



INITIAL STUDY

PROJECT TITLE: San Diego River Watershed Invasive Non-native Plant Control and Habitat Restoration Program

PROJECT NUMBER: 09-100

LEAD DIVISION: San Diego River Conservancy

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PROJECT LOCATION: The proposed project covers the San Diego River Watershed in San Diego County, California. (Figure 1).

PROJECT APPLICANT: San Diego River Conservancy

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PROJECT DESCRIPTION: Invasive non-native plant control for: habitat restoration, water conservation, and fire/flood risk reduction.

DECISION MAKER: San Diego River Conservancy Board of Directors

SOURCES OF INFORMATION: (See Initial Study/Mitigated Negative Declaration for Information References)

RESPONSIBLE/TRUSTEE AGENCIES INVOLVED: California Department of Fish and Game; California Regional Water Quality Control Board

LAND USE ENTITLEMENT SUMMARY:

General Plan Land Use Designation: typically open space, but varies

Zoning: typically open space, but varies. The project area encompasses many public and private lands: no work will occur without a right of entry agreement signed by both the land owner and project lead. Federal Lands are excluded from the program.

INITIAL STUDY DATE: July 7, 2009



Initial Study San Diego River Watershed Invasive Non-native Plant Control and Habitat Restoration Program

July 7, 2009

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ENVIRONMENTAL INITIAL STUDY

Project Name

San Diego River Watershed Invasive Non-native Plant Control and Habitat Restoration Program

Project Location

San Diego River Watershed in San Diego County, California. (Fig. 1 & 2).

Project Description

The San Diego River Conservancy (SDRC) has initiated a watershed based invasive non-native plant control and riparian restoration program on the San Diego River Watershed. The project involves grant and mitigation funding to the SDRC and its partners, for the restoration of riparian habitat in the San Diego River Watershed through the control of invasive non-native plants (mainly *Arundo donax* and Pampas grass) and the planting of native species (Figure 1). Funding sources may include, but are not limited to, the State of California Water Resources Control Board, Department of Fish & Game (CDFG), Wildlife Conservation Board, Resources Agency, Department of Transportation (Caltrans), Department of Water and Power, Food and Agriculture and the federal United States Fish and Wildlife Service (FWS), Natural Resources Conservation Service, Army Corps of Engineers (ACOE), Environmental Protection Agency, Forest Service; San Diego County, fees and fines, donations, and mitigation projects (either as an 'In-Lieu-Fee' type mitigation program or as specified under separate regulatory agreements for the project requiring mitigation). SDRC's program may not be used for mitigation without the approval of all parties involved: the regulatory agencies, SDRC, the entity requiring mitigation, and the owner of the property where work would be occurring. The project area encompasses many public and private lands: no work will occur without a right of entry agreement signed by both the land owner and project lead (SDRC). Lands owned by the Federal Government (Forest Service, Department of Defense, etc.) are excluded from the program area, this Initial Study and the Mitigated Negative Declaration.

Arundo, pampas grass and other invasive non-native plants pose a serious threat to the native flora and fauna, and are a significant flood and fire risk to the community (Figures 1 and 3-15). The plants have severe and negative impacts on biological, hydrological, and geomorphologic functions within the riparian system. The target invasive non-native plants are not typically utilized as a food resource and have poor structure for nesting and use by other organisms as shelter. *Arundo* and pampas grass out-compete native vegetation forming monotypic stands that interfere with native plant succession and establishment. *Arundo* and pampas grass alter the hydrology by using double the water as native vegetation and filling in areas that would otherwise remain open habitat, which is important for regulating flows. Creek and river flow capacity is reduced by excessive biomass that cause overbank flows and flooding. *Arundo* and pampas grass are extremely flammable throughout the year as mature stands contain large amounts of dead material. Stands are also tall and well ventilated, contributing to fast moving



hot fires that are carried up into any existing riparian woodland canopy. Riparian areas with extensive amounts of *Arundo* experience fires frequently, which would otherwise be an unusual event. Some riparian systems with extensive *Arundo* stands are moving from a natural flood regulated system to a fire dominated system, which is drastically altering the ecosystem. Flooding is a natural process in a functional riparian ecosystem. *Arundo* is, however, altering the flood regime by blocking flows with its thick growth, creating unstable banks due to its poorly developed root systems that easily fragments, and contributes to bridge and flood control structure failure by becoming lodged against bridge pylons and blocking and diverting flows. Eventually enough water backs up against the bridge or other structure causing the structure to fail or flows to bypass the structure, causing extensive damage.

Intensive project restoration activities are to be carried out from September 15th to March 15th (February 15th in coastal sage scrub) which avoids/minimizes impacts to the breeding/reproductive season for wildlife, fish and native plants. Activities may begin as early as August 15th if avian surveys demonstrate that bird nesting has been completed, if authorized by the regulatory agencies. The typical restoration process for *Arundo* begins in the fall with reduction (mulching by mowers) of target plant biomass. No biomass is left in the low flow channel. Hand crews cut target plants that are in channel areas or areas that the mower can not reach. No native vegetation is reduced (mowed). *Arundo*, tamarisk and other target non-native vegetation re-sprouts in the spring and a treatment using glyphosate and/or imazapyr herbicide occurs (formulations approved by the Environmental Protection Agency for use in riparian areas: Rodeo[®], Aquamaster[®] and Habitat[®]). These herbicides are non-toxic to wildlife. Only target non-native plants are treated. Other target non-native invasive plants (listed in RGP 41) and scattered patches of *Arundo* under ¼ acre may be treated in the fall or early spring and are left standing to decompose on site. In some situations target invasive non-native plants may be treated first and then the dead standing biomass will be reduced (mowed). Reduction of treated invasive non-native plants typically occurs in January/February.

All areas that are mowed are re-planted with native woody riparian vegetation (cuttings and/or container plants). Sites that have biomass reduced first, followed by herbicidal treatment of re-growth, typically have planting in year two or three. Sites that are treated first, followed by biomass reduction can often be planted in the first year. All sites then enter a re-treatment cycle, using approved herbicides on any re-sprouting target non-native plants. This is carried out annually in the Fall for four to ten years to ensure complete control of target non-native plants (including: *Arundo*, pampas grass, tamarisk, castor bean, perennial pepperweed, Cape ivy etc.). Watering and weed control in areas that had biomass reduction and re-vegetation may occur from March 16th to September 14th, but only in open areas without structures for nesting (as specified under FWS and CDFG permits).

This Initial Study (and associated Mitigated Negative Declaration) is similar in format and scope to three previous initial studies and mitigated negative declarations adopted by: the California Coastal Conservancy on November 4th 2002, the Mission Resource Conservation District in September 2006, and County of Orange (to be adopted in May/June 2009), for watershed based eradication of *Arundo* and other invasive non-native plants. This program uses similar control and re-vegetation methods that will result in the same benefits to habitat and resource protection.



Location and Environmental Setting

SDRC has initiated the development of a watershed wide invasive plant control and riparian habitat restoration program. The watershed is 278,980 acres in size and spans 44 miles from the ocean to the Cuyamaca Mountains (Figure 2). The upper half of the watershed is hills and mountains, much of which is under public ownership. The lower watershed is much more urbanized, where the cities of San Diego, El Cajon, and Santee are found. The lower watershed area still has large areas of open space such as Mission Trails Park, and the San Diego River itself, which supports numerous sensitive species and is a recognized biological linkage (MSCP). SDRC seeks to enhance and protect as much of the river as possible for the benefit of natural resources and the public.

Riparian habitat on the San Diego River Watershed is estimated to be 6,642 acres with an additional 354 acres occupied by invasive non-native plants. Total riparian habitat after control/restoration would be 6,996 acres. Numerous riparian vegetation series occur within the riparian zone, with willow woodlands and mulefat scrub dominating the lower watershed and oak woodlands on the upper watershed. Most of the invasive plant acreage that has been mapped to date was found on the lower watershed. The invasive plant acreage is composed of: *Arundo donax* (giant reed, 124 ac), tamarisk (salt cedar, 88 ac), pampas grass (40 ac), palms (24 ac), mixed exotic trees and other species (78ac, Figure 1 and Table 1). The river itself has many species including two federally listed species: least Bell's vireo and the southwestern willow flycatcher. Vireo habitat, in particular, is heavily degraded from I-5 to Lakeside by *Arundo donax* (giant reed).

Background on the San Diego River Conservancy

SDRC is an independent, non-regulatory agency within the Resources Agency of the State of California. SDRC is governed by an eleven voting member and two non-voting member board of state and local representatives, with a primary jurisdiction encompassing the land and water within one-half mile on either side of the thread of the San Diego River. Recent legislation extended SDRC's jurisdiction to include the river's tributaries and other properties within the watershed under certain circumstances.

The mission of the SDRC is to preserve and conserve land and water for the enjoyment of present and future generations within its jurisdiction. SDRC partners include San Diego River Coalition; San Diego River Park Foundation; Lakeside's River Park Conservancy; Senator Christine Kehoe; County of San Diego; City of San Diego; City of Santee; Helix Water District; Padre Dam Municipal Water District; and the Cleveland National Forest.

On March 24, 2006, the SDRC Board adopted the *San Diego River Conservancy Five Year Strategic and Infrastructure Plan 2006-2011 (Strategic Plan)*. Included in the goals and objectives of the Strategic Plan are completion of four major Programs:



- *Program 1 - Land Conservation;*
- *Program 2- Recreation and Education;*
- *Program 3 - Natural and Cultural Resources, Preservation and Restoration; and*
- *Program 4 - Water Quality and Natural Flood Conveyance.*

In the Strategic Plan, the priority objective and goals under *Program 3 - Natural and Cultural Resources, Preservation and Restoration*, are:

Statutory Objectives

Restore and protect wildlife habitat, including wetlands, to benefit native species. Preserve and protect cultural and historic resources.

Program Goal

Reduce, control, and where feasible, eradicate invasive non-native species while restoring area habitats to native function.

Implementation of the Strategic Plans Program 3: Natural Resource Restoration associated with “Invasive Non-native Plant Control and Habitat Restoration” is the subject of this CEQA document.

Surrounding Land Uses and Setting

The project area for work is the riparian and transitional habitat in the San Diego River Watershed. The riparian habitat along most stream and river courses is not channelized (ie, without concrete banks and/or bottoms), and therefore retains much of its natural unmodified characteristics. High urbanization on the lower and middle watershed has lead to modified bank sections in many areas and loss of significant portions of the floodplain/riparian zone. Additionally there are many culverts, bridges, and crossings that modify function and habitat. The upper watershed is much less developed, but there are multiple dams (e.g., El Capitan, Cuyamaca, Jennings, San Vicente and Lake Murray) that have significantly modified the watershed hydrology.

Multiple interstate highways, roads and rail lines cross the river. The landscape is a mix of predominantly urban areas dominated by residential communities, commercial areas, and open space (both protected and unprotected). The upper watershed is much less developed with open space managed by the multiple public agencies including: federal, state, and local agencies. Several cities occur within the watershed including San Diego, Santee, Lakeside, El Cajon, and La Mesa.

Other Public Agencies whose Approval is Required (e.g., permits, financing approval, or participation agreement.)

The program will operate under ACOE Regional General Permit 41 (completing the 404 and 401 processes). The RGP 41 authorizes the control of invasive plants in the waters of the United States in the California portion of the Los Angeles District of the Corps of Engineers, if certain practices are followed. State Historic Office also reviews the project under this permit. The



FWS (listed species data presented in Figure 2) has completed an informal consultation for the lower San Diego River Watershed. The FWS has determined that no adverse effect to listed species is likely as long as minimization and avoidance measures are followed. For areas where the arroyo southwestern toad is found (above El Capitan Dam) a Section 7 consultation would be initiated prior to commencement of any work.

SDRC will make an application for a CDFG 1600 Streambed Alteration Agreement in 2009 to cover areas below the El Capitan Dam. Conditions in the 1600 Agreement are expected to be the same as those outlined in agreements obtained from the FWS and as found in a previously completed 1600 Agreement for a joint project controlling giant reed and re-vegetating with natives initiated in 2008 on CDFG land along the San Diego River. All terms and conditions (minimization and avoidance measures) of all permits will be followed and annual reports are will be prepared. These program conditions, minimization measures and reporting are presented starting on page 12 of this Initial Study.

The invasive non-native plant control and riparian restoration program for the San Diego River Watershed is based on systematic watershed based (landscape level) control of target species that provides long term ecological and resource protection benefits. This process, along with details related to restoration and non-native plant control methods have been developed in coordination with CDFG, the United States Geological Service (USGS) Biological Resources Division and the FWS.

Treatment of Invasive Non-Native Plants

The invasive plant control program may conduct treatments on target plants (*Arundo*, tamarisk, pampas grass, and other species listed under RGP 41) in either the fall or early spring. The treatment cycle typically involves foliar application of herbicide (an aquatic approved herbicide: glyphosate, imazapyr, or a mixture of the two). Work begins September 15th (or as early as August 15th if avian surveys demonstrate that nesting season has been completed) and usually ends by early December (when plants are entering dormancy). As the herbicide is most effective when plants are actively growing, treatment may also occur if plants are actively growing prior to March 15.th

Biomass reduction (if carried out) may occur either before or after herbicide treatment. Biomass reduction is typically required if significant plant biomass is present (plants cover > ¼ acre). For *Arundo*, biomass reduction entails either mowing or hand cutting the *Arundo* cane. Hand cut *Arundo* is stacked and mowed, chipped, or left to decompose naturally. *Arundo* biomass mulch is left within the original footprint of the stand or may be spread over compacted areas (roads, parking areas, shoulders, etc). Areas that have recently burned do not typically require biomass reduction; the treated cane may be left standing to decay naturally in place. The treated post fire re-sprouting biomass will decay within two to three years- much more rapidly than mature unburned *Arundo* stands.



Re-vegetation

Active re-vegetation will be a component of the enhancement/restoration process for most project areas that have mowing and or cutting of target plants. Effective control of target plants is required prior to re-vegetation to avoid situations where re-treatments would harm a significant number of plantings. For areas that are treated first and then biomass is reduced-planting may occur in the first year. Areas that reduced first and then have re-growth treated will typically not be planted with natives until the second year.

Plant size varies from 1 gallon/D60 to rose pots (2" x 2"). Plant pallet varies based on presence or absence of tree canopy and position in the habitat (near channel, low bench, high bench etc). All growth forms of native plants are represented in the plant pallet used: tree, shrub, half shrub, vine and perennial herb. As a class, shrubs dominate the percentage of plants planted in the field. This is due to the fact that tree canopy is frequently still present on control sites- the Arundo, tamarisk and pampas grass have pushed out shrub cover and filled in open and herb covered areas. Planting is typically at a density of 300 to 400 plants per acre- with a 5 year goal of 250 plants per acre live and established. Additional 'fill in' planting occurs in successive years on sites until native plant establishment occurs. Depending on rainfall and water table position, plants are usually watered in and left. Supplemental watering may be needed, but occurs by hand and only for the first year. The goal is to assist native plantings in becoming established enough to survive through the summer and fall of the first year. Once this occurs the plants have become established. Average survival rates vary by species- but typically exceed 50-70% (as demonstrated through large programs on San Luis Rey Watershed and Carlsbad HU). Restored sites typically attain high cover from planted shrubs and trees by year five (often even year three), which helps to shade out ruderal weeds that would otherwise begin to migrate into the site as the reduced biomass/mulch begins to break down.



Typical Site Plant Pallet:

<i>Latin name</i>	<i>Common Name</i>
Trees	
<i>Platanus racemosa</i>	Sycamore
<i>Populus fremontii</i>	Cottonwood
<i>Quercus agrifolia</i>	Coast Live Oak
<i>Salix laevigata</i>	Large leaf willow
<i>Salix goodingii</i>	Black willow
<i>Salix lasiolepis</i>	Arroyo willow
Shrubs	
<i>Baccharis salicifolia</i>	Mulefat
<i>Heteromeles arbutifolia</i>	Christmas berry
<i>Salix exigua</i>	Sandbar willow
<i>Sambucus mexicana</i>	Mexican elderberry
Half-shrubs, vines, ground covers	
<i>Artemisia douglasiana</i>	Mugwort
<i>Rosa californica</i>	California rose
<i>Rubus ursinus</i>	CA blackberry
<i>Urtica dioica</i>	Hoary nettles
<i>Vitis girdiana</i>	CA grape

Biological Resources

The San Diego River Conservancy's invasive non-native plant control and re-vegetation program's primary goal is to enhance ecological function. Invasive non-native plants are displacing native vegetation, modifying hydrologic functions including sediment transport, water use, and flood regimes. In addition to these severe impacts, non-native plants, particularly *Arundo*, create fire prone conditions within riparian habitat. Fires occur much more frequently and with a greater intensity in stands of *Arundo*. A systematic and comprehensive invasive plant control program will provide a substantial benefit to the native fauna and flora that inhabit the watershed.

The program is utilizing avoidance measures and methods that have been developed with FWS and CDFG over the past 10 years on several other large watershed eradication programs (see below). The main 'method' is avoidance; that is, not being in habitat areas during active breeding of wildlife. Impacts to native vegetation are also minimized and avoided by following the measures. The resulting impacts to the habitat are minor and temporary- and the resulting benefit is substantial. Controlling the target non-native species and re-vegetating areas where target non-native plants were dense, restores ecological function to the site. This is why these activities are routinely counted as mitigation and restoration for development, discharge and other damaging events that degrade ecological function.



The San Diego River Watershed is a critical part of the Natural Communities Conservation Plans that cover San Diego County. These plans include: County Multiple Species Conservation Plan (approved 1997: <http://www.sdcounty.ca.gov/dplu/mscp>) and the East County Multiple Species Conservation Plan (in development). These plans outline the significant biological resources that are found in the region and on the San Diego River Watershed. The San Diego River Watershed is an important corridor allowing movement of wildlife both east/west (along the river) and north/south (connecting watersheds across the region). The TransNet Environmental Mitigation Program (<http://www.sandag.org>) is funding significant biological monitoring, management, and land conservation under the NCCP planning areas. These programs are consistent with the San Diego River Conservancy's Invasive Non-native Plant Control and Re-vegetation Program which seeks to implement habitat improvement in a responsible and sustainable manner.

The San Diego River Watershed has numerous Federal and State listed species including: southwest arroyo toad, southwestern willow flycatcher, least Bell's vireo, and CA gnatcatcher (Figure 2). An informal consultation with FWS has already been completed (Appendix 1). FWS has indicated that the measures listed below and the benefits of the project will protect and are unlikely to harm listed species. Impacts to listed species are unlikely as long as conditions outlined in FWS and CDFG permits are followed.

Measures to Protect Natural Resources

The types of habitat restoration and enhancement activities carried out under this program are considered by regulatory agencies (CDFG, the FWS and the ACOE) to be a form of mitigation for impacts to riparian habitat (e.g. for small permanent and temporary impacts). The end result of this project will be habitat improvement for sensitive species in the project area. FWS and CDFG permits outline specific impact minimization and avoidance measures to protect these listed species, migratory birds, other wildlife and native plants. The following avoidance and minimization measures are in place to assure that there will be less than significant impacts to natural resources:

- Non-native plant control methods will be used that minimize impacts to non-target native vegetation. These methods include: preparing target plants for herbicide application by separating them from native vegetation, using targeted foliar application of herbicide by crews on foot, using highly qualified contractors who have experience treating non-native plants in sensitive riparian habitat, and using herbicides that are approved for use in wetlands (aquatic approved formulations of glyphosate and imazapyr) which have no negative impact on wildlife species (Appendix 1). All mixing of herbicides and maintenance of equipment will occur only in areas that are devoid of native vegetation, that are adjacent to existing roads, and have compacted disturbed soils. These areas are not sensitive species habitat, they are not adjacent to the river channel, and they have no cover of native woody vegetation.
- A biologist will oversee work activities to assure that conditions of CDFG and FWS permits are being followed. No restoration activities with heavy equipment shall occur



during the designated breeding season for migratory bird species March 15th to September 15th (work can be initiated as early as August 15th, if avian surveys demonstrate that nesting has been completed on site).

- Annual reports documenting work and compliance will be provided to regulatory agencies that have issued permits: ACOE, CDFG, and FWS . Future work areas for the next year will also be clearly indicated in annual reporting. All permits clearly outline work conditions, and minimization & avoidance measures. Regulatory agencies, SDRC project managers and the project biologist assure compliance with these conditions. Any violations would result in termination of active work and possible fines or a request for compensatory mitigation.

Initial Foliar Treatment of *Arundo* (and other target non-native plants): Herbicide Application

- 1) No more than three crews will be active on the watershed at one time.
- 2) Only one crew will operate at a given site at a time (sites are separated by at least one mile- and are usually on entirely different reaches of the watershed).
- 3) Crew size will not exceed 16 individuals, and no more than five people will be working together at a given spot.
- 4) Herbicide application will occur with either backpack sprayers (3 gallon) or hand held power sprayers. Power sprayers are moved by ATV's and consist of a small gas powered engine (3 hp) on a trailer with a tank/reservoir (50gal useable volume).
- 5) To reduce the chance/impact of spillage, work crews can only mix herbicide, refill power sprayers (using concentrate and water: i.e. mixing), load mixed chemical into ATV's (for refilling backpack sprayers or power sprayers), and refuel (ATV's or power sprayer) in staging areas.
- 6) Staging areas are disturbed sites such as roads, shoulders, graded areas, or sites with compacted soil that support no vegetation or weedy vegetation.
- 7) Foliar spraying will not occur when ambient wind speeds exceed 5 miles per hour.
- 8) Crew members will avoid wading through streams whenever possible.
- 9) Each crew may use up to 2 ATV's (typically one is used- to move mixed herbicide to crews in the field).
- 10) ATV's will not drive in channel areas.
- 11) ATV's will operate only in open areas- woody vegetation (>1" DBH) will not be cleared or driven upon.
- 12) Site preparation is carried out prior to treatment of *Arundo*. Preparation entails separating, or creating a space, between stands of *Arundo* and native vegetation. This allows the *Arundo* to be treated without affecting the native woody vegetation. The space between *Arundo* and native vegetation is created by pushing, detangling and/or trimming the vegetation. Both *Arundo* and native woody vegetation may be trimmed. However, woody vegetation may not be trimmed that is in excess of four inches in diameter. Excessive trimming of *Arundo* is not usually carried out because this triggers re-sprouting which results in a much longer re-treatment cycle (before vegetation removal, see species conservation measures).



- 13) All regulations involving use of herbicides will be followed including BMP's. All applicators will be licensed and certified. Aquatic herbicide formulations will be used when near open water including all additives (spreading agents and dyes).
- 14) A marking dye will be used to assure that drift or overspray onto non-target vegetation is not occurring.
- 15) All garbage and waste material generated by the work crew will be removed from the site.
- 16) Work normally is initiated after September 15th, but work may be initiated after August 15th if avian surveys determine that nesting has been completed for the season (notification to CDFG and FWS must occur).

Biomass reduction (lowering dead or live *Arundo* cane and other treated plant biomass)

Large *Arundo* stands (>1/4 acre) are usually cut or mowed to allow for active native plant restoration and to speed up the decomposition of the dead *Arundo* cane. Scattered smaller stands are left to decompose naturally (they are left standing). Typically all biomass reducing methods are used on sites with large stands of *Arundo* due to factors including: amount and distribution of native woody vegetation, access to the site and site topography, visibility of the site, and input from the property owner.

The normal biomass reduction process is: 1) a large mower mows stands, 2) hand crews cut all *Arundo* that mowers could not reduce, 3) a smaller mower mows hand cut *Arundo*. Some sites that do not have mowing access may be cut by hand and chipped.

Biomass reduction occurs from September 15th to March 15th, (February 15th in coastal sage scrub) but most work is completed by February 15th to allow for replanting. Sites may be mowed earlier (after August 15th) if avian surveys indicate nesting season is complete.

Mowing:

Mowing is carried out using a fixed tooth or hammer flail mowing attachment mounted on a tractor. The mowing attachment mulches the dead (or live) *Arundo* cane/pampas grass into a layer about 4" thick. The mowing attachment and tractor do not dig into the soil surface or change topography of the site. All tractors are rubber tired. Several sizes of tractors are used: from a larger 45,000 lb tractor with four large tires (about 56" by 18") with a mowing implement 100" wide to a smaller size 8,000 lb tractor with two large (48" x 16") and two small tires (24" x 12") with a mowing implement 74" wide. Live or dead *Arundo* stands and other non-native plant biomass are mowed standing/in place and hand cut biomass is stacked and mowed within the footprint of target non-native plants.

- 1) No native vegetation is mowed.
- 2) No mowing occurs in the stream channel.
- 3) No mulched/mowed biomass will be placed in the channel.
- 4) All mowed material is within the previously existing stands of *Arundo* (or other non-native plants); no open habitat or native vegetation will be covered with *Arundo* mulch. Biomass may be stacked and mowed on compacted soils, dirt roads and shoulders that are devoid of native vegetation.



- 5) Equipment used during the biomass reduction phase such as tractors with mowing attachments, chippers, chainsaws, other hand tools will be staged at areas which are located along roads or on degraded areas with no native vegetation. Compacted dirt lots, road shoulders, and old disturbed sites are typically the type of areas that are used for staging.
- 6) Crew members will avoid wading through streams whenever possible.
- 7) All garbage and waste material generated by the work crew will be removed from the site.
- 8) Work normally is initiated after September 15th, but work may be initiated after August 15th if avian surveys determine that nesting has been completed for the season (notification to CDFG and FWS must occur).

Cutting by hand crews:

Crews cut dead *Arundo* using chainsaws operated by hand. Hand tools (loppers and machetes) may also be used, but in limited situations.

- 1) Crews are of 16 or fewer individuals will work in teams of 5 or less. For each team one person cuts and the other team members pull, haul, and stack the cut dead *Arundo* cane.
- 2) No more than one crew will operate at a given site.
- 3) No more than three sites will be active on the watershed at once.
- 4) Crews typically do not use ATV's, but sites far from roads with previously used trails for ATV's (during the fall herbicide application) may re-use these same access routes in open areas. No ATV use can occur in channel areas or in areas with native woody vegetation.
- 5) Chippers may be used at sites where mowing is not possible due to site topography. Typically this is on tributaries where creeks have deep profiles. Chippers may be staged on roads and may chip material onto disturbed/maintained areas outside the creek profile, chip into areas where *Arundo* previously existed, or ship into containers for hauling off site.
- 6) Crew members will avoid wading through streams whenever possible.
- 7) Cut *Arundo* stalks will be stacked and dried away from streams or wet areas to prevent reinfestation.
- 8) All garbage and waste material generated by the work crew will be removed from the site.
- 9) Work normally is initiated after September 15th, but work may be initiated after August 15th if avian surveys determine that nesting has been completed for the season (notification to CDFG and FWS must occur).

Re-vegetation (native planting) Activities: Between December 15th and March 15th

- 1) No more than two crews will be active on the watershed at one time.
- 2) Only one crew will operate at a given site at a time (sites are separated by at least one mile- and are usually on entirely different reaches of the watershed).
- 3) Crew size will not exceed 12 individuals.
- 4) Each crew may use up to 2 ATV's to move plants from staging areas to planting locations. ATV's typically drive only in areas that have been mowed (on dead *Arundo* or



pampas grass mulch). Some sites that are flat and connected to roads, may allow use of a 4 wheel drive truck to access mowed areas and deliver plants.

- 5) ATV's will not drive in channel areas.
- 6) ATV's will operate only in open areas, usually on mowed dead *Arundo* mulch- no woody vegetation (>1" DBH) will be cleared or driven upon.
- 7) Equipment used during the re-vegetation phase such as ATVs and hands tools will be staged at areas which are located along roads or on degraded areas with no native vegetation. Compacted dirt lots, road shoulders, and old disturbed sites are typically the type of areas that are used for staging.
- 8) Crew members will avoid wading through streams whenever possible.
- 9) All garbage and waste material generated by the work crew will be removed from the site.

Maintenance Activities: Between March 15th and Sep 15th

- 1) No areas may be worked in that have vegetation structure suitable for nesting (work only in mowed areas with new plantings).
- 2) No powered equipment may be used at the restoration sites (only watering and treatments with backpacks). The water truck does have a gas powered pump, but this will operate along access roads or in staging areas.
- 3) Avian monitors will be used as requested.
- 4) Equipment used during the maintenance phase such as trucks, ATVs, and hands tools will be staged at areas which are located along roads or on degraded areas with no native vegetation. Compacted dirt lots, road shoulders, and old disturbed sites are typically the type of areas that are used for staging.
- 5) Crew members will avoid wading through streams whenever possible.
- 6) All garbage and waste material generated by the work crew will be removed from the site.

Species Conservation Measures

Biomass reduction and use of power equipment in riparian habitat will occur outside the breeding season for the federally endangered least Bell's vireo (March 15th to September 15th) and the endangered southwestern willow flycatcher (May 1st to September 15th).

Biomass reduction using tractors with mowing attachments that occurs between February 15th and March 15th will be pre-surveyed for raptors if suitable structure exists on site for their nesting.

Work may be initiated as early as August 15th, but avian surveys must be completed for the project area and determine that all nesting has been completed. CDFG and FWS would be notified of survey results and the intent to initiate work prior to September 15th.

Biomass reduction (usually of treated pampas grass) and use of power equipment in coastal sage scrub will occur outside the breeding season for the federally threatened coastal California gnatcatcher (February 15th to August 30th).



Performance standards

Target non-native vegetation will be less than 1% cover by year five (5). Areas where biomass reduction occurred and that were re-planted with native vegetation will have a minimum established plant density of 250 plants per acre by year five (5).

Yearly work plan and report

Each summer (July 15th) a 'Work Plan and Report' outlining the expected non-native plant control and re-vegetation for the current year will be submitted. This will allow CDFG, FWS and ACOE to remain aware of the intended work program each fall. The Work Plan and Report will also detail what work was completed in the field. Reports will have verbal descriptions of planned and completed work as well as site photos and GIS maps with specific acreages of proposed and/or completed non-native plant control and native re-vegetation work

Measures to Protect Cultural Resources

In the Strategic Plan, the priority goals under Program 3 - Natural and Cultural Resources, Preservation and Restoration, include restoring and protecting wildlife habitat, as proposed in this program AND preserving and protecting cultural resources. Both aspects are primary objectives of the San Diego River Conservancy. Accordingly, this program to control invasive non-native plants and restore the river to native function incorporates measures to protect and enhance the protection of cultural resources concurrent with restoration of biological resources.

Records Search

It is SDRC's goal to complete a historical record's search for the entire San Diego River Watershed by the end of 2010. At a minimum, for or each site undertaken as part of this program, a site specific historical records search will occur at the South Coast Information Center. The search shall include the expectation and probabilities of discovery of historical resources within ¼ mile of the target site(s) during program implementation.

Field Surveys

If a proposed project site is identified in the records search as not having been surveyed for historical resources (prehistoric and historical archaeological sites), a qualified archaeologist shall conduct a field survey of the site.

Projects to be Re-designed to Avoid Cultural Resources, if Required

Projects will be redesigned to avoid any historical resources identified during the records search and field survey, unless they are isolated artifacts.

Cultural Resource Monitoring

As noted in the environmental checklist, any mowing and restoration work near or within registered cultural sites will have a certified archeologist and a cultural monitor on site to assure that no impacts to cultural resources occur. If archaeological or cultural features or materials are identified by the archaeologist during the mowing, work will stop immediately in that area. No archaeological or cultural materials will be collected. Work will be diverted away from the sensitive areas, which will remain intact. If approved by the archaeological monitor, hand cutting



of Arundo and other invasive plants may take place around identified milling features or other cultural resource/areas. Plant biomass will be carried to areas with no sensitive resources and mulching will occur at that location

Biological Monitoring

Two types of monitoring will occur: on site monitoring during implementation of restoration activities and site performance monitoring.

On site monitoring during project implementation will be performed by an experienced field biologist. This biologist must be familiar with both native and non-native vegetation, have over 120 hours of avian monitoring experience, and be able to identify least Bell's vireo and CA gnatcatcher by sight and call. The biologist must also be able to identify nesting activity for raptors if they are monitoring sites between February 15th and March 15th for biomass reduction using heavy equipment (i.e. mowing- but this activity will be scheduled to occur prior to February 15th when possible). The biologist will establish buffers as outlined under species conservation measures in the CDFG 1600 permit. A summary of monitoring activities will be included in the annual Work Plan and Report. An avian biologist may also conduct surveys to determine if all nesting activity has been competed on site- this would allow work to begin earlier than the normal September 15th start date. CDFG and FWS would be notified of survey results and the intent to initiate work prior to September 15th. Work may not start prior to August 15th.

Site performance monitoring will occur annually to assess effectiveness of treatments and re-vegetation effort. This monitoring will include photos of the site and field estimates of treatment success by species and survival of native plantings. This data will be presented in the annual report that is submitted to FWS, CDFG, and ACOE. Additional monitoring may also occur as specified under specific grants or mitigation programs (In-Lieu-Fee or off site mitigation requirements). This information will also be available to regulatory agencies. Monitoring data will be used to determine when re-treatments should occur and when re-vegetation is to occur (both initial and fill in planting). The goal of monitoring is to assure project success (<1% target non-native plant cover and >250 native plants per acre by year 5).

Reporting Program

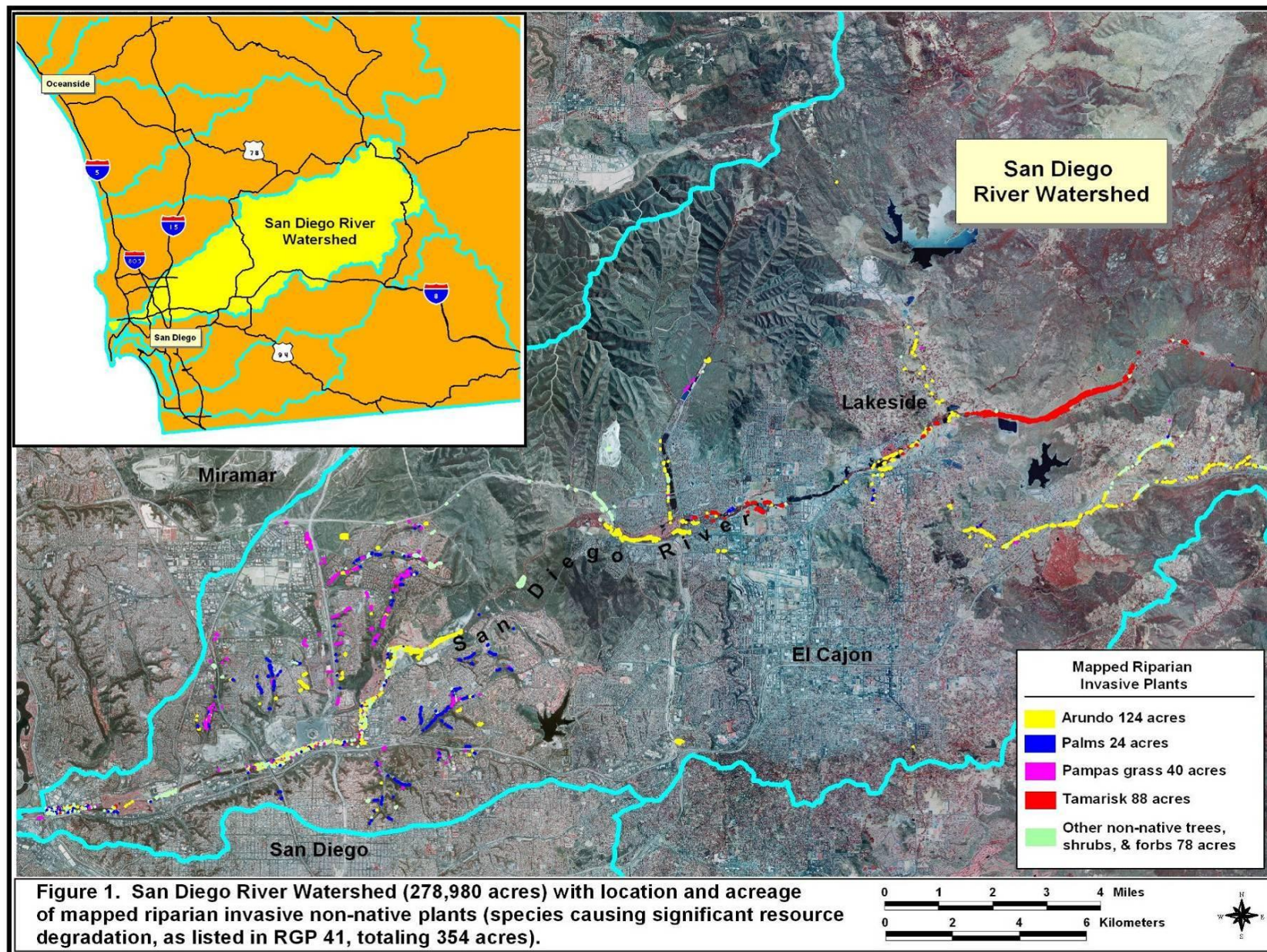
Each summer (July 15th) an annual 'Work Plan and Report' outlining the expected non-native plant control and re-vegetation for the current year will be submitted. The annual report will document work and compliance and will be provided to regulatory agencies that have issued permits: ACOE, , and FWS. This will notify agencies of the intended work program areas for each year and allow modification of work activities if necessary.

The annual report will clearly out line what work has occurred in the current year and what work is planned in the next year. Reporting on completed work will include a discussion of what treatments/control activities occurred (both initial and re-treatments), what re-vegetation has



occurred and monitoring/success of efforts. Photo documentation, non-native plant control effectiveness (percent reduction in cover of target plants) and planting success (percent survival and estimated per acre density) will be provided. Detailed GIS maps will clearly indicate what areas on each watershed unit within the San Juan Hydrologic Unit had work on them.

Proposed work will be outline on GIS maps indicating likely work areas for the current year. Work areas will be funded under a variety of programs including but not-limited to: grant funded (state, federal or local), mitigation programs (In-Lieu-Fee, fines, off site mitigation requirements), and general funds.



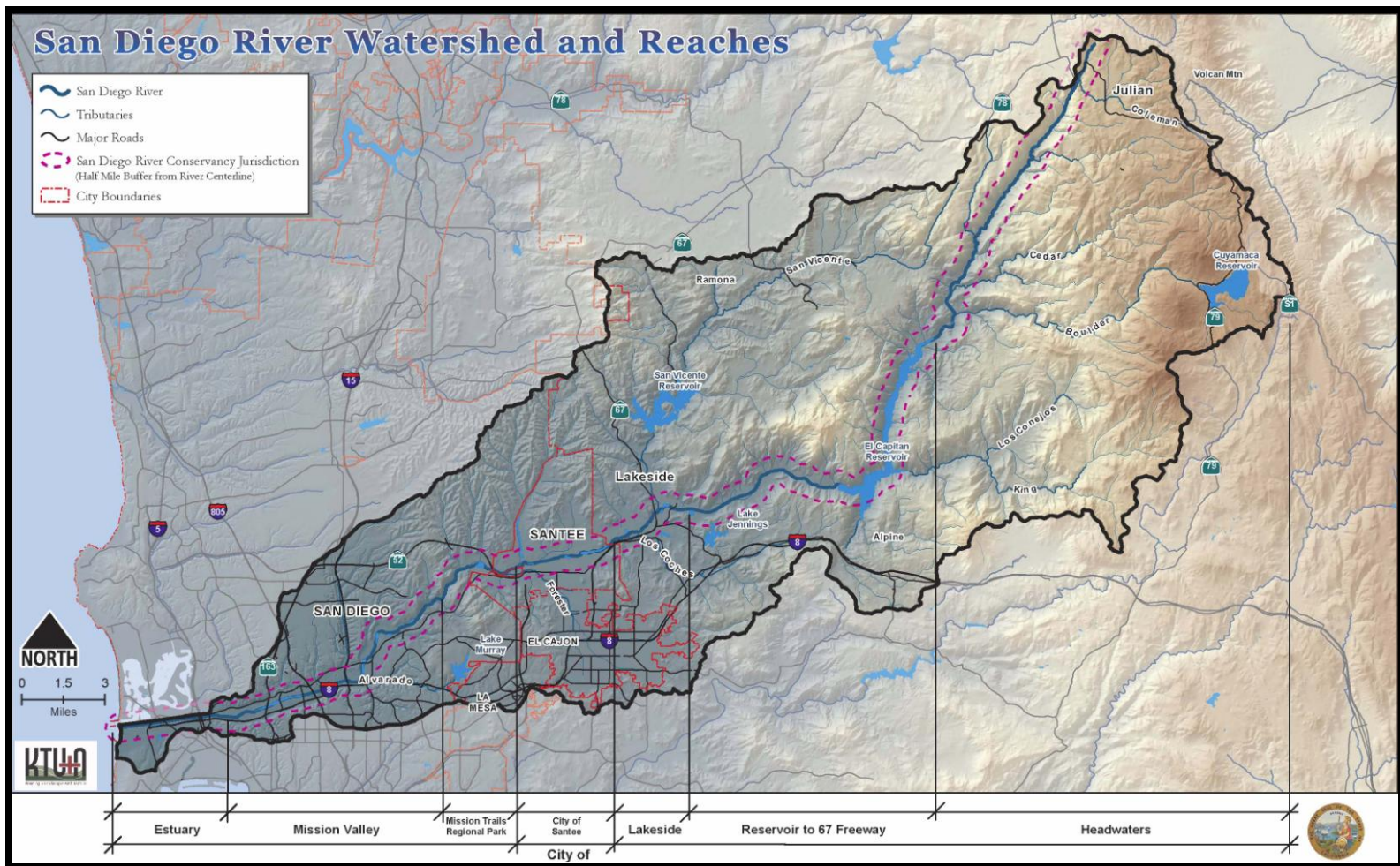
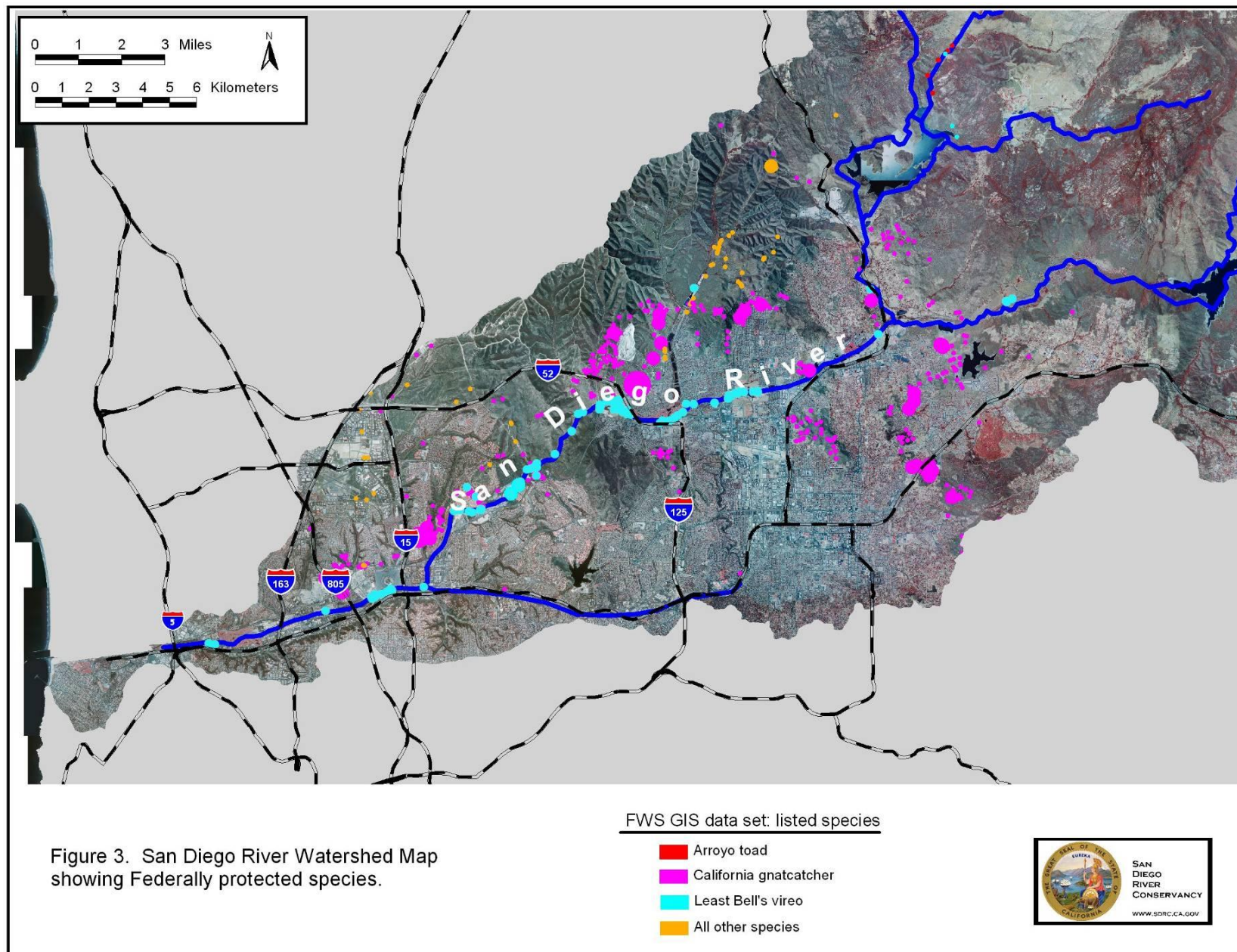


Figure 2. San Diego River Watershed: Cities, County and major features.



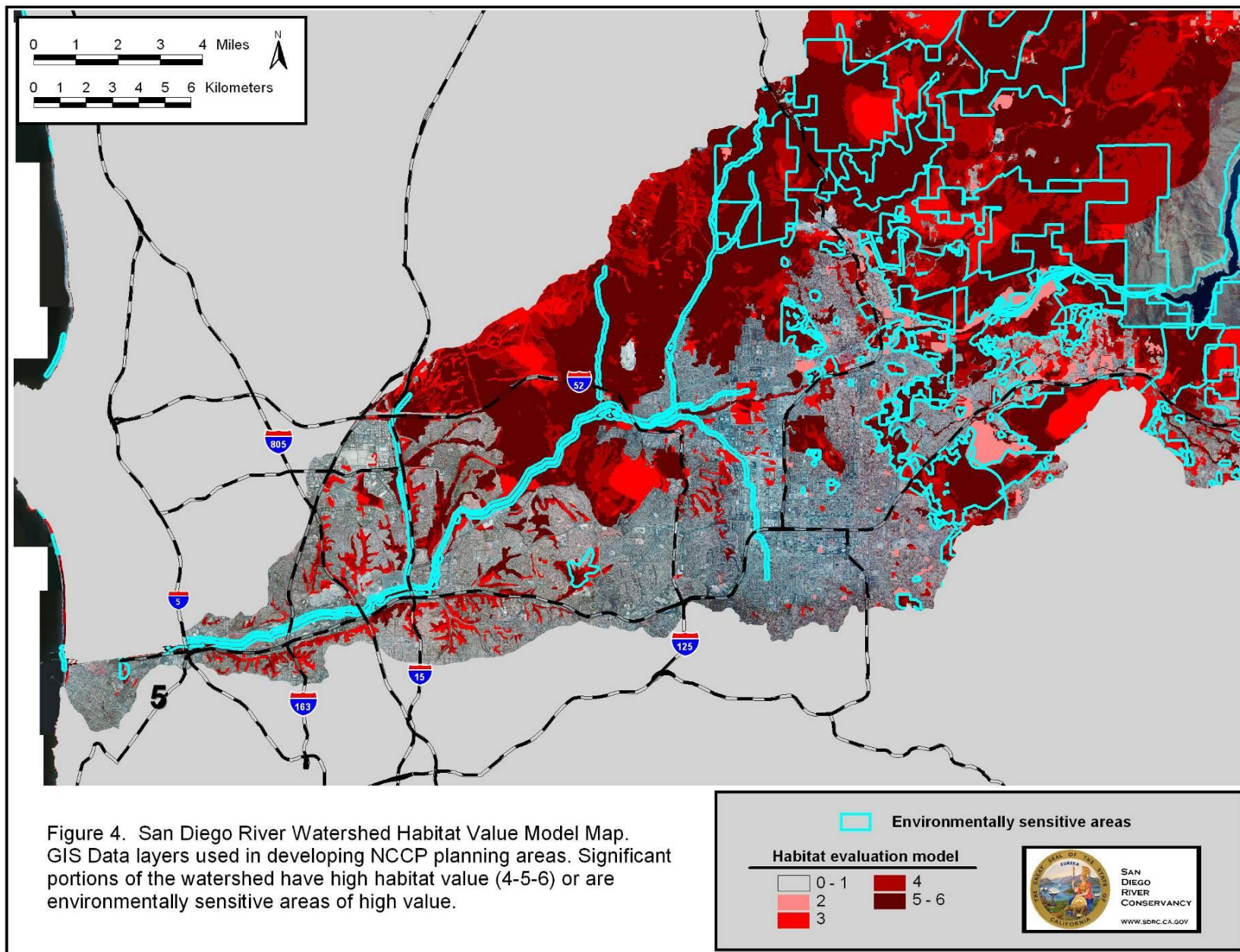




Figure 5. Mixed invasive non-native plants (myoporum, Brazilian peppertree, pampas grass and tamarisk): I-5 CalTrans.



Figure 6. Mixed invasive non-native plants (myoporum, Brazilian peppertree, and Canary Island Date Palm): I-5 CalTrans.



Figure 7. Pampas grass: CalTrans below Highway 805.



Figure 8. Arundo donax (giant reed) and tree tobacco: Ward Road trolley station.



Figure 9. Arundo donax (giant reed) and Mexican fan palms: Ward Road trolley station.



Figure 10. Arundo donax (giant reed): Ward Road, CDFG ecological reserve.



Figure 11. Arundo donax (giant reed), Canary Island date palm and Mexican fan palm: Camino del Rio North, CDFG Ecological Reserve.



Figure 12. Arundo donax (giant reed) and Mexican fan palm: Camino del Rio, CDFG ecological reserve.



Figure 13. Arundo donax (giant reed): Camino del Rio North, CDFG ecological reserve.



Figure 14. Arundo donax (giant reed): Camino del Rio North, behind the Home Depot.



Figure 15. Arundo donax (giant reed) and Canary Island date palm: Camino del Rio, behind Body Beautiful Car Wash.



Figure 16. Arundo donax (giant reed): near 52, Santee .



Figure 17. Arundo donax (giant reed): CalTrans below 52, Santee.

Table 1. San Diego River Watershed Acreage Summary

Summary of acreage of individual invasive non-native plants within the San Diego River Watershed. Areas mapped include most riparian zones and undeveloped upland areas; additional acreage exists in urbanized areas. All mapping is of “fully infested stands” as defined by RGP 41 (>80% cover).

Species/Type	Type	Acreage
<i>Arundo</i>		124
Brazilian pepper tree	Tree	14
Canary island date palm	Palm	4
Eucalyptus	Tree	20
Mexican fan palm	Palm	20
Pampas grass		40
Perennial pepperweed		2
Tamarisk	Shrub	88
Other inv non-natives		42
	Total:	354

ENVIRONMENTAL

ANALYSIS CHECKLIST

ISSUES & SUPPORTING DATA SOURCES:	Potential Significant Effect	Less than Significant w/ Mitigation	Less than Significant Impact	No Impact
1. LAND USE & PLANNING. Would the project:				
a) Conflict with general plan designation or zoning?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No impact. The project will work within multiple zoning areas (residential, commercial and open space) and various areas covered under the general plan. However the project does not change and land use designation or create a new land use, as nothing is constructed and no changes in rights of use occur. Project activities may occur on both public and private lands- but only with clear 'right of entry' or authorization from the property owner or entity managing the land.				
b) Conflict with applicable environmental plans or policies of agencies with jurisdiction over the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No impact. The proposed project would comply with existing land use plans. No construction, land use change, or change in zoning would occur. The program facilitates Cities, the County and other entities in complying with environmental regulations by creating a watershed based program that controls non-native vegetation. No work occurs without explicit permission from persons or the entity owning lands where project activities would occur. This project will enhance the quality and quantity of riparian habitat. This project implements portions of regional plans related to control of invasive non-native plants for water conservation, habitat enhancement and fire/flood risk reduction.				
c) Disrupt or divide the physical arrangement of an established community (e.g. low income, minority)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No impact. There will be no physical structures built.				
d) Conflict with adjacent, existing or planned land uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No impact. The project does not involve construction or change existing land use.				
2. AGRICULTURE. Would project:				
a) Convert Farmlands listed as "Prime", "Unique" or of "Statewide Importance," as shown on the State Farmland Mapping and Monitoring Program, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No impact. The project does not convert farmland to non-agricultural use.				
b) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No impact. Very few areas of farmland exist adjacent to parts of the riparian floodplain that will be restored; however the project will have no affect on these adjacent farmlands. All restoration activities will be conducted within existing openspace/riparian habitat.				
3. POPULATION & HOUSING. Would project:				
a) Cumulatively exceed adopted regional or local population projections?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No impact. The proposed project does not affect population growth.				
b) Induce substantial growth in an area directly or indirectly through project in an undeveloped area or extension of major infrastructure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
No impact. The proposed project does not directly or indirectly affect population growth.				

- c) Displace existing housing affecting a substantial number of people? ☐ ☐ ☐ ☒

No impact. People would not be displaced as a result of this project.

4. GEOPHYSICAL. Would project result in or expose people to impacts involving:

- a) Local fault rupture? ☐ ☐ ☐ ☒

No impact. No project related activities could rupture an earthquake fault. The project area is open space in riparian habitat. The project will not include structures for human occupancy or facilities that would be considered essential to sustain life, so the project would not expose people or structures to potential substantial adverse effects related to these hazards.

- b) Seismicity: ground shaking or liquefaction? ☐ ☐ ☐ ☒

No impact. The project site is not located within a known liquefaction area and it is unlikely for the project to be affected by seismic-related ground failure.

- c) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? ☐ ☐ ☐ ☒

No impact. The proposed project would not require water or sewer service, septic tanks, or alternative wastewater disposal.

- d) Landslides or mudslides? ☐ ☐ ☐ ☒

No Impact. The location of project activities is relatively flat and the project area would not be subject to landslides.

- e) Erosion, changes in topography or unstable soil conditions from excavation, grading or fill? ☐ ☐ ☐ ☒

No Impact. The restoration project does not disturb the soil surface and therefore will not result in substantial erosion or loss of topsoil. Areas with stands of *Arundo* and other target non-native plants that are mowed will have a layer of mulch covering the soil surface. This mulch layer, existing root structure of treated plants and re-vegetation with native plants make soil erosion unlikely.

- f) Subsidence of the land? ☐ ☐ ☐ ☒

No impact. The site is not located near unstable geologic units.

- g) Expansive soils? ☐ ☐ ☐ ☒

No impact. The site is not located in an area known for expansive soils.

- h) Unique geologic or physical features? ☐ ☐ ☐ ☒

No impact. The project will not alter any unique geologic or physical features within the project area.

5. HYDROLOGY & DRAINAGE. Would the project:

- a) Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in manner which would result in:

- i) substantial erosion or siltation on- or off-site? ☐ ☐ ☐ ☒

No Impact. The restoration project will not change or modify the low flow channel position. No structures or bank channel modifications will occur as part of the project. The soil surface will not be disturbed; therefore no substantial erosion or siltation on- or off-site will occur.

- ii) a substantial increase in the rate or amount of surface runoff in manner which would result in flooding on- or off-site? ☐ ☐ ☐ ☒

No Impact. The restoration project will not change or modify the low flow channel position. No construction structures or bank channel modifications will occur as part of the project. The risk of flooding will be reduced by the restoration project through the reduction of *Arundo* and pampas grass biomass in the flood zone. *Arundo* is documented as increasing flood risk in riparian areas.

- b) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? ☐ ☐ ☐ ☒

No Impact. The project will not contribute to run-off water.

- c) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? ☐ ☐ ☐ ☒

No Impact. The project does not involve the constructions of any structures.

- d) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam, or inundation by seiche, tsunami, or mudflow? ☐ ☐ ☐ ☒

No impact. The project would not expose people to seiche, tsunami, or mudflow.

6. WATER QUALITY. Would the project:

- a) Violate any water quality standards or waste discharge requirements? ☐ ☐ ☐ ☒

No impact. Restoration activities will not impact channel areas with water flow or result in the discharge of any contaminants. No soil disturbance will occur on site and no biomass will be placed in the active river/stream channel. Aquatic approved herbicides will be used for treatments of non-native plants. These herbicides are approved for use by open water by the Environmental Protection Agency. The active ingredients are glyphosate and imazapyr which have extremely low toxicity to wildlife (Appendix I). No direct applications of herbicide to water will occur.

- b) Substantially deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of a local groundwater table level? ☐ ☐ ☐ ☒

No Impact. Treatments of *Arundo* and other non-native will result in increased supply of groundwater and increased infiltration which will help raise groundwater levels. *Arundo* and pampas grass utilize twice as much water as native riparian woody vegetation and occupies areas that would have been a mixture of riparian habitat and open spaces. Completion of the project will provide approximately 250 acre feet of water per year for increased surface flows and groundwater recharge.

- c) Otherwise substantially degrade water quality? ☐ ☐ ☐ ☒

No Impact. The project will not affect water quality. Aquatic approved herbicides will be used for treatments of non-native plants. These herbicides are approved for use in aquatic habitats by the Environmental Protection Agency. The active ingredients are glyphosate and imazapyr (Appendix I). Surfactants, when used, are approved for use by open water. Surfactant products (such as No-Foam A and Sure Spreader) are approved for use in aquatic systems. No direct applications of herbicide to water will occur. Treatments do not occur during rain events or when rain is forecast within 24hrs. Migration of the herbicide into water does not occur at significant levels, even when precipitation occurs after treatments have been completed (Appendix I).

7. TRANSPORTATION/CIRCULATION. Would the project result in:

- a) Increased vehicle trips or traffic congestion beyond adopted policies and/or forecasts? ☐ ☐ ☐ ☒

No impact. This project would not significantly increase vehicle trips or traffic congestion.

- b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways? ☐ ☐ ☐ ☒

No impact.

- c) Safety hazards from design features (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)? ☐ ☐ ☒ ☐

Less than significant impact. The project would have no effect on area roadway design or cause significant traffic/transportation hazards. Work crews will use tractors and other equipment- but in unimproved areas and staging areas. Any temporary movement of equipment or work near roads will be signed. Crews will not stop or divert traffic.

- d) Inadequate emergency access or access to nearby uses? ☐ ☐ ☐ ☒

No impact. The project does not propose changes to access in surrounding areas.

- e) Insufficient parking capacity on-site or off-site? ☐ ☐ ☐ ☒

No impact. The project will not affect parking capacity.

- f) Hazards or barriers for pedestrians or bicyclists? ☐ ☐ ☐ ☒

No impact. The project does not involve permanent modification of trails, bike lanes, or road shoulders/sidewalks. Some areas may have improved access once non-native plants are controlled/reduced/and or removed- where non-native plants encroach on these areas. Temporary closing of road shoulders/sidewalks may occur while work is carried out- but these effects will be temporary and signage will clearly designate work areas.

- g) Conflicts with adopted policies supporting alternative transportation (e.g. bus turnouts, bicycle racks)? ☐ ☐ ☐ ☒

No impact. The project does not conflict with existing transportation policies.

- h) Rail, waterborne or air traffic impacts? ☐ ☐ ☐ ☒

No impact. The project does not affect rail, waterborne or air traffic.

- i) Change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? ☐ ☐ ☐ ☒

No impact. The proposed project would not affect air traffic patterns.

8. AIR QUALITY. Would the project:

- a) Exceed any SCAQMD standard or contribute to air quality deterioration beyond projections of SCAQMD? ☐ ☐ ☒ ☐

Less than significant impact. The proposed project will generate short-term air emissions. Short-term air emissions will occur during restoration activities clearing *Arundo* biomass from the project site. Some dust is generated when the dried *Arundo* biomass is mowed; however this is a very local and short-term effect. No soil disturbance will occur, which is typically the main source of particulate air pollution. Dust emissions will be well below significant thresholds and generally would occur from Sep 15th to Mar 15th (February 15th in coastal sage). No long-term emissions will result from implementation of this project.

- b) Expose sensitive population groups to pollutants in excess of acceptable levels? ☐ ☐ ☐ ☒

No impact. This project will not expose anyone in the populations to pollutants in excess of acceptable levels.

- c) Alter air movement, moisture, or temperature, or cause any change in climate? ☐ ☐ ☐ ☒

No impact. This project will not effect these environmental factors. The project will substantially reduce the risk of fire and the intensity of fire events, if they were to occur, by reducing non-native plant biomass- which is far more substantial and flammable than native riparian vegetation. Reduced fire occurrence and intensity resulting from the project improve air quality.

- d) Create objectionable odors affecting a substantial number of people? ☐ ☐ ☐ ☒

No Impact. The project would not create offensive odors. The project areas are typically wildlands or undeveloped open spaces that do not affect a substantial number of people.

9. NOISE. Would the project:

- a) Increase existing noise levels? ☐ ☐ ☒ ☐

Less Than Significant Impact. All work will be performed between Sep 15 and Mar 15. During this time period there may be temporary or periodic increases in ambient noise levels due to workers carrying out invasive non-native plant treatments and restoration activities. Non-native plant biomass reduction may occur from mid August 15th to early March. This work will involve the use of chainsaws and a tractor with a mowing attachment. Noise generated from the restoration activities are insignificant due to their short duration and low levels in comparison to highway noise and surrounding land uses. In addition most activities are within undeveloped open space areas with limited public use/access. The following avoidance and minimization measures are in place to assure that noise level thresholds are not exceeded.

- (1) All construction vehicles or equipment, fixed or mobile, operated within 1,000' of a dwelling shall be equipped with properly operating and maintained mufflers.
- (2) All operations shall comply with County and City Codified Ordinances (Noise Control).
- (3) Stockpiling and/or vehicle staging areas shall be located as far as practicable from dwellings.

- b) Expose people to noise levels exceeding adopted County standards? ☐ ☒ ☐ ☐

Less Than Significant Impact. Work occurs in wildland and open space areas. Standard types of equipment are used (tractors, chainsaws, etc.). The proposed restoration activities will occur between 7:30 a.m. and 4:30 p.m. on Mondays through Saturdays from August 15th to March 15th. All project work would fall within normal working hours. Restoration activities will be conducted during the non-breeding season, thus avoiding noise impacts to endangered species and nesting birds. Noise levels will comply with City and County standards.

Prior to the commencement of the restoration activities the following Mitigation Measures known as **Mitigation Measure 1** will be in place to ensure that noise level thresholds are not exceeded.

- (1) All construction vehicles or equipment, fixed or mobile, operated within 1,000' of a dwelling shall be equipped with properly operating and maintained mufflers.
- (2) All operations shall comply with County and City Codified Ordinances (Noise Control).
- (3) Stockpiling and/or vehicle staging areas shall be located as far as practicable from dwellings.

- c) If located within an airport land use plan or, where such plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels? ☐ ☐ ☐ ☒

No Impact. The project is not located within an airport land use plan or within two miles of a public airport or public use airport.

10. BIOLOGICAL RESOURCES. Would the project impact:

- a) Endangered, threatened or rare species or their habitats (including but not limited to plants, fish, insects, animals and birds)? ☐ ☒ ☐ ☐

Less Than Significant Impact with Mitigation, Minimization and Avoidance Measures. The type of restoration activities carried out in this project are considered by the CA Department of Fish & Game, the US Fish & Wildlife Service and the Army Corps of Engineers to be a form of mitigation for impacts to riparian habitat (e.g. for small permanent impacts and temporary impacts). The result of this project will be habitat improvement for federally listed species and other wildlife species in the project area. FWS consultation (Technical Assistance Letter- Appendix 1) and CDFG 1600 permit (Streambed Alteration Permit) outline specific impact minimization and avoidance measures to protect listed species, other wildlife and plant resources and the habitat in general (these are also provided in the Initial Study).

Prior to the commencement of the restoration activities the following Mitigation Measures known as **Mitigation Measure 2** will be in place to ensure that there will be less than significant impacts to these species due to the utilization of a methodology that avoids and minimizes impacts.

1. Non-native plant control methods will be used that avoid impacts to non-target native vegetation. These methods include: preparing target plants for herbicide application by separating them from native vegetation, using targeted foliar application of herbicide by crews on foot, using highly qualified contractors who have experience treating non-native plants in sensitive riparian habitat, and using herbicides that are approved for use in wetlands (aquatic approved formulations of glyphosate and imazapyr) which have no negative impact on wildlife species (Appendix 2).
2. A biologist will oversee work activities to assure that conditions of CDFG and FWS permits are being followed.
3. Yearly reporting will occur to regulatory agencies outlining completed work and work planned for the current year.
4. No restoration activities with heavy equipment shall occur during the designated breeding season (March 15th to September 15th) for the two endangered bird species occurring in riparian project areas: least Bell's vireo (*Vireo pusillus bellii*), southwestern willow flycatcher (*Empidonax traillii eximius*). Avian surveys conducted after August 15th that document completion of nesting season may allow work to be initiated earlier- but only with consent of FWS/CDFG.
5. No restoration activities with heavy equipment shall occur during the designated breeding season (February 15th to September 15th) for endangered bird species occurring in coastal sage scrub project areas: California gnatcatcher (*Poliopitila californica californica*).

These and many additional measures are described in the Initial Study preceding this Environmental Checklist.

The threshold of significance that would result in potentially significant impacts occurring to wildlife (death or harassment of listed and unlisted wildlife) is unlikely to be breached as the methods were developed in a manner to avoid impacts to wildlife. Work activities occur when migratory species are not physically present on site, and activities are not occurring during breeding season when impacts to wildlife would be greater. Impacts to native plants are also minimal as work methods assure that only target plants are controlled. These methods have been utilized on multiple non-native plant control programs in southern California and the conditions have been taken directly from FWS and CDFG permits. Programs using these methods have been operating for the past 10 years including multiple permit renewals. Oversight by a biologist on site along with yearly reporting to regulatory agencies assures compliance with these restoration methods. Any deviation from these methods (resulting in impacts to wildlife, vegetation or the habitat in general) would result in termination/suspension of active work and possible fines or a request for compensatory mitigation.

Annual reports document work and compliance are provided to regulatory agencies that have issued permits: US Army Corps of Engineers, Department of Fish and Game, and Fish and Wildlife Service. All permits clearly indicate work conditions/methods, and minimization & avoidance measures. Regulatory agencies, county project managers and the project biologist assure compliance with these conditions.

- b) Locally designated species (e.g. heritage trees)? ☐ ☐ ☐ ☒

No impact. The project does not affect locally designated species.

- c) Locally designated natural communities (e.g. oak forest, coastal habitat, etc.)? ☐ ☐ ☒ ☐

Less Than Significant Impact. The project restores and protects native habitat and open space.

- d) Wetland habitat (e.g. marsh, riparian and vernal pool)? ☐ ☐ ☒ ☐

Less Than Significant Impact. The restoration project will restore native riparian habitat, improving habitat quality for listed wildlife species. The type of restoration activities carried out in this project (non-native plant control and native replanting) are considered by the CA Department of Fish & Game, the US Fish & Wildlife Service and the Army Corps of Engineers to be mitigation for impacts to riparian habitat (e.g. for small permanent impacts and temporary impacts). The methodology described above (see project Initial Study and section IV (b)) will avoid negative impacts to the riparian habitat and endangered species that are found within the system. *Arundo* and other target non-native plants severely impact the biological function of the riparian system by increasing fire and flood damage, modifying hydrology, and out competing native vegetation (effecting food and nesting resources). The project is a net benefit, restoring riparian habitat.

- e) Wildlife dispersal or migration corridors? ☐ ☐ ☐ ☒

No impact. The project will not alter channel position or otherwise impede water flows. No equipment will operate in channels or flowing water. No cut or reduced non-native plant biomass will be left in low flow channel areas.

- f) Adopted or proposed conservation plans and policies (e.g. Natural Community Conservation Plan or Resource Management Plan)? ☐ ☐ ☐ ☒

No Impact. The restoration project does not conflict with any existing conservation plans. The overall effect of the restoration project is to enhance riparian habitat. Control of invasive non-native plant species is a high priority within Multiple Species Conservation Plans for San Diego County. This program will facilitate completion of those goals in an efficient and comprehensive manner. The San Diego River Conservancy is fulfilling a role and need on the watershed to enact landscape level restoration. The SDRC board has representatives from multiple regional entities including the County of San Diego and the City. The SDRC is also working with the Transnet EMP program (which is funding regional monitoring and implementation under NCCP Plans) to bring together partners to initiate/implement projects that fulfill the goals of the NCCP plans.

11. AESTHETICS. Would the project:

- a) Affect a scenic vista or view open to the public? ☐ ☐ ☐ ☒

No Impact. No scenic vistas in the project area would be negatively affected. The project would improve scenic views by removing stands of *Arundo* and pampas grass which would make mature native trees (sycamores, cottonwoods, oaks, and willows) more visible. Rock formation and river channel areas would also have increased visibility. *Arundo* and pampas grass removal will have the long-term affect of saving the mature trees by reducing competition for limited resources and reducing the risk of devastating wildland riparian fires throughout the system. The net effect will be to improve scenic riverine and coastal vistas by removing non-native vegetation that is impacting these resources.

- b) Affect a designated scenic highway? ☐ ☐ ☒ ☐

Less than significant impact. The project will protect scenic resources by greatly reducing fire and flood risk in wildland areas. Non-native trees in wildland areas may be controlled, but they are replaced with native trees that contribute significantly less to the fuel load (are less of a fire hazard). Some non-native palms, eucalyptus and Brazilian pepper trees will be controlled, but these trees are in 'wildland' areas with other native vegetation so visual impacts are minor. Rock outcroppings and historical buildings will not be impacted. The immediate effect of the project will be to make mature native trees in river systems more visible, improving scenic riverine resources while reducing risk of fire from non-native plants that are a significant fire threat (*Arundo*, pampas grass, palms, and eucalyptus).

- c) Substantially degrade the existing visual character or quality of the site and its surroundings? ☐ ☐ ☒ ☐

Less than significant impact. Project areas are vegetated wildland 'open space'. Non-native plant control and re-vegetation with natives will restore these areas. Riparian restoration will result in mature native vegetation and the river becoming more visible, improving the visual character of the riparian corridor.

- d) Create light or glare beyond the physical limits of the project site? ☐ ☐ ☐ ☒

No impact. No new source of light or glare would be created so there would be no impact.

12. CULTURAL/SCIENTIFIC RESOURCES, Would the project:

- a) Disturb archaeo or paleo resources? ☐ ☐ ☒ ☐

Less than significant impact. See 12 (b).

No impact on paleological resources. Work activities will not move or destroy rocks or rock formations. Additionally no grading or significant soil disturbance will occur.

- b) Affect historical resources? ☐ ☐ ☒ ☐

Less than significant impact. Treatment of non-native plants would have no impact. Reduction of treated biomass and re-vegetation would have a less than significant impact. Significant disturbance of soil does not occur- no grading, use of tracked equipment, or other mechanized movement of soil occurs. The State Historic Office has concurred that impacts are unlikely during biomass reduction using these methods.

To assure avoidance of impacts a search of registered archaeological sites is carried out for each project area at the South Coastal Information Center. Any mowing and restoration work near or within registered sites will have a certified archeologist and a cultural monitor on site to assure that no impacts to cultural resources occur.

If archaeological or cultural features or materials are identified by the archaeologist during the mowing, work will stop immediately in that area. No archaeological or cultural materials will be collected. Work will be diverted away from the sensitive areas, which will remain intact. If approved by the archaeological monitor, hand cutting of *Arundo* and other invasive plants may take place around identified milling features or other cultural resource/areas. Plant biomass will be carried to areas with no sensitive resources and mulching will occur at that location.

- c) Have the potential to cause a physical change which would affect unique ethnic cultural values? ☐ ☐ ☒ ☐

Less than significant impact. No grading or significant soil disturbance will occur, making the changes to unique cultural resources unlikely. Non-native vegetation was not a

13. RECREATION. Would the project:

- a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? ☐ ☐ ☐ ☒

No impact. The project would not increase the use of existing parks and recreational facilities.

- b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? ☐ ☐ ☐ ☒

No impact. No recreational facilities would be constructed or expanded.

- c) Conflict with adopted recreational plans or policies? ☐ ☐ ☐ ☒

No impact. The project does not conflict with adopted recreational plans or policies.

14. MINERAL RESOURCES. Would the project:

- a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? ☐ ☐ ☐ ☒

No impact. This project will not impact future availability of sand or rock for mining.

- b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan? ☐ ☐ ☐ ☒

No impact. This project will not impact future availability of sand or rock for mining.

15. HAZARDS. Would the project:

- a) Create a hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? ☐ ☐ ☒ ☐

Less Than Significant Impact. Fuel and plant herbicides (glyphosate, imzapyr) will be transported and used on site during habitat restoration. Plant herbicides used in the restoration of sites have very low toxicity and are approved for use in aquatic areas (appendix 1). No disposal of materials will occur at project sites. The following BMPs will be in place to ensure that there are no significant impacts to the environment:

- The transport of hazardous materials is regulated by the State and the transport of such materials to the site would comply with these regulations.
- During restoration activities contractors will employ best management practices for spill control and prevention. With prevention and management in place, any spills of hazardous materials are considered less than significant.
- Restoration equipment storage and maintenance will be conducted in non-wetland areas (degraded staging areas such as road sides, shoulders, parking lots, and areas with bare compacted soil.

All mixing of herbicides and maintenance of equipment will occur only in areas that are devoid of vegetation and that are adjacent to existing roads (staging areas as described above).

- b) Create a hazard to the public or the environment through reasonably foreseeable upset & accident conditions involving the release of hazardous materials into the environment? ☐ ☐ ☒ ☐

Less Than Significant Impact. Some hazardous materials, such as fuel and plant herbicides, would be transported and used at the site during restoration activities, which would create a hazard to the environment should a spill occur. The BMPs incorporated into the project (see above) would reduce the hazards to a less than significant level.

- c) Exposure of people to existing sources of health hazards? ☐ ☐ ☐ ☒

No impact. Work occurs on vegetation which is not a health hazard.

- d) For a project located within an airport land use plan or, where such plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? ☐ ☐ ☐ ☒

No impact. The site is not located within an airport land use plan or within 2 miles of a public airport or public use airport.

- e) For a project within the vicinity of private airstrip, would the project result in a safety hazard for people residing or working in the project area? ☐ ☐ ☐ ☒

No impact. The site is not located within the vicinity of a private airstrip.

- f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? ☐ ☐ ☐ ☒

No impact. The project activities are typically in open space areas and do not necessitate closing or blocking roads, or restricting their use. Project activity would not alter emergency response or emergency evacuation routes.

- g) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? ☐ ☐ ☐ ☒

No impact. The project will not expose people or structures to significant risk of loss, injury or death involving wildland fires. The control of *Arundo* and other non-native plants and replacement with native riparian vegetation will reduce the risk of wildland fire. A significant reduction of fire risk will occur.

16. PUBLIC SERVICES. Would project result in need(s) for new/alterd government facilities/services in:

- a) Fire protection? ☐ ☐ ☐ ☒

No impact. The project would not result in new or altered government facilities in fire protection.

- b) Police protection? ☐ ☐ ☐ ☒

No impact. The project would not result in new or altered government facilities in police protection.

- c) Schools? ☐ ☐ ☐ ☒

No impact. The project would not result in new or altered government facilities for schools.

- d) Maintenance of public facilities, including roads? ☐ ☐ ☐ ☒

No impact. The project would not result in any changes to the maintenance of public facilities, including roads.

- e) Other government services? ☐ ☐ ☐ ☒

No impact. The project would not result in new or altered government facilities in other government service areas.

17. UTILITIES & SERVICE SYSTEMS. Would project result in needs for new or substantial alterations in:

- a) Power or natural gas? ☐ ☐ ☐ ☒

No impact. The restoration project will not result in new or substantial alterations in power or natural gas.

- b) Communications systems? ☐ ☐ ☐ ☒

No impact. The restoration project will not result in new or substantial alterations to communications systems.

- c) Local or regional water treatment or distribution facilities? ☐ ☐ ☐ ☒

No impact. The restoration project will not result in new or substantial alterations to water treatment or distribution facilities.

d) Sewer or septic tanks?

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No impact. The restoration project will not result in new or substantial alterations to sewer lines or septic tanks.

e) Solid waste disposal?

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No impact. The restoration project will not create solid waste that needs to be disposed of.

MANDATORY FINDINGS

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

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Less than significant impact. The restoration activities carried out in this project are considered by CDFG, FWS and ACOE to be a form of mitigation for impacts to riparian habitat. *Arundo* and non-native plant control and re-vegetation with native riparian species, increases the quality of riparian habitat for fish and wildlife species. This project will directly enhance the riparian habitat, benefiting the endangered species that inhabit the San Diego Watershed. A FWS Technical Assistance Letter (Appendix 1), CDFG 1600 permit, on site project biologist, and SDRC oversight will assure that as long as impact minimization and avoidance measures are followed, no significant impacts would result. The project does not impact important examples of the major periods of California or prehistory.

b) Does the project have the potential to achieve the short-term environmental goals to the disadvantage of the long-term environmental goals?

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No impact. The invasive plant control program provides long term environmental benefits by implementing watershed based eradication of *Arundo*, pampas grass and other invasives. This makes the projects sustainable over the long term and helps assure that habitat improvements, water conservation and fire/flood risk reduction are not temporary enhancements. Watershed based implementation utilizes pre-mapping of invasive non-native plant distributions (see figure 1) and a coordinated and planned implementation that assures all plant population are treated in a systematic fashion.

c) Does the project have possible environmental effects which are individually limited but cumulatively considerable? ("cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

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Less than significant impact. The proposed project has been found to have less than significant impacts as determined by FWS Technical Assistance Letter. No cumulatively considerable impacts would be realized when viewed in connection with the effects of existing or future proposed projects. This project is part of a watershed wide habitat improvement program that will ensure that the project benefits are long lasting.

d) Does project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly

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No impact. The project has been found to have no impacts or less than significant environmental impacts which are temporary. Therefore, the project would not cause substantial adverse effects on human beings.

DETERMINATION:

**Choose
One of the
Following**

Based upon the evidence in light of the whole record documented in the attached environmental checklist explanation, cited incorporations and attachments, **I find that the proposed project:**

COULD NOT have a significant effect on the environment, and a negative declaration (ND) will be prepared pursuant to CEQA Guidelines Article 6, 15070 through 15075. ☐

COULD have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures have been added to the project. A negative declaration (ND) will be prepared pursuant to CEQA Guidelines Article 6, 15070 through 15075. ☒

MAY have a significant effect on the environment which has not been analyzed previously. Therefore, an environmental impact report (EIR) is required. ☐

Signature: _____

Prepared by: Jason Giessow

Telephone: (619) 645-3183



PREPARERS/CONTRIBUTORS

Jason Giessow, DENDRA Inc., (environmental services consultant to the San Diego River Conservancy)

Ann Van Leer, Land Conservation Brokerage, Inc, (environmental services consultant to the San Diego River Conservancy)

REFERENCES USED IN THE COMPLETION OF THE INITIAL STUDY CHECKLIST

California Environmental Quality Act, CEQA Guidelines. CEQA Air Quality Handbook, South Coast Air Quality Management District, Revised November 1993.

County of San Diego, Biological Mitigation Ordinance, Ord. Nos. 8845, 9246, 1998. County of San Diego General Plan., <http://www.sandiegoriver.org/documents/WorkPlan2006Final.pdf>

Demere, Thomas A., and Stephen L. Walsh. Paleontological Resources San Diego County. Department of Paleontology, San Diego Natural History Museum. 1994.

Native American Heritage. Public Resources Code §5097.9-5097.991.

Department of Conservation, California Geological Service, 2007. Fault Rupture Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps, Interim Revision.

Natural Communities Conservation Plans:

Multiple Species Conservation Plan (approved 1997:

<http://www.sdcounty.ca.gov/dplu/mscp>) & East County Multiple Species Conservation Plan (in development)

San Diego County Code of Regulatory Ordinances, Chapter 4, Noise Abatement and Control, effective February 4, 1982.

San Diego River Conservancy, 2006. San Diego River Conservancy Five Year Strategic and Infrastructure Plan 2006-2011.

TransNet Environmental Mitigation Program (<http://www.sandag.org>)

Appendix 1

FWS has already completed a ‘Technical Assistance Letter’ for the program. The letter states that as long as minimization and avoidance measures are followed (as outline in the plan submitted by San Diego River Conservancy), harassment and or take of listed species is unlikely. A section 7 consultation with the FWS is not required at this time for the San Diego River below El Capitan Dam. No work will be initiated above the dam without additional FWS consultation.

A correction was made and approved by FWS on Statement #11: biomass reduction may occur from September 15th to March 15th (riparian areas) and September 15th to February 15th in CSS.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road
Carlsbad, California 92011



In Reply Refer To:
FWS-SD-2008B0219/2008TA0213

DEC 21 2007

Michael Nelson, Executive Director
San Diego River Conservancy
1350 Front Street-Suite 3024
San Diego, California 92101

Re: Invasive Plant Control and Re-vegetation Project for the San Diego River Watershed, San Diego County, California

Dear Mr. Nelson:

This letter is in response to a December 16, 2007, letter from Jason Giessow, your representative, requesting our concurrence, pursuant to section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*), that the proposed Invasive Plant Control and Re-vegetation Project (project) for the San Diego River Watershed may affect, but is not likely to adversely affect the federally-listed endangered least Bell's vireo (*Vireo bellii pusillus*; vireo) and the federally-listed threatened coastal California gnatcatcher (*Poliophtila californica californica*; gnatcatcher).

Based on the information provided and the proposed avoidance/minimization measures listed in the attachment, the Service concurs that the proposed project may affect, but will not likely adversely affect the vireo and gnatcatcher. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

If you have any questions regarding this letter, please contact Michelle Moreno of my staff at (760) 431-9440.

Sincerely,

Therese O'Rourke
Assistant Field Supervisor

Attachment



Attachment

Project Description and Avoidance and Mitigation Measures

The proposed project would occur within the entire San Diego River Watershed, San Diego County, California (Figures 1 and 2). The project consists of a watershed based invasive non-native plant control and re-vegetation program with an emphasis on *Arundo*, pampas grass and palms (other species may be controlled if observed). The program will start at the El Capitan Dam and will work downstream. The bulk of control and re-vegetation activities will occur between September 15 and March 15 each year. Some maintenance activities (i.e., watering of plantings and weed control) may occur outside this time frame, but only in areas that have no suitable vegetation for avian nesting. The typical treatment cycle will start with foliar application of glyphosphate herbicide in the fall. Work will begin September 15 and usually end by early December. Once the *Arundo* cane has died, biomass reduction may occur, particularly where stands are thick and large (over 1/8 acres). Biomass reduction will occur from mid-January up to March 15 in riparian areas and February 15 in coastal sage scrub. Biomass reduction will entail either mowing or hand cutting the dead *Arundo* cane/pampas grass. The normal biomass reduction process is: 1) a large mower mows stands, 2) hand crews cut all *Arundo* that mowers could not reduce, 3) a smaller mower mows hand cut *Arundo*. Some sites that do not have mowing access may be cut by hand and chipped. Mowing will be carried out using a fixed tooth or hammer flail mowing attachment mounted on a tractor. The mowing attachment mulches the dead (or live) *Arundo* cane into a layer about 4" thick (thickness varies at site from 1/2" to 10"). The mowing attachment and tractor do not dig into the soil surface or change topography of the site. All tractors are rubber tired. Several sizes of tractors are used: from a larger 45,000 lb tractor with four large tires (about 56" by 18") with a mowing implement 100" wide to a smaller size 8,000 lb tractor with two large (48" x 16") and two small tires (24" x 12") with a mowing implement 74" wide. Live or dead *Arundo* stands are mowed standing and piles of dead *Arundo* stacked by hand crews are mowed. Based on a search of all available species databases vireo and gnatcatcher are known to occur within the project area.

The following measures are proposed to be implemented to avoid and minimize potential effects to federally listed species:

1. No more than three crews will be active on the watershed at one time
2. Only one crew will operate at a given site at a time (sites are separated by at least one mile- and are usually on entirely different reaches of the watershed).
3. Crew size will not exceed 16 individuals and no more than five people will be working together at a given spot.
4. Each crew may use up to 2 ATVs (typically one is used to move both the power sprayer and mixed herbicide to crews in the field). Small gas powered power sprayers (with 50

Mr. Michael Nelson (FWS-SD-2008B0219/2008TA0213)

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gallon tank for mixed herbicide) are moved throughout the site to carryout treatments. A small tractor (<8,000 lb) may be used instead of ATVs.

5. ATVs will not drive in channel areas.
6. ATVs will operate only in open areas. Woody vegetation (>1" DBH) will not be cleared or driven upon.
7. Site preparation will be carried out prior to treatment of *Arundo*. Preparation will entail separating, or creating a space, between stands of *Arundo* and native vegetation. This allows the *Arundo* to be treated without affecting the naive woody vegetation. The space between *Arundo* and native vegetation will be created by pushing, detangling and/or trimming the vegetation. Both *Arundo* and native woody vegetation may be trimmed. However, woody vegetation may not be trimmed that is in excess of four inches in diameter.
8. Herbicide mixing and refueling will occur only at staging areas, which are located along roads or on degraded areas with no native vegetation. Compacted dirt lots, road shoulders, and old disturbed sites are typically the type of areas that are used for staging.
9. All regulations involving use of herbicides will be followed including BMPs. Aquatic herbicide formulations will be used when near open water.
10. A marking dye will be used to assure that drift or overspray onto non-target vegetation is not occurring.
11. Biomass reduction will occur from mid-January up to March 15 (February 15th in CSS), but most work will be completed by late February to allow for replanting.
12. No native vegetation will be mowed.
13. No mowing will occur in the stream channel.
14. No mulched/mowed biomass will be placed in the channel.
15. All mowed material will be placed over previously existing stands of *Arundo*, no open habitat or native vegetation will be covered with *Arundo* mulch.
16. Hand-cutting crews will cut dead *Arundo* using chainsaws operated by hand. Hand tools (loppers and machetes) may be used, but in limited situations.
17. Chippers may be used at sites where mowing is not possible due to site topography. Typically this is on tributaries where creeks have deep profiles. Chippers will be staged

Mr. Michael Nelson (FWS-SD-2008B0219/2008TA0213)

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on roads and may chip material onto disturbed/maintained areas outside the creek profile, chip into areas where *Arundo* previously existed, or chip into containers for hauling off site.

18. During re-vegetation activities no more than two crews will be active on the watershed at one time.

19. During re-vegetation activities crew size will not exceed 12 individuals.

20. During re-vegetation activities each crew may use up to 2 ATV's to move plants from staging areas to planting locations. ATV's typically drive only in areas that have been mowed (on dead *Arundo* mulch). Some sites that are flat and connected to roads, may allow use of a 4 wheel drive truck to access mowed areas and deliver plants.

21. Between March 15 and September 15, the following restrictions will apply:

- a. no areas will be worked in that have vegetation structure suitable for nesting (work only in mowed areas with new plantings).
- b. no powered equipment will be used at the restoration sites (only watering and treatments with backpacks). The water truck does have a gas powered pump, but this will operate along access roads or in staging areas.
- c. avian monitors will be used as requested.

Appendix 2

Aquatic approved herbicides approved by EPA for use in aquatic systems

Glyphosate:

(Multiple formulations exist- Aquamaster® is presented as an example)

Aquamaster®:

Label & MSDS

Imazapyr:

(Currently on Habitat® is registered as an approved aquatic formulation)

Habitat®:

Label & MSDS