2022 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 2022 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 4 and October 27, 2022. Breeding bird pre-activity surveys were conducted prior to each exotic vegetation removal activity occurring within nesting bird breeding season (March 1 through September 15) in 2022. 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 2022. No nesting raptors were observed during any of the pre-activity surveys conducted in 2022. No negative impacts occurred to nesting raptors, and the fencing of nests was not required in 2022 (see Section 4.0).

Condition 3: Active bird nests were neither destroyed nor disturbed during the 2022 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 on February 24, 2022, to

identify any necessary repairs after winter storms, and no damage was observed. The fish exclusionary screens were inspected again on August 10, 2022, and were repaired by biologists the same day after damage to the screens was observed. 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 2022 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 2022.

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 though 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 2022 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 2022.

Condition 21: Installation of erosion control structures was not conducted during 2022, nor was there a need for such structures.

Condition 22: Bridges, culverts, and other structures were not constructed in 2022 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 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 2022.

Condition 26: No hazardous spills of any kind occurred in the Mitigation Area during 2022.

Condition 27: Activities conducted within the Mitigation Area in 2022 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 2022.

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 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 2022.

Administrative and Miscellaneous

Condition 33: No amendments to the SAA were submitted to CDFW during the 2022 reporting period. CDFW did not identify any breaches of the SAA during the 2022 period.

Condition 34: No violations of any terms or conditions of the SAA occurred during the 2022 period.

Condition 35: Copies of the SAA were provided to all the biologists, subcontractors, and workers who conducted activities in the Mitigation Area in 2022.

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 2022.

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 2022 (see Section 4.0).

Conditions 38 and 39: To the knowledge of Chambers Group, No CDFW department employees conducted site visits in 2022.

Conditions 40 through 42: CDFW did not issue a suspension or cancellation of the SAA in 2022.

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 October 2022. 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 the Los Angeles County Public Works (Public Works) in July 2007 to continue the implementation of MMP activities. In June of 2017 Chambers Group, Inc. (Chambers Group) 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 October 2022.

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

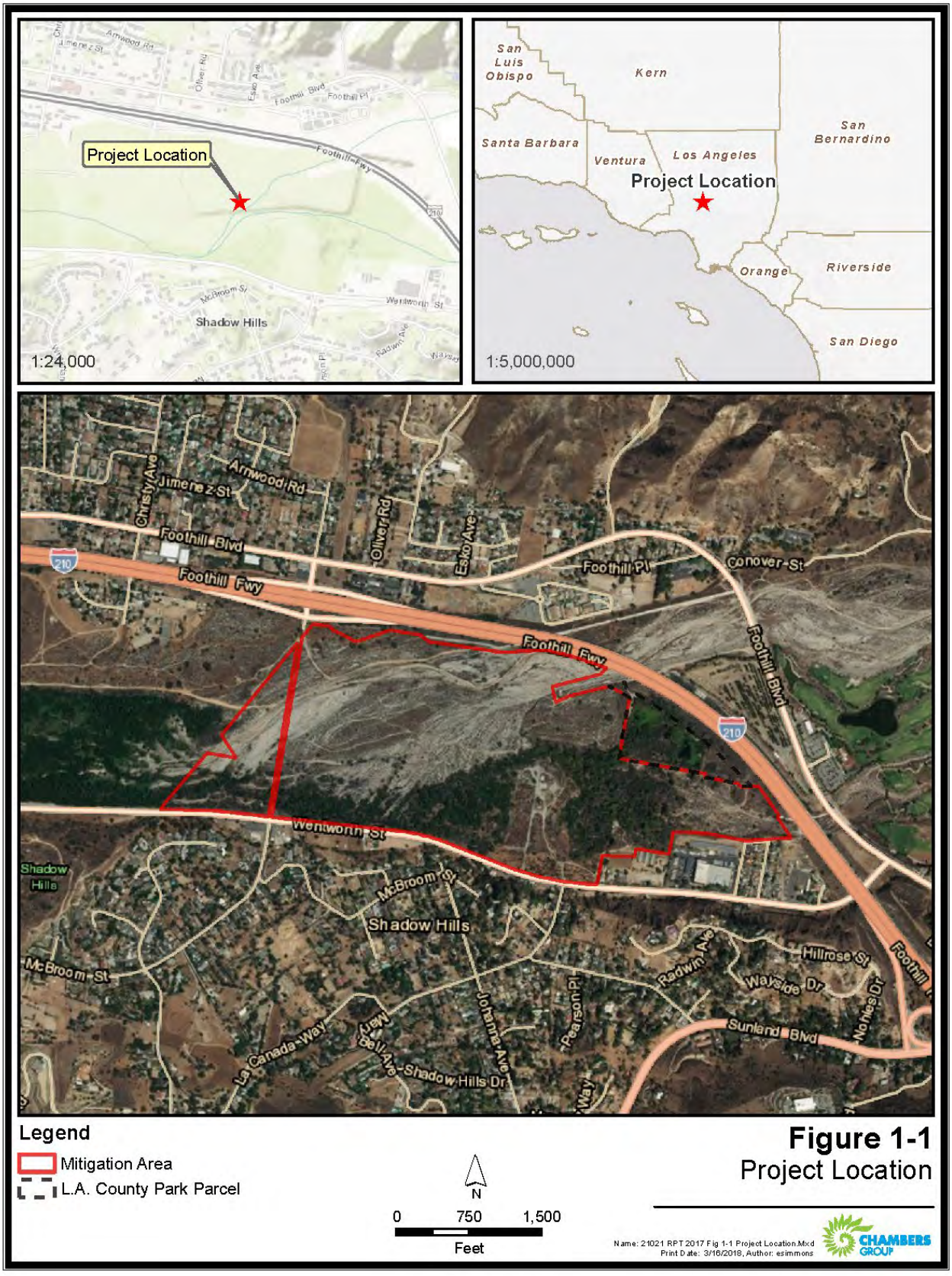
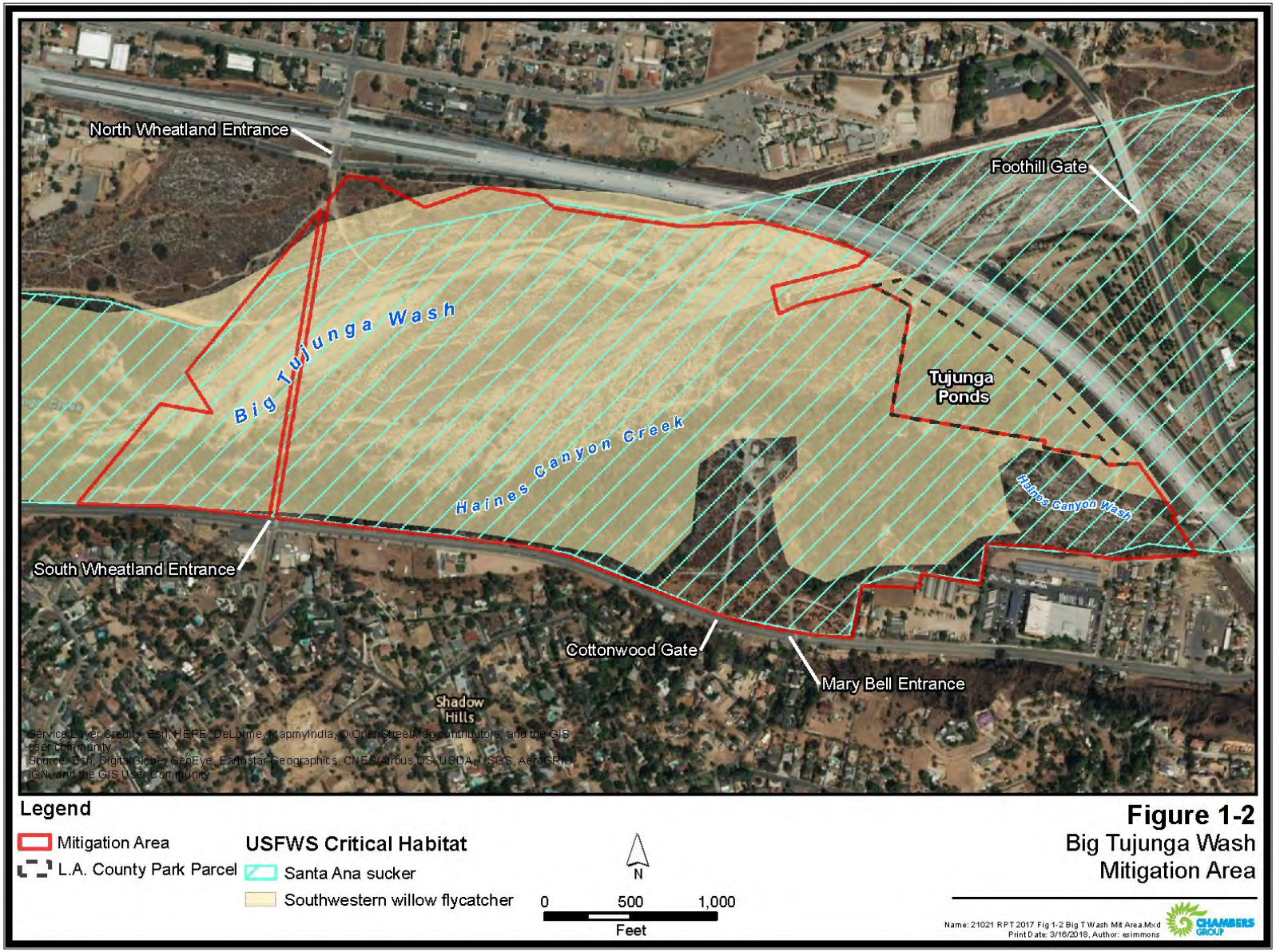


Figure 1-2. Big Tujunga Wash Mitigation Area



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 October 2022. Certain tasks in the MMP were not conducted in 2022 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; 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 2022; and thus, no Water Lettuce Control Program tasks were conducted in 2022. Due to contract constraints, several of the mitigation and monitoring tasks normally conducted within a contract year were partially implemented or not implemented in 2022. Using all remaining budget, a "best effort" was employed for restoration tasks that would benefit the Mitigation Area for 2022. Neither the Water Quality Monitoring Program nor the Public Outreach Program were implemented in 2022; however, when maintenance crews were onsite, they were available to interact with the public and address any potential concerns regarding the Mitigation Area. The Community Awareness Program that includes the annual Community Advisory Committee (CAC) meeting and biannual newsletters was partially implemented with the preparation and distribution of the 2022 Fall Newsletter to the public in January 2023. The Annual Trail Cleanup Day, normally conducted as part of the Trails Monitoring task, was postponed until January 2023 due to unsuitable weather conditions and scheduling conflicts. No special assessments were conducted in 2022. The 2022 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 2022

Implemented and/or Continued in 2022	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 Results Report

Table 1-1. Mitigation and Monitoring Tasks Implemented and/or Continued in 2022

Implemented and/or Continued in 2022	Task
	Task 6 – Trails Monitoring Program
✓	Trails Maintenance and Monitoring Efforts
✓	Trails Maintenance and Monitoring Letter Reports
✓	14th Annual Trail Cleanup Day
✓	Encampment Cleanup Monitoring
	Task 7 – Community Awareness Program
✓	Biannual Newsletters (fall only)
-	Community Advisory Committee Meeting Agenda
-	Community Advisory Committee Meeting
-	Community Advisory Committee Meeting Minutes
✓	Mitigation Area Incident Map 2021
	Task 8 – Public Outreach Program
-	Public Outreach Weekend Site Visits
✓	Distribute Educational Brochures (maintenance crew)
-	Public Outreach Letter Report
-	**Task 10 – Special Assessments**
	Task 11 – Annual Report
✓	2022 Draft Annual Report
✓	2022 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 2022. 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 accommodate 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 2022 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 mechanical removal methods only, as the herbicide ban on County property by the Los Angeles County Board of Supervisors (that went into effect in April 2019) was still in effect throughout 2022. Exotic plant eradication efforts occurred from January to March and in September and October for the 2022 monitoring period. The exotic plant eradication activities that were conducted in 2022 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 2021. The Tujunga Ponds were searched for water lettuce during several exotic wildlife removal efforts in 2022, 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 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. A total of six exotic wildlife removal efforts occurred during the 2022 monitoring period. Exotic wildlife removal tasks implemented in 2022 are summarized in Section 6.0.

1.3.5 Water Quality Monitoring Program

Water quality sampling for the Mitigation Area was not conducted in 2022. 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, July, and August 2022, 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 2022 trail maintenance efforts included trail repairs due to storm events, the removal of snag trees (trees burned in the Creek Fire) that continued to come down throughout the 2022 season, 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. Trail areas needing extensive maintenance and/or problematic trail areas were mapped and reported to Public Works for maintenance or repair at a later time, if needed. The Annual Trail Cleanup Day was postponed to January 2023, due to unsuitable weather conditions and scheduling conflicts. Trail maintenance tasks implemented in 2022 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 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 in 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 2022 are summarized in Section 9.0.

1.3.8 Public Outreach Program

The Public Outreach program was implemented in 2009 to educate the various types of 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 will continue in 2023 due to its past success. In a typical year, on-site interviews and education about the Mitigation Area are conducted on peak summer site use weekends by Chambers Group's bilingual biologists. The biologists hand out bilingual 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 2022. 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.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 repairing the fish exclusionary screens located in Haines Canyon Creek just downstream from the Tujunga Ponds on August 10, 2022.

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 during 2018 due to 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. Griffith Wildlife Biology operated two cowbird traps within the Mitigation Area and two traps adjacent to the Mitigation Area between March 31 and June 30, 2022 (13 weeks). The methods, results, and discussion of the 2022 trapping program are presented below; and the full report is included as Appendix D.

2.1 BROWN-HEADED COWBIRD NATURAL HISTORY

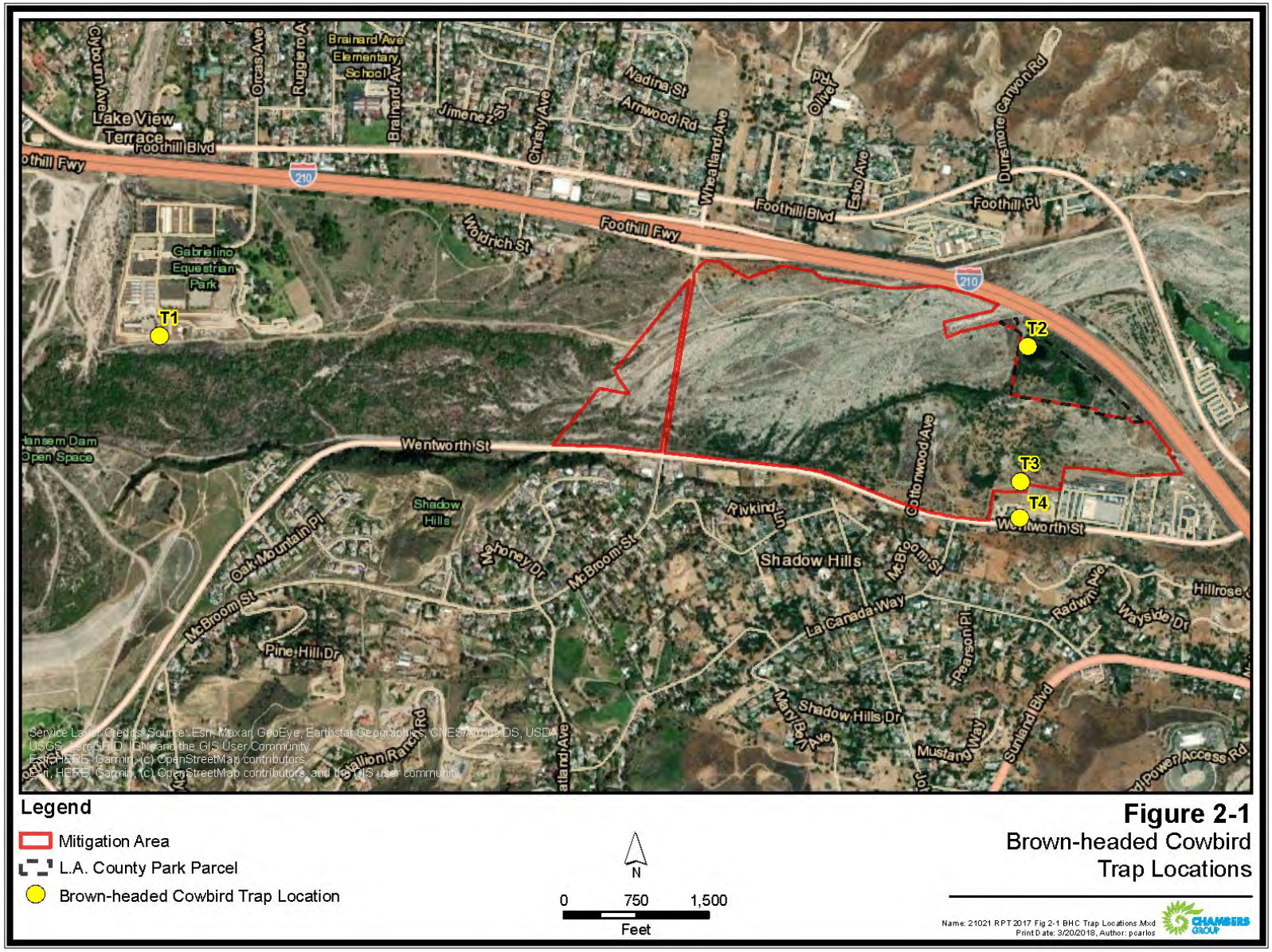
Brown-headed cowbirds are brood parasites. Cowbirds do not make a nest of their own, nor do they contribute to raising their young. This species parasitizes the nests of native host species by laying their larger egg(s) in the host species' nests and leaving the egg(s) and chick(s) to be reared by the 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 5, and two to three male and five to six female decoy birds by April 16. Trap operation began April 1 and continued every day (including weekends and holidays) until June 30. 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 30. Cowbirds not used as decoys were humanely euthanized and were provided as forage to raptor rehabilitation/reintroduction facilities.

2.3 RESULTS

A total of 30 brown-headed cowbirds were removed during the 2022 trapping season (8 males, 19 females, and 3 juveniles). The male brown-headed cowbird capture peak occurred between Week 2 and Week 6 (April 8 to May 12) with eight of the nine male brown-headed cowbirds captured and removed. Nine males were captured during the trapping season but three escaped on June 17 due to trap vandalism and only two were recovered, hence, a total of eight males were removed in 2022. The female brown-headed cowbird capture peak also occurred between Week 2 and Week 6 (April 7 to May 12) with all 19 female brown-headed cowbirds captured and removed. On June 17, Trap 2 was vandalized, and three male decoys escaped after the slot was smashed. Trap 2 was repaired immediately, and two of the three escaped cowbirds were recaptured later that week at Trap 2 and 3. No trapping days were lost during the 2022 trapping season.

A total of 49 non-target birds (i.e., all species except brown-headed cowbirds) of 4 bird species were captured in the traps in 2022. 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.

In 2020, Chambers Group biologists observed three least Bell's vireo pairs and found three parasitized least Bell's vireo nests in the Mitigation Area in June and July 2020. One least Bell's vireo pair had two nests parasitized, and one vireo had at least one nest parasitized (in all three cases the least Bell's vireo pairs abandoned the nests and left one brown-headed cowbird egg behind). Due to the nest attempts/failures by least Bell's vireo in the riparian area near and southwest of the Tujunga Ponds in 2020, the decision was made to move Trap 2 just west of the ponds for the 2021 trapping season. In 2021, Chambers Group biologists observed territorial male vireos in the Mitigation Area during the peak nesting season; however, no nests were confirmed. One female and five male brown-headed cowbirds were

captured in Trap 2 in 2021. Trap 2 was placed just west of the Tujunga Ponds again in 2022. Although no least Bell's vireo nests were observed during the 2022 nesting season (maintenance work occurred largely outside of peak bird breeding season), Chambers Group biologists observed least Bell's vireo flying around, chasing, and showing territorial behavior towards each other during trail maintenance efforts in the western riparian area in August 2022. There were no net cowbird captures at Trap 2 in 2022; however, Trap 2 should still be operated at its current location, being that it is adjacent to the area that had three cases of cowbird parasitism on least Bell's vireo nests in 2020.

2.4 DISCUSSION

The number of brown-headed cowbirds trapped during the 2022 season (30 cowbirds) was notably lower after nearly identical trapping numbers in 2017 and 2019 through 2021, in which 54 to 55 cowbirds were trapped each year. It is unknown if the number of cowbirds trapped will rebound close to the 16-year average (2001 through 2016) of approximately 53 males, 55 females, and 4 juveniles or if more recent capture numbers (since 2017) will continue to be typical. The number of cowbirds removed from each trapping location and trap site varies year-to-year, sometimes independently.

Even in this below-average year, the removal of 19 cowbird females precluded as many as 760 to 1,140 parasitism events (40 to 60 eggs per female). The three least Bell's vireo nests that were parasitized from early June to early July 2020 indicated that not all female cowbirds were being removed from the Mitigation Area. As such, Trap 2 was moved just west of the Tujunga Ponds closer to where least Bell's vireo had nested in 2020. While no least Bell's vireo nests were documented in 2021 or 2022, Trap 2 will remain at its new location west of the ponds as long as least Bell's vireos continue to be observed in the area.

Locally raised juvenile cowbirds are relatively easy to capture after fledging and can be a good indication of the success of a trapping program. The fact that only three juvenile cowbirds were captured in 2022 indicates that not many cowbirds were raised in the area in 2022. However, that could be due to nest abandonment after nest parasitism, as was observed with the least Bell's vireo pairs that nested in the Mitigation Area in 2020; only direct nest monitoring can provide the exact rate of parasitism in the area.

Trapping in the Mitigation Area and elsewhere has reduced or eliminated cowbird parasitism in targeted habitat and increased the reproductive success of host species present; however, targeted topical trapping in the Mitigation Area has not affected or reduced the regional cowbird population. 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, topical cowbird trapping will be required in the Mitigation Area 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 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 2022 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, 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 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 2022

Table 4-2 lists additional non-native plant species observed within the Mitigation Area in 2022.

Table 4-2. Additional Non-Native Plant Species Observed in the Mitigation Area in 2022

Common Name	Scientific Name
tree of heaven	*Ailanthus altissima*
black mustard	*Brassica nigra*
red brome	*Bromus madritensis* subsp. *rubens*
tocalote	*Centaurea melitensis*
poison hemlock	*Conium maculatum*
veldtgrass	*Ehrharta* sp.
rattail sixweeks grass	*Festuca myuros*
prickly lettuce	*Lactuca serriola*
horehound	*Marrubium vulgare*
sourclover	*Melilotus indicus*
Himalayan blackberry	*Rubus armeniacus*
curly dock	*Rumex crispus*
tamarisk	*Tamarix* sp.

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 are recovering well, 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*

Table 4-3. Target Invasive Exotic Tree Species

Common Name	Scientific Name
tree tobacco*	*Nicotiana glauca*
castor bean*	*Ricinus communis*
Peruvian pepper tree*	*Schinus molle*
Brazilian pepper tree*	*Schinus terebinthifolius*
Chinese elm*	*Ulmus parvifolia*
palm species*	*Washingtonia* sp., *Phoenix canariensis,* etc.

*Observed in 2022

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 February 23, 2022 (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 personal smart phone. 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 to 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 worker education brochure (updated and redesigned in spring 2019) that contained 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 as they were discovered or were mapped with Field Maps for removal 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. Following the completion of each eradication effort or 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 including for all exotic removal efforts occurring in 2022. 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 their producing seeds in the future. Eradication efforts for longer-lived annual species (e.g., large mustards and poison hemlock [*Conium maculatum*]) required complete removal of the plant from the roots. 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 the implementation of seed head collection as means to decrease 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 and contained into 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 2022

Chambers Group conducted site-wide exotic plant eradication during five months in 2022: between January 4 and 31, between February 1 and 21, between March 1 and 31, September 14 through 16, and between October 25 through 27. 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 biologist Austin Burke on February 18, 2022, and by avian biologists Erik Olmos and Hannah Romano on February 24, 2022. Pre-activity nesting bird surveys were conducted on March 1 and 29 by biologist Jessica Calvillo and on March 21 by biologist Alisa Muniz. All pre-activity sweeps were conducted within a 500-foot radius of planned work areas. Chambers Group biologists Alisa Muniz, Austin Burke, Jessica Calvillo, Mauricio Gomez, and/or Corey Jacobs 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. These meetings included instructions on COVID-19 precautions including social distancing, gear sanitation, and hand washing. Following the pre-activity sweeps and instructional tailgate meetings, exotic plant removal efforts were led by foreman Tim Wood, foreman Jay Belmonte, and/or crew lead 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 occurred throughout the Big Tujunga Wash and then transitioned to the eastern portion of the Mitigation Area later in the month to work in areas where raptor nests were previously documented before raptors potentially began to nest again. Removal efforts focused on clearing newly germinating annual grasses and forbs that were found growing throughout the Big Tujunga Wash from increased winter rain events and unseasonably warm weather.

In February, exotic plant removal efforts were conducted throughout the eastern riparian area and progressed through the Big Tujunga Wash to the eastern boundary of the Mitigation Area. Removal efforts were again focused on areas where raptor nests were previously documented to remove exotic plants in those areas before raptors potentially began to nest again. Target species included early developing

annual forbs and grasses, mustards, and poison hemlock, which were targeted using weed whippers to cover large areas. Perennial target species included castor bean, tree tobacco, and tree of heaven which were fully removed (including roots) using shovels and picks whenever encountered. Crews methodically moved throughout the eastern riparian area checking for signs of early germination and noting areas where removal efforts should be focused.

In March, exotic plant removal efforts were conducted throughout the western riparian area and along the Cottonwood Avenue entrance bluff. Removal efforts were focused on areas adjacent to existing trails within the western riparian area to reduce overgrowth of plants encroaching on the trails and to reduce exotic seed dispersal throughout the site. Target species included non-native annual grasses, mustards, and annual forbs that continued to germinate due to increased rain events. On March 24, crew members were informed by equestrian riders that a fallen tree was obstructing the trail near the Tujunga Ponds. The crew promptly transitioned from exotic species removal efforts to clearing the tree from the trail so that trail users could continue to use the authorized trail. Crew members used a chainsaw to reduce the tree and cleared all remaining debris from the trail following its removal.

In September, exotic plant removal efforts were conducted along Haines Canyon Creek in the western riparian area after a pre-activity survey was conducted for nesting birds and other sensitive wildlife species. Crews began removal efforts at the upstream portion of Haines Canyon Creek and progressed downstream targeting castor bean, tree tobacco, and tree of heaven. On September 14, the restoration crew was informed by Chambers Group biologists that rock dams were blocking water flow along Haines Canyon Creek. Crew members worked to disassemble the rock dams to restore water flow and water supply to native plants, and to reestablish passage for native fish. On September 15, it was discovered that a vehicle had crashed into native vegetation within the southwestern portion of the Mitigation Area. Law enforcement was notified, and a towing company was contacted to extract the crashed vehicle. Restoration foreman Jay Belmonte and biologist Corey Jacobs were present during the extraction to monitor that no additional native vegetation was damaged and that no fluids were spilled at the crash site or during the extraction process. The vehicle was successfully removed, and it was confirmed that no fluids had spilled from the vehicle.

In October, the restoration crew began removing castor bean that was growing along the edges of the East Tujunga Pond and then transitioned to central Haines Canyon Creek where they targeted castor bean, tree of heaven and sourclover (*Melilotus indicus*). The crew used shovels and other hand tools to remove perennial species from the roots. On October 21, the crew was notified by equestrian riders about two fallen trees that were obstructing passage along the trails at two locations, one just west of the Tujunga Ponds, and the other in the western riparian area near the south Wheatland Avenue entrance. Crew members used chainsaws to break down the fallen trees and removed the fragments and debris from the trail.

In 2022, exotic plant removal efforts largely avoided nesting bird season, and thus, no active nests were recorded on site.

4.2.1 Special Status Species

The exotic plant eradication activities did not result in negative impacts to any sensitive biological resources in 2022. 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 (February 15 through September 15). No active nests were discovered during pre-activity sweeps

and exotic plant removal monitoring conducted in February, March, and September 2022. The January and October exotic plant eradication efforts took place outside the nesting bird season. During the nesting raptor survey on February 24, a pair of common ravens (*Corvus corax*) were observed flying east over the central Haines Canyon Creek and one of the individuals was carrying soft nesting material. No associated nest was discovered. No other nesting behaviors were observed in 2022.

One special status wildlife species, least Bell's vireo, was observed during survey and monitoring efforts in 2022. Although no active least Bell's vireo nests were observed during the 2022 nesting season, least Bell's vireos were observed flying around, chasing, and showing territorial behavior towards each other during trail maintenance efforts in the western riparian area in August. The trail section proposed for maintenance fell within the required avoidance buffer for least Bell's vireo (500 feet); therefore, work in that area was not conducted to avoid negatively impacting the listed species. Crew efforts were redirected to address other areas of the site where maintenance activities could safely proceed. 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 (as was observed in 2020) in the Mitigation Area.

Notes and representative site photographs were taken, and the coordinates of exotic plant locations were recorded using Field Maps on either smart phones or tablets.

Letter reports documenting pre-activity surveys, exotic plant removal, CDFW notifications, 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 2021, and no other water lettuce was observed.

In 2022 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 2023 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 sucker 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 sucker (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 declining numbers of native species and 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 goal of this group is to discuss issues pertaining to the Santa Ana sucker in Haines Canyon Creek and brainstorm on 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 which 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 data presented in this section of the annual report summarize the results of the exotic wildlife removal efforts conducted in 2022.

6.1 EXOTIC WILDLIFE ERADICATION 2022

6.1.1 Methods

The 2022 removal of exotic aquatic species from the Mitigation Area was conducted monthly by Chambers Group from January through March and August through October 2022, under the direction of Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1). Each effort consisted of one to two days each month. Safety precautions and COVID-19 precautions including social distancing, gear sanitation, and hand washing were discussed prior to the start of removal activities for each removal effort. During nesting bird breeding season, least Bell's vireo surveys were conducted prior to any exotic removal activities that occurred near the least Bell's vireo territories identified in 2020 to help ensure that no least Bell's vireos were within 500 feet of the proposed work area prior to beginning work. 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 several largemouth bass and common carp (*Cyprinus carpio*), two green sunfish, and one goldfish (*Carassius auratus*) from the Tujunga Ponds. Due to continued drought conditions and extremely low water levels, no removal efforts occurred in Haines Canyon Creek in 2022 aside from the hand capture of five red swamp crayfish during repairs to the fish exclusionary screens in August. Trapping and electrofishing removal methods were not used during wildlife removal efforts in 2022. 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.

Exotic wildlife species removal did not occur in Haines Canyon Creek in 2022; however, in a typical year 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 juvenile individuals. After July 31, when Santa Ana sucker are absent within a reach, the less invasive seining and dip-netting removal methods may be used. Removal efforts have been extremely limited in Haines Canyon Creek over the last two seasons due to severe drought conditions and several portions of the creek having dried up at the surface; however, Chambers Group biologists removed rock dams and other debris from Haines Canyon Creek as encountered. All wetted portions of the Mitigation Area were monitored and/or surveyed to locate and remove exotic wildlife during 2022 (Figure 6-1).

6.1.2 Results and Discussion

A total of 29,393 individuals consisting of 7 exotic aquatic species (5 fishes, 1 amphibian, and 1 invertebrate) were captured and removed from the Mitigation Area during the 2022 removal efforts. Of the total individuals captured and removed, 92.19 percent (number of individuals [n]=27,096) were red swamp crawfish, 5.95 percent (n=1,749) were western mosquitofish, and 1.66 percent (n=489) were largemouth bass. American bullfrog (n=34), green sunfish (n=17), common carp (n=7), goldfish (*Carassius auratus*; n=1), accounted for less than 1 percent of the total individuals captured and removed. Except for the five red swap crayfish that were captured and removed from Haines Canyon Creek during repairs to the fish exclusionary screens, all the exotic species removed were captured in the Tujunga Ponds (East

Tujunga Pond n=14,325, West Tujunga Pond n=15,063). Table 6-1 shows the number of exotic aquatic species captured by month and the total number of exotic aquatic species captured during 2022.

Figure 6-1. Exotic Aquatic Wildlife Survey Locations

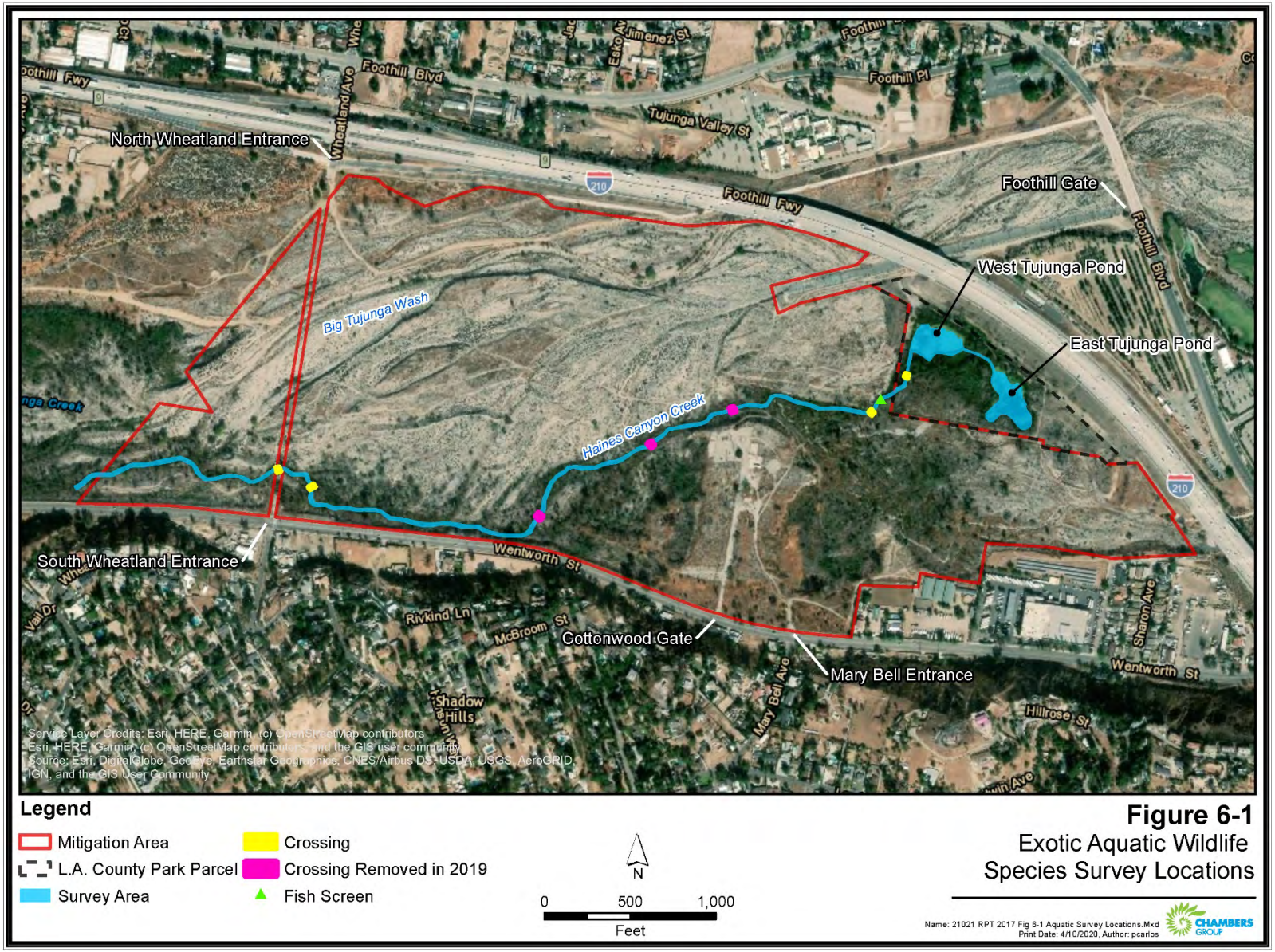


Table 6-1. Exotic Aquatic Species Captured by Month 2022

Species Captured	Jan	Feb	Mar	Aug	Sep	Oct	Total
American bullfrog	0	0	1	26	6	1	34
common carp	0	1	6	0	0	0	7
goldfish	0	0	1	0	0	0	1
green sunfish	0	0	0	15	1	1	17
largemouth bass	1	5	12	439	11	21	489
red swamp crayfish	0	0	0	14,022	8,014	5,060	27,069
western mosquitofish	3	0	0	511	570	665	1,749
TOTAL	4	6	20	15,013	8,602	5,748	29,393

During the January effort, the Tujunga Ponds were crowded with hornwort plants (*Ceratophyllum demersum*) that created visibility issues for spearfishing. Due to visibility issues caused by the dense aquatic plants, spearfishing only yielded one largemouth bass from the West Tujunga Pond. Seines were not effective due to adult fish occupying deeper areas of the ponds and smaller fish hiding in the reeds that surround the ponds. Water temperatures were cold which slows fish metabolism, and as such, fish were not actively foraging or swimming around which typically facilitates easier capture.

During the February effort, the Tujunga Ponds were largely clear of algae which created good visibility for spearfishing but made seine fishing more difficult. Spearfishing efforts yielded the removal of four large, adult largemouth bass and one large adult common carp from the West Tujunga Pond. One of the four largemouth bass removed from the West Tujunga Pond and the single largemouth bass removed from the East Tujunga Pond were gravid females. A typical adult female largemouth bass can lay an average of 4,000 eggs per pound of body weight in a single spawn, and thus, capturing gravid females is critical to decreasing the largemouth bass population at the Mitigation Area. Seining efforts were not effective in February due to adult fish occupying deeper areas of the ponds and the younger, smaller fish sheltering in the reeds.

During the March effort, the Tujunga Ponds were relatively free of aquatic vegetation (e.g., algae and hornwort plants) resulting in clear conditions for spearfishing. The clear visibility may also have resulted in the failure to capture any exotic species using seine nets. Chambers Group biologists observed that adult fish tended to stay in deeper areas of the Tujunga Ponds and the younger fish remained hidden and protected under the cover of reeds along the edges of the ponds. During March, 12 adult largemouth bass (3 of which were gravid), 5 common carp (3 of which were gravid), and 1 goldfish were removed from the Tujunga Ponds during spearfishing efforts. Like largemouth bass, common carp are very prolific (can produce up to 300,000 eggs in a breeding season on average) and removing gravid females from the population before they produce young contributes greatly to eradication efforts.

During the August effort, the West Tujunga Pond was mostly free of aquatic vegetation resulting in clear conditions for spearfishing. Only one seine pull was conducted in the West Tujunga Pond due to steep banks making it difficult to create a solid purse in which to trap fish. The East Tujunga Pond was full of aquatic vegetation making spearfishing difficult due to low visibility. A fish trap made from a plastic gas can and a weight was found in the West Tujunga Pond during the effort and was removed by the biologists. On August 10, two biologists fixed and replaced the exclusionary screens that keep the nonnative fish out of Haines Canyon Creek. Biologists then walked the creek from west to east removing rock dams that had been built by site users to create pools. Five adult red swamp crayfish were incidentally captured and

removed while walking the creek. On August 3, the exotic aquatic species captured and removed during spearfishing efforts at the West Tujunga Pond included nine adult largemouth bass.

During the September effort, the West Tujunga Pond was mostly free of aquatic vegetation resulting in clear conditions for spearfishing. Again, no seine pulls were conducted in the West Tujunga Pond due to steep banks making it difficult to create a solid purse in which to trap fish. The East Tujunga Pond was still full of aquatic vegetation (dense algae) making spearfishing difficult due to low visibility. The exotic aquatic species captured and removed during September spearfishing efforts at the West Tujunga Pond included nine adult largemouth bass and one adult green sunfish.

During the October effort, the aquatic vegetation that had been present in the Ponds during the summer months was beginning to die off resulting in clear conditions for spearfishing in both ponds. During October, seven adult largemouth bass and one adult green sunfish were removed from the pods during spearfishing efforts.

The Tujunga Ponds were inspected for water hyacinth during all exotic wildlife removal efforts in 2022, after being observed (and removed) in May and June of 2021. No water hyacinth was observed in 2022.

Letter reports with photographs documenting each exotic wildlife species removal effort conducted in 2022 can be found in Appendix F.

SECTION 7.0 – WATER QUALITY MONITORING PROGRAM

The water quality monitoring program was 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. Water quality monitoring was not conducted in 2022; however, in a typical year water quality sampling is conducted in the fall, and samples are taken from four locations: Sample Station 1 at the inflow to the Tujunga Ponds, Sample Station 2 at the outflow from the Tujunga Ponds, Sample Station 3 in the Big Tujunga Wash (typically dry and not sampled), and Sample Station 4 where Haines Canyon Creek exits the site at the western Mitigation Area boundary. Water samples are taken at mid-depth, along a transect perpendicular to the stream channel alignment. A series of sampling parameters are also collected at each location including, temperature, pH, dissolved oxygen, and turbidity. Sample analyses are performed by qualified water analysis subcontractor(s) who test for the contaminants of primary concern including, total residual chlorine, ammonia-nitrogen, kjeldahl nitrogen, nitrite-nitrogen, nitrate-nitrogen, orthophosphate-P (dissolved phosphorus), total phosphorus-P, glyphosate, chlorpyrifos (and other organophosphorus pesticides), Environmental Protection Agency (EPA) 608 pesticides, (organochlorine pesticides), fecal coliform bacteria, and total coliform bacteria. The results are then compared to baseline water sampling results from the year 2000 when the water quality monitoring program was first established, to identify whether samples are within normal range, and whether national and local water quality criteria are being met.

The Water Quality Monitoring Program is planned to resume in fall 2023.

SECTION 8.0 – TRAILS MONITORING PROGRAM

8.1 TRAILS SYSTEM MAINTENANCE

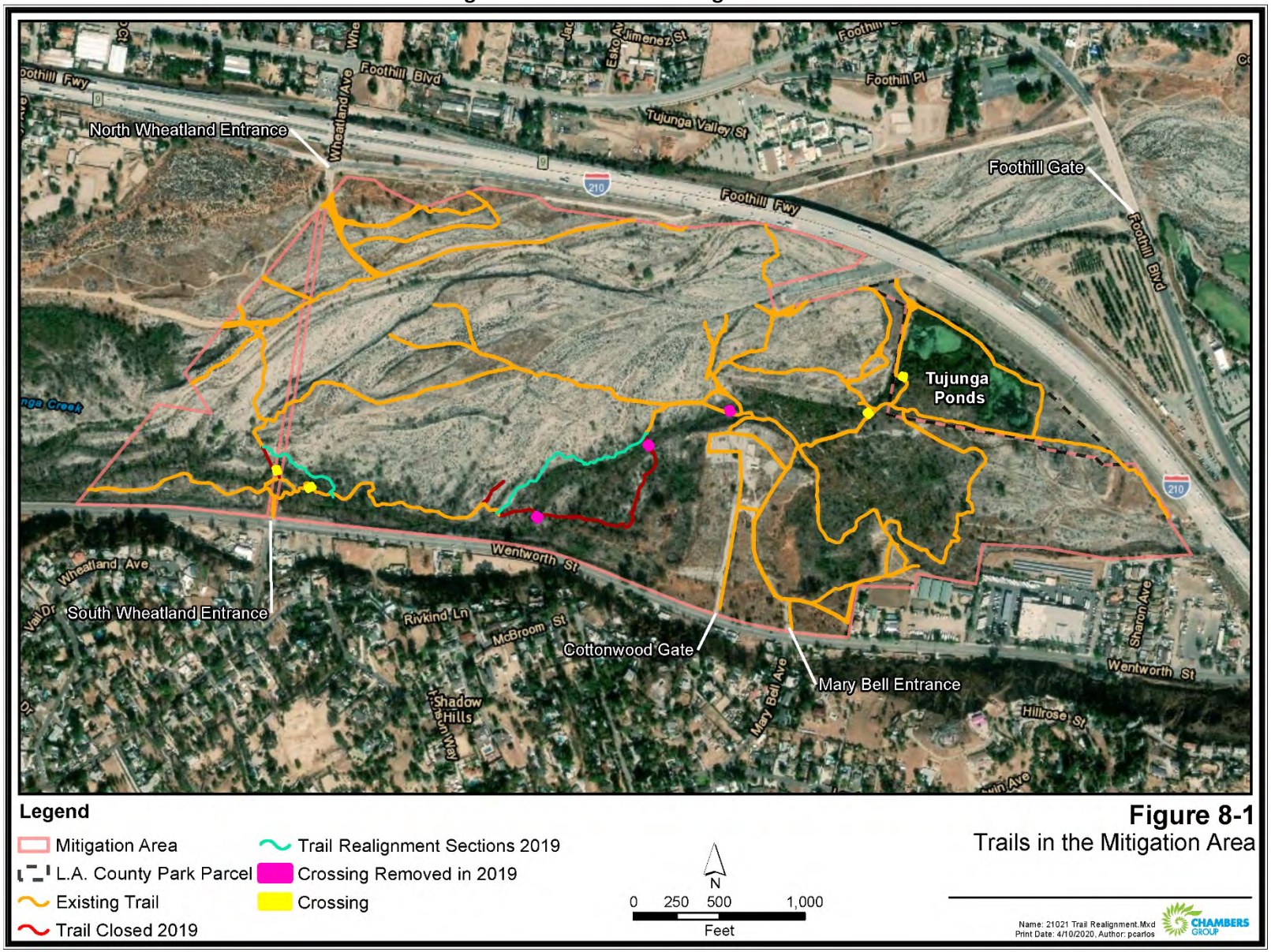
The goal of maintaining a formal trails system at the Mitigation Area is to allow recreational use of the Mitigation Area while still preserving sensitive wildlife and their habitats. The Mitigation Area contains trails for both equestrian use and hiking. Figure 8-1 depicts the current trail alignment 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 2022

Trail maintenance efforts were conducted during three months in 2022. These efforts occurred on January 3 and 4; July 26 through 29; and August 1 through 5, 9 through 11, and 30. 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 Tim Wood, foreman Jay Belmonte, crew lead Maklin Bado 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 throughout 2022. 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 included in each effort. 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 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. Debris obstructions such as downed trees that blocked portions of trails were cut with chainsaws and dragged clear of the trail.

During the 2022 maintenance efforts, the restoration specialists and biologists assessed trail conditions and identified locations that needed maintenance. Examples of maintenance issues identified and addressed in 2022 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, trail monitoring and maintenance efforts were conducted after rain events washed away many areas of the trail, leaving large rocks and debris within the trails that made navigation difficult. Trail maintenance was focused on the trails in the western and eastern riparian areas. The crew walked the trails and any rocks or debris encountered were raked and cleared to restore trail composition and provide a suitable path for recreational users.

In July, trail monitoring and maintenance efforts were conducted along trails in the eastern riparian area and portions of the trail network surrounding the Tujunga Ponds. Crew members used motorized line trimmers and vegetation hedging equipment to aggressively cut back exotic weed species and carefully reduced portions of native plant species that had overgrown the trail boundaries.

In August, crew members continued trail monitoring and maintenance activities in the transitional areas between the eastern, central, and western riparian areas and dryer areas of the site including Haines Canyon Wash, the upland bluff north of the Cottonwood Avenue entrance, and western portions of the Big Tujunga Wash. Crew members used hand tools to selectively prune native trees away from the trail boundaries and encourage continued growth in more sustainable directions. In addition, crew members selectively pruned the lower branches of native tree species to redirect their growth above or away from the trail boundaries where they could be damaged by foot traffic or could cause safety hazards for site visitors. Several areas with fallen snag debris were also encountered, showing evidence of the continued decomposition of snag trees in the wake of the 2017 Creek Fire. All snag material was reduced, removed from the trails, and was used to delineate trail boundaries to help prevent off-trail deviations.

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.

These efforts were summarized in letter reports following each of the trail maintenance efforts and are included as Appendix G.

8.2 ENCAMPMENT CLEANUP MONITORING

On August 23, 2022, Chambers Group biologist Austin Burke met with members of Public Works Stormwater Division to conduct a site walk of the Mitigation Area and scout out and assess several illegal encampments that had been documented during regular trail maintenance efforts. Chambers Group biologists coordinated with Public Works' and conducted pre-activity nesting bird surveys in areas slated for cleanup ahead of the cleanup response. On September 9, Chambers Group biologist Austin Burke monitored the cleanup of all abandoned encampments documented. Four encampments and one trash dump were removed including temporary structures, furniture, and other debris items, and unauthorized trails and makeshift stairways were removed or blocked off as feasible. No special status species were identified by the biologist prior-to or during the cleanup effort.

8.3 CUTTING COLLECTION MONITORING FOR DEVIL'S GATE DAM

On August 24 and 25, 2022, Chambers Group biologist Austin Burke conducted pre-activity surveys and biological monitoring in support of native plant cutting collection efforts for restoration at Devil's Gate Dam. The cutting collection team included approximately nine people including four members of Public Works, three members of Nature's Image, one member from Rancho Santa Ana Botanic Garden, and an additional biological monitor from Stillwater Sciences. The collection team focused on collecting cuttings from mugwort (*Artemisia douglasiana*), mulefat (*Baccharis pilularis*), Fremont cottonwood (*Populus fremontii*), California blackberry (*Rubus ursinus*), blue elderberry (*Sambucus mexicana*), and California wild rose (*Rosa californica*). All cuttings were harvested in accordance with the SAA, and the guidelines set forth in the FMMP, and with authorization from CDFW. The collection process was overseen by individuals knowledgeable and experienced in proper harvesting methods. Cuttings were only taken from native plant populations that met a threshold number of individuals to avoid overharvesting.

On August 25, a least Bell's vireo was heard singing near the south Wheatland Avenue entrance. Collection crews had been working approximately 300 feet from the detection area, and promptly packed up and left the area upon detection. As the cutting collection efforts were complete, no additional work occurred in the detection area. No other special status species or active nests were observed or detected during the effort.

8.4 TRAIL CLEANUP DAY

The 14th Annual Trail Cleanup Day was tentatively planned to occur in fall 2022; however, due to unsuitable weather conditions and scheduling conflicts the cleanup day was postponed until January 21, 2023. Chambers Group worked with Public Works to modify the flyers that provided the information for the 14th 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, 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. Four biologists from Chambers Group attended the event to monitor that sensitive resources were not negatively affected by the activities.

Trash removal efforts were focused along Haines Canyon Creek and trails throughout the Mitigation 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. 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 taken during the cleanup day is included in Figure 8-3.

Figure 8-2. Trail Cleanup Day Flyer 2022

Join us for the 14th annual

Big Tujunga Wash Mitigation Area

TRAIL CLEANUP DAY

January 21, 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) 458-6327 or e-mail btwma@pw.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 2022

Group photo of Public Works and Chambers Group volunteers with some of the debris items collected during the 14th Annual Cleanup Day on January 21, 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 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 2022. All deliverables were submitted to Public Works electronically for posting on the Public Works web page (http://pw.lacounty.gov/wrd/Projects/BTWMA).

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 H.

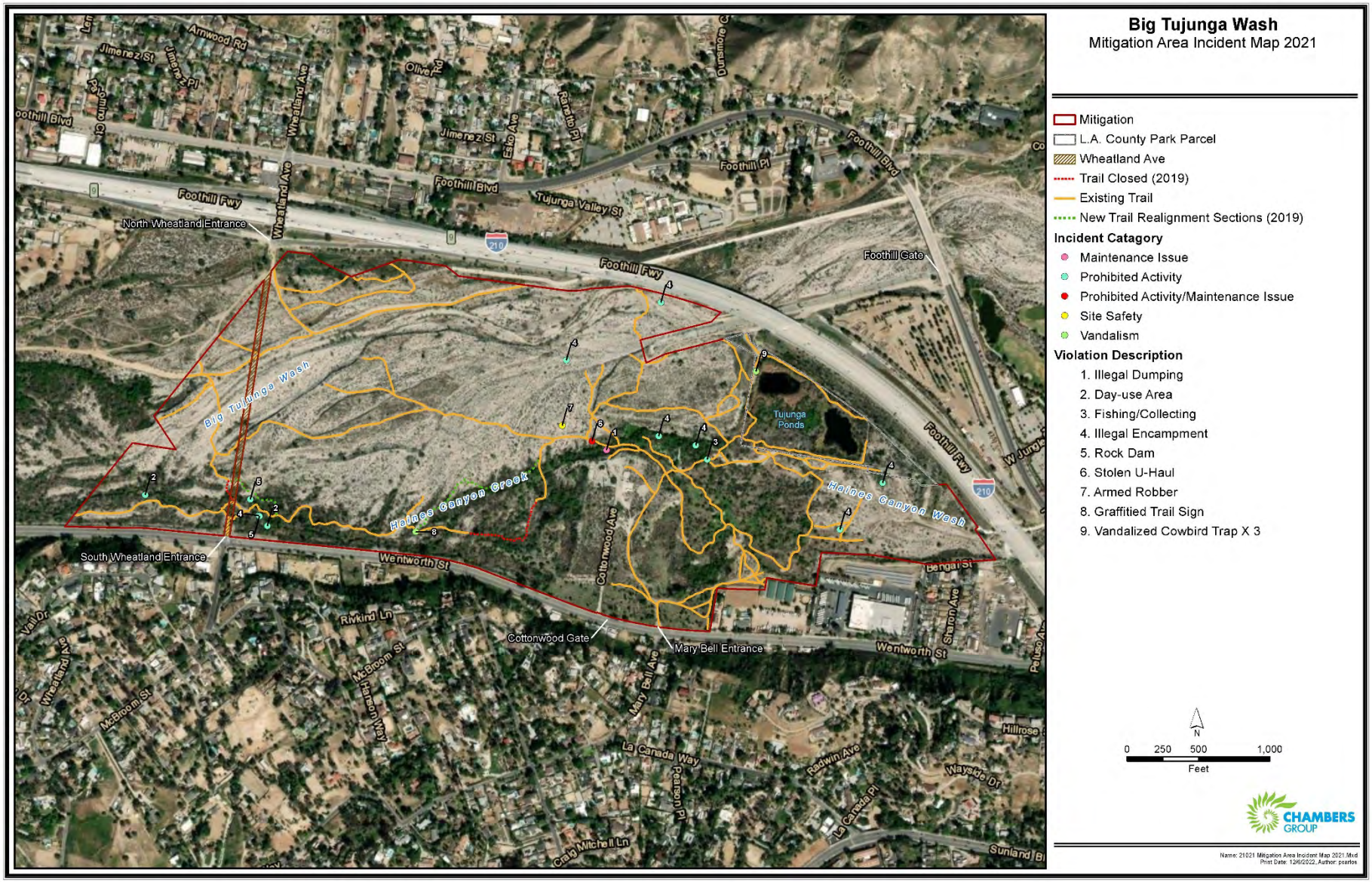
9.1 NEWSLETTERS

Chambers Group drafted one newsletter during 2022. The fall edition was distributed to the public on January 3, 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. A copy of the 2022 Fall Newsletter is included in Appendix I.

9.2 CAC MEETING

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, presentations, and other meeting support tasks. Though the CAC meeting did not occur in 2022, Chambers Group continued to document the location and nature of all observed incidents that occurred within the Mitigation Area and prepared a map of incidents that were documented in 2021.The map included locations of rock dams, prohibited activities observed, vandalism, and public safety concerns and is included as Figure 9-1.

Figure 9-1. Big Tujunga Wash Mitigation Area Incident Map 2021



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 continued through 2021. This program was not conducted in 2022 but will continue in summer of 2023 due to its past success. 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 new public outreach efforts to educate all types of recreational user groups about the importance of the Mitigation Area as a conservation area as well as 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 updated by Chambers Group in the spring of 2019 in order to highlight current issues and to revise the overall appearance and language in the brochure. The current educational brochure can be found as Appendix B.

Chambers Group helped implement the Public Outreach program between 2017 and 2021 and will continue 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 though 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.

SECTION 11.0 – SPECIAL ASSESSMENTS

Chambers Group staff is 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 required to be conducted by Chambers Group in 2022.

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 general public, and other consultants as a representative of Public Works. 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 repairing the fish exclusionary screens located in Haines Canyon Creek just downstream from the Tujunga Ponds on August 10, 2022.

On August 23, 2022, Chambers Group biologist Austin Burke met onsite with members of Public Works Stormwater Division to scout out and assess several illegal encampments in preparation for Public Works' cleanup response that occurred on September 9, 2022.

SECTION 13.0 – REFERENCES

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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.

APPENDIX B – PUBLIC OUTREACH AND WORKER 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.

¡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

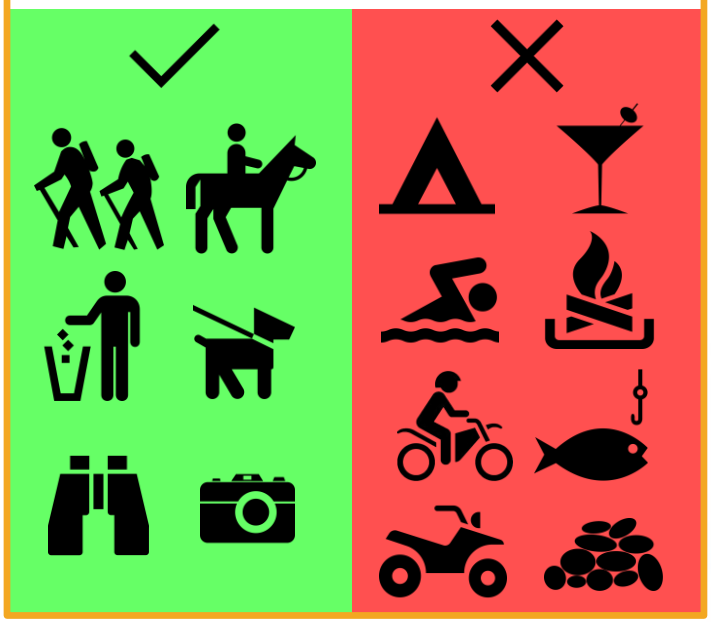
Regulations/Reglas

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.

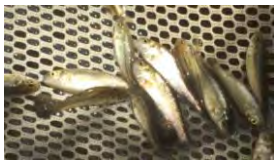
Estos cambios pueden causar que un hábitat tan importante desaparezca. Cuando esto sucede los animales y las plantas también pueden desaparecer.

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.

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 farinosa	brittlebush
*Erigeron bonariensis**	flax-leaved horseweed
Erigeron canadensis	horseweed
Gutierrezia californica	California matchweed
Helianthus annuus	common sunflower

Scientific Name	Common Name
Heterotheca grandiflora	telegraph weed
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**

Scientific Name	Common Name
Cylindropuntia bernardina	cane cholla
Cylindropuntia sp.	cholla
Opuntia littoralis	coastal prickly pear
CARYOPHYLLACEAE	**PINK FAMILY**
*Stellaria media**	common chickweed
CHENOPODIACEAE	**GOOSEFOOT FAMILY**
*Chenopodium album**	lamb's quarters
Chenopodium sp.	goosefoot
Salsola sp.*	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

Scientific Name	Common Name
GROSSULARIACEAE	**GOOSEBERRY FAMILY**
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

Scientific Name	Common Name
Eulobus californicus	California evening primrose
Oenothera elata	evening primrose
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

Scientific Name	Common Name
Salix lasiolepis	arroyo willow
SAPINDACEAE	**SOAPBERRY FAMILY**
Acer negundo	boxelder
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

Scientific Name	Common Name
Cyperus odoratus	fragrant flatsedge
Cyperus sp.	sedge
POACEAE	**GRASS FAMILY**
*Agrostis stolonifera**	redtop
*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	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
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

Scientific Name	Common Name
CLASS AMPHIBIA	**AMPHIBIANS**
BUFONIDAE	**TRUE TOADS**
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, SIDE-BLOTCHED, AND HORNED LIZARDS**
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
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

Scientific Name	Common Name
Aythya collaris	ring-necked duck
Aythya valisineria	canvasback
Branta canadensis	Canada goose
Bucephala albeola	bufflehead
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
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
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**

Scientific Name	Common Name
Megaceryle alcyon	belted kingfisher
PICIDAE	**WOODPECKERS**
Colaptes auratus	northern flicker
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
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
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**

Scientific Name	Common Name
Polioptila caerulea	blue-gray gnatcatcher
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**
Chondestes grammacus	lark sparrow
Junco hyemalis	dark-eyed junco

Scientific Name	Common Name
Melospiza lincolnii	Lincoln's sparrow
Melospiza melodia	song sparrow
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
EQUIDAE	**HORSES AND BURROS**
Equus caballus	horse

APPENDIX D – BROWN-HEADED COWBIRD TRAPPING REPORT

2022 BIG TUJUNGA WASH MITIGATION AREA

BROWN-HEADED COWBIRD CONTROL PROGRAM

Trap 4 at Stables

GRIFFITH WILDLIFE BIOLOGY

2022 BIG TUJUNGA WASH MITIGATION AREA

BROWN-HEADED COWBIRD CONTROL PROGRAM

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EXECUTIVE SUMMARY

Four cowbird traps were operated in the vicinity of the Big Tujunga Wash Mitigation Area (Mitigation Area) near Hansen Dam in 2022. 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 sensitive host species including the least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), and California gnatcatcher (*Polioptila californica californica*). The traps were operated from 31 March to 30 June (92 days, 13 weeks). Each trap contained live decoy cowbirds by 5 April, and 2-3 males and 5-6 female decoys as 16 April and subsequently.

Thirty (30) cowbirds were removed, including 8 males, 19 females, and 3 juveniles. The 2001-2017; 2019-2022 average is 98.6, including 46.5 males (r=8-103), 49.0 females (r=11-111), and 3.1 juveniles (r=0-18). The 2022 captures were lower than in recent years, with the higher 2017, 2019, 2020, and 2021 captures nearly identical (54, 55, 55, and 54 captures, respectively).

The 2022 male:female capture ratio was 0.42:1. The male capture peak was Weeks 2-6 (8 April to 12 May) with most males (over 90%) removed, and the female capture peak was also Weeks 2-6 (7 April to 12 May) when 19/19females (100%) were removed. No banded cowbirds or other banded birds were captured. The traps were vandalized 1 time in 2022; 3 male decoys escaped in one instance (2 of the males were re-captured the next week), and no trap days were lost. In addition to cowbirds, local birds of 4 non-target species were captured, released, and recaptured a total of 49 times; all were released unharmed (0 preyed upon; 0%). No sensitive or endangered, threatened, or candidate non-target species were captured.

The least Bell's vireo (LBVI) 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 LBVI populations exist where cowbird trapping has been consistently performed. Topical trapping (multiple traps placed about 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 ½ mile or more from a trap is "untrapped"), annual topical trapping has a negligible effect on the regional cowbird population; about 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 vireo breeding habitat), topical trapping will be required indefinitely.

In 2021-2022 Trap 2 was placed adjacent to several 2020 LBVI nesting territories so as to preclude cowbird parasitism in this area. In 2021 no LBVI nesting was confirmed in the area; one or more territorial LBVI males were observed in the peak breeding season.

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

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INTRODUCTION

The objective of this study was to remove brown-headed cowbirds (*Molothrus ater*, 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 (*Vireo bellii pusillus*, LBVI) and southwestern willow flycatcher (*Empidonax traillii extimus*), 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 2001-2006, 2009-2017 and 2019-2021 (trapping was not performed in 2018 due to the Creek Fire that burned through the Mitigation Area in 2017).

Least Bell's Vireo

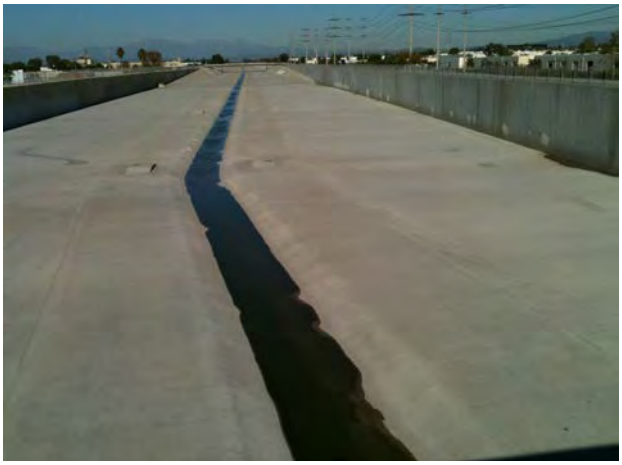
The least Bell's vireo (LBVI) is a small gray and white migratory songbird that winters in the Cape District of Baja California Sur, Mexico and nests in willow-dominated riparian (streamside) habitat in northwestern Baja California, Mexico and Southern California. LBVI arrive in breeding habitat in mid 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 4 days. The typical clutch of 3-4 eggs is incubated for 14 days; the young fledge 12 days after hatching. Double brooding (re-nesting after fledging young) is not uncommon. LBVI are quite fecund (90% of pairs produce 4-8 young per year); they are not endangered due to low reproduction ability. Multiple nesting attempts (up to 7) after nest failure are common. Very few nests are initiated after June. Young LBVI can forage on their own after 2-3 weeks, although family groups may remain associated into August or September, after which they migrate south (Griffith and Griffith 2000).

The least Bell's vireo was formerly abundant and bred as far north as Red Bluff in Tehama County (about 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 1940's 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% 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 least Bell's vireo 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 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 or not 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 (*Bacharis 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, least Bell's vireo-quality riparian habitat available. Habitat loss caused the initial decline of this vireo, 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 the vireo in the Central Valley and Central Coast, the center of the LBVI's historic range (USFWS 1998); it won't happen without cowbird trapping.

Vireo nestlings 3 days after hatching

12 day-old vireo chicks ready to fledge.

Southwestern Willow Flycatcher

The southwestern willow flycatcher (SWFL) was listed as endangered by the USFWS in February 1995 for reasons similar to those cited for the least Bell's vireo: 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 21 June, 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 1-2 months "behind" the LBVI. Southwestern willow flycatchers 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 Dept. of Natural Resources)

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 least Bell's vireo and southwestern willow flycatcher.

yellow-breasted chat nest

yellow-breasted chat nestlings

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 40-60 eggs each spring (Scott and Ankney 1983, Holford and Roby 1993, Smith and

Arces 1994). Like many birds, cowbirds lay 3-5 egg clutches, but each year they lay 10-15 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 re-nesting 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). *This lack of host specificity allows the extirpation or extinction of rare species (like the vireo) without harm to the cowbird.*

Brown-headed cowbirds (males dark, females light).

Two cowbird eggs in a least Bell's vireo 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 nest-mates; 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 vireo, flycatcher, and California gnatcatcher (*Polioptila californica californica*) 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 re-nests in 2-14 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 California gnatcatcher nest.

Cowbird chick and smothered/starved gnatcatcher chick.

Cowbird Trapping

The recipe for least Bell's vireo recovery is simple: habitat protection (including land acquisition, exclusion of motorized vehicles and domestic/feral animals, and removal of invasive plants such as *Arundo donax* and *Tamarisk* spp.) 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 about 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 1 April – 30 June although non-breeding season trapping can also be helpful).

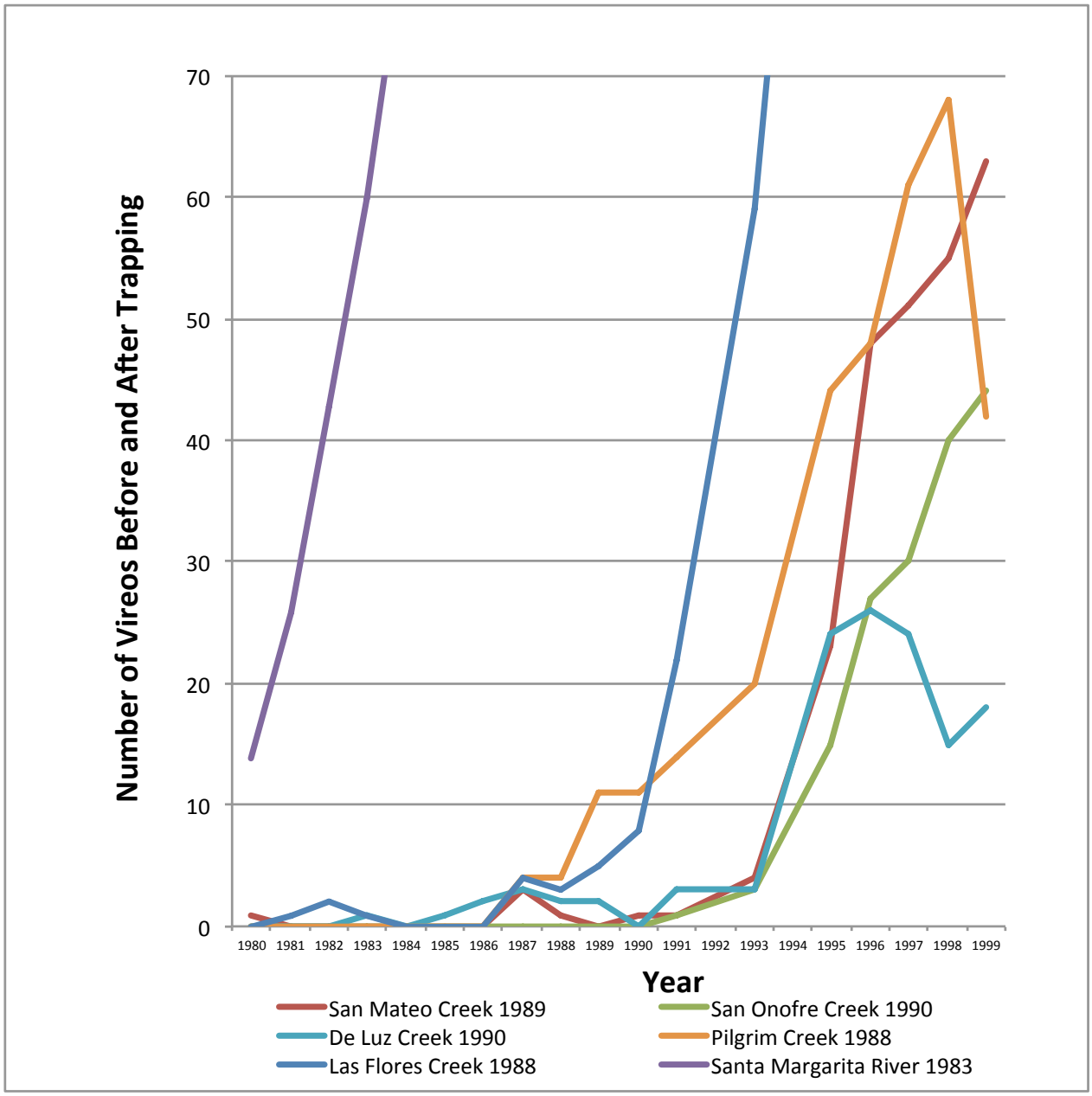
Topical trapping reduces parasitism rates among the LBVI from pre-trapping levels of 50%-100% to at or near 0%, and unlike LBVI nest monitoring and cowbird egg removal, trapping benefits the entire avian host community. For LBVIs, cowbird trapping increases per-pair productivity from ~1.3 young per pair to ~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, and 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 1980-1999 data from Marine Corps Base Camp Pendleton, 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 about one trap per mile eliminates parasitism and fewer traps does not (e.g., the effective range of each trap is about ½ mile 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 vireo population is large and growing (e.g. the Santa Margarita River). Conversely, with trapping, vireos 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 vireo habitat) (Griffith and Griffith 2000). From 1980-1999, all suitable vireo habitat on 6 separate drainages was surveyed, and the number, location, and fate of every vireo and nearly all LBVI nests was recorded (by Jane and John Griffith, 1987-1999). 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 about ½ mile (leading to the "about 1 trap per mile long the river/ topical trapping" rule) and 2) vireos simply do not and will not recover or expand into vacant habitat unless topical cowbird trapping is performed.


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
San Onofre Creek 1990
De Luz Creek 1990
Pilgrim Creek 1988
Las Flores 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. Since 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 2 are present; female cowbirds are more likely to enter traps containing more females than males (GWB 1992). Therefore, at least 2 male and 3 female decoy cowbirds are utilized in each trap, and often 3m/5-6f if available; the small flock attracts more cowbirds and also 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 trapping programs is to achieve 0% non-target species mortality. Rates below 2% (due to unavoidable intraspecific competition within the traps, and predation) are acceptable; rates above 2% are usually indicative of unacceptable trap conditions and poorly managed programs (GWB 1992).

Cowbird Trapping at Big Tujunga

The cowbird control project at the Mitigation Area was initiated in 2001 and performed in 2001-2006, 2009-2017, and 2019-2021 (not performed in 2018 due to lack of vegetation and sensitive riparian bird nesting habitats). Its purpose is to enhance reproductive success among the least Bell's vireo 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 (2 traps) in 1996, 1997, and 2001-2022 (GWB 2022), and upstream of Interstate 210 at Angeles National Golf Course (3 traps) in 2008-2022 (GWB 2022a).

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 least Bell's vireo and southwestern willow flycatcher. Some coastal sage scrub of the type preferred by the coastal California gnatcatcher is found in the wash and surrounding hills.

A stable population of least Bell's vireo is found immediately downstream within the Hansen Dam Basin. In 2009 (the last known 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 2019-2022 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, pers. commun.) (Appendix 2).

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

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 (Figure 2-4). 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 31 March, then operated until 30 June (92 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: 1 floor, 2 side, 2 end (door and back), and 2 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 ½ 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 one-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 (in 2020, Covid-19 precluded the capture of live decoys at some of GWB's historic off site locations, so not all traps contained the live decoys on April 1).

Each trap contained live decoy cowbirds by 5 April, and 2-3 males and 5-6 female decoys as of 16 April 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 wing.

Clipped wing.

The traps were serviced daily from 1 April to 30 June. 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 30 June.

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 758175-13 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 Technicians were M. Birney, L. Bergeron, and K.T. Griffith.

RESULTS

Cowbirds Removed Thirty (30) cowbirds were removed, including 8 males, 19 females, and 3 juveniles (Table 1, Table 2). The 2001-2017, 2019-2022 average is 98.6, including 46.5 males (r=8-103), 49.0 females (r=11-111), and 3.1 juveniles (r=0-18). The 2022 male: female capture ratio was 0.42:1.

The first adult cowbird was captured on 6 April in Trap 3 (1 female); the first juvenile was captured on 10 June in Trap 1 (1 juvenile) The male capture peak was Weeks 2-6 (8 April to 12 May) with most males (over 90 %) removed (this doesn't account for June vandalism male releases and re-captures), and the female capture peak was also Weeks 2-6 (7 April to 12 May) when 19/19 females (100%) were removed. No banded cowbirds or other banded birds were captured.

Non-Target Species In addition to cowbirds, local birds of 4 non-target species were captured, released, and recaptured a total of 49 times; all were released unharmed (0 preyed upon; 0%) (Table 3). 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.

Trap Site Performance. All trap sites but Trap 2 performed well. Trap 3 removed the most total cowbirds: 20 (5 males, 13 females, 2 juveniles). Trap 2 removed no females in 2022 (after removing 1 in 2021), however Trap 2 should still be operated, being adjacent to the area that had 3 cases of cowbird parasitism on LBVI nests in 2020 (1 cowbird female may lay 40-60 eggs, so may impact up to 60 nests).

Vandalism The traps were vandalized 1 time in 2022; 3 male decoys escaped from Trap 2 after vandalism on the slot board on 17 June (2 of the males were re-captured in the next week at Traps 2 and 3), and no trap days were lost, as the traps were repaired immediately.

Trap Days The traps were operational for 368 (4 traps x 92 days) of the 364 (4 traps x 91 days) contracted trap days (100.1%).

Least Bell's Vireo Chambers Group observed one - two territorial LBVI males throughout the peak nesting season at the 2020 LBVI nesting area at Tujunga Ponds, and confirmed at least 3 nests, but did not confirm any nests in 2021 (J. Mayfield, pers. commun.). 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, pers. commun.).

Trap 2 was placed adjacent to the Tujunga Ponds for the second year, but in 2022 did not have any net captures (-1M due to vandalism, 0 females, 0 juveniles). The next nearest traps were Trap 3, which removed 13 females, and Trap 4, which removed 1 female.
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DISCUSSION AND CONCLUSIONS

The number of cowbirds removed from each trap site and each program varies year-to-year, sometimes independently. The 2022 capture numbers were on the low side, after almost almost identical capture numbers in 2017, 2019, 2020, and 2021 (54 – 55 annual total in those years). It is unknown if the annual capture numbers will rebound to back near the 2001-2017 average of 53.0 males (r=9-103), 55.4 females (r=11-111), and 3.6 juveniles (r=0-18), or at least rebound to the 54-55 total that has been typical since 2017.

Even in this below-average year, the removal of 19 cowbird females precluded up to 760-1,140 parasitism events (40-60 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 40-60 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. 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, ¼ mle 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 only 3 juvenile cowbirds were captured in 2022, indicates that not many cowbirds were raised in the area in 2022. 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 Big Tujunga Wash topical cowbird trapping program will be required indefinitely to control local brood parasitism and allow native birds to reproduce naturally.

MANAGEMENT RECOMMENDATIONS

1. No changes in the number of traps (4), 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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Figure 1. 2022 Big Tujunga Wash Mitigation Area brown-headed cowbird control project study area.

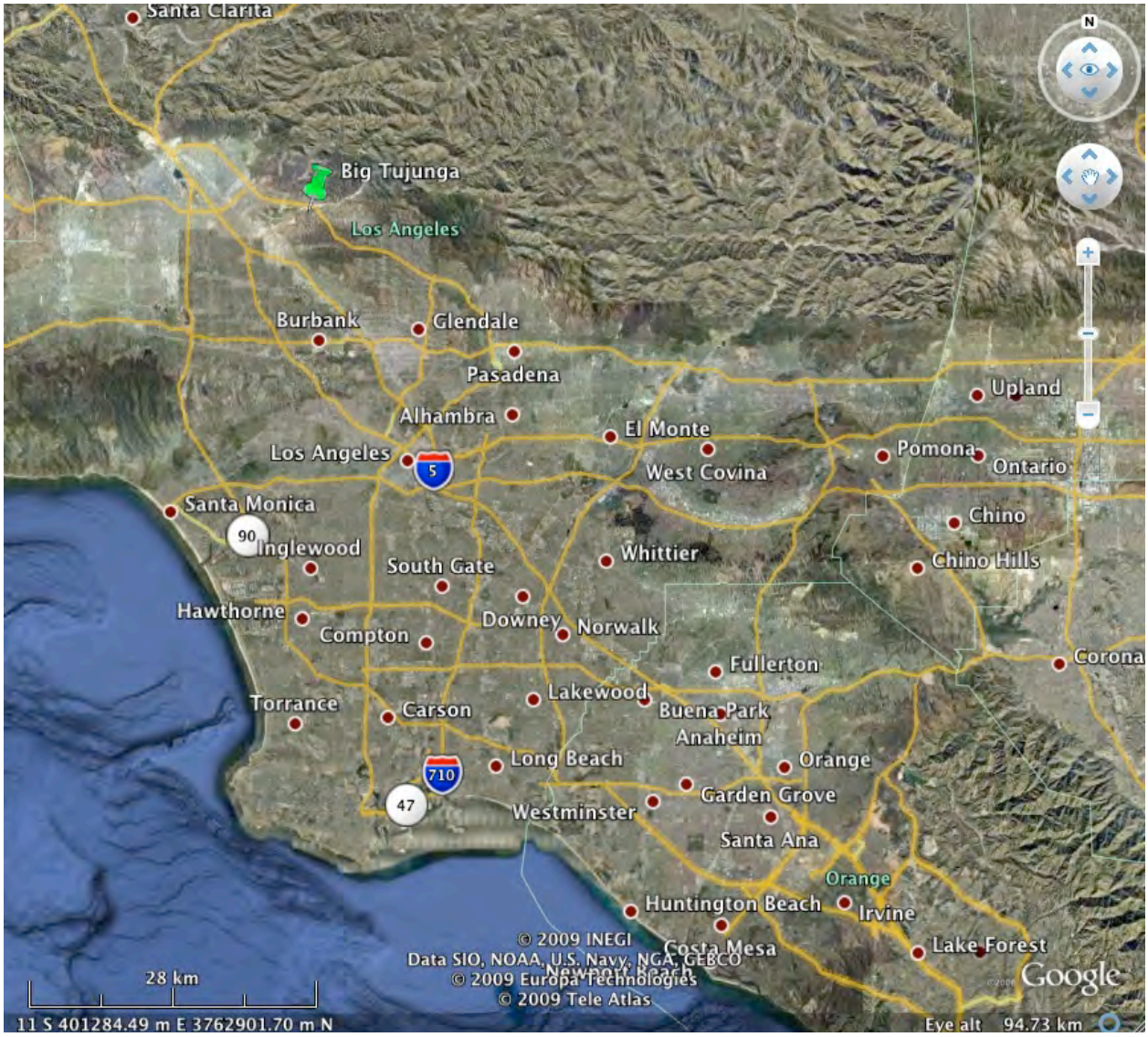


Figure 2. 2022 Big Tujunga Wash Mitigation Area brown-headed cowbird trap locations.

Figure 3. 2022 Big Tujunga Wash Mitigation Area brown-headed cowbird Traps 1 and 2 photos.

Trap 1

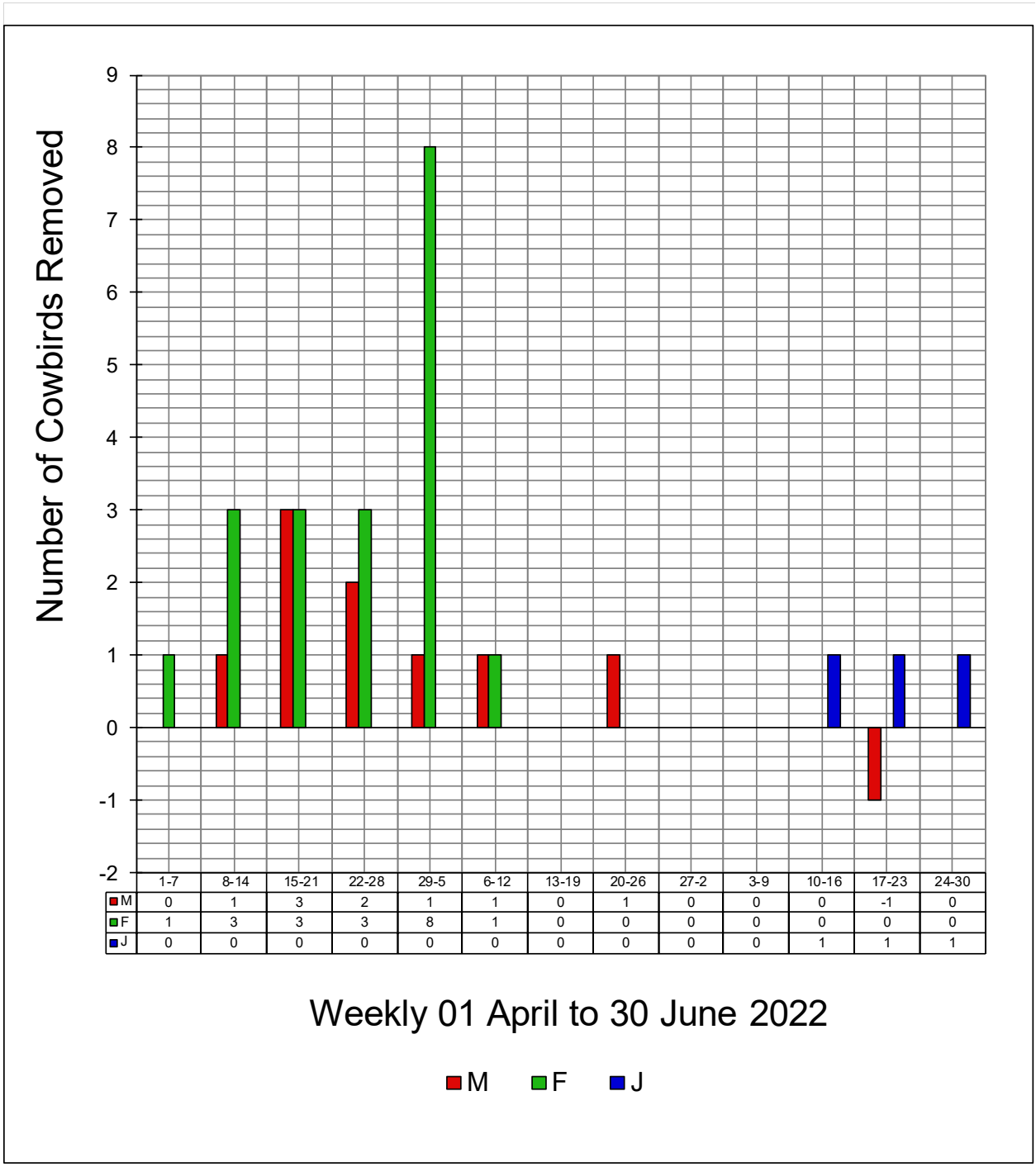
Trap 2

Figure 4. 2022 Big Tujunga Wash 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 Big Tujunga Wash Mitigation Area in 2022.



	1-7	8-14	15-21	22-28	29-5	6-12	13-19	20-26	27-2	3-9	10-16	17-23	24-30
M	0	1	3	2	1	1	0	1	0	0	0	-1	0
F	1	3	3	3	8	1	0	0	0	0	0	0	0
J	0	0	0	0	0	0	0	0	0	0	1	1	1

Table 1. Number of brown-headed cowbirds captured at and in the vicinity of Big Tujunga Wash Mitigation Area, 2001-2017; 2019-2022.

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
TOTAL	91	19	884	931	59	1874	20.59	0.95
AVG	4.8		46.5	49.0	3.1	98.6		

2001-2005: Chambers Group, Inc. 2005
2006-2017; 2019-2021 Griffith Wildlife Biology (GWB) 2021
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 Big Tujunga Wash Mitigation Area in 2022.

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

Table 3. Number of non-target species captured & released (C&R) or preyed upon (PU) in cowbird traps at and in the vicinity of Big Tujunga Wash Mitigation Area in 2022.

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			5		2		1							
RWBL									1					
HOFI													3	
HOSP			2		2		3		1		6		7	
TOTAL	0	0	7	0	4	0	4	0	2	0	6	0	10	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		2		**11**	**0**
RWBL													**1**	**0**
HOFI	2												**5**	**0**
HOSP	4		4		2				1				**32**	**0**
TOTAL	6	0	4	0	2	0	0	0	2	0	2	0	**49**	**0**

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

Appendix 1. Warning/informational sign placed on cowbird traps at Big Tujunga Wash Mitigation Area in 2022.

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

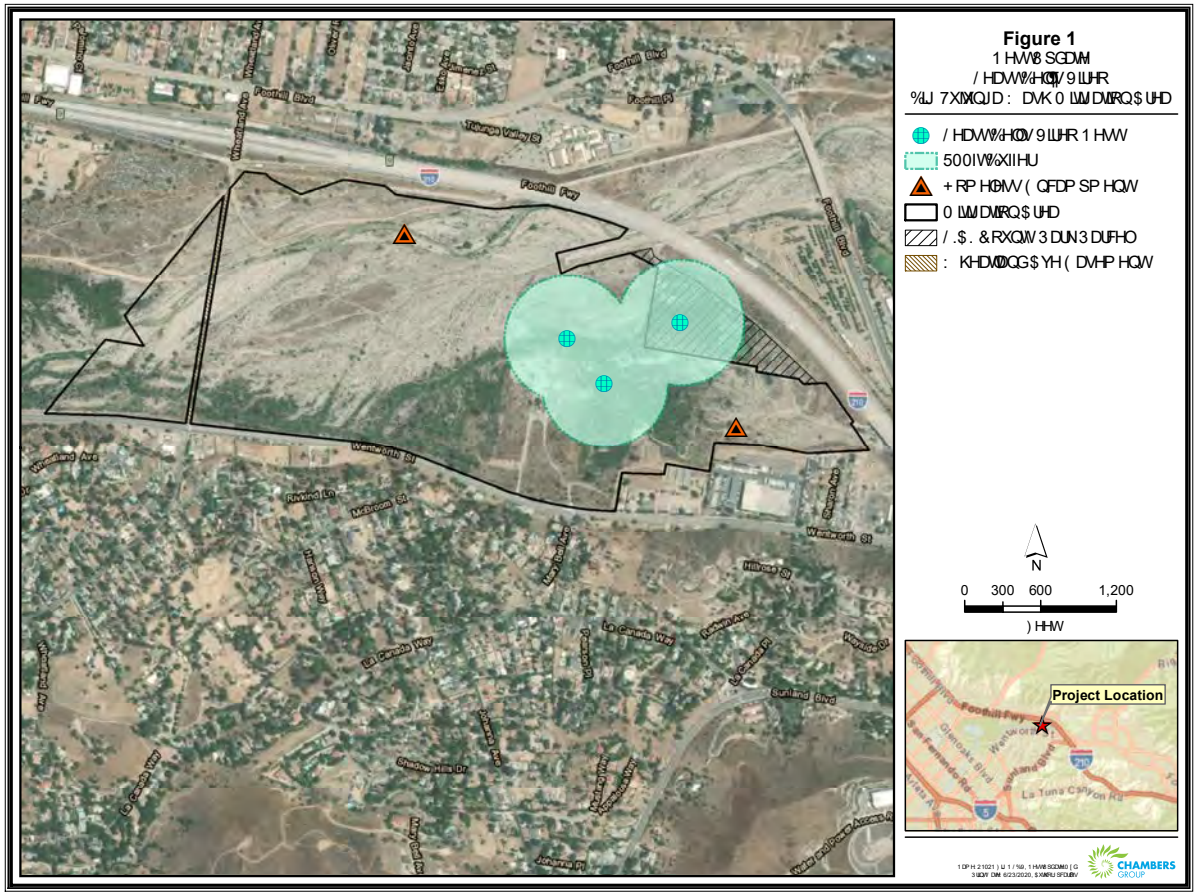
2 cowbird eggs in songbird nest.

Cowbird chick, smothered songbird chick.

Songbird adult feeding cowbird chick.

GRIFFITH WILDLIFE BIOLOGY

Appendix 2. Least Bell's vireo nesting areas at Big Tujunga Wash Mitigation Area in 2020, from Chambers Group, Inc.



APPENDIX E – EXOTIC PLANT REMOVAL LETTER REPORTS AND CDFW NOTIFICATION

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

California Department of Fish and Wildlife

February 23, 2022

David T. Lin, Senior Environmental Scientist
California Department of Fish and Wildlife
4665 Lampson Ave. 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 in February 2022. Nesting raptor surveys will begin February 24, 2022, to identify any active raptor nests that may require an avoidance buffer prior to the start of maintenance activities. Biologists will also conduct a pre-activity survey for 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 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 least Bell's vireo nests are discovered, signs will be posted along authorized trails at the edges of established avoidance buffers 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 trail issues observed will be addressed during scheduled trail maintenance which is planned to begin in March. 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 14, 2022

Julianna Colwell
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

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

Dear Ms. Colwell,

This memorandum summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) during January 2022. This memo 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 January exotic plant eradication effort 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. Prior to the start of exotic species 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. These meetings included instructions on COVID-19 precautions such as social distancing, gear sanitation, and hand washing. The meetings were conducted by biologists Alisa Muniz, Jessica Calvillo, Corey Jacobs, and/or Mauricio Gomez. Following the pre-activity sweeps and instructional tailgate meetings, exotic plant removal efforts were led by foreman Tim Wood, foreman Jay Belmonte, and/or crew lead Maklin Bado.

During January, exotic plant removal efforts were conducted throughout the Big Tujunga Wash, beginning in the northwestern portion of the site and progressing southeast throughout the month. The January removal efforts concluded in the eastern riparian area where removal efforts were focused on areas where raptor nests were previously documented to remove exotic plants in the area before raptors potentially began to nest. Primary target species included non-native annual grasses, mustards (*Brassica* spp.), and annual forbs that were beginning to germinate due to increased rain events and unusually warm weather. Targeting these species early and aggressively disrupts their potential for growth and conserves resources (e.g., water, light) for native species. As resources 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. Secondary targets included non-native, long-lived, and late germinating species such as tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), and tree of heaven (*Ailanthus altissima*). Umbrella plant (*Cyperus involucratus*) and other mustard species including shortpod mustard (*Hirschfeldia incana*) were also removed. 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 as well as expired annual species contributing to the fuel load on site. Annual weed species were either cut down or completely removed as a means to disrupt or end their growth cycle and reduce the likelihood of them producing seeds in the future. 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 onsite.

Execution

On January 4 through 7 the restoration crew worked through the northern portion of the Big Tujunga Wash in the northwestern portion of the site. The crew began at the western edge of the Mitigation Area boundary and walked the northern portion of the Big Tujunga Wash in a north to south grid pattern working their way east from the Mitigation Area boundary. Crews focused on annual weed species including mustards and non-native grasses that were beginning to germinate throughout the site due to recent rain events and unusually warm weather. Crews removed these species using weed whippers, shovels, and hand-pulling. Castor bean, tree tobacco, and tree of heaven were also encountered throughout the sweeps and were fully removed using shovels, picks, and other hand tools (Photo 1 through 3).

On January 10 through 14, crews picked up where the previous week's efforts left off and continued moving east through the Big Tujunga Wash, sweeping the site in a north to south grid pattern. Crews cleared the northwestern portion of the Big Tujunga Wash early in the week and made progress towards the eastern portion of the wash throughout the remainder of the week. The primary focus was removing annual weeds and non-native grasses using weed whippers to cut them to ground level and disrupt their potential for growth. Any longer-lived perennials encountered during the removal efforts were fully removed using hand tools, including a stand of giant reed (*Arundo donax*) that was observed growing in the central portion the of the Big Tujunga Wash (Photos 4 through 6).

On January 17, 18 and 21, crews worked through the southern portion of the Big Tujunga Wash just below the horse trail. Crews began removal efforts along the western edge of the wash and continued to sweep the site by walking in north to south grid pattern working their way east. Primary target species were mustards and annual grasses which were removed using weed whippers or hand pulled. All perennial species encountered were fully removed using hand tools, including small stands of giant reed found scattered throughout the site (Photos 7 and 8).

On January 26 through 28 crews returned to the southern portion of the Big Tujunga Wash and picked up where the previous week's efforts left off. Annual weeds including mustards and non-native grasses were primarily removed using weed whippers, and castor bean, tree of heaven, and giant reed were fully removed by hand. The crew progressed east through the southern portion of the Big Tujunga Wash and completed removal efforts in this area by the end of the week (Photo 9).

On January 31, crews transitioned to the eastern portion of the Mitigation Area in anticipation of the upcoming nesting bird season. The eastern portion of the site has historically had nesting raptor activity, so crews focused their efforts on clearing areas where previous nests have been documented in order to avoid disturbance during to nesting season. Crews began efforts in the eastern riparian area and progressed west. They utilized the same north to south grid strategy to move through the area and focused on clearing out annual species including mustards and non-native grasses that were germinating throughout the area due to increased rain events. All longer-lived perennial species that were encountered in the area were also removed in the event access restrictions due to active nests delay their future removal (Photo 10).

Summary and Results

All exotic plant eradication activities were supervised by Tim Wood, Jay Belmonte and/or Maklin Bado, who monitored that regulations and requirements were closely followed. The crew averaged five members per day during exotic plant eradication efforts. The crew continued to practice social distancing and wore masks during the tailgate meetings and during work or had a mask available in the event a pedestrian was passing through the work area.

Biologists Alisa Muniz, Jessica Calvillo, Mauricio Gomez, and/or Corey Jacobs inspected work areas prior to the start of work progression. The biologist surveyed ahead of the crews for sensitive species in proposed work areas and monitored any exotic plant removal near Haines Canyon Creek so that sensitive fish species were not negatively impacted by removal efforts. No sensitive species were observed during the sweeps.

The January exotic plant removal efforts focused on clearing newly germinating annual grasses and forbs that were found growing throughout the Big Tujunga Wash as resources became more available from increased rain events.

Targeting these species very early in their growth cycle will help reduce their maturation and competition with native species for resources. Secondary targets included long-lived, late-germinating, and rapidly developing non-native species that were fully removed by hand using shovels and picks. In anticipation of nesting bird season, crews focused their removal efforts later in the month on areas where active bird nests have been previously documented. In many of these areas, exotic species were adventitiously growing among native species where abundant resources (e.g., water, light, space, shade) allow them to develop year-round and directly compete with native species. In addition to physical removal efforts, crew members thoroughly swept through work areas to monitor for and document exotic plant species in their earliest stages of development. Thorough sweeps to track weed development help to ensure that weeds are removed at the right developmental stage, giving native species a greater potential to establish a competitive advantage throughout the Mitigation Area.

Only mechanical removal methods were used during 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. 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 Foreman

SITE PHOTOGRAPHS

Photo 1: Crew member weed whipping non-ntaive grasses in the northwestern portion of the Big Tujunga Wash on January 6, 2022.

Photo 2: Annual grasses and forbs germinating in the northwestern portion of the Big Tujunga Wash prior to removal efforts on January 7, 2022.

Photo 3: Northwestern portion of the Big Tujunga Wash following removal efforts on January 7, 2022.

Photo 4: Crew member weed whipping annual grasses and forbs in the Big Tujunga Wash on January 11, 2022.

Photo 5: Big Tujunga Wash following exotic species removal on January 11, 2022.

Photo 6: Crew members removing a stand of giant reed from the central portion of the Big Tujunga Wash on January 13, 2022.

Photo 7: Southern portion of the Big Tujunga Wash prior to exoctic species removal on January 21, 2022.

Photo 8: Crew members hand pulling and weed whipping newly germinating annual forb species from the southern portion of the Big Tujunga Wash on January 21, 2022.

Photo 9: Crew member removing castor bean found growing in the southern portion of the Big Tujunga Wash on January 26, 2022.

Photo 10: Crew members weed whipping exotic species in the eastern riparian area on January 31, 2022.

March 21, 2022

Julianna Colwell
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

Subject: Memorandum for February 2022 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Ms. Colwell,

This memorandum summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) during February 2022. This memo 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 exotic plant eradication effort 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, and after February 15 these sweeps included nesting birds and raptors. Pre-activity nesting bird surveys were conducted on February 18 by biologist Austin Burke, and February 26 by biologists Erik Olmos and Hannah Romano focusing on areas where raptors have been known to nest in previous years. Prior to the start of exotic species 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. These meetings included instructions on COVID-19 precautions such as social distancing, gear sanitation, and hand washing. The meetings were conducted by biologists Alisa Muniz, Jessica Calvillo, Corey Jacobs, and/or Mauricio Gomez. Following the pre-activity sweeps and instructional tailgate meetings, exotic plant removal efforts were led by foreman Tim Wood, foreman Jay Belmonte, and/or crew lead Maklin Bado.

During February, exotic plant removal efforts were conducted throughout eastern riparian area, beginning east of the Cottonwood Avenue entrance and progressing east throughout the month towards the Haines Canyon Wash. Removal efforts focused on areas where raptor nests were previously documented to remove exotic plants in the area before raptors potentially began to nest. Primary target species included non-native annual grasses, mustards (*Brassica* spp.), and annual forbs that were beginning to germinate due to increased rain events. Targeting these species early and aggressively disrupts their potential for growth and conserves resources (e.g., water, light) for native species. Crews will continue to monitor for germination and development of annual grasses and forbs to determine the most effective timing for weed abatement efforts. Secondary targets included non-native, long-lived, and late germinating species such as tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), and tree of heaven (*Ailanthus altissima*). Umbrella plant (*Cyperus involucratus*), poison hemlock (*Conium maculatum*), and other mustard species including shortpod mustard (*Hirschfeldia incana*) were also removed. 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 as well as expired annual species contributing to the fuel load on site. Annual weed species were either cut down or completely removed as a means to disrupt or end their growth cycle and reduce the likelihood of them producing seeds in the future. Eradication efforts for longer-lived annual and/or perennial species (e.g., castor bean,

tree tobacco, and tree of heaven) required complete removal of the plant from the roots. Seedless plant material was left on the ground in the same area to decompose onsite.

Execution

On February 1 through 3, the restoration crew worked through the eastern riparian area beginning just east of the Cottonwood Avenue entrance and progressing east throughout the week. Primary target species included annual forbs and grasses, and early developing poison hemlock, which were targeted using weed whippers to cover large areas. Secondary targets included castor bean, tree tobacco, tree of heaven which were fully removed using shovels and picks whenever encountered. Crews methodically moved throughout the eastern riparian area checking for signs of early germination and noting areas where removal efforts should be focused (Photos 1 and 2).

On February 7, 8, and 11, crews continued where the previous weeks effort left off, progressing east through the eastern riparian area. Crews continued to target mustard species, annual grasses, and other annual weeds. Crews removed these species using weed whippers, shovels, and by hand-pulling. Castor bean, tree tobacco, and tree of heaven were also encountered throughout the eastern riparian area and were fully removed using shovels, picks, and other hand tools (Photo 3).

On February 15 through 18, and on February 21 crews worked their way farther east towards the eastern boundary of the Mitigation Area in the eastern wash and progressed south towards the equestrian center throughout the week. Raptor nests have been previously documented in this area so crews focused their efforts on removing annual grasses and mustard species throughout the wash ahead of any nesting activity that may prevent future removal efforts during nesting bird season. Aggressively targeting these non-native species while they are still small disrupts their potential for growth and protects the availability of resources for native species (Photos 4 and 5).

Summary and Results

All exotic plant eradication activities were supervised by Tim Wood, Jay Belmonte and/or Maklin Bado, who monitored that regulations and requirements were closely followed. The crew averaged five members per day during exotic plant eradication efforts. The crew continued to practice social distancing and wore masks during the tailgate meetings and during work or had a mask available in the event a pedestrian was passing through the work area.

Biologists Alisa Muniz, Jessica Calvillo, Mauricio Gomez, and/or Corey Jacobs inspected work areas prior to the start of work progression. The biologist surveyed ahead of the crews for sensitive species in proposed work areas and monitored any exotic plant removal near Haines Canyon Creek so that sensitive fish species were not negatively impacted by removal efforts.

The February exotic plant removal efforts focused on clearing newly germinating annual grasses and forbs that were found growing throughout the Mitigation Area as resources became more available from increased rain events. Targeting these species very early in their growth cycle will help reduce their maturation and competition with native species for resources. Secondary targets included long-lived, late-germinating, and rapidly developing non-native species that were fully removed by hand using shovels and picks. In anticipation of nesting bird season, crews focused their removal efforts later in the month on areas where active bird nests have been previously documented. No nesting birds or nesting raptors were observed during the pre-activity nesting bird surveys. Biologists will continue to survey for nesting birds ahead of maintenance activities through the end of nesting bird season and will establish avoidance buffers for any nests identified, as appropriate. In many of these areas, exotic species were adventitiously growing among native species where abundant resources (e.g., water, light, space, shade) allow them to develop year-round and directly compete with native species. In addition to physical removal efforts, crew members thoroughly swept through work areas to monitor for and document exotic plant species in their earliest stages of development. Thorough sweeps to track weed development help to ensure that weeds are removed at the right developmental stage, giving native species a greater potential to establish a competitive advantage throughout the Mitigation Area.

Only mechanical removal methods were used during February 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 Foreman

SITE PHOTOGRAPHS

Photo 1: Eastern riparian area prior to poison hemlock removal on February 3, 2022.

Photo 2: Eastern riparian area following poison hemlock removal on February 3, 2022.

Photo 3: Restoration crew member weed whipping exotic plant species within the eastern riparian area on February 11, 2022.

Photo 4: Eastern portion of the Mitigation Area where exotic species were beginning to encroach into the trail prior to exotic species removal on February 15, 2022.

Photo 5: Eastern portion of the Mitigation Area cleared of exotic species following removal efforts on February 15, 2022.

April 29, 2022

Julianna Colwell
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

Subject: Memorandum for March 2022 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Ms. Colwell,

This memorandum summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) during March 2022. This memo 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 March exotic plant eradication effort 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 nesting bird surveys were conducted on March 1 and 29 by biologist Jessica Calvillo and on March 21 by biologist Alisa Muniz. Pre-activity sweeps for sensitive resources were conducted by qualified biologists ahead of the work crew. Prior to the start of exotic species 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. These meetings included instructions on COVID-19 precautions such as social distancing, gear sanitation, and hand washing. The meetings were conducted by biologists Alisa Muniz or Jessica Calvillo. Following the pre-activity sweeps and instructional tailgate meetings, exotic plant removal efforts were led by foreman Jay Belmonte and/or crew lead Maklin Bado.

During March, exotic plant removal efforts were conducted throughout western riparian area and along the Cottonwood Avenue entrance bluff. Removal efforts were primarily focused on areas adjacent to exiting trails within the western riparian area to minimize growth that could lead to potential encroachment onto the trails and exotic seed dispersal throughout the site. Primary target species included non-native annual grasses, mustards (*Brassica* spp.), and annual forbs that were beginning to germinate due to increased rain events. Targeting these species early and aggressively disrupts their potential for growth and conserves resources (e.g., water, light, space, shade) for native species. 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 as well as expired annual species contributing to the fuel load on site. Annual weed species were either cut down or completely removed as a means to disrupt or end their growth cycle and reduce the likelihood of them producing seeds in the future. 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 onsite.

Execution

On March 1 through 4, the restoration crew worked through the western riparian area beginning just west of the Cottonwood Avenue entrance and progressing west throughout the week. Primary target species included annual forbs and grasses including black mustard (*Brassica nigra*), London rocket (*Sisymbrium irio*), red brome (*Bromus madritensis*), and smilo grass (*Stipa miliacea*). These species were primarily targeted using weed whippers to cover large areas. The crew focused their efforts throughout the week on clearing areas adjacent to delineated trails within the western riparian area to minimize growth that could lead to future encroachment onto trails during the growing season. Managing this growth early reduces the potential for non-native seed dispersal throughout the Mitigation Area via trail users (Photos 1 and 2).

On March 21 through 24, the crew continued their efforts where they had left off earlier in March, progressing west through the western riparian area. Removal efforts were largely focused on the southwestern portion of the western riparian area. The crew finished the effort beneath the power lines at the western boundary of the Mitigation Area by the end of the week. The crew continued to target mustard species, annual grasses, and other annual weeds. These species were removed using weed whippers, shovels, and by hand-pulling. On March 24, crew members were informed by equestrian riders that a fallen tree was obstructing the trail near the Tujunga Ponds. The crew promptly transitioned from exotic species removal efforts to clearing the tree from the trail so that trail users could continue using the section of trail that was blocked. Crew members used a chainsaw to reduce the tree and cleared all remaining debris from the trail following its removal (Photos 3 and 4).

On March 28 and 31, the crew worked along the Cottonwood Avenue entrance bluff removing annual weeds and grasses including storks bill (*Erodium cicutarium*) and panic veldtgrass (*Ehrharta erecta*). The crew focused their efforts in and around the Cottonwood Avenue entrance and worked their way along the fence line and road, cutting and removing annual weeds using weed whippers (Photos 5 and 6).

Summary and Results

All exotic plant eradication activities were supervised by Tim Wood, Jay Belmonte and/or Maklin Bado, who monitored that regulations and requirements were closely followed. The crew averaged five members per day during exotic plant eradication efforts. The crew continued to practice social distancing and wore masks during the tailgate meetings and during work or had a mask available in the event a pedestrian was passing through the work area.

Biologists Alisa Muniz and Jessica Calvillo inspected work areas prior to the start of work progression. The biologist surveyed ahead of the crew for sensitive species in proposed work areas and monitored any exotic plant removal near Haines Canyon Creek so that sensitive fish species were not negatively impacted by removal efforts.

The March exotic plant removal efforts focused on clearing newly germinating annual grasses and forbs that were found growing throughout the Mitigation Area as resources became more available from increased rain events. Targeting these species very early in their growth cycle prevents them from maturing, and thus, reduces competition with native species for resources. Removal efforts were focused along the edges of authorized trails to reduce encroachment of non-native species and non-native seed dispersal by trail users. No nesting birds were observed during the pre-activity nesting bird surveys. In many of these areas, exotic species were adventitiously growing among native species where abundant resources allow them to develop year-round and directly compete with native species. In addition to physical removal efforts, crew members thoroughly swept through work areas to monitor for and document exotic plant species in their earliest stages of development. Thorough sweeps to track weed development help to ensure that weeds are removed at the right developmental stage, giving native species a greater potential to establish a competitive advantage throughout the Mitigation Area.

Only mechanical removal methods were used during March 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 looks forward to any future opportunities to support the ongoing efforts at the Big Tujunga Wash Mitigation Area to help Public Works achieve 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 Foreman

SITE PHOTOGRAPHS

Photo 1: Area adjacent to authorized trails in the western riparian area prior to exotic species removal on March 1, 2022.

Photo 2: Area adjacent to authorized trails in the western riparian area following exotic species removal efforts on March 1, 2022.

Photo 3: Tree blocking an authorized trail near the Tujunga Ponds prior to removal efforts on March 24, 2022.

Photo 4: Following the tree removal, the authorized trail near the Tujunga Ponds was clear and passable on March 24, 2022.

Photo 5: Area surrounding the Cottonwood Avenue entrance prior to exotic species removal on March 28, 2022.

Photo 6: Area surrounding the Cottonwood Avenue entrance following exotic species removal on March 28, 2022.

November 17, 2022

Jimena Gonzalez

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

Subject: Memorandum for September and October 2022 Exotic Plant Eradication Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Ms. Gonzales,

This memorandum summarizes the exotic plant eradication efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) during September and October 2022. This memo 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 September and October 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. 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. These meetings included instructions on COVID-19 precautions such as social distancing, gear sanitation, and hand washing. The meetings were conducted by biologist 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 Maklin Bado. In addition, a biologist traveled with the work crew to monitor that no native plant or wildlife species were negatively impacted by work activities.

During the September and October, exotic plant removal efforts were conducted around the Tujunga Ponds and in the western riparian area along Haines Canyon Creek. Removing exotic species along the pond and creek banks increases water availability for native plants and may result in more available surface water for native aquatic species including fish. Some of the primary targeted non-native, long-lived, and late germinating species included tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), and tree of heaven (*Ailanthus altissima*). The crew used only mechanical removal methods (e.g., hand-pulling, shovels, digging-bars, motorized weed trimmers) when removing weeds and concentrated on late germinating and developing species that have access to water resources via Haines Canyon Creek (and were further encouraged by late summer rain events) as well as expired annual species contributing to the fuel load on site. 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 onsite. 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 September 14, 15, and 16, crews conducted exotic plant removal efforts along Haines Canyon Creek in the western riparian area. Crews began removal efforts at the upstream portion of Haines Canyon Creek and progressed downstream targeting castor bean, tree tobacco, and tree of heaven. Haines Canyon Creek provides a perennial water source which allows these non-native species to continue to germinate from the seedbank. Removal of these non-native species is necessary to increase resource availability for native species, especially after the dry season when water resources are scarce. While conducting invasive plant removal, crews were informed by Chambers Group biologists that rock dams were blocking water flow along Haines Canyon Creek. Crew members worked to disassemble the rock dams to restore water flow and water supply to native plants, and to reestablish passage for native fish (Photo 1 and 2). On September 15 it was discovered that a vehicle had crashed into native vegetation within the southwestern portion of the Mitigation Area. Law enforcement was notified, and a towing company was contacted to extract the crashed vehicle. Foreman Jay Belmonte and biologist Corey Jacobs monitored the extraction to ensure no additional native vegetation was impacted and that no fluids were spilled at the crash site or during the extraction process. The vehicle was successfully removed, and it was confirmed that no fluids had spilled from the vehicle (Photo 3). Following the vehicle extraction efforts, crew members continued exotic plant removal efforts along Haines Canyon Creek progressing towards the western boundary of the mitigation area (Photo 4 and 5).

On October 20 and 21, crews began removing castor bean that was growing along the edges of the eastern portion of the Tujunga Ponds (Photo 6). During their removal efforts, the crew was notified by equestrian riders about two fallen trees that were obstructing passage along the trails at two locations, one just west of the Tujunga Ponds, and the other in the western riparian area near the south Wheatland Avenue entrance. Crew members used chainsaws to break down the fallen trees and removed the fragments and debris from the trail (Photo 7).

On October 25 through the 27, crews focused their efforts on exotic plant removal along central Haines Canyon Creek. Primary targets included castor bean, tree of heaven, and sourclover (*Melilotus indicus*). 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 (Photos 8 through 12).

Summary and Results

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

Biologist 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 September and October exotic plant removal efforts focused on clearing long-lived, late-germinating, and rapidly developing non-native species around the Tujunga Ponds and along the banks of Haines Canyon Creek. Crews relied primarily 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. Water levels have continued to decrease throughout the fall, creating even greater competition for resources between the native and non-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 September and October 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: Two crew members utilizing rakes to remove rocks found damming water in Haines Canyon Creek on September 14, 2022.

Photo 2: Restored water flow in area of Haines Canyon Creek that was previously dammed on September 14, 2022.

Photo 3: Crashed vehicle being recovered in the southwestern portion of the Mitigation Area on September 15, 2022.

Photo 4: Central Haines Canyon Creek prior to exotic species removal efforts on September 16, 2022.

Photo 5: Central Haines Canyon Creek following exotic species removal on September 16, 2022.

Photo 6: Crew members removing castor bean growing along the eastern edge of the Tujunga Ponds on October 20, 2022.

Photo 7: Crew member breaking down fallen tree along the trail on the western edge of the Tujunga Ponds on October 21, 2022.

Photo 8: Crew members removing a large tree castor bean from the banks of Haines Canyon Creek on October 25, 2022.

Photo 9: Dense non-native coverage along Haines Canyon Creek prior to exotic species removal on October 26, 2022.

Photo 10: Same area along Haines Canyon Creek following exotic species removal on October 26, 2022.

Photo 11: Sourclover and castor bean growing along Haines Canyon Creek prior to exotic species removal on October 27, 2022.

Photo 12: Same area along central Haines Canyon Creek following exotic species removal on October 27, 2022.

APPENDIX F – EXOTIC WILDLIFE REMOVAL LETTER REPORTS

January 27, 2022

Julianna Colwell
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

Subject: Memorandum for the January 2022 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Ms. Colwell,

This memorandum 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 26 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists Alisa Muniz, Corey Jacobs, Heather Franklin, and Mauricio Gomez. Safety precautions and COVID-19 precautions including social distancing, gear sanitation, and hand washing were discussed prior to the start of removal activities. During removal efforts, the biologists used seines and spearfishing methods to capture and remove exotic aquatic species from the Ponds. During seine fishing, the seine was deployed from a small boat with two biologists pulling the boat through the water 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 spearfishing efforts, two biologists snorkeled in the West Tujunga Pond locating areas of exotic fish, while another biologist 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 January 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*).

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 West Tujunga Pond during spearfishing effort included one adult largemouth bass. The exotic aquatic species captured and removed from the East Tujunga Pond during the seining effort included three adult western mosquitofish.

Discussion and Conclusions

During the January effort, the Ponds were crowded with hornwort plants (*Ceratophyllum demersum*) that created visibility issues for spearfishing. Due to visibility issues caused by the dense aquatic plants, spearfishing only yielded one largemouth bass from the West Tujunga Pond. Seines were not effective due to adult fish occupying deeper areas of the Ponds and smaller fish hiding in the reeds that surround the Ponds. Water temperatures were cold which slows the metabolism of the fish. Fish did not appear to be actively foraging or moving around which would make for an easier capture. The biologists inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed in the Ponds on three occasions in 2021, and none was found. Chambers Group biologists will continue to monitor the Ponds for this species and remove it if observed.

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 on a monthly basis. 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 2022.

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 West Tujunga Pond during spearfishing efforts on January 26, 2022.

February 25, 2022

Julianna Colwell
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

Subject: Memorandum for the February 2022 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Ms. Colwell,

This memorandum 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 24 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists Alisa Muniz, Corey Jacobs, Jessica Calvillo, Erik Olmos, and Hannah Romano. Safety precautions and COVID-19 precautions including social distancing, gear sanitation, and hand washing were discussed prior to the start of removal activities. During removal efforts, the biologists used seines and spearfishing methods to capture and remove exotic aquatic species from the Ponds. During seine fishing, the seine was deployed from a small boat with two biologists pulling the boat through the water 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 spearfishing efforts, two biologists snorkeled in the Ponds locating areas of exotic fish, while another biologist 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 February 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*).

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 West Tujunga Pond during spearfishing efforts included four adult largemouth bass. The exotic aquatic species captured and removed from the East Tujunga Pond during spearfishing efforts included one adult largemouth bass and one common carp.

Discussion and Conclusions

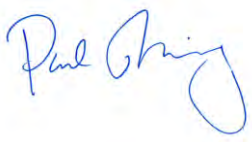
During the February effort, the Ponds were largely clear of algae creating good visibility for spearfishing but making seine fishing more difficult. Spearfishing efforts yielded the removal of four large, adult largemouth bass and one large adult common carp from the West Tujunga Pond. One of the four largemouth bass removed from the West Tujunga Pond and the single largemouth bass removed from the East Tujunga Pond were gravid females. A female largemouth bass can produce between 2,000 and 40,000 eggs, and as such, capturing gravid females is critical to decreasing the largemouth bass population at the Mitigation Area. Seining efforts were not effective due to adult fish occupying deeper areas of the Ponds and the younger, smaller fish sheltering in the reeds. The biologists inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed in the Ponds on three occasions in 2021. No signs of water hyacinth were found. Chambers Group biologists will continue to monitor the Ponds for this species and remove it if observed. Chambers Group biologists also inspected the exclusionary nets in Haines Canyon Creek to see if they had incurred any damage from the recent storms. The biologists cleaned debris away from the exclusionary nets and no damage was observed.

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 on a monthly basis. 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 2022.

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 gravid female largemouth bass and a common carp captured and removed from the East Tujunga Pond during spearfishing efforts on Febuary 24, 2022.

Photo 2: Example of largemouth bass captured and removed from the West Tujunga Pond during spearfishing efforts on February 24, 2022.

Photo 3: Biologists spearfishing the West Tujunga Pond on February 24, 2022.

Photo 4: Example of a common carp captured and removed from the East Tujunga Pond during spearfishing efforts on February 24, 2022.

March 28, 2022

Julianna Colwell
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

Subject: Memorandum for the March 2022 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Ms. Colwell,

This memorandum 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 2 and 23 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists Alisa Muniz, Corey Jacobs, Jessica Calvillo, Mauricio Gomez, Austin Burke, and Phillip Carlos. Safety precautions and COVID-19 precautions including social distancing, gear sanitation, and hand washing were discussed prior to the start of removal activities. During removal efforts, the biologists used seines and spearfishing methods to capture and remove exotic aquatic species from the Ponds. During seine fishing, 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 spearfishing efforts, two biologists snorkeled in the Ponds locating areas of exotic fish, while another biologist 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*), 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*).

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

On March 2, the exotic aquatic species captured and removed during spearfishing efforts at the West Tujunga Pond included two adult largemouth bass and one gravid common carp. Spearfishing efforts at the East Tujunga Pond yielded three adult largemouth bass, one adult goldfish, and one adult common carp.

On March 23, the exotic aquatic species captured and removed during spearfishing efforts at the West Tujunga Pond included two adult largemouth bass (one of which was gravid) and one bullfrog tadpole. Spearfishing at the East Tujunga Pond yielded five adult largemouth bass (two of which were gravid), and four common carp (two of which were also gravid).

No exotic species were captured using the seine nets during either effort.

Discussion and Conclusions

During the March effort, the Ponds were relatively free of aquatic vegetation (e.g., algae and hornwort plants) which usually crowds the Ponds, resulting in clear visibility conditions for spearfishing. The clear visibility may also have resulted in the failure to capture any exotic species using the seine nets. Chambers Group biologists observed that adult fish tended to stay in deeper areas of the Ponds and the younger fish remained hidden and protected under the cover of reeds along the edges of the Ponds.

Some of the individuals captured during the March effort were gravid females, i.e., pregnant, and full of eggs. Female largemouth bass can produce between 2,000 and 40,000 eggs, and common carp can produce up to 300,000 eggs. Removing these gravid females from the population before they produce young contributes greatly to the eradication efforts by preventing those young from entering the next generation.

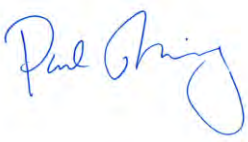
The biologists also inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed and removed from the Ponds on three occasions in 2021. No signs of water hyacinth were found.

Chambers Group looks forward to any future opportunities to support the ongoing efforts at the Big Tujunga Wash Mitigation Area to help Public Works achieve 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 PHOTOS

Photo 1: Example of largemouth bass and a gravid common carp captured while spearfishing in the West Tujunga Pond on March 2, 2022.

Photo 2: Example of gravid largemouth bass captured in the West Tujunga Pond on March 23, 2022

Photo 3: Photo depicts exotic fishes captured by biologists spearfishing the East Tujunga Pond on March 23, 2022.

Photo 4: Example of a goldfish spearfished in East Tujunga Pond on March 2, 2022.

September 30, 2022

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

Subject: Memorandum for the August 2022 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Ms. Gonzalez,

This memorandum 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 March exotic wildlife removal efforts are provided below.

Methods

The August exotic wildlife removal effort was conducted on August 3 and 10 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists Alisa Muniz, Corey Jacobs, Austin Burke, Heather Franklin, and Alisa Hernandez. Safety precautions and COVID-19 precautions including social distancing, gear sanitation, and hand washing were discussed prior to the start of removal activities. During removal efforts, the biologists used seines and spearfishing methods to capture and remove exotic aquatic species from the Ponds. During seine fishing, 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 spearfishing efforts, two biologists snorkeled in the Ponds locating areas with exotic fish, while another biologist 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 August 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*).

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

On August 3, the exotic aquatic species captured and removed during spearfishing efforts at the West Tujunga Pond included nine adult largemouth bass. A single seine pull in the West Tujunga Pond yielded the removal of 25 largemouth bass (4 adult, 21 young-of-the-year [YOY]). Spearfishing efforts at the East Tujunga Pond were not conducted due to low visibility from dense algae. Three seine pulls were conducted in the East Tujunga Pond and yielded the removal of 405 largemouth bass (15 adult, 390 YOY), 511 YOY western mosquitofish, 14,017 red swamp crayfish (17 adult, 14,000 larval), 26 American bullfrog tadpoles, and 15 green sunfish (2 adult, 13 YOY).

On August 10, two biologists fixed and replaced the exclusionary fence that keeps the nonnative fish out of the Creek. Biologists then walked the Creek from west to east removing rock dams that had been built by site users to create pools. Five adult red swamp crayfish were captured and removed while walking the Creek.

Discussion and Conclusions

During the August effort, the West Tujunga Pond was mostly free of aquatic vegetation (e.g., algae and hornwort plants), resulting in clear visibility conditions for spearfishing. Only one seine pull was conducted in the West Tujunga Pond due to steep banks making it difficult to create a solid purse in which to trap fish. The East Tujunga Pond was full of aquatic vegetation making spear fishing difficult due to low visibility. Chambers Group biologists observed that adult fish occupied deeper areas of the Ponds while the younger fish remained hidden and protected within the reeds along the edges of the Ponds. A fish trap made from a plastic gas can and weight was found in the West Tujunga Pond during the effort and was removed by the biologists.

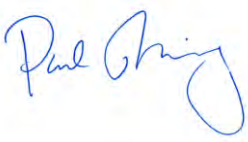
The biologists also inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed and removed from the Ponds on three occasions in 2021. No signs of water hyacinth were found during this effort.

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 2022.

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 captured while spearfishing in the West Tujunga Pond on August 3, 2022.

Photo 2: Example of largemouth bass captured and removed from the East Tujunga Pond using a seine on August 3, 2022.

Photo 3: Depicts a gas can with a weight tied to it found in the West Tujunga Pond on August 3, 2022. The biologists believe this was used as some sort of fish trap.

Photo 4: Photo depicts damaged fish exclusionary fence on August 10, 2022.

Photo 5: The fish exclusionary fence after being repaired on August 10, 2022.

Photo 6: Photo depicts a rock dam blocking fish migration within the Creek. Biologists removed the dam on August 10, 2022.

Photo 7: Rock dam after being deconstructed by biologists on August 10, 2022.

September 30, 2022

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

Subject: Memorandum for the September 2022 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Ms. Gonzalez,

This memorandum summarizes the exotic wildlife removal efforts conducted during the month of September 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 September exotic wildlife removal efforts are provided below.

Methods

The September exotic wildlife removal effort was conducted on September 15 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists Alisa Muniz, Corey Jacobs, Heather Franklin, and Anna Jullie. Safety precautions and COVID-19 precautions including social distancing, gear sanitation, and hand washing were discussed prior to the start of removal activities. During removal efforts, the biologists used seines and spearfishing methods to capture and remove exotic aquatic species from the Ponds. During seine fishing, 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 spearfishing efforts, two biologists snorkeled in the Ponds locating areas with exotic fish, while another biologist 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 September 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*).

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

On September 15, the exotic aquatic species captured and removed during spearfishing efforts at the West Tujunga Pond included nine adult largemouth bass and one adult green sunfish.

Spearfishing efforts at the East Tujunga Pond were not conducted due to low visibility from dense algae. Two seine pulls were conducted in the East Tujunga Pond and yielded the removal of 2 adult largemouth bass, 570 adult western mosquitofish, 8,014 red swamp crayfish (6 adult, 8 juvenile, 8,000 larval), and 6 American bullfrog tadpoles.

Discussion and Conclusions

During the September effort, the West Tujunga Pond was mostly free of aquatic vegetation (e.g., algae and hornwort plants), resulting in clear visibility conditions for spearfishing. No seine pulls were conducted in the West Tujunga Pond due to steep banks making it difficult to create a solid purse in which to trap fish. The East Tujunga Pond was full of aquatic vegetation making spear fishing difficult due to low visibility. Chambers Group biologists observed that adult fish occupied deeper areas of the Ponds while the younger fish remained hidden and protected within the reeds along the edges of the Ponds.

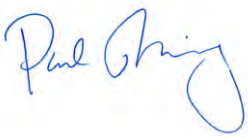
The biologists also inspected the Ponds for invasive water hyacinth (*Eichhornia crassipes*) that was observed and removed from the Ponds on three occasions in 2021. No signs of water hyacinth were found during this effort.

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 October 2022.

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 using the seine in the East Tujunga Pond on September 15, 2022.

November 2, 2022

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

Subject: Memorandum for the October 2022 Exotic Wildlife Removal Effort in the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Ms. Gonzalez,

This memorandum 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 20 by Chambers Group wildlife biologist Paul Morrissey (Santa Ana sucker specialist; USFWS permit 182550-1) and supporting biologists Corey Jacobs, Austin Burke, Heather Franklin, Mauricio Gomez, and Eliana Maietta. Safety precautions and COVID-19 precautions including social distancing, gear sanitation, and hand washing were discussed prior to the start of removal activities. During removal efforts, the biologists used seines and spearfishing methods to capture and remove exotic aquatic species from the Ponds. During seine fishing, the seine was deployed from a small boat with two biologists pulling the boat through the water 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 spearfishing efforts, two biologists snorkeled in the West Tujunga Pond locating areas with exotic fish, while another biologist 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 October 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*).

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

On October 20, the exotic aquatic species captured and removed during spearfishing efforts at the West Tujunga Pond included four adult largemouth bass and one adult green sunfish. Spearfishing efforts at the East Tujunga Pond yielded the removal of three adult largemouth bass. Two seine pulls were conducted in the East Tujunga Pond and yielded the removal of 14 largemouth bass (13 adult, 1 young-of-the-year [YOY]), 665 YOY western mosquitofish, 5,060 red swamp crayfish (60 adult, 5,000 larval), and 1 American bullfrog tadpole.

Discussion and Conclusions

During the October effort, the aquatic vegetation (e.g., algae and hornwort plants) that is often present in the Ponds during the summer months was beginning to die off resulting in clear visibility conditions for spearfishing. Chambers Group biologists observed that adult fish occupied deeper areas of the Ponds while the younger fish remained hidden and protected within the reeds along the edges of the Ponds.

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 this effort.

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.

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 a green sunfish captured while spearfishing in the West Tujunga Pond during the October effort.

Photo 2: Example of largemouth bass captured and removed from the East Tujunga Pond using a seine during the October effort.

Photo 3: Example of largemouth bass captured while spearfishing in the East Tujunga Pond during the October effort.

APPENDIX G – TRAILS MAINTENANCE AND MONITORING LETTER REPORTS

February 21, 2022

Julianna Colwell
Los Angeles County Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331

Subject: Memorandum for the January 2022 Trails Monitoring Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Ms. Colwell,

This memorandum summarizes trail monitoring and maintenance efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) in January 2022. This memo 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 along central Haines Canyon Creek. A qualified biologist swept all trail sections that required maintenance for sensitive species prior to the start of trail maintenance activities. Trail maintenance was performed on January 3 and 4. 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. These meetings included instructions on COVID-19 precautions including social distancing, gear sanitation, and hand washing. The meetings were conducted by biologists Alisa Muniz, Jessica Calvillo, Corey Jacobs, and/or Mauricio Gomez. 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. Any trails that were excluded from these efforts were previously addressed or did not require any maintenance efforts at the time of inspection. 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 January 3 crews performed trail maintenance activities along the trail in the western riparian area. Crews walked the trails starting just west of the bluff at the Cottonwood Avenue entrance and worked their way west. Recent rain events washed away many areas of the trail, leaving large rocks and debris within the trails that made navigation difficult. Areas where the crew encountered accessibility issues were raked to create a suitable path for recreational

users. In an effort to conserve native plants and wildlife and to avert unauthorized trail bypasses rocks were used to clearly delineate the edge of the authorized trail. Crews also filled in erosional holes that were caused by rain and presented hazards to both equestrian and pedestrian users and to wildlife (Photos 1 and 2).

On January 4 the crew split in half with one half focusing on trail maintenance efforts and the other half focusing on exotic removal efforts as outlined in the January 2022 Exotic Plant Species Removal Memo. Trail maintenance efforts were focused in the eastern riparian area. Crews walked the trails along central Haines Canyon Creek and progressed east towards the Tujunga Ponds. The crew removed hazardous rocks and debris that had accumulated along the trail from recent rain events. Rocks and debris were raked and cleared to restore trail composition. These efforts create safer trails and help to support native vegetation and any sensitive wildlife species adjacent to the trails by minimizing deviations and unauthorized bypasses through native habitat (Photos 3 and 4).

Summary and Results

All trail maintenance activities were supervised by foreman Tim Wood, foreman Jay Belmonte and/or crew lead Maklin Bado, who monitored that regulations and requirements were closely followed. January trail maintenance efforts 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. 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, as well as the feedback received 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: Trail within the western riparian area filled with rocks and cobbles prior to trail maintenance on January 3, 2022.

Photo 2: Trail within the western riparian area cleared of rocks and cobbles following trail maintenance on January 3, 2022.

Photo 3: Trail within the eastern riparian area filled with debris prior to trail maintenance activities on January 4, 2022.

Photo 4: A clearly delineated path was created following trail maintenance within the eastern riparian area on January 4, 2022.

September 30, 2022

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

Subject: Memorandum for the July and August 2022 Trails Monitoring Program Throughout the Riparian and Uplands of the Big Tujunga Wash Mitigation Area, Los Angeles County, California.

Dear Jimena Gonzalez,

This memorandum summarizes trail monitoring and maintenance efforts conducted by Chambers Group, Inc. (Chambers Group) at the Big Tujunga Wash Mitigation Area (Mitigation Area) in July and August 2022. This memo 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 performed nesting bird surveys and sensitive species surveys including least Bell's vireo (*Vireo bellii pusillus*; LBVI) surveys through all trail sections that required maintenance prior to the start of trail maintenance activities. Trail maintenance was performed on July 26 through 29, August 1 through 5, August 9 through 11, and August 30. 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. These meetings included instructions on COVID-19 precautions including social distancing, gear sanitation, and hand washing. The meetings were conducted by biologists Austin Burke and/or Alisa Muniz. 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 July 26 through 29, the crew performed trail monitoring and maintenance activities throughout the eastern riparian area and progressed north to include the portions of the trail network surrounding the Tujunga Ponds. The crew discovered dense thickets of both native and exotic plant species overtaking these trail sections, making it difficult to

view and navigate the trails safety. Using motorized line trimmers and vegetation hedging equipment, crew members aggressively cut back the encroaching exotic weed species to reduce their potential for persistence and carefully reduced the portions of native plant species that had overgrown the trail boundaries (Photos 1 and 2). In addition, crew members selectively pruned the lower branches of native tree species to redirect their growth above or away from the trail boundaries where they could be damaged by foot traffic or could cause safety hazards for site visitors (Photo 3). No sensitive species were detected during the July efforts.

On August 1 through 5, the crew focused trail monitoring and maintenance activities in the transitional areas between the eastern, central, and western riparian areas and dryer areas of the site including Haines Canyon Wash, the upland bluff north of the Cottonwood Avenue entrance, and western portions of the Big Tujunga Wash. Throughout the transitional areas where deep rooted native plant species can access water and continue development through the dry months, crew members pruned back numerous native trees found encroaching on the trail. Hand tools were used to selectively prune them away from the trail boundaries and encourage continued growth in more sustainable directions (Photo 4). As crew members progressed into areas further away from water resources, several areas with fallen snag debris were encountered, showing evidence of the continued decomposition of snag trees in the wake of the 2017 Creek Fire. 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 (Photo 5 and 6).

On August 9 through 11, the crew focused trail monitoring and maintenance activities along trail sections through the western riparian area, from the Cottonwood Avenue entrance bluff west towards the South Wheatland Avenue entrance, and along the southern boundary of the Mitigation Area. Crew members removed numerous obstructions discovered along these trail sections. Most of the obstructions consisted of varying-sized fallen snag debris that continues to decompose throughout the site. This material posed potential safety hazards and was therefore prioritized for removal (Photo 7 through 9). Trail monitoring and maintenance activities continued with conducting vegetation control measures of native and/or exotic plants that were discovered encroaching on the trails. Exotic species were aggressively cut down to reduce the potential for future development. Native plant species were either selectively pruned to redirect growth or minimally reduced to the trail edges to clear passage along the trails (Photo 10).

On August 10, the biologist performing the pre-work survey observed two LBVI near the proposed trail section requiring maintenance. The LBVI were observed flying around, chasing, and showing territorial behavior towards each other, though, no nest was discovered. The trail section proposed for maintenance fell within the required avoidance buffer for LBVI (500 feet); therefore, work in that area was not conducted to avoid negatively impacting the listed species. Crew efforts were redirected to address other areas of the site where maintenance activities could safely proceed. Biologists conducted follow up surveys for LBVI until it was confirmed that the LBVI were no longer present in the area.

On August 30, a pre-work survey confirmed that LBVI were no longer present in or near the area where they were previously observed on August 11, and work was allowed to proceed. Work activities and the surrounding habitat were monitored closely while this trail section was completed to help ensure no negative impacts LBVI or other sensitive species occurred. Trail maintenance activities included conducting native and non-native vegetation control measures and small amounts of debris removal (Photo 11).

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 July and August 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, as well as the feedback received 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: Example of trail conditions discovered in the eastern riparian area before trail maintenance was conducted on July 26 through 29, 2022.

Photo 2: Example of trail conditions in the eastern riparian area following trail maintenance efforts on July 26 through 29, 2022.

Photo 3: Example of a native tree along the trail to the Tujunga Ponds that was pruned back to reduce encroachment on the trail on July 29, 2022.

Photo 4: Example of a native tree along a trail within the Haines Canyon Wash area that was pruned back to reduce encroachment on the trail on August 1, 2022.

Photo 5: Example of snag debris that was discovered and removed from a trail within the Big Tujunga Wash area on August 3, 2022.

Photo 6: Example of snag debris that was discovered and removed from a trail within the Big Tujunga Wash area on August 5, 2022.

Photo 7: Example of snag debris that was discovered along a section of trail within the western riparian area on August 9, 2022.

Photo 8: Same trail section as above following the removal of snag debris on August 9, 2022.

Photo 9: Crew member cutting back fallen snag debris discovered along a trail within the western riparian area to reduce the potential for further encroachment and support visitor safety on August 10, 2022.

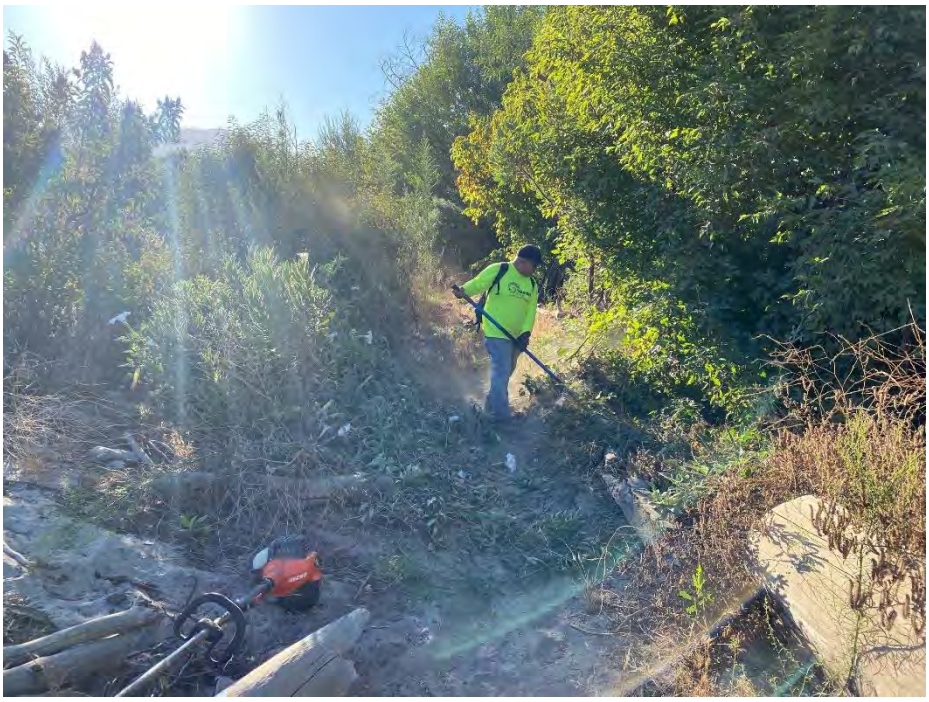


Photo 10: Example of crew member removing native and exotic vegetation from a trail section within the western riparian area to reduce the potential for visitors deviating from the authorized trail system on August 11, 2022.

Photo 11: Crew member completing trail maintenance efforts along the remaining trail section in the western riparian area that was avoided earlier in the month due to the observation of LBVI near proposed work areas on August 30, 2022.

APPENDIX H – STAKEHOLDER MAILING LIST

Mr. Aaron Allen
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The Honorable Michael Antonovich
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Mr. Eric Baul
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APPENDIX I– FALL NEWSLETTER

Big T Wash Line

FALL 2022

A publication of Los Angeles County Public Works

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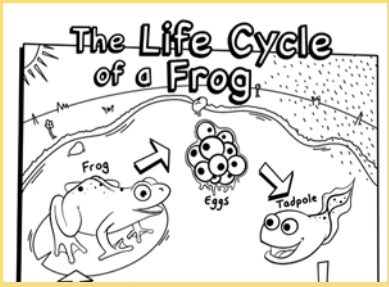

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About the Big Tujunga Wash Mitigation Area

"Big T" is a parcel of land 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

American bullfrog tadpole metamorphising into an adult (Credit Gary Nafis)

Big T Amphibians

Amphibians are a group of animals that includes frogs, toads, salamanders, and newts that need a damp to wet environment to survive. Amphibians spend part of their lives in the water, and part on land, which is how they earned the name “amphibian” that comes from a Greek word meaning “double life”. Amphibians are cold-blooded just like reptiles, but they don’t have scales. They can breathe and absorb water through their thin, semipermeable skin and depend upon water for reproduction. Amphibians are found throughout Big T, which provides both terrestrial and aquatic environments for amphibians to live.

Amphibian Life Cycles

Amphibians spend the first part of their lives in the water before metamorphosing into adults. Adult amphibians spend most of their lives on land and return to the water to breed and reproduce. The beginning of this process starts with eggs that are typically laid in water. These eggs are vulnerable and are often eaten by birds, fish, or even other amphibians. Amphibians will search for calm bodies of water with vegetation that can offer protection for their eggs, like the Tujunga Ponds and the edges of Haines Canyon Creek. The eggs then develop into larvae, which are called tadpoles for frogs and toads, and efts for salamanders. These larvae must find their own food, escape predators, and perform other life functions all while continuing to develop. A metamorphosis then takes place in which the larvae transform into a miniature version of the adult form. This is usually when amphibians transition from an aquatic to a terrestrial or semi-terrestrial lifestyle. The adults are then able to find a mate, create more eggs, and start the process all over again!

Food and Feeding

Adult amphibians require live prey and will eat pretty much anything that will fit in their mouths including insects, spiders, snails, slugs, and worms. Some are even large enough to eat mice, snakes, and bats! The largest amphibian in the world is the Chinese giant salamander (*Andrias davidianus*), which grows up to 6 feet in length and 110 pounds and eats crabs, fish, and frogs which they sense through vibrations in the water. Many amphibians have a long, strong, sticky tongue which they use to catch prey. There is only one frog species that is known to be vegetarian, the Brazilian tree frog (*Xenohyla truncate*) that is endemic to the state of Rio De Janeiro, Brazil. This frog eats fruits, seeds, and flowers. Interestingly, the food that amphibians eat can sometimes cause them to become poisonous! Many amphibians excrete poisonous toxins from their skin after eating poisonous insects or plants.

Amphibians at Big T

Thankfully there are no poisonous or six-foot-long amphibians found at Big T, but it is home to three species of amphibians including the native California toad (*Anaxyrus boreas halophilus*) and Baja California chorus frog (*Pseudacris hypochondriaca*), and the non-native American bullfrog (*Lithobates catesbeianus*).

Continued on next page...

The western toad is native to California and is a small toad that has a wide variety of colors including white, gray, reddish brown, yellow, and green. Its skin is bumpy with black blotches. They live in shallow burrows or under rocks or logs and lay their eggs in long strings that hatch into tadpoles within 10 days of laying. The western toad mainly eats insects and worms.

The Baja California chorus frog is native to California and is a small frog with a large head, big eyes, and round sticky pads on the tips of the toes that help them climb trees. They are most often green or brown but their coloring can vary. They can even change colors in response to environmental conditions! The Baja California chorus frog eats insects by lunging towards them with their large, sticky tongue. This frog makes the classic, familiar "ribbet" sound you hear in movies and can be heard day and night during breeding season.

The American bullfrog is a non-native species out at Big T. This frog is native to the central and eastern United States but is considered a non-native species in California. The American bullfrog was intentionally introduced to California as a food source after gold miners had eaten most of the state's native red-legged frogs (*Rana draytonii*). Bullfrogs have voracious appetites and will eat almost anything they can fit into their mouths including, bats, birds, rodents, lizards, snakes, and other frogs! In addition, bullfrog tadpoles can eat the tadpoles of other frog species. As a result, bullfrogs are able to out-compete all native frog species.

Threats to Amphibians

Amphibians are considered an indicator species, which is a species that can serve as a measure of environmental health, since they are often the first species affected by changes in environmental conditions. This is largely attributed to their thin, porous skin that they absorb water through and use to breathe. The permeability of their skin requires very specific conditions for survival and any change in their environment including changes in temperature, high wind, increased sun exposure, and pollution can cause amphibian populations to decline. As a result, amphibians are sensitive to environmental disturbances and are impacted easily by any change to their living conditions. In addition, frogs are very susceptible to non-native species like the American bullfrog described above. This has caused amphibians to be the most threatened group of animals in nature.

The restoration efforts out at Big T are helping to minimize negative impacts on amphibians and other native species. The removal of non-native vegetation allows native plants to grow and provides habitat and shady conditions for amphibians to live. Trail maintenance efforts keeps visitors on designated trails reducing habitat degradation and impacts to terrestrial amphibians. Non-native wildlife removal efforts help reduce the competition on native amphibian species by removing predatory species such as American bullfrogs and largemouth bass (*Micropterus salmoides*).

Next time you visit the Big T be on the lookout and see if you can spot any of the amphibians that call Big T home.

Western toad (Credit Gary Nafis)

Sticky foot pads of the Baja California chorus frog (Credit Gary Nafis)

American bullfrog (Credit Gary Nafis)

Meet the Restoration Team
Jay Belmonte

What is your role at Chambers Group and how long have you been working at Big T?

I have been working at Big T since 2019. My role as Foreman of Restoration at Chambers Group is to oversee the Construction/ Restoration of certain sites and projects as well as assembling the work crews, tools, safety gear, and equipment and putting in motion the work plans created by the company for sites such as Big T.

Many of Big T's surrounding residents have become accustomed to seeing Chambers Group restoration crews on site. What are you doing out there and why?

Out at Big T my crew and I perform two primary tasks. One of those tasks is exotic plant removal. Our primary goal there is to reduce the competition posed by non-native plant species on recovering native plant species. By reducing competition, it helps to rebuild the habitat that supports sensitive plant and wildlife species. The second task is trail monitoring and maintenance, which we conduct to support the safety of sensitive plant and wildlife species, as well as the visitors that come to enjoy the site. Our goal here is to maintain the trails, free and clear of obstructions and other hazards, allowing visitors to navigate authorized trails safely and avoid deviating into recovering habitat.

You have been working out at Big T for a few years now. How have you seen the site evolve and what are some signs that restoration efforts have been effective?

Since my time working here at Big T I've seen the vegetation rebound following the Creek Fire in 2017. I've seen native growth in areas that were previously dominated by weeds. Observations of least Bell's vireo have increased the last couple years, showing that the recovering habitat has again become suitable for riparian species.

How does the restoration work you conduct at Big T contribute to the safety of the site and surrounding areas?

In addition to reducing the competition between native and non-native plant species, the removal of weeds throughout the site also reduces the fire fuel load which in turn helps to reduce the potential for fire throughout the site, as well as the neighboring communities.

As your crew works to maintain Big T's trail system there are many opportunities for interaction with the public. What have some of the benefits of public interaction been?

Our interactions with the public have been of great value to our crew. One of the benefits has been learning and understanding horses and the things that could scare them such as mechanical weeders and chainsaws, which could cause the horse to become startled and cause harm to the horse, its rider, and our crew members. We have learned to stay quiet and still as horses approach and pass. This information has benefited both the public and the restoration crew and couldn't have been made possible without interaction.

The Restoration Team working at Big T

Should members of the public let the restoration crew know about any site issues or concerns?

Yes, interaction and communication with the public is important as well as necessary for us to be able to identify hazards or potential hazards that can develop around the site. The public sometimes visits areas of the site that the work crews have not yet progressed to and can inform the crew of any trail issues they encounter. In addition, there have been instances where aggressive dogs have been encountered off leash at Big T and members of the public have made us aware so we could avoid them and coordinate a solution with the proper authorities to contain/remove them. Last year while we were working out at Big T, we were informed that an armed robber was at large and believed to be somewhere on the Big T property. This allowed us to quickly mobilize to work in more public areas and inform residents entering the site that were unaware of the situation. Communicating with the public allows us to pass on information quickly to avoid unnecessary injury.

What else would you like readers to know about your work at Big T?

Even though our work out at Big T is limited in scope, our restoration crew and biologists are passionate about the work we do. Every day we are working to balance mitigation goals and maintain Big T as a place that all can enjoy!

Join us for the 14th annual

Big Tujunga Wash Mitigation Area

TRAIL CLEANUP DAY

January 21, 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) 458-6327 or e-mail btwma@pw.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.

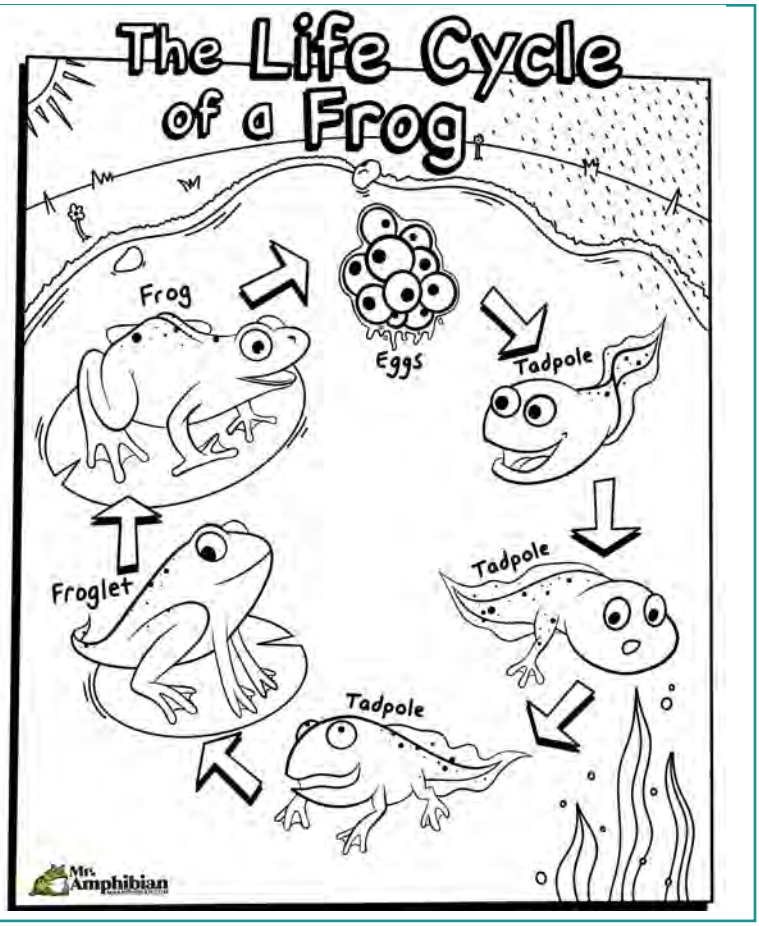
Public Works
LOS ANGELES COUNTY

COUNTY OF LOS ANGELES FLOOD CONTROL DISTRICT

Kid'S Corner

Click on the link to visit Mr. Amphibian's website at www.mramphibian.com to learn about amphibians.

You can also go to www.mramphibian.com/frog-life-cycle-kids to learn about the lifecycle of a frog and then color in the lifecycle to the right.



Report emergencies and incidents such as fire call 911

• To report minor incidents or regulation infractions contact Los Angeles County Sheriff's Department, Parks Bureau Trails Team at (323) 845-0070. (Please DO NOT use 911.)

• Do not attempt to enforce regulations yourself; please allow law enforcement to handle the situation or incident.

• 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
Phone: (626) 458-6158

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