SECTION 1.0 - INTRODUCTION

1.1 PURPOSE AND GOALS

In mid-1999, Chambers Group, Inc. (Contractor) prepared a Master Mitigation Plan (MMP) for the Big Tujunga Wash Mitigation Bank for the Los Angeles County Department of Public Works (LACDPW). The purpose of the MMP is to serve as a guide for implementation of the various enhancement programs and to fulfill the California Department of Fish and Game (CDFG) requirement for the preparation of a management plan for the site. The MMP encompasses strategies to enhance and protect existing habitat for wildlife, and to create additional natural areas that will be utilized by wildlife and by numerous user groups. In addition, the MMP includes programs for the removal of exotic fish and amphibians, bullfrogs (*Rana catesbeiana*) and crayfish (*Procambarus clarkii*), from the Tujunga Ponds, trapping to control brown-headed cowbirds, plans for development of a formal trails system, and development of public awareness and education at the site. Eradication of exotic plant species, giant reed (*Arundo donax*) and tamarisk (*Tamarix ramosissima*), and habitat restoration and revegetation programs are also included in the MMP. The MMP is designed to include a 5-year program of implementation, maintenance, and monitoring of the enhancement strategies.

The MMP also includes an optional program to create a diverse coast live oak-California sycamore woodland and coastal sage scrub habitat at a disturbed upland area on the site that may provide additional mitigation credits. The woodland is designed to provide foraging and nesting habitat for upland species as well as cover for both wildlife and equestrians. The coastal sage scrub is designed to provide habitat for the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*).

Implementation of the MMP began in August 2000. The programs initiated include exotic plant species eradication, native habitat restoration and revegetation, trails system establishment, water quality monitoring, and the public outreach program. An annual implementation report is required under Section 6 of the MMP to document the portion of each program that was implemented during the first year of the project. This report includes detailed descriptions of the methods used to implement the programs initiated in the year 2000, the current monitoring status, and recommendations for maintenance and remedial actions, if required.

1.2 SITE DESCRIPTION AND LOCATION

The Big Tujunga Wash Mitigation Bank is located in Big Tujunga Wash, just downstream of the 210 Freeway overcrossing, near the City of Los Angeles' Sunland area in Los Angeles County's San Fernando Valley. A map showing the general vicinity can be found on Figure 1-1. The site is bordered on the north and east by the 210 Freeway and on the south by Wentworth Street. The west side of the site is contiguous with the downstream portion of Big Tujunga Wash. A map showing the project location can be found on Figure 1-2. The Big Tujunga Wash Mitigation Bank supports two watercourses, one containing flow from Big Tujunga Wash proper, and the other conveying the flow from Haines Canyon to Big Tujunga Wash. The flow in the Big Tujunga Wash, on the north side of the site, is partially controlled by Big Tujunga Dam and is intermittent based on rainfall amounts and water releases from the Dam. The flow in Haines Canyon Creek, located on the south side of the site, 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 wholly located within a state-designated Significant Natural Area (LAX-018) and the biological resources found on the site are of local, regional, and state-wide significance.

The Big Tujunga Ponds and surrounding habitat, consisting of approximately 27 acres located in the northeast corner of the site were originally created as part of the mitigation measures for the construction of the 210 Freeway and are currently under the jurisdiction of the Los Angeles County Department of Recreation and Parks (LACDRC). An aerial photograph showing Big Tujunga Wash, Haines Canyon Creek, and the Tujunga Ponds can be found on Figure 1-3. LACDRC has no active management plan in place for these ponds and as a result, the pond habitat is severely degraded.

Figure 1-1 - Vicinity Map

Figure 1-2 - Project Location Map

Figure 1-3 - Aerial Photo

1.3 SUMMARY OF MASTER MITIGATION PLAN TASKS

This summary identifies the elements of the MMP undertaken during the year 2000. Table 1-1, at the end of this section, shows the implementation dates and projected finish schedules for these key elements.

1.3.1 Tasks Initiated in 2000

Exotic Species Eradication (Initial)

This program consists of the Contractor's initial removal of non-native invasive vegetation (including giant reed, tamarisk, water hyacinth (*Eichhornia crassipes*), and non-native predatory wildlife (including cowbirds, bullfrogs, and crayfish) from the LACDPW's property and the adjacent Tujunga Ponds. Although the LACDRP owns the Tujunga Ponds instead of the LACDPW, the LACDPW's MMP includes non-native species removal within the Ponds because they are the primary introduction sites for these harmful species on the LACDPW's adjacent property. The exotic species removal program was initiated in November 2000 with *Arundo* removal at the Tujunga Ponds. Removal of water hyacinth was initiated in December 2000. Section 2.0 provides a summary of the native habitat restoration program. Section 3.0 describes the exotic plant removal methods and progress for the year 2000. Section 4.0 describes the exotic wildlife removal program and progress. Section 5.0 provides a brief overview of the brown-headed cowbird trapping and removal program.

Trails Enhancement and Reclamation (Initial)

This program will formalize joint equestrian and hiking trails through the Big Tujunga Wash Mitigation Bank site to allow traffic that is compatible with the site's primary function of habitat restoration and preservation. This program consists of the LACDPW's installation of portable toilets and trash receptacles, its entering into a partnership agreement with a sponsor for trash collection, and the Contractor's construction and placement of information kiosks. The trails reclamation program consists of the Contractor's actions to close non-essential trails and reclaim them for habitat. These actions include the installation of necessary barriers and signs, and the planting of native vegetation in the retired pathways. The trails reclamation program was initiated in August 2000. The progress of the program is described in Section 6.0.

Community Awareness Program

This program consists of utilizing a Community Advisory Committee, newsletters, and fact sheets to educate the local community (the primary source of visitors to the site) about the site's habitat preservation function and the importance of preserving and protecting the site. Section 7.0 describes the Public Awareness and Outreach Program.

Water Quality Monitoring (Initial)

This program begins with the LACDPW's collection and analysis of baseline (pre-project) water quality samples and continues with quarterly sample collection and analysis by the Contractor throughout the 5-year MMP implementation. Baseline samples were collected on the site in August and December 2000. The details of the water quality monitoring status are provided in Section 8.0 of this report.

Mitigation Banking Agreement

This program consists of entering into an agreement with CDFG to keep track of LACDPW's mitigation credit usage from the Big Tujunga Wash Mitigation Bank site.

Sycamore-Oak Woodland Enhancement and Monitoring

This optional program consists of planting an 11.7-acre area near Cottonwood Avenue to create a sycamore-oak woodland. The program also includes 5-years of maintenance and monitoring of the revegetation success. Section 9.0 describes the implementation and status of the coast live oak - sycamore woodland program.

Site Inspection and Maintenance

This program consists of the Contractor's actions to oversee the effectiveness of its efforts regarding the trails, exotic species removal, and revegetation of riparian and upland areas. Inspections occur on a monthly basis during the first year, on a quarterly basis during the second year, and semi-annually during the third, fourth, and fifth years of the MMP implementation. Maintenance inspections were initiated at the coast live oak - sycamore woodland site in December 2000. The program is described in detail in Section 9.0.

1.3.2 Tasks to be Implemented in 2001

This summary identifies the elements of the MMP to be initiated during the year 2001.

Success Monitoring - Vegetation

This program consists of the Contractor's monitoring of vegetation communities and its capacity as wildlife habitat during the five-year MMP implementation. The purpose of the monitoring is to determine the health of the site, the level of success of the MMP measures, and the compatibility of recreational activities with the site's primary function of habitat preservation and enhancement. The Contractor will prepare the monitoring reports and the LACDPW will transmit the reports to the resource agencies that are issuing the mitigation credits. The first success monitoring surveys will be conducted in late 2001.

Success Monitoring - Fish and Wildlife

This program consists of the Contractor's monitoring of populations of sensitive fish (such as the Santa Ana sucker), birds (such as the least Bell's vireo and southwestern willow flycatcher), and amphibians (such as the arroyo southwestern toad) during the 5-year MMP implementation. The purpose of the monitoring is to determine these populations' health at the site, the level of success of the MMP's trails, exotic species eradication and restoration measures, and the compatibility of onsite recreational activities with the site's primary function of habitat preservation and enhancement. The Contractor will prepare the monitoring reports and the LACDPW will transmit the reports to the agencies that are issuing the mitigation credits. Baseline surveys to document the populations of sensitive fish species were conducted in December 2000. The initial results of these surveys are included in Section 4.0.

Annual Documentation

This documentation consists of the Contractor's reporting of the results of its success monitoring of wildlife and vegetation. The Contractor will prepare the monitoring reports and the LACDPW will transmit the reports to the agencies that are issuing the mitigation credits.

Entrance to Marybell Avenue

This optional measure consists of creating an equestrian entrance at Marybell Avenue similar to the existing entrance at Wheatland Avenue.

Regular Patrolling of the Mitigation Bank

This measure consists of LACDPW employing local equestrian groups by means of a partnership agreement to provide daily patrols to discourage vandalism and unauthorized activities on the site. This measure is proposed as an option because additional information and coordination with law enforcement authorities are needed to determine the feasibility and effectiveness of using citizen patrols.

Table 1-1
MMP Implementation Schedule

Task	Performer	Start	Finish
Basic Elements			
Contractor Contract	LADPW	04/11/2000	06/30/2000
Water Quality Monitoring	LADPW and Contractor	03/15/2000	04/04/2005
Trails Enhancement	LADPW and Contractor	08/01/2000	12/01/2005
Trails Reclamation	Contractor	08/02/2000	11/30/2002
Exotic Species Removal (Initial)	Contractor	08/15/2000	2/28/2001
Riparian Habitat Enhancement (Excluding Optional Cottonwood Ave. Area and Tujunga Ponds)	Contractor	12/01/2000	12/01/2005
Site Inspection and Maintenance (Trails, Erosion Control, Exotics Control)	Contractor	12/01/2000	12/01/2005
Annual Success Monitoring - Wildlife	Contractor	07/15/2001	08/04/2005
Annual Success Monitoring - Vegetation	Contractor	08/31/2001	08/31/2005
Annual Documentation	LADPW and Contractor	12/01/2000	01/07/2006
Community Awareness Program	LADPW and Contractor	07/15/2000	12/31/2005
Mitigation Banking Agreement	LADPW and Contractor	07/15/2000	07/15/2001
Optional Elements			
Sycamore - Oak Woodland Enhancemment	Contractor	10/10/2000	11/31/2005
Obtain Additional Mitigation Credits	LADPW	04/15/2001	07/15/2001
Implementation and Success Monitoring	Contractor	07/15/2001	08/31/2006
Obtain Preliminary Estimate of Additional Mitigation Credits	LADPW	05/01/2000	06/30/2000
Feasibility Study and Selection of Modification Option	Contractor	09/01/2000	07/15/2001
Obtain Additional Mitigation Credits	LADPW and Contractor	07/15/2001	12/31/2001
Regular Patrolling	LADPW and Contractor	11/15/2000	12/31/2005
Marybell Avenue Entrance	LADPW and Contractor	07/15/2002	12/31/2002

1.4 STATUS OF PERMITS

LACDPW recently entered into a Section 1601 Streambed Alteration Agreement (SAA) with the CDFG for the implementation of the enhancement measures at the Big Tujunga Wash site. The SAA stipulates the activities that can be undertaken in and adjacent to the stream channel. Because this project is primarily a habitat restoration project, the SAA does not require any mitigation for the activities that will be taking place. Instead, the SAA primarily focuses on measures that must be done to protect the sensitive plants, fishes, and animals on the site. The SAA for the Big Tujunga Wash site describes the accepted methods for removing the exotic (non-native) plants and animal species. The contractors performing the actual work on the site must abide by the conditions in the SAA.

The U.S. Army Corps of Engineers (Corps) and the Regional Water Quality Control Board (RWQCB) do not have to issue permits because the only activities taking place on the Big Tujunga Wash site are habitat restoration and enhancement activities. On the other hand, because the federal-listed as threatened Santa Ana sucker (*Catostomus santaanae*) does occur in the stream on the site, U.S. Fish and Wildlife Service (USFWS) does require that the project not result in negative impacts on this species. An explanation of the permitting process with USFWS is described in the Exotic Wildlife Removal section of this report.

The terms and conditions of the Mitigation Banking Agreement are currently being negotiated, and it is difficult to anticipate a finalization date.

1.5 RESPONSIBLE PARTIES

The LADPW shall be responsible for the implementation of the MMP. The contact person is:

Mr. Jason Pereira
Water Resources Division
Los Angeles County Department of Public Works
900 S. Fremont Avenue
Alhambra, California 91803-1331
(626) 458-6131

The preparer of the MMP is Chambers Group, Inc. The contact person is:

Ms. Mari Schroeder
Project Manager
Chambers Group, Inc.
17671 Cowan Avenue, Suite 100
Irvine, California 92614
(949) 261-5414

SECTION 2.0 - NATIVE HABITAT RESTORATION PROGRAM

2.1 INTRODUCTION

The ultimate goal of the Big Tujunga Wash Mitigation Bank site is to provide for long-term preservation, management, and enhancement of the biological resources for the benefit of the state's fish and wildlife resources. In addition, the Bank will provide compensation for loss of similar resources elsewhere in the Los Angeles Basin.

2.1.1 Purposes and Goals

Enhancement is intended to improve the habitat value of an existing plant community. The goal of the riparian enhancement plan will be to remove invasive non-native weed species, such as giant reed, and to replant these areas with native riparian species. In addition, several extraneous equestrian trails throughout the riparian zone will be retired and reclaimed with native riparian species. A total of approximately 40 acres of habitat along Haines Canyon Creek and 20 acres of habitat surrounding the Tujunga Ponds will be enhanced. The composition of the replacement plantings in the enhancement areas will support the breeding and foraging activities of a variety of sensitive riparian species such as the least Bell's vireo (*Vireo bellii pusillus*). The enhancement plan consists of various tasks designed to remove the non-native species, prepare the areas prior to planting, and to install cuttings and container plant materials.

The long-term goal of the MMP is to provide a site that provides habitat for common and listed species of wildlife, requires minimal maintenance, and is resistant to invasion by non-native plant species. The established communities will encourage biotic interactions from the micro-organismal to the macro-organismal level by maintaining nutrients within the organic matter and providing a self-sustaining system.

2.1.2 Vegetation Descriptions

The habitat restoration and enhancement plan will improve the habitat quality of approximately 60 acres of southern arroyo willow woodlands along Haines Canyon Creek and the Big Tujunga Ponds. The southern willow riparian woodland is dominated by arroyo willow (*Salix lasiolepis*) occurring in the area surrounding the Tujunga ponds and follows the stream running along the southern section of the property (Haines Canyon Creek). Red willow (*Salix laevigata*) and black willow (*Salix gooddingii*) are well represented. Occasional individuals of Fremont cottonwood (*Populus fremontii*) and white alder (*Alnus rhombifolia*) are also found. The understory is dominated by eupatorium (*Ageratina adenophora*), mule fat (*Baccharis salicifolia*), and mugwort (*Artemisia douglasiana*). A small stand of southern arroyo willow riparian woodland also occurs along a wash in the northern portion of the site (Big Tujunga Creek). Mule fat scrub also occurs in the restoration and enhancement areas. This tall, herbaceous riparian scrub is dominated by mule fat. The mule fat scrub on the site is more sparse than is usual observed. Figure 2-1 shows the locations and types of restoration and enhancement areas on the site.

2.2 METHODOLOGY/DATE OF IMPLEMENTATION

Site preparation included conducting a site walkover in early October 2000 to identify exotic plant removal areas, and the placement of orange snow fencing across trails and other access points to delineate the limits of the restoration areas. Trails to be reclaimed to native habitat were identified, and access to these trails was blocked with vegetative debris such as dead branches. Work areas were delineated in four sections to facilitate continued use of the site during construction. Work was initiated in Section 1, which includes the riparian habitat around the Tujunga Ponds. The work sections are shown in Figure 2-2.

Figure 2-1 - Restoration Area Map

Figure 2-2 - Restoration Work Areas

The first step in the restoration plan is preplanting weed control, including removal of giant reed and tamarisk from areas to be reclaimed to native habitats. Giant reed removal was initiated on November 13, 2000 in the riparian habitat surrounding the Tujunga Ponds. The status of the exotics removal program is described in detail in Section 3.0 - Exotic Plant Removal Program.

2.3 PROJECT MONITORING STATUS

With the exception of initial site delineation and debris removal, the native habitat restoration program activities were limited to exotic plant removal in Sections 1 and 2. Biological monitors were onsite during the exotic plant removal process as described in Section 3.0. Implementation monitoring reports are included in Appendix A.

Once the exotics removal program is completed, biological monitors will be onsite to oversee the implementation and completion of the enhancement planting in the restoration areas. Maintenance monitoring will be initiated in the riparian enhancement areas once planting is finished, and the surveys to evaluate the first year's progress will be initiated in late 2001.

2.4 SITE EVALUATION AND RECOMMENDATIONS

Overall Site Conditions

Construction activities continue in Areas 1 and 2 in the east portion of the site as of the end of 2000. Large areas have been cleared of giant reed, and the cleared biomass has been reduced to chips, which were redistributed over the cut stumps. Work to clear giant reed and other exotics is expected to continue in Areas 1 and 2 through February 2001. Hand removal of giant reed is expected to begin in the center portion of Haines Canyon Creek in mid-January 2001, and will progress downstream. The contractor has been instructed to clear the trails through work Areas 1 and 2 so that equestrians may access these areas on weekends when construction activities are not taking place.

The work areas are relatively free of debris, with the exception of some large pieces of material used to construct makeshift structures. The individuals living in these structures have been encouraged to move off the site (See Section 7.0). Once they have been relocated, the structures will be dismantled and the material removed from the site.

Maintenance Recommendations And Remedial Actions

Continued efforts to relocate individuals living on the site are recommended. No additional maintenance recommendations or remedial actions are required at this time.

SECTION 3.0 - EXOTIC PLANT REMOVAL PROGRAM

3.1 INTRODUCTION

The exotic plant removal program includes the removal of non-native plant species from Haines Canyon Creek and the Tujunga Ponds. These invasive weeds compete with the native vegetation for light, water and nutrients, and decrease the ecological value of the area. Native wildlife avoid using exotic vegetation for foraging, nesting, and cover. Removal of giant reed and other weed species will reduce competition pressure on the native southern arroyo willow plant community and allow for rapid recovery of the native habitat. All non-native weed species within the creek will be eradicated, with an emphasis on giant reed, water hyacinth, and tamarisk. Other weed species to be removed include eucalyptus (*Eucalyptus* sp.), pepper trees (*Schinus molle* and S. *terebinthifolia*), castor bean (*Ricinus communis*), umbrella sedge (*Cyperus involucratus*), mustards (*Brassica* spp.), and tree tobacco (*Nicotiana glauca*).

3.1.1 Purpose and Goals

Enhancement is intended to improve the habitat value of an existing plant community. The overall goal of the riparian enhancement plan is to remove invasive non-native weed species such as giant reed and to replant these areas with native riparian species. The enhancement plan consists of various tasks designed to remove the non-native species, prepare the areas prior to planting, and to install cuttings and container plant materials after the exotic species have been removed.

Impacts on existing habitat are minimized through project scheduling and construction monitoring. Construction on the site began after the end of the nesting season (approximately August 30th) to minimize impacts on nesting bird species and breeding activities of amphibians; and avoid violation of the Migratory Bird Treaty Act. Biological monitors oversee the activities of the contractor removing the exotics, and provide recommendations for changes in the removal methods and other construction activities. The following sections describe the methods used for exotic plant species removal, and the progress of the program through December 2000.

3.2 METHODS

To facilitate continued use of the site by equestrians, exotic plant removal was initiated in and confined to the east portion of the site, which includes the Tujunga Ponds (Figure 2-2). Orange plastic construction fencing was used to block access to trails leading into areas where machinery and crews were active. Signs were also posted at strategic locations advising equestrians and hikers of the temporary closures. Where large areas of giant reed are removed near the stream, silt fencing has been installed along the stream banks to prevent the flow of debris into the stream.

3.2.1 Giant Reed Removal

Giant reed removal began on November 13, 2000 near the Tujunga Ponds. The delayed start of the project necessitated a change in the recommended removal technique. Rather than applying a foliar spray to standing reed that had entered a dormant stage, the larger masses of reed were mowed and chipped in place to reduce the standing biomass. Regrowth will be treated with a high-concentration solution of Rodeo® prior to replanting the riparian areas. This method will facilitate replanting during the appropriate season (i.e., late winter).

Removal techniques included mechanical cutting and mulching, chain pulling, and hand-cutting the material with chain saws. Mechanical cutting/mulching was accomplished using a mulcher attachment on a small tractor. The mulcher is a large, toothed cylinder that operates much like a lawn mower. The reed is first cut near the base. The stalks are then pulled into the cylinder by the teeth, where it is chipped into

mulch and redistributed over the ground surface. The stalks are cut close to the ground to prevent damaging the tractor tires as it travels farther into the stands of reed. Reed stumps cut using the mulcher are not treated with herbicide because the mulched material immediately covers the stumps to a depth of 3 to 6 inches. The regrowth will be allowed to reach 3 to 4 feet in height, and will then be treated with a highly concentrated (up to 100 percent) solution of Rodeo® using hand held equipment.

A chain pulled by a small tractor was used to remove large clumps of reed growing adjacent to the stream. The chain is positioned around a clump about 2 feet above the ground, and attached to a tractor. When pulled, the chain cuts through the stalks, and drags the bundle away from the stream edge. The stalks are stacked in a clear area where the mulcher attachment is then used to reduce the biomass to chips. Hand cutting using a chain saw is used where reed is growing immediately adjacent to preserved native vegetation (i.e., willows and mule fat). The reed is cut, and the canes dragged to an open area for mulching. Stumps cut with either the pull chain or chain saw methods are immediately sprayed with Rodeo®. Regrowth will be treated as described for the mechanical mowing/mulching method.

3.2.2 Water Hyacinth Eradication Technique

Water hyacinth eradication was initiated on December 21, 2000. The hyacinth was inactive at this time and most of the material is reduced to large stem pieces floating just under the surface of the water. Some of the plants interspersed among cattails along the pond banks have large leaves.

The free-floating plant material is removed from the water by hand. Two small boats powered by outboard engines are used to gather the material into floating bundles, which are then pulled to the bank where it is removed. Removed hyacinth biomass is spread over the ground away from the pond edge to allow excess water to drain. The drained plant material will be collected from the site and disposed of at an offsite dump location.

Crews will work to finish clearing the eastern-most pond first, then direct their efforts to the west pond. All free-floating material will be removed. Water hyacinth that is rooted in the mud will be treated with an application of undiluted herbicide (Rodeo®) per label guidelines. The dead biomass will then be removed approximately 2 months after the herbicide treatment.

3.3 STATUS/RESULTS

Giant reed removal was initiated on November 13, 2000 and was approximately 60 percent complete as of December 22, 2000. The largest clumps of giant reed, located primarily in the east portion of the site (Areas 1 and 2), were removed first. Substantial handwork to remove giant reed growing adjacent to preserved vegetation in these areas remains to be done. Some regrowth was noted during the later weeks of December 2000, up to 1 foot in height. As described in the methods section, the regrowth will be treated when it is approximately 3 feet high, prior to planting in the area.

Water hyacinth removal was initiated on December 21, 2000 and is expected to continue for approximately 4 weeks. Tamarisk removal has not yet been implemented, but is expected to begin in February 2001. Some incidental removal of other exotic plant species from the restoration areas and along side trails has been accomplished as giant reed and hyacinth is removed. These activities will continue and will be completed before planting begins in 2001.

3.3.1 Monitoring Schedule

Biological monitors were present on the site during the initiation of giant reed and hyacinth removal activities. Monitors were onsite daily during the first weeks of the giant reed removal activities to oversee the removal technique and to ensure that the workers understood the constraints on the site (i.e., protection of native vegetation and the stream channel). Monitors overseeing the giant reed removal

are currently scheduled randomly during the week, and without prior notification to the contractor. A monitor is present on the site no less than twice per week. The activities are recorded on a daily monitoring report form. The monitoring reports are included as an appendix to the monthly implementation monitoring report, which includes all construction activity on the site during the month. Copies of the implementation reports for October through December 2000 are included in Appendix A.

3.3.2 Recommendations

The process of giant reed removal in Sections 1 and 2 has taken longer than anticipated, and handwork to clear reed interspersed among the willows in these areas is expected to continue through February 2001. The contractor was instructed to drag cut canes to open areas where they can be chipped by the mulcher. The trails through Sections 1 and 2 should be cleared of chips and reopened for equestrian use on weekends. Trails should be posted with caution signs, and all construction fencing should be removed prior to the weekend.

Closing large sections of the site and specific trails leading into work areas has proven to be impractical. Most of the posted signs closing trails are missing, and all of the construction fencing placed across closed trails was regularly vandalized. Much of the giant reed removal in Sections 3 and 4 is expected to be accomplished by hand. Unless large trees are being felled, we recommend that the trails remain open while exotics are removed in Sections 3 and 4. When large trees are scheduled to be removed, construction crews will close only the trails leading to the area in the morning prior to beginning work, and will reopen the trails in the evening after work is finished for the day. Caution signs will be posted at trailheads and at other strategic locations in the work area.

SECTION 4.0 - EXOTIC WILDLIFE REMOVAL PROGRAM

4.1 INTRODUCTION

The MMP provides direction for the eradication of exotic aquatic wildlife during the 5-year duration and also contains a more detailed description of the various methodologies available for exotic wildlife removal. The exotic wildlife removal program consists of the removal of non-native fishes, bullfrogs and crayfish from Haines Canyon Creek and the Tujunga Ponds. Bullfrogs are not native to the area and pose a major threat to native wildlife because they have voracious appetites and prey upon the sensitive fishes, frogs, and toads. Long-term monitoring of exotic aquatic wildlife populations and periodic eradication will be negotiated between LACDPW and the resources agencies.

4.1.1 Purpose and Goals

Swift et al. (1993) note "Today, natural habitats for the freshwater fishes of coastal southern California exist in hilly or mountainous headwater areas and in a few coastal localities that have remained protected. The broad lowland areas between are highly modified and largely uninhabitable for resident species and those that migrate the headwaters and the coast. Thus, the priorities for the preservation of the native fauna are: (1) protection of the remaining coastal and interior habitats containing elements of the native fauna, and (2) restoration and/or rehabilitation of some portion of the now unsuitable intervening areas." Additionally, widespread loss and alteration of habitats has resulted in major reductions of both local species diversity and changes in the status and stability of many local vertebrate populations. Due to their extremely limited extent, the nature and degree of alteration, human activities and actions have disproportionately affected riparian and wash habitats and the species they hold. These include channelization, construction of dams, changes in historic water flow patterns, the effects of exotic species and other anthropogenic factors.

At present, suitable habitat on the project site for sensitive native aquatic vertebrates is largely confined to the portions of Haines Canyon Creek downstream from the ponds and in Tujunga Ponds when there is standing water in the system. Lacustrine habitats, particularly deep-water lacustrine habitats were a historically very uncommon type of environment in southern California, usually occurring only as seasonal deep-water pools along rivers and streams. The ponds essentially do not provide habitat for most native vertebrate species. Additionally, the ponds are likely to add significant negative impacts on the native vertebrate fauna by fostering the presence of a source population of exotic invertebrates and vertebrates. These exotic species may directly impact natives through predation or competition, or indirectly through transmission of pathogens and/or parasites.

Thus, the ultimate goals of this project are:

1. to restore or create and maintain habitat for native fishes and other sensitive vertebrate species;

2. to eliminate, diminish and/or restrict habitat which fosters the maintenance of exotic species; and

3. to engage in localized or site-by- site direct control efforts for exotic species to complement goals 1 and 2.

4.2 STATUS/RESULTS

LACDPW has been working cooperatively with the USFWS, who approved the fish sampling and exotic wildlife removal without a Section 7 consultation under the Federal Endangered Species Act. Rather, USFWS approved the work through the individual permit of the fish expert and exotic wildlife

removal subconsultant, Dr. Camm Swift. The following sections describe the two primary efforts of exotic wildlife removal, sampling within Haines Canyon Creek, and sampling and subsequent removal of exotic aquatic species from westernmost Tujunga Pond.

4.2.1 Sampling in Haines Canyon Creek

4.2.1.1 Methodology

Dr. Dan Holland, Dr. Swift, and Robert Goodman conducted initial surveys at the site to determine the most appropriate method of eradication of exotic wildlife species and enhancement for native fishes and amphibians. Transects for native fish sampling within Haines Canyon Creek were conducted on December 5, 7, and 20-22, 2000. Transects were established at random by measuring two 20-meter (m) transects for every 200 m of stream habitat. Transects were established within the first 20-m stretch of both riffle and run habitat. A total of 16 transects were conducted. At each collection, each transect was blocked at the upper and lower end with an 1/8-inch mesh seine. This was done with minimal disturbance to the transect. Two persons then seined the transect area for at least 1 hour with a variety of techniques to exhaustively sample all the fishes. Native fishes were held in large buckets and oxygenated frequently. At the end of each collection the fishes were counted and released back into the transect area. In addition to collecting data on the fishes, habitat features such as water temperature, sizes estimated to the nearest 10 centimeters, substrate type, depth, width, available cover, canopy, and gradient or slope were also measured and recorded.

4.2.1.2 Results

The transects in the stream contained moderate to large numbers of all three native fish species, Santa Ana sucker, Santa Ana speckled dace (*Rhinichthys osculus*), and arroyo chub (*Gila orcutti*). Only eight specimens of non-native fishes, two small largemouth bass (*Micropterus almoides*) and six adult fathead minnows (*Pimephales promelas*), were collected and removed from the stream. Hundreds of crayfish were removed because large numbers were caught in the seines used for fishes. In general, the native fishes were the most abundant in the lower end of the stream, but the suckers were found in the uppermost transect, approximately 30 m downstream of the outflow of the western pond.

4.2.2 Exotic Wildlife Removal in the Tujunga Ponds

4.2.2.1 Methodology

Exotic wildlife collection and removal in the westernmost Tujunga Pond will be initiated in January 2001. Crayfish and turtle traps and gill nets will be utilized to catch crayfish, fish, and turtles. Traps will be baited with cat food or sardines. Before the traps are set, visual surveys will be conducted to confirm that no native species would be encountered in the ponds. These surveys also help to establish the numbers of possible game fishes that might be salvaged by CDFG.

4.3 CONCLUSION

The exotic fishes are not common in the ponds or stream and are expected to be removed by the summer of 2001. The goal will be to remove all of the large sunfishes and bass before they begin to spawn between March to June 2001.

SECTION 5.0 - BROWN-HEADED COWBIRD PROGRAM

5.1 INTRODUCTION

The brown-headed cowbird is an obligate brood parasitic bird species, meaning this species does not build its own nests or tend for its own young. Instead, female cowbirds deposit one or more eggs into a host species' nest, often removing or destroying some of the host eggs. The brown-headed cowbird has a variety of target host species and has been recorded as successfully parasitizing 144 of 220 species in whose nests its eggs have been observed (Ehrlich et al. 1988). Some host species include threatened or endangered species such as the coastal California gnatcatcher, least Bell's vireo and southwestern willow flycatcher (*Empidonax traillii extimus*). In response, many of the host species, predominantly eastern species, have behavioral adaptations to deal with parasitism, such as ejecting the foreign egg, covering over the foreign egg, or abandoning the parasitized nest altogether. However, many other host species that have not evolved defensive reactions do not recognize cowbird eggs, and readily accept and rear cowbird young. Adult cowbirds will often destroy host nests containing nestlings by puncturing, removing, or eating host eggs, all of which increase the survivorship of young cowbirds at the expense of the host's reproductive success. Cowbird eggs do not closely mimic host eggs, nor do the young cowbirds expel host eggs and young rather, cowbirds tend to hatch earlier, grow faster, and crowd out or reduce the food intake of the hosts' young (Ehrlich et al. 1988). Cowbird eggs hatch in 10 days, several days ahead of most host species. In addition, cowbird chicks develop vigorous food begging behavior after just 1 day, compared to the 4 days required for most host species. In many of the smaller host species, the cowbird chick is the only successful fledging from any parasitized nest.

Female cowbirds, which are free from the time and expense of incubating and raising young, can lay as many as 40 eggs a season, far more than the average host species. Thus, a single successful female cowbird could ultimately parasitize 40 different host nests in one breeding season and in the process significantly reduce the breeding success of 40 pairs of host species. The decline in neotropical migratory songbirds across North America has been linked to, among other factors, the increase in cowbird numbers (Brittingham and Temple 1983; Harris 1991; Laymon 1993; Stallcup 1993). Although approximately 97 percent of cowbird eggs and nestlings fail to reach adulthood, cowbird parasitism affects host species by reducing the number of successful young. Furthermore, nest abandonment by the host species results in zero production for that breeding pair and therefore the reproductive effort will be significantly lower than that of an unparasitized species (Ehrlich et al. 1988). This cowbird species is not native in the western United States, so the host bird species here have not adapted to the presence of the cowbirds. In the eastern United States, where this bird is native, the host birds typically abandon a nest where a cowbird has laid its egg. While brown-headed cowbird parasitism poses a major threat to many species of songbirds, some host species, including the coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher, have also had to contend with habitat loss and fragmentation, which increase the risk of being parasitized (Harris 1991; Laymon 1987; Mayfield 1977; Stafford and Valentine 1985).

5.2 PURPOSE AND GOALS

Cowbird traps were first used as a localized control in the early 1970s in Michigan and by the mid-1980s were in widespread use in southern California and Texas, mostly in programs associated with the protection of threatened or endangered bird species. These traps proved to be so successful at reducing cowbird numbers and levels of parasitism in the study areas that the USFWS began to require cowbird removal as mitigation for a variety of development projects. Inclusion of the 5-year brown-headed cowbird trapping and removal program at the Big Tujunga Wash Mitigation Bank site will increase the overall value of the site as a conservation bank by allowing the sensitive riparian bird species to successfully reproduce without being parasitized by cowbirds.

5.3 STATUS

The first year of brown-headed cowbird trapping will not begin until spring 2001, therefore, the 2000 brown-headed cowbird program involved conducting background research and preparation for the upcoming trapping season. The brown-headed cowbird trapping program will be conducted in accordance with Griffith Wildlife Biology's brown-headed cowbird trapping protocol which is the USFWS recommended protocol and is provided in Appendix B. Cowbirds that are trapped will be donated to other trapping programs, educational institutions such as natural history museums, local schools, or wildlife centers such as the Wildlife Waystation. The four onsite trap locations were determined during Phase I of the MMP. As a result of the permitting process, USWFS required LACDPW to include three additional offsite traps. The purpose of the offsite traps is to ensure that cowbirds in the vicinity of the site that have the potential to travel to and from Big Tujunga Wash are also trapped and removed from the area. The three offsite locations include a local equestrian's residence, the Hansen Dam Equestrian Center, and the Hansen Dam Recreation Area. Site visits were conducted in order to familiarize the landowners with the purpose and anticipated schedule of the cowbird program and to decide on the exact placement of these offsite traps. These offsite trap locations were strategically chosen in an effort to intersect all brown-headed cowbird ingress and egress near the project site. Prior to the 2001 trapping season, a field visit to verify the seven identified locations shall be conducted. The cowbird trap locations are shown on Figure 5-1 and 5-2.

A total of seven cowbird traps were ordered from Innovative Enclosures, a reputable company with experience constructing protocol traps. Delivery and onsite assembly of the traps is scheduled for early March 2001. The trapping will begin on March 15 and run through July 15, 2001.

Figure 5-1 - Cowbird Trap Locations

Figure 5-2 - Cowbird Trap Locations

SECTION 6.0 - TRAILS PROGRAM

6.1 INTRODUCTION

This program will formalize joint equestrian and hiking trails through the Big Tujunga Wash Mitigation Bank site to allow traffic that is compatible with the site's primary function of habitat restoration and preservation. This program consists of the LACDPW's installation of portable toilets and trash receptacles, its entering into a partnership agreement with a sponsor for trash collection, and the Contractor's construction and placement of information kiosks. The trails reclamation program consists of the Contractor's actions to close non-essential trails and reclaim them for habitat. These actions include the installation of necessary barriers and signs, and the planting of native vegetation in the retired pathways. The trails reclamation program was initiated in November 2000.

6.1.1 Purpose and Goals

The overall goal of the trail system is to allow for recreational activity while minimizing impacts on the habitat quality at the Big Tujunga Wash Mitigation Bank site. Essential to this process is the effort of returning unnecessary trails to their natural condition for the overall improvement of habitat quality. Because the trails closure and restoration is comprised of riparian habitat restoration, the trails program is an integral part of the evaluation process to help determine the success of the overall riparian restoration and enhancement program. Thus, it is evaluated and reported as part of the functional analysis of the riparian habitat and during the regular maintenance and monitoring of the riparian habitat restoration sites. It is also essential for determining if recreational use is having negative impacts on the success of the riparian restoration and enhancement program, or if wildlife use of the site is being compromised. The following sections describe implementation tasks that were conducted during the first calendar year of the restoration program, current status of the program, problems that were encountered during the implementation process, and future proposed implementation tasks.

6.1.2 Location

Figure 6-1 shows the trails map of the Big Tujunga Wash Mitigation Bank. The trails map was overlayed on a 1 inch = 200 feet aerial photograph of the site and shows the trails as they exist, trails that are currently present but that will be closed (reclaimed) during the second year of implementation, and the four designated main trails that serve as safe and scenic recreational trails. The four main trails include the Water Trail, Bert Bonnett Trail Loop, Dr. Au Trail, and Pond Trail.

Pedestrians and equestrians can access the mitigation bank site at three locations. One entrance is located in the southwest portion of the site at the junction of Wentworth and Wheatland Avenue. A second entrance is located in the southeast corner of the site adjacent to an existing parcel of private land. Formerly, a gap in the fence in the southeast corner of the site along Wentworth served as an entryway for pedestrians and equestrians. This gap in the fence has since been repaired. However, the private landowner just east of this fence has installed a gate at the back of his property, which allows for access to the site. The third entrance point consists of the main east west trail in Big Tujunga Wash. This trail cannot be fenced off from the adjacent properties located west and northeast of the site because a fence placed across Big Tujunga Wash would interfere with water flow by capturing debris. Therefore, the public can freely enter the site via the adjacent properties. In addition to the public entrances, locked gates are located at the Wheatland entrance in the northwest portion of the site, at the Cottonwood/Wentworth intersection on the south side of the site, and at Foothill Boulevard near the junction with Big Tujunga Wash.

Figure 6-1 - Trails Map

6.2 STATUS

The following is an outline of the trails reclamation tasks as taken from the 2000 MMP. Trails implementation tasks were based on this outline and modified in the field as needed. Trails implementation is not complete and will continue on a quarterly basis until each of the following tasks has been successfully implemented.

Trails Program Tasks:

- Determine needs for permitting (404, 401, 1601, and Section 7)
- Obtain permits (if necessary)
- Place and maintain trash receptacles and portable toilets
- Construct and place information kiosks
- Prepare information for inclusion in kiosks
- Place barriers across entrances to reclaimed trails
- Construct and place trail signs
- Remove debris from reclaimed trails
- Plant native plant materials on reclaimed trails
- Maintain reclaimed trails
- Monitor success of trails reclamation
- Annual reporting

6.3 IMPLEMENTED TASKS

The trail program implementation began in August 2000 and continued on an intermittent basis throughout the remainder of the year. Enhancement of trails in 2000 primarily consisted of keeping the trails safe for pedestrians and equestrians and identifying trails to be restored to native habitat. This program is exempt from California Environmental Quality Act (CEQA) under Section 15301(c) because it involves public safety issues. The implementation of the formal trails system program will not involve grading in waterways or wetlands. No mechanical clearing of trails or alteration of waterways was implemented, therefore 404, 401, 1601, and Section 7 permits were not necessary. Figure 6-2 shows the checklists for the trails implementation tasks that have been completed thus far.

6.3.1 Trails Enhancement

Trash receptacles with lids and portable toilets were placed onsite at the designated locations (See Figure 6-1). All were secured in place and are maintained on a regular basis. Trash removal along the trails is conducted on a weekly basis by local equestrian groups. The removal of large stones (over 4" diameter) was conducted along the Water Trail, Pond Trail, and secondary trails within the riparian areas. Overhanging branches and plant materials that obstructed the trail were removed.

6.3.2 Trails Reclamation

Reclaimed Willow Woodland Trails

Several of the old or little used trails have been closed in order to minimize potential impacts on sensitive wildlife species and to decrease the fragmentation of habitat in these areas. Most of the trails that were closed consisted of minor trails that continued off of the main trail for 20 feet and then terminated at areas of heavy plant growth. Several of the trails that have been closed began at points along the main trails and eventually tied back into the main trail at a different location. These trails served no purpose other than providing an alternate route to a destination that could be reached by the main trail.

Figure 6-2

BIG TUJUNGA WASH MITIGATION BANK

TRAILS ENHANCEMENT PROGRAM CHECKLIST

- ☐ Coordinate with Corps and CDFG regarding Nationwide Permit and Streambed Alteration Agreement.
- ☒ Place barriers (logs, rocks, etc.) in front of designated reclaimed trails.
- ☒ Place informative/restrictive signs at closure point of each closed trail.
- ☒ Place portable toilet at main staging area and near Tujunga Ponds.
- ☒ Place trash receptacles along trails in designated areas.
- ☒ Clear large stones, debris, etc. from main trails to an approximately 8 feet width.
- ☐ Trim overhanging branches to approximately 10 feet above ground level (as-need basis).
- ☐ Place trail location signs at designated areas along the main trails.
- ☐ Rake compacted ground of reclaimed trails after closure.
- ☐ Plant cuttings along reclaimed trails.
- ☒ Conduct bimonthly visits.
- ☒ Maintain trails on a bimonthly basis.
- ☐ Monitor success along reclaimed trails as part of the monitoring and maintenance program.

These trails were chosen for closure because they disrupt the continuity of the surrounding area and fragment the habitat. Therefore, it was determined that these types of paths should be closed in order to minimize the impacts of the public on the habitat quality and on the sensitive wildlife species. Large fallen logs, rocks, and other natural debris were strategically placed to deter humans and horses from the continued use of these trails.

Reclaimed Alluvial Scrub Trails

The alluvial scrub trails that have been designated for closure will be closed during the second year of implementation (2001). Trails within the alluvial sage scrub habitat will be closed by placing large rocks or boulders at the points where the trails are closed. In addition to the use of these barriers, large logs from some of the nonnative trees that will be removed may be used to barricade the trails and signs will be posted indicating that the area is being restored.

Because the alluvial habitat is such a dry area and it typically receives water only during rainfall events, no planting will be conducted on these reclaimed trails. These trails will revegetate naturally from the existing seed bank.

6.4 RECOMMENDATIONS

6.4.1 Signs

Trails within the riparian areas near the Tujunga Ponds, on the east side of the mitigation bank site, were temporarily closed during the exotic plant removal. This was done to protect the public during the use of heavy machinery. Signs were posted at each end of the closed trails and branches as well as construction fence were also installed. Within a few days after being placed, almost all of the signs had been removed, fencing was cut or placed aside, and obstructing branches were removed from the trail path. Replacement of the signs and additional obstructions resulted in more of the same problems. Sign of equestrian use was observed along the closed paths despite the apparent construction hazards and closure attempts. Several of the signs were later discovered as part of a roof on a structure that has been constructed within the giant reed on the site. Figure 6-3 contains the checklist for the trails monitoring tasks.

The closed trails are monitored closely and obstructive barriers are put back in place each time they have been moved. Large branches and boulders that aren't easily movable are added each time. This course of action will continue, but if it proves to be inefficient, more permanent blockades may have to be situated at the ends of the reclamation trails. Due to problems encountered with the trails closures and in keeping the signs in place, the construction and placement of information kiosks and informational trail signs has been postponed until later in 2001.

6.4.2 Reestablishment of Trails

An unforeseen problem that has occurred as a result of the arundo removal within the riparian areas is the loss of well-defined trails. Prior to the removal, the dense arundo defined the boundaries of many of the trails. Now that this invasive weed has been removed, the trails are no longer distinguishable. Instead of the well-defined 8-foot wide trail that previously existed, the area is hundreds of feet wide with no specific path. A layer of giant reed chippings covers the entire area. Rather than concentrating on closing off unauthorized areas, efforts were focused on delineating a main trail to show people where to walk and encourage them to remain on the trail. The main trail was marked by clearing the path of giant reed chips thus making the path clearly visible. Large logs were also placed at the edges of the trail in order to clearly identify the trails. Since weather conditions have delayed the planting of willows in these open areas until Fall 2001, the route of the trails can be clearly established during the summer months. Efforts to re-establish these trails will continue and repeated use by equestrians should help to identify the trail locations.

Figure 6-3

BIG TUJUNGA WASH MITIGATION BANK

TRAIL MONITORING CHECKLIST

- ☒ Project Biologist performs monthly inspection of each trail.
- ☒ Remove trash from trails and adjacent areas and place in trash receptacles on as-need basis.
- ☒ Remove overgrowing vegetation from trail paths on as-need basis.
- ☒ Trim low overhanging branches to minimum of 10 feet above ground level on as-need basis.
- ☒ Document any flooding and erosion problems. If unsafe trail conditions occur, temporarily close the trails and notify LACDPW. Do not re-open trails until the problem has been resolved.
- ☒ Remove any obstructions from the paths on as-need basis. If large objects block the main trail, note the location and remove at a later time using proper equipment, etc.
- ☒ Ensure the use of trails by only equestrians and pedestrians. Place restrictive signs and barriers in proper locations in key problem areas. Notify enforcement authorities if problems continue.
- ☒ Correct all problems same day or document and take corrective actions as soon as possible and/or reasonable.
- ☒ Ensure the working condition of kiosks, trash receptacles, and portable toilets on an as-need basis. Refill the brochures at each kiosk as necessary.
- ☒ Make sure all trail signs are standing, legible, and facing the appropriate direction on an as-need basis.
- ☒ Document any differences in the path of trails if they seem altered or new paths “appear.” Use field maps, photographs, and descriptive text to identify the location and notify LACDPW. Restrict these areas from further use through use of signs and barriers.
- ☒ Ensure that reclaimed trails are no longer in use. Modify barriers and signs as needed to prevent the use of reclaimed trails.
- ☐ Remove barriers and restrictive signs from reclaimed trails once area is deemed successful by Restoration Specialist.

6.5 FUTURE TRAIL IMPLEMENTATION MEASURES

Trail closures will continue during the course of the second calendar year. This will include the continued efforts to close riparian trails, as well as the closure of trails within the alluvial scrub habitat. Reclaimed trails will be monitored bimonthly to ensure that they are successfully closed. In addition, maintenance of the existing trails will occur on a bimonthly basis. This includes removal of trash and debris, trimming of branches, and posting of signs along the four main recreational trails.

A pedestrian footbridge located where the stream connects the two Tujunga ponds will be dismantled in 2001 for safety reasons. Concrete footings placed at each corner of the bridge will be left in place; however, all timber installed on the footings for the footpath will be removed. The wood and any fittings removed during the dismantling process will be disposed of offsite. The purpose of removing the footbridge is to discourage use of the unsafe structure and to discourage pedestrians from trespassing into the enhancement areas around the ponds. The trail that previously existed between the two ponds will be closed and planted with native vegetation.

In the Fall of 2001 the exotic plant removal areas within the riparian habitat will be planted with willow and mule fat cuttings. Once these plants become established they will help to distinguish the main trails. Signs will be placed around the restoration areas to discourage people from disturbing the plantings. In addition, trail signs will be placed along the trails to encourage people to stay on the established trails.

SECTION 7.0 - PUBLIC AWARENESS AND OUTREACH PROGRAM

7.1 INTRODUCTION

Public awareness and involvement are a major component of the MMP process. The local community generally supports the Big Tujunga Wash Mitigation Bank project and has been pro-active in its planning and implementation. Due to the community's history of taking care of the site for years, there is every reason to believe that with the proper education and training, local residents will continue to be dedicated caretakers of the site.

7.1.1 Purpose and Goals

There are many key stakeholders and community groups that have shown great interest in the Big Tujunga Wash Mitigation Bank project. These stakeholders include elected officials who are sensitive to the needs of the community and who must respond to residents' concerns; local, state, and federal agencies; and local residents. Given the community's involvement with the site, the goal of the Public Awareness and Outreach Program is to keep the stakeholders and public informed of the ongoing enhancement activities at Big Tujunga Wash Mitigation Bank.

The list of key stakeholders has been revised since the final MMP due to Community Advisory Committee (CAC) participation and contacts. Figure 7-1 lists all current key stakeholders. Figure 7-2 contains the checklist for the community awareness and involvement program.

7.2 ACTIONS TAKEN

7.2.1 Community Advisory Committee Meetings

A formal community meeting was held in November 1999 in order to provide the public with the opportunity to gather information directly from project managers and experts, while also hearing concerns from fellow residents. As a result of this formal community meeting, the CAC was created. The CAC, which is made up of representatives from various local organizations, provides the community and LACDPW the opportunity to work together on issues related to the site. These organizations serve as a communications avenue between community members and the Project Team (LACDPW and its Contractor, Chambers Group).

The CAC consists of community residents and representatives from local community organizations including, but not limited to:

- Shadow Hills Property Owners Association (SHPOA),
- Lake View Terrace Homeowners Association (LVTHOA)
- Small Wilderness Area Preservation group (SWAP)
- California Trail Users Coalition and Equestrian Trails, Inc. (ETI), Corrals 10 and 20
- Hansen Dam Community Advisory Committee (HDCAC)
- Valley Horse Owners Association (VHOA)
- Lake View Terrace Improvement Association (LVTIA)
- San Fernando Valley Rangers (SFVR)

Figure 7-1

KEY STAKEHOLDERS

GOVERNMENT OFFICIALS

California Department of Fish and Game: Mary Meyer and Scott Harris

California Regional Water Quality Control Board: Tony Klecha

U.S. Army Corps of Engineers: Aaron Allen

U.S. Fish and Wildlife Service: David Zoutendyk

ELECTED OFFICIALS

Office of Supervisor Michael Antonovich: Conal McNamara

Office of Assemblyman Tony Cardenas: Mark Chapa and Alvin Kelly

Office of Council Member Alex Padilla: James Wilson and Mark Dierking

Office of Council Member Joel Wachs: Patricia Davenport

LOCAL LAW ENFORCEMENT

LAPD: Officer Harold Egger

COMMUNITY ORGANIZATIONS

California Trail Users Coalition and Equestrian Trails, Inc., Corrals 10 and 20: Mike and Linda Fullerton, and Terry Kaiser

Hansen Dam Community Advisory Committee: Eddie Milligan

Lake View Terrace Homeowners Association: Brenda Franklin, Lise Graber, and Nancy Snider

Lake View Terrace Improvement Association: Cile Borman, Phyllis Hines, and Dena Shroy

San Fernando Valley Rangers: Bill and Sheila Mears

Shadow Hills Property Owners Association: Terry Kaiser, Chris Arlington, Kathy Delson, James and Andrea Gutman, Elektra Kruger, and Carol Roper

Small Wilderness Area Preservation group: William Eick and Phil Tabbi

Valley Horse Owners Association: Tama Lockwood

Figure 7-2

COMMUNITY AWARENESS AND INVOLVEMENT PROGRAM CHECKLIST

- ☒ Initiate formation of CAC in July 2000.
- ☒ Prepare letter and send to agencies and key community organizations inviting them to join CAC (late July 2000).
- ☒ Establish CAC and meet formally to discuss plans (mid August 2000)
  - Identify CAC Chairperson
  - Establish communications protocols amongst CAC members
  - Schedule future meeting date(s)
- ☒ Prepare initial newsletter and mail to stakeholders September 2000.
- ☐ Prepare fact sheets and post in kiosk, distribute to CAC members (fall, 2000).
- ☒ Identify community meetings, events, fairs, trail rides where public information materials can be distributed. This can be accomplished by working closely with CAC members, elected officials offices, homeowner and business groups in the area.
- ☐ Work with project landscape architects and technical consultants to establish appropriate signage and kiosks onsite. Signs shall be bilingual English/Spanish. Post public information materials and community updates (in kiosks within 1 week of preparation).
- ☐ Contact local schools.
- ☐ Attend onsite meeting with local school personnel.
- ☐ Prepare newsletters for distribution in September 2000; March, June, and September 2001.
- ☐ Prepare newsletters for distribution in March and September of years 2002-2005.
- ☐ Hold quarterly CAC meetings in years 2000-2003.
- ☐ Hold bi-annual CAC meeting in years 2004-2005 (March and September).
- ☐ Contact elected officials and agency personnel bi-annually to offer updates on the project (2000-2005).

The committee also includes agency and elected officials with representatives from, but not limited to:

- U.S. Fish and Wildlife Service
- California Department of Fish and Game
- U.S. Corps of Engineers
- Regional Quality Control Board
- Supervisor Mike Antonovich's Office
- Councilman Joel Wachs' Office
- Councilman Alex Padilla's Office
- Assemblyman Tony Cardenas' Office
- Los Angeles Police Department

7.2.2 Site Safety/Citizen Patrol

Unauthorized overnight campers on the project site have been a continual problem. On December 7, 2000, representatives from LACDPW, Chambers Group, Los Angeles Homeless Services Authority (LAHSA), and local law enforcement walked the site and identified several unauthorized encampments. In addition, they informed the unauthorized campers that they need to vacate the site due to the exotic plant removal measures taking place throughout the site (e.g., removing the pepper trees).

In addition to the unauthorized overnight camper issue, site safety is another pressing issue the local residents would like addressed. As previously mentioned, the community has been actively involved in the site for years, therefore, Chambers Group is looking into the feasibility of a citizen patrol group made up of trained local residents. While a mounted posse seems to be the most logical type of patrol group, other possibilities are being investigated. Local law enforcement agencies have been and will continue to be contacted.

CAC meetings were held in August, October, and December of 2000. The meetings were very successful, providing the community and LACDPW with an opportunity to work together on issues including habitat restoration, trail closures, site security/safety and accessibility, and other enhancement measures. Before each meeting, a meeting reminder was mailed to all stakeholders. After each meeting, the agenda, minutes, action list, attendance, and handouts were mailed to all meeting participants. Appendix C contains all of the CAC meeting minutes and handouts.

7.2.3 Elected Official Contact

Chambers Group subcontracted Moore, Iacofano, & Goltsman Inc. (MIG) to provide expertise in public involvement and facilitation. MIG has facilitated all CAC meetings and has actively contacted local officials and agency personnel to update them on the status of the MMP measures. In an effort to keep elected officials up-to-date on happenings and emerging issues with the site, MIG has implemented periodic briefings for the offices of City Councilmembers Joel Wachs and Alex Padilla, State Assembly Representative Tony Cardenas, and County Supervisor Michael D. Antonovich. Briefing packets containing the CD-ROM version of the MMP, a brief project summary, basic project maps, Big T Advisory Committee Action Lists, and meeting minutes have been distributed to elected officials and their staffs. Thus far, the offices of the elected officials are supportive of the project and are interested in participating in advisory group meetings, coordinating their offices' activities with the project, and in serving as communications links with constituents. Table 7-1 contains the elected official briefing contacts.

Table 7-1
Big Tujunga Wash Mitigation Bank
Elected Official Briefing Contacts
Updated November 1, 2000

Name	Phone	Contact/Issues
Conal McNamara Supervisor Antonovich (Supervisorial District 5) 869 Kenneth Hahn Hall of Administration 500 West Temple Street Los Angeles, CA 90012	(213) 974-5555	Left message offering briefing (10/17). Sent Briefing Book 11-21.
Patricia Davenport Council Member Joel Wachs (Council District 2) 6350 Laurel Canyon Boulevard, Suite 201 North Hollywood, CA 91606	(818) 755-7676 pdavenpo@council.lacity.org	**October 25 briefing:** Would like copy of CD-ROM of plan once she's settled in new office. E-mailed copy of August - October Action List. Has looked into permit parking on Radwin - not feasible. Exploring fencing option. Sent Briefing Book 11-28.
James Wilson Council Member Alex Padilla (Council District 7) 13630 Van Nuys Boulevard Pacoima, CA 91331	(818) 756-9115 (818) 756-9270(fax) jwilson@council.lacity.org	**October 31, 3 p.m. briefing:** Gave information packet & copy of CD-ROM. Supportive of project. Add to list for mailings, mtg. notifications. Get contact list. Interested in trail connectors with Hansen Dam - support maintaining wilder area in Big T, with more active use on Hansen Dam site. Map available? MWD use for collector/spreading purposes? Info on how preferential parking handled. Sent Briefing Book 11-28.
Mark Dierking Legislative Deputy	(213) 847-7777 (213) 847-0707 (fax) mdierkin@c07.ci.la.ca.us	
Mark Chapa Assemblyman Tony Cardenas (Assembly District 39) 9140 Van Nuys Boulevard, Suite 109 Panorama City, CA 91402	(818) 894-3671	Left message offering briefing (10/17). Sent Briefing Book 11-21.

7.2.4 Newsletters

The "Big T Wash Line" is the project's newsletter that was published in August and December of 2000. The newsletters supplement the CAC meetings in that they provide detail on the various enhancement activities and are distributed to all identified key stakeholders. Appendix D contains the first two issues of the Big T Wash Line newsletters.

7.2.5 Public Education

The goal of the public education program is to educate and raise awareness among area residents of the importance and uniqueness of the Big Tujunga Wash Mitigation Bank site. The initial version of this program included an onsite tour/outdoor education program. After careful consideration, the goal of this program has been revised to include an offsite education program only. The offsite program can include a slideshow presentation given to interested local elementary schools or community organizations.

7.2.6 Project Fact Sheets

Project fact sheets are brief descriptions of each of the MMP programs. These fact sheets will be distributed to the CAC members and will be posted in the kiosks.

7.2.7 Signage/Kiosks

Information kiosks will be designed and placed strategically throughout the site. The signage and kiosks will establish appropriate, visible, and bilingual signs to provide information on program goals, restrictions, site highlights, and provide LACDPW contact information.

7.3 STATUS

The next CAC meeting will be held on Thursday, March 1, 2001 at the Hansen Dam Equestrian Center. A meeting reminder and agenda will be mailed to all CAC members and stakeholders. The third issue of the Big T Wash Line will also be published in March 2001.

In 2001 through 2003, CAC meetings will be held quarterly in March, June, September, and December. The Big T Wash Line newsletters will be published in March, June, and September of 2001, and bi-annually in March and September from 2002 through 2005.

Officials will continued to be contacted and briefed on current events on a regular basis.

SECTION 8.0 - WATER QUALITY MONITORING PROGRAM

8.1 INTRODUCTION

In order to address both upstream and downstream water quality issues at the Big Tujunga Wash site, a water-quality monitoring program has been implemented. The monitoring program will specifically address water quality issues, such as pesticide/fertilizer percolation or runoff and subsequent groundwater contamination, which may occur due to upstream development. Monitoring for elevated levels of nitrogen and organophosphates in the flow entering the site will help determine whether nitrate-laden irrigation water or pesticide runoff from upstream developments are affecting the Big Tujunga Wash Mitigation Bank. The water quality monitoring program at Big Tujunga Wash shall complement the monitoring program that is a requirement of the upstream Red Tail Golf Course and Equestrian Project.

8.1.1 Purpose and Goals

The water quality program is specifically designed to look for changes in water quality that may potentially affect sensitive native fishes and amphibians in the aquatic environment. The LACDPW personnel have established baseline water quality conditions prior to the implementation of the MMP programs. The Public Works personnel conducted the baseline water quality sampling in accordance with accepted protocols and the analyses was conducted by a certified water quality laboratory. The water quality program at Big Tujunga Wash includes quarterly monitoring for the following water quality parameters:

Total Kjeldahl Nitrogen (TKN)
Nitrite (NO2)
Nitrate (NO3)
Ammonia (NH4)
Orthophosphate
Dissolved Oxygen (DO)
Total Fecal Coliform
Organochlorides
Total Phosphate
Organophosphate
Chlorine
Turbidity
Temperature (degrees Celsius)
pH (pH units)
Pesticides

8.2 METHODOLOGY/DATE OF IMPLEMENTATION

Water quality monitoring sites were permanently established with a Global Positioning System (GPS) at various locations along Haines Canyon Creek and Big Tujunga Wash. Three monitoring sites were located along Haines Canyon Creek. One site was located at the inflow to the Tujunga Ponds; a second site was located at the outflow of the Tujunga Ponds; and the third site was located in Haines Canyon Creek, just before it exits the Mitigation Bank. A water quality monitoring station was also established in Big Tujunga Wash and sampling was performed if flowing water is present during the quarterly sampling visits. Table 8-1 indicates the locations of the four sampling stations.

Table 8-1
Water Quality Sampling Locations

Sampling Locations	Latitude	Longitude
Haines Canyon Creek before exiting the site.	N 34 16' 2.9"	W 118 21' 22.2"
Haines Canyon Creek inflow to Tujunga Ponds.	N 34 16' 6.9"	W 118 20' 18.7"
Haines Canyon Creek outflow from Tujunga Ponds.	N 34 16' 7.1"	W 118 20' 28.3"
Big Tujunga Wash	N 34 16' 11.7"	W 118 21' 4.0"

An experienced Water Quality Specialist collected samples on December 12, 2000, and the samples were taken to a reputable laboratory to be analyzed immediately after sampling was completed. The results of the water quality analysis shall be summarized in a quarterly letter to LADPW, CDFG, RWQCB, and USFWS. It will be the responsibility of the CDFG, RWQCB, and USFWS to enforce the laws regarding water quality impacts on sensitive species from upstream development, and take necessary actions against the upstream sources. In addition, the Water Quality Specialist shall be responsible for providing the quarterly letter report to the Contractor responsible for preparing the Project Implementation and Annual Monitoring reports. This letter shall be submitted to these agencies and the Contractor within 30 days after the sampling date. Any notable discrepancies between the water quality and the baseline water quality established in the beginning of MMP implementation shall be brought to the attention of the resource agencies and Contractor within 7 days of receiving the water quality analysis. The Water Quality Specialist shall be responsible for sending quarterly letter reports directly to the aforementioned agencies and Contractor and for contacting the agencies directly when discrepancies are noted. In addition, the Water Quality Specialist shall be responsible for providing an annual summary report of the water quality monitoring program to the aforementioned agencies and Contractor within 60 days after the fourth sampling date. The water quality monitoring report for 2000 is included as Appendix E.

The Water Quality Monitoring Program will continue throughout the 5-year duration of the MMP Program. Continuation of this program beyond the 5 years shall be discussed during consultation with the USFWS if the Santa Ana sucker is federally listed under the Endangered Species Act.

8.2.1 Description of Analyses

The sampling parameters in the water quality monitoring program were analyzed by the following meters in the field:

- YSI Model 57 - dissolved oxygen and temperature
- HACH DR 700 - total residual chlorine
- Orion 230A - pH

All other analyses were performed in duplicate at Montgomery Watson Laboratories, Pasadena, California.

8.2.2 Sampling Dates

Samples were taken on December 14, 2000, by Montgomery Watson and the samples were taken to a Montgomery Watson Laboratories, Pasadena, California, to be analyzed immediately after sampling was completed.

8.3 RESULTS

- **pH:** The pH in Big Tujunga Wash is at the upper objective of 8.5. Other stations are within the 6.5 to 8.5 range.
- **Dissolved Oxygen:** The oxygen levels in the Tujunga Ponds are below the recommended minimum for warmwater species of 5.0 mg/L. Samples from Big Tujunga Wash and Haines Canyon Creek exiting the site are over the 5.0 mg/L standard.
- **Temperature:** Observed temperatures were below levels of concern for growth and survival of warm water fish species.
- **Fecal Coliform:** Coliform bacteria levels in Big Tujunga Wash are higher than Basin Plan objectives for water contact recreation and federal public health criteria for swimming.

- **Nitrate:** Nitrate in Haines Canyon Creek decreases as you move downstream, from over nine to less than 2mg/L. Concentrations in the ponds are high for natural waters but below the drinking water standard of 10mg/L.
- **Ammonia:** Ammonia levels were below the detection threshold at all sampling stations.
- **Turbidity:** Turbidity in waters leaving the site is slightly higher in Haines Canyon Creek than in Big Tujunga Ponds. Concentrations in big Tujunga Wash are similar to those in waters leaving the site. Levels are not high enough to negatively impact photosynthesis.
- **Phosphorus:** Most phosphorus in site waters is present as reactive orthophosphate. Overall levels are not indicative of excessive nutrient conditions.

The results of the analysis conducted in December of 2000 are presented in Table 8-2.

Table 8-2
Summary of Big Tujunga Wash Water Quality Results
4th Quarter 2000 (December 14, 2000)

Parameter	Units	Inflow to Tujunga Ponds 1	Inflow to Tujunga Ponds 2 (duplicate)	Outflow from Tujunga Ponds 1	Outflow from Tujunga Ponds 2 (duplicate)	Big Tujunga Wash 1	Big Tujunga Wash 2 (duplicate)	Haines Canyon Creek Exiting Site 1	Haines Canyon Creek Exiting Site 2 (duplicate)
Temperature	°C	16	--	15.5	--	12.5	--	9.5	--
Dissolved Oxygen	mg/L	2.8	--	3.1	--	5.4	--	7.0	--
pH	std units	6.9	--	7.0	--	8.5	--	8.2	--
Total residual chlorine	mg/L	<0.1	--	<0.1	--	<0.1	--	<0.1	--
Ammonia-Nitrogen	mg/L	ND	ND	ND	ND	ND	ND	ND	ND
Kjeldahl Nitrogen	mg/L	ND	0.28	ND	0.43	0.70	0.62	0.72	ND
Nitrite-Nitrogen	mg/L	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-Nitrogen	mg/L	9.65	9.40	7.29	7.17	ND	ND	1.59	1.56
Orthophospate-P	mg/L	0.065	0.064	0.040	0.040	0.014	0.014	0.016	0.016
Total phosphorus-P	mg/L	0.07	0.07	0.04	0.05	0.03	ND (<0.20)	0.02	ND (< 0.02)
Turbidity	NTU	0.90	0.60	0.90	1.0	1.6	2.2	1.8	1.4
Fecal Coliform Bacteria	MPN/100 ml	<2	2	13	13	300	500	80	110
Total Coliform Bacteria	MPN/100 ml	3000	9000	2200	3000	1400	2400	900	3000

NTU = nephelometric turbidity units.
MPN = most probable number.

8.3.1 Comparison of Results with Baseline Data

Water quality in December 2000 was similar to April 12, 2000 baseline conditions. The higher bacteria and turbidity that was observed in the April 18, 2000 samples are most likely due to a rain event. Nitrate levels followed a similar pattern in both months of decreasing concentrations through the Tujunga Ponds, complete or near depletion in Big Tujunga Wash, and low levels leaving the site in Haines Creek. Similarly, pH in samples from Haines Creek was generally lower than the more basic Big Tujunga Wash.

8.4 DISCUSSION OF RECOMMENDATIONS

There are no recommendations at this time.

SECTION 9.0 - COAST LIVE OAK/SYCAMORE WOODLAND REVEGETATION PROGRAM

9.1 INTRODUCTION

During the preparation of the MMP, a number of additional enhancement measures were identified that will further improve the habitats on the site and may improve the site for the various user groups. In addition, implementation of some of these measures may increase the number of mitigation credits available on the site, subject to the discretion of the agencies.

Creating a coast live oak-sycamore woodland with a coastal sage scrub understory community was not included as part of the enhancement measures put forth in the Draft Enhancement document for the Big Tujunga Wash Mitigation Bank site (Chambers Group 1998b). During the preparation of the MMP, the determination was made that the upland area, where the asphalt plant used to be located, could be converted from non-native grassland to a native plant community. The existing oaks and sycamores in this area provide a good indication that the uplands can support a native plant community. Consequently, an optional enhancement measure was developed to address the revegetation of the upland areas. Preliminary discussions with the Corps indicated that they may offer a ratio of 0.5 to 1.0 for the establishment of coast live oak - sycamore woodland with a coastal sage scrub understory. If this mitigation ratio is accepted, then an additional 5.85 credits would be available in the Mitigation Bank. These credits would be associated with habitats that do not occur elsewhere in the bank and may potentially be used to offset impacts on these habitats from other LADPW projects.

9.1.1 Purpose and Goals

Revegetation is intended to create a plant community where none currently exists. The goal of the revegetation plan is to create a coast live oak - sycamore woodland with an undifferentiated coastal sage scrub understory in the revegetation areas on the site now occupied by non-native grasslands. The composition of these revegetation areas will support the breeding and foraging activities of a variety of sensitive species, such as red shouldered hawk, Cooper's hawk, and coastal California gnatcatcher. The revegetation area will also provide an additional buffer between the urban areas and the riparian zone. The revegetation plan consists of various tasks designed to prepare the areas prior to planting and to install container plant and seed materials, and includes provisions for the maintenance and monitoring of the site.

9.1.2 Location

Approximately 11.7 acres of habitat was created on the terrace south of Haines Canyon Creek along Wentworth Street. The upland terrace is elevated on a bench approximately 25 feet above the riparian habitat. Approximately 4.8 acres of this area was planted primarily as a coastal sage scrub community with occasional sycamores. A mixed sycamore-oak woodland was installed on the remaining 6.9 acres. The portion of the upland area that is covered with the concrete pad from the old asphalt plant was not included as part of the upland revegetation area.

9.2 METHODOLOGY/DATE OF IMPLEMENTATION

Removal of weeds in all upland revegetation sections was implemented on October 10, 2000. The biological monitor surveyed the area prior to mowing, and flagged individual native species to be preserved. The area was subsequently mowed, avoiding the flagged natives. Cut perennial and annual vegetative biomass was removed from the site. Large stumps and branches from several pepper trees that were removed from the revegetation areas were cut up and used to block closed trails or to delineate the planted areas.

Seeding of the upland area was implemented on October 31, 2000. Installation of the specified seed mix was accomplished using a seed imprinter. Imprinting is a mechanical method of seeding that uses a smooth-walled implement drawn by a small tractor to create a pattern of short, v-shaped furrows in the soil surface. Seeds are pressed into the sides of each furrow as they are formed in the soil surface. The V shape of the depression provides a shallow basin that retains water, forming a reservoir of soil moisture under each furrow. Imprinting is an effective method of seeding, particularly in arid climates (St. John 1995) and was approved as an alternative method of applying seeds in the area.

Severe soil compaction was noted in several areas adjacent to the abandoned pavement; these sections were ripped prior to imprinting the seed mix. An old, abandoned irrigation system found buried in the woodland portion of the site was removed.

The locations of container plants were laid out with pin flagging by the Restoration Specialist on November 13, 2000. The container plant locations were used to establish the layout of the irrigation system. Trenching for the irrigation system's main and lateral water lines was initiated on November 13, 2000. The controller for the system was buried near the point of connection to prevent potential damage due to vandalism. The system is battery operated, and set to automatically deliver water for a 5-minute period once a day on a rotating schedule between the sections. Installation of the irrigation system and the container plants was completed on November 17, 2000. One species, laurel sumac (*Malosma laurina*) was included in the specifications for container planting at the site, but was not available at the time of installation. This species will be installed in the spring, when danger of frost has past.

9.3 PROJECT MONITORING STATUS

9.3.1 Implementation Monitoring and Reports

A biological monitor was onsite as needed throughout the implementation of the revegetation plan. The daily monitoring reports were included in the monthly implementation monitoring reports covering the construction activities throughout the entire site. Copies of the implementation monitoring reports for October through December 2000 are included in Appendix A.

An As-Built Assessment survey was conducted on November 22, 2000 by Pam De Vries and Stacie Tennant to document the site conditions immediately after installation was completed. During the survey, the container plantings were counted and inspected for health. The irrigation system was also inspected and found to be operating properly. The site was photographed from established photo locations. The photo site map and corresponding photographs taken during the survey are included in the As-Built Assessment attached to this report as Appendix F.

9.3.2 Monthly Maintenance Monitoring

The project entered the 120-day establishment period on November 18, 2000. Monthly maintenance inspections are required on the site for the first year after installation, including the 120-day establishment period. The first maintenance inspection was conducted on December 19, 2000. A copy of the maintenance inspection report is included in Appendix G. Table 9-1 shows the maintenance and performance monitoring inspection schedule for the site, and reporting requirements.

Table 9-1
Maintenance and Success Monitoring Schedule and Reporting Requirements

Year	Maintenance Inspections and Reports	Success Monitoring Surveys and Reports
1 (2000 - 2001)	Monthly (through November 2001) - LACDPW	Annual (December 2001) - LACDPW, CDFG, Corps
2 (2001)	Quarterly (February, May, August, November) - LACDPW	Annual (December 2002) - LACDPW, CDFG, Corps
3 (2002 - 2003)	Semiannually (May, November) - LACDPW	Annual (December 2003) - LACDPW, CDFG, Corps
4 (2003 - 2004)	Semiannually (May, November) - LACDPW	Annual (December 2004 - LACDPW, CDFG, Corps
5 (2004 - 2005)	Semiannually (May, November) - LACDPW	Annual (December 2005 - LACDPW, CDFG, Corps

9.3.3 Enhancement/Reclamation Trails

A short trail in the extreme eastern portion of the site was closed and replanted during project implementation. All trails throughout the site were initially delineated with pink pavement paint on rocks, and small, dead branches placed along the trail boundaries. These measures, along with several posted restoration signs, proved ineffective in some areas. Larger branches and cut stumps from the removed pepper trees were subsequently placed in strategic locations to discourage traffic across restoration areas. Very large branches from a dead castor bean plant were placed along the closed trail entry forming a 3-foot high, loose wall. The cut stumps and branch materials from these exotics are not expected to reroot. Additional signs were also posted, including new signs specifically stating that the area was recently planted, and to please stay out of the planted areas.

9.4 SITE EVALUATION AND RECOMMENDATIONS

9.4.1 Overall Site Conditions

The site was in overall good condition as of the last maintenance monitoring visit on December 18, 2000. The irrigation system for the container plants was operating adequately, and most of the installed container plants were found alive. A sparse cover of winter annual weeds was noted; however, total weed cover was low and eradication is not yet necessary. The imprinted seeds had not yet germinated and are not expected to do so until sufficient precipitation occurs. Erosion control devices have not been utilized and are not required for the site at this time. All trails in the restoration area are well marked, clear of weeds and debris, and in good repair.

Several minor problems were noted during the December 2000 maintenance inspection including frost damage to some of the container plantings and loss of several plants due to rodent activity (gophers). Recommendations for remedial actions are discussed below in Section 9.4.2.

9.4.2 Maintenance Recommendations and Remedial Actions

Fencing to prevent aboveground herbivory was not installed, and does not appear to be necessary at this time. Unexpected underground rodent activity (gophers) resulted in the loss of approximately 10 of the container plants installed in the upland areas. Control of these rodents should be implemented as soon as possible to prevent further losses. Gas or trapping is the recommended control method. Bait poisons that could affect other species preying on the carcasses should be avoided. Replacement planting should be delayed until rodent abatement is accomplished, and until all danger of frost has passed.

New footpaths through the planting areas were noted during the December 2000 inspection. Tracks on these paths were either human footprints and/or dirt bike tire tracks. These paths appear to follow previously established footpaths through the site, but are not on the main trail. Additional habitat restoration signs and obstacles such as dead brush will be placed at strategic locations during the next month to discourage further impacts on the planting areas.

In addition to the required monthly maintenance inspection, the site is briefly visited by the biological monitor while monitoring the riparian restoration on the site (i.e., exotic plant removal in the riparian habitats). Signs are repositioned when necessary, and any observed vandalism or other damage is reported in the implementation monitoring reports.

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TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

Page

LIST OF FIGURES

LIST OF TABLES