14, 2023.

**Photo 9**: Large patch of mustard on the Cottonwood Avenue bluff prior to weed abatement efforts on June 16, 2023.

**Photo 10**: Same area on the Cottonwood Avenue bluff following weed abatement efforts on June 16, 2023.

**Photo 11**: Crew treating trimmed mustard on the Cottonwood Avenue bluff with herbicide on June 19, 2023.

**Photo 12**: Expired non-natives contributing to the fuel load in the northwestern corner of the Mitigation Area prior to weed abatement efforts on June 21, 2023.

**Photo 13**: The same area following the removal of non-natives on June 21, 2023.

**Photo 14**: Expired non-natives near the north Wheatland Avenue entrance prior to removal efforts on June 23, 2023.

**Photo 15**: The same area near the north Wheatland Avenue entrance following removal efforts on June 23, 2023.

**Photo 16**: Area near the north Wheatland Avenue entrance prior to removal efforts on June 27, 2023.

**Photo 17**: The same area near the north Wheatland Avenue entrance prior to removal efforts on June 27, 2023.

**Photo 18**: Eastern edge of the Cottonwood Avenue bluff prior to removal efforts on June 29, 2023.

**Photo 19**: Eastern edge of the Cottonwood Avenue bluff following abatement efforts on June 29, 2023.

August 15, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the July 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) for July 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that the work crew(s) followed all mitigation and avoidance measures. Details of the July 2023 exotic plant eradication efforts including dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

Pre-activity sweeps for sensitive resources were conducted by qualified biologists ahead of the work crew. Nesting bird surveys were conducted on July 5, 10, 13, and 26 to identify any active nests. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologists Corey Jacobs, Alisa Muniz, Christhian Mace, and/or Eliana Maietta. Following the pre-activity sweeps and instructional tailgate meetings, restoration crew lead Jimmy Gomez led exotic plant removal efforts. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

For July 2023, exotic plant removal efforts were focused on the Cottonwood Avenue bluff, the eastern slopes and bottom of the Cottonwood Avenue bluff, the Cottonwood Avenue entrance, the Mary Bell Avenue entrance fence line, the bluff near the Mary Bell Avenue entrance, and around the Tujunga Ponds. Portions of this area was not accessible in previous months due to an American kestrel avoidance buffer. In addition to the removal efforts described below, the Mitigation Area was monitored for germination of exotic annual species encouraged by warmer weather conditions. Both developing and expired annual plant species contributing to the fuel load were targeted during the July efforts. Primary target species included brome grasses (*Bromus* spp.), Italian thistle (*Carduus pycnocephalus*), tocalote (*Centaurea melitensis*), black mustard (*Brassica nigra*) and other mustard species (*Brassica* spp., *Hirschfeldia incana*, *Sisymbrium* spp.), umbrella plant (*Cyperus involucratus*), rabbitsfoot grass (*Polypogon monspeliensis*), and white sweetclover (*Melilotus albus*). Due to the mature growth coverage within the areas previously identified as avoidance areas for sensitive resources, the crew used only manual and mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers) for the July weed abatement efforts. Removal efforts were concentrated on newly germinating, regenerating, and maturing exotic plant species in areas where resources supported their continued development as well as expired annual species contributing to the fuel load on site. Seedless plant material was left on the ground in the same area to decompose on site.

## *Execution*

Pre-activity nesting bird sweeps were conducted each morning where the work was proposed. The biologist surveyed within and adjacent-to planned work areas and documented the locations of any active bird nests or nesting behavior, as well as any sensitive species observations. The locations of any active nests, notable bird activities, and sensitive species were recorded using Field Maps for ArcGIS (Field Maps), a Geographic Information Systems (GIS) application that all monitors, crew leads, and the foreman have downloaded on their mobile phones. All active bird nests and sensitive species breeding territories were flagged for avoidance and discussed daily with the crew at morning tailgate meetings. The American kestrel nest below the bluffs near the Mary Bell Avenue entrance was no longer active; the nestlings had fledged and were no longer dependent on the parent birds. The crews were informed that the avoidance area was no longer in place along the majority of the Cottonwood Avenue bluff and along Wentworth Street near Mary Bell Avenue. The northern portion of the bluff was still closed due to least Bell's vireo still nesting in the area.

On July 3 through 7, the crew focused exotic removal efforts on the Cottonwood Avenue bluff, the eastern slopes and bottom of the Cottonwood Avenue bluff, and the southern portion of the Tujunga Ponds. Due to hot and dry weather conditions, many non-native plants have expired and are contributing to increased fire danger within the Mitigation Area. Efforts were primarily focused on removing expired plants that have the potential to add to the fuel load. Target species included Italian thistle, mustard species, white sweetclover, and tocalote. Hand tools and motorized trimmers were used to trim back large, dense patches of non-natives found growing throughout the area (Photos 1 through 8).

On July 10 through 12, the crew resumed weed abatement activities on the eastern slopes of the Cottonwood Avenue bluff and worked towards the bluff near the Mary Bell Avenue entrance. Efforts were focused on removing expired non-native species that had encroached on native vegetation to relieve choke and decrease the fire fuel load. Primary targets included mustard species, tocalote, brome grasses, rabbitsfoot grass, and giant reed (*Arundo donax*). The crew used hand tools and motorized trimmers to clear larger areas of non-natives (Photos 9 through 12).

On July 13 and 14, the crew transitioned to conduct weed abatement efforts in the northeastern portion of the Tujunga Ponds. The crew primarily focused on removing newly germinating white sweetclover and umbrella plant that take advantage of the perennial water at the Tujunga Ponds which allows them to germinate and grow late into the growing season. Dense patches of mustard species, white sweetclover, and umbrella plant were trimmed back using motorized trimmers and hand tools (Photos 13 through 16).

- On July 13, two least Bell's vireo (*Vireo bellii pusillus*) were heard calling within the middle of the eastern riparian area. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individuals.
- On July 13, a single least Bell's vireo was observed flying and foraging in the eastern riparian area within dense poison hemlock (*Conium maculatum*) patches. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual.
- On July 13, a single least Bell's vireo male was observed in the eastern riparian area, farther east than the previous two observations. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual.

On July 20 and 21, the crew moved to the eastern and northern sides of the Tujunga Ponds and continued to target overgrown and newly germinating umbrella plant, rabbitsfoot grass, and white sweetclover. Motorized trimmers were used to cut down larger sections of non-native vegetation (Photos 17 through 20).

On July 24 through 26, the crew returned to the northeastern portion of the Tujunga Ponds. The crew focused on removing expired non-natives contributing to the fuel load within the Mitigation Area, as well as new growth of select species. A combination of hand pulling and removal with shovels was used to target newly germinating umbrella plant

found growing along the edges of the Tujunga Ponds. Motorized trimmers were used to clear newly germinating rabbitsfoot grass and white sweetclover growing around the Tujunga Ponds (Photos 21 through 22).

On July 27, 28, and 31, the crew moved to the Cottonwood Avenue bluff entrance and worked east along the fence beyond the Mary Bell Avenue entrance. Due to the highly trafficked road adjacent to the fence line, exotic species are quickly able to spread despite consistent removal efforts. Targeting these areas quickly and often will help minimize seed bank development and regrowth. While this area had been targeted earlier in July, it was revisited at the end of July to address new growth of non-natives. Disrupting plant growth early in the life cycle prevents development and seed maturation. Motorized trimmers were used to remove non-native vegetation, primarily mustard species, in order to create conditions more conducive for native plants to establish and grow (Photos 23 through 28).

## *Summary and Results*

All exotic plant eradication activities were supervised by Jimmy Gomez or Michael Godoy, who monitored that permit requirements were closely followed. The crew averaged three members per day during exotic plant eradication efforts.

Biologist Corey Jacobs, Alisa Muniz, Christhian Mace, and/or Eliana Maietta inspected work areas prior to the start of each effort. The biologist surveyed ahead of the crew for sensitive species in proposed work areas and monitored exotic plant removal so that sensitive species were not negatively impacted by removal efforts.

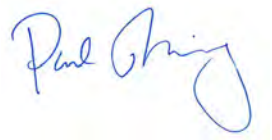
The July 2023 exotic plant removal efforts were focused on the Cottonwood Avenue bluff, the eastern slopes and bottom of the Cottonwood Avenue bluff, the Cottonwood Avenue entrance, the Mary Bell Avenue fence line, the bluff near the Mary Bell Avenue entrance, and around the Tujunga Ponds. Warmer temperatures and limited access to resources has caused many exotic species to expire within the Mitigation Area. These plants were targeted for removal to reduce the fire fuel load within the Mitigation Area. To efficiently cover the large area, the crew performed removal efforts using motorized weed trimmers and used hand-pulling methods when weeds were intermixed with native plants. The crew will continue to target germinating and developing stands of exotic species that continue to grow where perennial water resources are available. Herbicide (non-glyphosate products) will be used in areas where newly germinating exotic growth is identified. The crew will continue to monitor the germination and development of annual grasses and forbs to determine the most effective treatment and timing for weed abatement efforts.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOGRAPHS**

**Photo 1**: Cottonwood Avenue bluff before weed abatement activities on July 3, 2023.

**Photo 2**: Cottonwood Avenue bluff after weed abatement activities on July 3, 2023.

**Photo 3**: The Cottonwood Avenue bluff before weed abatement activities on July 5, 2023.

**Photo 4**: The same area along the Cottonwood Avenue bluff after weed abatement activities on July 5, 2023.

**Photo 5**: Area below the Cottonwood Avenue bluff before work activities on July 6, 2023.

**Photo 6**: The same area below the Cottonwood Avenue bluff following weed abatement efforts on July 6, 2023.

**Photo 7**: The area below Cottonwood Avenue bluff before weed abatement activities on July 7, 2023.

**Photo 8**: Same area below the Cottonwood Avenue bluff following weed abatement efforts on July 7, 2023.

**Photo 9**: The eastern slope of the Cottonwood Avenue bluff before weed abatement activities on July 11, 2023.

**Photo 10**: The same area after weed abatement activities on July 11, 2023.

**Photo 11**: The area below Mary Bell bluff before weed abatement activities on July 12, 2023.

**Photo 12**: The same area after weed abatement activities on July 12, 2023.

**Photo 13**: The northeastern portion of Tujunga Ponds before weed abatement activities on July 13, 2023.

**Photo 14**: The same area following weed abatement activities on July 13, 2023.

**Photo 15**: The northeastern portion of Tujunga Ponds before weed abatement activities on July 14, 2023.

**Photo 16:** The same area after weed abatement activities on July 14, 2023.

**Photo 17**: The eastern portion of the Tujunga Ponds before weed abatement activities on July 20, 2023.

**Photo 18**: The same area after weed abatement activities on July 20, 2023.

**Photo 19**: The northern portion of the Tujunga Ponds before weed abatement activities on July 21, 2023.

**Photo 20**: The same area after weed abatement activities on July 21, 2023.

**Photo 21:** Germinating umbrella plant along the northeastern portion of the Tujunga Ponds before weed abatement activities on July 25, 2023.

**Photo 22**: The same area after weed abatement activities on July 25, 2023.

**Photo 23:** The Cottonwood Avenue bluff before weed abatement activities on July 27, 2023.

**Photo 24:** The same area after weed abatement activities on July 27, 2023.

**Photo 25:** The Cottonwood Avenue bluff before weed abatement activities on July 28, 2023.

**Photo 26:** The same area after weed abatement activities on July 28, 2023.

**Photo 27:** The Cottonwood Avenue bluff fence line before weed abatement activities on July 31, 2023.

**Photo 28:** The same area after weed abatement activities on July 31, 2023.

October 3, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the August 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) for August 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that the work crew(s) followed all mitigation and avoidance measures. Details of the August 2023 exotic plant eradication efforts including dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

Pre-activity sweeps for sensitive resources were conducted by qualified biologists ahead of the work crew. Nesting bird surveys were conducted on August 7, 9, 15, 17, 21, 23, 24, and 25 to identify any active nests. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologists Alisa Muniz, Christhian Mace, Corey Jacobs, and/or Austin Burke. Following the pre-activity sweeps and instructional tailgate meetings, restoration crew lead Jimmy Gomez led exotic plant removal efforts. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

For August 2023, exotic plant removal efforts were focused along the authorized trails in the eastern and western riparian area, the Mary Bell Avenue entrance fence line, the bluff near the Mary Bell Avenue entrance, and the easternmost portion of the Mitigation Area. In addition to the removal efforts described below, the Mitigation Area was monitored for germination of exotic annual species encouraged by summer storm events and warm weather. Both developing and expired annual plant species contributing to the fuel load were targeted during the August efforts. Primary target species included brome grasses (*Bromus* spp.), Italian thistle (*Carduus pycnocephalus*), tocalote (*Centaurea melitensis*), black mustard (*Brassica nigra*) and other mustard species (*Brassica* spp., *Hirschfeldia incana*, *Sisymbrium* spp.), Russian thistle (*Salsola tragus),* and white sweetclover (*Melilotus albus*). Due to the mature weed coverage within the areas previously identified as avoidance areas for sensitive resources, the crew used only manual and mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers) for the August weed abatement efforts. Removal efforts were concentrated on germinating, regenerating, and maturing exotic plant species in areas where resources supported their continued development as well as expired annual species contributing to the fuel load on site. Seedless plant material was left on the ground in the same area to decompose on site.

## *Execution*

Pre-activity nesting bird sweeps were conducted each morning where the work was proposed. The biologist surveyed within and adjacent-to planned work areas and documented the locations of any active bird nests or nesting behavior,

as well as any sensitive species observations. The locations of any active nests, notable bird activities, and sensitive species were recorded using Field Maps for ArcGIS (Field Maps), a Geographic Information Systems (GIS) application that all monitors, crew leads, and the foreman have downloaded on their mobile phones. All active bird nests and sensitive species breeding territories were flagged for avoidance and discussed daily with the crew at morning tailgate meetings. The least Bell's vireo (*Vireo bellii pusillus*) nest north of the Cottonwood Avenue bluff was no longer active; the nestlings had fledged and were no longer dependent on the parent birds. The crews were informed that the avoidance buffer was no longer in place.

On August 1 through August 4, crews completed weed abatement efforts along the bluff near the Mary Bell Avenue entrance, beginning efforts in L6 (Attachment A – Work Area Grid Map) and working their way east throughout the week towards the Equestrian Center. Crews completed weed abatement efforts in grid locations L6 through L10. The primary focus in these locations were expired non-natives contributing to the fire fuel load, predominantly mustard species, which were targeted using motorized trimmers. Tree of heaven (*Ailanthus altissima*) was also encountered and were fully removed using hand tools and shovels to reduce the potential for regrowth (Photos 1 through 4).

On August 7 through 11, crews picked up where the previous week's efforts left off and continued targeting expired non-natives growing along the bluff by the Equestrian Center. Efforts were focused on L10 through L12 at the beginning of the week and then progressed northward, targeting areas K17, K18, K19, J25 and J26. While primary efforts were focused on removing the fuel load created by expired non-natives, late season rains and warm conditions contributed to additional weed germination. Developing white sweetclover, mustard species, and Italian thistle were targeted with weed whippers. Disrupting plant growth early in the life cycle prevents development and seed maturation. Motorized trimmers were used to remove non-native vegetation, primarily mustard species, in order to create conditions more conducive for native plants to establish and grow. Longer lived perennial species were also encountered, including tree tobacco (*Nicotiana glauca*) and tree of heaven. These species were removed using hand tools and shovels, completely removing the root structure to reduce the potential for regrowth (Photos 5 through 8).

- On August 7, the least Bell's vireo nest north of the Cottonwood Avenue bluff was determined to have fledged. An adult and two fledglings were observed within the area, but the nest buffer was removed as the fledglings were no longer dependent on the parents.
- On August 7, the least Bell's vireo nest located near the Wheatland Avenue entrance was determined to no longer be active and the nest buffer was removed.

On August 14 through August 18, crews focused efforts in the eastern riparian area. The week began north of the Cottonwood Avenue bluff in work grid locations G17 and G18 and progressed southeast along the trail leading towards the Equestrian Center. These areas were previously inaccessible due to heavy rains creating flooded conditions along the trail, which allowed for additional weed germination. Crews cleared regrowth along the trail in work areas G17, G18, H19, I21, J21, K15, J22, and J23. Primary targets included mustard species, Italian thistle, Russian thistle, and white sweetclover. These were cleared using motorized trimmers to create clear passage along authorized trails. Later in the week, crews moved farther east and began clearing non-natives in work grid locations I26, J26, J27, and K20. These work locations experience drier conditions, and the focus was primarily on clearing out expired mustard species contributing to the fire fuel load (Photos 9 through 12).

- On August 15, a single male least Bell's vireo was observed and heard calling in the riparian area north of the Cottonwood Avenue bluff. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual.

On August 21 through August 25, crews targeted the southern and eastern portions of the Mitigation Area to avoid least Bell's vireo observed within the eastern riparian area. At the beginning of the week, efforts were focused along the fence line at the Mary Bell Avenue entrance, clearing mustard species that had germinated due to recent rains. Work grid areas M3 through M6 were cleared. Crews then moved eastward and cleared expired mustard species in the

eastern portion of the Mitigation Area near the Interstate 210 freeway. Expired mustard species and brome grasses contributing to the fire fuel load were removed from work grid areas K22, J29, I29, I30, J30, and K23. At the end of the week, crews transitioned to the western riparian area, beginning efforts north of the Cottonwood Avenue bluff and working west along the trail system, clearing work grid areas G17, G16, G15, H14, I15, I14, I13, I12, J12, and J11. Primary targets included developing white sweetclover, mustard species, and tree tobacco (Photos 13 through 16).

- On August 23, one least Bell's vireo was heard calling in riparian habitat dominated by cottonwoods (*Populus fremontii*) west of the Tujunga Ponds. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual.
- On August 24, one least Bell's vireo was heard calling within the middle of the eastern riparian area. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual.
- On August 24, a pair of least Bell's vireo were heard counter singing with the previously described least Bell's vireos to the south in the eastern riparian area. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individuals.
- On August 24, a male least Bell's vireo was observed singing and foraging just east of the exclusionary screen (located at the outlet of the West Tujunga Pond) before flying south and foraging with another least Bell's vireo in the eastern riparian area, farther north than the previous two observations. A 500-foot avoidance buffer was implemented around the observation area to reduce potential disturbance to the individual.

On August 28 through August 31 crews focused efforts in the western riparian area, beginning in the western portion of the site at J7 and working their way east along the trail throughout the week. Primary targets included developing white sweetclover and mustard species that were encroaching on the trail. Work grid areas J7 through J12, I13 through I15, H12 through H15, and G15 and G16 were completed. The crew used hand tools and motorized trimmers to clear areas of non-natives along the trails (Photos 17 and 18).

## *Summary and Results*

All exotic plant eradication activities were supervised by Jimmy Gomez or Michael Godoy, who monitored that permit requirements were closely followed. The crew averaged three members per day during exotic plant eradication efforts.

Biologist Alisa Muniz, Christhian Mace, Corey Jacobs, and/or Austin Burke inspected work areas prior to the start of each effort. The biologist surveyed ahead of the crew for sensitive species in proposed work areas and monitored exotic plant removal so that sensitive species were not negatively impacted by removal efforts.

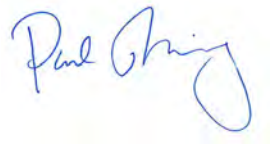
The August 2023 exotic plant removal efforts were focused along the authorized trail systems in the eastern and western riparian area, the Mary Bell Avenue entrance fence line, the bluff near the Mary Bell Avenue entrance, and the easternmost portion of the Mitigation Area. Warmer temperatures and recent rain events allowed for the germination of non-native species late in the season. These plants were targeted early in their growth cycle to prevent development and seed maturation to reduce contribution to the seed bank. To efficiently cover the large area, the crew performed removal efforts using motorized weed trimmers and used hand-pulling methods when weeds were intermixed with native plants. The crew will continue to target germinating and developing stands of exotic species that continue to grow where perennial water resources are available. Herbicide (non-glyphosate products) will be used in areas where newly germinating exotic growth is identified. The crew will continue to monitor the germination and development of annual grasses and forbs to determine the most effective treatment and timing for weed abatement efforts.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**Attachments**

Attachment A – Work Area Grid Map

**SITE PHOTOGRAPHS**

**Photo 1**: Mary Bell Avenue bluff during weed abatement activities on August 1, 2023.

**Photo 2**: Mary Bell Avenue bluff after weed abatement activities on August 1, 2023.

**Photo 3**: The Equestrian Center bluff before weed abatement activities on August 3, 2023.

**Photo 4**: The same area along the Equestrian Center bluff after weed abatement activities on August 3, 2023.

**Photo 5**: Area below the Equestrian Center bluff before work activities on August 7, 2023.

**Photo 6**: The same area below the Equestrian Center bluff following weed abatement efforts on August 7, 2023.

**Photo 7**: The area below the Equestrian Center bluff before weed abatement activities on August 10, 2023.

**Photo 8**: The same area below the Equestrian Center bluff following weed abatement efforts on August 10, 2023.

**Photo 9**: The east seep before weed abatement activities on August 15, 2023.

**Photo 10**: The same area in the east seep after weed abatement activities on August 15, 2023.

**Photo 11**: The Haines Canyon Wash before weed abatement activities on August 18, 2023.

**Photo 12**: The same area in the Haines Canyon Wash after weed abatement activities on August 18, 2023.

**Photo 13**: The western portion of the Equestrian Center bluff during weed abatement activities on August 22, 2023.

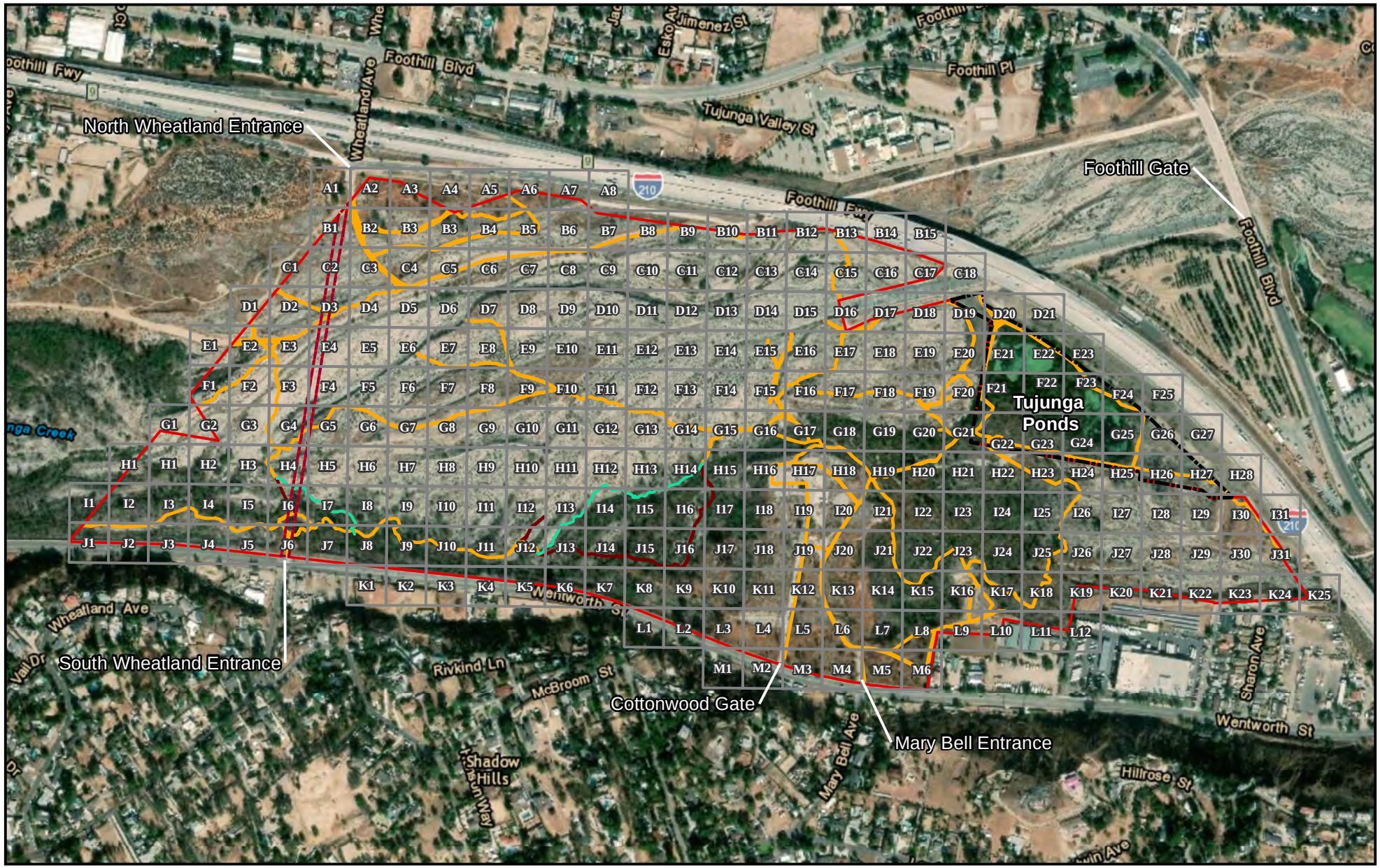
**Photo 14**: The same area below the Equestrian Center bluff following weed abatement activities on August 22, 2023.

**Photo 15**: The western portion of the South Wheatland Avenue eastern riparian area before weed abatement activities on August 25, 2023.

**Photo 16:** The same area of the South Wheatland Avenue eastern riparian area after weed abatement activities on August 25, 2023.

**Photo 17**: The western Cottonwood Avenue riparian area before weed abatement activities on August 29, 2023.

**Photo 18**: The same area in the western Cottonwood Avenue riparian area after weed abatement activities on August 29, 2023.




## Legend

- 1 Acre Work Area Grid
- L.A. County Park Parcel
- Mitigation Area
- Wheatland Ave Easement
- New Trail Realignment Sections
- Existing Trail
- Trail Closed

N

0 250 500 1,000

Feet

# Attachment A

Big Tujunga Wash Mitigation Area
Work Area Grid Map

Name: 21021 1 Acre Work Area Grids.Mxd
Print Date: 8/28/2019, Author: pcarlos

CHAMBERS GROUP

November 3, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the September 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) for September 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that the work crew(s) followed all mitigation and avoidance measures. Details of the September 2023 exotic plant eradication efforts including dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

Pre-activity sweeps for sensitive resources including nesting birds were conducted by qualified biologists ahead of the work crew through September 1, the end of the recognized breeding, nesting, and fledging season for most bird species in the San Gabriel Valley. A biological monitor was also present onsite September 19, 22, 26, 27, and 29 to conduct pre-activity sweeps for sensitive resources and to provide increased oversite and guidance due to a larger crew being split up into two smaller crews on site. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologist Christhian Mace or crew lead Jimmy Gomez. Following the pre-activity sweeps and instructional tailgate meetings, restoration crew lead Jimmy Gomez led exotic plant removal efforts. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

For September 2023, exotic plant removal efforts were focused in the eastern and western riparian areas, Cottonwood Avenue bluff, Cottonwood Avenue entrance, the southernmost portion of the Tujunga Ponds area, Haines Canyon Wash, the equestrian center Bluff, and the south Wheatland Avenue entrance. In addition to the removal efforts described below, the Mitigation Area was monitored for germination of exotic annual species. Both developing and expired annual plant species contributing to the fuel load were targeted during the September efforts. Primary target species included black mustard (*Brassica nigra*) and other mustard species (*Brassica* spp., *Hirschfeldia incana*, *Sisymbrium* spp.), castor bean (*Ricinus communis*), tree of heaven (*Ailanthus altissima*), sow thistle (*Sonchus oleraceus*), and white sweetclover (*Melilotus albus*). Due to the mature growth coverage within the areas previously identified as avoidance areas for sensitive resources, the crew used only manual and mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers) for the September weed abatement efforts. Removal efforts were concentrated on newly germinating, regenerating, and maturing exotic plant species in areas where resources supported their continued development as well as expired annual species contributing to the fuel load on site. Seedless plant material was left on the ground in the same area to decompose on site.

## *Execution*

Pre-activity sweeps for sensitive resources were conducted in areas where work was proposed. The biologist surveyed within and adjacent-to planned work areas and documented the locations of any sensitive species observations. The locations of any sensitive species identified were recorded using Field Maps for ArcGIS (Field Maps), a Geographic Information Systems (GIS) application that all monitors, crew leads, and the foreman have downloaded on their mobile phones.

On September 1 and September 4 through 8, crews completed weed abatement efforts throughout the western riparian area, beginning efforts in I17 (Attachment A – Work Area Grid Map) and working their way west throughout the week towards the south Wheatland Avenue entrance. Crews completed weed abatement efforts in grid location I17 through I14 and J15 through J13. The primary focus in these locations were expired non-natives contributing to the fuel load, predominantly mustard species, which were targeted using motorized trimmers. White sweetclover and sow thistle were encountered and were targeted using motorized trimmers and hand tools. Tree of heaven was also encountered and fully removed using hand tools and shovels to reduce the potential for regrowth (Photos 1 through 4).

On September 11 and 12, crews picked up slightly east of where the previous week's efforts left off and continued targeting non-natives growing throughout the western riparian area working their way back to the east. Weed abatement efforts occurred in J16 and J17 and matured white sweetclover and expired mustard species were targeted with motorized trimmers (Photos 5 through 6).

On September 13 through 15, crews moved northeast to conduct weed abatement efforts in the eastern riparian area, working through areas H19 and H20. Primary efforts were focused on removing mature and newly developing castor bean with a combination of hand-pulling and hand tools to limit potential for regrowth. The root systems of the mature plants were fully removed to reduce the potential for regrowth. Newly developing plants were pulled to disrupt growth early in the life cycle to prevent continued development and seed maturation. Removal of non-natives reduces competition for resources and space and allows more opportunity for native plants to grow (Photos 7 through 8).

On September 18 through 21, crews resumed weed abatement efforts in the eastern riparian area where they left off the previous week, beginning in area H21 before moving south to I21 and J21. The crews then targeted G21 and G22 in the southernmost portion of the Tujunga Ponds area and finished the week back in the eastern riparian area in H21, H22, and H23. Efforts mainly targeted patches of mature and newly developing castor bean along the trail. Hand-pulling and hand tools were utilized to remove as much of the plants' root systems as possible, to limit potential for regrowth. Crews also collected and bagged castor bean seed heads. Reducing the non-native seed bank helps to limit competition with native plant species and allows more opportunity for natives to germinate and succeed (Photos 9 through 12).

On September 25 and 26, crews began weed abatement efforts within the eastern riparian area and progressed into Haines Canyon Wash and areas north of the equestrian center. Efforts were focused on removing mature castor bean and expired mustard species that contribute to the fuel load in work grid areas J25, K19, L12, L11, K18, K17, J23, and J22. Crews then moved south to areas K15, K14, and J21 where they focused on removing mature castor bean plants that had developed seed heads. On September 27, crews moved west to the south Wheatland Avenue entrance to clear the remaining mature castor bean near authorized trails in this area. On September 28, crews focused their efforts around the Cottonwood Avenue entrance and conducted weed abatement efforts in grid locations L5, L6, M3, and M4. Primary targets included newly germinating mustard species that had begun growing in large patches near the Cottonwood Avenue entrance and east along the fence towards the equestrian center. The crew used hand tools, motorized trimmers, and hand-pulling to fully remove the non-natives (Photos 13 through 17).

## *Summary and Results*

All exotic plant eradication activities were supervised by Jimmy Gomez or Michael Godoy, who monitored that permit requirements were closely followed. The crew averaged four members per day during exotic plant eradication efforts.

The biologist surveyed ahead of the crew for sensitive species in proposed work areas and monitored exotic plant removal so that sensitive species were not negatively impacted by removal efforts.

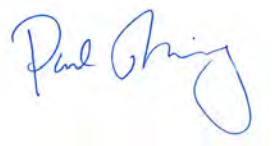
The September 2023 exotic plant removal efforts were focused in the eastern and western riparian areas, Cottonwood Avenue bluff, Cottonwood Avenue entrance, the southernmost portion of the Tujunga Ponds area, Haines Canyon Wash, the equestrian center bluff, and the south Wheatland Avenue entrance. To efficiently cover larger areas, the crew performed removal efforts using motorized weed trimmers and used hand-pulling methods when weeds were intermixed with native plants. The crew will continue to target germinating and developing stands of exotic species that continue to grow where perennial water resources are available. Herbicide (non-glyphosate products) may be used in areas where newly germinating exotic growth is identified. The crew will continue to monitor the germination and development of annual grasses and forbs to determine the most effective treatment and timing for weed abatement efforts.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**Attachments**

Attachment A - Work Area Grid Map

**SITE PHOTOGRAPHS**

**Photo 1**: The western riparian area before weed abatement activities on September 1, 2023.

**Photo 2**: The same part of the western riparian area after weed abatement activities on September 1, 2023.

**Photo 3**: The western riparian area before weed abatement activities on September 7, 2023.

**Photo 4**: The same part of the western riparian area after weed abatement activities on September 7, 2023.

**Photo 5**: The west Cottonwood Avenue bluff before work activities on September 11, 2023.

**Photo 6**: The same part of the Cottonwood Avenue bluff after weed abatement efforts on September 11, 2023.

**Photo 7**: The eastern riparian area before weed abatement activities on September 13, 2023.

**Photo 8**: The same part of the eastern riparian area after weed abatement efforts on September 13, 2023.

**Photo 9**: The eastern riparian area during weed abatement activities on September 18, 2023.

**Photo 10**: The same part of the eastern riparian area after weed abatement activities on September 18, 2023.

**Photo 11**: The eastern riparian area before weed abatement activities on September 21, 2023.

**Photo 12**: The same part of the eastern riparian area after weed abatement activities on September 21, 2023.

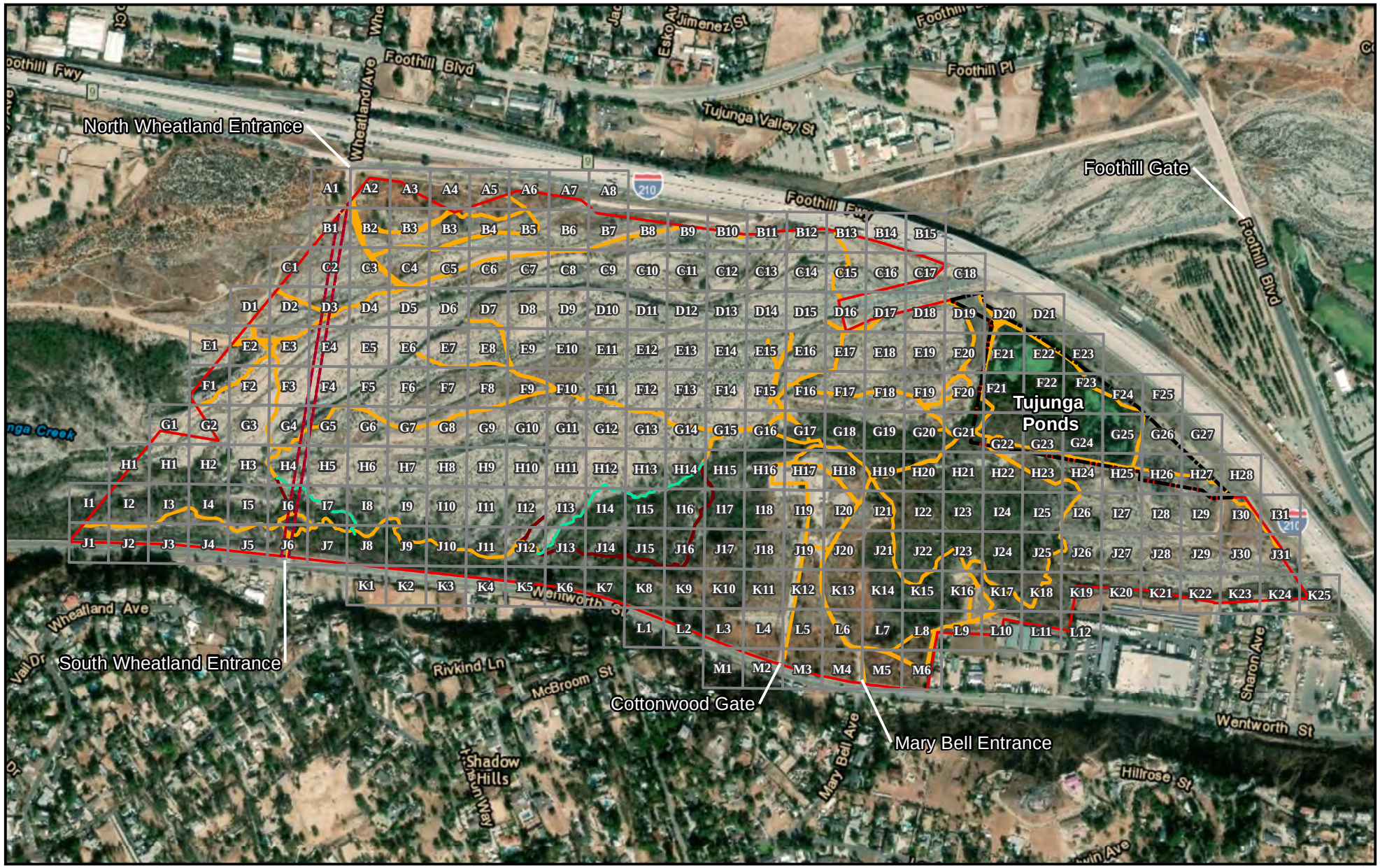
**Photo 13**: The eastern edge of the Cottonwood Avenue bluff before weed abatement activities on September 25, 2023.

**Photo 14**: The same part of the Cottonwood Avenue bluff after weed abatement activities on September 25, 2023.

**Photo 15**: The southern portion of the Cottonwood Avenue bluff before weed abatement activities on September 28, 2023.

**Photo 16:** The same portion of the Cottonwood Avenue bluff during weed abatement activities on September 28, 2023.

**Photo 17**: The same portion of the Cottonwood Avenue bluff (alternate view) after weed abatement activities on September 28, 2023.




## Legend

- 1 Acre Work Area Grid
- L.A. County Park Parcel
- Mitigation Area
- Wheatland Ave Easement
- New Trail Realignment Sections
- Existing Trail
- Trail Closed

N

0 250 500 1,000

Feet

# Attachment A

Big Tujunga Wash Mitigation Area
Work Area Grid Map

Name: 21021 1 Acre Work Area Grids.Mxd
Print Date: 8/28/2019, Author: pcarlos

CHAMBERS GROUP

November 29, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the October 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) for October 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that the work crew(s) followed all mitigation and avoidance measures. Details of the October 2023 exotic plant eradication efforts including dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

A biological monitor was present onsite October 4, 5, 19, 24, and 26 to conduct pre-activity sweeps for sensitive resources and to provide oversite and guidance. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologists Mauricio Gomez, Eliana Maietta, Corey Jacobs, or restoration crew lead Jimmy Gomez. Following the pre-activity sweeps and instructional tailgate meetings, restoration crew lead Jimmy Gomez led exotic plant removal efforts. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

Due to the rains that occurred in mid-August (tropical storm Hilary) followed by warm weather with temperatures in the mid-80s, newly germinating exotic plants have been observed throughout the Mitigation Area. Emergent and flowering plants are not typical during this time of year (October). Additional exotic removal in areas that were previously maintained will be required through the remainder of the year.

The October 2023 exotic plant removal efforts were focused in the eastern riparian area, around the Tujunga Ponds, on the Cottonwood Avenue bluff, the equestrian center bluff, central Haines Canyon Creek, the southern riparian area, the westernmost portion of the Mitigation Area, and the western riparian area. In addition to the removal efforts described below, the Mitigation Area was monitored for the germination of exotic annual species. Both developing and expired annual plant species contributing to the fuel load were targeted during the October efforts. Primary target species included black mustard (*Brassica nigra*) and other mustard species (*Brassica* spp., *Hirschfeldia incana*, *Sisymbrium* spp.), castor bean (*Ricinus communis*), tree of heaven (*Ailanthus altissima*), sow thistle (*Sonchus oleraceus*), and white sweetclover (*Melilotus albus*). Due to the mature growth coverage within the areas previously identified as avoidance areas for sensitive resources, the crew used only manual and mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers) for the October weed abatement efforts. Removal efforts were concentrated on newly germinating, regenerating, and maturing exotic plant species in areas where resources

supported their continued development as well as expired annual species contributing to the fuel load on site. Seedless plant material was left on the ground in the same area to decompose on site.

## *Execution*

Pre-activity sweeps for sensitive resources were conducted in areas where work was proposed. The biologist surveyed within and adjacent-to planned work areas and documented the locations of any sensitive species observations. The locations of any sensitive species identified were recorded using Field Maps for ArcGIS (Field Maps), a Geographic Information Systems (GIS) application that all monitors, crew leads, and the foreman have downloaded on their mobile phones.

On October 3 through 6, crews completed weed abatement efforts throughout the eastern portion of the Mitigation Area. At the beginning of the week, crews focused efforts within the eastern riparian area, clearing grid areas J23, J24, K17, K18, J25, and J26. Primary focus was on removing new growth of mustard species encroaching on the authorized trail system to clear space for equestrian and pedestrian trail users. Crews progressed north and east throughout the week, focusing efforts in grid areas I26, H22 through H27, and G22 through G25. At the end of the week weed abatement efforts were focused around the Tujunga Ponds, clearing grid areas G26, D20, E21, and F21 through F24. Crews used motorized trimmers and hand tools to cut back white sweetclover and mustard species (Photos 1 through 4).

On October 9 through 13, crews focused weed abatement efforts on removing mustard species on the Cottonwood Avenue bluff clearing grid areas I20, I21, and J20, before progressing east into the eastern riparian area and equestrian center bluff clearing mustard in grid areas L6 through L12 and K19 through K21. Crews returned to the Tujunga Ponds to clear overgrowth of both native and non-native species encroaching on the trails in grid locations E22, E23, F23, and F24. Efforts were focused on removing mature and newly germinating mustard species and brome species that were encroaching upon the trails. Crews transitioned to central Haines Canyon Creek at the end of the week and encountered newly germinated castor bean growing in grid locations H18, H19, G17, and G18. These plants were fully removed, including the root systems, using a combination of hand-pulling and hand tools to limit potential for regrowth. Their seed heads were bagged and disposed of to limit contribution to the seed bank. Mustard species were removed with mechanical trimmers (Photos 5 through 8).

On October 16 through 20, crews resumed weed abatement efforts where they left off the previous week in central Haines Canyon Creek, beginning in grid location G19 and progressing west along Haines Canyon Creek and the trail system clearing grid locations G15 through G19, H12, H14, I13 through I15, and J13. Crews continued to primarily target castor bean which has grown dense in areas where access to water is plentiful. Crews worked along the authorized trail system progressing west from grid location J12 to J1, and I3 through I7 removing mustard species, castor bean, tree of heaven, and white sweetclover from the areas surrounding the trail. The mustard species were removed using motorized trimmers and the other mature non-natives were hand-pulled to fully remove their root systems and limit potential for regrowth. Newly developing plants were pulled to disrupt growth early in the life cycle to prevent development and seed maturation. Removal of non-natives reduces competition for resources and space and allows more opportunity for native plants to develop (Photos 9 through 12).

On October 23 through 27, crews resumed weed abatement efforts where they left off the previous week and retraced their steps along the southern riparian trail, beginning in the western portion of the Mitigation Area at grid location J3 and I3 and progressing east to grid location J16 and I16. Efforts were focused on finding any non-natives that had been missed the previous week and removing rocks from the trails to support equestrian use of the site. Crews hand pulled newly developing castor bean and tree of heaven near the southern fence line and bagged and disposed of non-native seed heads to limit contribution to the seed bank (Photos 13 through 16).

On October 30 and 31, crews completed weed abatement efforts within central Haines Canyon Creek in grid locations G18, G19, and F15 through F18. Efforts were focused on hand-pulling mature castor bean. The crew used hand tools to

completely remove the root structures and collected any seed heads to keep non-native seed from entering the seed bank and reduce competition with native plants (Photos 17 and 18).

## *Summary and Results*

All exotic plant eradication activities were supervised by Jimmy Gomez or Michael Godoy, who monitored that permit requirements were closely followed. The crew averaged four members per day during October exotic plant eradication efforts.

The biologist surveyed ahead of the crew for sensitive species in proposed work areas and monitored exotic plant removal so that sensitive species were not negatively impacted by removal efforts.

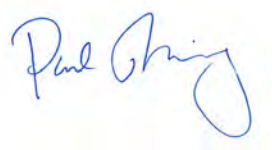
The October 2023 exotic plant removal efforts were focused along the in the eastern riparian area, around the Tujunga Ponds, on the Cottonwood Avenue bluff, the equestrian center bluff, central Haines Canyon Creek, the southern riparian area, the westernmost portion of the Mitigation Area, and the western riparian area. Primary targets for the October 2023 efforts included newly developing castor bean that were able to germinate and grow quickly near perennial water sources and both newly geminated and expired mustard and brome species. To efficiently cover larger areas, the crew performed removal efforts using motorized weed trimmers and used hand-pulling methods when weeds were intermixed with native plants. The crew will continue to target germinating and developing stands of exotic species that continue to grow where perennial water resources are available. Herbicide (non-glyphosate products) may be used in areas where newly germinating exotic growth is identified. The crew will continue to monitor the germination and development of annual grasses and forbs to determine the most effective treatment and timing for weed abatement efforts.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**Attachments**
Attachment A - Work Area Grid Map

**SITE PHOTOGRAPHS**

**Photo 1**: Eastern riparian area before weed abatement activities on October 3, 2023.

**Photo 2**: The same portion of the eastern riparian area after weed abatement activities on October 3, 2023.

**Photo 3**: Eastern riparian area before weed abatement activities on October 4, 2023.

**Photo 4**: The same part of the eastern riparian area after weed abatement activities on October 4, 2023.

**Photo 5**: Cottonwood Avenue bluff before weed abatement activities on October 9, 2023.

**Photo 6**: The same part of Cottonwood Avenue bluff after weed abatement efforts on October 9, 2023.

**Photo 7**: Area around the Tujunga Ponds before weed abatement activities on October 11, 2023.

**Photo 8**: The same area around the Tujunga Ponds after weed abatement efforts on October 11, 2023.

**Photo 9**: Central Haines Canyon Creek during weed abatement activities on October 16, 2023.

**Photo 10**: The same part of central Haines Canyon Creek after weed abatement activities on October 16, 2023.

**Photo 11**: Southern riparian area during weed abatement activities on October 19, 2023.

**Photo 12**: The same part of southern riparian area after weed abatement activities on October 19, 2023.

**Photo 13**: Southern riparian area before weed abatement activities on October 24, 2023.

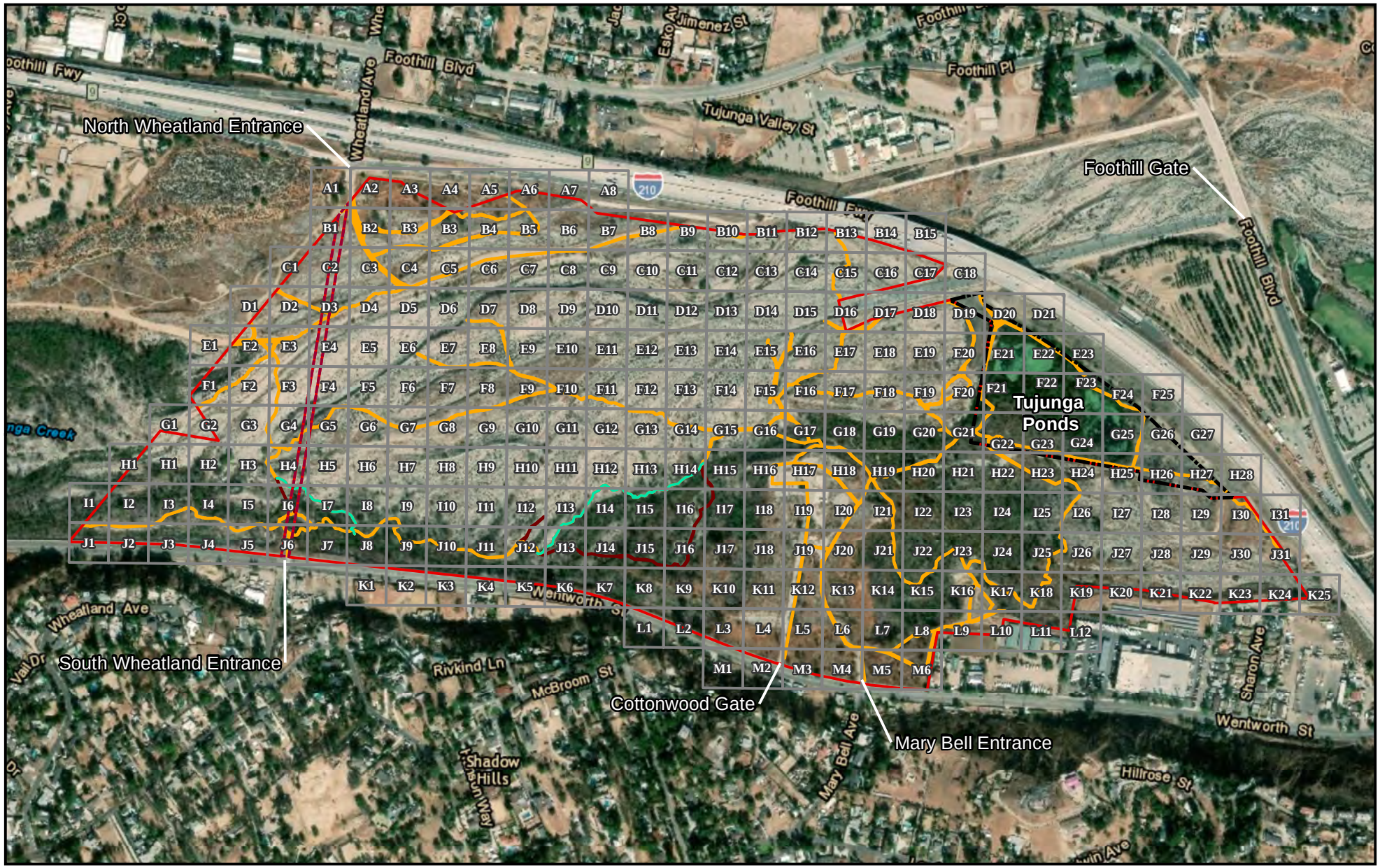
**Photo 14**: The same part of southern riparian area after weed abatement activities on October 24, 2023.

**Photo 15**: The western riparian area before weed abatement activities on October 27, 2023.

**Photo 16:** The same portion of the western riparian area after weed abatement activities on October 27, 2023.

**Photo 17**: Central Haines Canyon Creek during weed abatement activities on October 31, 2023.

**Photo 18**: Central Haines Canyon Creek after weed abatement activities on October 31, 2023.




## Legend

- 1 Acre Work Area Grid
- L.A. County Park Parcel
- Mitigation Area
- Wheatland Ave Easement
- New Trail Realignment Sections
- Existing Trail
- Trail Closed

N

0 250 500 1,000

Feet

# Attachment A

Big Tujunga Wash Mitigation Area
Work Area Grid Map

Name: 21021 1 Acre Work Area Grids.Mxd
Print Date: 8/28/2019, Author: pcarlos

CHAMBERS GROUP

January 4, 2024

Morgan Newcomb
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the November 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Newcomb,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) for November 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that the work crew(s) followed all mitigation and avoidance measures. Details of the November 2023 exotic plant eradication efforts including dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

A biological monitor was present onsite November 1, 13, and 28 to conduct pre-activity sweeps for sensitive resources and to provide oversite and guidance. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologists Eliana Maietta, Corey Jacobs, or restoration crew lead Jimmy Gomez. Following the pre-activity sweeps and instructional tailgate meetings, restoration crew lead Jimmy Gomez led exotic plant removal efforts. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

The November 2023 exotic plant removal efforts were focused on central Haines Canyon Creek, the eastern riparian area, Haines Canyon Wash, the eastern and western slopes of the Cottonwood Avenue fluff, along the Cottonwood Avenue entrance fence line, and along trails near the equestrian center and near central Haines Canyon Creek. In addition to the removal efforts described below, the Mitigation Area was monitored for the germination of exotic annual species. Both developing and expired annual plant species contributing to the fuel load were targeted during the November efforts. Primary target species included black mustard (*Brassica nigra*) and other mustard species (*Brassica* spp., *Hirschfeldia incana*, *Sisymbrium* spp.), castor bean (*Ricinus communis*), tree of heaven (*Ailanthus altissima*), sow thistle (*Sonchus oleraceus*), and white sweetclover (*Melilotus albus*). Due to the proximity of exotic species to stands of native vegetation and the potential for herbicide to drift onto native vegetation, the crew used only manual and mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers) for the November weed abatement efforts. Removal efforts were concentrated on newly germinating, regenerating, and maturing exotic plant species in areas where resources supported their continued development as well as expired annual species contributing to the fuel load on site. Seedless plant material was left on the ground in the same area to decompose on site.

## *Execution*

Pre-activity sweeps for sensitive resources were conducted in areas where work was proposed. The biologist surveyed within and adjacent-to planned work areas and documented the locations of any sensitive species observations. The locations of any sensitive species identified were recorded using Field Maps for ArcGIS (Field Maps), a Geographic Information Systems (GIS) application that all monitors, crew leads, and the foreman have downloaded on their mobile phones.

On November 1 through 3, crews completed weed abatement efforts in central Haines Canyon Creek, the eastern riparian area, Haines Canyon Wash, and along the Cottonwood Avenue entrance. Efforts were targeted in grid area locations G20, G21, H20 through H27, K12, K13, L5, L6, M3, and M4. Crew members utilized weed whippers to target new growth popping up in areas that were cleared during previous efforts, including new growth of mustard and white sweetclover. These species occurred in large continuous stands, and therefore, herbicide application was not utilized. In addition, crews searched for mature castor bean growing throughout the Mitigation Area. When encountered, these plants were completely removed, including the root system, and seed heads were bagged for disposal offsite.

On November 6 through 10, crews focused efforts on removing longer-lived perennials growing throughout the eastern riparian area. Crews began in the northern portion of the riparian area early in the week and progressed south towards the equestrian center throughout the week. Primary targets included castor bean and tree of heaven. Grid areas I22 through I24, J22 through J25, L8 through L10, K18 and K19 were cleared. Eradication efforts required complete removal of the plants from the roots. Crews used shovels and other hand tools to remove the full root structure to prevent regrowth.

On November 13 through 17, crews completed weed abatement efforts along the western slopes of the Cottonwood Avenue bluff targeting grid areas I17 through I19, L1 through L4, K10 through K12, J17 though J19, and H15 through H17. Removal efforts were focused on mustard species, white sweetclover, poison hemlock (*Conium maculatum*), and castor bean that continued to germinate and grow due to late season rains and warm temperatures. Motorized trimmers were utilized to clear out larger patches of non-native species while hand tools were used to remove castor bean. Castor bean seed heads were bagged for disposal offsite.

On November 20 through 24, crews completed weed abatement efforts along the eastern slopes of the Cottonwood Avenue bluff and along the trail just north of the equestrian center, targeting grid locations G17 through G20, I21 through I23, H19, J21, K13 through K16, and L8 through L12. Primary targets along the eastern slope of the Cottonwood Avenue bluff included new growth of mustard species and castor bean. Large stands of mustard species were targeted using motorized trimmers while castor bean was fully removed using hand tools and seed heads were bagged for disposal offsite. Newly germinated mustard species, white sweetclover, and brome grasses (*Bromus* spp.) were found growing along the trail just north of the equestrian center. Motorized trimmers were used to cut back non-native growth along authorized trails to create clear passage for trail users.

On November 27 through 30, crews started the week clearing out mature and newly germinating castor bean found growing within the eastern riparian area in grid locations J22 through J24. The plants were completely removed using hand tools and seeds were bagged for disposal. Crews then transitioned to central Haines Canyon Creek to grid locations G21, H19, and H20 to clear mustard species and white sweetclover encroaching on the trail. At the end of the week crews conducted weed abatement along the Wentworth Street fence line at the Cottonwood Avenue entrance at grid locations M2 through M5, primarily targeting poison hemlock, white sweetclover and mustard species. While this area had been targeted earlier in the growing season, it was revisited at the end of November to address new growth of non-natives. Exotic species can spread quickly along the Wentworth Street fence line despite consistent removal efforts due to heavy vehicle and bike traffic that can continually introduce/spread weed seed. Targeting these areas frequently will help minimize seed bank development and regrowth. This area will also be targeted with herbicide treatments during future efforts.

## *Summary and Results*

All exotic plant eradication activities were supervised by Jimmy Gomez or Michael Godoy, who monitored that permit requirements were closely followed. The crew averaged four members per day during November exotic plant eradication efforts.

The biologist surveyed ahead of the crew for sensitive species in proposed work areas and monitored exotic plant removal so that sensitive species were not negatively impacted by removal efforts.

The November 2023 exotic plant removal efforts were focused along central Haines Canyon Creek, the eastern riparian area, Haines Canyon Wash, the eastern and western slopes of the Cottonwood Avenue bluff, along the Wentworth Street fence line near the Cottonwood Avenue entrance, and along trails near the equestrian center and near central Haines Canyon Creek. Removal efforts focused on clearing long-lived, late-germinating, and rapidly developing non-native species. Crews relied primarily on mechanical tools and/or hand pulling to completely remove perennial species like castor bean. In many of these areas, exotic species were adventitiously growing among native species where abundant resources (e.g., water, light, space, shade) allowed them to develop late into the growing season and compete with native species.

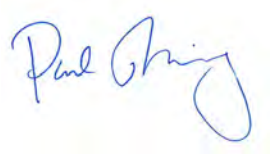
Primary targets for the November 2023 efforts included newly developing castor bean that were able to germinate and grow quickly near perennial water sources and both newly geminated and expired mustard and brome species. To efficiently cover larger areas, the crew performed removal efforts using motorized weed trimmers and used hand-pulling methods when weeds were intermixed with native plants. The crew will continue to target germinating and developing stands of exotic species that continue to grow where perennial water resources are available. During future efforts, herbicide (non-glyphosate products) will be used in areas where newly germinating exotic growth is identified. The crew will continue to monitor the germination and development of annual grasses and forbs to determine the most effective treatment and timing for weed abatement efforts.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**Attachments**

Attachment A - Work Area Grid Map

**SITE PHOTOGRAPHS**

**Photo 1**: Central Haines Canyon Creek before weed abatement activities on November 1, 2023.

**Photo 2**: The same part of central Haines Canyon Creek after weed abatement activities on November 1, 2023.

**Photo 3**: Eastern Cottonwood Riparian area before weed abatement activities on November 3, 2023.

**Photo 4**: The same part of the eastern Cottonwood Riparian area during weed abatement activities on November 3, 2023.

**Photo 5**: Eastern Cottonwood Riparian before weed abatement activities on November 7, 2023.

**Photo 6**: The same part of eastern Cottonwood Riparian during weed abatement efforts on November 7, 2023.

**Photo 7**: The equestrian center bluff before weed abatement activities on November 9, 2023.

**Photo 8**: The same area of equestrian center bluff during weed abatement efforts on November 9, 2023.

**Photo 9**: Cottonwood Avenue bluff before weed abatement activities on November 15, 2023.

**Photo 10**: The same part of Cottonwood Avenue bluff after weed abatement activities on November 15, 2023.

**Photo 11**: Cottonwood Avenue bluff before weed abatement activities on November 17, 2023.

**Photo 12**: The same part of Cottonwood Avenue bluff after weed abatement activities on November 17, 2023.

**Photo 13**: Central Haines Canyon Creek during weed abatement activities on November 21, 2023.

**Photo 14**: The same part of central Haines Canyon Creek after weed abatement activities on November 21, 2023.

**Photo 15**: The eastern slopes of the Cottonwood Avenue bluff before weed abatement activities on November 23, 2023.

**Photo 16:** The same part of the Cottonwood Avenue bluff after weed abatement activities on November 23, 2023.

**Photo 17**: Eastern Cottonwood Riparian area before weed abatement activities on November 27, 2023.

**Photo 18**: The same part of eastern Cottonwood Riparian area after weed abatement activities on November 27, 2023.

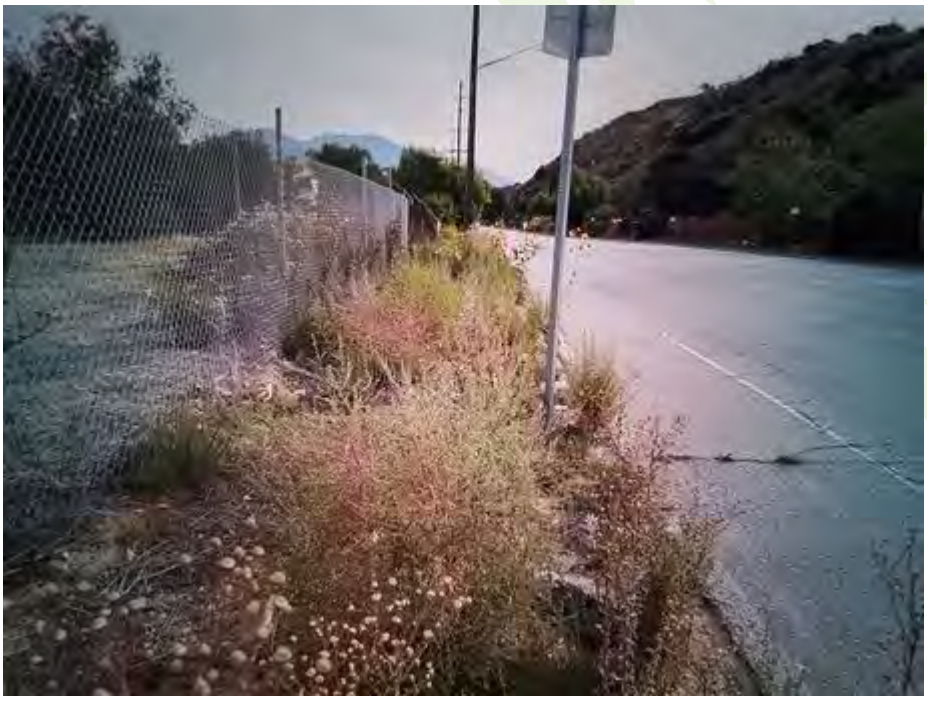
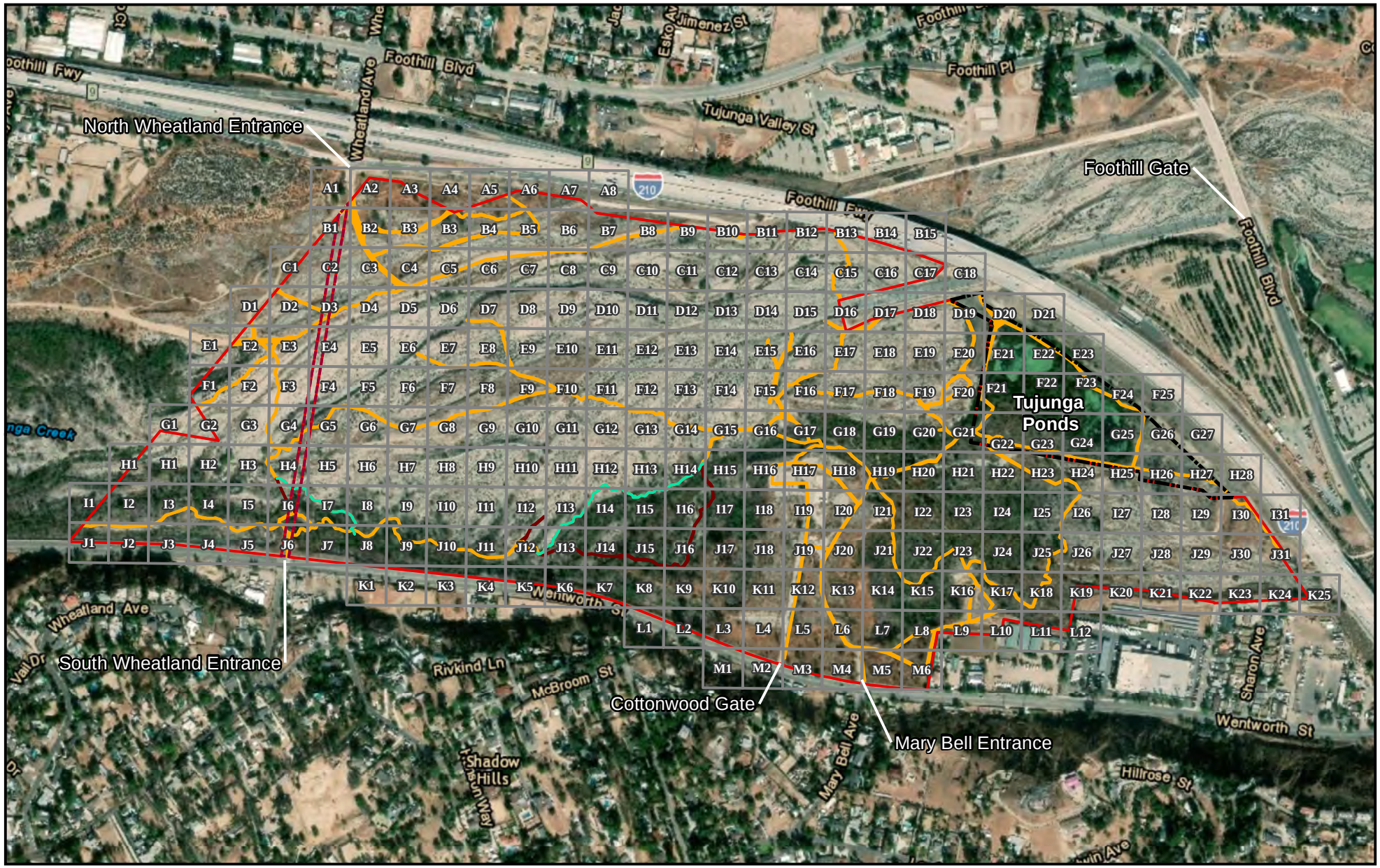


**Photo 19**: The fence line near the Cottonwood Avenue entrance before weed abatement activities on November 30, 2023.

**Photo 20**: The same part of the fence line during weed abatement activities on November 30, 2023.




## Legend

- 1 Acre Work Area Grid
- L.A. County Park Parcel
- Mitigation Area
- Wheatland Ave Easement
- New Trail Realignment Sections
- Existing Trail
- Trail Closed

N

0 250 500 1,000

Feet

# Attachment A

Big Tujunga Wash Mitigation Area
Work Area Grid Map

Name: 21021 1 Acre Work Area Grids.Mxd
Print Date: 8/28/2019, Author: pcarlos

CHAMBERS GROUP

January 10, 2024

Morgan Newcomb
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the December 2023 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Newcomb,

This report summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) for December 2023. This report shows the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to the Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in exotic plant removal efforts within the Mitigation Area worked to monitor and enforce that the work crew(s) followed all mitigation and avoidance measures. Details of the December 2023 exotic plant eradication efforts including dates, names of participants, locations and descriptions of eradication activities performed, sensitive resources encountered, and mitigation actions taken are discussed below.

## *Implementation*

A biological monitor was present onsite December 5, 13, and 14 to conduct pre-activity sweeps for sensitive resources and to provide oversite and guidance. Prior to the start of exotic plant removal efforts, the crew received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in work areas. The meetings were conducted by biologist Eliana Maietta or restoration crew lead Jimmy Gomez. Following the pre-activity sweeps and instructional tailgate meetings, restoration crew lead Jimmy Gomez led exotic plant removal efforts. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

The December 2023 exotic plant removal efforts were focused on central Haines Canyon Creek, the Tujunga Ponds, the eastern riparian area, the northern edge of central Big Tujunga wash, along the fence line by the Mary Bell Avenue entrance, along the fence line north of the equestrian center, and throughout Haines Canyon wash. In addition to the removal efforts described below, the Mitigation Area was monitored for the germination of exotic annual species. Both developing and expired annual plant species contributing to the fuel load were targeted during the December efforts. Target species included black mustard (*Brassica nigra*) and other mustard species (*Brassica* spp., *Hirschfeldia incana*, *Sisymbrium* spp.), brome grasses (*Bromus* spp.), castor bean (*Ricinus communis*), umbrella plant (*Cyperus involucratus*), tree of heaven (*Ailanthus altissima*), sow thistle (*Sonchus oleraceus*), milk thistle (*Silybum marianum*), tree tobacco (*Nicotiana glauca*), broad-leaved cattail (*Typha angustifolia*), lamb's quarters (*Chenopodium album*), red-stemmed filaree (*Erodium cicutarium*), and white sweetclover (*Melilotus albus*). Due to the proximity of exotic species to stands of native vegetation and the potential for herbicide to drift onto native vegetation, the crew used only manual and mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers) for the December weed abatement efforts. Removal efforts were concentrated on newly germinating, regenerating, and maturing exotic plant species in areas where resources supported their continued development as well as expired annual species contributing to the fuel load on site. Seedless plant material was left on the ground in the same area to decompose on site.

## Execution

Pre-activity sweeps for sensitive resources were conducted in areas where work was proposed. The biologist surveyed within and adjacent-to planned work areas and documented the locations of any sensitive species observations. The locations of any sensitive species identified were recorded using Field Maps for ArcGIS (Field Maps), a Geographic Information Systems (GIS) application that all monitors, crew leads, and the foreman have downloaded on their mobile phones.

On December 1 and 4 through 8, crews completed weed abatement efforts in the eastern riparian area and around the Tujunga Ponds. Efforts were targeted in grid area locations F23, F24, H20, H21, H23, H24, I21, I25, J21, J22, J25, K15, and K18. Crew members utilized motorized trimmers to target new growth along the edges of authorized trails that were cleared during previous efforts, including new growth of mustard species, milk thistle, tree tobacco, and white sweetclover. Crews also trimmed native vegetation that was encroaching on the trails. On December 5 and 6, crews focused on removing non-native cattails from the edges of both Tujunga Ponds. Newly germinated and mature castor bean plants were encountered growing within the eastern riparian area and were completely removed, including the root system, and seed heads were bagged for disposal offsite (Photos 1 through 6).

On December 11 through 15, crews focused efforts around the Tujunga Ponds and central Haines Canyon Creek. Crews began clearing non-natives around the West Tujunga Pond and progressed southwest through central Haines Canyon Creek throughout the week. Grids areas D20, E21, E22, F20, F21, G19, G20, and G21 were cleared. The primary targets around the ponds included non-native cattails growing along the water's edge and umbrella plant and white sweetclover growing along trails leading to the ponds. When encountered, crews used shovels and other hand tools to remove castor bean, including the root system, to prevent regrowth. Seed heads were bagged and disposed offsite. Additional target species included mustard species, sow thistle, lamb's quarters, and red-stemmed filaree. Crews used a combination of hand-pulling, hand tools, and motorized trimmers to remove these species. Plant debris was bagged and disposed offsite (Photos 7 through 10).

On December 18 through 22, crews completed weed abatement efforts throughout central Haines Canyon Creek, along the northern edge of central Big Tujunga Wash, along the fence line north of the equestrian center, and along the fence line at the Mary Bell Avenue entrance, targeting grid areas B11 through B14, G16 through G19, K18 through K22, and M1 through M6. Removal efforts were focused on mustard species, white sweetclover, and castor bean. Motorized trimmers were used to clear out larger patches of non-native species that were especially dense along the fence line near the Mary Bell Avenue entrance, while hand tools were used to fully remove castor bean. Castor bean seed heads were bagged for disposal offsite (Photos 11 through 14).

On December 26 through 29, crews completed weed abatement efforts along the fence line north of the equestrian center, and throughout Haines Canyon Wash within the easternmost portion of the Mitigation Area. Crews completed weed abatement in grid locations H25 through H28, I27 through I30, J27 through J30, K19 through K22, K24, and L12. Primary targets included both newly developing and expired mustard species and newly developing castor bean. Mustard species were cleared using motorized trimmers while castor bean was fully removed using hand tools. Seed heads were bagged for disposal offsite. Newly germinated mustard species, white sweetclover, and brome grasses were found growing along the trails throughout the Mitigation Area. Motorized trimmers were used to cut back non-native growth along authorized trails to create clear passage for trail users. Plant debris was bagged for disposal offsite (Photos 15 through 17).

## Summary and Results

All exotic plant eradication activities were supervised by Jimmy Gomez or Michael Godoy, who monitored that permit requirements were closely followed. The crew averaged four members per day during December exotic plant eradication efforts.

The biologist surveyed ahead of the crew for sensitive species in proposed work areas and monitored exotic plant removal so that sensitive species were not negatively impacted by removal efforts.

The December 2023 exotic plant removal efforts were focused on central Haines Canyon Creek, the Tujunga Ponds, the eastern riparian area, the northern edge of central Big Tujunga Wash, along the fence line by the Mary Bell Avenue entrance, along the fence line north of the equestrian center, and throughout Haines Canyon Wash. Removal efforts focused on clearing long-lived, late-germinating, and rapidly developing non-native species. Crews relied primarily on hand pulling and hand tools to completely remove perennial species like castor bean. In many of these areas, exotic species were adventitiously growing among native species where abundant resources (e.g., water, light, space, shade) allows them to develop year-round and compete with native species.

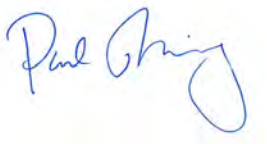
Primary target species for the December 2023 efforts included newly developing castor bean that were able to germinate and grow quickly near perennial water sources and both newly geminated and expired mustard and brome species. To efficiently cover larger areas, the crew performed removal efforts using motorized weed trimmers. Hand-pulling methods were used when weeds were intermixed with native plants to minimize impacts to the native vegetation. The crew will continue to target germinating and developing stands of exotic species that continue to grow where perennial water resources are available. During future efforts, herbicide (non-glyphosate products) will be used in areas where newly germinating exotic growth is identified. The crew will continue to monitor the germination and development of non-native annual grasses and forbs to determine the most effective treatment and timing for weed abatement efforts.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular exotic plant eradication efforts. Chambers Group staff will continually assess the efficacy of eradication methods and adjust these methods as needed to best support mitigation goals.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**Attachments**

Attachment A - Work Area Grid Map

**SITE PHOTOGRAPHS**

**Photo 1**: Eastern riparian area before weed abatement activities on December 1, 2023.

**Photo 2**: The same part of eastern riparian area after weed abatement activities on December 1, 2023.

**Photo 3**: Area north of the equestrian center during weed abatement activities on December 4, 2023.

**Photo 4**: The northern edge of the East Tujunga Pond during weed abatement activities on December 5, 2023.

**Photo 5**: The East Tujunga Pond before weed abatement activities on December 6, 2023.

**Photo 6**: The same part of the East Tujunga Pond after weed abatement efforts on December 6, 2023.

**Photo 7**: The West Tujunga Pond during weed abatement activities on December 12, 2023.

**Photo 8**: The same area of the West Tujunga Pond during weed abatement efforts on December 12, 2023.

**Photo 9**: Central Haines Canyon Creek before castor bean removal on December 14, 2023.

**Photo 10**: The same part of central Haines Canyon Creek after castor bean removal on December 14, 2023.

**Photo 11**: The northern edge of central Big Tujunga Wash during castor bean removal on December 20, 2023.

**Photo 12**: The same part of central Big Tujunga Wash after castor bean removal on December 20, 2023.

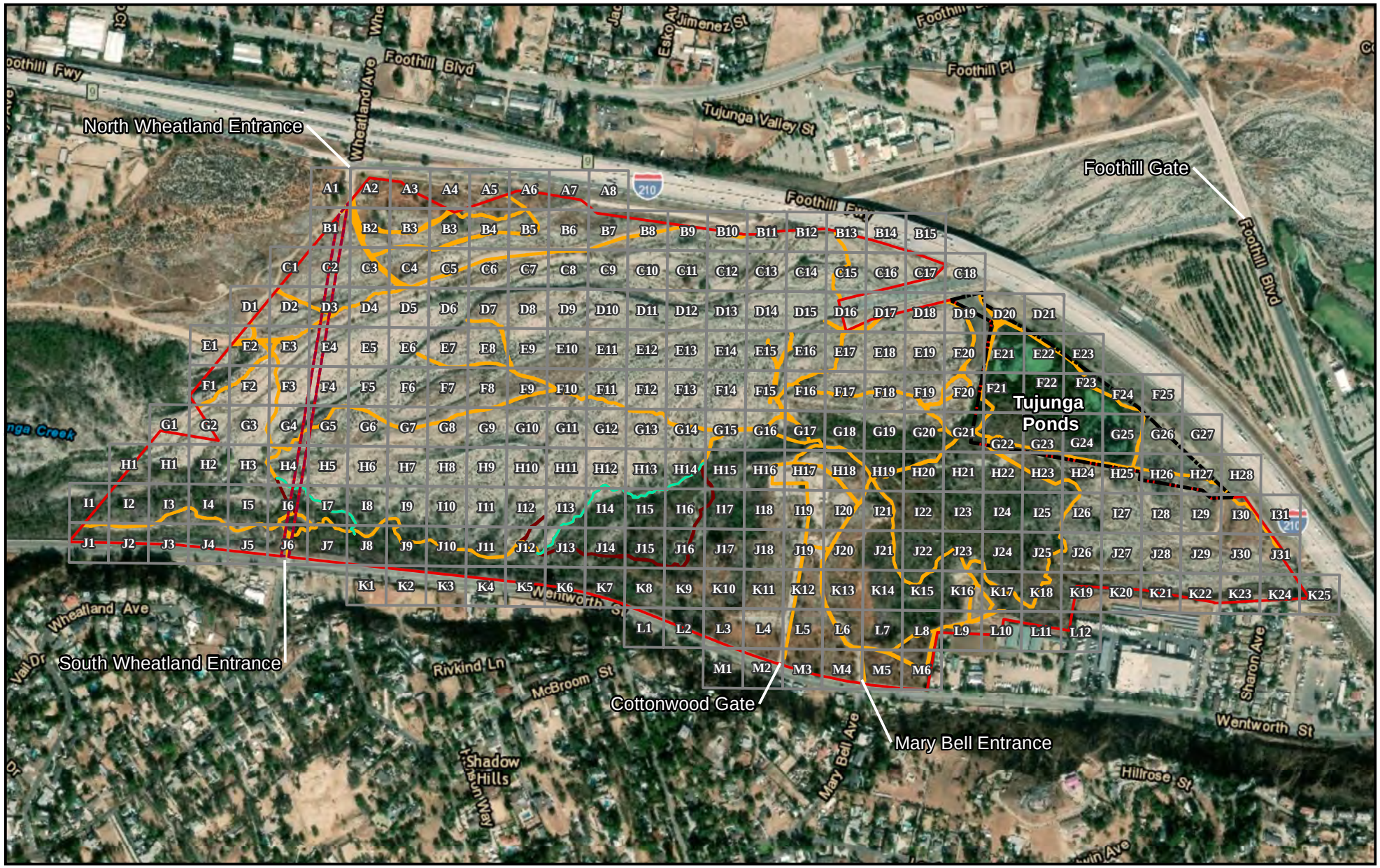
**Photo 13**: North of the equestrian center before castor bean removal on December 21, 2023.

**Photo 14**: The same area north of the equestrian center after castor bean removal on December 21, 2023.

**Photo 15**: The area just west of the equestrian center before weed abatement activities on December 26, 2023.

**Photo 16:** The same area west of the equestrian center after weed abatement activities on December 26, 2023.

**Photo 17**: Just north of Haines Canyon Wash during weed abatement activities on December 29, 2023.




## Legend

- 1 Acre Work Area Grid
- L.A. County Park Parcel
- Mitigation Area
- Wheatland Ave Easement
- New Trail Realignment Sections
- Existing Trail
- Trail Closed

N

0 250 500 1,000

Feet

# Attachment A

Big Tujunga Wash Mitigation Area
Work Area Grid Map

Name: 21021 1 Acre Work Area Grids.Mxd
Print Date: 8/28/2019, Author: pcarlos

CHAMBERS GROUP

# 2023 ANNUAL REPORT
# APPENDIX F – EXOTIC WILDLIFE REMOVAL LETTER REPORTS

January 31, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the January 2023 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic wildlife removal efforts conducted during the month of January by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area), and the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group biologists participating in exotic wildlife removal efforts were approved prior to the initiation of eradication activities within the Mitigation Area. The purpose of the Exotic Wildlife Removal Program is to remove exotic, aquatic wildlife from Big Tujunga Wash (Wash), Haines Canyon Creek (Creek), East Tujunga Pond and West Tujunga Pond (Ponds), thereby reducing negative impacts on sensitive native species. Potential negative impacts to sensitive native species include but are not limited to, resource competition, predation, and the transmission of harmful pathogens and parasites. Details of the January exotic wildlife removal efforts are provided below.

## *Methods*

The January exotic wildlife removal effort was conducted on January 17 by Chambers Group wildlife biologists Alisa Muniz, Corey Jacobs, Austin Burke, Jessica Calvillo, and Mauricio Gomez under the direction of wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1). Safety precautions were discussed prior to the start of removal activities. During removal efforts, the biologists used seining and dip net methods to capture and remove exotic aquatic species from the Creek. Five biologists walked the Creek from the western boundary of the Mitigation Area working upstream to the fish exclusionary fence where the West Tujunga Pond connects to the Creek. During seining efforts in the Creek, two biologists spread the beach seine across the Creek while the other three biologists exited the Creek, walked upstream, re-entered the Creek, and used dip nets to guide fish downstream towards the beach seine. Once the biologists reached the beach seine, the seine was lifted out of the water to remove any trapped fish. The biologists then worked to identify the fish. Any native fish were placed back in the Creek unharmed while any non-native fish and red swamp crayfish (*Procambarus clarkia*) were removed. The fish exclusionary fence was also inspected for any damage.

The primary species targeted within the Creek during the January effort included largemouth bass (*Micropterus salmoides*), western mosquitofish (*Gambusia affinis*), and red swamp crayfish.

Any target species captured during the efforts were immediately euthanized and detailed notes documenting the removal effort were recorded on data sheets. All fish nets, and other field equipment were thoroughly washed both prior-to and after the day's effort.

## Results

The exotic aquatic species captured and removed from the Creek during the January effort included 25 adult largemouth bass, 5 Young-of-the-Year western mosquitofish, and 143 red swamp crayfish (39 adults, 4 juveniles, 100 larva).

## Discussion and Conclusions

During the January effort, the water level of the Creek was high due to winter storms earlier in the month. Western portions of the Creek that had dried up during the summer months were flowing once again. Chambers Group biologists observed approximately 300 arroyo chub (*Gila Orcuttii*) within the Creek. This was the first sighting of arroyo chub since the Creek had dried up in the summer of 2022. There were no observations of Santa Ana sucker (*Catostomus santaanae*) or Santa Ana speckled dace (*Rhinichthys osculus* ssp.) during the effort. No damage to the fish exclusionary fence was observed.

The biologist also inspected the Ponds. Water levels in the Ponds were high and the Ponds were free of vegetation which is ideal for future spearfishing efforts.

Chambers Group biologists will continue the ongoing effort to protect and enhance the Mitigation Area's native wildlife species by removing exotic aquatic species such as non-native fishes, frogs, turtles, and red swamp crayfish. Chambers Group biologists will continually assess the efficacy of exotic wildlife removal methods and adjust these methods as needed to best support mitigation goals. The next exotic wildlife removal effort is planned for February 2023.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**

**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOS**

Photo 1: Example of largemouth bass captured just south of the fish exclusionary fence on January 17, 2023.

Photo 2: Example of biologists identifying fish captured in the Creek on January 17, 2023.

Photo 3: Depicts the biologists walking the Creek from downstream to upstream on January 17, 2023.

Photo 4: Example of arroyo chub observed and returned to the Creek on January 17, 2023.

Photo 5: Example of an adult red swamp crayfish captured in the Creek on January 17, 2023.

Febuary 23, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the February 2023 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic wildlife removal efforts conducted during the month of February by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area), and the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group biologists participating in exotic wildlife removal efforts were approved prior to the initiation of eradication activities within the Mitigation Area. The purpose of the Exotic Wildlife Removal Program is to remove exotic, aquatic wildlife from Big Tujunga Wash (Wash), Haines Canyon Creek (Creek), East Tujunga Pond and West Tujunga Pond (Ponds), thereby reducing negative impacts on sensitive native species. Potential negative impacts to sensitive native species include but are not limited to, resource competition, predation, and the transmission of harmful pathogens and parasites. Details of the February exotic wildlife removal efforts are provided below.

## *Methods*

The February exotic wildlife removal effort was conducted on February 2 and 8 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists, Corey Jacobs, Austin Burke, Mauricio Gomez, Erik Olmos, and Eliana Maietta. Safety precautions were discussed prior to the start of removal activities. During removal efforts on February 2, the biologists used spearfishing methods to capture and remove exotic aquatic species from the Ponds. During the spearfishing efforts, two biologists snorkeled in the Ponds locating areas of exotic fish, while other biologists remained in the boat for safety and communication. Once exotic fish were located, the spearguns were rigged and fish were targeted and removed. Biologists also inspected the fish exclusionary net for any damage.

The primary species targeted within the Ponds and Creek during the February 2 effort included largemouth bass (*Micropterus salmoides*), western mosquitofish (*Gambusia affinis*), red swamp crayfish (*Procambarus clarkia*), bluegill (*Lepomis macrochirus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), and American bullfrog (*Lithobates catesbeianus*).

During the February 8 effort, the biologists used seining and dip net methods, and Hawaiian slings to capture and remove exotic aquatic species from the Creek. Three biologists walked the Creek from the western boundary of the Mitigation Area working upstream to the fish exclusionary net where the West Tujunga Pond connects to the Creek. During seining efforts in the Creek, two biologists spread the beach seine across the Creek while the other biologist exited the Creek, walked upstream, re-entered the Creek, and used a dip net to guide fish downstream towards the beach seine. Once the biologist reached the beach seine, the seine was lifted out of the water to remove any trapped fish. The biologists then worked to identify the fish. Any native fish were placed back in the Creek unharmed while any non-native fish and red swamp crayfish were removed. Biologists also used a new piece of equipment, the Hawaiian sling, to target exotic aquatic species in the Creek. The Hawaiian sling is a 2-foot-long pole with sharp prongs at one

end and a rubber band at the other end. This is used to spear crayfish in hard-to-reach areas of the Creek and smaller fish in the Ponds.

The primary species targeted within the Creek during the February effort included largemouth bass, western mosquitofish, and red swamp crayfish.

Any target species captured during the efforts were immediately euthanized and detailed notes documenting the removal effort were recorded on data sheets. All fish nets, and other field equipment were thoroughly washed both prior-to and after the day's effort.

## *Results*

The exotic aquatic species captured and removed from the East Tujunga Pond during the February 2 effort included one adult largemouth bass and one adult common carp. During the exclusionary net inspections, the biologists captured three largemouth bass downstream of the net using a beach seine. The exotic aquatic species captured and removed from the Creek during the February 8 effort included 3 adult largemouth bass and 30 red swamp crayfish (3 adults, 27 larva).

## *Discussion and Conclusions*

During the February effort, the water level of the Creek was high due to winter storms earlier in the month. Chambers Group biologists observed approximately 500 arroyo chub (*Gila Orcuttii*) within the Creek. There were no observations of Santa Ana sucker (*Catostomus santaanae*) or Santa Ana speckled dace (*Rhinichthys osculus* ssp.) during the effort; however, only a portion of the Creek was surveyed. No damage to the fish exclusionary net was observed. Two dams were removed from the Creek that were preventing native fish from migration within the Creek.

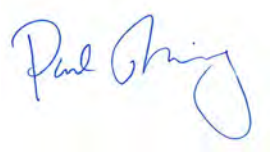
One of the largemouth bass captured in the East Tujunga Pond was a gravid female. A gravid female largemouth bass can produce, on average, 4,000 eggs per pound of body weight. However, a large, healthy adult could lay up to 80,000 eggs. The removal of a gravid female largemouth bass greatly helps to reduce the number of bass in the future. No fish were captured within the West Tujunga Pond due to most of the fish hiding within the reeds making spearfishing difficult.

Chambers Group biologists will continue the ongoing effort to protect and enhance the Mitigation Area's native wildlife species by removing exotic aquatic species such as non-native fishes, frogs, turtles, and red swamp crayfish. Chambers Group biologists will continually assess the efficacy of exotic wildlife removal methods and adjust these methods as needed to best support mitigation goals. The next exotic wildlife removal effort is planned for March 2023.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOS**

Photo 1: Example of biologists using the beach seine within the Creek on February 8, 2023.

Photo 2: Example of biologists removing a rock dam in the Creek on February 8, 2023.

Photo 3: Depicts water flowing naturally after the rock dam was removed on February 8, 2023.

Photo 4: Example of a red swamp crayfish captured and removed from the Creek using a Hawaiian sling on February 8, 2023.

Photo 5: Example of an adult common carp captured and removed from the East Tujunga Pond on February 2, 2023.

Photo 6: Example of largemouth bass removed during spearfishing efforts in the East Tujunga Pond on February 2, 2023.

April 18, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the March 2023 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic wildlife removal efforts conducted during the month of March by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area), and the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group biologists participating in exotic wildlife removal efforts were approved prior to the initiation of eradication activities within the Mitigation Area. The purpose of the Exotic Wildlife Removal Program is to remove exotic, aquatic wildlife from Big Tujunga Wash (Wash), Haines Canyon Creek (Creek), East Tujunga Pond and West Tujunga Pond (Ponds), thereby reducing negative impacts on sensitive native species. Potential negative impacts to sensitive native species include but are not limited to, resource competition, predation, and the transmission of harmful pathogens and parasites. Details of the March exotic wildlife removal efforts are provided below.

## *Methods*

The March exotic wildlife removal effort was conducted on March 9 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists, Corey Jacobs, Austin Burke, and Heather Franklin. Safety precautions were discussed prior to the start of removal activities. During removal efforts on March 9, the biologists used spearfishing methods to capture and remove exotic aquatic species from the Ponds. During the spearfishing efforts, a biologist snorkeled in the Ponds locating areas of exotic fish, while other biologists remained in the boat for safety and communication. Once exotic fish were located, the spearguns were rigged and fish were targeted and removed.

The primary species targeted within the Ponds during the March effort included largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), and American bullfrog (*Lithobates catesbeianus*).

Any target species captured during the efforts were immediately euthanized and detailed notes documenting the removal effort were recorded on data sheets. All fish nets, and other field equipment were thoroughly washed both prior-to and after the day's effort.

## *Results*

The exotic aquatic species captured and removed from the pond during the March effort included two adult largemouth bass and one common carp.

## *Discussion and Conclusions*

One of the largemouth bass  captured in the West Tujunga Pond was a gravid female. A gravid female largemouth bass can produce, on average, 4,000 eggs per pound of body weight. However, a large, healthy adult could lay up to 80,000 eggs. The removal of gravid female largemouth bass greatly helps to reduce the number of bass in the future.

Chambers Group biologists will continue the ongoing effort to protect and enhance the Mitigation Area's native wildlife species by removing exotic aquatic species such as non-native fishes, frogs, turtles, and red swamp crayfish.  Chambers Group biologists will continually assess the efficacy of exotic wildlife removal methods and adjust these methods as needed to best support mitigation goals. The next exotic wildlife removal effort is planned for April 2023.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**

**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOS**

Photo 1: Example of largemouth bass captured and removed from the West Tujunga Pond using sprearfishing methods on March 9, 2023.

Photo 2: Example of a common carp captured and removed from East Tujunga Pond using spearfishin methods on March 9, 2023.

June 27, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the May 2023 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic wildlife removal efforts conducted during the month of May by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area), and the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group biologists participating in exotic wildlife removal efforts were approved prior to the initiation of eradication activities within the Mitigation Area. The purpose of the Exotic Wildlife Removal Program is to remove exotic, aquatic wildlife from Big Tujunga Wash (Wash), Haines Canyon Creek (Creek), East Tujunga Pond and West Tujunga Pond (Ponds), thereby reducing negative impacts on sensitive native species. Potential negative impacts to sensitive native species include but are not limited to, resource competition, predation, and the transmission of harmful pathogens and parasites. Details of the May exotic wildlife removal efforts are provided below.

## *Methods*

The May exotic wildlife removal effort was conducted on May 2 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists, Corey Jacobs, Austin Burke, Mauricio Gomez, and Eliana Maietta. Safety precautions were discussed prior to the start of removal activities. During removal efforts on May 2, the biologists used spearfishing methods to capture and remove exotic aquatic species from the East Tujunga Pond. During the spearfishing efforts, two biologists snorkeled in the East Tujunga Pond locating areas with exotic fish, while the other biologists remained in the boat for safety and communication. Once exotic fish were located, the spearguns were rigged and fish were targeted and removed. The biologists also inspected the fish exclusionary screens located at the outlet of the West Tujunga Pond and noted any damage or other maintenance issues.

The primary species targeted within the West Tujunga Pond during the May effort included largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), and American bullfrog (*Lithobates catesbeianus*).

Any target species captured during the efforts were immediately euthanized and detailed notes documenting the removal effort were recorded on data sheets. All fish nets, and other field equipment were thoroughly washed both prior-to and after the day's effort.

## *Results*

The exotic aquatic species captured and removed from the East Tujunga Pond during the May effort included 14 largemouth bass (12 adults, 2 young-of-the-year), and 2 adult green sunfish.

Chambers Group biologists returned to the Mitigation Area on May 4 to repair the fish exclusionary screens that were damaged during the recent flash floods that occurred in April, May 1 and early morning the day of May 4. Debris was removed from the upstream side of the screens, and the screens were repaired or replaced as needed. During the repair

efforts, five red swamp crayfish (*Procambarus clarkii*) were incidentally captured and removed from the Creek by hand or using a Hawaiian sling. Towards the end of the repairs, another flash flood event occurred and conditions were unsafe to remain. Water levels rose 1.5 to 2 feet and widened 15-20 feet. Surface water flows occurred outside of the Creek and along the trails and wash areas. The biologists left the lower portions of the site and retreated to higher ground safely.

## *Discussion and Conclusions*

On May 2 the water levels in the Ponds were high and the Ponds were free of vegetation which was ideal for spearfishing efforts. A total of 16 exotic fish including twelve adult bass, 2 juvenile bass and 2 adult green sunfish were removed from the Ponds. Removal of adult exotic fish are important to reduce the number of spawning/breeding fish which contribute to an increase in the overall populations, as well as reduce the young of year and juvenile bass that are a food source for larger bass and other exotic fish species.

Due to higher than normal water levels within the ponds, an increased amount of vegetative debris flows towards the exclusionary nets, blocks the mesh screen, and increases the likelihood of net failure (water levels can rise more than 15 inches on the upstream side of the nets, forcing water above the banks and around the nets, and/or increasing the pressure enough on the nets to rip apart or undercut the bottom of the nets). Chambers Group will monitor the nets during vegetation removal efforts and remove debris from the nets as necessary. The Department of Parks and Recreation will help remove debris from the fish screens on a weekly basis throughout June while water levels remain high.

The biologists also inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed and removed from the Ponds on three occasions in 2021. No signs of water hyacinth were found during the May effort or any of the 2023 efforts to date.

Chambers Group biologists will continue the ongoing effort to protect and enhance the Mitigation Area's native wildlife species by removing exotic aquatic species such as non-native fishes, frogs, turtles, and red swamp crayfish. Chambers Group biologists will continually assess the efficacy of exotic wildlife removal methods and adjust these methods as needed to best support mitigation goals. The next exotic wildlife removal effort is planned for June 2023.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**

**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOS**

Photo 1: Biologists conducting spearfishing efforts in the East Tujunga Pond on May 2, 2023.

Photo 2: Example of largemouth bass and green sunfish captured and removed from the East Tujunga Pond using sprearfishing methods on May 2, 2023.

Photo 3: Biologists working to repair the fish exclusionary screens on May 4, 2023.

Photo 4: Example of red swamp crayfish incidentally captured and removed from the Creek during fish exclusionary screen repairs on May 4, 2023.

July 12, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the June 2023 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic wildlife removal efforts conducted during the month of June by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area), and the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group biologists participating in exotic wildlife removal efforts were approved prior to the initiation of eradication activities within the Mitigation Area. The purpose of the Exotic Wildlife Removal Program is to remove exotic, aquatic wildlife from Big Tujunga Wash (Wash), Haines Canyon Creek (Creek), East Tujunga Pond and West Tujunga Pond (Ponds), thereby reducing negative impacts on sensitive native species. Potential negative impacts to sensitive native species include but are not limited to, resource competition, predation, and the transmission of harmful pathogens and parasites. Details of the June exotic wildlife removal efforts are provided below.

## *Methods*

The June exotic wildlife removal effort was conducted on June 21 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists, Corey Jacobs, Austin Burke, Alisa Muniz, Eliana Maietta, and Cristhian Mace. Safety precautions were discussed prior to the start of removal activities. During removal efforts on June 21, the biologists used spearfishing methods to capture and remove exotic aquatic species from the East Tujunga Pond. During the spearfishing efforts, three biologists snorkeled in the East Tujunga Pond locating areas with exotic fish, while the other biologists remained in the boat for safety and communication. Once exotic fish were located, the spearguns were rigged and fish were targeted and removed. The biologists also inspected the fish exclusionary screens located at the outlet of the West Tujunga Pond and noted any damage or other maintenance issues.

The primary species targeted within the West Tujunga Pond during the June effort included largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), and American bullfrog (*Lithobates catesbeianus*).

Any target species captured during the efforts were immediately euthanized and detailed notes documenting the removal effort were recorded on data sheets. All fish nets, and other field equipment were thoroughly washed both prior-to and after the day's effort.

## *Results*

The exotic aquatic species captured and removed from the East Tujunga Pond during the June effort included 32 adult largemouth bass 6 adult green sunfish, and 100 larval red swamp crayfish (*Procambarus clarkii*).

## *Discussion and Conclusions*

On June 21 the water levels in the Ponds were still high and the East Tujunga Pond had approximately 60 percent vegetation cover on the surface. A total of 38 exotic fish including 32 adult largemouth bass and 6 adult green sunfish were removed from the East Tujunga Pond. One of the green sunfish removed was a gravid female. A female green sunfish is capable of laying between 2,000 and 10,000 eggs in a season depending on size. Thus, removal of gravid exotic fish is crucial to reducing the overall exotic fish population within the Tujunga Ponds and Haines Canyon Creek. In addition, removal of adult exotic fish is important to reduce the number of young-of-the-year and juvenile bass that are a food source for larger bass and other exotic fish species.

Due to higher than normal water levels within the ponds, an increased amount of vegetative debris flows towards the exclusionary nets, blocks the mesh screen, and increases the likelihood of net failure (water levels can rise more than 15 inches on the upstream side of the nets, forcing water above the banks and around the nets, and/or increasing the pressure enough on the nets to rip apart or undercut the bottom of the nets). The biologists inspected and cleared vegetative debris from the nets. Chambers Group will monitor the nets during vegetation removal efforts and remove debris from the nets as necessary. The Department of Parks and Recreation will help remove debris from the fish screens on a weekly basis throughout June while water levels remain high.

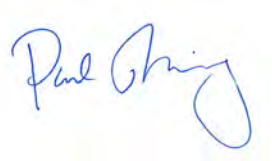
The biologists also inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed and removed from the Ponds on three occasions in 2021. No signs of water hyacinth were found during the June effort or any of the 2023 efforts to date.

Chambers Group biologists will continue the ongoing effort to protect and enhance the Mitigation Area's native wildlife species by removing exotic aquatic species such as non-native fishes, frogs, turtles, and red swamp crayfish. Chambers Group biologists will continually assess the efficacy of exotic wildlife removal methods and adjust these methods as needed to best support mitigation goals. The next exotic wildlife removal effort is planned for July 2023.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOS**

Photo 1: Example of largemouth bass and green sunfish removed from the East Tujunga Pond using spearfishing methods on June 21, 2023.

Photo 2: Example of adult green sunfish captured and removed from the East Tujunga Pond using sprearfishing methods on June 21, 2023. The fish on the left was a gravid female.

August 28, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the July 2023 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic wildlife removal efforts conducted during the month of July by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area), and the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group biologists participating in exotic wildlife removal efforts were approved prior to the initiation of eradication activities within the Mitigation Area. The purpose of the Exotic Wildlife Removal Program is to remove exotic, aquatic wildlife from Big Tujunga Wash (Wash), Haines Canyon Creek (Creek), East Tujunga Pond and West Tujunga Pond (Ponds), thereby reducing negative impacts on sensitive native species. Potential negative impacts to sensitive native species include but are not limited to, resource competition, predation, and the transmission of harmful pathogens and parasites. Details of the July exotic wildlife removal efforts are provided below.

## *Methods*

The July exotic wildlife removal effort was conducted on July 3 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists, Corey Jacobs, Austin Burke, and Eliana Maietta. Safety precautions were discussed prior to the start of removal activities. During removal efforts on July 3, the biologists used spearfishing methods to capture and remove exotic aquatic species from the East Tujunga Pond. During the spearfishing efforts, two biologists snorkeled in the East Tujunga Pond locating areas with exotic fish, while the other biologists remained in the boat for safety and communication. Once exotic fish were located, the spearguns were rigged and fish were targeted and removed. The biologists also inspected the fish exclusionary screens located at the outlet of the West Tujunga Pond and noted any damage or other maintenance issues.

The primary species targeted within the East Tujunga Pond during the July effort included largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), and American bullfrog (*Lithobates catesbeianus*).

Any target species captured during the efforts were immediately euthanized and detailed notes documenting the removal effort were recorded on data sheets. All fish nets, and other field equipment were thoroughly washed both prior-to and after the day's effort.

## *Results*

The exotic aquatic species captured and removed from the East Tujunga Pond during the July effort included 42 adult largemouth bass, 3 adult green sunfish, 3 adult bluegill, 1 adult goldfish, 1 adult common carp, and 100 larval red swamp crayfish (*Procambarus clarkii*).

The fish exclusionary screens at located at the outlet of the West Tujunga Pond were inspected for damage and accumulated debris was cleared away from the screens. No damage was observed but a portion of the screens was

twisted upward along the bottom of the creek; this was resecured by adding additional rocks to the base of the screens to prevent fish from migrating past the exclusionary screens.

## *Discussion and Conclusions*

On July 3, the water levels in the Ponds were still high and the East Tujunga Pond had approximately 70 percent vegetation cover on the surface. A total of 50 adult exotic fish were removed from the East Tujunga Pond. Two of the green sunfish and two of the largemouth bass removed were gravid females. A female green sunfish is capable of laying between 2,000 and 10,000 eggs in a season depending on size and a female largemouth bass is capable of laying between 4,000 and 45,000 eggs in a season depending on size. Thus, removal of gravid exotic fish is crucial to reducing the overall exotic fish population within the Tujunga Ponds and Haines Canyon Creek. In addition, removal of adult exotic fish is important to reduce the number of young-of-the-year and juvenile bass that are a food source for larger bass and other exotic fish species.

One red-eared slider (*Trachemys scripta elegans*) was observed while spearfishing in the East Tujunga Pond but was not able to be captured.

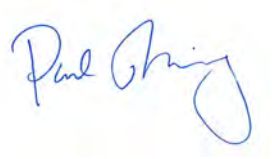
The biologists also inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed and removed from the Ponds on three occasions in 2021. No signs of water hyacinth were found during the July effort or any of the 2023 efforts to date.

Chambers Group biologists will continue the ongoing effort to protect and enhance the Mitigation Area's native wildlife species by removing exotic aquatic species such as non-native fishes, frogs, turtles, and red swamp crayfish. Chambers Group biologists will continually assess the efficacy of exotic wildlife removal methods and adjust these methods as needed to best support mitigation goals. The next exotic wildlife removal effort is planned for August 2023.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOS**

Photo 1: Example of largemouth bass, green sunfish, bluegill, goldfish, and common carp removed from the East Tujunga Pond using spearfishing methods on July 3rd, 2023.

Photo 2: Example of adult goldfish captured and removed from the East Tujunga Pond using sprearfishing methods on July 3, 2023.

October 2, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the August 2023 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic wildlife removal efforts conducted during the month of August by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area), and the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group biologists participating in exotic wildlife removal efforts were approved prior to the initiation of eradication activities within the Mitigation Area. The purpose of the Exotic Wildlife Removal Program is to remove exotic, aquatic wildlife from Big Tujunga Wash (Wash), Haines Canyon Creek (Creek), East Tujunga Pond and West Tujunga Pond (Ponds), thereby reducing negative impacts on sensitive native species. Potential negative impacts to sensitive native species include but are not limited to, resource competition, predation, and the transmission of harmful pathogens and parasites. Details of the August exotic wildlife removal efforts are provided below.

## *Methods*

The August exotic wildlife removal effort was conducted on August 10, 11, 22, and 30 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-2) and supporting biologists, Corey Jacobs, Austin Burke, Eliana Maietta, Mauricio Gomez, Cristhian Mace, and Alisa Muniz. Safety precautions were discussed prior to the start of removal activities. During removal efforts on August 10 and 30, the biologists used spearfishing methods to capture and remove exotic aquatic species from the East Tujunga Pond. During the spearfishing efforts, three biologists snorkeled in the East Tujunga Pond locating areas with exotic fish, while the other biologists remained in the boat for safety and communication. Once exotic fish were located, the spearguns were rigged and fish were targeted and removed. During removal efforts on August 11 and 22, the biologists used seining, dip net, and Hawaiian sling methods to capture and remove exotic aquatic species from the Creek. Five biologists walked the Creek from the western boundary of the Mitigation Area working upstream to the fish exclusionary screens at the outlet of the West Tujunga Pond. During seining efforts in the Creek, two biologists spread the beach seine across the Creek while the other three biologists exited the Creek, walked upstream, re-entered the Creek, and used dip nets to guide exotic fish downstream towards the beach seine. Once the biologists reached the beach seine, the seine was lifted out of the water to remove any trapped fish. The biologists then worked to identify the fish. Any native fish were placed back in the Creek unharmed while any non-native fish and red swamp crayfish (*Procambarus clarkia*) were removed. The fish exclusionary screens were also inspected for any damage.

The primary species targeted within the East Tujunga Pond during the August effort included largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), and American bullfrog (*Lithobates catesbeianus*). The primary species targeted within the Creek during the August effort included largemouth bass, common carp, western mosquitofish (*Gambusia affinis*), and red swamp crayfish.

Any target species captured during the efforts were immediately euthanized and detailed notes documenting the removal effort were recorded on data sheets. All fish nets, and other field equipment were thoroughly washed both prior-to and after the day's effort.

## *Results*

The exotic aquatic species captured and removed from the East Tujunga Pond during the August effort included 44 largemouth bass (29 adult, 7 juvenile, 8 young-of-the-year [YOY]), 1 adult common carp, 1,926 red swamp crayfish (38 adult, 38 juvenile, 1,850 YOY), 228 western mosquitofish (86 adult, 142 YOY), and 2 American bullfrog tadpoles.

The exotic aquatic species captured and removed from the Creek during the August effort included 10 largemouth bass (6 adult, 4 juvenile), 4 juvenile common carp, and 722 red swamp crayfish (470 adult, 2 juvenile, and 250 YOY).

During invasive species removal efforts in the Creek on August 11, 31 native arroyo chubs (*Gila orcuttii*) were observed during seining efforts and any arroyo chubs incidentally captured in the seine were released unharmed.

The fish exclusionary screens located at the outlet of the West Tujunga Pond were inspected for damage and accumulated debris was cleared away from the screens. No damage was observed, but similar to July observations, a portion of the screens was twisted upward along the bottom of the creek; this was resecured by adding additional rocks to the base of the screens to prevent fish from migrating past the exclusionary screens.

## *Discussion and Conclusions*

On August 10 and 30, the water levels in the Ponds were still high and both Ponds were covered in algae. Two biologists swam the West Tujunga Pond and determined that there was approximately 1 foot of visibility which was insufficient for spearfishing, and thus, August spearfishing efforts were focused on the East Tujunga Pond. A total of 116 adult exotic fish were removed from the East Tujunga Pond. One of the common carp and two of the largemouth bass removed were gravid. A common carp is capable of laying between 100,000 and 300,000 eggs in a season depending on size and a female largemouth bass is capable of laying between 4,000 and 45,000 eggs in a season depending on size. Thus, removal of gravid exotic fish is crucial to reducing the overall exotic fish population within the Tujunga Ponds and Haines Canyon Creek. In addition, removal of adult exotic fish is important to reduce the number of YOY and juvenile bass that are a food source for larger bass and other exotic fish species. Three dams were removed from the Haines Canyon Creek during the August efforts.

Three red-eared sliders (*Trachemys scripta elegans*) were observed while spearfishing in the East Tujunga Pond but were not able to be captured.

The biologists also inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed and removed from the Ponds on three occasions in 2021. No signs of water hyacinth were found during the August effort or any of the 2023 efforts to date. Chambers Group biologists will continue the ongoing effort to protect and enhance the Mitigation Area's native wildlife species by removing exotic aquatic species such as non-native fishes, frogs, turtles, and red swamp crayfish. Chambers Group biologists will continually assess the efficacy of exotic wildlife removal methods and adjust these methods as needed to best support mitigation goals. The next exotic wildlife removal effort is planned for September 2023.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**

**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOS**

Photo 3: Example of largemouth bass captured during spearfishing efforts in the East Tujunga Pond on August 10, 2023.

Photo 6: A biologist using Hawaiian sling to capture red swamp crayfish on August 11, 2023.

Photo: 7: Biologists removing a dam within the Creek on August 11, 2023.

Photo 4: Example of largemouth bass and common carp captured near the exclusionary screens within the Creek on August 22, 2023.

Photo 5: Example of crayfish captured in the Creek on August 22, 2023.

Photo 2: Example of adult gravid common carp captured and removed from the East Tujunga Pond using sprearfishing methods on August 30, 2023.

Photo 1: Example of largemouth bass removed from the East Tujunga Pond using spearfishing methods on August 30th, 2023.

November 15, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the October 2023 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes the exotic wildlife removal efforts conducted during the month of October by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area), and the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group biologists participating in exotic wildlife removal efforts were approved prior to the initiation of eradication activities within the Mitigation Area. The purpose of the Exotic Wildlife Removal Program is to remove exotic, aquatic wildlife from Big Tujunga Wash (Wash), Haines Canyon Creek (Creek), East Tujunga Pond and West Tujunga Pond (Ponds), thereby reducing negative impacts on sensitive native species. Potential negative impacts to sensitive native species include but are not limited to, resource competition, predation, and the transmission of harmful pathogens and parasites. Details of the October exotic wildlife removal efforts are provided below.

## *Methods*

The October exotic wildlife removal effort was conducted on October 9, 10, and 16 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-2) and supporting biologists, Corey Jacobs, Austin Burke, Eliana Maietta, Mike Butler, and Alisa Muniz. Safety precautions were discussed prior to the start of removal activities. During removal efforts on October 9 and 10, the biologists used seining, dip net, and Hawaiian sling methods to capture and remove exotic aquatic species from the Creek. Four biologists walked the Creek from the western boundary of the Mitigation Area working upstream to the fish exclusionary screens at the outlet of the West Tujunga Pond (Outlet). During seining efforts in the Creek, two biologists spread the beach seine across the Creek while the other three biologists exited the Creek, walked upstream, re-entered the Creek, and used dip nets to guide exotic fish downstream towards the beach seine. Once the biologists reached the beach seine, the seine was lifted out of the water to remove any trapped fish. The biologists then worked to identify the fish. Any native fish were placed back in the Creek unharmed while any non-native fish and red swamp crayfish (*Procambarus clarkia*) were removed.

During removal efforts on October 16, the biologists used spearfishing methods within the West Tujunga Pond and Outlet. During the spearfishing efforts, three biologists snorkeled in the West Tujunga Pond and Outlet locating areas with exotic fish, while the other biologist remained in the boat for safety and communication. Once exotic fish were located, the spearguns were rigged and fish were targeted and removed. During seine fishing in the East Tujunga Pond, the seine was deployed from a small boat with two biologists pulling the boat through the water and dense algae mats as the seine was being dished out the side of the boat by another biologist. The biologists in the water then swam with the seine, pulling the ends together into a purse shape to trap fish. An additional biologist remained on the shore and helped to pull in the seine.

The primary species targeted within the Ponds during the October effort included largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), and American bullfrog (*Lithobates catesbeianus*). The primary species targeted within the Creek

during the October effort included largemouth bass, common carp, western mosquitofish (*Gambusia affinis*), red swamp crayfish, and American bullfrog.

Any target species captured during the efforts were immediately euthanized and detailed notes documenting the removal effort were recorded on data sheets. All fish nets, and other field equipment were thoroughly washed both prior-to and after the day's effort.

## *Results*

The exotic aquatic species captured and removed from Ponds and Outlet during the October effort included 6 adult largemouth bass, 2 juvenile common carp, 2 adult green sunfish, 45 adult western mosquitofish, and 554 red swamp crayfish (4 adult, 550 larval). Both of the common carp and green sunfish, two of the largemouth bass, and four of the red swamp crayfish were captured at the Outlet downstream of the fish exclusionary screens, and three of the largemouth bass were captured at the Outlet upstream of the fish exclusionary screens.

The exotic aquatic species captured and removed from the Creek during the October effort included 4 adult largemouth bass, 1 juvenile common carp, 73 adult red swamp crayfish, and 1 American bullfrog tadpole.

During invasive species removal efforts in the Creek on October 9, 50 native arroyo chub (*Gila orcuttii*) were observed during seining efforts and any arroyo chub incidentally captured in the seine were released unharmed.

The fish exclusionary screens located at the Outlet were replaced on October 10 with assistance from LA County Parks. Metal tiedowns and zip ties were used to fasten the new screens to the existing poles. Rocks were added to the base of the exclusionary screens to prevent fish from migrating downstream from the Ponds.

## *Discussion and Conclusions*

On October 16, the water levels in the Ponds were still high and both Ponds were covered in algae. Two biologists swam the Ponds and determined that there was approximately 1 foot of visibility which was insufficient for spearfishing, and thus, October spearfishing efforts were focused on the Outlet leading to the Creek, which had better visibility. Three dams were removed from the Haines Canyon Creek during the October efforts.

Two red-eared sliders (*Trachemys scripta elegans*) were observed while spearfishing in the Outlet but were not able to be captured.

The biologists also inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed and removed from the Ponds on three occasions in 2021. No signs of water hyacinth were found during the October effort or any of the 2023 efforts to date. Chambers Group biologists will continue the ongoing effort to protect and enhance the Mitigation Area's native wildlife species by removing exotic aquatic species such as non-native fishes, frogs, turtles, and red swamp crayfish. Chambers Group biologists will continually assess the efficacy of exotic wildlife removal methods and adjust these methods as needed to best support mitigation goals. The next exotic wildlife removal effort is planned for November 2023.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**

**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOS**

Photo 1: Example of biologists using dip nets and Hawaiian slings to remove exotic aquatic species from the Creek on October 9, 2023.

Photo 2: Example of biologists removing a dam from the Creek on October 9, 2023.

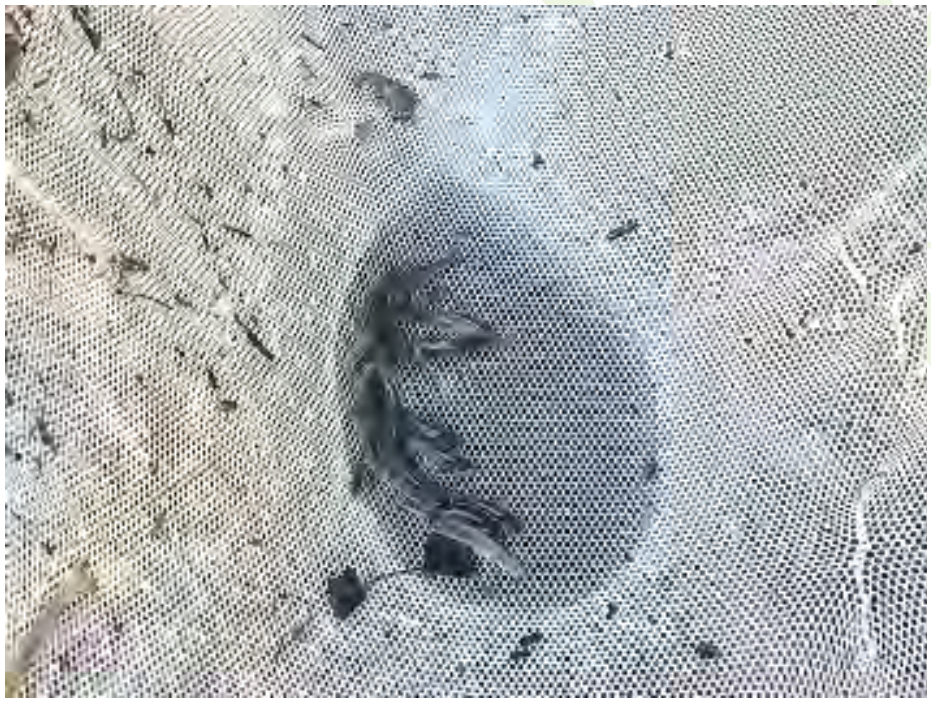


Photo: 3: Example of native arroyo chub observed within the Creek on October 9, 2023. The arroyo chub were returned to the Creek unharmed.

Photo 4: Example of largemouth bass and red swamp crayfish captured using beach seine within the Creek on October 10, 2023.

Photo 5: Example of common carp captured and removed from the Creek on October 10, 2023.

Photo 6: Example of LA County Parks and Chambers Group biologists replacing the exclusionary screens on October 10, 2023.

Photo 7: Exclusionary screens after replacement on October 10, 2023.

Photo 8: Example of largemouth bass captured and removed from the East Tujunga Pond during seining efforts on October 16, 2023.

December 5, 2023

Morgan Newcomb
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the November 2023 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Newcomb,

This report summarizes the exotic wildlife removal efforts conducted during the month of November by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area), and the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group biologists participating in exotic wildlife removal efforts were approved prior to the initiation of eradication activities within the Mitigation Area. The purpose of the Exotic Wildlife Removal Program is to remove exotic, aquatic wildlife from Big Tujunga Wash (Wash), Haines Canyon Creek (Creek), East Tujunga Pond and West Tujunga Pond (Ponds), thereby reducing negative impacts on sensitive native species. Potential negative impacts to sensitive native species include but are not limited to, resource competition, predation, and the transmission of harmful pathogens and parasites. Details of the November exotic wildlife removal efforts are provided below.

## *Methods*

The November exotic wildlife removal effort was conducted on November 17 and 21 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-2) and supporting biologists, Corey Jacobs, Austin Burke, Eliana Maietta, Mauricio Gomez, Heather Franklin, and Alisa Muniz. Safety precautions were discussed prior to the start of removal activities. During removal efforts on November 17, the biologists used spearfishing methods within the East Tujunga Pond and West Tujunga Pond outlet to the Creek (outlet). The biologists attempted to spearfish in the West Tujunga Pond as well, but the visibility was poor due to decaying algae. During the spearfishing efforts, three biologists snorkeled in the East Tujunga Pond and outlet locating areas with exotic fish, while the other biologist remained in the boat for safety and communication. Once exotic fish were located, the spearguns were rigged and fish were targeted and removed. During seine fishing in the East Tujunga Pond, the seine was deployed from a small boat with two biologists pulling the boat through the water and dense algae mats as the seine was being dished out the side of the boat by another biologist. The biologists in the water then swam with the seine, pulling the ends together into a purse shape to trap fish. An additional biologist remained on the shore and helped to pull in the seine.

During the removal efforts on November 21, the biologists used beach seining, dip net, and Hawaiian sling methods to capture and remove exotic aquatic species from the Creek. Three biologists walked the Creek from the western boundary of the Mitigation Area working upstream to the fish exclusionary screens at the outlet of the West Tujunga Pond. During seining efforts in the Creek, two biologists spread the beach seine across the Creek while the other biologists exited the Creek, walked upstream, re-entered the Creek, and used dip nets to guide exotic fish downstream towards the beach seine. Once the biologist reached the beach seine, the seine was lifted out of the water to remove any trapped fish. The biologists then worked to identify the fish. Any native fish were placed back in the Creek unharmed while any non-native fish and red swamp crayfish (*Procambarus clarkia*) were removed. Any dams found were removed.

The primary species targeted within the East Tujunga Pond during the November effort included largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*),

green sunfish (*Lepomis cyanellus*), and American bullfrog (*Lithobates catesbeianus*). The primary species targeted within the Creek during the November effort included largemouth bass, common carp, western mosquitofish (*Gambusia affinis*), and red swamp crayfish.

Any target species captured during the efforts were immediately euthanized and detailed notes documenting the removal effort were recorded on data sheets. All fish nets, and other field equipment were thoroughly washed both prior to and after the day's effort.

## *Results*

The exotic aquatic species captured and removed from the East Tujunga Pond during the November efforts included 1 adult largemouth bass, 463 Red Swamp Crayfish (7 adults, 6 juveniles, 450 larval), and 25 adult western mosquitofish. The West Tujunga Pond was thick with algae making spearfishing and pulling the seine difficult, and as such, the biologists focused their efforts on the East Tujunga Pond and outlet. No aquatic wildlife species were captured in the West Tujunga Pond.

The exotic aquatic species captured and removed from the Creek during the November effort included 75 adult red swamp crayfish. Nine dams were removed within the Creek during removal efforts.

During removal efforts in the Creek on November 21 native arroyo chubs (*Gila orcuttii*) were observed during seining efforts and any arroyo chubs incidentally captured in the seine were released unharmed.

The fish exclusionary screens located at the outlet of the West Tujunga Pond were clean and in good condition.

## *Discussion and Conclusions*

On November 17, the water levels in the Ponds were still high and both Ponds were covered in algae. Two biologists swam the Ponds and determined that there was approximately 1 foot of visibility which was insufficient for spearfishing, and thus, November spearfishing was only conducted in the West Tujunga Pond outlet leading to the Creek which had better visibility. Nine dams were removed from the Haines Canyon Creek during the November efforts. Only two seine pulls were conducted at the East Tujunga Pond due to the presence of decaying algae that had created a thick layer of mud/decomposing vegetation. This mud/decaying matter accumulates on the net which makes it difficult to lift the net out of the pond. As nighttime temperatures get colder, the algae and vegetation will decompose faster providing better visibility for spearfishing over the next few months.

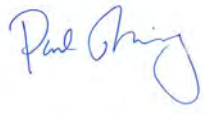
The biologists also inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed and removed from the Ponds on three occasions in 2021. No signs of water hyacinth were found during the November effort or any of the 2023 efforts to date.

Chambers Group biologists will continue the ongoing effort to protect and enhance the Mitigation Area's native wildlife species by removing exotic aquatic species such as non-native fishes, frogs, turtles, and red swamp crayfish. Chambers Group biologists will continually assess the efficacy of exotic wildlife removal methods and adjust these methods as needed to best support mitigation goals. The next exotic wildlife removal effort is planned for December 2023.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOS**

Photo 1: Example of a largemouth bass captured and removed from the East Tujunga Pond with a seine on November 17, 2023.

Photo 2: Example of biologists removing a dam from the Creek on November 21, 2023.

Photo: 3: Example of another dam being removed from the Creek on November 21, 2023.

Photo 4: Example of red swamp crayfish captured and removed from the Creek using a Hawaiian sling within the Creek on November 21, 2023.

January 9, 2024

Morgan Newcomb
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the December 2023 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Newcomb,

This report summarizes the exotic wildlife removal efforts conducted during the month of December by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area), and the compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group biologists participating in exotic wildlife removal efforts were approved prior to the initiation of eradication activities within the Mitigation Area. The purpose of the Exotic Wildlife Removal Program is to remove exotic, aquatic wildlife from Big Tujunga Wash (Wash), Haines Canyon Creek (Creek), East Tujunga Pond and West Tujunga Pond (Ponds), thereby reducing negative impacts on sensitive native species. Potential negative impacts to sensitive native species include but are not limited to, resource competition, predation, and the transmission of harmful pathogens and parasites. Details of the December exotic wildlife removal efforts are provided below.

## *Methods*

Exotic wildlife removal efforts were conducted on December 1 and 7 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-2) and supporting biologists, Corey Jacobs, Austin Burke, Eliana Maietta, Jessica Calvillo, and Alisa Muniz. Safety precautions were discussed prior to the start of removal activities.

During the removal efforts on December 1, the biologists used beach seining, dip net, and Hawaiian sling methods to capture and remove exotic aquatic species from the Creek. Three biologists walked the Creek from the western boundary of the Mitigation Area working upstream to the fish exclusionary screens at the outlet of the West Tujunga Pond (outlet). During seining efforts in the Creek, two biologists spread the beach seine across the Creek while the other biologists exited the Creek, walked upstream, re-entered the Creek, and used dip nets to guide exotic fish downstream towards the beach seine. Once the biologist reached the beach seine, the seine was lifted out of the water to remove any trapped fish. The biologists then worked to identify the fish. Any native fish were placed back in the Creek unharmed while any non-native fish and red swamp crayfish (*Procambarus clarkia*) were removed. Any dams encountered during the effort were removed.

During removal efforts on December 7, the biologists used spearfishing methods within the East Tujunga Pond. The biologists attempted to spearfish in the West Tujunga Pond as well, but the visibility was poor due to decaying algae. During the spearfishing efforts, three biologists snorkeled in the East Tujunga Pond and outlet locating areas with exotic fish, while the other biologist remained in the boat for safety and communication. Once exotic fish were located, the spearguns were rigged and fish were targeted and removed. During seine fishing in the East Tujunga Pond, the seine was deployed from a small boat with two biologists pulling the boat through the water and dense algae mats as the seine was being dished out the side of the boat by another biologist. The biologists in the water then swam with the

seine, pulling the ends together into a purse shape to trap fish. An additional biologist remained on the shore and helped to pull in the seine.

The primary species targeted within the East Tujunga Pond during the December effort included largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), green sunfish (*Lepomis cyanellus*), and American bullfrog (*Lithobates catesbeianus*). The primary species targeted within the Creek during the December effort included largemouth bass, common carp, western mosquitofish (*Gambusia affinis*), and red swamp crayfish.

Any target species captured during the efforts were immediately euthanized and detailed notes documenting the removal effort were recorded on data sheets. All fish nets, and other field equipment were thoroughly washed both prior to and after the day's effort.

## *Results*

The exotic aquatic species captured and removed from the East Tujunga Pond during the December effort included 14 adult largemouth bass via spearfishing, and 17,577 red swamp crayfish (9 adults, 67 juveniles, 17,501 larval) and 389 young-of-the-year western mosquitofish via two seine pulls. The West Tujunga Pond was thick with algae making spearfishing and pulling the seine difficult, and as such, the biologists focused their efforts on the East Tujunga Pond and outlet. No exotic wildlife species were captured in the West Tujunga Pond.

The exotic aquatic species captured and removed from the Creek during the December effort included 44 adult red swamp crayfish. Two dams were encountered within the Creek during removal efforts and were removed.

During removal efforts in the Creek on December 1, 30 native arroyo chubs (*Gila orcuttii*) were observed during seining efforts and any arroyo chubs incidentally captured in the seine were released unharmed.

The fish exclusionary screens located at the outlet of the West Tujunga Pond were clean and in good condition.

## *Discussion and Conclusions*

On December 1, the biologists encountered two places in the Creek where it looked like rocks had been placed to aid in crossing. The biologists removed these rocks to discourage continued Creek crossing in unauthorized locations. On December 7, the water levels in the Ponds were still high and both Ponds were covered in algae, which is not typical this time of year (pond algae typically dies off during the colder months from November through April). Two biologists swam the West Tujunga Pond and determined that there was approximately 1 foot of visibility which was insufficient for spearfishing, and thus, December spearfishing efforts were focused on the East Tujunga Pond, which had better visibility. Only two seine pulls were conducted at the East Tujunga Pond due to the presence of thick, decaying algae that made seine pulls difficult. As nighttime temperatures get colder, the algae and vegetation will decompose faster providing better visibility for spearfishing over the next few months.

The biologists also inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed and removed from the Ponds on three occasions in 2021. No signs of water hyacinth were found during the December effort or any of the 2023 efforts to date.

Chambers Group biologists will continue the ongoing effort to protect and enhance the Mitigation Area's native wildlife species by removing exotic aquatic species such as non-native fishes, frogs, turtles, and red swamp crayfish. Chambers Group biologists will continually assess the efficacy of exotic wildlife removal methods and adjust these methods as needed to best support mitigation goals. The next exotic wildlife removal effort is planned for January 2024.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**

**Paul Morrissey**

*Principal | Director of Biology*

**SITE PHOTOS**

Photo 1: Example of biologist using Hawaiian sling to capture and remove red swamp crayfish from the Creek on December 1, 2023.

Photo 2: Example of a biologist using a Hawaiian sling to remove a red swamp crayfish from the Creek on December 1, 2023.

Photo: 3: Example of largemouth bass captured and removed from the East Tujunga Pond using spearfishing methods on December 7, 2023.

# 2023 ANNUAL REPORT
# APPENDIX G – WATER QUALITY MONITORING REPORT

# 2023 WATER QUALITY MONITORING REPORT FOR THE BIG TUJUNGA WASH MITIGATION AREA

***Prepared for:***

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**December 2023**

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## SECTION 1.0 – EXECUTIVE SUMMARY

As part of a water quality monitoring program on-going since 2000, water quality sampling of the Big Tujunga Ponds and Haines Canyon Creek was conducted on November 1, 2023. The water quality sampling results are summarized below:

- Observed temperatures were well below levels of concern for growth and survival of warmwater fish species at all stations. However, only a single temperature reading was taken in the fall and the weekly summer average temperature is unknown.
- Dissolved oxygen (DO) levels at one of the sample stations (Station 4 before the creek exits the site) was above the minimum recommended level (5.0 milligrams per liter [mg/L]) for Basin Plan objectives and EPA's criteria for warmwater fish species. DO levels at the inlet and outlet from the Tujunga Ponds were below the minimum recommended level.
- Potential hydrogen (pH) readings at all three sample stations were within the recommended range of 6.5 to 8.5 identified in the Basin Plan objectives, and within the recommended range of 5.0 to 9.0 for EPA's criteria for human health.
- Nitrate-Nitrogen was below the drinking water maximum standard of 10 mg/L for both Basin Plan standards and EPA criteria for human health at all sample stations. Nitrite-Nitrogen and Ammonia-Nitrogen were not detected at any of the sample stations.
- Nutrient levels as measured by total Phosphorus-P concentration were below the lower end of the EPA's recommended maximum range of 0.05 to 0.10 mg/L for the desired goal of preventing plant nuisances in streams.
- No pesticides or residual chlorine were detected at any of the sample stations.
- Turbidity levels were below the EPA's secondary drinking water standard of 5.0 nephelometric turbidity units (NTU). The turbidity levels at all three sample locations were below the EPA's drinking water maximum standard of 1.0 NTU for systems that use conventional or direct filtration; however, waters within the Big Tujunga Wash Mitigation Area (Mitigation Area) are not filtered systems intended for human consumption.
- Fecal coliform levels detected were below the single sample limit of 235 MPN/100 ml except for at the outflow from the Tujunga Ponds, which was slightly above the single sample limit (240 MPN/100 ml). However, the standards are specifically for *E. coli* and the water quality results are for fecal coliform and total coliform.

## SECTION 2.0 – BACKGROUND

Los Angeles County Public Works (Public Works) purchased an approximately 210-acre parcel in Big Tujunga Wash as a mitigation area for Los Angeles County Flood Control District (LACFCD) projects throughout Los Angeles County. In coordination with local agencies, Public Works defined a number of measures to improve habitat quality at the site. A Final Master Mitigation Plan (FMMP) was prepared to guide the implementation of these enhancements. The FMMP also includes a monitoring program to gather data on conditions at the site during implementation of the improvements. The FMMP was prepared and is currently being implemented by Chambers Group, Inc. (Chambers Group). Water quality monitoring was conducted on a quarterly basis from the fourth quarter of 2000 through the fourth quarter of 2005. In 2006, monitoring was conducted on a semi-annual basis. In 2007 through 2009 monitoring was conducted annually, in December. In 2010, monitoring was conducted in November and pesticide sampling was conducted in early December. In 2012, monitoring was conducted in February and November. From 2013 to present, monitoring has been conducted annually in the fall except for 2022 in which no monitoring was conducted. This report presents the results of the water quality sampling for November 2023.

The Mitigation Area is located just east of Hansen Dam in the Shadow Hills area of the City of Los Angeles. Both Big Tujunga Wash, an intermittent stream, and Haines Canyon Creek, a perennial stream, traverse the Mitigation Area in a general east-to-west direction. The East Tujunga Pond and West Tujunga Pond are located outside of the Mitigation Area, at the far northeastern portion of the site and are fed by subsurface flows. The West Tujunga Pond flows into Haines Canyon Creek.

### 2.1 PROJECT SITE ACTIVITIES

A timeline of project-related activities including water quality sampling events is presented in Table 1.

**Table 1: Major Activities to Date at the Big Tujunga Wash Mitigation Area**

| Date | Activity |
|---|---|
| 2000, April | Baseline water quality sampling |
| 2000, November to 2001, November | Arundo, tamarisk, and pepper tree removal Chemical (Rodeo®) application |
| 2000, December to 2000, November | Water hyacinth removal |
| 2000, December | Fish Sampling at Haines Canyon Creek |
| 2000, December | Water quality sampling |
| 2001, January to present | Exotic aquatic wildlife (non-native fish, crayfish, bullfrog, and turtle) removal – conducted quarterly |
| 2001, February | Partial riparian planting |
| 2001, March | Selective clearing at Canyon Trails Golf Club |
| 2001, March | Water quality sampling |
| 2001, June | Water quality sampling |
| 2001, July | Fish Sampling at Haines Canyon Creek |
| 2001, September | Water quality sampling |

| Date | Activity |
|---|---|
| 2001, October to 2001, November | Fish Sampling at Haines Canyon Creek |
| 2001, December | Water quality sampling |
| 2002, January | Final riparian planting |
| 2002, July | Upland replacement planting |
| 2002, March | Water quality sampling |
| 2002, June | Water quality sampling |
| 2002, July | Fish Sampling at Haines Canyon Creek |
| 2002, September | Water quality sampling |
| 2002, October | Grading at Canyon Trails Golf Club begins |
| 2002, November | Fish Sampling at Haines Canyon Creek |
| 2002, December | Water quality sampling |
| 2003, March | Water quality sampling |
| 2003, April | Meeting with Canyon Trails Golf Club to discuss future use of herbicides and fertilizers |
| 2003, June | Water quality sampling |
| 2003, August | Fish Sampling at Haines Canyon Creek |
| 2003, September | Water quality sampling |
| 2003, fall | Completion of the golf course construction |
| 2003, December | Water quality sampling |
| 2004, January | Fish Sampling at Haines Canyon Creek |
| 2004, April | Water quality sampling |
| 2004, April | Rock Dam Removal Day |
| 2004, June | Angeles National Golf Club (previously named Canyon Trails) opens to the public |
| 2004, July | Water quality sampling |
| 2004, October | Water quality sampling |
| 2004, December | Water quality sampling |
| 2005, April | Water quality sampling |
| 2005, June | Water quality sampling |
| 2005, October | Water quality sampling |
| 2005, December | Water quality sampling |
| 2006, July | Water quality sampling |
| 2006, December | Water quality sampling |
| 2007, December | Water quality sampling |
| 2008, December | Water quality sampling |
| 2009, August to October | As of 2009, the Station Fire was the largest fire in the recorded history of Angeles National Forest and the 10th largest fire in California since 1933. The fire burned a total of 160,577 acres. The fire was fully contained on October 16, 2009. (Source: Angeles National Forest Incident Update available - http://www.inciweb.org/incident/1856/) |
| 2009, December | Water quality sampling |
| 2010, November | Water quality sampling |
| 2010, December | Water quality sampling for pesticides |

| Date | Activity |
|---|---|
| 2011, September to 2012, January | Water lettuce removal |
| 2012, February | Water quality sampling |
| 2012, November | Water quality sampling |
| 2013, October | Water quality sampling |
| 2014, October | Water quality sampling |
| 2015, November | Water quality sampling |
| 2016, November 7 | Water quality sampling |
| 2017, December | The Creek Fire began on December 5, 2017, approximately 4 miles east of Sylmar, California. The Creek Fire burned a total of 15,619 acres. Much of the Mitigation Area burned, and close to 75 percent of the entire site exhibited signs of severe surface burns, including approximately all of the riparian communities found along Haines Canyon Creek, and more than half of the vegetation within the Big Tujunga Wash area. The fire was fully contained on January 9, 2018. (Sources: Angeles National Forest Incident Update available - https://inciweb.nwcg.gov/incident/5669/; Chambers Group 2018 Post Fire Assessment Report) |
| 2017, December 21 | Water quality sampling |
| 2018, December 17 | Water quality sampling |
| 2019, April 23 | After April 23, 2019 Chambers Group stopped the use of all herbicides within the Mitigation Area. From April 23 onward, exotic plants were (and will continue to be) managed with mechanical weed control methods only. |
| 2019, October 30 | Water quality sampling |
| 2020, November 2 | Water quality sampling |
| 2021, November 1 | Water quality sampling |
| 2022 | No water quality sampling conducted |
| 2023, June 9 | Resumed use of approved herbicides in the Mitigation Area |
| 2023, November 1 | Water quality sampling |

## 2.2 UPSTREAM LAND USES

The monitoring program has been designed to specifically address inputs to the site from upstream land uses such as the Angeles National Golf Club (previously named Canyon Trails Golf Club). The golf course has been operating since June 2004. Potential negative impacts to aquatic species from run-on to the site that contains excessive nutrients or pesticides are of primary concern. Pesticides potentially used at the Angeles National Golf Course include herbicides, insecticides, fungicides, and grass growth inhibitors (Table 2).

Actual use of pesticides is based on golf course maintenance needs. Based on the pesticide use information from the Angeles National Golf Club, analysis of water samples for glyphosate, chlorpyrifos, other organophosphorous pesticides, and organochlorine pesticides is included in the sampling program for the Mitigation Area.

**Table 2: Pesticides Potentially Used at the Angeles National Golf Club**

| Manufacturer and Product Name | Active Ingredient | Use |
|---|---|---|
| Syngenta Primo Maxx | trinexapac-ethyl | grass growth inhibitor used for turf management |
| Syngenta Reward | diquat dibromide | landscape and aquatic herbicide |
| Syngenta Barricade | prodiamine | pre-emergent herbicide |
| Bayer Prostar 70 WP | flutolanil | fungicide |
| Monsanto QuikPRO | ammonium salt of glyphosphate and diquat dibromide | herbicide |
| Monsanto Rodeo® Verdicon Kleenup® Pro Lesco Prosecutor | glyphosate | emerged aquatic weed and brush herbicide |
| Valent ProGibb T&O | gibberellic acid | plant growth regulator |
| BASF Insignia 20 WG | pyraclostrobin | fungicide |
| BASF Stalker | Isopropylamine salt of Imazapyr | herbicide |
| Dow Agrosciences Surflan A.S. | oryzalin | herbicide |
| Dow Agrosciences Dursban Pro | chlorpyrifos | insecticide |
| Mycogen Scythe | pelargonic acid | herbicide |

**Source:** J. Reidinger, Angeles National Golf Club, pers. comm. to M. Chimienti, LACDPW, March 18, 2004 and Angeles National Golf Club Monthly Summary Pesticide Use Reports (December 2004, February 2005 and April 2007).

# SECTION 3.0 – MATERIALS AND METHODS

## 3.1 SAMPLING STATIONS

Four sampling locations have been identified for the monitoring program for the Mitigation Area (Figure 1). Table 3 summarizes sampling locations and the conditions observed on November 1, 2023.

**Figure 1: Mitigation Area Water Quality Sampling Stations**

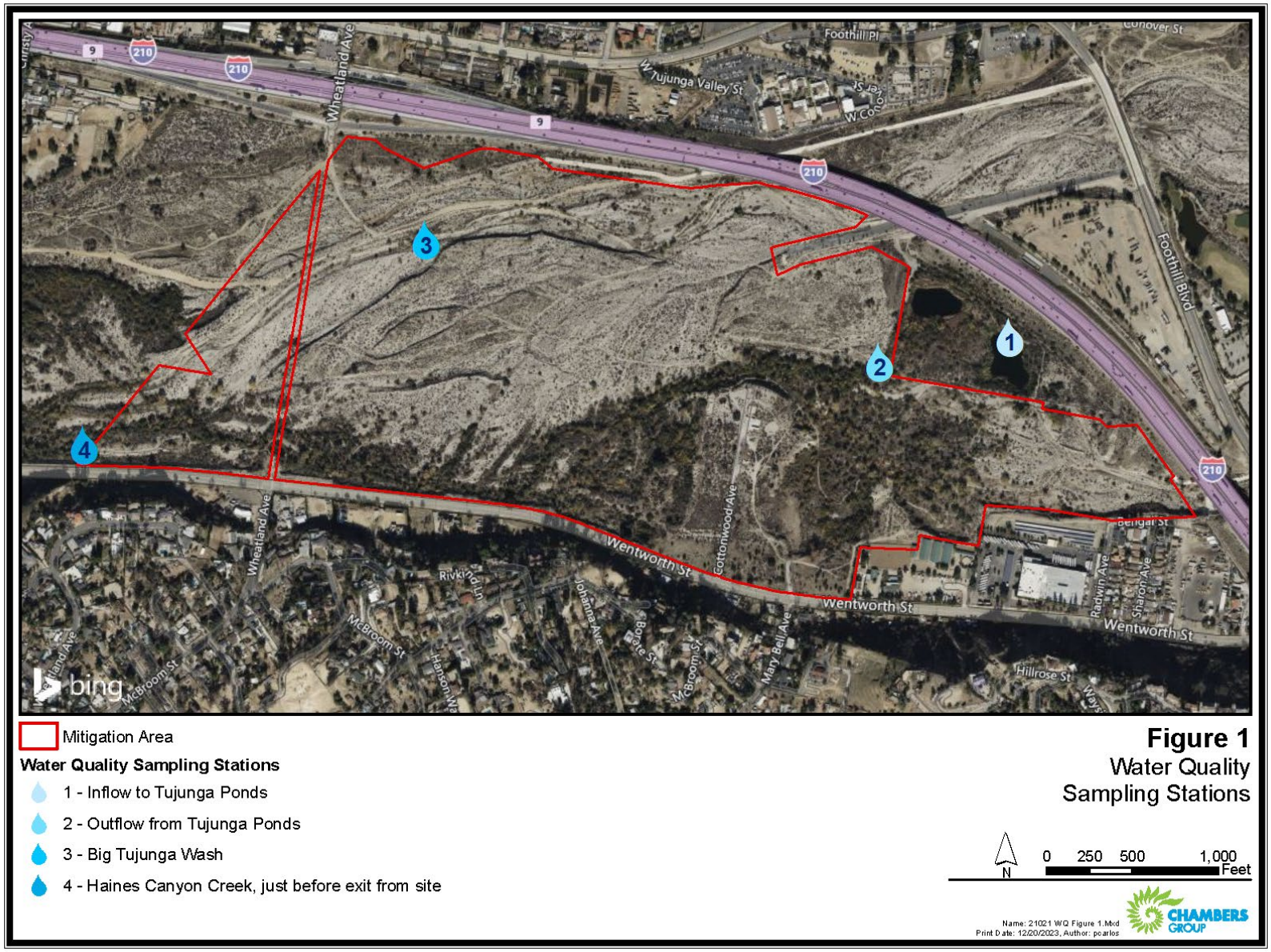


**Table 3: Water Quality Sampling Locations and Conditions for November 2023**

| | | | |
|---|---|---|---|
| **Date** | November 1, 2023 | | |
| **Air Temperature** | Between 16.1 and 22.2 (°Celsius) during sample collection period | | |
| **Skies** | Partly cloudy | | |
| **Observations** | Water was clear at all locations | | |
| **Sampling Locations** | **Latitude** | **Longitude** | **Time of sample** |
| (1) Tujunga Ponds | 34.268471 N | 118.339970 W | 1010 |
| (2) Outflow from Tujunga Ponds | 34.268042 N | 118.342481 W | 0930 |
| (3) Big Tujunga Wash | 34.26989 N | 118.35126 W | Station dry |
| (4) Haines Canyon Creek, before exit from the site | 34.266541 N | 118.357794 W | 0830 |

## 3.2 SAMPLING PARAMETERS

Table 4 summarizes the sampling parameters included in the water quality monitoring program. The following meters were used in the field:

- pH and temperature – Milwaukee MW102 PRO+ 2-in-1 Temperature and pH Meter
- Dissolved oxygen - Milwaukee MW600 PRO Dissolved Oxygen Meter
- Turbidity – Hanna Instruments HI98703 Turbidity Portable Meter

Water testing was performed by Enthalpy Analytical LLC located in Orange, California and their subcontractors ESB BABCOCK Laboratories, Inc. located in Riverside, California and Eurofins CalScience LLC located in Garden Grove, California. Samples were taken at mid-depth, along a transect perpendicular to the stream channel alignment. Quality assurance/quality control (QA/QC) procedures in each laboratory followed the methods described in their respective quality assurance manuals.

**Table 4: Water Quality Sampling Parameters**

| Parameter | Analysis Location | Analytical Method |
|---|---|---|
| total Kjeldahl nitrogen (TKN) | laboratory | EPA 351.2 |
| nitrite - nitrogen ($NO_2$-N) | laboratory | EPA 300.0 by IC |
| Nitrate - nitrogen ($NO_3$-N) | laboratory | EPA 300.0 by IC |
| ammonia ($NH_4$) | laboratory | EPA 350.1 |
| orthophosphate - P | laboratory | Standard Methods 4500PE/EPA 365.1 |
| total phosphorus - P | laboratory | Standard Methods 4500PE/EPA 365.1 |
| total coliform | laboratory | Standard Methods 9221B |
| fecal coliform | laboratory | Standard Methods 9221C |
| turbidity | field | EPA 180.1 |
| glyphosate (Roundup/Rodeo)[1] | laboratory | EPA 547 |
| chlorpyrifos and organophosphorus pesticides[2] | laboratory | EPA 8141A |
| organochlorine pesticides[3] | laboratory | EPA 608 |
| dissolved oxygen | field | Standard Methods 4500-O G |
| total residual chlorine | laboratory | Standard Methods 4500-Cl |
| temperature | field | Standard Methods 2550 |
| pH | field | Standard Methods 4500-H+ |

Sources for analytical methods:
EPA. Method and Guidance for Analysis of Water.
American Public Health Association, American Waterworks Association, and Water Environment Federation. 1998. Standard Methods for the Examination of Water and Wastewater, 20th Edition. Washington D.C.

[1] First analysis completed in the first quarter of 2004
[2] First analysis completed in the fourth quarter of 2004. This analytical method tests for the following chemicals: azinphos- methyl, bolster, coumaphos, diazinon, chlorpyrifos, demeton, dichlorvos, disulfoton, ethoprop, fensulfothion, fenthion, mevinphos, naled, phorate, runnel, stirophos, parathion-methyl, tokuthion, and trichloronate.
[3] First analysis completed in the fourth quarter of 2004. This analytical method tests for the following chemicals: azinphos- methyl, bolster, coumaphos, diazinon, chlorpyrifos, demeton, dichlorvos, disulfoton, ethoprop, fensulfothion, fenthion, mevinphos, naled, phorate, runnel, stirophos, parathion-methyl, tokuthion, and trichloronate.

# SECTION 4.0 – RESULTS

## 4.1 BASELINE WATER QUALITY

Sampling and analysis conducted by Public Works prior to implementation of the FMMP is considered the baseline for water quality conditions at the Mitigation Area. The results of baseline analyses conducted in April 2000 are presented in Table 5. Higher bacteria and turbidity observed in the 4/18/2000 samples are attributable to a rain event. Phosphorus levels were also high in the 4/18/2000 samples, due to release from sediments.

**Table 5: Baseline Water Quality (2000)**

| Parameter | Units | Date (2000) | Tujunga Ponds | Haines Canyon Creek, Outflow from Tujunga Ponds | Big Tujunga Wash | Haines Canyon Creek, just before exit from site |
|---|---|---|---|---|---|---|
| Total coliform | MPN/ 100 ml | 4/12 | 3,000 | 5,000 | 170 | 1,700 |
| | | 4/18 | 2,200 | 170,000 | 2,400 | 70,000 |
| Fecal coliform | MPN/ 100 ml | 4/12 | 500 | 300 | 40 | 80 |
| | | 4/18 | 500 | 30,000 | 2,400 | 50,000 |
| Ammonia-N | mg/L | 4/12 | 0 | 0 | 0 | 0 |
| | | 4/18 | 0 | 0 | 0 | 0 |
| Nitrate-N | mg/L | 4/12 | 8.38 | 5.19 | 0 | 3.73 |
| | | 4/18 | 8.2 | 3.91 | 0.253 | 0.438 |
| Nitrite-N | mg/L | 4/12 | 0.061 | 0 | 0 | 0 |
| | | 4/18 | 0.055 | 0 | 0 | 0 |
| Kjeldahl-N | mg/L | 4/12 | 0 | 0.1062 | 0.163 | 0 |
| | | 4/18 | 0 | 0.848 | 0.42 | 0.428 |
| Dissolved phosphorus | mg/L | 4/12 | 0.078 | 0.056 | 0 | 0.063 |
| | | 4/18 | 0.089 | 0.148 | 0.111 | 0.163 |
| Total phosphorus | mg/L | 4/12 | 0.086 | 0.062 | 0 | 0.066 |
| | | 4/18 | 0.113 | 0.153 | 0.134 | 0.211 |
| pH | SU | 4/12 | 7.78 | 7.68 | 7.96 | 7.91 |
| | | 4/18 | 7.18 | 7.47 | 7.45 | 7.06 |
| Turbidity | NTU | 4/12 | 1.83 | 0.38 | 1.75 | 0.6 |
| | | 4/18 | 4.24 | 323 | 4070 | 737 |

**MPN** – most probable number **NTU** – nephelometric turbidity units **mg/L –** milligrams per liter **SU** – standard unit

## 4.2 NOVEMBER 2023 RESULTS

Results of analyses conducted by Enthalpy Analytical and their subcontractors Eurofins CalScience and ESB BANCOCK Laboratories are appended to this report (Appendix A) and summarized in Table 6.

**Table 6: Summary of Water Quality Results – November 1, 2023**

| Parameter | Units | Tujunga Ponds | Outflow from Tujunga Ponds | Big Tujunga Wash | Haines Canyon Creek, just before exit from site |
|---|---|---|---|---|---|
| Temperature | °C | 18.1 | 16.8 | NA | 15.1 |
| Dissolved Oxygen | mg/L | 3.0 | 3.0 | NA | 9.3 |
| pH | SU | 7.37 | 7.70 | NA | 7.96 |
| Total residual chlorine | mg/L | ND | ND | NA | ND |
| Ammonia-Nitrogen | mg/L | ND | ND | NA | ND |
| Kjeldahl Nitrogen | mg/L | ND | ND | NA | ND |
| Nitrite-Nitrogen | mg/L | ND | ND | NA | ND |
| Nitrate-Nitrogen | mg/L | 5.9 | 3.5 | NA | 3.3 |
| Orthophosphate-P (dissolved phosphorus) | mg/L | ND | ND | NA | ND |
| Total phosphorus-P | mg/L | 0.047 | 0.028 | NA | 0.035 |
| Glyphosate | µg/L | ND | ND | NA | ND |
| Chlorpyrifos* (and other Organophosphorus Pesticides) | µg/L | ND | ND | NA | ND |
| Pesticides (EPA 608)** (Organochlorine Pesticides) | µg/L | ND | ND | NA | ND |
| Turbidity | NTU | 0.44 | 0.35 | NA | 0.35 |
| Fecal Coliform Bacteria | (MPN/100 ml) | 140 | 240 | NA | 43 |
| Total Coliform Bacteria | (MPN/100 ml) | >1600 | 1600 | NA | 1600 |

**NA** – data not available; station dry on the sample date
**NTU** – nephelometric turbidity units
**µg/L –** micrograms per liter
**MPN** – most probable number
**ND** – non-detect
**mg/L –** milligrams per liter
**>** - Value exceeds indicated concentration
**SU** – standard unit

***** The analytical method used for chlorpyrifos (EPA 8141A) also tests for the following chemicals: azinphos-methyl, bolster, coumaphos, demeton, diazinon, dichlorvos, disulfoton, ethoprop, fensulfothion, fenthion, merphos, methyl parathion, mevinphos, naled, phorate, ronnel, stirophos, tokuthion, and trichloronate.

****** EPA method 608 tests for aldrin, BHC, Chlordane, DDD, DDE, DDT, dieldrin, endrin, endosulfan, heptaclor, methoxychlor, and toxaphene. Water samples for these pesticides were collected on November 1, 2023.

## 4.3 COMPARISON OF RESULTS WITH AQUATIC LIFE CRITERIA

Tables 7 through 12 present objectives established by the United States Environmental Protection Agency (USEPA) and the Los Angeles Regional Water Quality Control Board (Regional Board) for protection of beneficial uses including freshwater aquatic life.

**Table 7: National and Local Recommended Water Quality Criteria - Freshwaters**

| Parameter | Basin Plan Objectives[a] | EPA Criteria | | |
|---|---|---|---|---|
| | | CMC | CCC | Human Health |
| Temperature (°C) | b | See Table 12 | See Table 12 | -- |
| Dissolved oxygen (mg/L) | >7.0 mean<br>>5.0 min | 5.0[c]<br>(warmwater, early life stages, 1-day minimum) | 6.0[c]<br>(warmwater, early life stages, 7-day mean) | -- |
| pH | 6.5 - 8.5 | -- | 6.5-9.0[d,e] | 5.0-9.0[d,e] |
| Total residual chlorine (mg/L) | 0.1 | 0.019[d,e] | 0.011[d,e] | 4.0<br>(maximum residual disinfectant level goal) |
| Fecal coliform (MPN/100 ml) | 126[f]<br>(geometric mean for *E. coli*)<br>(water contact recreation) | -- | -- | Swimming standards:<br>33[g] (geometric mean for enterococci)<br>126[g] (geometric mean for *E. coli*) |
| Ammonia-nitrogen (mg/L) | See Tables 10 and 11 | See Table 8 | See Table 9 | -- |
| Nitrite-nitrogen (mg/L) | 1 | -- | -- | 1<br>(primary drinking water standard) |
| Nitrate-nitrogen (mg/L) | 10 | -- | -- | 10<br>(primary drinking water standard) |
| Total phosphorus (mg/L) | -- | <0.05 – 0.1[e]<br>(recommendation for streams, no criterion) | | -- |
| Turbidity (NTU) | h | i | i | 5<br>(secondary drinking water standard)<br>≤1.0<br>(standard for systems that filter) |

**Notes:**
**MPN** most probable number
**NTU** nephelometric turbidity units
**--** No criterion
**CMC** Criteria Maximum Concentration or acute criterion
**CCC** Criteria Continuous Concentration or chronic criterion
**a** Source: California Regional Water Quality Control Board, Los Angeles Region. 1994. Water Quality Control Plan (Basin Plan). As amended.

**b** Narrative criterion: "The natural receiving water temperature of all regional waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses."
**c** Source: USEPA. 1986. Ambient Water Quality Criteria for Dissolved Oxygen. EPA 440-5-86-003. Washington, D.C.
**d** Source: USEPA. 1999. National Recommended Water Quality Criteria – Correction. EPA 822-Z-99-001. Washington, D.C.
**e** Source: USEPA. 1986. Quality Criteria for Water. EPA 440/5-86-001. Washington, D.C.
**f** Single sample limits – E. coli density shall not exceed 235/100 ml.
**g** Source: USEPA. 1986. Ambient Water Quality Criteria for Bacteria – 1986. EPA 440-5-84-002. Washington, D.C.
**h** Narrative criterion: "Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses."
**i** Narrative criterion for freshwater fish and other aquatic life: "Settleable and suspended solids should not reduce the depth of the compensation point for photosynthetic activity by more than 10 percent from the seasonally established norm for aquatic life."

**Table 8: Temperature and pH-Dependent Values of the CMC (Acute Criterion) Mussels Absent**

| CMC: Mussels Absent, mg N/L | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | Temperature (°Celsius) | | | | | | | | | |
| | 0 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 |
| 6.5 | 58.0 | 58.0 | 58.0 | 58.0 | 43.7 | 37.0 | 31.4 | 26.6 | 22.5 | 19.1 |
| 6.6 | 55.7 | 55.7 | 55.7 | 55.7 | 41.9 | 35.5 | 30.1 | 25.5 | 21.6 | 18.3 |
| 6.7 | 53.0 | 53.0 | 53.0 | 53.0 | 39.9 | 33.8 | 28.6 | 24.3 | 20.6 | 17.4 |
| 6.8 | 49.9 | 49.9 | 49.9 | 49.9 | 37.6 | 31.9 | 27.0 | 22.9 | 19.4 | 16.4 |
| 6.9 | 46.5 | 46.5 | 46.5 | 46.5 | 35.1 | 29.7 | 25.2 | 21.3 | 18.1 | 15.3 |
| 7.0 | 42.9 | 42.9 | 42.9 | 42.9 | 32.3 | 27.4 | 23.2 | 19.7 | 16.7 | 14.1 |
| 7.1 | 39.1 | 39.1 | 39.1 | 39.1 | 29.4 | 24.9 | 21.1 | 17.9 | 15.2 | 12.8 |
| 7.2 | 35.1 | 35.1 | 35.1 | 35.1 | 26.4 | 22.4 | 19.0 | 16.1 | 13.6 | 11.5 |
| 7.3 | 31.2 | 31.2 | 31.2 | 31.2 | 23.5 | 19.9 | 16.8 | 14.3 | 12.1 | 10.2 |
| 7.4 | 27.3 | 27.3 | 27.3 | 27.3 | 20.6 | 17.4 | 14.8 | 12.5 | 10.6 | 8.98 |
| 7.5 | 23.6 | 23.6 | 23.6 | 23.6 | 17.8 | 15.1 | 12.8 | 10.8 | 9.18 | 7.77 |
| 7.6 | 20.2 | 20.2 | 20.2 | 20.2 | 15.3 | 12.9 | 10.9 | 9.27 | 7.86 | 6.66 |
| 7.7 | 17.2 | 17.2 | 17.2 | 17.2 | 12.9 | 11.0 | 9.28 | 7.86 | 6.66 | 5.64 |
| 7.8 | 14.4 | 14.4 | 14.4 | 14.4 | 10.9 | 9.21 | 7.80 | 6.61 | 5.60 | 4.74 |
| 7.9 | 12.0 | 12.0 | 12.0 | 12.0 | 9.07 | 7.69 | 6.51 | 5.52 | 4.67 | 3.96 |
| 8.0 | 9.99 | 9.99 | 9.99 | 9.99 | 7.53 | 6.38 | 5.40 | 4.58 | 3.88 | 3.29 |
| 8.1 | 8.26 | 8.26 | 8.26 | 8.26 | 6.22 | 5.27 | 4.47 | 3.78 | 3.21 | 2.72 |
| 8.2 | 6.81 | 6.81 | 6.81 | 6.81 | 5.13 | 4.34 | 3.68 | 3.12 | 2.64 | 2.24 |
| 8.3 | 5.60 | 5.60 | 5.60 | 5.60 | 4.22 | 3.58 | 3.03 | 2.57 | 2.18 | 1.84 |
| 8.4 | 4.61 | 4.61 | 4.61 | 4.61 | 3.48 | 2.95 | 2.50 | 2.11 | 1.79 | 1.52 |
| 8.5 | 3.81 | 3.81 | 3.81 | 3.81 | 2.87 | 2.43 | 2.06 | 1.74 | 1.48 | 1.25 |
| 8.6 | 3.15 | 3.15 | 3.15 | 3.15 | 2.37 | 2.01 | 1.70 | 1.44 | 1.22 | 1.04 |
| 8.7 | 2.62 | 2.62 | 2.62 | 2.62 | 1.97 | 1.67 | 1.42 | 1.20 | 1.02 | 0.862 |

| CMC: Mussels Absent, mg N/L | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | Temperature (°Celsius) | | | | | | | | | |
| | 0 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 |
| 8.8 | 2.19 | 2.19 | 2.19 | 2.19 | 1.65 | 1.40 | 1.19 | 1.00 | 0.851 | 0.721 |
| 8.9 | 1.85 | 1.85 | 1.85 | 1.85 | 1.39 | 1.18 | 1.00 | 0.847 | 0.718 | 0.608 |
| 9.0 | 1.57 | 1.57 | 1.57 | 1.57 | 1.19 | 1.00 | 0.851 | 0.721 | 0.611 | 0.517 |

**Note:** Native species of freshwater mussels are not known for Big Tujunga Wash or Haines Canyon Creek. CMC – Criteria Maximum Concentration (ammonia)
**Source:** USEPA. 2009. Draft 2009 Update Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater. EPA 822-D-09-001. Washington, D.C

**Table 9: Temperature and pH-Dependent Values of the CCC (Chronic Criterion) Mussels Absent and Early Fish Life Stages Present**

| CCC: Mussels Absent and Early Fish Life Stages Present, mg N/L | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| pH | Temperature (°Celsius) | | | | | | | | | |
| | 0 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 |
| 6.5 | 6.36 | 6.36 | 6.36 | 6.36 | 6.36 | 6.11 | 5.37 | 4.72 | 4.15 | 3.65 |
| 6.6 | 6.26 | 6.26 | 6.26 | 6.26 | 6.26 | 6.02 | 5.29 | 4.65 | 4.09 | 3.60 |
| 6.7 | 6.15 | 6.15 | 6.15 | 6.15 | 6.15 | 5.91 | 5.19 | 4.57 | 4.01 | 3.53 |
| 6.8 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 5.77 | 5.08 | 4.46 | 3.92 | 3.45 |
| 6.9 | 5.84 | 5.84 | 5.84 | 5.84 | 5.84 | 5.61 | 4.93 | 4.34 | 3.81 | 3.35 |
| 7.0 | 5.64 | 5.64 | 5.64 | 5.64 | 5.64 | 5.42 | 4.76 | 4.19 | 3.68 | 3.24 |
| 7.1 | 5.41 | 5.41 | 5.41 | 5.41 | 5.41 | 5.20 | 4.57 | 4.02 | 3.53 | 3.10 |
| 7.2 | 5.14 | 5.14 | 5.14 | 5.14 | 5.14 | 4.94 | 4.35 | 3.82 | 3.36 | 2.95 |
| 7.3 | 4.84 | 4.84 | 4.84 | 4.84 | 4.84 | 4.66 | 4.09 | 3.60 | 3.16 | 2.78 |
| 7.4 | 4.52 | 4.52 | 4.52 | 4.52 | 4.52 | 4.34 | 3.82 | 3.36 | 2.95 | 2.59 |
| 7.5 | 4.16 | 4.16 | 4.16 | 4.16 | 4.16 | 4.00 | 3.52 | 3.09 | 2.72 | 2.39 |
| 7.6 | 3.79 | 3.79 | 3.79 | 3.79 | 3.79 | 3.65 | 3.21 | 2.82 | 2.48 | 2.18 |
| 7.7 | 3.41 | 3.41 | 3.41 | 3.41 | 3.41 | 3.28 | 2.89 | 2.54 | 2.23 | 1.96 |
| 7.8 | 3.04 | 3.04 | 3.04 | 3.04 | 3.04 | 2.92 | 2.57 | 2.26 | 1.98 | 1.74 |
| 7.9 | 2.67 | 2.67 | 2.67 | 2.67 | 2.67 | 2.57 | 2.26 | 1.98 | 1.74 | 1.53 |
| 8.0 | 2.32 | 2.32 | 2.32 | 2.32 | 2.32 | 2.23 | 1.96 | 1.72 | 1.52 | 1.33 |
| 8.1 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.92 | 1.69 | 1.49 | 1.31 | 1.15 |
| 8.2 | 1.71 | 1.71 | 1.71 | 1.71 | 1.71 | 1.64 | 1.45 | 1.27 | 1.12 | 0.982 |
| 8.3 | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 | 1.40 | 1.23 | 1.08 | 0.949 | 0.835 |
| 8.4 | 1.23 | 1.23 | 1.23 | 1.23 | 1.23 | 1.18 | 1.04 | 0.914 | 0.804 | 0.706 |
| 8.5 | 1.04 | 1.04 | 1.04 | 1.04 | 1.04 | 0.999 | 0.878 | 0.772 | 0.679 | 0.597 |
| 8.6 | 0.878 | 0.878 | 0.878 | 0.878 | 0.878 | 0.844 | 0.742 | 0.652 | 0.573 | 0.504 |
| 8.7 | 0.742 | 0.742 | 0.742 | 0.742 | 0.742 | 0.714 | 0.628 | 0.552 | 0.485 | 0.426 |
| 8.8 | 0.631 | 0.631 | 0.631 | 0.631 | 0.631 | 0.606 | 0.533 | 0.469 | 0.412 | 0.362 |
| 8.9 | 0.539 | 0.539 | 0.539 | 0.539 | 0.539 | 0.518 | 0.455 | 0.400 | 0.352 | 0.309 |
| 9.0 | 0.464 | 0.464 | 0.464 | 0.464 | 0.464 | 0.446 | 0.392 | 0.345 | 0.303 | 0.266 |

**Note:** Native species of freshwater mussels are not known for Big Tujunga Wash or Haines Canyon Creek. CCC – Criteria Continuous Concentration (ammonia)
**Source:** USEPA. 2009. Draft 2009 Update Aquatic Life Ambient Water Quality Criteria for Ammonia - Freshwater. EPA 822-D-09-001. Washington, D.C.

**Table 10: 30-Day Average Objective for Ammonia-N for Freshwaters Applicable to Waters Subject to the "Early Life Stage Present" Condition (mg N/L)**

| pH | Temperature (°Celsius) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 |
| 6.5 | 6.67 | 6.06 | 5.33 | 4.68 | 4.12 | 3.62 | 3.18 | 2.80 | 2.46 |
| 6.6 | 6.57 | 5.97 | 5.25 | 4.61 | 4.05 | 3.56 | 3.13 | 2.75 | 2.42 |
| 6.7 | 6.44 | 5.86 | 5.15 | 4.52 | 3.98 | 3.50 | 3.07 | 2.70 | 2.37 |
| 6.8 | 6.29 | 5.72 | 5.03 | 4.42 | 3.89 | 3.42 | 3.00 | 2.64 | 2.32 |
| 6.9 | 6.12 | 5.56 | 4.89 | 4.30 | 3.78 | 3.32 | 2.92 | 2.57 | 2.25 |
| 7.0 | 5.91 | 5.37 | 4.72 | 4.15 | 3.65 | 3.21 | 2.82 | 2.48 | 2.18 |
| 7.1 | 5.67 | 5.15 | 4.53 | 3.98 | 3.50 | 3.08 | 2.70 | 2.38 | 2.09 |
| 7.2 | 5.39 | 4.90 | 4.31 | 3.78 | 3.33 | 2.92 | 2.57 | 2.26 | 1.99 |
| 7.3 | 5.08 | 4.61 | 4.06 | 3.57 | 3.13 | 2.76 | 2.42 | 2.13 | 1.87 |
| 7.4 | 4.73 | 4.30 | 3.78 | 3.32 | 2.92 | 2.57 | 2.26 | 1.98 | 1.74 |
| 7.5 | 4.36 | 3.97 | 3.49 | 3.06 | 2.69 | 2.37 | 2.08 | 1.83 | 1.61 |
| 7.6 | 3.98 | 3.61 | 3.18 | 2.79 | 2.45 | 2.16 | 1.90 | 1.67 | 1.47 |
| 7.7 | 3.58 | 3.25 | 2.86 | 2.51 | 2.21 | 1.94 | 1.71 | 1.50 | 1.32 |
| 7.8 | 3.18 | 2.89 | 2.54 | 2.23 | 1.96 | 1.73 | 1.52 | 1.33 | 1.17 |
| 7.9 | 2.80 | 2.54 | 2.24 | 1.96 | 1.73 | 1.52 | 1.33 | 1.17 | 1.03 |
| 8.0 | 2.43 | 2.21 | 1.94 | 1.71 | 1.50 | 1.32 | 1.16 | 1.02 | 0.897 |
| 8.1 | 2.10 | 1.91 | 1.68 | 1.47 | 1.29 | 1.14 | 1.00 | 0.879 | 0.773 |
| 8.2 | 1.79 | 1.63 | 1.43 | 1.26 | 1.11 | 0.973 | 0.855 | 0.752 | 0.661 |
| 8.3 | 1.52 | 1.39 | 1.22 | 1.07 | 0.941 | 0.827 | 0.727 | 0.639 | 0.562 |
| 8.4 | 1.29 | 1.17 | 1.03 | 0.906 | 0.796 | 0.700 | 0.615 | 0.541 | 0.475 |
| 8.5 | 1.09 | 0.990 | 0.870 | 0.765 | 0.672 | 0.591 | 0.520 | 0.457 | 0.401 |
| 8.6 | 0.920 | 0.836 | 0.735 | 0.646 | 0.568 | 0.499 | 0.439 | 0.386 | 0.339 |
| 8.7 | 0.778 | 0.707 | 0.622 | 0.547 | 0.480 | 0.422 | 0.371 | 0.326 | 0.287 |
| 8.8 | 0.661 | 0.601 | 0.528 | 0.464 | 0.408 | 0.359 | 0.315 | 0.277 | 0.244 |
| 8.9 | 0.565 | 0.513 | 0.451 | 0.397 | 0.349 | 0.306 | 0.269 | 0.237 | 0.208 |
| 9.0 | 0.486 | 0.442 | 0.389 | 0.342 | 0.300 | 0.264 | 0.232 | 0.204 | 0.179 |

**Source:** California Regional Water Quality Control Board, Los Angeles Region. 2005. Amendments to the Water Quality Control Plan – Los Angeles Region with Respect to Early Life Stage Implementation Provisions of the Inland Surface Water Ammonia Objectives for Freshwaters. Taken from USEPA. 1999. 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA 822-R-99-014. Washington, D.C.

**Table 11: One-Hour Average Objective for Ammonia-N for Freshwaters (mg N/L)**

| pH | Waters Designated COLD and/or MIGR | Waters Not Designated COLD and/or MIGR |
|---|---|---|
| 6.5 | 32.6 | 48.8 |
| 6.6 | 31.3 | 46.8 |
| 6.7 | 29.8 | 44.6 |
| 6.8 | 28.1 | 42.0 |
| 6.9 | 26.2 | 39.1 |
| 7.0 | 24.1 | 36.1 |
| 7.1 | 22.0 | 32.8 |
| 7.2 | 19.7 | 29.5 |
| 7.3 | 17.5 | 26.2 |
| 7.4 | 15.4 | 23.0 |
| 7.5 | 13.3 | 19.9 |
| 7.6 | 11.4 | 17.0 |
| 7.7 | 9.65 | 14.4 |
| 7.8 | 8.11 | 12.1 |
| 7.9 | 6.77 | 10.1 |
| 8.0 | 5.62 | 8.40 |
| 8.1 | 4.64 | 6.95 |
| 8.2 | 3.83 | 5.72 |
| 8.3 | 3.15 | 4.71 |
| 8.4 | 2.59 | 3.88 |
| 8.5 | 2.14 | 3.20 |
| 8.6 | 1.77 | 2.65 |
| 8.7 | 1.47 | 2.20 |
| 8.8 | 1.23 | 1.84 |
| 8.9 | 1.04 | 1.56 |
| 9.0 | 0.885 | 1.32 |

**COLD** – Beneficial use designation of Cold Freshwater Habitat
**MIGR** – Beneficial use designation of Migration of Aquatic Organisms
**Source:** California Regional Water Quality Control Board, Los Angeles Region. 2002. Amendments to the Water Quality Control Plan – Los Angeles Region with Respect to Inland Surface Water Ammonia Objectives. Taken from USEPA. 1999. 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA 822-R-99-014. Washington, D.C.

**Table 12: Example Calculated Values for Maximum Weekly Average Temperature for Growth and Short-Term Maxima for Survival of Juvenile and Adult Fishes During the Summer**

| Species | Growth - Maximum Weekly Average Temperature (°C) | Survival - Short-Term Maximum Temperature (°C) |
|---|---|---|
| black crappie | 27 | -- |
| brook trout | 19 | 24 |
| bluegill | 32 | 35 |
| channel catfish | 32 | 35 |
| emerald shiner | 30 | -- |
| largemouth bass | 32 | 34 |
| rainbow trout | 19 | 24 |

**Source:** USEPA. 1986. Quality Criteria for Water. EPA 440/5-86-001. Washington, D.C.

## SECTION 5.0 – DISCUSSION

Results from the November 2023 sampling are described by parameter in Table 13. None of the 2023 parameters tested were substantially different from the baseline conditions recorded in 2000 and/or were still within the recommended range for each parameter as provided in the Basin Plan and/or EPA objectives. The first water sampling for Glyphosate, Chlorpyrifos, and other organophosphorus and organochlorine pesticides did not occur until 2004. None of these pesticides were detected in 2004 nor were they detected in 2023. Table 14 shows the 2023 water quality sampling results as compared to the 2000 baseline water quality sampling results. In addition, none of the parameters were substantially different between pre- and post-Creek Fire conditions (2016/2017) and parameters continue to fall largely within the recommended range for each parameter as provided in the Basin Plan and/or EPA objectives. Three of the parameters tested in 2023 (DO, Fecal Coliform, and Total Coliform) were outside the recommended range for at least one of the sample locations and are discussed in Table 13.

**Table 13: Discussion of November 2023 Water Quality Sampling Results**

| Parameter | Discussion |
|---|---|
| Temperature | • Observed temperatures were below levels of concern for growth and survival of warmwater fish species at all stations (example species in Table 12). However, growth criteria are based on the maximum weekly average temperature during the summer and only a single temperature reading was taken at each sampling station in the fall. The weekly summer average temperature is unknown. The reference maxima provided in Table 12 for the growth and survival of juvenile and adult fishes during the summer are provided by the EPA and mainly apply to sportfishing species and not the native fish species that occupy the Mitigation Area. According to the US Fish and Wildlife's Recovery Outline for Santa Ana Sucker, Santa Ana sucker are typically most abundant in clear water, at temperatures generally less than 22°C and have experienced mortality at temperatures greater than 26.7 °C (USFWS 2012[4]). According to UC Davis' Center for Watershed Sciences, Santa Ana speckled dace prefer summer water temperatures below 20°C but may tolerate temperatures as high as 26 to 28°C (UC Davis 2021a[5]). Arroyo chub are most common in streams with temperatures between 10 and 24°C (UC Davis 2021b[6]). All temperatures recorded were below or within the range for |

[4] U.S. Fish and Wildlife Service (USFWS)
2012 Recovery Outline for Santa Ana Sucker (*Catostomus santaanae*). Accessed online at: https://www.fws.gov/carlsbad/tespecies/Recovery/documents/Recovery%20Outline%20for%20Santa%20Ana%20Sucker-3-30-2012.pdf in June 2021.

[5] UC Davis
2021a UC Davis Center for Watershed Sciences. Rhinichthys oculus subspecies. Accessed online at: https://pisces.ucdavis.edu/content/rhinichthys-osculus-subspecies-2 in June 2021.

[6] UC Davis
2021b UC Davis Center for Watershed Sciences. Gila orcutti. Accessed online at: https://pisces.ucdavis.edu/content/gila-orcutti in June 2021.

| Parameter | Discussion |
|---|---|
| | survival of sensitive fish species that occur in the Mitigation Area. |
| Dissolved oxygen | • DO levels were 3.0 mg/L at the Tujunga Ponds, 3.0 mg/L at the outflow from the Tujunga Ponds, and 9.3 mg/L where Haines Canyon Creek exits the site. DO levels at both the Tujunga Ponds and outflow from the Tujunga Ponds were below the minimum recommended level (5.0 mg/L) for Basin Plan objectives and EPA's criteria for warmwater fish species. DO levels where Haines Canyon Creek exits the site were above the minimum recommended level.<br>• Low DO at the Tujunga Ponds and outflow from the Tujunga Ponds is likely a result of no surface water inflow into the ponds in addition to the decaying algae and aquatic plant material that was noted in the Tujunga Ponds by Chambers Group biologists during the summer and fall. Water enters the ponds through a subsurface groundwater system and direct rainfall, and feeds into Haines Creek. The decomposition of plants and other organic waste requires a high oxygen demand, especially in stagnated or slow flowing systems. Turbulent flows naturally aerate the water which is consistent with the higher DO levels recorded where Haines Canyon Creek exits the site; presumably the low DO water flowing from the ponds has had sufficient travel time and churning to reoxygenate by the time it exits the site. Once the organic matter in the ponds has cleared, DO at the Tujunga Ponds and outflow from the Tujunga Ponds will likely increase to normal levels. |
| pH | • pH readings were 7.37 at the Tujunga Ponds, 7.70 at the outflow from the Tujunga Ponds, and 7.96 where Haines Canyon Creek exits the site. The pH readings at all three sample stations were within the recommended range of 6.5 to 8.5 identified in the Basin Plan objectives and were within the recommended range of 5.0 to 9.0 for EPA's criteria for human health. |
| Total residual chlorine | • No residual chlorine was detected at any sample station. |
| Nitrogen | • Nitrate-Nitrogen measurements at all sample stations were below the drinking water maximum standard of 10 mg/L for both Basin Plan standards and EPA criteria for human health.<br>• Nitrite-Nitrogen was not detected at any sample station.<br>• Ammonia-Nitrogen was not detected at any sample station. |
| Phosphorus | • The observed Total Phosphorus-P concentration was 0.047 mg/L at the Tujunga Ponds, 0.028 mg/L at the outflow from the Tujunga Ponds, and 0.035 mg/L where Haines Canyon Creek exits the site. The Total Phosphorus-P concentration at all sample stations was below the lower end of the EPA's recommended maximum range of 0.05 to 0.10 mg/L for the desired goal of preventing plant nuisances in |

| Parameter | Discussion |
|---|---|
| | streams. |
| Glyphosate | • Glyphosate was not detected at any sample station. |
| Chlorpyrifos and other Organophosphorus Pesticides | • Organophosphorus Pesticides including Chlorpyrifos, that were analyzed by EPA method 8141A were not detected at any sample station. |
| Organochlorine Pesticides | • Organochlorine pesticides analyzed by EPA Method 608 were not detected at any sample station. |
| Turbidity | • Turbidity readings were 0.44 NTU at the Tujunga Ponds, 0.35 NTU at the outflow from the Tujunga Ponds, and 0.35 NTU where Haines Canyon Creek exits the site. Turbidity levels were below the EPA's secondary drinking water standard of 5 NTU and below the EPA's drinking water maximum standard of 1.0 NTU for systems that use conventional or direct filtration; however, waters within the Mitigation Area are not filtered systems intended for human consumption.<br>• The EPA's turbidity narrative criterion for freshwater fish and other aquatic life states "Settleable and suspended solids should not reduce the depth of the compensation point for photosynthetic activity by more than 10 percent from the seasonally established norm for aquatic life." All November 2023 turbidity readings were below the baseline data for the respective sample stations. |
| Coliform Bacteria | • Per the Basin Plan objectives, the fresh water bacteria standard for water contact recreation is for *E. coli* (126 MPN/100 ml geometric mean, 235 MPN/100 ml single sample limit). Fecal coliform levels were 140 MPN/100 ml at the Tujunga Ponds, 240 MPN/100 ml at the outflow from the Tujunga Ponds, and 43 MPN/100 ml where Haines Canyon Creek exits the site. Fecal coliform levels detected at the Tujunga Ponds and where Haines Creek exits the site were below the single sample limit. The fecal coliform level detected at the outflow from the Tujunga Ponds was slightly above the single sample limit. Sampling specifically for *E. coli* was not conducted.<br>• Total coliform levels were equal to or greater than 1600 MPN/100 ml at all sample stations. [Note that recreation standards are for *E. coli*. Per the Basin Plan, total coliform standards apply to marine waters and waterbodies where shellfish can be harvested for human consumption.]<br>• The presence of coliform bacteria indicates fecal contamination by warm-blooded mammal and avian species including waterfowl. While not all coliform bacteria are harmful, elevated levels of coliform bacteria indicate an |

| Parameter | Discussion |
|---|---|
| | increased likelihood that harmful coliform bacteria such as *E. coli*, may be present. Sources of coliform pollution in the Mitigation Area may include run-off from surrounding residential areas; horses (equestrian) that utilize the trails; waterfowl that occupy the Tujunga Ponds; other birds, aquatic organisms, and mammals that use the ponds and creek; and illegal human uses of the ponds and creek such as swimming and bathing. Organic materials that carry coliform bacteria have the potential to be harmful to aquatic life, as oxygen in the water may become low during aerobic decomposition of organic materials. Spikes in the levels of coliform bacteria in the Mitigation Area have not been uncommon since water quality sampling began in 2000. |

**mg/L** – milligrams per liter **NTU** – nephelometric turbidity units **MPN** – most probable number

**Table 14: 2023 Water Quality Results Compared to Baseline (2000)**

| Parameter | Units | Date (2000) | Date (2023) | Tujunga Ponds (2000) | Tujunga Ponds (2023) | Outflow from Tujunga Ponds (2000) | Outflow from Tujunga Ponds (2023) | Big Tujunga Wash (2000) | Big Tujunga Wash (2023) | Haines Canyon Creek, just before exit from site (2000) | Haines Canyon Creek, just before exit from site (2023) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Total coliform | MPN/ 100 ml | 4/12 | 11/1 | 3,000 | >1600 | 5,000 | 1600 | 170 | NA | 1,700 | 1600 |
| | | 4/18 | | 2,200 | | 170,000 | | 2,400 | | 70,000 | |
| Fecal coliform | MPN/ 100 ml | 4/12 | 11/1 | 500 | 140 | 300 | 240 | 40 | NA | 80 | 43 |
| | | 4/18 | | 500 | | 30,000 | | 2,400 | | 50,000 | |
| Ammonia-N | mg/L | 4/12 | 11/1 | 0 | ND | 0 | ND | 0 | NA | 0 | ND |
| | | 4/18 | | 0 | | 0 | | 0 | | 0 | |
| Nitrate-N | mg/L | 4/12 | 11/1 | 8.38 | 5.9 | 5.19 | 3.5 | 0 | NA | 3.73 | 3.3 |
| | | 4/18 | | 8.2 | | 3.91 | | 0.253 | | 0.438 | |
| Nitrite-N | mg/L | 4/12 | 11/1 | 0.061 | ND | 0 | ND | 0 | NA | 0 | ND |
| | | 4/18 | | 0.055 | | 0 | | 0 | | 0 | |
| Kjeldahl-N | mg/L | 4/12 | 11/1 | 0 | ND | 0.1062 | ND | 0.163 | NA | 0 | ND |
| | | 4/18 | | 0 | | 0.848 | | 0.42 | | 0.428 | |
| Dissolved phosphorus | mg/L | 4/12 | 11/1 | 0.078 | ND | 0.056 | ND | 0 | NA | 0.063 | ND |
| | | 4/18 | | 0.089 | | 0.148 | | 0.111 | | 0.163 | |
| Total phosphorus | mg/L | 4/12 | 11/1 | 0.086 | 0.047 | 0.062 | 0.028 | 0 | NA | 0.066 | 0.035 |
| | | 4/18 | | 0.113 | | 0.153 | | 0.134 | | 0.211 | |
| pH | SU | 4/12 | 11/1 | 7.78 | 7.37 | 7.68 | 7.70 | 7.96 | NA | 7.91 | 7.96 |
| | | 4/18 | | 7.18 | | 7.47 | | 7.45 | | 7.06 | |
| Turbidity | NTU | 4/12 | 11/1 | 1.83 | 0.44 | 0.38 | 0.35 | 1.75 | NA | 0.6 | 0.35 |
| | | 4/18 | | 4.24 | | 323 | | 4070 | | 737 | |

**NA** – data not available; station dry on the sample date
**MPN** – most probable number
**>** - Value exceeds indicated concentration
**NTU** – nephelometric turbidity units
**ND** – non-detect
**SU** – standard unit
**µg/L –** micrograms per liter
**mg/L –** milligrams per liter

## SECTION 6.0 – GLOSSARY

**Ammonia-Nitrogen** – NH3-N is a gaseous alkaline compound of nitrogen and hydrogen that is highly soluble in water. Un-ionized ammonia (NH3) is toxic to aquatic organisms. The proportions of NH3 and ammonium (NH4+) and hydroxide (OH-) ions are dependent on temperature, pH, and salinity.

**Chlorine, Residual** – The chlorination of water supplies and wastewaters serves to destroy or deactivate disease-producing organisms. Residual chlorine in natural waters is an aquatic toxicant.

**Chlorpyrifos** - White crystal-like solid insecticide widely used in homes and on farms. Used to control cockroaches, fleas, termites, ticks crop pests.

**Coliform Bacteria** – Several genera of bacteria belonging to the family Enterobacteriaceae. Based on the method of detection, the coliform group is historically defined as facultative anaerobic, gram-negative, non-spore-forming, rod-shaped bacteria that ferment lactose with gas and acid formation within 48 hours at 35 C.

**Coliform Bacteria, Fecal** – Part of the intestinal flora of warm-blooded animals. Presence in surface waters is considered an indication of pollution.

**Dissolved Oxygen** - Dissolved oxygen (DO) is the amount of oxygen that is present in water. Water bodies receive oxygen from the atmosphere and from aquatic plants. Running water, such as that of a swift moving stream, dissolves more oxygen than the still water of a pond or lake.

**Glyphosate** - White compound broad-spectrum herbicide used to kill weeds.

**Kjeldahl Nitrogen** – Named for the laboratory technique used for detection, Kjeldahl nitrogen includes organic nitrogen and ammonia nitrogen.

**Nitrate-Nitrogen** – NO3--N is an essential nutrient for many photosynthetic autotrophs.

**Nitrite-Nitrogen** – NO2--N is an intermediate oxidation state of nitrogen, both in the oxidation of ammonia to nitrate and in the reduction of nitrate.

**Organochlorine Pesticides** – An older class of pesticides, that are effective against a variety of insects. These chemicals were introduced in the 1940s, and many of their uses have been cancelled or restricted by the U.S. EPA because of their environmental persistence and potential adverse effects on wildlife and human.

**Organophosphorus Pesticides** – These pesticides are active against a broad spectrum of insects and have accounted for a large share of all insecticides used in the United States. Although organophosphorus insecticides are still used for insect control on many food crops, most residential uses have been phased out in the United States. Certain organophosphorus insecticides are also registered for public health applications (e.g., mosquito control) in the United States.

**Orthophosphorus** – The reactive form of phosphorus, commonly used as fertilizer.

**pH** – The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. The pH of “pure” water at 25° C is 7.0 (neutral). Low pH is acidic; high pH is basic or alkaline.

**Phosphorus, Total** – In natural waters, phosphorus occurs almost solely as orthophosphates, condensed phosphates, and organically bound phosphate. Phosphorus is essential to the growth of organisms.

**Turbidity** – Attributable to the suspended and colloidal matter in water, including clay, silt, finely divided organic and inorganic matter, soluble colored organic compounds, and plankton and other microscopic organisms. The reduction of clearness in turbid waters diminishes the penetration of light and therefore can adversely affect photosynthesis.

# APPENDIX A – 2023 LABORATORY RESULTS

Enthalpy Analytical
931 West Barkley Ave
Orange, CA 92868
(714) 771-6900

enthalpy.com

Lab Job Number: 495084
Report Level: II
Report Date: 11/17/2023

**Analytical Report** *prepared for:*

Maurcio Gomez
Chambers Group
5 Hutton Centre Drive
Suite 750
Santa Ana, CA 92707

Location: Big Tujunga WQ

*Authorized for release by:*

Diane Galvan, Project Manager
714-771-9928
diane.galvan@enthalpy.com

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the above signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

CA ELAP# 1338, NELAP# 4038, SCAQMD LAP# 18LA0518, LACSD ID# 10105

ENTHALPY ANALYTICAL

# Sample Summary

Maurcio Gomez
Chambers Group
5 Hutton Centre Drive
Suite 750
Santa Ana, CA 92707

Lab Job #: 495084
Location: Big Tujunga WQ
Date Received: 11/01/23

| Sample ID | Lab ID | Collected | Matrix |
|---|---|---|---|
| HAINES CREEK EXIT | 495084-001 | 11/01/23 08:30 | Water |
| PONDS OUT (OUTLET) | 495084-002 | 11/01/23 09:30 | Water |
| PONDS OUT (INLET) | 495084-003 | 11/01/23 10:00 | Water |

ENTHALPY ANALYTICAL

# Case Narrative

| | |
|---|---|
| Chambers Group | Lab Job Number: 495084 |
| 5 Hutton Centre Drive | Location: Big Tujunga WQ |
| Suite 750 | Date Received: 11/01/23 |
| Santa Ana, CA 92707 | |
| Maurcio Gomez | |

This data package contains sample and QC results for three water samples, requested for the above referenced project on 11/01/23. The samples were received cold and intact.

**Ammonia and TKN- Semi-Automated Method (SM 4500-NH3-G):**

- Low recovery was observed for nitrogen, total kjeldahl in the MSD of HAINES CREEK EXIT (lab # 495084-001); the LCS was within limits, and the associated RPD was within limits.
- No other analytical problems were encountered.

**Organophosphorus Pesticides (EPA 8141A):**
Eurofins Southwest in Tustin, CA performed the analysis (NELAP certified). Please see the Eurofins Southwest case narrative.

**EPA 547 Glyphosate (EPA 547):**
Babcock Laboratories, Inc. in Riverside, CA performed the analysis (see sublab report section for certifications). Please see the Babcock Laboratories, Inc. case narrative.

# ENTHALPY ANALYTICAL

## Chain of Custody Record

Lab No: 495084

Page: of

| Turn Around Time (rush by advanced notice only) | | | | | |
|---|---|---|---|---|---|
| Standard: | | 5 Day: | | 3 Day: | |
| 2 Day: | | 1 Day: | | Custom TAT: | |

**Enthalpy Analytical - Orange**
931 W. Barkley Avenue, Orange, CA 92868
Phone 714-771-6900

Matrix: A = Air S = Soil/Solid W = Water DW = Drinking Wate SD = Sediment PP = Pure Product SEA = Sea Water SW = Swab T = Tissue WP = Wipe O = Other

Preservatives: 1 = $Na_2S_2O_3$ 2 = HCl 3 = $HNO_3$ 4 = $H_2SO_4$ 5 = NaOH 6 = Other

Sample Receipt Temp: 1.5/0.3 (lab use only)

| CUSTOMER INFORMATION | | PROJECT INFORMATION | |
|---|---|---|---|
| Company: | Chambers Group Inc. | Quote #: | |
| Report To: | Mauricio Gomez | Proj. Name: | Big Tujunga WQ |
| Email: | mgomez@chambersgroupinc.com | Proj. #: | |
| Address: | | P.O. #: | |
| | | Address: | |
| Phone: | 323-702-2826 | Global ID: | |
| Fax: | | Sampled By: | |

| | Sample ID | Sampling Date | Sampling Time | Matrix | Container No. / Size | Pres. | Analysis Request: total KJELDAHL nitrogen | nitrite-nitrogen | nitrate-nitrogen | ammonia | orthophosphate | total phosphorus | total coliform | fecal coliform | glyphosate | total residual chlorine | organochlorine pesticides | chlorpyrifos & organophosphorus pesticide | Test Instructions / Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Haines Creek Exit | 11/1/2023 | 0830 | W | 1 | | X | X | X | X | X | X | X | X | X | X | X | X | |
| 2 | Ponds out (outlet) | 11/1/2023 | 0930 | W | 1 | | X | X | X | X | X | X | X | X | X | X | X | X | |
| 3 | Ponds in (inlet) | 11/1/2023 | 1000 | W | 1 | | X | X | X | X | X | X | X | X | X | X | X | X | |
| 4 | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |

| | Signature | Print Name | Company / Title | Date / Time |
|---|---|---|---|---|
| 1 Relinquished By: | | Mauricio Gomez | Chambers Group Inc. | 11/1/2023 1440 |
| 1 Received By: | | Annaleen Sawyers | EA | 11/1/23 1440 |
| 2 Relinquished By: | | | | |
| 2 Received By: | | | | |
| 3 Relinquished By: | | | | |
| 3 Received By: | | | | |

ENTHALPY ANALYTICAL

# SAMPLE ACCEPTANCE CHECKLIST

**Section 1**

Client: Chambers Group Project: Big Tujunga WQ

Date Received: 11/1/23 Sampler's Name Present: ☐ Yes ☒ No

**Section 2**

Sample(s) received in a cooler? ☒ Yes, How many? 1 ☐ No (skip section 2) Sample Temp (°C) (No Cooler): _____

Sample Temp (°C), One from each cooler: #1: 1.5 #2: _____ #3: _____ #4: _____

*(Acceptance range is < 6°C but not frozen (for Microbiology samples, acceptance range is < 10°C but not frozen). It is acceptable for samples collected the same day as sample receipt to have a higher temperature as long as there is evidence that cooling has begun.)*

Shipping Information: _____

**Section 3**

Was the cooler packed with: ☒ Ice ☐ Ice Packs ☐ Bubble Wrap ☐ Styrofoam ☐ Paper ☐ None ☐ Other _____

Cooler Temp (°C): #1: 0-2 #2: _____ #3: _____ #4: _____

| **Section 4** | YES | NO | N/A |
|---|---|---|---|
| Was a COC received? | X | | |
| Are sample IDs present? | X | | |
| Are sampling dates & times present? | X | | |
| Is a relinquished signature present? | X | | |
| Are the tests required clearly indicated on the COC? | X | | |
| Are custody seals present? | | X | |
| If custody seals are present, were they intact? | | | X |
| Are all samples sealed in plastic bags? (Recommended for Microbiology samples) | X | | |
| Did all samples arrive intact? If no, indicate in Section 4 below. | X | | |
| Did all bottle labels agree with COC? (ID, dates and times) | X | | |
| Were the samples collected in the correct containers for the required tests? | X | | |
| Are the containers labeled with the correct preservatives? | X | | |
| Is there headspace in the VOA vials greater than 5-6 mm in diameter? | | X | |
| Was a sufficient amount of sample submitted for the requested tests? | X | | |

**Section 5** Explanations/Comments

**Section 6**

For discrepancies, how was the Project Manager notified? ☐ Verbal PM Initials: _____ Date/Time _____

☐ Email (email sent to/on): _____ / _____

Project Manager's response:

Completed By: _____ Date: 10 11/1/23 AB 11/1/23

ENTHALPY ANALYTICAL

# Analysis Results for 495084

Maurcio Gomez
Chambers Group
5 Hutton Centre Drive
Suite 750
Santa Ana, CA 92707

Lab Job #: 495084
Location: Big Tujunga WQ
Date Received: 11/01/23

**Sample ID: HAINES CREEK EXIT** **Lab ID: 495084-001** **Collected: 11/01/23 08:30**
**Matrix: Water**

| 495084-001 Analyte | Result | Qual | Units | RL | DF | Batch | Prepared | Analyzed | Chemist |
|---|---|---|---|---|---|---|---|---|---|
| Method: EPA 300.0<br>Prep Method: METHOD | | | | | | | | | |
| Nitrogen, Nitrite | ND | | mg/L | 0.10 | 1 | 325688 | 11/01/23 18:04 | 11/01/23 20:14 | PAS |
| Nitrogen, Nitrate | **3.3** | | mg/L | 0.10 | 1 | 325688 | 11/01/23 18:04 | 11/01/23 20:14 | PAS |
| Method: EPA 350.1<br>Prep Method: METHOD | | | | | | | | | |
| Ammonia-N | ND | | mg/L | 0.10 | 1 | 325956 | 11/09/23 | 11/09/23 | JTS |
| Method: EPA 351.2<br>Prep Method: METHOD | | | | | | | | | |
| Nitrogen, Total Kjeldahl | ND | | mg/L | 0.40 | 1 | 325919 | 11/08/23 | 11/08/23 | JTS |
| Method: EPA 608.3<br>Prep Method: EPA 608.3 | | | | | | | | | |
| alpha-BHC | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| beta-BHC | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| gamma-BHC | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| delta-BHC | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Heptachlor | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aldrin | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Heptachlor epoxide | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endosulfan I | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Dieldrin | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| 4,4'-DDE | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endrin | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endosulfan II | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endosulfan sulfate | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| 4,4'-DDD | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endrin aldehyde | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endrin ketone | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| 4,4'-DDT | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| alpha-Chlordane | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Methoxychlor | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Toxaphene | ND | | ug/L | 1.9 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Chlordane (Technical) | ND | | ug/L | 0.95 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| **Surrogates** | | | | **Limits** | | | | | |
| TCMX | 72% | | %REC | 14-120 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Decachlorobiphenyl | 78% | | %REC | 20-120 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |



Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

# Analysis Results for 495084

| 495084-001 Analyte | Result | Qual | Units | RL | DF | Batch | Prepared | Analyzed | Chemist |
|---|---|---|---|---|---|---|---|---|---|
| Method: EPA 608.3<br>Prep Method: EPA 608.3 | | | | | | | | | |
| Aroclor-1016 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1221 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1232 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1242 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1248 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1254 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1260 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| **Surrogates** | | | | **Limits** | | | | | |
| TCMX (PCB) | 67% | | %REC | 25-120 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Decachlorobiphenyl (PCB) | 77% | | %REC | 18-126 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Method: SM 4500-CL-G | | | | | | | | | |
| Chlorine, Total Residual | ND | H | mg/L | 0.10 | 1 | 325857 | 11/03/23 17:15 | 11/03/23 17:28 | JAK |
| Method: SM 4500-P-B5-E | | | | | | | | | |
| Phosphorus | **0.035** | | mg/L | 0.020 | 1 | 326276 | 11/09/23 | 11/09/23 | JAK |
| Method: SM 4500-P-E | | | | | | | | | |
| Orthophosphate as P | ND | | mg/L | 0.020 | 1 | 325786 | 11/02/23 17:42 | 11/02/23 18:09 | JAK |
| Orthophosphate as PO4 | ND | | mg/L | 0.060 | 1 | 325786 | 11/02/23 17:42 | 11/02/23 18:09 | JAK |
| Method: SM 9221B<br>Prep Method: METHOD | | | | | | | | | |
| Coliform, Total | **1,600** | | MPN/100ml | 1.8 | 1 | 325676 | 11/01/23 15:57 | 11/05/23 12:57 | ELV |
| Method: SM 9221E<br>Prep Method: METHOD | | | | | | | | | |
| Fecal Coliform | **43** | | MPN/100ml | 1.8 | 1 | 325676 | 11/01/23 15:57 | 11/04/23 13:59 | ELV |



Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

# Analysis Results for 495084

| Sample ID: PONDS OUT (OUTLET) | Lab ID: 495084-002 | Collected: 11/01/23 09:30 |
|---|---|---|
| | Matrix: Water | |

| 495084-002 Analyte | Result | Qual | Units | RL | DF | Batch | Prepared | Analyzed | Chemist |
|---|---|---|---|---|---|---|---|---|---|
| Method: EPA 300.0<br>Prep Method: METHOD | | | | | | | | | |
| Nitrogen, Nitrite | ND | | mg/L | 0.10 | 1 | 325688 | 11/01/23 18:04 | 11/01/23 21:17 | PAS |
| Nitrogen, Nitrate | **3.5** | | mg/L | 0.10 | 1 | 325688 | 11/01/23 18:04 | 11/01/23 21:17 | PAS |
| Method: EPA 350.1<br>Prep Method: METHOD | | | | | | | | | |
| Ammonia-N | ND | | mg/L | 0.10 | 1 | 325956 | 11/09/23 | 11/09/23 | JTS |
| Method: EPA 351.2<br>Prep Method: METHOD | | | | | | | | | |
| Nitrogen, Total Kjeldahl | ND | | mg/L | 0.40 | 1 | 325919 | 11/08/23 | 11/08/23 | JTS |
| Method: EPA 608.3<br>Prep Method: EPA 608.3 | | | | | | | | | |
| alpha-BHC | ND | | ug/L | 0.047 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| beta-BHC | ND | | ug/L | 0.047 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| gamma-BHC | ND | | ug/L | 0.047 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| delta-BHC | ND | | ug/L | 0.047 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Heptachlor | ND | | ug/L | 0.047 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aldrin | ND | | ug/L | 0.047 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Heptachlor epoxide | ND | | ug/L | 0.047 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endosulfan I | ND | | ug/L | 0.047 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Dieldrin | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| 4,4'-DDE | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endrin | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endosulfan II | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endosulfan sulfate | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| 4,4'-DDD | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endrin aldehyde | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endrin ketone | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| 4,4'-DDT | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| alpha-Chlordane | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Methoxychlor | ND | | ug/L | 0.094 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Toxaphene | ND | | ug/L | 1.9 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Chlordane (Technical) | ND | | ug/L | 0.94 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| **Surrogates** | | | | **Limits** | | | | | |
| TCMX | 63% | | %REC | 14-120 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Decachlorobiphenyl | 70% | | %REC | 20-120 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Method: EPA 608.3<br>Prep Method: EPA 608.3 | | | | | | | | | |
| Aroclor-1016 | ND | | ug/L | 0.47 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1221 | ND | | ug/L | 0.47 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1232 | ND | | ug/L | 0.47 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1242 | ND | | ug/L | 0.47 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |



Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

# Analysis Results for 495084

| 495084-002 Analyte | Result | Qual | Units | RL | DF | Batch | Prepared | Analyzed | Chemist |
|---|---|---|---|---|---|---|---|---|---|
| Aroclor-1248 | ND | | ug/L | 0.47 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1254 | ND | | ug/L | 0.47 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1260 | ND | | ug/L | 0.47 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| **Surrogates** | | | | **Limits** | | | | | |
| TCMX (PCB) | 59% | | %REC | 25-120 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Decachlorobiphenyl (PCB) | 69% | | %REC | 18-126 | 0.94 | 325622 | 11/02/23 | 11/03/23 | MES |
| Method: SM 4500-CL-G | | | | | | | | | |
| Chlorine, Total Residual | ND | H | mg/L | 0.10 | 1 | 325857 | 11/03/23 17:15 | 11/03/23 17:28 | JAK |
| Method: SM 4500-P-B5-E | | | | | | | | | |
| Phosphorus | **0.028** | | mg/L | 0.020 | 1 | 326276 | 11/09/23 | 11/09/23 | JAK |
| Method: SM 4500-P-E | | | | | | | | | |
| Orthophosphate as P | ND | | mg/L | 0.020 | 1 | 325786 | 11/02/23 17:42 | 11/02/23 18:09 | JAK |
| Orthophosphate as PO4 | ND | | mg/L | 0.060 | 1 | 325786 | 11/02/23 17:42 | 11/02/23 18:09 | JAK |
| Method: SM 9221B<br>Prep Method: METHOD | | | | | | | | | |
| Coliform, Total | **1,600** | | MPN/100ml | 1.8 | 1 | 325676 | 11/01/23 15:57 | 11/05/23 12:57 | ELV |
| Method: SM 9221E<br>Prep Method: METHOD | | | | | | | | | |
| Fecal Coliform | **240** | | MPN/100ml | 1.8 | 1 | 325676 | 11/01/23 15:57 | 11/04/23 13:59 | ELV |



Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

# Analysis Results for 495084

| Sample ID: PONDS OUT (INLET) | Lab ID: 495084-003 | Collected: 11/01/23 10:00 |
|---|---|---|
| | Matrix: Water | |

| 495084-003 Analyte | Result | Qual | Units | RL | DF | Batch | Prepared | Analyzed | Chemist |
|---|---|---|---|---|---|---|---|---|---|
| Method: EPA 300.0<br>Prep Method: METHOD | | | | | | | | | |
| Nitrogen, Nitrite | ND | | mg/L | 0.10 | 1 | 325688 | 11/01/23 18:04 | 11/01/23 21:38 | PAS |
| Nitrogen, Nitrate | **5.9** | | mg/L | 0.10 | 1 | 325688 | 11/01/23 18:04 | 11/01/23 21:38 | PAS |
| Method: EPA 350.1<br>Prep Method: METHOD | | | | | | | | | |
| Ammonia-N | ND | | mg/L | 0.10 | 1 | 325956 | 11/09/23 | 11/09/23 | JTS |
| Method: EPA 351.2<br>Prep Method: METHOD | | | | | | | | | |
| Nitrogen, Total Kjeldahl | ND | | mg/L | 0.40 | 1 | 325919 | 11/08/23 | 11/08/23 | JTS |
| Method: EPA 608.3<br>Prep Method: EPA 608.3 | | | | | | | | | |
| alpha-BHC | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| beta-BHC | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| gamma-BHC | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| delta-BHC | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Heptachlor | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aldrin | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Heptachlor epoxide | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endosulfan I | ND | | ug/L | 0.047 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Dieldrin | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| 4,4'-DDE | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endrin | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endosulfan II | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endosulfan sulfate | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| 4,4'-DDD | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endrin aldehyde | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Endrin ketone | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| 4,4'-DDT | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| alpha-Chlordane | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Methoxychlor | ND | | ug/L | 0.095 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Toxaphene | ND | | ug/L | 1.9 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Chlordane (Technical) | ND | | ug/L | 0.95 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| **Surrogates** | | | | **Limits** | | | | | |
| TCMX | 80% | | %REC | 14-120 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Decachlorobiphenyl | 80% | | %REC | 20-120 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Method: EPA 608.3<br>Prep Method: EPA 608.3 | | | | | | | | | |
| Aroclor-1016 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1221 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1232 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1242 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |



Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

# Analysis Results for 495084

| 495084-003 Analyte | Result | Qual | Units | RL | DF | Batch | Prepared | Analyzed | Chemist |
|---|---|---|---|---|---|---|---|---|---|
| Aroclor-1248 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1254 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Aroclor-1260 | ND | | ug/L | 0.47 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| **Surrogates** | | | | **Limits** | | | | | |
| TCMX (PCB) | 74% | | %REC | 25-120 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Decachlorobiphenyl (PCB) | 80% | | %REC | 18-126 | 0.95 | 325622 | 11/02/23 | 11/03/23 | MES |
| Method: SM 4500-CL-G | | | | | | | | | |
| Chlorine, Total Residual | ND | H | mg/L | 0.10 | 1 | 325857 | 11/03/23 17:15 | 11/03/23 17:28 | JAK |
| Method: SM 4500-P-B5-E | | | | | | | | | |
| Phosphorus | **0.047** | | mg/L | 0.020 | 1 | 326276 | 11/09/23 | 11/09/23 | JAK |
| Method: SM 4500-P-E | | | | | | | | | |
| Orthophosphate as P | ND | | mg/L | 0.020 | 1 | 325786 | 11/02/23 17:42 | 11/02/23 18:09 | JAK |
| Orthophosphate as PO4 | ND | | mg/L | 0.060 | 1 | 325786 | 11/02/23 17:42 | 11/02/23 18:09 | JAK |
| Method: SM 9221B<br>Prep Method: METHOD | | | | | | | | | |
| Coliform, Total | **>1,600** | | MPN/100ml | 1.8 | 1 | 325676 | 11/01/23 15:57 | 11/04/23 13:59 | ELV |
| Method: SM 9221E<br>Prep Method: METHOD | | | | | | | | | |
| Fecal Coliform | **140** | | MPN/100ml | 1.8 | 1 | 325676 | 11/01/23 15:57 | 11/04/23 13:59 | ELV |

> Value exceeds indicated concentration
H Holding time was exceeded
ND Not Detected



Results for any subcontracted analyses are not included in this section.

ENTHALPY ANALYTICAL

# Batch QC

| | | |
|---|---|---|
| **Type:** Blank | **Lab ID:** QC1104235 | **Batch:** 325688 |
| **Matrix:** Drinking Water | **Method:** EPA 300.0 | **Prep Method:** METHOD |

| QC1104235 Analyte | Result | Qual | Units | RL | Prepared | Analyzed |
|---|---|---|---|---|---|---|
| Nitrogen, Nitrite | ND | | mg/L | 0.10 | 11/01/23 18:04 | 11/01/23 18:30 |
| Nitrogen, Nitrate | ND | | mg/L | 0.10 | 11/01/23 18:04 | 11/01/23 18:30 |

| | | |
|---|---|---|
| **Type:** Lab Control Sample | **Lab ID:** QC1104236 | **Batch:** 325688 |
| **Matrix:** Drinking Water | **Method:** EPA 300.0 | **Prep Method:** METHOD |

| QC1104236 Analyte | Result | Spiked | Units | Recovery | Qual | Limits |
|---|---|---|---|---|---|---|
| Nitrogen, Nitrite | 4.540 | 4.567 | mg/L | 99% | | 90-110 |
| Nitrogen, Nitrate | 4.503 | 4.518 | mg/L | 100% | | 90-110 |

| | | |
|---|---|---|
| **Type:** Matrix Spike | **Lab ID:** QC1104239 | **Batch:** 325688 |
| **Matrix (Source ID):** Water (495084-001) | **Method:** EPA 300.0 | **Prep Method:** METHOD |

| QC1104239 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | DF |
|---|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrite | 1.771 | ND | 1.827 | mg/L | 97% | | 80-120 | 1 |
| Nitrogen, Nitrate | 5.120 | 3.332 | 1.807 | mg/L | 99% | | 80-120 | 1 |

| | | |
|---|---|---|
| **Type:** Matrix Spike Duplicate | **Lab ID:** QC1104240 | **Batch:** 325688 |
| **Matrix (Source ID):** Water (495084-001) | **Method:** EPA 300.0 | **Prep Method:** METHOD |

| QC1104240 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | RPD | RPD Lim | DF |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Nitrite | 1.771 | ND | 1.827 | mg/L | 97% | | 80-120 | 0 | 20 | 1 |
| Nitrogen, Nitrate | 5.118 | 3.332 | 1.807 | mg/L | 99% | | 80-120 | 0 | 20 | 1 |

| | | |
|---|---|---|
| **Type:** Matrix Spike | **Lab ID:** QC1105221 | **Batch:** 325956 |
| **Matrix (Source ID):** Drinking Water (495070-002) | **Method:** EPA 350.1 | **Prep Method:** METHOD |

| QC1105221 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | DF |
|---|---|---|---|---|---|---|---|---|
| Ammonia-N | 2.322 | ND | 2.500 | mg/L | 93% | | 80-120 | 1 |

ENTHALPY ANALYTICAL

# Batch QC

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Matrix Spike Duplicate** | **Lab ID:** | **QC1105222** | **Batch:** | **325956** |
| **Matrix (Source ID):** | **Drinking Water (495070-002)** | **Method:** | **EPA 350.1** | **Prep Method:** | **METHOD** |

| QC1105222 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | RPD | RPD Lim | DF |
|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia-N | 2.393 | ND | 2.500 | mg/L | 96% | | 80-120 | 3 | 20 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Blank** | **Lab ID:** | **QC1105223** | **Batch:** | **325956** |
| **Matrix:** | **Drinking Water** | **Method:** | **EPA 350.1** | **Prep Method:** | **METHOD** |

| QC1105223 Analyte | Result | Qual | Units | RL | Prepared | Analyzed |
|---|---|---|---|---|---|---|
| Ammonia-N | ND | | mg/L | 0.10 | 11/10/23 | 11/10/23 |

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Lab Control Sample** | **Lab ID:** | **QC1105224** | **Batch:** | **325956** |
| **Matrix:** | **Drinking Water** | **Method:** | **EPA 350.1** | **Prep Method:** | **METHOD** |

| QC1105224 Analyte | Result | Spiked | Units | Recovery | Qual | Limits |
|---|---|---|---|---|---|---|
| Ammonia-N | 2.337 | 2.500 | mg/L | 93% | | 80-120 |

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Lab Control Sample** | **Lab ID:** | **QC1105055** | **Batch:** | **325919** |
| **Matrix:** | **Water** | **Method:** | **EPA 351.2** | **Prep Method:** | **METHOD** |

| QC1105055 Analyte | Result | Spiked | Units | Recovery | Qual | Limits |
|---|---|---|---|---|---|---|
| Nitrogen, Total Kjeldahl | 5.265 | 5.000 | mg/L | 105% | | 90-110 |

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Blank** | **Lab ID:** | **QC1105056** | **Batch:** | **325919** |
| **Matrix:** | **Water** | **Method:** | **EPA 351.2** | **Prep Method:** | **METHOD** |

| QC1105056 Analyte | Result | Qual | Units | RL | Prepared | Analyzed |
|---|---|---|---|---|---|---|
| Nitrogen, Total Kjeldahl | ND | | mg/L | 0.20 | 11/08/23 | 11/08/23 |

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Matrix Spike** | **Lab ID:** | **QC1105125** | **Batch:** | **325919** |
| **Matrix (Source ID):** | **Water (495084-001)** | **Method:** | **EPA 351.2** | **Prep Method:** | **METHOD** |

| QC1105125 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | DF |
|---|---|---|---|---|---|---|---|---|
| Nitrogen, Total Kjeldahl | 4.883 | ND | 5.000 | mg/L | 98% | | 90-110 | 1 |

ENTHALPY ANALYTICAL

# Batch QC

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Matrix Spike Duplicate** | **Lab ID:** | **QC1105126** | **Batch:** | **325919** |
| **Matrix (Source ID):** | **Water (495084-001)** | **Method:** | **EPA 351.2** | **Prep Method:** | **METHOD** |

| QC1105126 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | RPD | RPD Lim | DF |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Total Kjeldahl | 4.442 | ND | 5.000 | mg/L | 89% | * | 90-110 | 9 | 20 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Matrix Spike** | **Lab ID:** | **QC1105127** | **Batch:** | **325919** |
| **Matrix (Source ID):** | **Water (495084-002)** | **Method:** | **EPA 351.2** | **Prep Method:** | **METHOD** |

| QC1105127 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | DF |
|---|---|---|---|---|---|---|---|---|
| Nitrogen, Total Kjeldahl | 4.555 | ND | 5.000 | mg/L | 91% | | 90-110 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Matrix Spike Duplicate** | **Lab ID:** | **QC1105128** | **Batch:** | **325919** |
| **Matrix (Source ID):** | **Water (495084-002)** | **Method:** | **EPA 351.2** | **Prep Method:** | **METHOD** |

| QC1105128 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | RPD | RPD Lim | DF |
|---|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, Total Kjeldahl | 4.930 | ND | 5.000 | mg/L | 99% | | 90-110 | 8 | 20 | 1 |

ENTHALPY ANALYTICAL

# Batch QC

| | | |
|---|---|---|
| **Type: Blank** | **Lab ID: QC1104028** | **Batch: 325622** |
| **Matrix: TCLP Leachate** | **Method: EPA 608.3** | **Prep Method: EPA 608.3** |

| QC1104028 Analyte | Result | Qual | Units | RL | Prepared | Analyzed |
|---|---|---|---|---|---|---|
| alpha-BHC | ND | | ug/L | 0.10 | 11/01/23 | 11/01/23 |
| beta-BHC | ND | | ug/L | 0.10 | 11/01/23 | 11/01/23 |
| gamma-BHC | ND | | ug/L | 0.10 | 11/01/23 | 11/01/23 |
| delta-BHC | ND | | ug/L | 0.10 | 11/01/23 | 11/01/23 |
| Heptachlor | ND | | ug/L | 0.10 | 11/01/23 | 11/01/23 |
| Aldrin | ND | | ug/L | 0.10 | 11/01/23 | 11/01/23 |
| Heptachlor epoxide | ND | | ug/L | 0.10 | 11/01/23 | 11/01/23 |
| Endosulfan I | ND | | ug/L | 0.10 | 11/01/23 | 11/01/23 |
| Dieldrin | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| 4,4'-DDE | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| Endrin | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| Endosulfan II | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| Endosulfan sulfate | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| 4,4'-DDD | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| Endrin aldehyde | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| Endrin ketone | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| 4,4'-DDT | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| alpha-Chlordane | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| Methoxychlor | ND | | ug/L | 0.20 | 11/01/23 | 11/01/23 |
| Toxaphene | ND | | ug/L | 4.0 | 11/01/23 | 11/01/23 |
| Chlordane (Technical) | ND | | ug/L | 2.0 | 11/01/23 | 11/01/23 |
| **Surrogates** | | | | **Limits** | | |
| TCMX | 70% | | %REC | 14-120 | 11/01/23 | 11/01/23 |
| Decachlorobiphenyl | 81% | | %REC | 20-120 | 11/01/23 | 11/01/23 |
| Aroclor-1016 | ND | | ug/L | 1.0 | 11/01/23 | 11/01/23 |
| Aroclor-1221 | ND | | ug/L | 1.0 | 11/01/23 | 11/01/23 |
| Aroclor-1232 | ND | | ug/L | 1.0 | 11/01/23 | 11/01/23 |
| Aroclor-1242 | ND | | ug/L | 1.0 | 11/01/23 | 11/01/23 |
| Aroclor-1248 | ND | | ug/L | 1.0 | 11/01/23 | 11/01/23 |
| Aroclor-1254 | ND | | ug/L | 1.0 | 11/01/23 | 11/01/23 |
| Aroclor-1260 | ND | | ug/L | 1.0 | 11/01/23 | 11/01/23 |
| **Surrogates** | | | | **Limits** | | |
| TCMX (PCB) | 65% | | %REC | 25-120 | 11/01/23 | 11/01/23 |
| Decachlorobiphenyl (PCB) | 84% | | %REC | 18-126 | 11/01/23 | 11/01/23 |

ENTHALPY ANALYTICAL

# Batch QC

| | | |
|---|---|---|
| **Type: Blank** | **Lab ID: QC1104029** | **Batch: 325622** |
| **Matrix: Water** | **Method: EPA 608.3** | **Prep Method: EPA 608.3** |

| QC1104029 Analyte | Result | Qual | Units | RL | Prepared | Analyzed |
|---|---|---|---|---|---|---|
| alpha-BHC | ND | | ug/L | 0.050 | 11/01/23 | 11/03/23 |
| beta-BHC | ND | | ug/L | 0.050 | 11/01/23 | 11/03/23 |
| gamma-BHC | ND | | ug/L | 0.050 | 11/01/23 | 11/03/23 |
| delta-BHC | ND | | ug/L | 0.050 | 11/01/23 | 11/03/23 |
| Heptachlor | ND | | ug/L | 0.050 | 11/01/23 | 11/03/23 |
| Aldrin | ND | | ug/L | 0.050 | 11/01/23 | 11/03/23 |
| Heptachlor epoxide | ND | | ug/L | 0.050 | 11/01/23 | 11/03/23 |
| Endosulfan I | ND | | ug/L | 0.050 | 11/01/23 | 11/03/23 |
| Dieldrin | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| 4,4'-DDE | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| Endrin | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| Endosulfan II | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| Endosulfan sulfate | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| 4,4'-DDD | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| Endrin aldehyde | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| Endrin ketone | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| 4,4'-DDT | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| alpha-Chlordane | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| Methoxychlor | ND | | ug/L | 0.10 | 11/01/23 | 11/03/23 |
| Toxaphene | ND | | ug/L | 2.0 | 11/01/23 | 11/03/23 |
| Chlordane (Technical) | ND | | ug/L | 1.0 | 11/01/23 | 11/03/23 |
| **Surrogates** | | | | **Limits** | | |
| TCMX | 71% | | %REC | 14-120 | 11/01/23 | 11/03/23 |
| Decachlorobiphenyl | 96% | | %REC | 20-120 | 11/01/23 | 11/03/23 |
| Aroclor-1016 | ND | | ug/L | 0.50 | 11/01/23 | 11/03/23 |
| Aroclor-1221 | ND | | ug/L | 0.50 | 11/01/23 | 11/03/23 |
| Aroclor-1232 | ND | | ug/L | 0.50 | 11/01/23 | 11/03/23 |
| Aroclor-1242 | ND | | ug/L | 0.50 | 11/01/23 | 11/03/23 |
| Aroclor-1248 | ND | | ug/L | 0.50 | 11/01/23 | 11/03/23 |
| Aroclor-1254 | ND | | ug/L | 0.50 | 11/01/23 | 11/03/23 |
| Aroclor-1260 | ND | | ug/L | 0.50 | 11/01/23 | 11/03/23 |
| **Surrogates** | | | | **Limits** | | |
| TCMX (PCB) | 66% | | %REC | 25-120 | 11/01/23 | 11/03/23 |
| Decachlorobiphenyl (PCB) | 95% | | %REC | 18-126 | 11/01/23 | 11/03/23 |

ENTHALPY ANALYTICAL

# Batch QC

| | | |
|---|---|---|
| **Type: Lab Control Sample** | **Lab ID: QC1104030** | **Batch: 325622** |
| **Matrix: Water** | **Method: EPA 608.3** | **Prep Method: EPA 608.3** |

| QC1104030 Analyte | Result | Spiked | Units | Recovery | Qual | Limits |
|---|---|---|---|---|---|---|
| alpha-BHC | 0.5505 | 0.5000 | ug/L | 110% | | 53-120 |
| beta-BHC | 0.5447 | 0.5000 | ug/L | 109% | | 59-120 |
| gamma-BHC | 0.5602 | 0.5000 | ug/L | 112% | | 54-120 |
| delta-BHC | 0.5712 | 0.5000 | ug/L | 114% | | 58-120 |
| Heptachlor | 0.5505 | 0.5000 | ug/L | 110% | | 49-120 |
| Aldrin | 0.5044 | 0.5000 | ug/L | 101% | | 47-120 |
| Heptachlor epoxide | 0.5732 | 0.5000 | ug/L | 115% | | 53-120 |
| Endosulfan I | 0.5804 | 0.5000 | ug/L | 116% | | 56-120 |
| Dieldrin | 0.5691 | 0.5000 | ug/L | 114% | | 55-120 |
| 4,4'-DDE | 0.5674 | 0.5000 | ug/L | 113% | | 55-120 |
| Endrin | 0.5956 | 0.5000 | ug/L | 119% | | 57-120 |
| Endosulfan II | 0.5981 | 0.5000 | ug/L | 120% | | 58-120 |
| Endosulfan sulfate | 0.5393 | 0.5000 | ug/L | 108% | | 56-120 |
| 4,4'-DDD | 0.5900 | 0.5000 | ug/L | 118% | | 53-120 |
| Endrin aldehyde | 0.4857 | 0.5000 | ug/L | 97% | | 45-120 |
| Endrin ketone | 0.5554 | 0.5000 | ug/L | 111% | | 61-120 |
| 4,4'-DDT | 0.5930 | 0.5000 | ug/L | 119% | | 58-120 |
| alpha-Chlordane | 0.5610 | 0.5000 | ug/L | 112% | | 70-130 |
| Methoxychlor | 0.5898 | 0.5000 | ug/L | 118% | | 54-120 |
| **Surrogates** | | | | | | |
| TCMX | 0.4391 | 0.5000 | ug/L | 88% | | 14-120 |
| Decachlorobiphenyl | 0.4905 | 0.5000 | ug/L | 98% | | 20-120 |

ENTHALPY ANALYTICAL

# Batch QC

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Lab Control Sample Duplicate** | **Lab ID:** | **QC1104031** | **Batch:** | **325622** |
| **Matrix:** | **Water** | **Method:** | **EPA 608.3** | **Prep Method:** | **EPA 608.3** |

| QC1104031 Analyte | Result | Spiked | Units | Recovery | Qual | Limits | RPD | RPD Lim |
|---|---|---|---|---|---|---|---|---|
| alpha-BHC | 0.5404 | 0.5000 | ug/L | 108% | | 53-120 | 2 | 20 |
| beta-BHC | 0.5205 | 0.5000 | ug/L | 104% | | 59-120 | 5 | 20 |
| gamma-BHC | 0.5490 | 0.5000 | ug/L | 110% | | 54-120 | 2 | 20 |
| delta-BHC | 0.5581 | 0.5000 | ug/L | 112% | | 58-120 | 2 | 20 |
| Heptachlor | 0.5457 | 0.5000 | ug/L | 109% | | 49-120 | 1 | 20 |
| Aldrin | 0.5030 | 0.5000 | ug/L | 101% | | 47-120 | 0 | 20 |
| Heptachlor epoxide | 0.5604 | 0.5000 | ug/L | 112% | | 53-120 | 2 | 20 |
| Endosulfan I | 0.5678 | 0.5000 | ug/L | 114% | | 56-120 | 2 | 20 |
| Dieldrin | 0.5547 | 0.5000 | ug/L | 111% | | 55-120 | 3 | 20 |
| 4,4'-DDE | 0.5591 | 0.5000 | ug/L | 112% | | 55-120 | 1 | 20 |
| Endrin | 0.5822 | 0.5000 | ug/L | 116% | | 57-120 | 2 | 20 |
| Endosulfan II | 0.5803 | 0.5000 | ug/L | 116% | | 58-120 | 3 | 20 |
| Endosulfan sulfate | 0.5211 | 0.5000 | ug/L | 104% | | 56-120 | 3 | 20 |
| 4,4'-DDD | 0.5668 | 0.5000 | ug/L | 113% | | 53-120 | 4 | 20 |
| Endrin aldehyde | 0.4574 | 0.5000 | ug/L | 91% | | 45-120 | 6 | 20 |
| Endrin ketone | 0.5324 | 0.5000 | ug/L | 106% | | 61-120 | 4 | 20 |
| 4,4'-DDT | 0.5760 | 0.5000 | ug/L | 115% | | 58-120 | 3 | 20 |
| alpha-Chlordane | 0.5495 | 0.5000 | ug/L | 110% | | 70-130 | 2 | 20 |
| Methoxychlor | 0.5793 | 0.5000 | ug/L | 116% | | 54-120 | 2 | 20 |
| **Surrogates** | | | | | | | | |
| TCMX | 0.4245 | 0.5000 | ug/L | 85% | | 14-120 | | |
| Decachlorobiphenyl | 0.4744 | 0.5000 | ug/L | 95% | | 20-120 | | |

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Lab Control Sample** | **Lab ID:** | **QC1104032** | **Batch:** | **325622** |
| **Matrix:** | **Water** | **Method:** | **EPA 608.3** | **Prep Method:** | **EPA 608.3** |

| QC1104032 Analyte | Result | Spiked | Units | Recovery | Qual | Limits |
|---|---|---|---|---|---|---|
| Aroclor-1016 | 4.579 | 5.000 | ug/L | 92% | | 36-143 |
| Aroclor-1260 | 5.071 | 5.000 | ug/L | 101% | | 31-153 |
| **Surrogates** | | | | | | |
| TCMX (PCB) | 0.4037 | 0.5000 | ug/L | 81% | | 25-120 |
| Decachlorobiphenyl (PCB) | 0.5041 | 0.5000 | ug/L | 101% | | 18-126 |

ENTHALPY ANALYTICAL

# Batch QC

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Lab Control Sample Duplicate** | **Lab ID:** | **QC1104033** | **Batch:** | **325622** |
| **Matrix:** | **Water** | **Method:** | **EPA 608.3** | **Prep Method:** | **EPA 608.3** |

| QC1104033 Analyte | Result | Spiked | Units | Recovery | Qual | Limits | RPD | RPD Lim |
|---|---|---|---|---|---|---|---|---|
| Aroclor-1016 | 4.733 | 5.000 | ug/L | 95% | | 36-143 | 3 | 39 |
| Aroclor-1260 | 5.096 | 5.000 | ug/L | 102% | | 31-153 | 0 | 20 |
| **Surrogates** | | | | | | | | |
| TCMX (PCB) | 0.3745 | 0.5000 | ug/L | 75% | | 25-120 | | |
| Decachlorobiphenyl (PCB) | 0.4803 | 0.5000 | ug/L | 96% | | 18-126 | | |

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Sample Spike** | **Lab ID:** | **QC1104195** | **Batch:** | **325622** |
| **Matrix (Source ID):** | **TCLP Leachate (494666-001)** | **Method:** | **EPA 608.3** | **Prep Method:** | **EPA 608.3** |

| QC1104195 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | DF |
|---|---|---|---|---|---|---|---|---|
| alpha-BHC | 1.001 | ND | 1.000 | ug/L | 100% | | 43-130 | 2 |
| beta-BHC | 1.106 | ND | 1.000 | ug/L | 111% | | 49-130 | 2 |
| gamma-BHC | 1.028 | ND | 1.000 | ug/L | 103% | | 44-130 | 2 |
| delta-BHC | 1.252 | ND | 1.000 | ug/L | 125% | | 48-130 | 2 |
| Heptachlor | 0.9534 | ND | 1.000 | ug/L | 95% | | 39-130 | 2 |
| Aldrin | 0.8674 | ND | 1.000 | ug/L | 87% | | 37-130 | 2 |
| Heptachlor epoxide | 1.107 | ND | 1.000 | ug/L | 111% | | 43-130 | 2 |
| Endosulfan I | 1.114 | ND | 1.000 | ug/L | 111% | | 46-130 | 2 |
| Dieldrin | 1.102 | ND | 1.000 | ug/L | 110% | | 45-130 | 2 |
| 4,4'-DDE | 1.101 | ND | 1.000 | ug/L | 110% | | 45-130 | 2 |
| Endrin | 1.155 | ND | 1.000 | ug/L | 115% | | 47-130 | 2 |
| Endosulfan II | 1.163 | ND | 1.000 | ug/L | 116% | | 48-130 | 2 |
| Endosulfan sulfate | 1.027 | ND | 1.000 | ug/L | 103% | | 46-130 | 2 |
| 4,4'-DDD | 1.216 | ND | 1.000 | ug/L | 122% | | 43-130 | 2 |
| Endrin aldehyde | 0.9285 | ND | 1.000 | ug/L | 93% | | 35-130 | 2 |
| Endrin ketone | 1.086 | ND | 1.000 | ug/L | 109% | | 51-130 | 2 |
| 4,4'-DDT | 1.046 | ND | 1.000 | ug/L | 105% | | 48-130 | 2 |
| alpha-Chlordane | 1.078 | ND | 1.000 | ug/L | 108% | | 70-130 | 2 |
| Methoxychlor | 1.100 | ND | 1.000 | ug/L | 110% | | 44-130 | 2 |
| **Surrogates** | | | | | | | | |
| TCMX | 0.7579 | | 1.000 | ug/L | 76% | | 14-120 | 2 |
| Decachlorobiphenyl | 0.9289 | | 1.000 | ug/L | 93% | | 20-120 | 2 |

| | | | | | |
|---|---|---|---|---|---|
| **Type:** | **Blank** | **Lab ID:** | **QC1104794** | **Batch:** | **325857** |
| **Matrix:** | **Water** | **Method:** | **SM 4500-CL-G** | | |

| QC1104794 Analyte | Result | Qual | Units | RL | Prepared | Analyzed |
|---|---|---|---|---|---|---|
| Chlorine, Total Residual | ND | | mg/L | 0.10 | 11/03/23 17:15 | 11/03/23 17:28 |

ENTHALPY ANALYTICAL

# Batch QC

| Type: Lab Control Sample | Lab ID: QC1104795 | Batch: 325857 |
|---|---|---|
| Matrix: Water | Method: SM 4500-CL-G | |

| QC1104795 Analyte | Result | Spiked | Units | Recovery | Qual | Limits |
|---|---|---|---|---|---|---|
| Chlorine, Total Residual | 1.047 | 1.000 | mg/L | 105% | | 80-120 |

| Type: Sample Duplicate | Lab ID: QC1104796 | Batch: 325857 |
|---|---|---|
| Matrix (Source ID): Water (495241-001) | Method: SM 4500-CL-G | |

| QC1104796 Analyte | Result | Source Sample Result | Units | Qual | RPD | RPD Lim | DF |
|---|---|---|---|---|---|---|---|
| Chlorine, Total Residual | ND | ND | mg/L | | | 20 | 1 |

| Type: Blank | Lab ID: QC1106153 | Batch: 326276 |
|---|---|---|
| Matrix: Water | Method: SM 4500-P-B5-E | |

| QC1106153 Analyte | Result | Qual | Units | RL | Prepared | Analyzed |
|---|---|---|---|---|---|---|
| Phosphorus | ND | | mg/L | 0.020 | 11/09/23 | 11/09/23 |

| Type: Lab Control Sample | Lab ID: QC1106154 | Batch: 326276 |
|---|---|---|
| Matrix: Water | Method: SM 4500-P-B5-E | |

| QC1106154 Analyte | Result | Spiked | Units | Recovery | Qual | Limits |
|---|---|---|---|---|---|---|
| Phosphorus | 0.4180 | 0.4000 | mg/L | 105% | | 80-120 |

| Type: Matrix Spike | Lab ID: QC1106155 | Batch: 326276 |
|---|---|---|
| Matrix (Source ID): Water (495084-003) | Method: SM 4500-P-B5-E | |

| QC1106155 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | DF |
|---|---|---|---|---|---|---|---|---|
| Phosphorus | 1.060 | 0.04700 | 1.000 | mg/L | 101% | | 75-125 | 2.5 |

| Type: Matrix Spike Duplicate | Lab ID: QC1106156 | Batch: 326276 |
|---|---|---|
| Matrix (Source ID): Water (495084-003) | Method: SM 4500-P-B5-E | |

| QC1106156 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | RPD | RPD Lim | DF |
|---|---|---|---|---|---|---|---|---|---|---|
| Phosphorus | 1.060 | 0.04700 | 1.000 | mg/L | 101% | | 75-125 | 0 | 20 | 2.5 |

ENTHALPY ANALYTICAL

# Batch QC

| | | |
|---|---|---|
| **Type:** Blank | **Lab ID:** QC1104556 | **Batch:** 325786 |
| **Matrix:** Water | **Method:** SM 4500-P-E | |

| QC1104556 Analyte | Result | Qual | Units | RL | Prepared | Analyzed |
|---|---|---|---|---|---|---|
| Orthophosphate as P | ND | | mg/L | 0.020 | 11/02/23 17:42 | 11/02/23 18:09 |
| Orthophosphate as PO4 | ND | | mg/L | 0.060 | 11/02/23 17:42 | 11/02/23 18:09 |

| | | |
|---|---|---|
| **Type:** Lab Control Sample | **Lab ID:** QC1104557 | **Batch:** 325786 |
| **Matrix:** Drinking Water | **Method:** SM 4500-P-E | |

| QC1104557 Analyte | Result | Spiked | Units | Recovery | Qual | Limits |
|---|---|---|---|---|---|---|
| Orthophosphate as P | 0.3750 | 0.4000 | mg/L | 94% | | 80-120 |
| Orthophosphate as PO4 | 1.150 | 1.230 | mg/L | 93% | | 80-120 |

| | | |
|---|---|---|
| **Type:** Matrix Spike | **Lab ID:** QC1104558 | **Batch:** 325786 |
| **Matrix (Source ID):** Water (495084-003) | **Method:** SM 4500-P-E | |

| QC1104558 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | DF |
|---|---|---|---|---|---|---|---|---|
| Orthophosphate as P | 0.7700 | ND | 0.8000 | mg/L | 96% | | 75-125 | 2 |
| Orthophosphate as PO4 | 2.361 | ND | 2.450 | mg/L | 96% | | 75-125 | 2 |

| | | |
|---|---|---|
| **Type:** Matrix Spike Duplicate | **Lab ID:** QC1104559 | **Batch:** 325786 |
| **Matrix (Source ID):** Water (495084-003) | **Method:** SM 4500-P-E | |

| QC1104559 Analyte | Result | Source Sample Result | Spiked | Units | Recovery | Qual | Limits | RPD | RPD Lim | DF |
|---|---|---|---|---|---|---|---|---|---|---|
| Orthophosphate as P | 0.7720 | ND | 0.8000 | mg/L | 96% | | 75-125 | 0 | 20 | 2 |
| Orthophosphate as PO4 | 2.367 | ND | 2.450 | mg/L | 96% | | 75-125 | 0 | 20 | 2 |

* Value is outside QC limits

ND Not Detected

**Laboratory Job Number 495084**

**Subcontracted Products**

**Babcock Laboratories, Inc.**

BABCOCK Laboratories, Inc.
*The Standard of Excellence for Over 100 Years*

Client Name: Enthalpy Analytical
Contact: Diane Galvan
Address: 931 W. Barkley Ave
Orange, CA 92868

Report Date: 17-Nov-2023


Project Name: Enthalpy - Lab Assistance Pricin
Project Number: EO-495084

**Work Order Number: C3K0477**
Received on Ice (Y/N): Yes Temp: 5 °C

Attached is the analytical report for the sample(s) received for your project. Below is a list of the individual sample descriptions with the corresponding laboratory number(s). Also, enclosed is a copy of the Chain of Custody document (if received with your sample(s)). Please note any unused portion of the sample(s) may be responsibly discarded after 30 days from the above report date, unless you have requested otherwise.

Thank you for the opportunity to serve your analytical needs. If you have any questions or concerns regarding this report please contact our client service department.

## Sample Identification

| Lab Sample # | Client Sample ID | Matrix | Date Sampled | By | Date Submitted | By |
|---|---|---|---|---|---|---|
| C3K0477-01 | Haines Creek Exit (495084-001) | Water | 11/1/23 8:30 | Client | 11/03/23 08:47 | Client |
| C3K0477-02 | Ponds Out (Outlet) (495084-002) | Water | 11/1/23 9:30 | Client | 11/03/23 08:47 | Client |
| C3K0477-03 | Ponds Out (Inlet) (495084-003) | Water | 11/1/23 10:00 | Client | 11/03/23 08:47 | Client |

Client Name: Enthalpy Analytical
Contact: Diane Galvan
Address: 931 W. Barkley Ave
Orange, CA 92868

Report Date: 17-Nov-2023


Project Name: Enthalpy - Lab Assistance Pricin
Project Number: EO-495084

**Work Order Number: C3K0477**
Received on Ice (Y/N): Yes Temp: 5 °C

Laboratory Reference Number
**C3K0477-01**

| Sample Description | Matrix | Sampled Date/Time | Received Date/Time |
|---|---|---|---|
| Haines Creek Exit (495084-001) | Water | 11/01/23 08:30 | 11/03/23 8:47 |

| Analyte(s) | Result | RDL | Units | Method | Analysis Date | Analyst | Flag |
|---|---|---|---|---|---|---|---|
| Glyphosate by EPA 547 | | | | | | | |
| Glyphosate | ND | 25 | ug/L | EPA 547 | 11/06/23 17:38 | VPO | NLOhND |

Client Name: Enthalpy Analytical
Contact: Diane Galvan
Address: 931 W. Barkley Ave
Orange, CA 92868

Report Date: 17-Nov-2023


Project Name: Enthalpy - Lab Assistance Pricin
Project Number: EO-495084

**Work Order Number: C3K0477**
Received on Ice (Y/N): Yes Temp: 5 °C

Laboratory Reference Number
**C3K0477-02**

| Sample Description | Matrix | Sampled Date/Time | Received Date/Time |
|---|---|---|---|
| Ponds Out (Outlet) (495084-002) | Water | 11/01/23 09:30 | 11/03/23 8:47 |

| Analyte(s) | Result | RDL | Units | Method | Analysis Date | Analyst | Flag |
|---|---|---|---|---|---|---|---|
| Glyphosate by EPA 547 | | | | | | | |
| Glyphosate | ND | 25 | ug/L | EPA 547 | 11/06/23 17:56 | VPO | NLOhND |

Client Name: Enthalpy Analytical
Contact: Diane Galvan
Address: 931 W. Barkley Ave
Orange, CA 92868

Report Date: 17-Nov-2023


Project Name: Enthalpy - Lab Assistance Pricin
Project Number: EO-495084

**Work Order Number: C3K0477**
Received on Ice (Y/N): Yes Temp: 5 °C

Laboratory Reference Number
**C3K0477-03**

| Sample Description | Matrix | Sampled Date/Time | Received Date/Time |
|---|---|---|---|
| Ponds Out (Inlet) (495084-003) | Water | 11/01/23 10:00 | 11/03/23 8:47 |

| Analyte(s) | Result | RDL | Units | Method | Analysis Date | Analyst | Flag |
|---|---|---|---|---|---|---|---|
| Glyphosate by EPA 547 | | | | | | | |
| Glyphosate | ND | 25 | ug/L | EPA 547 | 11/06/23 18:14 | VPO | NLOhND |

Client Name: Enthalpy Analytical
Contact: Diane Galvan
Address: 931 W. Barkley Ave
Orange, CA 92868

Report Date: 17-Nov-2023


Project Name: Enthalpy - Lab Assistance Pricin
Project Number: EO-495084

**Work Order Number: C3K0477**
Received on Ice (Y/N): Yes Temp: 5 °C

## Glyphosate by EPA 547 - Batch Quality Control

| Analyte(s) | Result | RDL | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Flag |
|---|---|---|---|---|---|---|---|---|---|---|
| **Batch 3K06033 - None** | | | | | | | | | | |
| **Blank (3K06033-BLK1)** | | | | Prepared & Analyzed: 11/06/23 | | | | | | |
| Glyphosate | ND | 25 | ug/L | | | | | | | |
| **LCS (3K06033-BS1)** | | | | Prepared & Analyzed: 11/06/23 | | | | | | |
| Glyphosate | 106 | 25 | ug/L | 100 | | 106 | 77-129 | | | |
| **LCS Dup (3K06033-BSD1)** | | | | Prepared & Analyzed: 11/06/23 | | | | | | |
| Glyphosate | 285 | 25 | ug/L | 200 | | 143 | 77-129 | 29 | 30 | QLout |
| **Matrix Spike (3K06033-MS1)** | | **Source: C3J4059-01** | | Prepared & Analyzed: 11/06/23 | | | | | | |
| Glyphosate | 122 | 25 | ug/L | 100 | ND | 122 | 65-146 | | | |
| **Matrix Spike Dup (3K06033-MSD1)** | | **Source: C3J4059-01** | | Prepared & Analyzed: 11/06/23 | | | | | | |
| Glyphosate | 124 | 25 | ug/L | 100 | ND | 124 | 65-146 | 1 | 40 | |

Client Name: Enthalpy Analytical
Contact: Diane Galvan
Address: 931 W. Barkley Ave
Orange, CA 92868

Report Date: 17-Nov-2023


Project Name: Enthalpy - Lab Assistance Pricin
Project Number: EO-495084

**Work Order Number: C3K0477**
Received on Ice (Y/N): Yes Temp: 5 °C

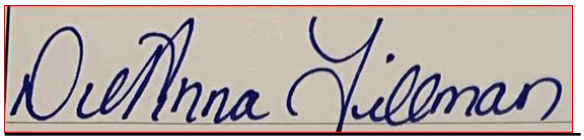
**Notes and Definitions**

| | |
|---|---|
| NLOhND | LCS recovery was above method control limit for this analyte. Analyte not detected, therefore data not impacted. |
| QLout | The LCS and/or LCSD recovery did not meet laboratory acceptance criteria. |
| ND: | Analyte NOT DETECTED at or above the Method Detection Limit **(if MDL is reported)**, otherwise at or above the Reportable Detection Limit (RDL) |
| NR: | Not Reported |
| RDL: | Reportable Detection Limit |
| MDL: | Method Detection Limit |

* / (Non-NELAP): NELAP does not offer accreditation for this analyte/method/matrix combination

**Approval**

Enclosed are the analytical results for the submitted sample(s). Babcock Laboratories certify the data presented as part of this report meet the minimum quality standards in the referenced analytical methods. Any exceptions have been noted.



**DeAnna Lynn Tillman For KayeLani A. Marshall**

cc:

e-Standard_No Alias.rpt

Client Name: Enthalpy Analytical
Contact: Diane Galvan
Address: 931 W. Barkley Ave
Orange, CA 92868

Report Date: 17-Nov-2023


Project Name: Enthalpy - Lab Assistance Pricin
Project Number: EO-495084

**Work Order Number: C3K0477**
Received on Ice (Y/N): Yes Temp: 5 °C

ENTHALPY ANALYTICAL

Enthalpy Analytical - Orange
Orange, CA 92868
(714) 771-6900 / Fax: (510) 486-0532

Subcontract Laboratory:
Babcock Laboratories, Inc.
6100 Quail Valley Ct.
Riverside, CA 92507
ATTN: Kayelani Marshall
PO #: TBD

Enthalpy Order: EO-495084
PM: Diane Galvan
Email: diane.galvan@enthalpy.com
CC: incomingreports@enthalpy.com
Phone: 714-771-9928

Results Due: Standard TAT
Report Level: II
Report To: RL
EDDs: Standard Excel Transfer File (3 tab xls: SAMPDATE, QCDATA, LNOTE)

Notes:

| Sample ID | Collected | Lab ID | # Cont. | Matrix | Analysis Requested | Comment |
|---|---|---|---|---|---|---|
| HAINES CREEK EXIT | 01-NOV-2023 08:30 | 495084-001 | 1 | Water | 547 Glyphosate | |
| PONDS OUT (OUTLET) | 01-NOV-2023 09:30 | 495084-002 | 1 | Water | 547 Glyphosate | |
| PONDS OUT (INLET) | 01-NOV-2023 10:00 | 495084-003 | 1 | Water | 547 Glyphosate | |

| Notes: | Relinquished By: | Received By: |
|---|---|---|
| | | EDB |
| | Date: 11-3-23 847 | Date: 11/3/23 8:47 |
| | Date: | Date: |
| | Date: | Date: |

On ice 5.0°C

C3K0477
Rc'd: 11/03/2023 08:47
JLH Manual

23

**Laboratory Job Number 495084**

**Subcontracted Products**

**Eurofins Southwest**

eurofins | Environment Testing

# ANALYTICAL REPORT

## PREPARED FOR

Attn: Diane Galvan
Enthalpy Analytical LLC
931 W. Barkley Ave
Orange, California 92868

Generated 11/15/2023 9:43:23 PM

## JOB DESCRIPTION

495084

## JOB NUMBER

570-159228-1

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin CA 92780

See page two for job notes and contact information.

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Calscience Project Manager.

## Authorization

Generated
11/15/2023 9:43:23 PM

Authorized for release by
Xuan Dang, Project Manager I
Xuan.Dang@et.eurofinsus.com
(714)895-5494

# Table of Contents

# Definitions/Glossary

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

## Qualifiers

### GC Semi VOA

| Qualifier | Qualifier Description |
|---|---|
| J | Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value. |
| p | The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported. |

## Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|---|---|
| ¤ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CFU | Colony Forming Unit |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MCL | EPA recommended "Maximum Contaminant Level" |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| MPN | Most Probable Number |
| MQL | Method Quantitation Limit |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| NEG | Negative / Absent |
| POS | Positive / Present |
| PQL | Practical Quantitation Limit |
| PRES | Presumptive |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |
| TNTC | Too Numerous To Count |

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

## Job ID: 570-159228-1

### Laboratory: Eurofins Calscience

**Narrative**

**Job Narrative**
**570-159228-1**

Analytical test results meet all requirements of the associated regulatory program listed on the Accreditation/Certification Summary Page unless otherwise noted under the individual analysis. Data qualifiers are applied to indicate exceptions. Noncompliant quality control (QC) is further explained in narrative comments.

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD may be performed, unless otherwise specified in the method.
Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.

Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

**Receipt**
The samples were received on 11/2/2023 1:45 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.3°C

**Pesticides**
Method 8141A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 570-381199. The laboratory control sample (LCS) was performed in duplicate (LCSD) to provide precision data for this batch. Method 8141A

Method 8141A: The continuing calibration verification (CCV) associated with batch 570-381652 recovered above the upper control limit for Naled. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: HAINES CREEK EXIT (570-159228-1), PONDS OUT (OUTLET) (570-159228-2), PONDS OUT (INLET) (570-159228-3) and (CCV 570-381652/53).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

# Detection Summary

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

## Client Sample ID: HAINES CREEK EXIT — Lab Sample ID: 570-159228-1

No Detections.

## Client Sample ID: PONDS OUT (OUTLET) — Lab Sample ID: 570-159228-2

No Detections.

## Client Sample ID: PONDS OUT (INLET) — Lab Sample ID: 570-159228-3

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

## Method: SW846 8141A - Organophosphorous Pesticides (GC)

**Client Sample ID: HAINES CREEK EXIT**
**Date Collected: 11/01/23 08:30**
**Date Received: 11/02/23 13:45**

**Lab Sample ID: 570-159228-1**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Azinphos-methyl | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Bolstar | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Chlorpyrifos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Coumaphos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Demeton-o/s | ND | | 0.0096 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Diazinon | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Dichlorvos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Disulfoton | ND | | 0.0096 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Ethoprop | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Fensulfothion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Fenthion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Merphos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Methyl parathion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Mevinphos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Naled | ND | | 0.038 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Phorate | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Ronnel | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Stirophos | ND | | 0.019 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Tokuthion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |
| Trichloronate | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:53 | 1 |

| *Surrogate* | *%Recovery* | *Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Tributyl phosphate* | *49* | | *30 - 151* | *11/07/23 12:14* | *11/09/23 22:53* | *1* |

**Client Sample ID: PONDS OUT (OUTLET)**
**Date Collected: 11/01/23 09:30**
**Date Received: 11/02/23 13:45**

**Lab Sample ID: 570-159228-2**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Azinphos-methyl | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Bolstar | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Chlorpyrifos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Coumaphos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Demeton-o/s | ND | | 0.0095 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Diazinon | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Dichlorvos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Disulfoton | ND | | 0.0095 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Ethoprop | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Fensulfothion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Fenthion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Merphos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Methyl parathion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Mevinphos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Naled | ND | | 0.038 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Phorate | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Ronnel | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Stirophos | ND | | 0.019 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Tokuthion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |
| Trichloronate | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/09/23 23:40 | 1 |

## Method: SW846 8141A - Organophosphorous Pesticides (GC) (Continued)

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *Tributyl phosphate* | 52 | | 30 - 151 | 11/07/23 12:14 | 11/09/23 23:40 | 1 |

**Client Sample ID: PONDS OUT (INLET)**
**Date Collected: 11/01/23 10:00**
**Date Received: 11/02/23 13:45**

**Lab Sample ID: 570-159228-3**
**Matrix: Water**

| Analyte | Result | Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Azinphos-methyl | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Bolstar | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Chlorpyrifos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Coumaphos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Demeton-o/s | ND | | 0.0096 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Diazinon | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Dichlorvos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Disulfoton | ND | | 0.0096 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Ethoprop | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Fensulfothion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Fenthion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Merphos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Methyl parathion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Mevinphos | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Naled | ND | | 0.038 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Phorate | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Ronnel | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Stirophos | ND | | 0.019 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Tokuthion | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |
| Trichloronate | ND | | 0.0048 | | mg/L | | 11/07/23 12:14 | 11/10/23 00:28 | 1 |

| Surrogate | %Recovery | Qualifier | Limits | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|
| *Tributyl phosphate* | 55 | *p* | 30 - 151 | 11/07/23 12:14 | 11/10/23 00:28 | 1 |

# Surrogate Summary

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

## Method: 8141A - Organophosphorous Pesticides (GC)

**Matrix: Water**

**Prep Type: Total/NA**

| | | Percent Surrogate Recovery (Acceptance Limits) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | TBPH1 | | | | | | | |
| Lab Sample ID | Client Sample ID | (30-151) | | | | | | | |
| 570-159228-1 | HAINES CREEK EXIT | 49 | | | | | | | |
| 570-159228-2 | PONDS OUT (OUTLET) | 52 | | | | | | | |
| 570-159228-3 | PONDS OUT (INLET) | 55 p | | | | | | | |
| LCS 570-381199/2-A | Lab Control Sample | 33 p | | | | | | | |
| LCSD 570-381199/3-A | Lab Control Sample Dup | 38 p | | | | | | | |
| MB 570-381199/1-A | Method Blank | 49 p | | | | | | | |

**Surrogate Legend**

TBPH = Tributyl phosphate

## Method: 8141A - Organophosphorous Pesticides (GC)

**Lab Sample ID: MB 570-381199/1-A**
**Matrix: Water**
**Analysis Batch: 381652**

**Client Sample ID: Method Blank**
**Prep Type: Total/NA**
**Prep Batch: 381199**

| Analyte | MB Result | MB Qualifier | RL | | Unit | D | Prepared | Analyzed | Dil Fac |
|---|---|---|---|---|---|---|---|---|---|
| Azinphos-methyl | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Bolstar | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Chlorpyrifos | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Coumaphos | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Demeton-o/s | ND | | 0.010 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Diazinon | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Dichlorvos | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Disulfoton | ND | | 0.010 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Ethoprop | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Fensulfothion | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Fenthion | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Merphos | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Methyl parathion | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Mevinphos | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Naled | ND | | 0.040 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Phorate | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Ronnel | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Stirophos | ND | | 0.020 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Tokuthion | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |
| Trichloronate | ND | | 0.0050 | | mg/L | | 11/07/23 12:14 | 11/09/23 22:05 | 1 |

| *Surrogate* | *MB %Recovery* | *MB Qualifier* | *Limits* | *Prepared* | *Analyzed* | *Dil Fac* |
|---|---|---|---|---|---|---|
| *Tributyl phosphate* | *49* | *p* | *30 - 151* | *11/07/23 12:14* | *11/09/23 22:05* | *1* |

**Lab Sample ID: LCS 570-381199/2-A**
**Matrix: Water**
**Analysis Batch: 381652**

**Client Sample ID: Lab Control Sample**
**Prep Type: Total/NA**
**Prep Batch: 381199**

| Analyte | | | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec Limits | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Azinphos-methyl | | | 0.0200 | 0.01797 | p | mg/L | | 90 | 44 - 163 | | |
| Bolstar | | | 0.0200 | 0.01805 | | mg/L | | 90 | 41 - 151 | | |
| Chlorpyrifos | | | 0.0200 | 0.02105 | | mg/L | | 105 | 42 - 152 | | |
| Coumaphos | | | 0.0200 | 0.01887 | p | mg/L | | 94 | 35 - 170 | | |
| Diazinon | | | 0.0200 | 0.01949 | | mg/L | | 97 | 43 - 155 | | |
| Disulfoton | | | 0.0200 | 0.02032 | | mg/L | | 102 | 41 - 152 | | |
| Ethoprop | | | 0.0200 | 0.02195 | | mg/L | | 110 | 47 - 158 | | |
| Fensulfothion | | | 0.0200 | 0.02237 | | mg/L | | 112 | 51 - 166 | | |
| Fenthion | | | 0.0200 | 0.02248 | | mg/L | | 112 | 43 - 161 | | |
| Merphos | | | 0.0200 | 0.02381 | | mg/L | | 119 | 44 - 180 | | |
| Methyl parathion | | | 0.0200 | 0.01850 | | mg/L | | 92 | 35 - 167 | | |
| Phorate | | | 0.0200 | 0.01894 | | mg/L | | 95 | 39 - 159 | | |
| Ronnel | | | 0.0200 | 0.02171 | | mg/L | | 109 | 42 - 151 | | |
| Stirophos | | | 0.0200 | 0.01239 | J p | mg/L | | 62 | 39 - 172 | | |
| Tokuthion | | | 0.0200 | 0.02245 | | mg/L | | 112 | 33 - 155 | | |
| Trichloronate | | | 0.0200 | 0.01831 | | mg/L | | 92 | 39 - 157 | | |

| *Surrogate* | *LCS %Recovery* | *LCS Qualifier* | *Limits* |
|---|---|---|---|
| *Tributyl phosphate* | *33* | *p* | *30 - 151* |

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

## Method: 8141A - Organophosphorous Pesticides (GC)

**Lab Sample ID: LCSD 570-381199/3-A**
**Matrix: Water**
**Analysis Batch: 381652**

**Client Sample ID: Lab Control Sample Dup**
**Prep Type: Total/NA**
**Prep Batch: 381199**

| Analyte | | | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec Limits | RPD | RPD Limit |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Azinphos-methyl | | | 0.0200 | 0.01862 | p | mg/L | | 93 | 44 - 163 | 4 | 30 |
| Bolstar | | | 0.0200 | 0.01816 | | mg/L | | 91 | 41 - 151 | 1 | 30 |
| Chlorpyrifos | | | 0.0200 | 0.02117 | | mg/L | | 106 | 42 - 152 | 1 | 30 |
| Coumaphos | | | 0.0200 | 0.01962 | p | mg/L | | 98 | 35 - 170 | 4 | 30 |
| Diazinon | | | 0.0200 | 0.02014 | | mg/L | | 101 | 43 - 155 | 3 | 30 |
| Disulfoton | | | 0.0200 | 0.02081 | | mg/L | | 104 | 41 - 152 | 2 | 30 |
| Ethoprop | | | 0.0200 | 0.02336 | | mg/L | | 117 | 47 - 158 | 6 | 30 |
| Fensulfothion | | | 0.0200 | 0.02353 | | mg/L | | 118 | 51 - 166 | 5 | 30 |
| Fenthion | | | 0.0200 | 0.02241 | p | mg/L | | 112 | 43 - 161 | 0 | 30 |
| Merphos | | | 0.0200 | 0.02906 | | mg/L | | 145 | 44 - 180 | 20 | 30 |
| Methyl parathion | | | 0.0200 | 0.01830 | | mg/L | | 92 | 35 - 167 | 1 | 30 |
| Phorate | | | 0.0200 | 0.02140 | | mg/L | | 107 | 39 - 159 | 12 | 30 |
| Ronnel | | | 0.0200 | 0.02314 | | mg/L | | 116 | 42 - 151 | 6 | 30 |
| Stirophos | | | 0.0200 | 0.01339 | J p | mg/L | | 67 | 39 - 172 | 8 | 30 |
| Tokuthion | | | 0.0200 | 0.01949 | | mg/L | | 97 | 33 - 155 | 14 | 30 |
| Trichloronate | | | 0.0200 | 0.01859 | | mg/L | | 93 | 39 - 157 | 2 | 30 |

| *Surrogate* | *LCSD %Recovery* | *LCSD Qualifier* | *Limits* |
|---|---|---|---|
| *Tributyl phosphate* | *38* | *p* | *30 - 151* |

# QC Association Summary

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

## GC Semi VOA

### Prep Batch: 381199

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 570-159228-1 | HAINES CREEK EXIT | Total/NA | Water | 3510C | |
| 570-159228-2 | PONDS OUT (OUTLET) | Total/NA | Water | 3510C | |
| 570-159228-3 | PONDS OUT (INLET) | Total/NA | Water | 3510C | |
| MB 570-381199/1-A | Method Blank | Total/NA | Water | 3510C | |
| LCS 570-381199/2-A | Lab Control Sample | Total/NA | Water | 3510C | |
| LCSD 570-381199/3-A | Lab Control Sample Dup | Total/NA | Water | 3510C | |

### Analysis Batch: 381652

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---|---|---|---|---|---|
| 570-159228-1 | HAINES CREEK EXIT | Total/NA | Water | 8141A | 381199 |
| 570-159228-2 | PONDS OUT (OUTLET) | Total/NA | Water | 8141A | 381199 |
| 570-159228-3 | PONDS OUT (INLET) | Total/NA | Water | 8141A | 381199 |
| MB 570-381199/1-A | Method Blank | Total/NA | Water | 8141A | 381199 |
| LCS 570-381199/2-A | Lab Control Sample | Total/NA | Water | 8141A | 381199 |
| LCSD 570-381199/3-A | Lab Control Sample Dup | Total/NA | Water | 8141A | 381199 |

# Lab Chronicle

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

## Client Sample ID: HAINES CREEK EXIT

**Lab Sample ID: 570-159228-1**

**Date Collected: 11/01/23 08:30**

**Matrix: Water**

**Date Received: 11/02/23 13:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3510C | | | 1044.5 mL | 10 mL | 381199 | 11/07/23 12:14 | H1SH | EET CAL 4 |
| Total/NA | Analysis | 8141A | | 1 | 1 mL | 1 mL | 381652 | 11/09/23 22:53 | UJ3K | EET CAL 4 |
| | Instrument ID: GC68 | | | | | | | | | |

## Client Sample ID: PONDS OUT (OUTLET)

**Lab Sample ID: 570-159228-2**

**Date Collected: 11/01/23 09:30**

**Matrix: Water**

**Date Received: 11/02/23 13:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3510C | | | 1049.1 mL | 10 mL | 381199 | 11/07/23 12:14 | H1SH | EET CAL 4 |
| Total/NA | Analysis | 8141A | | 1 | 1 mL | 1 mL | 381652 | 11/09/23 23:40 | UJ3K | EET CAL 4 |
| | Instrument ID: GC68 | | | | | | | | | |

## Client Sample ID: PONDS OUT (INLET)

**Lab Sample ID: 570-159228-3**

**Date Collected: 11/01/23 10:00**

**Matrix: Water**

**Date Received: 11/02/23 13:45**

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|---|---|---|---|---|---|---|---|---|---|---|
| Total/NA | Prep | 3510C | | | 1045.1 mL | 10 mL | 381199 | 11/07/23 12:14 | H1SH | EET CAL 4 |
| Total/NA | Analysis | 8141A | | 1 | 1 mL | 1 mL | 381652 | 11/10/23 00:28 | UJ3K | EET CAL 4 |
| | Instrument ID: GC68 | | | | | | | | | |

**Laboratory References:**

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

# Accreditation/Certification Summary

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

## Laboratory: Eurofins Calscience

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

| Authority | Program | Identification Number | Expiration Date |
|---|---|---|---|
| California | State | 3082 | 07-31-24 |

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

| Analysis Method | Prep Method | Matrix | Analyte |
|---|---|---|---|
| 8141A | 3510C | Water | Bolstar |
| 8141A | 3510C | Water | Coumaphos |
| 8141A | 3510C | Water | Demeton-o/s |
| 8141A | 3510C | Water | Ethoprop |
| 8141A | 3510C | Water | Fensulfothion |
| 8141A | 3510C | Water | Fenthion |
| 8141A | 3510C | Water | Merphos |
| 8141A | 3510C | Water | Mevinphos |
| 8141A | 3510C | Water | Naled |
| 8141A | 3510C | Water | Tokuthion |
| 8141A | 3510C | Water | Trichloronate |

| | | | |
|---|---|---|---|
| Oregon | NELAP | 4175 | 02-02-24 |

# Method Summary

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

| Method | Method Description | Protocol | Laboratory |
|---|---|---|---|
| 8141A | Organophosphorous Pesticides (GC) | SW846 | EET CAL 4 |
| 3510C | Liquid-Liquid Extraction (Separatory Funnel) | SW846 | EET CAL 4 |

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

EET CAL 4 = Eurofins Calscience  Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

# Sample Summary

Client: Enthalpy Analytical LLC
Project/Site: 495084

Job ID: 570-159228-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---|---|---|---|---|
| 570-159228-1 | HAINES CREEK EXIT | Water | 11/01/23 08:30 | 11/02/23 13:45 |
| 570-159228-2 | PONDS OUT (OUTLET) | Water | 11/01/23 09:30 | 11/02/23 13:45 |
| 570-159228-3 | PONDS OUT (INLET) | Water | 11/01/23 10:00 | 11/02/23 13:45 |

ENTHALPY ANALYTICAL

Enthalpy Analytical - Orange
Orange, CA 92868
(714) 771-6900 / Fax: (510) 486-0532

159228

Subcontract Laboratory:
Eurofins Southwest
2841 Dow Avenue
Suite 100
Tustin, CA 92780
ATTN: PROJECT # 57000393
PO #: TBD

Enthalpy Order: EO-495084
PM: Diane Galvan
Email: diane.galvan@enthalpy.com
CC: incomingreports@enthalpy.com
Phone: 714-771-9928

Results Due: Standard TAT
Report Level: II
Report To: RL
EDDs: .DBF erpimsenhanced

570-159228 Chain of Custody

Notes:

| Sample ID | Collected | Lab ID | # Cont. | Matrix | Analysis Requested | Comment |
|---|---|---|---|---|---|---|
| HAINES CREEK EXIT | 01-NOV-2023 08:30 | 495084-001 | 1 | Water | Organophosphorus Pesticides | |
| PONDS OUT (OUTLET) | 01-NOV-2023 09:30 | 495084-002 | 1 | Water | Organophosphorus Pesticides | |
| PONDS OUT (INLET) | 01-NOV-2023 10:00 | 495084-003 | 1 | Water | Organophosphorus Pesticides | |

| Notes: | Relinquished By: | Received By: |
|---|---|---|
| | [signature] | Richie H. |
| | Date: 11-2-23 1345 | Date: 11-2-23 1345 |
| | | |
| | Date: | Date: |
| | | |
| | Date: | Date: |

SCM 1.9/2.3

# Login Sample Receipt Checklist

Client: Enthalpy Analytical LLC

Job Number: 570-159228-1

**Login Number: 159228**

**List Source: Eurofins Calscience**

**List Number: 1**

**Creator: Vitente, Precy**

| Question | Answer | Comment |
|---|---|---|
| Radioactivity wasn't checked or is </= background as measured by a survey meter. | N/A | |
| The cooler's custody seal, if present, is intact. | True | |
| Sample custody seals, if present, are intact. | True | |
| The cooler or samples do not appear to have been compromised or tampered with. | True | |
| Samples were received on ice. | True | |
| Cooler Temperature is acceptable. | True | |
| Cooler Temperature is recorded. | True | |
| COC is present. | True | |
| COC is filled out in ink and legible. | True | |
| COC is filled out with all pertinent information. | True | |
| Is the Field Sampler's name present on COC? | N/A | |
| There are no discrepancies between the containers received and the COC. | True | |
| Samples are received within Holding Time (excluding tests with immediate HTs) | True | |
| Sample containers have legible labels. | True | |
| Containers are not broken or leaking. | True | |
| Sample collection date/times are provided. | True | |
| Appropriate sample containers are used. | True | |
| Sample bottles are completely filled. | True | |
| Sample Preservation Verified. | True | |
| There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs | True | |
| Containers requiring zero headspace have no headspace or bubble is <6mm (1/4"). | True | |
| Multiphasic samples are not present. | True | |
| Samples do not require splitting or compositing. | True | |
| Residual Chlorine Checked. | N/A | |

# 2023 ANNUAL REPORT
# APPENDIX H – TRAILS MAINTENANCE AND MONITORING LETTER REPORTS

February 27, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Summary Report for the December 2022 and January 2023 Trails Monitoring Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.**

Dear Ms. Gonzalez,

This report summarizes trail monitoring and maintenance efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) in December 2022 and January 2023. This report shows compliance and adherence to mitigation and avoidance measures set forth in the Master Mitigation Plan (MMP) and the California Department of Fish and Wildlife (CDFW) Agreement Regarding Proposed Stream or Lake Alteration No. 1600-2008-0253-R5 for the Big Tujunga Wash and Haines Canyon Creek, which are named tributaries to Hansen Dam Flood Control Basin in Los Angeles County, California. Chambers Group qualified biologists and restoration specialists participating in trail maintenance activities within the Mitigation Area worked to monitor and enforce that all mitigation and avoidance measures were followed by the work crews. Details of the trail maintenance effort including dates, names of participants, locations of maintenance activities performed, sensitive resources encountered, and mitigation actions taken, are found below.

The trail maintenance team focused on mapped authorized trails throughout the Mitigation Area. A qualified biologist swept all trail sections that required maintenance for sensitive species prior to the start of December and January trail maintenance activities. Nesting raptor surveys were conducted on January 12, 2023 prior to January trial maintenance activities. Trail maintenance was performed on December 13, 2022, and January 17 and 24, 2023. The trail maintenance efforts focused on increasing visitor safety and delineating trail boundaries to minimize negative impacts to native habitat and encourage equestrians and hikers to stay on the authorized trails. The negative impacts that are caused by unauthorized, off-trail use include the trampling of native seedlings and resprouting vegetation, compaction of the soil, erosion, and the introduction of fertilizer (e.g., horse droppings) and weed seeds into new areas.

## *Implementation*

Prior to the start of work, crew members received onsite orientation and instruction regarding safety, permit and mitigation regulations, and sensitive species that may be encountered in the work areas. The meetings were conducted by biologists Austin Burke and/or Corey Jacobs. Collector for ArcGIS (Collector), a Geographic Information System (GIS) application, was used to navigate and work along authorized trails, and to avoid disturbance to any documented sensitive plants and wildlife in areas requiring maintenance. Trail maintenance efforts were focused on maintaining high traffic areas of the authorized trails for public use and safety. Trail maintenance and monitoring was performed on all trails in the Mitigation Area. All debris and obstructions were cleared from the established trails allowing for safe passage. Where bypassed sections of the authorized trail system were observed, snag debris from the surrounding areas was used to block off entry points and discourage further deviations from authorized trails. In addition, downed snag debris and/or stones were used to delineate the authorized trails, helping to guide site visitors along the permitted course.

## *Execution*

On December 13, 2022, the crew performed trail monitoring and maintenance activities throughout the eastern riparian area and along central Haines Canyon Creek. Several areas with fallen snags were encountered creating difficult conditions for equestrian riders and for foot traffic. Some of the snag debris required the use of a chainsaw to reduce

the material for removal. All snag material removed from the trails was used to delineate trail boundaries for visitor traffic and help prevent off-trail deviations (Photos 1 through 3).

On January 17, 2023, the crew focused trail monitoring and maintenance activities along the trails near central Haines Canyon Creek and progressed west along the trail system through the western riparian area. Crew members swept the site for obstructions, accumulations of cobble, and erosion caused by previous storms along the trails. Substantial cobble and debris accumulation was observed within the trail systems in the western riparian area. Maintenance activities focused on raking the debris and removing the cobble from the trails, and hand tools were used to level out eroded trails. Crew members further raked the rock and debris creating a distinguishable and suitable path for both equestrians and hikers (Photos 4 and 5).

During exotic species removal on January 24, 2023, crew members came across a downed tree that was obstructing the trail along central Haines Canyon Creek creating hazardous conditions and making the trail impassable. The crew used chain saws to reduce the tree and used the cut material to delineate trail boundaries to ensure the path was well defined and to help prevent trail users from entering unauthorized areas (Photos 6 and 7).

## *Summary and Results*

All trail maintenance activities were supervised and/or performed by foreman Jay Belmonte or crew lead Maklin Bado, who monitored that regulations and requirements were closely followed. Trail maintenance efforts in December 2022 and January 2023 helped to support Mitigation Area goals by maintaining the navigable routes along the authorized trail system and discouraging deviations into the surrounding habitat that could potentially cause negative impacts and disturbances to native vegetation and the sensitive species found throughout the property. All authorized trails were monitored, and maintenance was conducted where obstructions or safety hazards were discovered. The maintenance crews will continue to address and maintain high-traffic, authorized trails. General trail maintenance and safety monitoring will continue along all authorized trails to provide public safety and enjoyment. Any feedback received from equestrian riders or during public outreach events, will continue to be incorporated in future trail maintenance efforts.

Chambers Group staff will continue to support the ongoing effort to protect and enhance the Mitigation Area's native habitat through regular trail maintenance efforts. Chambers Group staff will continually assess the efficacy of trail maintenance methods and adjust these methods as needed to best support mitigation goals.

Please feel free to contact me at (949) 261-5414 extension 7242, via cell phone at (626) 437-9935, or at twood@chambersgroupinc.com, if you have any questions or would like any additional information.

Sincerely,

**CHAMBERS GROUP, INC.**

**Tim Wood**
*Habitat Restoration Foreman*

**PHOTOS**

Photo 1: Large downed snag tree on the trail along Haines Canyon Creek before trail maintenance was conducted on December 13, 2022.

Photo 2: Crew members moving the downed snag tree from the trail along Haines Canyon Creek on December 13, 2022.

Photo 3: Trail along Haines Canyon Creek following crew efforts to remove the fallen snag tree on December 13, 2022.

Photo 4: Area of the trail where erosion and the deposition of cobble and debris created hazardous conditions for trail users on January 17, 2023.

Photo 5: Following trail maintenance efforts, the trail was safely passable for site users.

Photo 6: Crew member breaking down a tree that had fallen across the trail along central Haines Canyon Creek on January 24, 2023.

Photo 7: Following the removal of the fallen tree, the trail along central Haines Canyon Creek is clear and passable.

# 2023 ANNUAL REPORT
# APPENDIX I – STAKEHOLDER MAILING LIST

Mr. Aaron Allen
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# 2023 ANNUAL REPORT
# APPENDIX J –NEWSLETTERS

# Big T Wash Line

Spring 2023

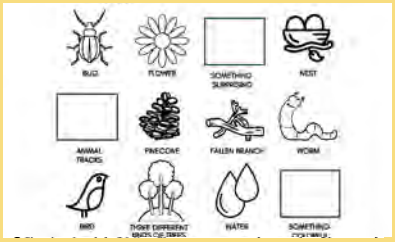
A publication of Los Angeles County Public Works

## In this issue











# About the Big Tujunga Wash Mitigation Area

**"Big T" is a conservation area located in the City of Los Angeles Sunland area (see Page 6).**

The Big Tujunga Wash Mitigation Area (Big T) covers an area of approximately 210 acres of sensitive habitat, encompassing the Big Tujunga Wash and Haines Canyon Creek. The site was purchased by Los Angeles County Public Works in 1998 as compensation for habitat loss for other Public Works projects.

Public Works' implementation of the Master Mitigation Plan for Big T has been underway since April 2000. Big T protects one of the most rapidly diminishing habitat types found in Southern California: willow riparian woodland.

The site is home to several protected species of fish, including the Santa Ana sucker, Santa Ana speckled dace, and arroyo chub. It also contains habitat for sensitive bird species such as the least Bell's vireo and southwestern willow flycatcher.

The purpose of this newsletter is to provide updates to ongoing programs and to explain upcoming enhancement measures that will be implemented on the site. Newsletters are published on a semi-annual basis in the spring and fall.

More information can be found at:
*pw.lacounty.gov/wrd/projects/BTWMA*


Haines Canyon Creek

# Big T's Native Fish

When thinking of freshwater native fish in Southern California, trout species often come to mind. However, there are many lesser-known native fish species in Southern California and three of them inhabit waterways at Big T: arroyo chub (*Gilia orcutti*), Santa Ana speckled dace (*Rhinichthys osculus* ssp.), and Santa Ana sucker (*Catostomus santaanae*). These native fish play an important role at Big T and are good indicators of the health of the habitat as they rely on clean and flowing waterways for survival. Poor water quality, severe drought, creek obstructions (such as rock dams) that limit movement or trap native fish, and predation by larger, non-native fish species, are all adverse conditions that can reduce the number of native fish present at Big T.


Arroyo chub


Santa Ana speckled dace

Arroyo chub is a California Species of Special Concern that inhabits the Big Tujunga Wash and Haines Canyon Creek. This species is native to coastal streams and rivers within the Los Angeles plain in Southern California, which includes Los Angeles, San Gabriel, Santa Ana, San Luis Rey and Santa Margarita Rivers, and Malibu and San Juan Creeks. The arroyo chub is a small fish with a deep body that can grow to 4.5 inches in length. It is mostly silver in color with a gray or olive-green dorsal (top) region, a white ventral (bottom) region, and a light gray lateral (side) band. Characteristics that help with identifying this species are its large eyes and small, downturned mouth with black lips. Arroyo chub are most common in slow-flowing stream areas with sandy or muddy substrates. They feed on plants such as algae and water fern, and invertebrates and mollusks. Arroyo chub can live up to four years and females can start reproducing at the age of one.

Santa Ana speckled dace is also a California Species of Special Concern native to the Los Angeles, San Gabriel, San Jacinto, and Santa Ana rivers in Southern California that has been observed in Haines Canyon Creek and Big Tujunga Wash. It is a small, slender, streamlined fish that grows to around 4 inches. The dorsal and lateral regions are dark yellow with speckles and spots. The shape and color of this fish is suited to life in flowing water with

*Continue on next page...*

sandy and rocky substrates. Santa Ana speckled dace is a subspecies of the wider-ranging speckled dace. Speckled dace mainly occupy small streams where they feed and forage for aquatic insects; however, they are very adaptable and can also be found in larger rivers and deep lakes where they may also feed on zooplankton and algae. Speckled dace have a typical lifespan of three years (and can live up to six years), but don't start to reproduce until their second year.

Santa Ana sucker

Santa Ana sucker is a federally listed threatened species and California Species of Special Concern whose historic range included the upper watersheds of the San Bernardino and San Gabriel Mountains all the way down to the Pacific Ocean. Today they inhabit small, select areas of the San Gabriel, Santa Ana, and Los Angeles River basins in Southern California, and have been observed in Haines Canyon Creek and the Big Tujunga Wash. The Santa Ana sucker has a distinct look compared to the other native fish that occupy the same watersheds, as it has small, downturned mouthparts adapted to scraping and vacuuming up algae and small invertebrates. Santa Ana sucker have black splotches on their dorsal region and the ventral region is white with gold flecks. Its pectoral fins are situated on the sides of its body like a shark. Santa Ana sucker occupy perennial streams (such as Haines Canyon Creek) in water depths from just a few inches to 3 feet deep. They seek out deep flowing pools with vegetation they can hide under and prefer boulder, cobble, and gravel substrates that provide surfaces where algae can grow. Santa Ana sucker live for about four years and can reproduce by their second summer.

Threats to these native fish species include severe drought conditions that dry up the stream habitat in which they live, floods that can remove vegetation that the fry (juvenile fish) use for cover after they hatch, and predation by predatory birds including herons and egrets, and non-native aquatic species including largemouth bass, red-swamp crayfish, and turtle species. Other factors that have contributed to declines of these native fish species in their historic ranges include dams that divert water, habitat loss, urbanization, grazing, agriculture, mining, recreation, and pollutants. Both natural and man-made disasters have created challenges for these species at Big T as seen with the 2017 Creek Fire, and severe drought conditions in summer 2022 that dried up Haines Canyon Creek.

Biologist using a seine to capture and remove invasive aquatic species from Haines Canyon Creek.

Chambers Group biologists have and continue to employ several maintenance programs to help native fish species thrive at Big T. These methods include regular efforts to remove non-native aquatic species from the Haines Canyon Creek and Tujunga Ponds, regular inspections and maintenance of the fish exclusionary screens located near the outflow of the West Tujunga Pond, trail realignment efforts in 2019 to reduce the number of creek crossings, and exotic plant removal efforts in the riparian habitat along Haines Canyon Creek. During non-native aquatic species removal, biologist use dip nets, beach seines, and other methods to capture and remove non-native aquatic species from the creek and ponds. Biologists also regularly inspect and maintain the fish exclusionary screens, which were installed to prevent large, predatory fish species such as largemouth bass from migrating downstream into creek from the ponds. In 2019, trails were realigned to eliminate several creek crossings. This was done to protect native fish species that are sensitive to changes in water quality (crossing the creek turns up the stream bottom and disperses sediment into the water column) and to protect the native fish and their eggs from being trampled. The regular removal of exotic plants species from riparian habitat along the banks of the creek reduces competition for water resources and allows native plant species to thrive, thus providing more hunting, spawning, and hiding places for native fish species.

In addition to maintenance efforts, public outreach is conducted by Chambers Group biologists during summer, peak-use weekends to provide the public information on Big T's plants and wildlife, including native fish. This includes guidance on how to protect Big T such as staying on the trails, picking up litter, and refraining from altering or entering the creek. With these protections being shared and practiced we can continue to improve native habitats at Big T and help native wildlife species to prosper.

# Big T Annual Cleanup Day


Volunteers help out with the Big T Annual Cleanup

The 14th Annual Trail Cleanup Day was conducted on Saturday, January 21, 2023, between the hours of 8 a.m. and 12 p.m. A total of 11 participants gathered and assisted with the cleanup which included members from Public Works, Chambers Group, and community members.

Prior to the start of the cleanup, participants gathered at the staging area for a safety discussion. Participants were then divided into two teams. One team began on the trails north of the Cottonwood Avenue entrance and continued working east while the other team began at the Wheatland Avenue entrance and worked their way east (upstream) along Haines Canyon Creek towards the Cottonwood Avenue entrance. Trash observed within the trails and creek was collected, placed in heavy duty trash bags, and transported to a staging area. A total of 40 bags of trash were collected and removed from various locations throughout the site. In addition, bulky items that did not fit in trash bags but were reasonable to carry, were collected and removed. Smaller debris items collected throughout the site included plastic bottles, glass bottles, wrappers, spray paint cans, shoes, batteries, tennis balls, and clothing. Bulky items collected throughout the site included shopping carts, large trash bins, engine oil and antifreeze containers, propane tanks, toilets, chairs, shovels, tires, and road signs.


Example of elaborate bathroom system and other debris items encountered during the cleanup effort.

Some of the trash items collected were found near or within illegal encampments observed along Haines Canyon Creek away from the authorized trails. At one of the encampments near the Wheatland Avenue entrance, pots, pans, tents, clothing, wooden pillars, tarps, utensils, and a vehicle seat were observed. Across from the encampment was an elaborate bathroom system that included a portable toilet seat and PVC pipe leading to a pit with human waste just a couple feet from the banks of Haines Canyon Creek. Two additional encampments were observed approximately 100 feet away and included a cabana-like set up, landscaping, personal hygiene items, plastic buckets containing bleach for washing, and a grill for cooking. Most of the items observed would have required more time and manpower to remove, and as such, a larger effort will be coordinated with Public Works to remove the remaining trash, debris, structures, hazardous materials, and other bulky items from the site.

The trash items observed and collected can harm sensitive resources, habitats, and special status plant and wildlife species. Toxic substances such as engine oil, antifreeze, and bleach can pollute aquatic habitats and harm native wildlife (including special status species) found within Haines Canyon Creek. Other hazards observed included the introduction of ornamental, non-native plants, and accumulations of human waste which can negatively impact the site. The introduction of non-native plants can alter native vegetation communities and affect the wildlife species that rely on these communities. The presence of propane and other flammable substances on the site is a major concern as they increase fire danger both at Big T and neighboring communities.

The 14th Annual Trail Cleanup Day was a great success with the manpower and resources available; however, only a small percentage of the trash present was able to be removed. Additional cleanups are needed to address larger debris items at illegal encampments and dump sites. Big T needs every individual's help to support habitat recovery and maintain a clean site. The 15th Annual Trail Cleanup Day is planned for fall 2023. Please stay tuned for more information and join us in our efforts to keep Big T a clean and enjoyable place for all.

# Integrated Weed Management at Big T

Integrated Weed Management (IWM) is an adaptive approach to the maintenance and suppression of non-native weed species that utilizes a combination of manual, mechanical, and chemical (herbicide) means to address non-native weed establishment. Selection of these methods is determined based on the specific weed species and conditions at Big T, and takes into account multiple factors, including the developmental stage of the weeds, environmental conditions, sensitive wildlife or plant species in the area, human safety, and others. The selective use of herbicide is a safe and efficient method for weed control when other means are determined to be less effective or would cause more disturbance to the surrounding native habitat.

Herbicide methods are preferred for treating weeds early in their life cycle, while the plants are still small and actively growing. Treating weeds while they are growing prevents them from out-competing native vegetation and developing seeds, and reduces the total amount of non-native biomass in the environment. While manual methods can also be used before the weeds are done actively growing, these methods create more disturbance to the surrounding habitat because they involve physically removing weeds from the ground and surrounding vegetation. For example, using weed whippers can create dust and noise disturbances for native wildlife and the surrounding habitat. In addition, hand pulling weeds can disturb and loosen the soil and may create favorable conditions for weeds to re-establish, so soil disturbance should be avoided as much as feasible.

The adaptive IWM strategy is designed to change as the weeds develop and/or environmental conditions change. For example, as weeds mature and develop, manual removal methods are more effective and herbicide is no longer the appropriate method. Being aware of changing environmental conditions, carefully monitoring the effectiveness of each method, and adaptively switching methods when appropriate are key to successful implementing the IWM strategy.

All herbicide treatments at Big T will be conducted under the supervision and guidance of licensed biologists and restoration technicians, who are trained to use herbicides in a safe manner with respect for the environment, wildlife, and human health. Only herbicides that are known to be safe for the environment will be used. Roundup® (glyphosate) will not be used. Selection and application of herbicides will be based on the area and the intended target species to minimize damage to native vegetation.

Castor bean removal

Weed whipping non-natives along Wentworth Avenue

Weed whipping non-natives around the equestrian center

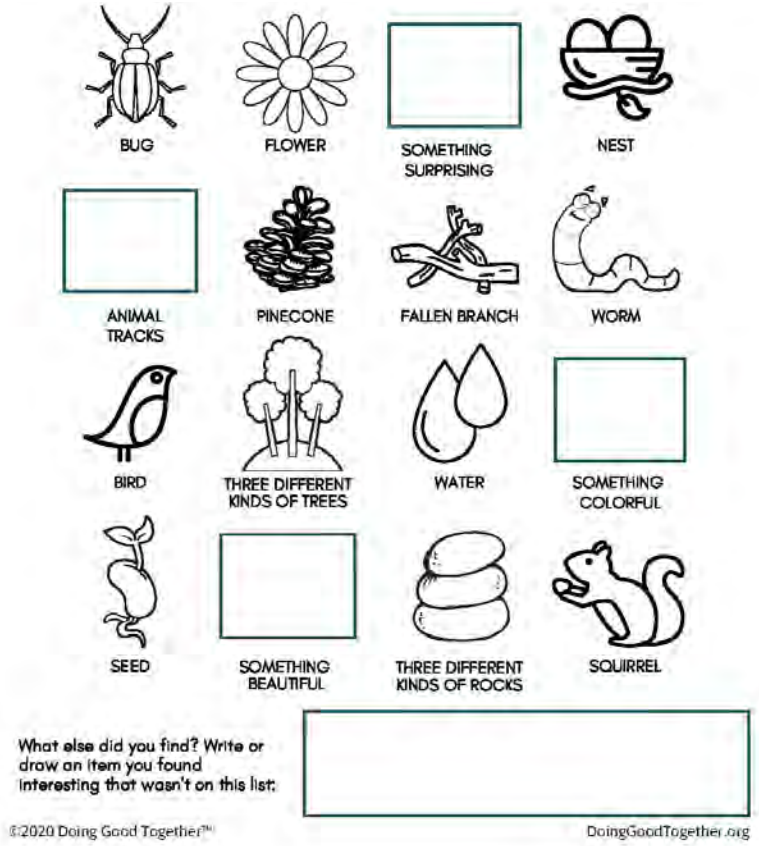
# Kid'S Corner

## Nature Scavenger Hunt

*How many treasures can you find?*

**Directions:** As you discover each item, color in the picture or draw/write what you found in the box.

Feel free to take photos of your discoveries, but leave these treasures where you found them so others may enjoy them too.




***Report emergencies and incidents such as fire call 911***

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*• For emergency follow up or to report minor incidents, obtain information, or get questions answered (8 a.m. to 5 p.m., Monday through Thursday), please contact:*

**Los Angeles County Public Works**

900 S. Fremont Ave

Alhambra, CA 91803

Email: BTWMA@pw.lacounty.gov

# Where is the Big Tujunga Wash Mitigation Area?

Downstream of Big Tujunga Canyon, in Lake View Terrace and south of the 210 freeway, there is a native riparian (water loving plant) natural area filled with cottonwoods, willows, and pools of water that support many native aquatic species.

Check out the Big T website for more information at:
pw.lacounty.gov/wrd/projects/BTWMA

# Big T Wash Line

Fall 2023

A publication of Los Angeles County Public Works

## In this issue



# About the Big Tujunga Wash Mitigation Area

**"Big T" is a conservation area located in the City of Los Angeles Sunland area (see Page 8).**

The Big Tujunga Wash Mitigation Area (Big T) covers an area of approximately 210 acres of sensitive habitat, encompassing the Big Tujunga Wash and Haines Canyon Creek. The site was purchased by Los Angeles County Public Works in 1998 as compensation for habitat loss for other Public Works projects.

Public Works' implementation of the Master Mitigation Plan for Big T has been underway since April 2000. Big T protects one of the most rapidly diminishing habitat types found in Southern California: willow riparian woodland.

The site is home to several protected species of fish, including the Santa Ana sucker, Santa Ana speckled dace, and arroyo chub. It also contains habitat for sensitive bird species such as the least Bell's vireo and southwestern willow flycatcher.

The purpose of this newsletter is to provide updates to ongoing programs and to explain upcoming enhancement measures that will be implemented on the site. Newsletters are published on a semi-annual basis in the spring and fall.

More information can be found at:
*pw.lacounty.gov/wrd/projects/BTWMA*

Aerial Imagery of Big T in February 2018 after the Creek Fire

# Wildfire Prevention and Safety

**No activities that could lead to wildfire such as building campfires, smoking, off-highway vehicle (OHV) use, or fireworks, are ever permitted at Big Tujunga Wash Mitigation Area.** However, Big T's location, being surrounded by mountains and open space areas, residential areas and ranches, and various other land uses, make it susceptible to fire from a wide range of sources. Knowing how to prevent fires at home or while recreating in other open space or natural areas is key to keeping our communities and wild spaces safe.

Big T after the Creek Fire in 2017

Wildfires have been occurring in California at an increasing rate over the last several decades, and foothill communities are at particular risk. The threat of fires is especially high during late summer and fall when brush is at its driest and Santa Ana winds are in full force. This past August, Tropical Storm Hilary brought substantial rain to the area, breaking rainfall records across Southern California. Summer rains coupled with our typical warm summer temperatures created ideal conditions for late season weed growth. This is particularly concerning as these weeds mature, dry out, and add to the fire fuel load when wildfire risk is at its highest.

Restoration crews have been working to cut back and remove large patches of non-native plants throughout Big T. brought on by the August rains. Removing this weedy vegetation will reduce fire risk at Big T and help to protect the surrounding communities. Even though campfires, smoking, and OHVs are not permitted at Big T, there is always potential for a fire. According to the National Parks Service: "Nearly 85 percent of wildland fires in the United States are caused by humans. Human-caused fires result from campfires left unattended, the burning of debris, equipment use and malfunctions, negligently discarded cigarettes, and intentional acts of arson." In addition to human causes, weather events can spark fires by way of lightning and high winds that can down powerlines.

To help prevent wildfires and protect our foothill communities follow the U.S. Department of the Interior Office of Wildland Fire's "10 Tips to Prevent Wildfires" below.

1. **Check weather and drought conditions.** Pay close attention to weather and drought conditions, which can affect the flammability of vegetation. Avoid any activities that involve fire or sparks when it's hot, dry, and windy. Remember, conditions and local restrictions should guide your decision for any fire-related activity such as building a campfire, operating equipment, off-roading on dry grass.

2. **Build your campfire in an open location and far from flammables only when and where fires are permissible.** Many people love to go camping and enjoy the warmth and light from a campfire, but your campfire can cause wildfires if you do not

*Continue on next page...*

build and extinguish it properly. To build a safe campfire where permitted, make sure you:

- Remember, campfires are never permitted at Big T.
- Select a flat, open location away from flammable materials such as logs, brush or decaying leaves and needles.
- Always use a fire ring if available or create a fire ring using rocks to help contain your fire.
- Scrape away grass, leaves, and needles down to the mineral soil.
- Cut wood in short lengths, pile it within the cleared area, and then light the fire.
- Stay with your fire.
- Extinguish it completely before leaving.

3. **Douse your campfire until it's cold.** Make sure your campfire is completely out by following the steps below:
   - Douse the fire with at least one bucket of water.
   - Stir it.
   - Add another bucket of water.
   - Stir it again.
   - Your campfire should be cold to the touch before you leave.
   - Remember, campfires are never permitted at Big T

Remains of an illegal campfire spotted at Big T this July

4. **Keep vehicles off dry grass.** Remember, off-roading is never permitted at Big T. If you are off-roading, remember that your exhaust can reach temperatures of 1,000+ degrees! So, avoid driving or parking over dry grass or other low-lying vegetation. Only off-road where permitted to do so. Remember, off-roading is never permitted at Big T.

5. **Regularly maintain your equipment and vehicle.** Vehicles and equipment can shoot sparks from their exhaust, particularly vehicles that haven't received regular maintenance. Whether it's a car, truck, or OHV, make sure your vehicle is current on all mechanical checkups and suited for off-road adventures.

6. **Practice vehicle safety.** Carry a shovel, bucket, and a fire extinguisher in your vehicle to put out fires. OHVs must have a spark arrester. You should also carry a bucket, but you could also use a helmet or anything else to carry water.

7. **Check your tires, bearings, and axles on your trailer.** If you're towing a trailer, please remember to do a maintenance check to ensure the tires are not worn, the bearings and axles are greased, and safety chains are properly in place and not dragging on the ground.

8. **Keep sparks away from dry vegetation.** Make sure you never operate equipment that produces sparks near dry vegetation. Always clear the area around your workspace. This area should be even larger if it is windy and dry. Create clearings where all flammables have been removed. The width or radius of the clearing will vary with the conditions from 10 to 25 feet.

9. **Check conditions and regulations before you use fireworks or consider safe alternatives.** Remember, fireworks are never permitted at Big T, and all fireworks, even the 'safe and sane' variety are illegal in the City of Los Angeles. Fireworks start over 19,000 fires and send over 9,000 people to the Emergency Room each year in the United States. Check your federal, state and city regulations before using fireworks. States, counties, and cities may have different laws and regulations, so a little bit of research could save you the cost of an improper fireworks use penalty, or worse – the cost of fighting a wildfire. Consider safe alternatives such as glow sticks or silly string. Remember, fireworks are never permitted at Big T, and all fireworks, even the 'safe and sane' variety are illegal in the City of Los Angeles

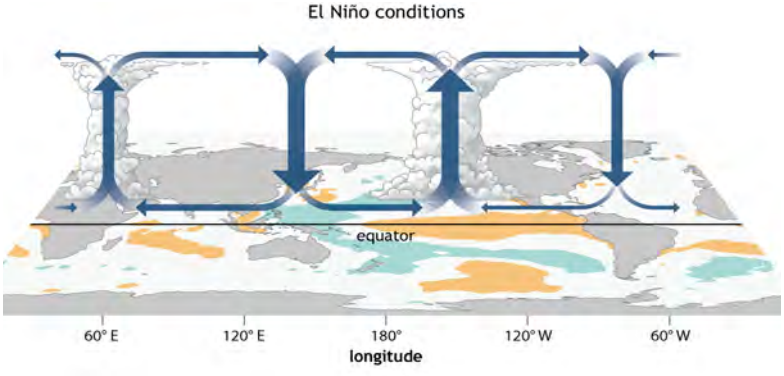
10. **Cautiously burn debris and never when it's windy or restricted.** Sometimes, people burn trash, leaves, agricultural waste, or other materials. If you plan to burn debris on your private property, make sure you have water nearby (such as a garden hose) and never burn anything if it's windy. Once your burn is completed, be sure to "mop up" the ashes with water and stirring. Wildfires often start from "holdover" debris piles that were not extinguished, days or even weeks after they were burned. There may be burning restrictions in your area, so contact your local fire authority for more information and debris burning tips.

**Please remember, no activities that could lead to wildfire such as building campfires, smoking, off-highway vehicle (OHV) use, or fireworks, are ever permitted at Big T.** ***Immediately call 911*** if you detect smoke or fire in your area and report the location. If you see a fire at or near Big T, please email us at **BTWMA@dpw.lacounty.gov** after reporting it to authorities so it can be investigated.

# What to Expect in an El Niño Year

Flooding at Big T after a rain event in January 2023.

As many have heard by now, El Niño is coming! This alternating weather pattern, sometimes referred to as the El Niño Southern Oscillation or ENSO, is anticipated to continue through the northern hemisphere this winter with a greater than 95 percent chance between January and March 2024. As of mid-September, there is a 71 percent chance that a strong El Niño will visit us this winter. So, what is an El Niño anyway? An El Niño occurs when winds along the equator in the Pacific Ocean weaken, causing surface temperatures of the ocean to warm slightly. The warmer water can cause warmer temperatures over the western and northern United States during the winter season and has the potential to cause wetter than average weather. Although meteorologists (scientists who study the weather) anticipate a strong El Niño year this winter, it is not yet certain that one will occur, or that we will receive heavy rains locally. While some El Niño years have brought higher than average rainfall to Southern California, this is not always the case. Many atmospheric conditions contribute to the development of El Niños, and scientists are still learning how these various conditions affect an El Niño's strength, intensity, and location.




If the Big Tujunga Wash Mitigation Area receives higher than average rainfall this season, the washes and creek may flood their banks, erosion may occur to the stream banks and trail system, and debris flows from upstream may develop. Heavy rains and flash floods can create a bit of a mess until trail maintenance crews are able to clean up, remove large debris, and repair any damaged trails. It is important to avoid recreating at Big T if rain or flash floods are predicted for the area. You may encounter barricades and signs placed at trail entrances indicating that they are temporarily closed during and after storms. Please respect these closures as they are for your safety.

***For more information about this season's ENSO outlook please visit the National Oceanic and Atmospheric Administration's ENSO Blog: https://www.climate.gov/news-features/blogs/enso***

# Brown-headed Cowbird Update

Brown-headed cowbirds are native to the Great Plains and traditionally associated with herds of bison that attracted and kicked up a plentiful supply of insects as they migrated from place to place. Brown-headed cowbirds do not build their own nests. One theory is that because the bison were always on the move, cowbirds were rarely at any location long enough to build a nest and raise young, and as such, brown-headed cowbirds evolved into brood parasites. Brood parasites are species that do not build their own nests to lay their eggs. Instead, they lay eggs in nests of other unsuspecting, native songbird bird species (sometimes after damaging or removing the native bird's eggs) who will often raise the cowbird young as their own. The development and expansion of agricultural and livestock operations may have facilitated the brown-headed cowbird's expansion west, where they continue to thrive at feed lots, ranches, and other facilities with large grazing mammals.

Brown-headed cowbird egg in a robin's nest

On the Great Plains, many songbird species, having evolved with brown-headed cowbirds, are adept at recognizing cowbird eggs and will remove the eggs or even abandon their nest if cowbird eggs are detected. Unfortunately, songbird species in the far west, including Southern California, have had less time to adapt to brown-headed cowbirds and are more easily tricked into raising cowbird young. In some instances, the "parent" cowbirds will hang around the nest and make sure the new parent songbirds are feeding their young cowbird. Young cowbirds are much larger than songbirds, and the cowbirds will outcompete their siblings or even push them out of the nest to ensure survival. To help the native songbird bird population thrive and to protect special status songbird species such as the federal and state endangered least Bell's vireo, avian biologists trap and remove these clever cowbirds at Big T. As of 2023, we have been successfully trapping brown-headed cowbirds at Big T for 20 years!

Female (left) and male (right) brown-headed cowbirds

This past cowbird trapping season (April 1 through June 30), 59 cowbirds including 42 females and 17 males were captured and removed. Interestingly, 31 of the 42 females captured were captured in April, early in the cowbird trapping season, which undoubtably helped to reduce the number of songbird nests parasitized at Big T this year. Further evidence of this year's trapping success is that no juveniles were captured at any of the four trap locations. Locally raised cowbirds are easily and quickly captured after fledging, and therefore, are good indicators of the efficacy of a trapping program. The lack of juveniles captured indicates that very few cowbirds were likely raised at Big T this nesting season, which is great news for our native birds, including at least two least Bell's vireo pairs with nests documented this year!

Brown-headed cowbirds perched inside a trap. Photo by Griffith Wildlife Biology

# Announcements

## 15th Annual Trails Cleanup Day

The 15th Annual Trail Cleanup Day is scheduled for December 2, 2023. Please join us in helping cleanup Big T's trails and Haines Canyon Creek! ***See the flyer on the next page for more details and hope to see you there!***

*Join Us!*

## Time to Trim Your Trees

Fall is the time of year to trim your trees and shrubs! Why? Almost all native North American birds are protected by the Migratory Bird Treaty Act, a federal law that was established in 1918 to protect the migratory birds that spend winters in other locations and return to their nesting areas in the spring to raise their young. In the greater Los Angeles area, the migratory bird nesting season generally extends from February through mid-September. This means that most birds are done nesting by the fall, and the risk of damaging or destroying a nest during yard maintenance activities is greatly reduced.

As a requirement of Big T's maintenance and monitoring program we conduct year-round removal of non-native, weedy plant species and trim back trees and shrubs when they start to encroach on the trails. Vegetation removal activities occurring during the nesting bird season are conducted only after work areas have been surveyed by an avian biologist. If the biologist finds a nest, a buffer is established to protect the nesting birds, and no work can occur within the buffer until the nestlings have fledged and the birds are no longer using the nest. The biologist will also conduct nest monitoring to make sure nesting birds are not stressed by the work activities being conducted. If signs of stress are observed, the biologist may stop work and increase the protective buffer, limit work activities to only those that don't require loud power tools, or may have the crew move and work in another portion of the Mitigation Area altogether.

Because it's usually impractical for property owners to hire a biologist, avoiding trimming trees and shrubs until the fall is the best way to help protect nesting birds. Trimming your trees in the fall is the best time for your trees as well, as trees and shrubs are dormant in the cooler months. It's a win-win!

## Report Fires

As we enter the fall wildfire season, **please report any active fires spotted at Big T or in the surrounding communities by calling 911**. **Please also email BTWMA@dpw.lacounty.gov** so it can be investigated. Biologists and county workers frequently visit Big T and keep an eye out for fires, suspicious activity, trail safety hazards, and other dangers in the area but we also rely on the eyes and ears of site visitors. Remember, fires of any kind are not permitted within Big T. Let's all work together to keep ourselves and our neighbors safe!

# Join us for the 15th annual

## Big Tujunga Wash Mitigation Area

# TRAIL CLEANUP DAY

## December 2, 2023 | 8 a.m.

## Water, snacks, and trash bags will be provided.

**PLEASE BRING:**

- Comfortable shoes
- Closed-toe shoes
- Gloves
- Hat
- Sun block
- Bug repellent

If there is rain or poor weather, the event will be rescheduled.

**For more information call (626) 458-6134 or email btwma@dpw.lacounty.gov**

ADA and Title VI Accommodations: Individuals requiring reasonable accommodations, interpretation services, and materials in other languages or in an alternate format may contact the Public Works coordinator at (626) 458-7901. Requests must be made one week in advance of the scheduled meeting date. Individuals with hearing or speech impairment may use California Relay Service 711.

# Kid'S Corner

**Instructions: Circle or draw a check mark next to the items that could start a wildfire.**


Fireworks


Black Bear


Off-Highway Vehicle


Pine Tree


Bicycle


Camping Tent


Camp Fire


Car Accident


Chainsaw


Glowstick


Lightning


Hot Cocoa

**Answers: Fireworks, Off-Highway Vehicle, Camp Fire, Car Accident, Chainsaw, Lightning**

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# 2023 ANNUAL REPORT
# APPENDIX K – CAC MEETING DOCUMENTS

**BIG TUJUNGA WASH MITIGATION AREA**
**COMMUNITY ADVISORY COMMITTEE MEETING**

**AGENDA**

**Thursday, May 4, 2023**
**5:30 p.m. to 7:30 p.m.**

**Meeting Registration Link:**
**https://pwlacounty.zoom.us/meeting/register/tZIofuCrqD8jHNZ6KHI2qMi2d4UOTL89YY39**

**Panel:** Los Angeles County Public Works
Chambers Group, Inc.

**I. Welcome/Introduction**

**II. Review of Meeting Agenda**

**III. Site Maintenance Issues**
Discussion of Action Items from December 2021 CAC Meeting

**IV. Summary of 2022 Programs**
1. Brown-headed cowbird trapping
2. Exotic Plant Eradication Program
3. Exotic Wildlife Removal Program
4. Trails Maintenance Program and Cleanup Day
5. Public Outreach/Community Awareness Program
6. Continued Incident Monitoring

**V. Current Status of 2023 Programs**
1. Brown-headed cowbird trapping
2. Exotic Plant Eradication Program
3. Exotic Wildlife Removal Program
4. Trails Maintenance Program and Cleanup Day
5. Public Outreach/Community Awareness Program
6. Continued Incident Monitoring

## VI. Schedule Next CAC Meeting

## VII. Comments, Questions and Answers

May 4, 2023

Jimena Gonzalez, Senior Civil Engineering Assistant
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: 2023 Big Tujunga Wash Mitigation Area Community Advisory Committee Meeting Minutes**

Jimena Gonzalez,

The Community Advisory Committee (CAC) Meeting held on Thursday, May 4, 2023, from 5:30 p.m. to 7:30 p.m. via Zoom is summarized in the meeting minutes below.

## Meeting Minutes

**I.** Welcome/Introduction/Housekeeping Rules

Attendees:

Francisco Rivera (Public Works Graffiti Abatement)
Lilliana Sanchez
Ricardo Flores
Sue Ellen Hussung
Frances Ronning
Heather Druscoll (LA County Parks and Recreation)
Olivia Miseroy (LA County Parks and Recreation)
Jimena Gonzalez (Public Works)
Maria Lee (Public Works)
Paul Morrissey (Chambers Group)
Jackie Mayfield (Chambers Group)

**II.** Review of Meeting Agenda

**III.** Summary of 2022 Eradication Program

1. Brown-headed cowbird trapping
    a. Discussion of brown-headed cowbird (BHCO) life history and their impacts on native songbirds.
    b. Description of BHCO traps and how they function.
    c. In 2022, BHCO trapping occurred between March 31 and June 30 to reduce nest parasitism on songbirds during their prime nesting season.
    d. Thirty BHCOs were captured and removed from the Mitigation Area in 2022 including 8 males, 19 females, and 3 juveniles.
    e. Any non-target species captured were released.
    f. Trap 2 near the Tujunga Ponds was vandalized on June 16, 2022. The slot was smashed, and three male cowbirds were released.

g. After least Bell's vireo (LBVI) were documented nesting on site in 2020 for the first time since the inception of the Mitigation Area, Trap 2 was moved near the Tujunga Ponds and closer to LBVI habitat in 2021.

h. All three least Bell's vireo nests documented in 2020 were parasitized by BHCO, and the nests failed.

2. Exotic Plant Eradication Program

   a. Exotic plant eradication efforts were conducted from January through March and September and October.

   b. Brief history of the Exotic Plant Eradication Program.

   c. The main purpose is to remove non-native and invasive plant species from the Mitigation Area, thus increasing resources for native plants to survive and thrive.

   d. In 2019, LA County banned the use of herbicides and only mechanical removal methods have been used since.

   e. Discussion of adaptive weed management and removal methods.

   f. Target species included non-native grasses, mustards, red-stemmed filaree, sourclover, London rocket, poison hemlock, castor bean, tree tobacco, tree of heaven, umbrella plant, and others.

   g. Annual species were hand pulled or cut with weed whippers. Shovels and digging bars were used to remove long-lived annuals and perennials from the root.

3. Exotic Wildlife Removal Program

   a. Efforts to remove exotic, aquatic wildlife were conducted from January through March and from August through October 2022.

   b. Brief life history discussion of largemouth bass. Largemouth bass are the biggest target and one of the biggest threats to native fish at Big T.

   c. Largemouth bass are voracious predators and can be detrimental to the native fish populations in Haines Canyon Creek. The exclusionary nets between the ponds and creek are critical in keeping largemouth bass and other large, predatory fish out of native fish habitat within the creek.

   d. Exotic wildlife removal efforts are conducted to protect special status fish species including the Santa Ana sucker, the arroyo chub, and the Santa Ana speckled dace.

   e. Discussion of exotic species removal methods. Dip-netting and hand-capture methods were use in the creek and seining and spearfishing, methods were used in the ponds.

   f. 29,393 exotic aquatic individuals were removed from the Tujunga Ponds and Haines Canyon Creek in 2022.

   g. Species captured included American bullfrog, common carp, green sunfish, goldfish, largemouth bass, red swamp crayfish, and western mosquitofish.

   h. Rock dams can create ponds in Haines Canyon Creek that that provide prime habitat for predatory largemouth bass.

   i. Discussion of fish exclusionary screens and their design and function.

   j. Chambers group biologists coordinate with LA County Parks and Recreation to maintain and repair the exclusionary nets, as necessary.

4. Trails Maintenance Program

    a. Trail maintenance is conducted to keep the trails safe and clear for equestrian users and hikers. Maintenance efforts were conducted in January, July, and August 2022.

    b. Discussion of recent flood event. Flood events move sediment an expose cobble and rock in the trails. Cobble and rock in the trails make navigating trails difficult for both horses and hikers.

    c. Trail crews work to remove cobble and rock that turns up in the trail over time, and to regrade and delineate the trail boundaries to make the trails more comfortable for horses.

    d. Trail issues can cause site users to navigate off-trail into habitat areas. Site users can notify on-site maintenance crews or Public Works of any trail issues so they can be addressed.

    e. Trail maintenance included the removal of snags, downed trees, and branches; removal of irritating plants such as poison oak and trimming back overgrown vegetation; clearing and delineating trails for safe passage; blocking off unauthorized trails; removal of trash and bulky debris; and repairing trail damage due to erosion.

    f. Crew members also look out for and report and illegal encampments and activities that may cause hazardous conditions to the surrounding environment and communities (e.g., chemicals, propane, fires, etc.). Education is the first course of action. If an encampment is vacated, Chambers Group coordinates with Public Works to remove any debris left behind.

5. Public Outreach Program

    a. The Community Awareness Program includes public outreach weekend site visits (not conducted in 2022) the distribution of the biannual *Big T Washline* newsletter (distributed in Fall 2022) and the Community Advisory Committee Meeting that serve to help educate and inform the community about the Mitigation Area.

    b. In a typical summer, Chambers Group is on site during peak-use weekends to interact with the public, survey the public about how they use the Mitigation Area, answer any questions, and hand out educational brochures.

    c. Crew members were still present on-site in 2022 to respond to site user questions and/or concerns and to document any site issue/incidents.

    d. All site incidents are recorded and reported to Public Works and/or the appropriate law enforcement agency as appropriate.

    e. Regular outreach efforts will continue at the Mitigation Area in summer 2023.

## IV. Current Status of Programs for 2023

1. Brown-headed cowbird trapping

    a. Four traps (same locations as 2022) were operated between April 1 and 30. Trapping will continue daily through June 30, 2023.

    b. Forty-three BHCOs were captured and removed from the Mitigation Area in April 2023 including 12 males, 31 females, and no juveniles.

    c. So far 2023 has been a big year for female BHCO capture at Big T (far more females captured than males), and the same has been observed for other BHCO trapping programs in the area.

d. Trap 2 was vandalized once in April. The mesh had been cut and was repaired immediately; however, one male BHCO decoy escaped.

2. Exotic Plant Eradication Program
    a. Eradication efforts have occurred monthly since January 2023.
    b. A highly wet 2022/2023 rainy season has led to extensive weed germination.
    c. Early spring efforts focused on removing large fields of mustard species that quickly developed due to winter rain events followed by increased temperatures.
    d. Only mechanical weed removal methods have been used so far in 2023, and some selective herbicide use may resume later this spring.
3. Exotic Wildlife Removal Program
    a. Exotic wildlife eradication efforts have occurred monthly since January 2023.
    b. Removal efforts in Haines Canyon Creek are generally avoided during the breeding periods for sensitive fish species unless largemouth bass and red swamp crayfish are observed. If native fish are observed during removal efforts in the creek biologist will move to another area or suspend removal efforts until after breeding season.
    c. Approximately 181 exotic, aquatic individuals were removed from Tujunga Ponds and Haines Canyon Creek as of the end of April 2023. Red swamp crayfish and largemouth bass made up the majority of the 2023 catch so far with approximately 79% and 17% respectively.
    d. Additional exotic, aquatic species removed included common carp and western mosquitofish.
4. Trails Maintenance Program
    a. Trial maintenance efforts were conducted in January 2023 and will continue throughout 2023, as necessary. Crews regularly check the trails for maintenance issues and respond to any maintenance needs brought to their attention by the public to keep trails open and safe.
    b. January trail maintenance efforts were focused along the trails near Haines Canyon Creek and along the trails through the western riparian area.
    c. Crew members swept the site for obstructions, accumulations of cobble, and erosion along the trails caused by winter storms. Crew members also removed a downed tree that was observed obstructing the trail near central Haines Canyon Creek on January 24.
5. Public Outreach Program
    a. Summer Public Outreach efforts were not conducted in 2022; however, these efforts are planned to resume in 2023.
    b. Public Outreach efforts will be focused on illegal encampments at the west end of the site. Reducing the risk of fire in the Mitigation Area is priority.
    c. Any campers encountered will be informed that camping is not authorized in the Mitigation Area. Chambers Group will coordinate with Public Works on any issues that may arise regarding illegal encampments.
6. 14th Annual Trail Cleanup Day
    a. The 14th Annual Trail Cleanup Day took place on January 21, 2023.

b. Eleven volunteers from Public Works, Chambers Group, and community members participated.

c. A total of 40 bags of trash were collected and removed from various locations throughout the site.

d. Smaller debris items collected throughout the site included plastic bottles, glass bottles, wrappers, spray paint cans, shoes, batteries, tennis balls, and clothing. Bulky items collected throughout the site included shopping carts, large trash bins, engine oil and antifreeze containers, propane tanks, toilets, chairs, shovels, tires, and road signs.

e. Items were not cleaned up at any occupied encampments.

f. The 15th Annual Trail Cleanup Day is planned for fall 2023.

## V. Comments, Questions, and Answers

1. The floor was opened to the group for comments and questions.

**Q1, Lilliana Sanchez** – "Are you aware of the contamination coming from Little Tujunga Creek? I have been a witness to cars driving alongside the creek and having cookouts on weekends."

**A1**, **Paul Morrissey** (paraphrased) – We are aware of recreational use and OHV use in the washes. Big Tujunga Wash dries up and is not a perennial system that has water year-round. The native fish we are trying to protect are in Haines Canyon Creek, which does connect to the wash when the wash is flowing but is otherwise protected area. Chambers Group is not able to police activities outside of the Mitigation Area but can only report incidents and share them with Public Works and law enforcement, as appropriate. As biologists, we can only observe and report. In addition, Chambers Group also conducts water quality monitoring annually in the fall, to look for evidence of contamination from various sources and compare results to previous years.

**Q2**, **Sue Ellen Hussung** – "When you know you're going into a homeless encampment, can you call in Social Services and the police in advance, so that you're not so vulnerable?"

**A2, Paul Morrissey** (paraphrased) – Yes. We try to tread very lightly. We understand that these are people's belongings, and we will typically have a conversation. If the people are aggressive in any way, we will back out and document it through Public Works and law enforcement. There is a notification process and timelines involved in removing any illegal encampments that Chambers Group, Public Works, and law enforcement follow. So, it's not something where law enforcement will come in and just remove individuals from the site, there is a process. The best we can do is inform and educate. We will only clean up debris items left behind at any abandoned encampments.

**C1**, **Sue Ellen Hussung** – "I don't envy you. Thank you, this was a very good presentation. I appreciate it."

**Q3, Francisco Rivera** – "I'm working with [an organization] removing foxtail grasses and castor bean plants at [name of park] on Angeles Crest Tujunga. Where can I get a list of invasive plants to remove?"

**A3, Paul Morrissey** (paraphrased) – CalIPC is a website you can look at that has California's most invasive weed species. They have photos and descriptions of invasive weeds in California. If you don't get what you need from that website, you can reach out to Public Works, and we can provide a list of some of the species we remove at Big T.

**Q4, Sue Ellen Hussung** – "How big is your crew on a daily basis?"

**A4**, **Paul Morrissey** (paraphrased) – Typically we have a foreman, 2 crew members, and a biologist, but because of the [weed] growth that we've had, the rain and the warm conditions, we've had as many as 18 crew members out there. Large efforts were conducted early in the season where raptors and sensitive bird species have been known to nest, so that we can avoid those areas during nesting season, if needed. If least Bell's vireo move in,

we have to establish a 500-foot no-work buffer to protect the species so larger efforts were conducted early on. Typically, we have a crew of four, and for exotic wildlife removal efforts, we have a crew of four to six.

**Q5, Sue Ellen Hussung** – "When can we look forward to another one of these presentations? I found it very enlightening."

**A5, Paul Morrissey** – "We do it once annually. But if you ever want to talk to our crew, we're out there on a regular basis and we have no problem spending some time and talking about what we're doing."

**Q6, Sue Ellen Hussung** – "Do you have a published schedule? How do we find you?"

**A6, Paul Morrissey** – **"**We park off from Cottonwood Avenue and Wentworth, that's our staging area, and we are typically out there Monday through Friday. Our crew gets there about 6:45 in the morning, we have a tailgate and talk about safety and target species that we're going after, and then they will be out there from about 7:00 to 2:00."

**Q7, Sue Ellen Hussung** – "Would you please put a website or some place you can be reached?"

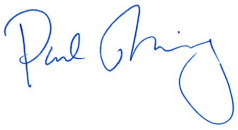
**A7, Jimena Gonzalez** (paraphrased) – Yes, I was actually just going to do that, and to follow up to Francisco's question, I'm putting the email account where you can reach us on the chat and then I will also post the link to our website where you can get more information such as past annual reports, past meeting agendas and meeting minutes, and we also post and send out biannual newsletters. If you would like, I can also add you to our email distribution list, that way you can receive the newsletters directly to your email. If anyone else in the meeting would like to be added please let me know.

2. Several attended requested to be added to the distribution list. They were asked to reach out via email to Public Works, to make sure they get added to the list.
3. Chambers Group and members of LA County Parks and Recreation discussed collaborating on maintenance efforts at the Tujunga Ponds.
4. Closing comments.

If you have any questions regarding this record, please feel free to reach out to me.

Sincerely,

**CHAMBERS GROUP, INC.**



Paul Morrissey
Director of Biology
pmorrissey@chambersgroupinc.com
(949) 261-5414 ext7288

# Big Tujunga Wash
## Mitigation Area Incident Map 2022


- Mitigation Area
- L.A. County Park Parcel
- Wheatland Ave Easement
- Trail Closed (2019)
- Existing Trail
- New Trail Realignment Sections (2019)

**Incident Catagory**

- Maintenance Issue
- Prohibited Activity
- Site Safety

**Violation Description**

1. Crashed Vehicle
2. Encampment
3. Illegal Dumping
4. Rock Dam
5. Unauthorized Trail
6. Vandalism

N

0 250 500 1,000

Feet

CHAMBERS GROUP

Name: 21021 Mitigation Area Incident Map 2022.Mxd
Print Date: 4/17/2023, Author: pcarlos

# 2023 ANNUAL REPORT
# APPENDIX L – PUBLIC OUTREACH LETTER REPORT

November 30, 2023

Jimena Gonzalez
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

**Subject: Public Outreach Report for September and October 2023 for the Big Tujunga Wash Mitigation Area, Los Angeles County, California**

Dear Jimena Gonzalez,

In an ongoing effort to enhance and protect native habitat at the Big Tujunga Wash Mitigation Area (Mitigation Area) for native plant and wildlife species, Chambers Group has continued bilingual public outreach efforts to equestrian and non-equestrian user groups who regularly visit the Mitigation Area for recreational purposes. Public outreach efforts conducted in 2023 are discussed below.

## *Outreach Efforts*

Public outreach efforts including onsite interviews and education about the Mitigation Area were conducted on four occasions in 2023 by Chambers Group bilingual biologists Mauricio Gomez, Cristhian Mace, Jessica Calvillo, and Eliana Maietta. Outreach efforts took place on September 16, 23, and 30, and October 13. All outreach efforts took place during the peak site use hours of 8:00 a.m. to 12:30 p.m.

During public outreach efforts, Chambers Group biologists walked the authorized trails system and visited popular swimming/wading locations along Haines Canyon Creek (creek) and around the Tujunga Ponds (ponds), speaking with visitors they encountered. Visitors that were interviewed fell into one of two groups: equestrian or non-equestrian.

During the four outreach efforts, all equestrian and non-equestrian visitors encountered were offered an educational brochure outlining Los Angeles County Public Works' (Public Works) conservation goals for the Mitigation Area. The educational brochure contains the Mitigation Area's rules and regulations and discusses special status species found on the site. During each outreach effort, Chambers Group biologists provided information to site users on why specific activities are prohibited in the Mitigation Area and how prohibited activities can negatively impact native habitats and wildlife species. Outreach efforts mainly consisted of informal interviews and short question and answer sessions. Questions from site users were primarily about the purpose of the Mitigation Area's rules and regulations, the types of special status resources found in the Mitigation Area, community clean-up efforts, and the trail system/trail maintenance. Most equestrian users expressed appreciation towards the outreach efforts, the on-going maintenance activities throughout the site, and the information presented in the educational brochure. In general, equestrian and non-equestrian users were receptive to the public outreach efforts.

## *Equestrian User Groups*

A total of 26 equestrian users were approached and interviewed during the 4 public outreach efforts in 2023. All but one of the equestrian users interviewed lived locally. All equestrian users were encountered along the authorized trails of the Mitigation Area along the creek and near the ponds. Equestrian users were offered an educational brochure and were informed about various aspects of the Mitigation Area. Outreach interactions with equestrian users were usually brief as most of the equestrians are frequent users of the Mitigation Area and are receptive to the outreach efforts. Many equestrian users appreciated the outreach efforts and contributed information to the biologists.

Concerns raised by the equestrian users interviewed included trail maintenance, particularly vegetation overgrowth, the presence of large rocks/boulders in the trails, an eroding portion of the trail north of the Cottonwood Avenue bluff, narrow trails, the new trail alignment (2019), the presence of illegal encampments, trash, individuals drinking alcohol on site, and motorcyclists using the trails. During the Public Outreach effort on September 23, equestrian users voiced concern about the condition of the trail entrance at the north end of the Cottonwood Avenue bluff where existing

blacktop meets the dirt trail. The blacktop is wearing away in this area creating an abrupt edge/drop-off and some erosion to the dirt portion of the trail. Equestrian users mentioned that this area has become a safety issue for horses when entering/exiting the trail. Chambers Group and Public Works are working on a solution to repair and improve this trail section (Photos 1 and 2). During Public Outreach efforts on October 13, one equestrian user mentioned observing an individual riding a Harley Davidson from near the creek on the west end of the site towards the north Wheatland Avenue entrance. They noted that the motorcycle had caused disturbance to the trail and surrounding vegetation. Equestrian users also voiced concerns regarding the presence of illegal encampments and associated prohibited activities including individuals drinking alcohol on site. The biologists asked the individuals to contact local law enforcement and Public Works if suspicious or illegal activities are observed in the Mitigation Area.

Recommendations provided by the equestrian users interviewed included repairing the damaged trail area north of the Cottonwood Avenue bluff, widening the trails, removing rocks and boulders from the trails, more frequent trash cleanups, and reopening the old trail alignment (pre-2019) to allow for creek crossings and to give horses more access to water.

Additional interactions with equestrian users that occurred outside of Public Outreach efforts (during other site maintenance efforts) usually consisted of equestrian users thanking the work crews for maintaining and beautifying the site and trails, and their acknowledgment that they understood the importance of restoring native habitat.

## *Effects on Sensitive Habitat by Equestrian User Groups*

Equestrian site users can negatively affect sensitive terrestrial habitat by traveling off from the established trail systems and can disturb sensitive aquatic habitat when traveling through the creek. Riders were reminded to cross the creek single file to minimize erosion along the banks, and to stay on the authorized trails. Chambers Group biologists discussed the importance of the 2019 trail realignment, designed to avoid stream crossings to minimize negative impacts to special status fish species, with concerned equestrian users to provide a better understanding of why the realignment was a critical component of species protection. The creation of new trails and traveling off from the authorized trails can be minimized with continued trail maintenance and continued equestrian site user education.

## *Non-Equestrian User Groups*

A total of 10 non-equestrian site users were encountered during public outreach visits in 2023. Two of the 10 non-equestrian site users interviewed did not live locally. All 10 of the site users were encountered along authorized trails or near the ponds. All site users were offered an educational brochure about the site, informed about activities that are prohibited in the Mitigation Area, and were asked if they had any questions regarding any of the information presented.

Individuals that were encountered during the outreach visits were generally receptive to the information provided on the sensitive resources and rules within the Mitigation Area. Individuals that were unaware of and/or violating rules were respectful and receptive to the information provided by the biologists. During Public Outreach efforts on September 16, a site user was observed dressed in camouflage and had a shotgun (break-action style in open state) and a dog with them and looked to be possibly preparing to hunt. The site user acknowledged the biologists and did not appear threatening, but the biologists did not approach the individual for safety reasons. The incident was reported to Public Works and Los Angeles County Police Department. During the September 23 effort, the biologists came across an equestrian rider who communicated and spoke to the person dressed in camouflage carrying the shotgun. The equestrian rider was told that it was a pellet air shotgun. Two site users encountered during Public Outreach efforts on September 23, mentioned that they come from Palmdale to fish at the ponds. The biologists provided the individuals with an educational brochure and explained why fishing is not permitted in the ponds or creek. The two users were not aware of the site rules and were receptive to the information provided by the biologists.

Primary usage of the Mitigation Area as described by the non-equestrian site users interviewed included hiking, walking, dog walking, and fishing. Concerns raised by non-equestrian users interviewed included trash, fires within the

Mitigation Area, the presence of illegal encampments, and illegal fishing. The biologists asked the individuals to contact local law enforcement and Public Works if suspicious or illegal activities are observed in the Mitigation Area. Recommendations provided by non-equestrian site users interviewed included cleaning up trash throughout the Mitigation Area and posting more signage with the Mitigation Area rules.

## *Effects on Sensitive Habitat by Non-Equestrian User Groups*

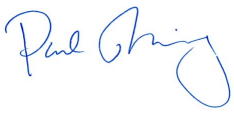
The most substantial impacts on sensitive habitat by non-equestrian user groups are caused by swimming, bathing, and building rock dams within the creek. Rock dams are constructed by individuals to make swimming areas deeper. There are a few unauthorized day-use areas that have become popular spots for non-equestrian users to congregate, picnic, and swim.

Several rock dams, both large and small, have been encountered in the creek and were removed during 2023 maintenance and monitoring efforts. Most of the rock dams are associated with an illegal encampment or day-use area. Rock dams are usually constructed with boulders and tree branches and are often found reinforced with tarps, plastic, and other materials that reduce the natural flow of the creek and create a buildup of water upstream of the dam. The changes to the natural flow of the creek can be detrimental to the sensitive species of fish within the creek. Rock dams reduce the flow of the creek and create large pools of water that are favorable habitat for the exotic, invasive aquatic species such as the red swamp crayfish (*Procambarus clarkii*), large-mouth bass (*Micropterus salmoides*), green sunfish (*Lepomis cyanellus*), bluegill (*Lepomis macrochirus*), mosquito fish (*Gambusia affinis*) and American bullfrog (*Lithobates catesbeianus*), that prey on or compete for the same food sources as native species such as the federally listed threatened Santa Ana sucker (*Catostomus santaanae*), and state Species of Special Concern Santa Ana speckled dace (*Rhinichthys osculus* ssp.) and arroyo chub (*Gila orcuttii*). The reduced water flow traps trash/debris, reduces suitable breeding habitat, and harbors parasites that negatively affect the fishes' ability to breath. Native fish trapped by rock dams have been observed "flashing" their gills in an attempt to rid themselves of parasites. In addition, the dams prevent migration of fish upstream and downstream along the creek reducing available food sources and breeding opportunities. To reduce these effects, non-equestrian users were approached and educated about the Mitigation Areas sensitive resources during the outreach site visits. However, site users encountered hiking and walking along the authorized trails are typically not the same individuals that build illegal dams and day-use areas. In the past, the individuals building day-use areas and damming the creek have typically been less receptive to site rules and education. All rock dams encountered by Chambers Group biologists during maintenance efforts were documented and removed. Larger rock dams were reported to Public Works for removal, as necessary.

Please do not hesitate to contact me at (949) 261-5414 or at pmorrissey@chambersgroupinc.com, to discuss any questions or concerns.

Sincerely,

**CHAMBERS GROUP, INC.**



**Paul Morrissey**
*Principal | Director of Biology*

## SITE PHOTOS

**Photo 1:** Depicts condition of the trail entrance at the north end of the Cottonwood Avenue bluff, facing north, when the concern was first noted on September 23, 2023.

**Photo 2:** Depicts condition of the trail entrance at the north end of the Cottonwood Avenue bluff, facing southwest, when the concern was first noted on September 23, 2023.