RESTORATION, ENHACEMENT, & MONITORING PLAN – PROCTOR VALLEY ORV SITE B VERNAL POOL HABITAT RESTORATION PROJECT I

AUGUST 2017

The Chaparral Lands Conservancy

Preserving California's Shrubland Ecosystems

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Proctor Valley ORV Site B Project I Location

Assessor's Parcel Number: 5980100800
UTM: 507469.77 / 3615171.03 / 11S
Latitude / Longitude: 32.674187 / -116.920329

Project Size

5 acres

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1.0 INTRODUCTION

This *Restoration, Enhancement, and Monitoring Plan for the Proctor Valley ORV Site B Vernal Pool Habitat Restoration Project I* (Restoration Plan) describes a habitat restoration project on a preserve property in southern San Diego County to restore and enhance five acres of vernal pools and watersheds (Project). The Project would be implemented over three to six years depending on the amount and effects of annual rainfall on vernal pool ponding, restoration seeding and planting, and successful fundraising. This Restoration Plan stands alone but draws from information contained in The Chaparral Lands Conservancy's (TCLC) comprehensive *Proctor Valley Vernal Pool Restoration Plan* (2012) and provides details specific to the Proctor Valley ORV Site B Vernal Pool Habitat Restoration Project I.

The ORV Site B Vernal Pool Habitat Restoration Project I is located in Proctor Valley, a rural area in southwest San Diego County east of the City of Chula Vista community of Rolling Hills Ranch, northeast of Upper Otay Lake, and southwest of the unincorporated community of Jamul (Figures 1, 2, and 3). The Project I is located on one property within the protected "Otay Lakes Cornerstone Lands" (Cornerstone Lands) owned by the City of San Diego Public Utilities Department (City) and managed under the *San Diego Multiple Species Conservation Plan* (MSCP; City of San Diego 1997) and pending *City of San Diego Vernal Pool Habitat Conservation Plan* (vernal pool HCP).

The Project I site has been heavily damaged by past off-road vehicle activity yet still provides an increasingly limited opportunity for restoration of vernal pool landscapes in the City of San Diego. Overall intact natural terrain and clay soils on the Project I site are ideal for restoration and enhancement of vernal pools, endangered and sensitive vernal pool animals and plants, and uplands coastal sage scrub and native grasslands vegetation. The Project I compliments TCLC's Proctor Valley ORV Site A Vernal Pool Habitat Restoration Project located immediately west of the Project I and Proctor Valley Road. The Project would also compliment and build on significant recent conservation investments in Proctor Valley including large conservation property acquisitions and several miles of new vehicle barriers along Proctor Valley Road to prevent off-road vehicle activity.

Proctor Valley and the Otay Lakes Cornerstone Lands are integral components of an extensive tapestry of protected habitat land in South County San Diego. Proctor Valley is considered a "biological core area" under the MSCP and supports many sensitive habitats (e.g. coastal sage scrub, native grasslands, non-native grasslands, riparian scrub, vernal pools) and over twenty

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Figure 1. Regional Location Map

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Figure 2. Existing Conditions

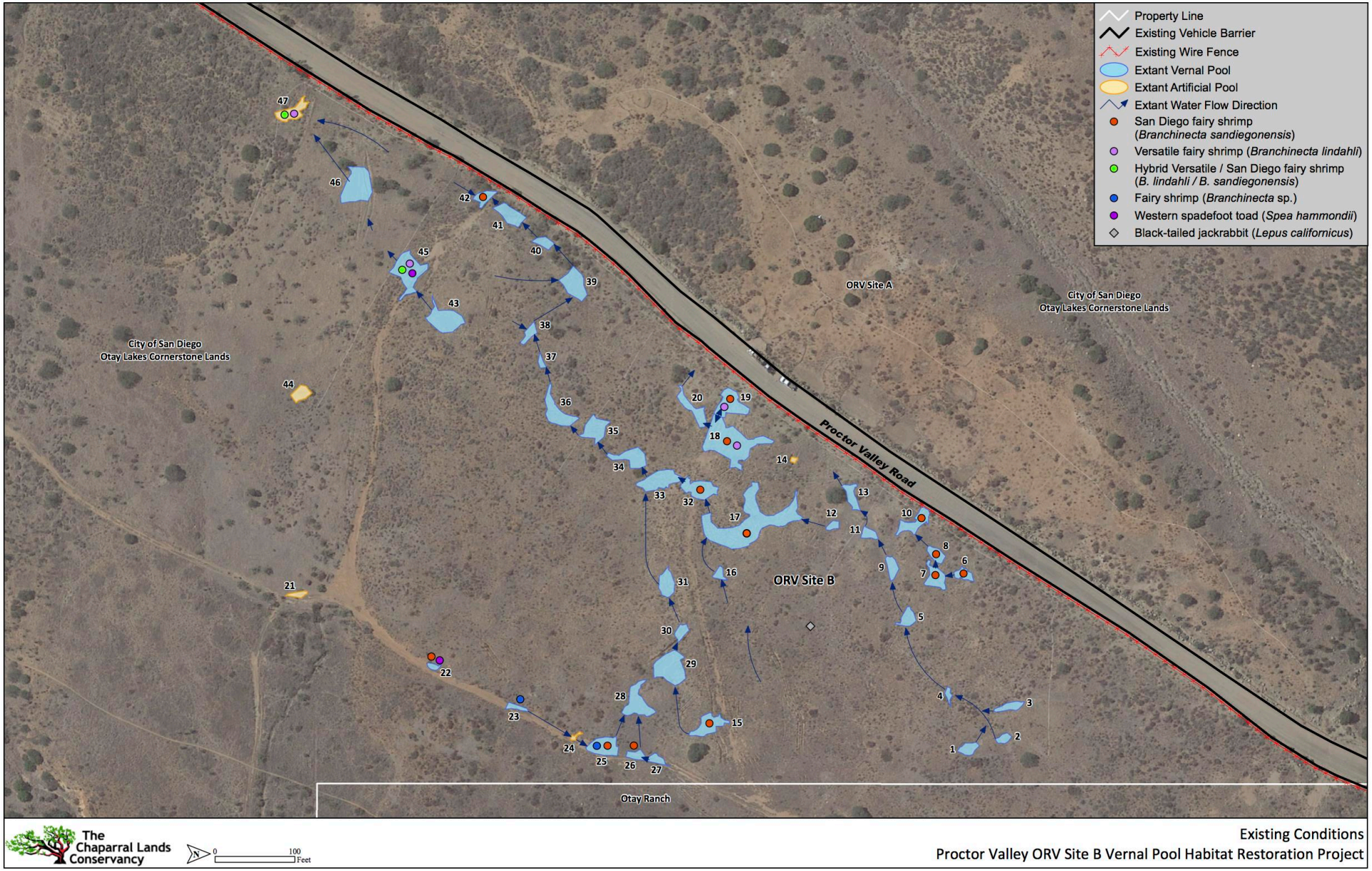

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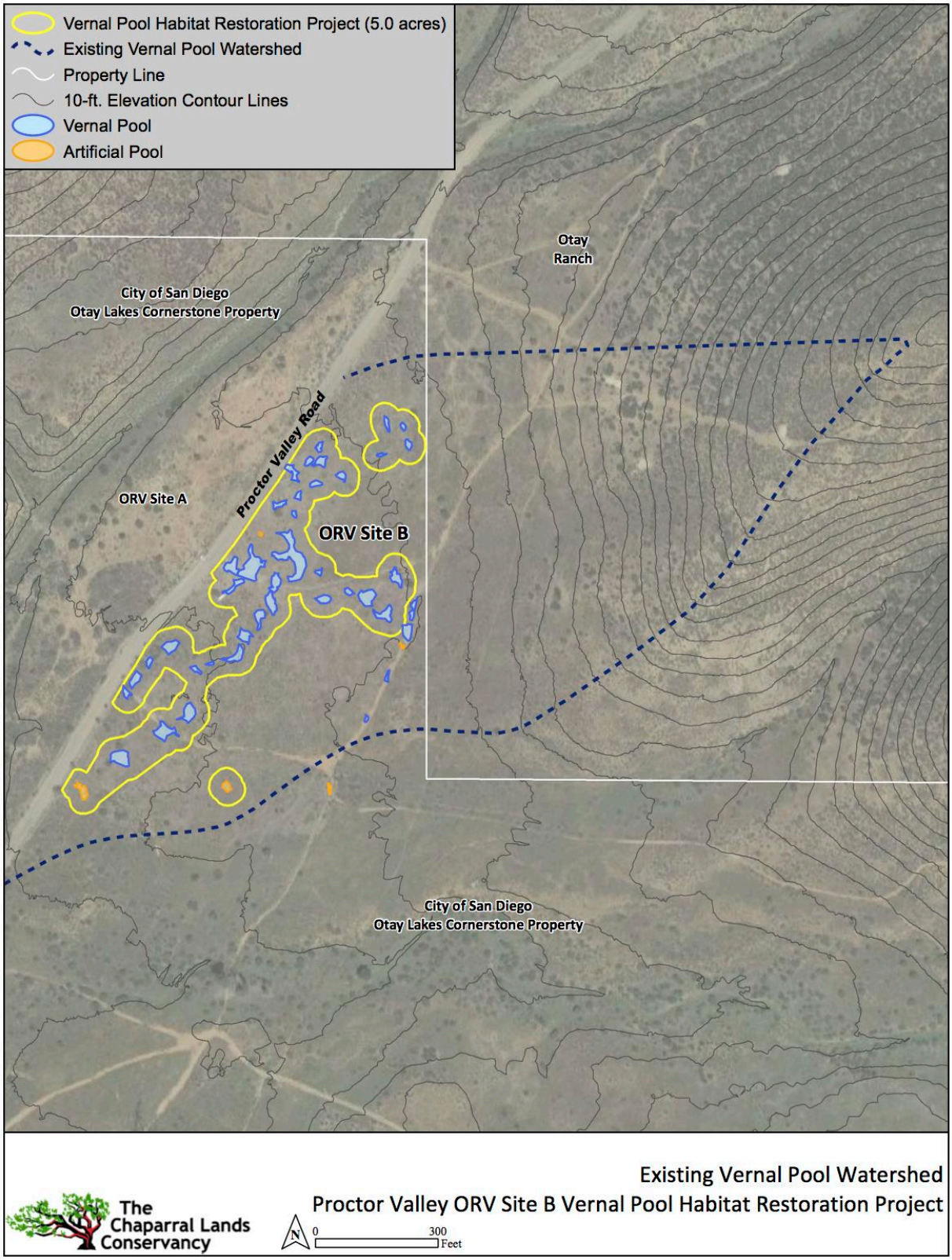
Figure 3. Existing Vernal Pool Watershed Map



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MSCP covered species. Following years of concerted efforts to acquire sensitive properties, much of Proctor Valley is now protected by several resource agencies: The City of San Diego Public Utilities Department (City) owns and manages the Otay Lakes Cornerstone Lands; the California Department of Fish and Wildlife manages the Rancho Jamul Ecological Reserve; and the U.S. Fish and Wildlife Service manages the San Diego National Wildlife Refuge. A designated hard-line preserve mitigation bank on the private Otay Ranch property in Proctor Valley will eventually be managed by one or more of these resource agencies following dedication of mitigation land concurrent with development elsewhere on Otay Ranch.

TCLC will implement the Project I in coordination with and subject to permission by the property owner, the City of San Diego. The City will review and approve proposed restoration and enhancement activities and continue to provide long-term stewardship of the site in accordance with the *City of San Diego MSCP Subarea Plan*.

The Project I is not a mitigation project nor does it represent binding mitigation obligations on the TCLC or City of San Diego. Rather, the Project I is proactive, voluntary, and entirely contingent on successful fundraising by the TCLC in cooperation with the City. It is the intent of TCLC to carry out proposed restoration and enhancement activities to achieve project goals and will endeavor to secure additional funding and/or carry out additional work in the event project goals are not achieved. However, in the event that goals are not met, no remedial action will be required after the project implementation period. Neither TCLC as the project manager nor the City as the property owner are bound to fund and/or implement any restoration and enhancement activities beyond the project implementation period for any phases of the project. Nor are TCLC or the City bound to fund and/or implement any increased maintenance that may result from the Project. In the event that the project will be conducted in phases due to funding limitations, TCLC will not initiate any phase without funding adequate to complete that phase. TCLC will not initiate any phase without funding to complete the phase and City review and approval to ensure that the proposed phase will still accomplish proportional project goals.

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2.0 PROCTOR VALLEY ORV SITE B VERNAL POOL RESTORATION PROJECT I

2.1 PURPOSE AND NEED

City of San Diego managers have worked diligently to protect the Cornerstone Lands and ORV Site B by blocking off-road vehicle use and removing trash dumps among other activities. Yet there is still an unfulfilled need to improve the condition of seriously damaged vernal pool and uplands habitats on the property and to meet City goals for vernal pool habitat conservation.

TCLC's Proctor Valley ORV Site B Vernal Pool Habitat Restoration Project I would address this need by restoring and enhancing vernal pools and immediate watersheds in areas of the Cornerstone Lands that have been heavily damaged by past off-road vehicle activity, grazing, and other disturbance. Original natural vernal pools persist at the site and currently support the endangered San Diego fairy shrimp (Figure 2). But past disturbance has significantly harmed pool hydrology with erosion and tire trenching, introduced exotic invasive weeds to pools and uplands, and damaged native upland vegetation. The Project I would restore and enhance vernal pools and coastal sage scrub and native grasslands in immediate vernal pool watersheds to a more natural and higher functioning condition.

2.2 VERNAL POOL PROJECT DESCRIPTION

The Proctor Valley ORV Site B Vernal Pool Habitat Restoration Project I would restore and enhance a vernal pool area that has been that has been severely damaged by ORV use and invasion of weeds (Figure 4). The Project I would include direct supplementation of existing populations of endangered San Diego fairy shrimp as well as direct introduction of several other endangered or sensitive animal and plant species not currently present onsite: Riverside fairy shrimp, Little mousetail, Orcutt's grass, San Diego button-celery, spreading navarretia, toothed calico-flower, and vernal barley. Many vernal pools on the Project I site are severely damaged and appear to be original natural pools that have been expanded or deepened by use of vehicles in wet soils. Other pools on the property appear to be artificial pools also created by vehicles. Under the Project I, damaged pools would be subject to reshaping and topography repair (e.g. removing erosion fill, restoring natural pool perimeters, reducing pool edge gradients, and removing tire trenching). Some damaged pools are relatively large, may pond for relatively longer periods, and appear to be suitable for introduction of Riverside fairy shrimp and Orcutt's grass, two particularly endangered species that favor longer-ponding pools. The remainder of the Project I site supports relatively intact original natural pools and topography where restoration

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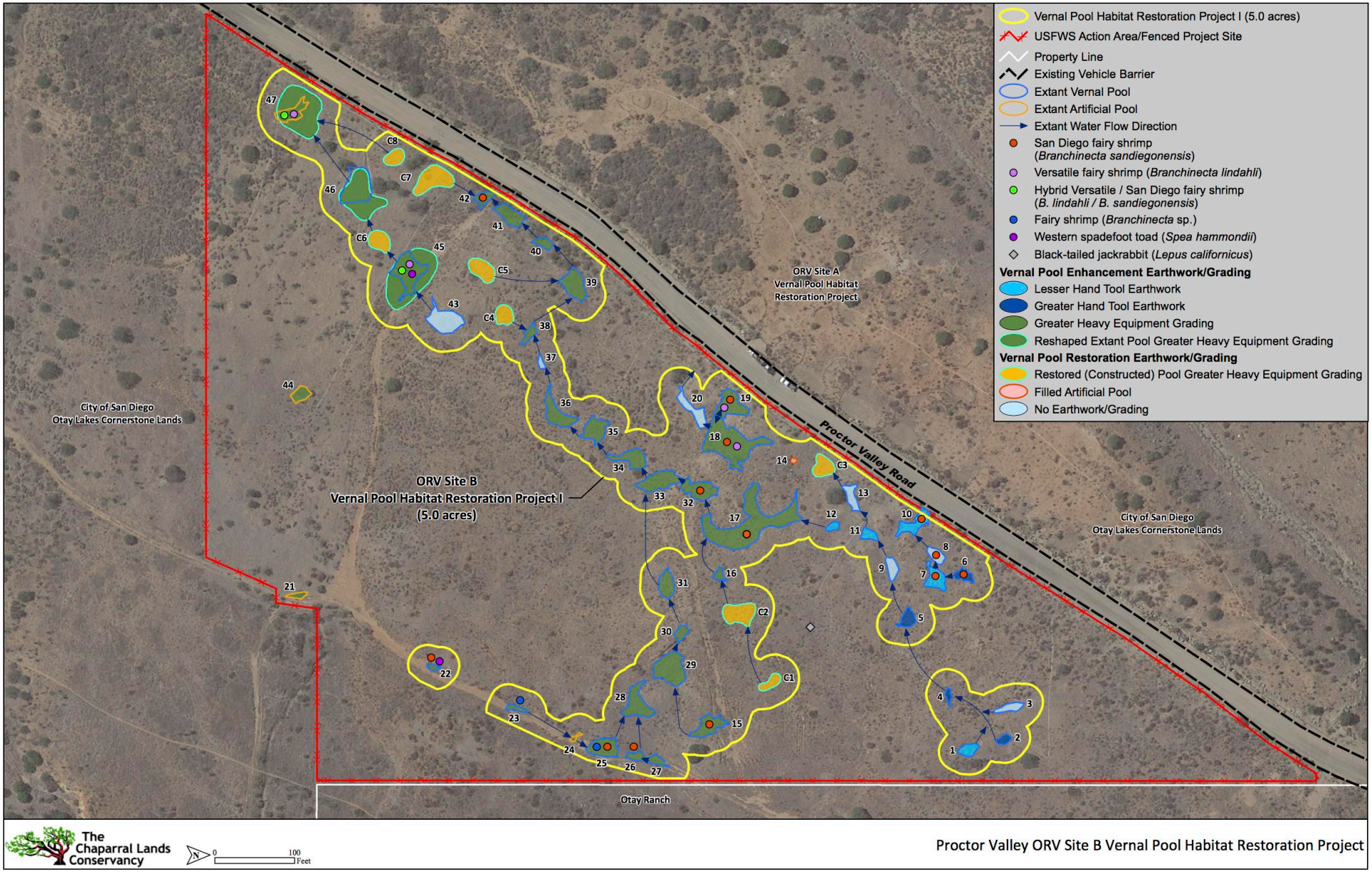
Figure 4. Proctor Valley ORV Site B Vernal Pool Habitat Restoration Project I



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work would be limited to minor repair of isolated tire trenching, supplemental planting or seeding of existing plant species, and weeding.

The following is a summary of Project I activities:

- Restore and enhance five acres of vernal pools including topography repair, weeding, plant propagation, planting and seeding, and soil inoculation.
- Restore and enhance degraded coastal sage scrub and native grassland uplands vegetation in vernal pool watersheds including topography repair, weeding, plant propagation, and planting and seeding.
- Directly increase populations of eight sensitive vernal pool animals and plants including Riverside fairy shrimp, San Diego fairy shrimp, little mousetail, Orcutt's grass, San Diego button-celery, spreading navarretia, toothed calico-flower, and vernal barley. Directly increase populations of common vernal pool crustaceans and other common invertebrate animals and plants. Directly increase populations of twelve sensitive uplands plants in vernal pool watersheds.
- Indirectly benefit two sensitive vernal pool species (Two-striped garter snake and Western spadefoot toad) and nine sensitive uplands animals with habitat restoration.
- Repair existing perimeter fencing, install new perimeter fencing, and install closure signs.
- Organize volunteers to assist with Project I activities.

2.3 TERMINOLOGY

- Extant Pools – Forty-five extant pools[1] are found within the Project I site including original natural pools and artificial pools (figures 2 and 4; Appendix A)[2]. Extant pools are any regularly ponding area that supports obligate vernal pool species.
- Artificial Pools – At least three artificial pools are found on the Project I site (figures 2 and 4; Appendix A)[3]. Artificial pools are those that have been created by recent and/or historic anthropogenic activity (e.g. artificial compaction, trenching, or damming from dirt road or ORV use) and where there is no evidence of the presence of an original

1. U.S. Fish and Wildlife Service terminology.

2. Two additional extant pools are found on the Proctor Valley ORV Site B outside of the Project I site.

3. Two artificial pools are found on the Proctor Valley ORV Site B outside of the Project I site.

natural pool prior to disturbance. Artificial pools on the Project I site may have been created by erosion from vehicle use of dirt roads and ORV trails and when vehicles have become mired in saturated soils in natural swales amongst vernal pools. The majority of the Project I site contains soil and topography conditions that supported original natural vernal pools.

- Control Pools – Seventeen control pools are located offsite on the nearby Rancho Jamul Ecological Reserve (RJER; Figure 5; Appendix B). The control pools are also located in Proctor Valley and are some of the closest offsite vernal pools to the ORV Site B. The control pools exhibit a variety of representative ecological and hydrological vernal pool conditions and, though impacted, are some of the least disturbed, original natural vernal pools in Proctor Valley located on conserved land.

- Earthwork & Grading Pools – Thirty-seven extant pools on the Project I site will undergo earthwork or grading as part of planned restoration and enhancement work (Figure 4; Appendix A). Twenty-eight pools will undergo grading using heavy equipment to repair damage to pools from tire trenching, to remove erosion fill, to reduce pool edge gradients (e.g. steep ditches and edges from tire trenching), and to restore natural pool contours and slopes[4]. Nine other pools will undergo earthwork using hand tools to repair minor past damage from tire trenching and to remove erosion fill. One small extant artificial pool supporting undesirable Versatile fairy shrimp will be filled during restoration grading.

- Enhanced Pools – Forty-four extant pools will be enhanced[5] under the Project I (Figure 4; Appendix A). Enhancement includes dethatching weed cover, disposal of soil from pools supporting Versatile fairy shrimp or hybrids, salvage of soil in other pools supporting listed species, grading and earthwork to repair, reshape, and sometimes consolidate extant pools where they are located in very close proximity, seeding and planting, soil inoculation, and maintenance weeding and watering.

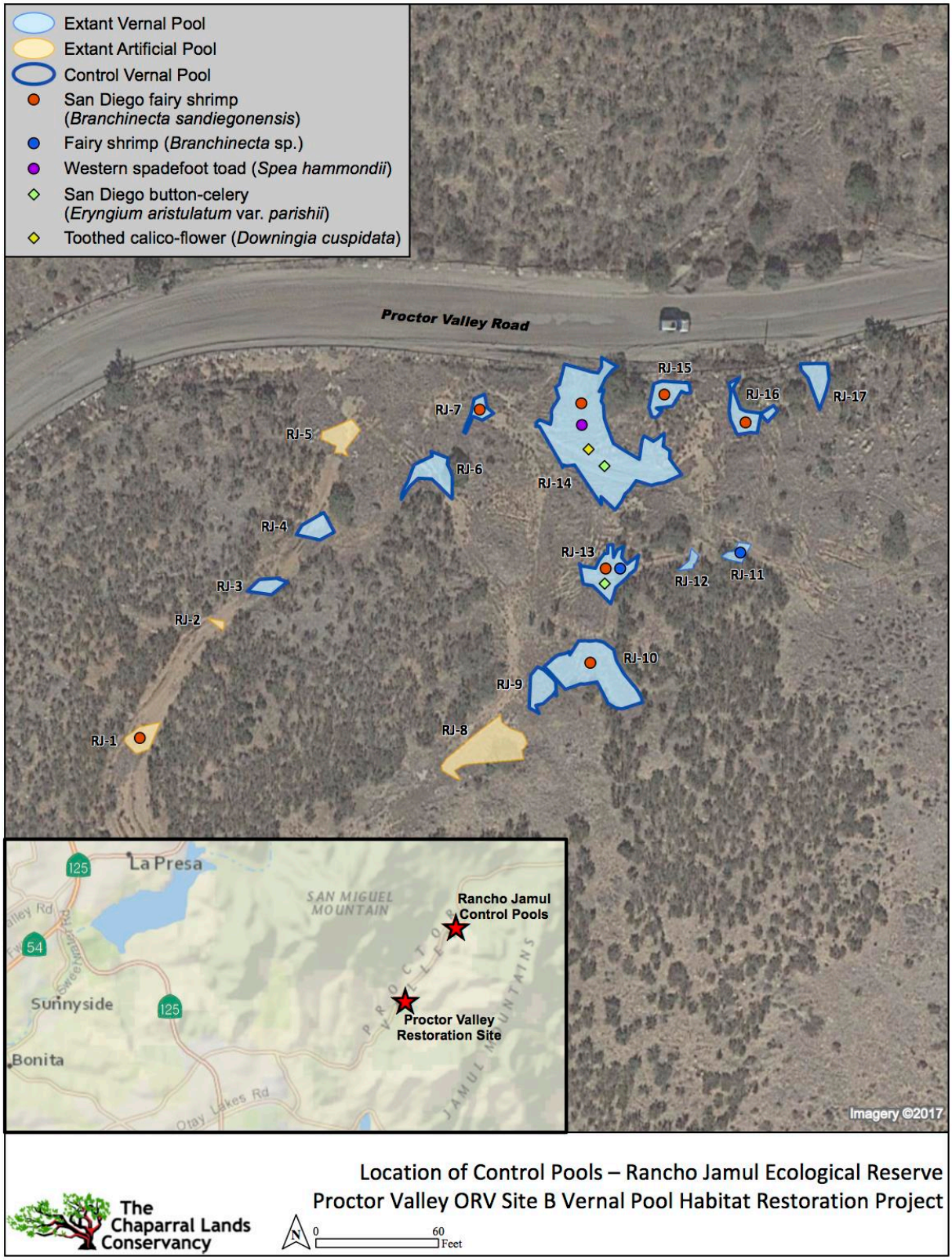
- Restored Pools – Eight pools on the Project I site will be restored[6] (constructed) in suitable soils and in a manner complementing the extant vernal pool and swale hydrologic system (Figure 4; Appendix A). Restored pools will typically be located in highly disturbed areas where site disturbances may have eliminated original natural

4. Note that only a very small area of each pool subject to earthwork or grading would be subject to incidental fill during grading. All fill would be removed from these pools and used to enhance or restore nearby Mima mounds.

5. USFWS terminology.

6. USFWS terminology.

Figure 5. Location of Control Pools



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pools. Restoration includes dethatching weed cover, grading construction of pools, seeding and planting, soil inoculation, and maintenance weeding and watering.

2.4 GOALS OF VERNAL POOL RESTORATION

The goals of the Project I include improving the hydrologic and ecologic function of vernal pool habitat and watersheds, increasing the size and extent of populations of native vernal pool dependent species, reducing the size and extent of populations of non-native species, and protecting vernal pools from new anthropogenic disturbance. Specific Vernal Pool Project objectives are as follows:

- Restore & Enhance Vernal Pools & Watersheds – Enhance hydrologic and ecologic conditions in damaged extant pools and watersheds and restore new pools consistent with conditions in control pools (figure 4; Appendix A). Restoration and enhancement includes repair of topography in extant pools (e.g. removal of erosion fill, repair and reshaping of pool perimeters, reduction of pool edge gradients, removal of tire trenching)[7]; restoration (construction) of new pools where appropriate, removal of weed plants and animals (weeding and solarization); restoration of native flora (seed collection, nursery propagation, container planting, and seeding); and restoration of native fauna (soil inoculation).
- Increase Diversity of Vernal Pool Flora and Fauna – Increase native plant and animal species diversity in enhanced extant pools and restored pools consistent with conditions in control pools and documented or expected historic species composition.
- Increase Populations of Endangered & Sensitive Vernal Pool & Uplands Species – Directly expand extant populations and habitat for San Diego fairy shrimp. Directly establish new refugia populations of Riverside fairy shrimp and six other endangered and sensitive vernal pool plants. Directly establish new refugia populations of twelve endangered and sensitive uplands plants in vernal pool watersheds. Indirectly expand extant populations of two sensitive vernal pool species (Two-striped garter snake and Western spadefoot toad) and nine endangered and sensitive uplands animals with habitat restoration.
- Prevent introduction or spread of undesirable flora and fauna – Attempt to control Versatile fairy shrimp and/or hybrid San Diego fairy shrimp/Versatile fairy shrimp in extant pools where practicable. Prevent spread of Versatile fairy shrimp and/or hybrids to

7. Topography would not be modified in extant original natural pools with intact natural topography.

unoccupied pools. Prevent introduction and spread of invasive plants and reduce existing invasive plant populations in vernal pools and watersheds.

- Limit Future Harm – Limit future anthropogenic disturbance with several management measures including fencing, signing, planting, and vegetative camouflage of old dirt roads and paths, and public educational outreach.

2.5 PERMITTING

2.5.1 City of San Diego Right-of-Entry Permit

Permission for the Project I has been obtained from the City of San Diego Public Utilities Department in the form of an executed Right-of-Entry Permit (ROE).

2.5.2 California Environmental Quality Act

Review of the Project I under the California Environmental Quality Act (CEQA) has been completed by the City of San Diego to support a ROE. The City determined on July 23, 2013 that the Project is categorically exempt from CEQA pursuant to CEQA Guidelines Sections 15304 (Minor Alterations to Land) and 15331 (Historical Resources Restoration/Rehabilitation)." The Project also qualifies for a CEQA Section 15333 exemption for "Small Habitat Restoration Projects".

2.5.3 Endangered Species Permitting

Five federal and/or state listed endangered vernal pool species and one federal and state listed upland plant species would be included in the Project I with permission from several agencies. Species include the federal endangered Riverside fairy shrimp, San Diego fairy shrimp, and spreading navarretia, and state and federal endangered Orcutt's grass, Otay tarplant, and San Diego button-celery. The collection sites for these species would be several conserved properties owned by the California Department of Fish and Wildlife (CDFW), California Department of Transportation (Caltrans), City of Chula Vista, City of San Diego, County of San Diego, U.S Bureau of Land Management (BLM), and U.S. Fish and Wildlife Service (USFWS) (see Section 2.6.2 below). Permission and permits to collect and/or introduce these listed species will be required from the following agencies and property owners: The California Department of Fish and Wildlife as the permitting authority for state listed plants, the City of San Diego Public Utilities Department as the property owners at the Project I site and collection sites, and BLM, Caltrans, CDFW, the City of Chula Vista, City of San Diego Park and Recreation Department, County of San Diego, Sweetwater Authority, and USFWS as property owners at collection sites. Other anticipated endangered species permitting is described below.

2.5.3.1 Federal Endangered Species Act

The Project I has been authorized by the USFWS in a Biological Opinion FWS-SDG-16B0360-16F0941 dated April 21, 2017 under Section 7 of the Federal Endangered Species Act (Federal ESA). Activities authorized in the Biological Opinion include: Incidental impacts to San Diego fairy shrimp in Project I extant pools; collection of Riverside and San Diego fairy shrimp soil inoculum and seeds of listed plants; propagation of listed plants for containers and seed bulking; seeding and planting of listed plants, introduction of Riverside and San Diego fairy shrimp soil inoculum to pools. Impacts to federal listed species' designated critical habitat is also authorized: California gnatcatcher designated critical habitat; Quino checkerspot butterfly designated critical habitat; Otay tarplant designated critical habitat; and spreading navarretia designated critical habitat.

2.5.3.2 California Fish and Game Code

Authorization for the Project I has been provided by the CDFW in a California Endangered Species Act Scientific, Educational, or Management Permit No. 2081(a)-15-010-RP dated March 24, 2016 under Section 2081(a) of the Fish and Game Code. Activities authorized in the permit include: Collection of seeds of listed plants; propagation of listed plants for containers and seed bulking; and seeding and planting of listed plants.

2.5.4 Federal Clean Water Act and California Porter-Cologne Water Quality Control Act

Authorization for the Project I has been provided by the San Diego Regional Water Quality Control Board (RWQCB) in a Notice of Applicability, General 401 Water Quality Certification Order for Small Habitat Restoration Projects Order No. SB09016GN for the Proctor Valley ORV Site B Vernal Pool Habitat Restoration Project (File No. R9-2015-0183) under Section 401 of the Federal Clean Water Act and California Porter-Cologne Water Quality Control Act. Authorization of the Vernal Pool Project is also required from the U.S. Army Corps of Engineers (USACE) under Section 404 of the Federal Clean Water Act.

The USACE requires permits for any impacts to "Waters of the United States" under Section 404 of the Clean Water Act. The RWQCB administers Section 401 of the Federal Clean Water Act as well as the California Porter-Cologne Water Quality Control Act and requires permits to protect water quality in Waters of the U.S. and Waters of the State.

Project I vernal pools do not appear to meet the definition of Waters of the U.S. based on current regulations and legal precedent. However, the process to prove that a water body is not a Water of the U.S. is highly technical, time consuming, and expensive. Because of this, some permit applicants elect to use a "Preliminary Jurisdictional Determination" to request that the USACE

recognize their affected water bodies as Waters of the U.S. (and therefore Waters of the State) to expedite permitting and reduce costs.

TCLC and the City of San Diego Public Utilities Department prepared a Preliminary Jurisdictional Determination requesting that the USACE and RWQCB accept jurisdiction and consider Proctor Valley ORV Site B vernal pools to be Waters of the U.S. and Waters of the State for the purpose of permitting under the Federal Clean Water Act and Porter-Cologne Water Quality Control Act. Overall, Project I impacts to vernal pools are beneficial because they are solely intended to improve habitat conditions and are not mitigation for harm to vernal pools elsewhere. As such, the Project I qualifies for a Clean Water Act Section 404 Nationwide Permit 27, "Aquatic Habitat Restoration, Establishment, and Enhancement Activities". The Vernal Pool Restoration Project also qualifies for Clean Water Act Section 401 permitting by the RWQCB in accordance with the *State Water Resources Control Board General 401 Water Quality Certification Order for Small Habitat Restoration Projects*. This in turn would facilitate simultaneous permitting by the RWQCB under the California Porter-Cologne Water Quality Control Act.

2.5.5 National Environmental Policy Act

Authorization of the Project I is required from the U.S. Army Corps of Engineers under the National Environmental Policy Act (NEPA). NEPA authorization is expected as part of the USACE Nationwide Permits program. The Project I qualifies for a NEPA Categorical Exclusion because the purpose of the Project is to improve habitat conditions and benefit sensitive species with no significant impacts to resources.

2.5.6 National Historic Preservation Act

Authorization of the Project I is required from the U.S. Army Corps of Engineers under the National Historic Preservation Act (NHPA). NHPA authorization is expected as part of the USACE Nationwide Permits program. The Project I qualifies for a NHPA "no historic properties affected" outcome based on the conclusions of a cultural resources survey and report for the Project (AECOM, 2011).

2.6 IMPLEMENTATION OF VERNAL POOL RESTORATION

2.6.1 Summary of Vernal Pool Restoration Activities

The following is a summary of specific, planned Vernal Pool Project restoration activities:

- Repair damaged existing pools and immediate watersheds by removing any erosion fill and smoothing tire trenching to improve hydrologic function and provide improved topography conducive to colonization by vernal pool and uplands plant species
- Construct new pools and expand highly disturbed existing pools to provide additional vernal pool species habitat
- Collect vernal pool and uplands plant seed
- Propagate vernal pool and uplands container plants and bulk seed
- Fill or solarize restoration site pools containing Versatile fairy shrimp
- Seed vernal pool and uplands plants and plant containers
- Collect and introduce vernal pool soil inoculum containing plants and animals
- Remove vernal pool and uplands invasive plants to reduce competition with native plants
- Repair existing fencing and install new fencing to prevent ORV and other unauthorized access to Project site
- Install additional closure signage around perimeter of Project site
- Organize volunteers to assist with habitat restoration activities.

2.6.2 Endangered and Sensitive Species Introduction and Supplementation

The Project I includes the direct introduction or supplementation of eight endangered and sensitive vernal pool animal and plant species and direct introduction of twelve endangered, threatened, and sensitive upland plant species (tables 1 and 2).

Only two endangered or sensitive vernal pool species appear to be present at the ORV Site B: San Diego fairy shrimp (*Branchinecta sandiegonensis*); and toothed calico-flower (*Downingia cuspidata*)[8]. These and six other listed endangered or sensitive vernal pool species that are not currently known from the Project I site would benefit from expansion of existing populations or establishment of new populations in light of past losses of nearby vernal pool habitat and species populations: Riverside fairy shrimp (*Streptocephalus woottoni*), Little mousetail (*Myosurus minimus*), Orcutt's grass (*Orcuttia californica*), San Diego button-celery (*Eryngium aristulatum var. parishii*), spreading navarretia (*Navarretia fossalis*), and vernal barley (*Hordeum intercedens*) (Table 1). At least four of these plants, little mousetail, San Diego button-celery,

8. Only one single *Downingia cuspidate* plant has been observed at the ORV Site B in 2011 (John Martin pers. comm.) and the species may be extirpated.

spreading navarretia, and vernal barley (*Hordeum intercedens*), may have occupied the ORV Site B prior to disturbance based on proximity of the site to nearby populations with similar habitat conditions. Riverside fairy shrimp and Orcutt's grass probably did not occupy the site but ORV use and dirt roads have created larger, longer-ponding, marshy pools that now appear to provide suitable habitat for these species. The ORV Site B is located within the existing range of all vernal pool species that would be introduced to the site, and all vernal pool species to be introduced occur in similar nearby pools and recommended donor sites elsewhere in Proctor Valley and at Lower Otay Lake, Otay Mesa, and the Sweetwater Reservoir.

Suitable habitat and soils are also present on the Project I site to support twelve endangered, threatened and sensitive upland plant species that are present elsewhere in and near Proctor Valley and that would benefit from direct incorporation into Project I restoration of upland vegetation (Table 2). Planting and seeding these sensitive upland plants as part of the Project I will improve the likelihood of success of upland vegetation planting and seeding due to their adaption to local conditions, will improve vernal pool watershed ecological and hydrological conditions, and will benefit the sensitive upland plants by increasing population numbers and the number of extant locations. Two other sensitive vernal pool species and nine other endangered, threatened, or sensitive species are expected to indirectly benefit from upland habitat restoration (Table 3).

Genetic conditions of Project I plants and animals would be maintained through use of plant seed and fairy shrimp soil inoculum from the closest possible donor sites and by collecting from just one donor population for each species unless otherwise directed. Vernal pools proposed for collection of fairy shrimp soil inoculum and plant seed are very similar to receiving pools at the Project I site based on pool hydrologic conditions, ecology, and soil types. Vernal pool hydrology at the Project I site appears well suited to support expanded existing populations and/or new populations of all nine endangered and sensitive vernal pool species as well as more common vernal pools animals and plants.

2.6.2.1 Endangered Fairy Shrimp Introduction and Supplementation

One concern arising from the planned direct introduction of soil inoculum containing Riverside fairy shrimp, San Diego fairy shrimp, and other invertebrate fauna and plant seed is the unintended mixing, competition and/or hybridization of San Diego fairy shrimp with the weedy Versatile fairy shrimp (*Branchinecta lindahli*) and the spread of Versatile fairy shrimp into unoccupied pools.

Table 1. Vernal Pool Endangered & Sensitive Species

SPECIES	CURRENT STATUS ON-SITE	HISTORIC STATUS ON-SITE	PROPOSED COLLECTION SITES[9]	COLLECTION SITE NUMBER[10]	DONOR SITE JUSTIFICATION & OTHER NOTES
ANIMALS *Branchinecta sandiegonensis* San Diego fairy shrimp Federal Endangered	Present	Present	Proctor Valley ORV Site B Proctor Valley ORV Site A (City of San Diego, adjacent) Rancho Jamul Ecological Reserve (California Department of Fish and Wildlife, 1.3 miles)	1 2 3	San Diego fairy shrimp soil inoculum will be collected both on- and off-site. Proctor Valley vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.
Streptocephalus woottoni Riverside fairy shrimp Federal Endangered	Absent	Unknown	Johnson Canyon (U.S. Fish and Wildlife Service, 6.5 miles) Lonestar Ridge West (California Department of Transportation, 6.8 miles)	4 5	Otay Mesa vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions. Proctor Valley is within the historic range of the species with widely but sparsely distributed populations in suitable habitat from Riverside County to Northern Baja California.
PLANTS *Downingia cuspidata* Toothed calico-flower	Present	Present	Rancho Jamul Ecological Reserve (California Department of Fish and Wildlife, 1.4 miles) Otay Lakes Cornerstone Lands (City of San Diego, 3.3 miles)	6 7	Proctor Valley and Lower Otay Lake vernal pools support the closest existing occurrences large enough for collection and on conserved lands with similar geologic, hydrologic, and ecologic conditions.

(table continues)

9. Proposed collection sites would be utilized only with property owner permission. Distances are approximate to the center of recorded occurrences.

10. See Figure 3 maps. Two off-site possible collection sites are shown for each species to provide alternatives for collection. Seed or soil inoculum for each species will be collected from one site only unless otherwise noted or directed.

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SPECIES	CURRENT STATUS ON-SITE	HISTORIC STATUS ON-SITE	PROPOSED COLLECTION SITES[11]	COLLECTION SITE NUMBER[12]	DONOR SITE JUSTIFICATION & OTHER NOTES
Eryngium aristulatum var. parishii San Diego button-celery Federal Endangered State Endangered	Absent	Unknown	Rancho Jamul Ecological Reserve (California Department of Fish and Wildlife, 1.4 miles) Otay Lakes Cornerstone Lands (City of San Diego, 3.3 miles)	8 9	Proctor Valley and Lower Otay Lake vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.
Hordeum intercedens Vernal barley	Present	Unknown but Expected	San Diego National Wildlife Refuge (U.S. Fish and Wildlife Service, 1.3 miles) Sweetwater Reservoir (Sweetwater Authority, 4.1 miles)	10 11	Proctor Valley and Sweetwater Reservoir vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.
Myosurus minimus Little mousetail	Absent	Present[13]	Rancho Jamul Ecological Reserve (California Department of Fish and Wildlife, 3.5 miles) Cal Terraces (City of San Diego, 8.6 miles)	12 13	Proctor Valley and Otay Mesa vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.

(table continues)

11. Proposed collection sites would be utilized only with property owner permission. Distances are approximate to the center of recorded occurrences.

12. See Figure 3 maps. Two off-site possible collection sites are shown for each species to provide alternatives for collection. Seed or soil inoculum for each species will be collected from one site only unless otherwise noted or directed.

13. (Bauder 1986)

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SPECIES	CURRENT STATUS ON-SITE	HISTORIC STATUS ON-SITE	PROPOSED COLLECTION SITES[14]	COLLECTION SITE NUMBER[15]	DONOR SITE JUSTIFICATION & OTHER NOTES
Navarretia fossalis Spreading navarretia Federal Endangered	Absent Designated Critical Habitat	Unknown, Reported in Proctor Valley[16]	Otay Lakes Cornerstone Lands (City of San Diego, 3.4 miles) Sweetwater Reservoir (Sweetwater Authority, 4.1 miles)	14 15	Lower Otay Lake and Sweetwater Reservoir complex vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.
Orcuttia californica Orcutt's grass Federal Endangered California Endangered	Absent	Unknown, Reported near Proctor Valley[17]	Lonestar Ridge West (California Department of Transportation, 6.7 miles) Cal Terraces (City of San Diego, 8.4 miles)	16 17	Otay Mesa vernal pools support the closest existing occurrences on conserved lands with similar geologic, hydrologic, and ecologic conditions.

14. Proposed collection sites would be utilized only with property owner permission. Distances are approximate to the center of recorded occurrences.

15. See Figure 6 maps. Two off-site possible collection sites are shown for each species to provide alternatives for collection. Seed or soil inoculum for each species will be collected from one site only unless otherwise noted or directed.

16. Calflora

17. Calflora

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Table 2. Uplands Endangered, Threatened, & Sensitive Plant Species

SPECIES	STATUS ON-SITE	STATUS PROCTOR VALLEY	PROPOSED COLLECTION SITES[18]	COLLECTION SITE NUMBER[19]	DONOR SITE JUSTIFICATION & OTHER NOTES
Artemisia palmeri San Diego sagewort	Absent	Present	Rancho Jamul Ecological Reserve (California Department of Fish and Wildlife, 1.1 miles) San Diego National Wildlife Refuge (U.S. Fish and Wildlife Service, 3.7 miles)	18 19	Closest recorded occurrences on conserved lands.
Brodiaea orcuttii Orcutt's brodiaea	Expected	Present	San Diego National Wildlife Refuge (U.S. Fish and Wildlife Service, 1.4 miles) Otay Lakes Cornerstone Lands (City of San Diego, 3.7 miles)	20 21	Closest recorded occurrences on conserved lands.
Calochortus dunnii Dunn's mariposa lily	Absent	Present	Jamul Mountains (Bureau of Land Management, 1.3 miles) San Diego National Wildlife Refuge (U.S. Fish and Wildlife Service, 1.4 miles)	22 23	Closest recorded occurrences on conserved lands.

(table continues)

18. Proposed collection sites would be utilized only with property owner permission. Distances are approximate to the center of recorded occurrences.

19. See Figure 6 maps. Two off-site possible collection sites are shown for all species (except *Selaginella cinerascens* which is common on the Proctor Valley ORV Site B) to provide alternatives for collection. Seed for each species will be collected from one site only unless otherwise noted or directed.

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SPECIES	STATUS ON-SITE	STATUS PROCTOR VALLEY	PROPOSED COLLECTION SITES	COLLECTION SITE NUMBER	DONOR SITE JUSTIFICATION & OTHER NOTES
Deinandra conjugens Otay tarplant Federal Threatened State Endangered	Absent	Present	Otay Lakes Cornerstone Lands (City of San Diego, .3 mile) San Diego National Wildlife Refuge (U.S. Fish and Wildlife Service, 1.1 miles)	24 25	Closest recorded occurrences on conserved lands.
Dudleya variegata Variegated dudleya	Absent	Present	San Diego National Wildlife Refuge (U.S. Fish and Wildlife Service, .3 mile) Otay Lakes Cornerstone Lands (City of San Diego, .6 mile)	26 27	Closest recorded occurrences on conserved lands.
Ericameria palmeri ssp. *palmeri* Palmer's goldenbush	Absent	Present	San Diego National Wildlife Refuge (U.S. Fish and Wildlife Service, 3.4 miles and 3.6 miles)	28 29	Closest recorded occurrences on conserved lands.
Ferocactus viridescens Coast barrel cactus	Expected	Present	Otay Lakes Cornerstone Lands (City of San Diego, .5 mile) San Diego National Wildlife Refuge (U.S. Fish and Wildlife Service, .8 mile)	30 31	Closest recorded occurrences on conserved lands.
Lepidium virginicum L. var. robinsonii Robinson's pepper grass	Absent	Present	San Diego National Wildlife Refuge (U.S. Fish and Wildlife Service, 3.1 miles) Otay Mountain Ecological Reserve (California Department of Fish and Wildlife, 4.1 miles	32 33	Closest recorded occurrences on conserved lands.

(table continues)

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SPECIES	STATUS ON-SITE	STATUS PROCTOR VALLEY	PROPOSED COLLECTION SITES	COLLECTION SITE NUMBER	DONOR SITE JUSTIFICATION & OTHER NOTES
Microseris douglasii ssp. *platycarpha* Douglas' silverpuffs	Absent	Present	Otay Lakes Cornerstone Lands (City of San Diego, 2.1 miles and 2.8 miles)	34 35	Closest recorded occurrences on conserved lands.
Muilla clevelandii San Diego golden star	Expected	Present	San Diego National Wildlife Refuge (U.S. Fish and Wildlife Service, .6 mile) Rancho Jamul Ecological Reserve (California Department of Fish and Wildlife, .6 mile)	36 37	Closest recorded occurrences on conserved lands.
Salvia munzii Munz's sage	Absent	Present	Rancho Jamul Ecological Reserve (California Department of Fish and Wildlife, .4 miles) Jamul Mountains (Bureau of Land Management, 1.6 miles)	38 39	Closest recorded occurrences on conserved lands.
Selaginella cinerascens Ashy spike-moss	Present	Present	Proctor Valley ORV Site B	40	Ashy spike-moss will be collected on-site only.

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Table 3. Indirect Beneficiary Endangered, Threatened, & Sensitive Animal Species [20]

SPECIES	OFFICIAL STATUS	CURRENT PROJECT SITE PRESENCE / ABSENCE	NOTES
AMPHIBIANS & REPTILES *Spea hammondii* Western spadefoot toad	CA Species of Special Concern	Present	– –
Thamnophis hammondii Two-striped Garter Snake	CA Species of Special Concern	Expected	– –
BIRDS *Aimophila ruficeps* ssp. *canescens* Southern California rufous-crowned sparrow	CA Species of Special Concern	Expected	– –
Amphispiza belli ssp. *Belli* Bell's sage sparrow	CA Species of Special Concern	Expected	– –
Athene cunicularia ssp. *hypugaea* Burrowing owl	CA Species of Special Concern	Transient	Artificial burrows to be included in upland restoration.
Circus cyanus Northern harrier	CA Species of Special Concern	Present	– –
Polioptila californica ssp. *california* California gnatcatcher	Federal Threatened; CA Species of Special Concern	Expected	– –
INVERTEBRATES *Euphydryas editha* ssp. *quino* Quino checkerspot butterfly	Federal Endangered	Expected	Restoration project site is in designated critical habitat. Species recorded immediately adjacent to site. Quino host and nectar plant seed mix to be included in upland vegetation restoration.

(table continues)

20. Species are reported from Proctor Valley and expected to occupy or regularly utilize the Project I site.

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SPECIES	OFFICIAL STATUS	CURRENT PROJECT SITE PRESENCE / ABSENCE	NOTES
Hermelycaena hermes Hermes copper butterfly	Federal Candidate	Absent	Patches of species' host plant spiny redberry to be included in upland vegetation restoration.
REPTILES *Aspidoscelis hyperythra beldingi* Belding's Orange-throated whiptail lizard	CA Species of Special Concern	Expected	– –
Phrynosoma coronatum Coast horned lizard	CA Species of Special Concern	Present	– –

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The original presence or absence of Versatile fairy shrimp west of the Pacific Crest in southern California is unknown. But the species' seeming preference for highly disturbed vernal pools and ability to hybridize with the endangered San Diego fairy shrimp suggest a more recent anthropogenic introduction of the species to cismontane vernal pools. Versatile fairy shrimp are commonly found in both original natural and artificial pools that have been heavily disturbed by anthropogenic activities so this species is a concern given the extent of past disturbance at the Project I site. At other vernal pool restoration sites, Versatile fairy shrimp have independently colonized newly constructed pools, possibly from cysts in soils that were previously introduced from ORV use or other anthropogenic activities.

Versatile fairy shrimp and hybrids have been documented in four extant pools on the ORV Site B, all of which are on the Project I site. Versatile fairy shrimp and hybrids may also be present in offsite donor pools for Riverside fairy shrimp soil inoculum.

The endangered Riverside fairy shrimp and San Diego fairy shrimp would benefit from expanded populations (San Diego fairy shrimp) and new refugia populations (Riverside fairy shrimp). As such, a goal and challenge for the Project I is to establish these species and to expand the diversity of other vernal pool flora and fauna through introduction of soil inoculum in suitable unoccupied pools without creating new Versatile fairy shrimp or Versatile/San Diego fairy shrimp hybrid populations.

Measures will be taken to reduce the likelihood of the spread of Versatile fairy shrimp to unoccupied pools during implementation of the Project I. Top soil in Project I pools containing Versatile fairy shrimp will be removed and disposed into enhanced or restored (constructed) mima mounds during drading. Soil inoculum will be collected from donor pools and introduced to Project I site pools only after monitoring during at least one wet season with adequate rainfall and ponding in each donor pool shows the presence of only Riverside or San Diego fairy shrimp. Other measures include cleaning of shoes and equipment following any visit or work at other vernal pool sites prior to any visit or work at the Project I site. Grading equipment and tools would be used to repair topography in Project I site pools occupied by Versatile fairy shrimp only following completion of work at unoccupied pools. And construction equipment and workers will not move through pools occupied by Versatile shrimp to access unoccupied pools.

2.6.3 Project Preparation and General Conservation Measures

The following are general project preparation and conservation measures to be implemented as part of the Project I. Additional conservation measures for specific project activities are provided in subsequent sections.

- Prior to initiating restoration/enhancement, the limits of project impacts will be marked (including construction staging areas and access routes) and best management practices (BMPs) installed to prevent additional impacts and the spread of silt into the vernal pools. No restoration/enhancement activities, materials, or equipment will be permitted outside the marked project footprint.
- A final construction plan will be submitted to the USFWS and City at least 7 days prior to initiating project construction including photographs of the marked limits of impact, BMPs, and all areas to be impacted or avoided. If work occurs beyond the marked limits of impact, all work will cease until the problem has been remedied to the satisfaction of the USFWS. Temporary construction marking will be removed upon project completion.
- No invasive nonnative plant species will be planted, seeded, or otherwise introduced to the project site.
- Equipment staging, access, and refueling areas will be located outside of any vernal pool watersheds and away from sensitive habitat and natural drainages outside the Project I footprint.
- Employees will strictly limit their activities, vehicles, equipment, and restoration materials to the flagged Project I footprint.
- The Project I site will be kept as clean of debris as possible. All food related trash items will be enclosed in sealed containers and regularly removed from the site.
- Impacts to vernal pools from fugitive dust during restoration grading will be avoided and minimized through watering and other appropriate measures.
- Pets of Project personnel will not be allowed on the Project I site.
- Personnel and contractors will thoroughly clean shoes and equipment after conducting work in vernal pools containing Versatile fairy shrimp and prior to entering other vernal pool sites for collection of seed and soil inoculum and for monitoring. Cleaning will be conducted using a scrub brush and a solution of bleach and water. Project site vernal pools containing Versatile fairy shrimp will be mapped and flagged upon discovery of the species. Project I site earthwork and grading, weeding, and monitoring work in vernal pools containing Versatile fairy shrimp will be consolidated and will follow work in other vernal pools to reduce the likelihood of the spread of Versatile fairy shrimp from occupied to unoccupied vernal pools.
- Employees and contractors will thoroughly clean shoes and clothing of all seeds and plant material prior to entering the Project I site or other sites.

A Project biologist approved by the USFWS will oversee Project I implementation to ensure compliance with all conservation measures. The biologist must be knowledgeable about fairy shrimp and vernal pool biology /ecology. TCLC will submit the biologist's name, address, telephone number, and work schedule on the Project I to the USFWS at least thirty days prior to initiating active restoration. The biologist will perform or otherwise ensure that the following measures are conducted during Project implementation:

- Oversee installation of and inspect the Project I perimeter marking and BMPs a minimum of once per week and daily during all rain events to ensure that any breaks in the erosion control measures are repaired immediately.
- Periodically monitor the work area to ensure that work activities do not generate excessive amounts of dust.
- Train all Project I personnel and contractors on the biological resources associated with the project and ensure that training is implemented by personnel and contractors. At a minimum, training will include: 1) The purpose for resource protection; 2) a description of listed vernal pool species and habitat; 3) the conservation measures in the biological opinion that should be implemented during project construction to avoid and/or minimize impacts to listed species; including strictly limiting activities, vehicles, equipment, and construction materials to the marked project footprint to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by perimeter marking); 4) environmentally responsible construction practices; 5) the protocol to resolve conflicts that may arise at any time during project implementation; 6) the general provisions of the Federal Endangered Species Act, the need to adhere to the provisions of the Federal ESA, and the penalties associated with violating the Federal ESA.
- Halt work, if necessary, for any Project I activities that are not in compliance with the conservation measures committed to as part of the project and specified in the biological opinion and conditions of the Corps permit. The biologist will report any non-compliance issues to the USFWS within 24 hours of their occurrence and confer with the USFWS to ensure the proper implementation of species and habitat protection measures;
- Submit annual reports to all permitting agencies by January 31 of each year. The reports will assess both the attainment of yearly success criteria and progress toward the final success criteria.
- Submit a final report to the permitting agencies within 60 days of project completion that includes: as-built construction drawings showing restored and enhanced pools, photographs of the restored pools and enhanced pools and uplands, and other relevant

information documenting that authorized impacts were not exceeded and that general compliance with the project as described in this biological opinion, including the conservation measures, was achieved.

2.6.3.1 Seed and Propagule Collection

To facilitate nursery propagation, vernal pool and uplands plant seed and propagules would be collected during the appropriate season. Seed for common plants will be collected or purchased from sources within ten miles of the Project I site. Seed for endangered, threatened, and sensitive plant species not present at the Project I site would be obtained from the closest possible donor sites identified in tables 1 and 2 and Figure 6a - g.

Seed and propagule collection would be performed by collectors with documented experience and agency authorization when seeds are ripe and prior to seed shedding. No more than 5% of an annual seed crop would be collected. Seed would be collected manually or by using hand-vacuums. All collected seed would be transported to a nursery or other appropriate facility for seed bulking and propagation for use at the Project site. Table 4 lists the vernal pool seeding pallet. Table 5 lists the uplands planting and seeding pallet.

In order to limit the potential to spread of Versatile fairy shrimp, seed would only be collected directly from vernal pool plants. Seed will not be collected from soil with the exception of seed present in fairy shrimp soil inoculum collected from pools supporting only Riverside or San Diego fairy shrimp.

Table 4. Vernal Pool Planting and Seeding Palette

Species List	
Callitriche marginata – water-starwort	*Juncus bufonius* – toad rush
Centunculus minimus – chaffweed	*Lilaea scilloides* – flowering quillwort
Crassula aquatica – stonecrop	*Marsilea vestita* – hairy waterclover
Deschampsia danthonioides – annual hairgrass	*Myosurus minimus* – little mousetail
Downingia cuspidata – toothed calico-flower	*Navarretia fossalis* – spreading navarretia
Elatine brachysperma – short-seed waterwort	*Orcuttia californica* – Orcutt's grass
Elatine californica – California waterwort	*Phalaris lemmonii – Lemmon's canarygrass*
Eleocharis macrostachya – pale spikerush	*Pilularia americana* – American pillwort
Epilobium pygmaeum – smooth boisduvalia	*Plagiobothrys acanthocarpus* – adobe popcornflower
Eryngium aristulatum ssp. parishii – San Diego button-celery	*Plantago elongata* – vernal pool plantain
Isoetes howellii – Howell's quillwort	*Psilocarphus brevissiumus* – woolly marbles
Isoetes orcuttii – Orcutt's quillwort	

Figure 6a. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Key

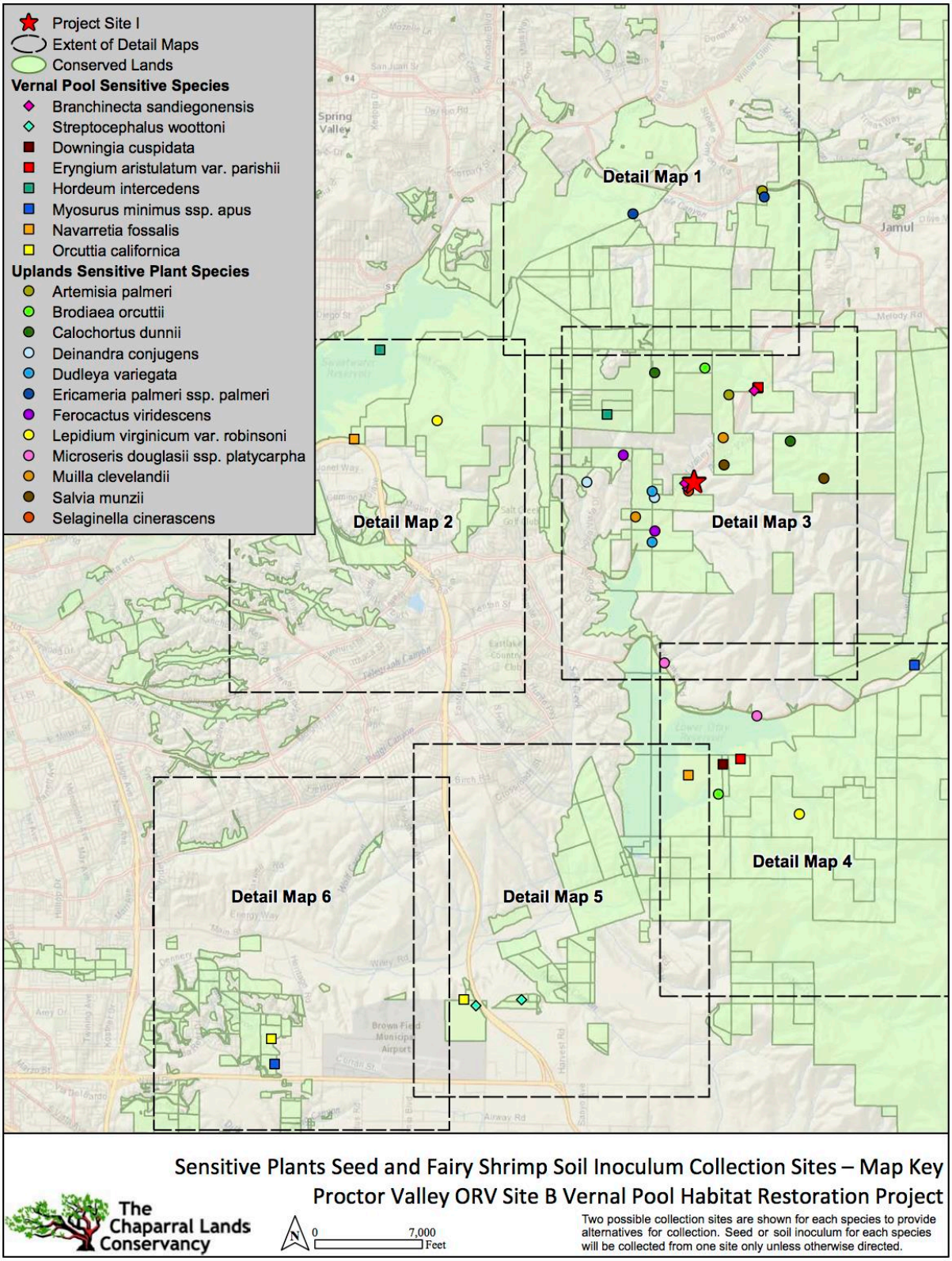

Figure 6b. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Map 1

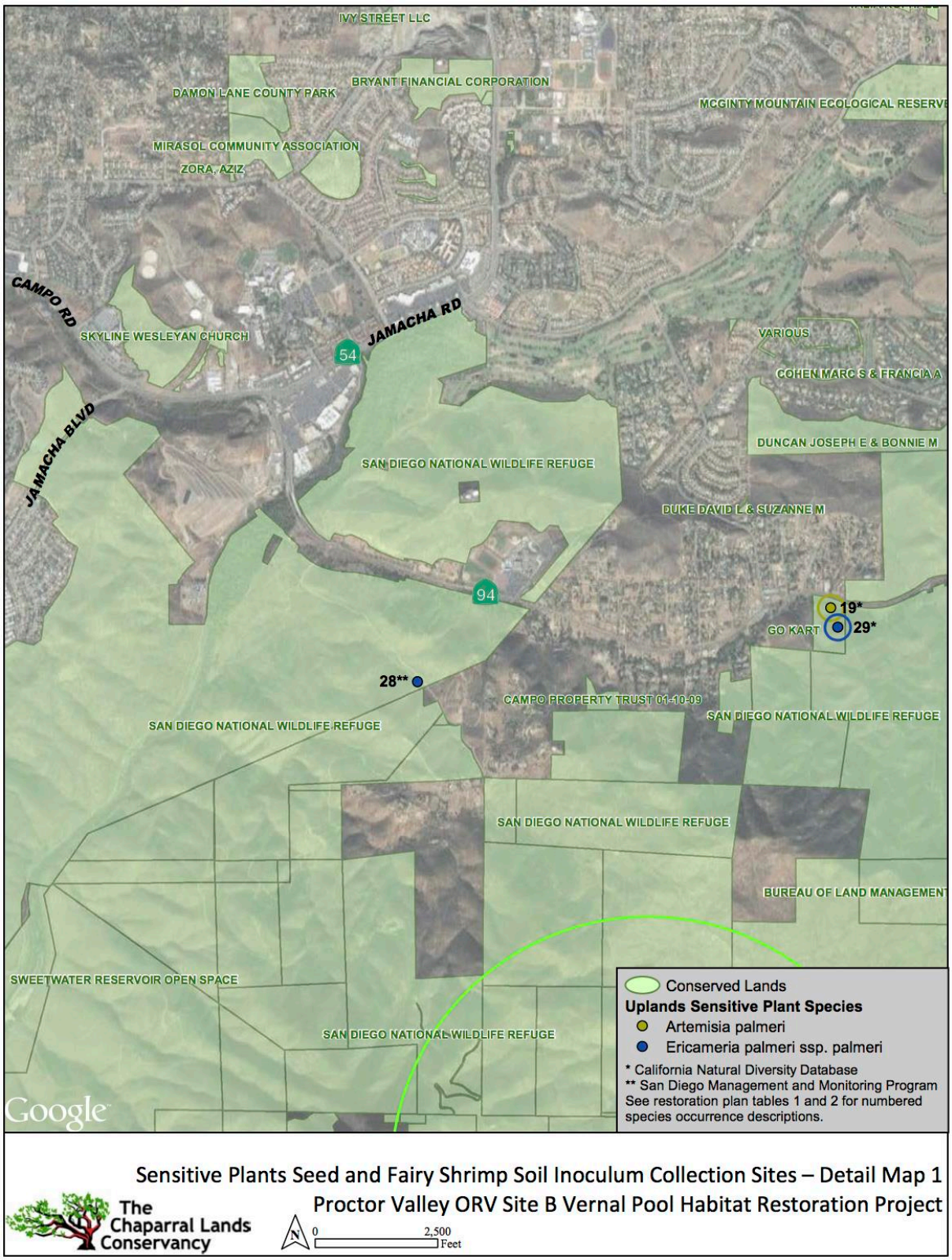

Figure 6c. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Map 2

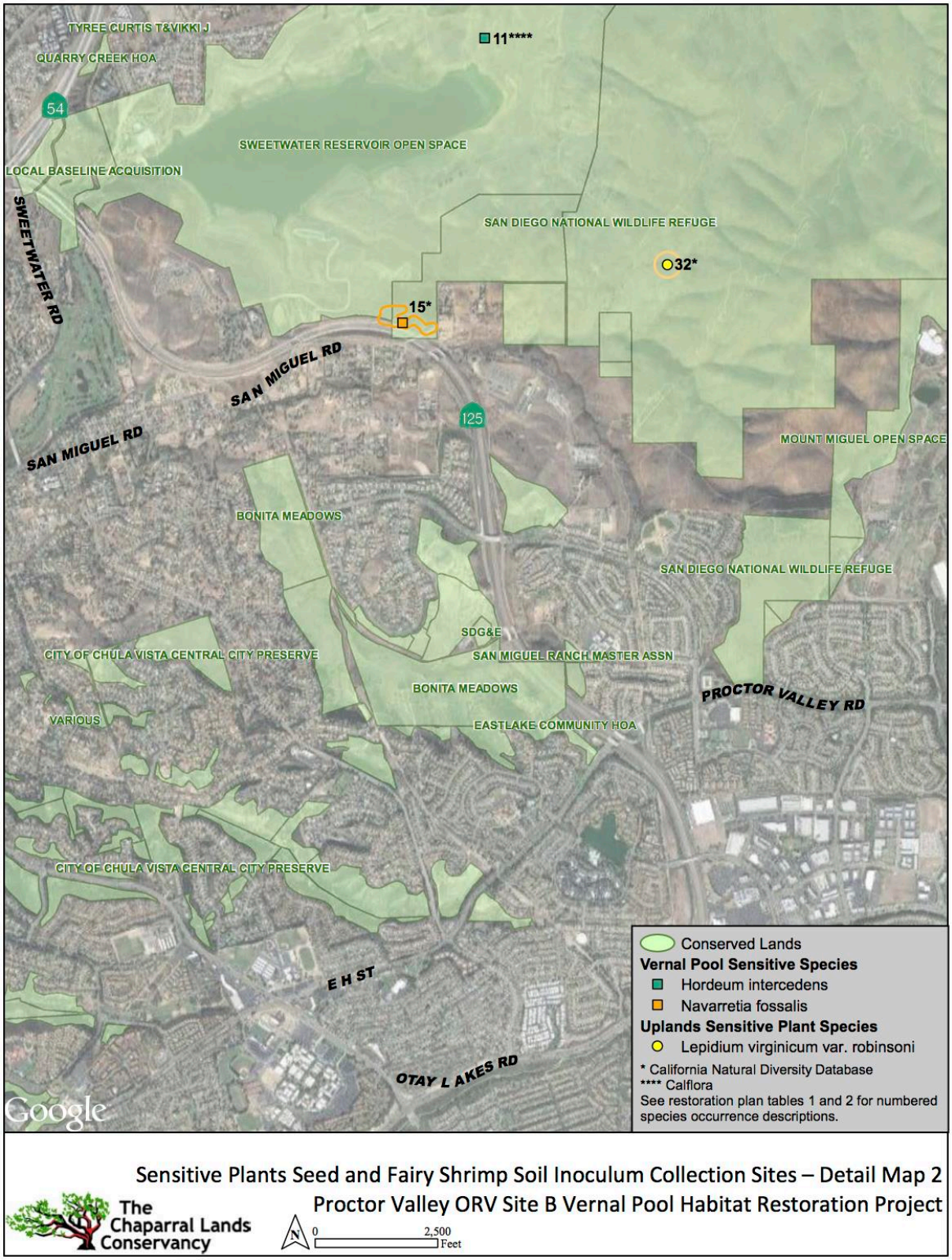

Figure 6d. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Map 3

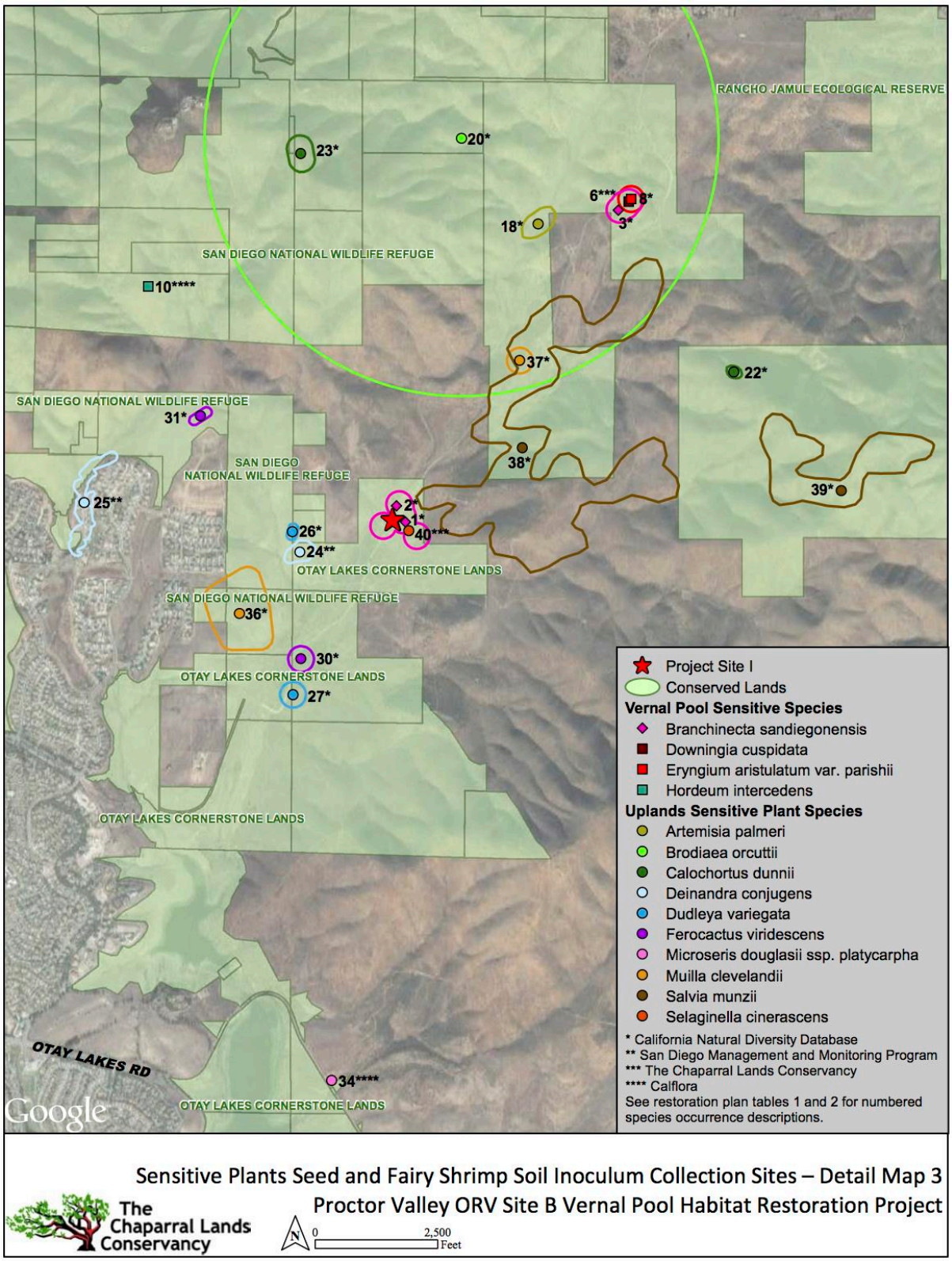

Figure 6e. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Map 4

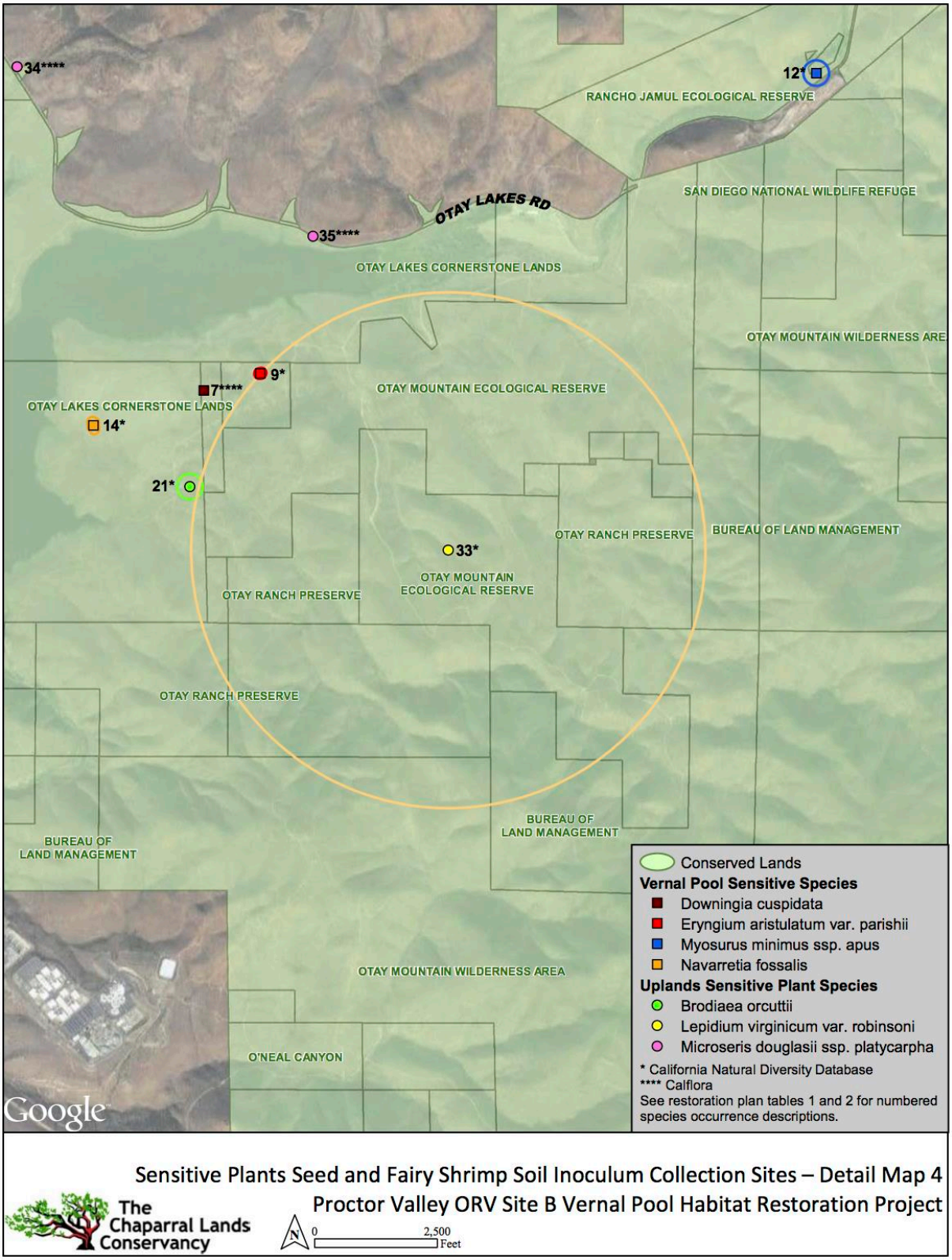

Figure 6f. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Map 5

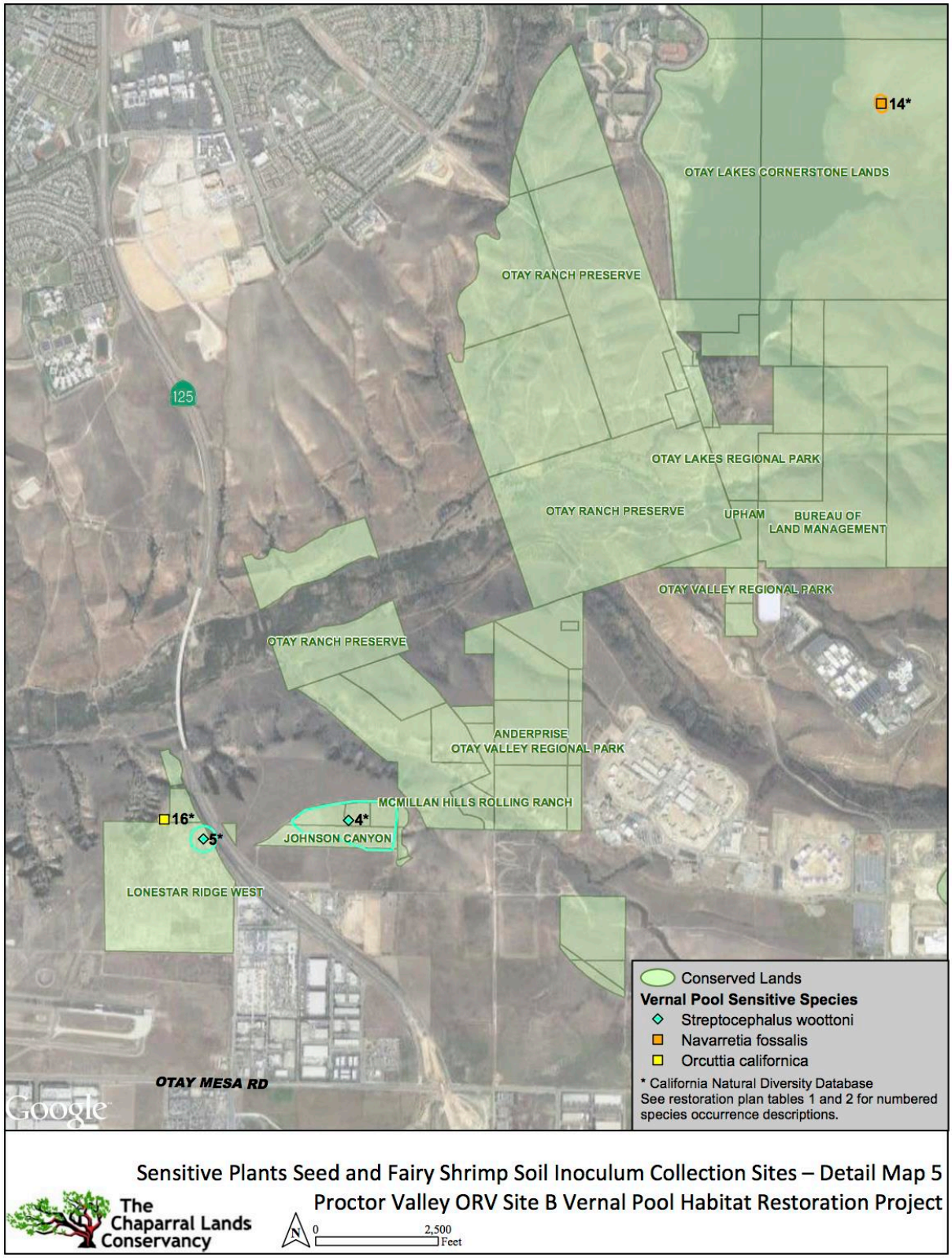

Figure 6g. Sensitive Plants Seed & Fairy Shrimp Soil Inoculum Collection Sites – Map 6

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Table 5. Upland Planting and Seeding Palette

Species List	Habitat Type	Container Size/Seed
Acmispon glaber - deer weed	Coastal Sage Scrub	1 Gallon; Seed
Allium praecox – early onion	Coastal Sage Scrub	Seed
Antirrhinum coulterianum - white snapdragon	Coastal Sage Scrub	Seed
Artemisia californica - California sagebrush	Coastal Sage Scrub	1 Gallon; Seed
Artemesia palmeri - San Diego sagewort	Coastal Sage Scrub	Rose Pot
Asclepias fascicularis - Narrow-leaved milkweed	Coastal Sage Scrub	Rose Pot
Baccharis pilularis - coyote brush	Coastal Sage Scrub	Seed
Baccharis sarothroides – desert broom	Coastal Sage Scrub	Seed
Bahiopsis laciniata – San Diego sunflower	Coastal Sage Scrub	Rose pot; Seed
Brodiaea orcutii – Orcutt's brodiaea	Native Grasslands	Rose Pot; Seed
Calochortus dunnii - Dunn's mariposa lily	Native Grasslands	Rose Pot; Seed
Calochortus weedii – Weed's mariposa lily	Native Grasslands	Rose Pot; Seed
Castilleja exerta - purple owl's clover	Native Grasslands	Seed
Chlorogalum parviflorum - soap plant	Native Grasslands	Rose Pot; Seed
Colinsia concolor – Chinese houses	Coastal Sage Scrub	Seed
Cordylanthus rigidus - thread-leaved bird's beak	Coastal Sage Scrub	Seed
Collinsia sp. - Chinese houses	Coastal Sage Scrub	Seed
Crassula connata - pygmy weed	Native Grasslands	Seed
Cylindropuntia prolifera - coastal cholla	Coastal Sage Scrub	1 Gallon
Deinandra conjugens - Otay tarplant	Native grasslands	Rose Pot; Seed
Deinandra fasciculata - common tarplant	Coastal Sage Scrub	Rose Pot; Seed
Dichelostemma capitatum - blue dicks	Coastal Sage Scrub	Rose Pot; Seed
Dichondra occidentalis- western dichondra	Coastal Sage Scrub	Rose Pot
Dodecatheon clevelandii - padre's shooting star	Native Grasslands	Seed
Dudleya pulverulenta - chalk dudleya	Native grasslands	Rose Pot
Dudleya variegata - variegated dudleya	Native grasslands	Rose Pot
Encelia californica - bush sunflower	Coastal Sage Scrub	Seed
Ericameria palmeri ssp. *palmeri* - Palmer's goldernbush	Coastal Sage Scrub	1 Gallon
Eriodictyon crassifolium – thick-leaved yerba santa	Coastal Sage Scrub	Rose Pot
Eriogonum fasciculatum ssp. fasciculatum - California buckwheat	Coastal Sage Scrub	1 Gallon
Eriophyllum confertiflorum var. confertiflorum - golden yarrow	Coastal Sage Scrub	Seed
Ferocactus viridescens - San Diego barrel cactus	Coastal Sage Scrub	Rose Pot
Gnaphalium californicum - California everlasting	Coastal Sage Scrub	Seed
Hesperoyucca whipplei – chaparral yucca	Coastal Sage Scrub	Rose Pot
Heteromeles arbutifolia – toyon	Coastal Sage Scrub	1 Gallon

(table continues)

Species List	Habitat Type	Container Size/Seed
Isomeris arborea – bladderpod	Coastal Sage Scrub	1 Gallon
Lasthenia californica - California goldfields	Native Grasslands	Seed
Lepidium virginicum var. *robinsonii* - Robinson's peppergrass	Coastal Sage Scrub	Seed
Linanthus dianthiflorus - ground pink	Native Grasslands	Seed
Lotus hamatus - grab lotus	Native Grasslands	Seed
Lupinus bicolor – bicolored lupin	Native Grasslands	Seed
Malosma laurina - laurel sumac	Coastal Sage Scrub	1 Gallon
Mimulus aurantiacus - monkey flower	Coastal Sage Scrub	1 Gallon
Muilla clevelandii - San Diego goldenstar	Native Grasslands	Seed
Nasella lepida - foothill needlegrass	Native Grasslands	1 Gallon
Nasella pulchra - purple needlegrass	Native Grasslands	1 Gallon
Navarretia hamata ssp. leptantha - pincushion plant	Coastal Sage Scrub	Seed
Ophioglossum californicus - adder's tongue	Coastal Sage Scrub	Seed
Opuntia littoralis - prickly pear cactus	Coastal Sage Scrub	1 Gallon
Plantago elongata - prairie plantain	Native Grasslands	Seed
Plantago erecta - dot-seed plantain	Native Grasslands	Seed
Pterostegia drymarioides - Granny's hairnet	Coastal Sage Scrub	Seed
Rhamnus crocea - Spiny redberry	Coastal Sage Scrub	1 Gallon
Rhus integrifolia - lemonade berry	Coastal Sage Scrub	1 Gallon
Salvia apiana - white sage	Coastal Sage Scrub	1 Gallon
Salvia columbariae - chia		
Salvia munzii - Munz's sage	Coastal Sage Scrub	1 Gallon
Sambucus mexicana – elderberry	Coastal Sage Scrub	1 Gallon
Selaginella cinerascens - ashy spike-moss	Coastal Sage Scrub	Seed
Simmondsia chinesis – jojoba	Coastal Sage Scrub	1 Gallon
Sisyrinchium bellum - blue eyed grass	Native Grasslands	Rose Pot
Zeltnera venustum – conchalagua	Coastal Sage Scrub	Seed

2.6.3.2 Vernal Pool Soil Collection

Two types of vernal pool soil collection will take place as part of the Project I. First, for extant pools to be enhanced that support San Diego fairy shrimp, the top two inches of soil will be removed prior to the start of grading in order to salvage shrimp cysts. Second, to inoculate unoccupied Project I pools with Riverside fairy and/or San Diego fairy shrimp and other endangered, sensitive, or common invertebrate animals and plants, soil inoculum will be collected onsite and offsite from the closest possible donor vernal pools that have been documented to support only Riverside or San Diego fairy shrimp and as approved by the USFWS (tables 1 and 2 and Figure 6a – g).

Salvaged soil and donor pool soil inoculum will be collected when dry to avoid damaging or destroying fairy shrimp cysts. Salvaged soil will be temporarily stored onsite, kept separate for each vernal pool, and immediately replaced into graded pools. Salvaged soil will be spread out and raked into the bottoms of the restored and enhanced pools.

Collection of vernal pool soil inoculum will be limited to no more than 10 percent of the basin area of any donor pool. The collection of inoculum should be conducted in a manner that does not alter the appearance or functionality of the donor pool. Vernal pool soil inoculum will be collected from donor pools when dry to avoid damaging or destroying fairy shrimp cysts and endangered plant seeds. Whenever possible during collection of soil inoculum, a trowel will be used to pry up intact chunks of soil rather than loosening the soil by raking and shoveling which can damage the cysts and seeds. Soil inoculum will be kept separate for each donor pool, will be stored individually in labeled boxes that are adequately ventilated and kept out of direct sunlight to prevent the occurrence of fungus or excessive heating of the soil, and stored off site at an appropriate facility for vernal pool inoculum. Soil inoculum will be spread out and raked into the bottoms of the restored and enhanced pools.

Upon approval by the USFWS, soil inoculum from offsite donor vernal pools as close as possible to the Project I site and documented as free of Versatile fairy shrimp may be used to supplement inoculum collected at the Project I site. Soil inoculum will not be installed until habitat restoration/enhancement grading is complete and approved by the USFWS. TCLC will notify the Service in writing within 30 days of collecting the San Diego fairy shrimp cysts and Riverside fairy shrimp cysts from donor sites.

2.6.3.3 Fencing and Closure Signs

Permanent protective wire fencing will be installed around the perimeter of the ORV Site B to deter vehicle, pedestrian, pet, and other unauthorized access into restoration areas (Figure 4). Fencing will include the minimum number of gates needed to allow access for project implementation and maintenance and monitoring. Project signage will be posted around the perimeter of the ORV Site B and maintained at conspicuous locations. A fencing plan will be approved by the City prior to implementation.

2.6.3.4 Refuse Removal

Any refuse on the Project I site will be removed and properly disposed. The Project I site is relatively clean but past dumped construction or landscaping materials and other refuse may be located during Project I work.

2.6.3.5 Mowing and Dethatching

To address infestations of exotic invasive weeds, the Project I will include dethatching and mowing to remove weed thatch and seeds. Nonnative plants would be mowed with a line trimmer to a height of no more than 3 to 4 inches. Dethatching involves raking up dead thatch that has built up in areas dominated by weeds, as well as in and around areas that still support viable habitat. Dethatching not only removes nonnative organic material from the site but also much of the seed, especially if dethatching takes places before seeds are set.

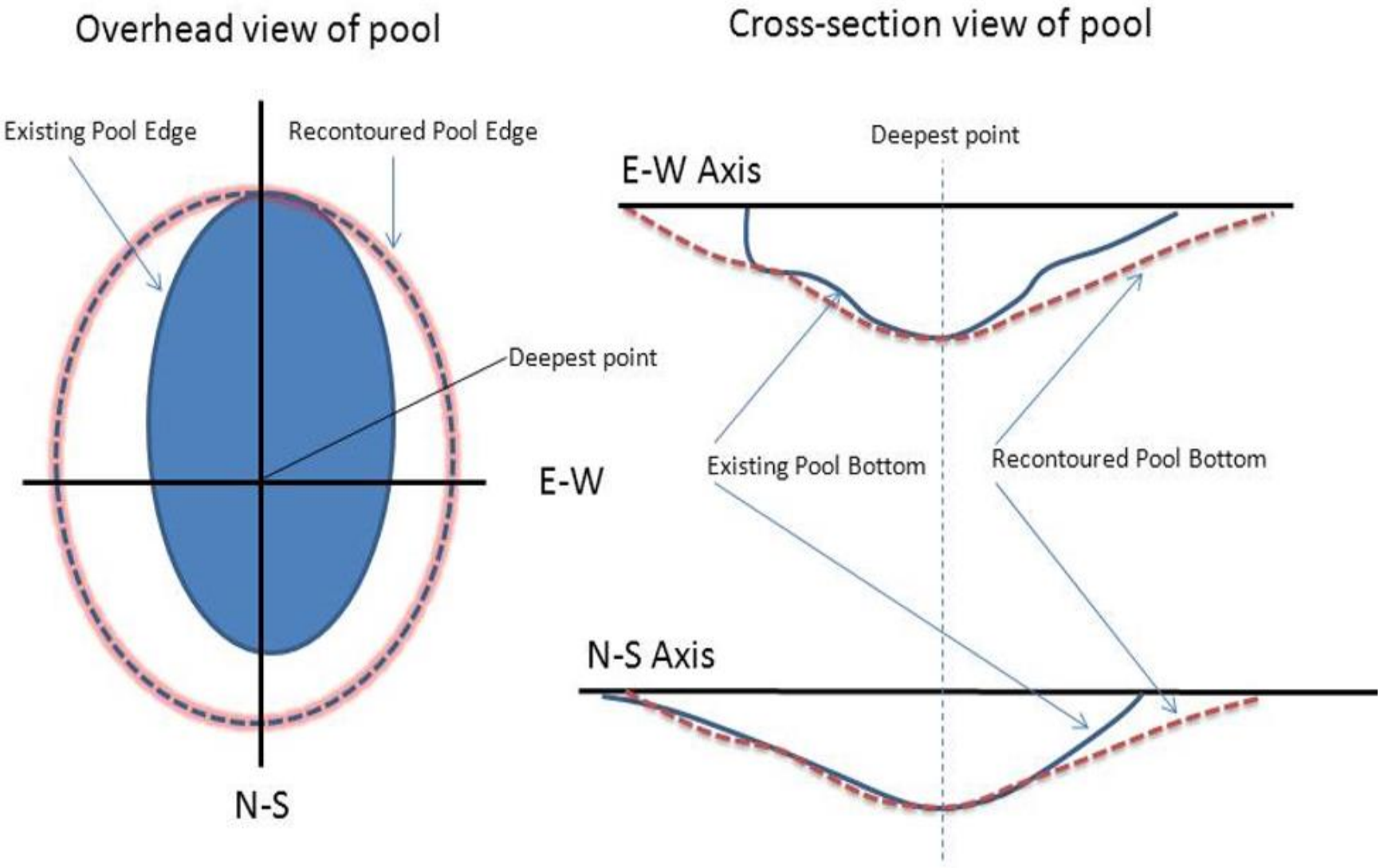
Mowing and dethatching will occur prior to seed shedding and before seeds are ripe to reduce the existing exotic seed bank. Seed heads and plant debris will be removed from the Project I site immediately for proper disposal. Particular care will be taken during mowing and dethatching to protect any microbiotic soil crusts.

2.6.4 Grading & Earthwork

The Project I will include grading using a backhoe, bulldozer, skid steer, and/or skip loader (heavy equipment) and hand tools to restore and enhance vernal pools and watershed topography (figures 4 and 7; Appendix A) including the following methods:

- Prior to grading to enhance extant vernal pools, removal of topsoil from pools not supporting San Diego fairy shrimp or San Diego button-celery for disposal into enhanced or restored Mima mounds and salvage of topsoil from other pools supporting the listed species for replacement in the same pool following grading.
- Enhancement of damaged extant pools including reshaping and, in some instances, expansion of pools to restore natural pool contours and slopes with removal of erosion fill, repair of pool perimeters, and reduction of pool gradients (e.g. steep ditches and edges from tire trenching) using heavy equipment and/or hand tools.
- Restoration (construction) of new pools in suitable degraded areas using heavy equipment and hand tools.
- Enhancement of damaged extant Mima mounds and restoration (construction) of new mounds with material excavated from restored and enhanced vernal pools using heavy equipment and/or hand tools.
- Localized grading or minor earthwork in damaged uplands to repair tire trenching and erosion gullies using heavy equipment and/or hand tools.
- Ripping of compacted old dirt roads and ORV tracks in uplands using heavy equipment.

Figure 7. Conceptual Diagram of Work to Repair Damaged Vernal Pools



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Grading with heavy equipment and/or earthwork with hand tools will be conducted on the Project I site to enhance a total of thirty-seven extant pools, to restore eight new pools, and to fill one small extant artificial pool (Figure 4; Appendix A). Twenty-eight extant pools will be graded with heavy equipment and nine pools would undergo earthwork using hand tools (Figure 4; Appendix A).

Grading will be carried out with heavy equipment small enough to access and maneuver in and around vernal pools and finishing work may include hand tools (e.g. pickaxes, shovels, and rakes). Grading will only occur in the delineated Project I area. Restored and enhanced pools will be slightly over-graded (2.5 - 5 centimeters / 1 - 2 inches) and excavated areas backfilled with a thin layer of topsoil to promote plant propagation. Restored (constructed) Mima mounds would be similar in size and shape to any extant natural Mima mounds. Graded material will not be placed in areas of original topography with native vegetation. Final grading will be carried out according to direction from the project biologist.

Earthmoving will be balanced so that export of soil from the Project I site is not required, except for refuse materials such as asphalt, concrete, and other debris unearthed during grading and properly disposed of off-site. Cobbles and other rock that are excavated during topographic reconstruction will be reapplied to graded vernal pool basins as directed by the project biologist. To minimize impacts to vernal pool soil surfaces during monitoring, cobbles will be oriented within the restored and enhanced pools to serve as stepping stones.

Finish grading will be measured at the top surface of surface materials and will be at the final water-compacted and settled surface grades (within plus/minus 2.5 centimeters / 1 inch at spot elevations). Established site drainage will be maintained during all phases of topographic enhancement and restoration. Final grades will be approved by the project biologist prior to any seeding and planting of container plants.

2.6.4.1 Grading & Earthwork Conditions

Prior to grading, the project biologist will delineate areas of cut and fill using powdered chalk. A complete set of preconstruction photographs will also be taken at this time. The grading operator will be familiarized with the site and issues involved during a preconstruction site visit with the project biologist. Areas will be graded before soils become saturated during the wet season or have dried sufficiently to prevent soil damage from grading equipment.

The project biologist approved by the USFWS will be on site during grading to ensure compliance with all conservation measures. The project biologist will inspect the graded areas following initial grading and verify that basin depths and mound heights are acceptable. The

project biologist will check the pool depths, saddle heights, mound heights, and flow patterns using survey equipment (e.g. laser level or laser transit). Modifications may be required during grading depending on site conditions.

Grading activities will be timed to avoid wet weather and soil conditions to minimize potential impacts (e.g. siltation) to extant vernal pools unless the area to be graded is at an elevation below extant pools:

- Grading will occur only when the soil is dry to the touch both at the surface and one inch below. A visual check for color differences (i.e., darker soil indicating moisture) in the soil between the surface and one inch below indicates the soil is dry.
- After a rain of greater than 0.2 inch, grading will occur only after the soil surface has dried sufficiently as described above, and no sooner than two days (48 hours) after the rain event ends.
- Grading will commence only when no rain is forecast during the anticipated grading period.
- To prevent erosion and siltation from storm water runoff due to unexpected rains, BMPs (e.g. silt fences, straw wattles) will be implemented as needed during grading.
- If rain occurs during grading, work will stop and resume only after soils are dry, as described above.
- Grading will be conducted in a manner to prevent erosion from entering extant vernal pools.

All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other such activities will occur in designated areas outside of Waters of the United States, vernal pool watersheds, and the MHPA. These designated areas will be located in previously compacted and disturbed areas to the maximum extent practicable in such a manner as to prevent any runoff from entering Waters of the United States, vernal pool watersheds and the MHPA. Fueling of equipment will take place within existing paved areas greater than 100 feet from Waters of the United States and outside of the MHPA. Contractor equipment will be checked for leaks prior to operation and repaired as necessary.

2.6.5 Solarizing

Solarizing may be used in an attempt to eliminate Versatile fairy shrimp and Versatile/San Diego fairy shrimp hybrids from occupied pools to provide habitat for San Diego fairy shrimp and to reduce the likelihood of the spread of Versatile fairy shrimp to unoccupied pools. Solarizing may

also be used to control concentrated exotic plant populations to improve conditions for native plants. Solarizing is unproven as a technique to kill fairy shrimp but has been used with success to control plant weeds.

Solarizing involves applying sheets of plastic over pools and fixed in place with sandbags erosion control wattles, pins, or rocks. The plastic sheets are installed following rainfall or artificial watering adequate to thoroughly wet the soil. The hotter the weather, the more effective the solarizing, so solarizing is most effectively applied in summer or early autumn months with an artificial water supply such as a portable water tank. For weed control, solarizing is most effective on seedlings and is best applied when new weed seedlings have sprouted after the first rains of the season and while temperatures are still warm. For the most effective weed control, several periods of solarizing may be necessary to control as much of the weed seed bank as possible. To apply more than one period of solarizing, plastic is removed after the initial application, weeds are again allowed to sprout, and plastic is reapplied when soils are wet.

Solarizing will also kill native plants but this is not anticipated to be a concern for the Project I because solarizing would only be applied to seriously damaged extant pools where there are no existing endangered or sensitive species populations and common plants and animals would be replaced with seed and soil inoculum. Pools would not be seeded or planted with native plants or inoculated with vernal pool soil until solarizing is complete.

2.6.6 Plant Propagation

Vernal pool and upland vegetation plant seed will be collected and propagated for container plants and to bulk seed. Seed bulking will be conducted for endangered, threatened, and sensitive vernal pool and uplands plants to generate as much seed as possible for use on the Project I site and to return seed to donor sites. Depending on the species, some vernal pool plants may be grown for planting as containers with the intent that plants are grown large enough for planting while minimizing the size of the container that will be installed. Minimizing container size helps to limit the impacts during installation and helps reduce the cost of nursery propagation and planting.

2.6.7 Container Planting and Seeding

Seed will be spread and container plants installed in vernal pools and uplands on the Project I site. For endangered, threatened, or sensitive species not present on the ORV Site B, plant seed would be obtained from donor sites identified in Tables 1 and 2. Seeds from endangered, sensitive, and threatened plants will not be introduced to any enhanced or restored pool until the pool has shown one complete, post-grading wet season of functioning pool hydrology. Enhanced

or restored pools where plants are to be seeded or planted will be matched with donor site pools with similar pool depth and ponding duration to determine the species composition appropriate for any given enhanced or restored pool. No vernal pool or uplands plant seed will be introduced until the fall or early winter when rainfall is predicted. Seeding should occur prior to predicted rainfall to reduce seed loss to wildlife and promote improved germination rates and development of seedlings.

The project biologist will confirm that container plants are delivered to the site in a healthy and vigorous condition before being installed. The project biologist will inspect all container plants and reject plants that are dead, root-bound, stunted, pest-infested, diseased, or unacceptable for other reasons. Any planting stock to be brought onto the Project I site will be inspected by the biologist to ensure it is free of pest species that could invade natural areas, including but not limited to, Argentine ants (*Iridomyrmex humil*), fire ants (*Solenopsis invicta*), and other insect pests. The biologist will also oversee plant layout before installation. All planting will be installed in a way that mimics natural plant distribution and not in rows. Animal repellent measures such as pepper spray, exclusion cages, and other appropriate measures will be used to reduce herbivore damage to upland container plantings. All dead container plants will be replaced unless survival goals have been achieved.

Container plants and seed will not be installed until habitat restoration/enhancement grading is complete and approved by the USFWS.

Please see tables 4 and 5 for vernal pool and uplands planting and seeding palettes.

2.6.8 Soil Inoculation

Immediately following grading, salvaged soil from extant pools supporting San Diego fairy shrimp will be placed back in the same pool from which it was salvaged. Fairy shrimp soil inoculum from on- or offsite donor pools will not be introduced to any restored or enhanced pool until they have demonstrated retention of water for the appropriate amount of time to support fairy shrimp (fourteen days of continuous ponding for pools to be inoculated with San Diego fairy shrimp soil, thirty days of continuous ponding for pools to be inoculated with Riverside fairy shrimp soil). If versatile fairy shrimp are detected in enhanced or restored pools, inoculum will not be introduced until measures approved by the USFWS are implemented to attempt to remove the versatile fairy shrimp.

For either salvaged soil from extant pools or for fairy shrimp soil inoculum from offsite donor pools, soil will be spread into the bottoms of restored or enhanced pools as appropriate. Soils will be placed in dry pools only, preferably before the first rains of the wet season. Soil will not be

placed into basins that are already ponding as the shock of instant cyst inundation may reduce the success of the cyst hatch. Soil inoculum will be placed in a manner that preserves, to the maximum extent possible, the orientation of the fairy shrimp cysts within the surface layer of soil (i.e. soil inoculum will be shallowly distributed within the pond so that cysts have the potential to be brought into solution upon inundation).

2.6.9 Restoration Maintenance Activities

The following sections describe Project I maintenance activities.

2.6.9.1 Weed Control

Weed control methods described below would be applied as deemed appropriate by the Project biologist. Inside the perimeters of vernal pools, all weeding would be performed exclusively by hand with no herbicide, mowing, or line trimming. Herbicides will be applied with sprayers beyond three feet from the edge of pools, and by hand up to the edge of restored or enhanced pools. Mowing and line trimming may be used anywhere outside of enhanced or restored pools. Hand weeding may be used anywhere within the Project I site. However, hand weeding generally will not be used in uplands except as appropriate for a particular species or location where herbicide, mowing, or line trimming are not practicable. Please see Table 6 for targeted weed species.

In general, herbicide application and hand weeding will be used from initial weed germination until weeds are flowering and setting seed. If these methods are effective in removing all of the weeds before flowering and seed set, then weed mowing/trimming techniques will not be necessary. Otherwise, mowing/trimming methods will follow herbicide application and hand weeding.

It is critical to minimize the level of exotics prior to the emergence of native plant species. Removing plant competitors at this stage allows for the persistence of higher levels of available soil moisture and nutrients later into the growing season. Reducing the height of invasive plant competitors will increase the quality and quantity of solar radiation and increase visibility for pollinators. Because of this, weed control is most effective in the earlier stages of plant germination and establishment. In addition, it is easier to avoid native species when weeding early in the season, as native and nonnative species have more spatial separation early in the growing season.

All weeding personnel will be educated to distinguish between native and nonnative species so that local native plants are not inadvertently killed. Weed control will typically begin in mid-

Table 6. Targeted Weed Species

Scientific Name	Common Name
GRASSES Slender Wild Oat	 Slender Wild Oat
Bromus diandrus	Ripgut Brome
Bromus hordeaceus	Soft Chess
Bromus madritensis ssp. rubens	Red brome
Gastridium ventricosum	Nit grass
Poa annua	Annual Blue-Grass
Polypogon monspelensis	Annual Beard-Grass
Schismus barbatus	Mediterranean Schismus
Vulpia bromoides	Six-Weeks Fescue
Vulpia myuros	Rat-tail fescue
FORBS *Anagallis arvensis*	 Scarlet Pimpernel
Centauria melitensis	Tocalote
Cotula coronopifolia	African Brass-Buttons
Erodium botrys	Long-Beak Filaree/Storksbill
Erodium brachycarpum	Short-Beak Filaree/Storksbill
Erodium cicutarium	Red-Stem Filaree/Storksbill
Erodium moschatum	White-Stem Filaree/Storksbill
Hirschfeldia incana	Short-Pod Mustard
Hypochaeris glabra	Smooth Cat's Ear
Logfia gallica	Narrow-Leaf Filago
Lytrhrum hyssopifolia	Grass Poly
Medicago polymorpha	California burclover
Sonchus asper	Prickly Sow-Thistle
Spergularia bocconi	Boccone's Sand-Spurry
Spergularia villosa	Villose Sand-Spurry
Silene gallica	Common Catchfly

autumn and will usually continue until late spring, or until weeds have been effectively removed from the Project I site. Depending on the timing of seasonal precipitation, weed control could start earlier or extend into summer months.

2.6.9.1.1 *Herbicides*

Application of herbicides can be the single most effective method available for weed control in native habitats and will be an important element of Project I weed control. Misuse of herbicides

can cause substantial damage to native plant species, habitats, and wildlife, especially in aquatic environments. Avoidance of standing water during herbicide application is particularly important as water can transfer herbicide (in a reduced concentration) to collateral species, including both plants and animals with some aquatic invertebrate species particularly sensitive to some herbicides. When used properly and under the direction of a qualified project biologist, herbicide use can be the factor that determines success or failure of weed control.

Roundup Pro® and Fusilade® herbicides will be applied during Project I weeding maintenance visits by a licensed applicator under the supervision of the project biologist. Herbicide will only be applied when wind speed is less than 5 miles per hour, and spray nozzles will be of a design to maximize the size of droplets to reduce the potential for drift of herbicide to non-target plants. A 10-foot buffer will be maintained around concentrations of any sensitive plant species.

Application of herbicide will not occur if rain is projected within 24 hours of the scheduled application. When vernal pools are ponding or close to saturation, only hand herbicide application (i.e., saturated glove technique) will be used in and around the edges of pools. When vernal pools are not ponding or close to saturation, herbicide may be sprayed but applicators must stay at least 3 feet from the edge of the pools.

2.6.9.1.2 *Line Trimming*

Line trimming is an effective tool to prevent non-native plant weeds like annual grasses from flowering and producing seeds and will be another important element of Project I weed control. When combined with other weeding methods, line trimming can help to successfully control weeds, allowing native plants to persist or to become established. Line trimming will be used only outside of the perimeter of enhanced or restored pools. Care will be taken to employ a "high" mow (i.e. no line trimming shorter than six inches) to prevent impacting desirable native species.

From year to year, the appropriate timing for line trimming will vary with the timing of rainfall. In general, regular line trimming treatments should begin in late winter and early spring, when nonnative species have grown tall enough for these methods to be effective but the majority of individuals have not yet begun to flower. The key is to perform line trimming just as individuals begin to flower, but before the seeds begin to form. In a typical year, nonnative grasses will be ready for line trimming in January and February. In general, by the end of March or April, grass seeds have developed and line trimming becomes ineffective. In years with late rainfall, this timing can be pushed back as much as two months if rains arrive in March or April. The timing of line trimming will be determined by the project biologist and depend on the species being controlled and the rainfall received that year.

Line trimming does not pose a significant threat to invertebrate wildlife so long as trimming is applied above ground level. Line trimming can be a risk to some species if those species are foraging in the vegetation to be mowed. To minimize the risk to wildlife, line trimming will be kept at least six inches from the ground and care will be taken to avoid wildlife dens or nests.

2.6.9.1.3 *Hand Weeding*

Hand weeding is very inefficient and labor intensive and will be used under limited circumstances for Project I weed control. Hand weeding will be conducted in vernal pool basins to avoid herbicide impacts, and outside of pools in circumstances where it is too difficult or harmful to use other methods (e.g. sensitive plants could be impacted) or where the area to be managed is relatively small.

Although hand weeding does not have the same risks of herbicide or line trimming, it does still have some risks. Because hand weeding is slow and time consuming, the weeded area is likely to be disturbed to a greater extent by trampling, which can be very difficult to control. In addition, pulling weeds from the ground can cause a substantial amount of soil disturbance in and around the area of weeding, especially when the soils are moist or saturated following rain. This disturbance can often be substantial enough to counter the effects of the initial weeding and, in some cases, can facilitate invasion of nonnative plants into new areas.

2.6.9.2 Supplemental Watering

In the event that natural rainfall is inadequate in any particular wet season to maintain vernal pool and uplands seedlings and container plants, supplemental watering of plants in enhanced and restored pools and watersheds may be conducted. Supplemental watering will be utilized only as-needed to prevent plant mortality in any particular wet season when rainfall is sufficient to germinate plants but is insufficient to maintain plants through flowering and seed set. Inadequate rainfall following germination of plants can result in a substantial or complete loss of established or supplemented seed banks and planted container plants. Such preventable losses are particularly unacceptable when they include endangered, threatened, or sensitive vernal pool and uplands species or with a limited restoration project duration and budget.

Any supplemental watering will be conducted in a manner that prevents ponding in the pools. Supplemental watering will not be used to germinate vernal pool plants, rather it will be used only as necessary to maintain any vernal pool plants that germinated naturally but are at risk of dying before flowering and seed set. Any water to be used will be documented to be free of contaminants that could affect the water quality of the pools and harm San Diego and Riverside fairy shrimp.

Supplemental watering may be required multiple times in any particular wet season to ensure survival of plants. If at any point natural rainfall becomes sufficient, then supplemental watering will be suspended. The project biologist will be responsible for determining the timing and extent of supplemental watering.

2.6.9.3 Erosion Control

Erosion from Project I activities will be prevented. The Project I contractor will install erosion control BMPs such as weed-free straw wattles, jute cloth, and/or silt fencing to prevent erosion and sediment flow anywhere on the Project I site but particularly into vernal pools or exiting the site. Erosion controls will be installed immediately following grading and will be maintained for the duration of the Project I as needed.

2.7 PROJECT I SCHEDULE

The Project I will be implemented over approximately four years[21] depending on the amount and effects of annual rainfall on vernal pool ponding, plant propagation, seeding and planting, and fundraising (Table 7). Some scheduled activities have a wide range of dates because the actual timing will be based on the effects of seasonal rainfall, temperatures, or are activities that will be conducted as needed over extended periods of the Project I. Monitoring will be conducted prior to and concurrent with Project I implementation to determine baseline conditions and track implementation of Project I goals (see Section 2.8 for monitoring schedule).

2.7.1 Schedule for Maintenance

Project I maintenance activities will be conducted as shown in Table 7 or as otherwise needed. The timing and level of maintenance will be subject to modification by the Project I biologist and contractor as necessary to achieve project goals.

Remedial planting and seeding will occur in the fall or early winter so that plants and seed are exposed to the maximum seasonal rainfall. Supplemental watering will be conducted anytime plants exhibit signs of water stress during the growing season and as otherwise deemed necessary by the Project I biologist or contractor.

Weed control will be initiated as soon as rainfall is adequate to germinate weed species. Weed control will begin within two to four weeks after weed species have germinated and can be

21. Project I "years" are Water Years as defined by the National Oceanic and Atmospheric Administration: October 1 – September 30.

Table 7. Project I Schedule

TASK	START	END
WATER YEAR 1 (2017 – 2018)		
Property Line Survey & Project I Perimeter Marking	October	October
Fence and Sign Installation	October	October
Earthwork / Grading	October	October
BMP Installation	October	October
Seed Purchase	October	October
Nursery Propagation (vernal pool & uplands seed bulking and containers)	October	Continued
Seeding (vernal pools & uplands)	November	December
Fence and Sign Maintenance & Replacement	November	Continued
BMP Maintenance	November	Continued
Supplemental Watering	December	Continued
Weed Control	December	Continued
Seed Collection	May	September
Annual Report	September	September
WATER YEARS 2 - 3 (2018 – 2020)		
Nursery Propagation (vernal pool & uplands seed bulking and containers)	Continued	Continued
Fence and Sign Maintenance & Replacement	Continued	Continued
Weed Control	December	September
BMP Maintenance	Continued	Continued
Seed Purchase	October	October
Vernal Pool Soil Collection & Inoculation	October	October
Seeding and Planting (vernal pools & uplands)	October	January
Supplemental Watering	December	September
Seed Collection	May	September
Annual Report	September	September
WATER YEAR 4 (2020 – 2021)		
Nursery Propagation (vernal pool & uplands seed bulking and containers)	Continued	January
Fence and Sign Maintenance & Replacement	Continued	September
Weed Control	Continued	September
BMP Maintenance	Continued	September
Vernal Pool Soil Collection & Inoculation	October	October
Seeding and Planting (vernal pools & uplands)	October	January
Supplemental Watering	December	September
BMP Removal	September	September
Final Report	September	September

identified and will continue until weed populations have been controlled. Other maintenance activities like trash removal, BMP maintenance, and fence and sign maintenance and replacement will be conducted throughout the year as necessary. TCLC and contractors will assume these typical stewardship responsibilities within the Project I site for the duration of the project. The City of San Diego Park and Recreation Department will resume stewardship activities after the Project I implementation period consistent with its responsibilities under the MSCP.

2.8 MONITORING

Monitoring will be conducted to identify baseline conditions, to inform project implementation decisions, and to track implementation of Project I goals for vernal pool and uplands ecosystems as a whole and for specific elements (Table 8). Quantitative monitoring will take place in Project I pools and uplands, other ORV Site B pools, and in control pools and control uplands and will include five quantitative monitoring elements: Vernal pool hydrology; fairy shrimp; vernal pool fauna; vernal pool flora; and uplands flora.

Qualitative monitoring will also be conducted on the Project I site, the remainder of the ORV Site B, and vernal pool and uplands control sites during site visits for quantitative monitoring and will include recording any ponding areas not previously mapped as vernal pools, any observed animal species, and any notable site management issues (e.g. recent ORV activity, cut fence, vandalism, trespass, trash dumping). Any site management issues should be reported as soon as possible to TCLC.

Monitoring for vernal pool hydrology and fairy shrimp will be conducted during the entire aquatic phase of each pool beginning within 24-hours of any storm producing a minimum of 1.3 cm (0.5 in) in rainfall measured at the closest available weather station (24-hour monitoring) and thereafter at two-week intervals (two-week monitoring) for both hydrology and fairy shrimp from November through May. Monitoring for other vernal pool aquatic invertebrates and amphibians will be conducted at the early-, mid-, and late-aquatic phase of select pools. Limited monitoring for particular aquatic phase vernal pool flora such as sensitive plants and floating and emergent hydrophytes will take place concurrent with hydrology and fairy shrimp monitoring. Thorough monitoring for all dry phase vernal pool flora and monitoring for uplands flora will be conducted in April or May depending on seasonal rainfall and at the discretion of the monitoring biologist.

Control pools to be used for monitoring are located approximately 1.3 miles northeast of the ORV Site B on the Rancho Jamul Ecological Reserve (Figure 5). These pools exhibit a variety of

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Table 8. Project I Monitoring Summary & Schedule

	Water Year 2016-2017 (Baseline Monitoring)	**Water Year 2017-2018**	**Water Year 2018-2019**	***Conditional Additional Water Year 2019-2020*[22]**	***Conditional Additional Water Year 2020-2021***	***Conditional Additional Water Year 2021-2022***
Hydrology (24-hr and two-week monitoring Nov - May after 1.3 cm (0.5 in) rainfall)	All ORV Site B pools All control pools	All ORV Site B pools All control pools	All ORV Site B pools All control pools	All ORV Site B pools All control pools	All ORV Site B pools All control pools	All ORV Site B pools All control pools
Fairy Shrimp (Two-week monitoring Nov - May after 1.3 cm (0.5 in) rainfall)	All ORV Site B pools All control pools	All Project I pools[23] *Any other ORV Site B pool where results are unknown* *Any control pool where results are unknown*	All Project I pools *Any other ORV Site B pool where results are unknown* *Any control pool where results are unknown*	*Any Project I pool where results are unknown or where goals were not achieved in previous water years* *Any other ORV Site B pool where results are unknown* *Any control pool where results are unknown*	*Any Project I pool where results are unknown or where goals were not achieved in previous water years* *Any other ORV Site B pool where results are unknown* *Any control pool where results are unknown*	*Any Project I pool where results are unknown or where goals were not achieved in previous water years* *Any other ORV Site B pool where results are unknown* *Any control pool where results are unknown*

(table continues)

22. Monitoring in water years 2019 – 2022 is contingent on available funding.

23. See Figure 4.

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	Water Year 2016-2017 (Baseline Monitoring)	**Water Year 2017-2018**	**Water Year 2018-2019**	***Conditional Additional Water Year 2019-2020***	***Conditional Additional Water Year 2020-2021***	***Conditional Additional Water Year 2021-2022***
Vernal Pool Fauna[24] (Early-, mid-, and late-aquatic phase Nov - May after 1.3 cm (0.5 in) rainfall)	8 Project I pools All control pools	*Any of the 8 Project I pools or control pool where ponding was inadequate to conduct monitoring as described for water year 2016-2017 or aquatic phases*	12 Project I pools including the 8 Project I pools from previous water years plus 4 restored pools *Any control pool where ponding was inadequate to conduct monitoring in all previous water years or aquatic phases*	*Any of the 12 Project I pools where ponding was inadequate to conduct monitoring or goals were not achieved in water year 2018-2019* *Any control pool where ponding was inadequate to conduct monitoring in all previous water years or aquatic phases*	*Any of 12 Project I pools where ponding was inadequate to conduct monitoring or goals were not achieved since water year 2018-2019* *Any control pool where ponding was inadequate to conduct monitoring in all previous water years or aquatic phases*	*Any of 12 Project I pools where ponding was inadequate to conduct monitoring or goals were not achieved since water year 2018-2019* *Any control pool where ponding was inadequate to conduct monitoring in all previous water years or aquatic phases*
Vernal Pool Flora – Aquatic Phase (Two-week monitoring Nov - May after 1.3 cm (0.5 in) rainfall)	All ORV Site B pools All control pools	All Project I pools *Any other ORV Site B pool or control pool where ponding was inadequate to conduct monitoring in water year 2016-2017*	All Project I pools *Any other ORV Site B pool or control pool where ponding was inadequate to conduct monitoring in all previous water years*	*Any Project I pool where flora goals were not achieved in all previous water years* *Any other ORV Site B pool or control pool where ponding was inadequate to conduct monitoring in all previous water years*	*Any Project I pool where flora goals were not achieved in all previous water years* *Any other ORV Site B pool or control pool where ponding was inadequate to conduct monitoring in all previous water years*	*Any Project I pool where flora goals were not achieved in all previous water years* *Any other ORV Site B pool or control pool where ponding was inadequate to conduct monitoring in all previous water years*

(table continues)

24. Includes all vernal pool invertebrates other than fairy shrimp and amphibians.

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	Water Year 2016-2017 (Baseline Monitoring)	**Water Year 2017-2018**	**Water Year 2018-2019**	***Conditional Additional Water Year 2019-2020***	***Conditional Additional Water Year 2020-2021***	***Conditional Additional Water Year 2021-2022***
Vernal Pool Flora – Dry Phase April or May at discretion of biologist	All ORV Site B pools All control pools	*All ORV Site B pools & control pools if ≤ 14cm rain in water year 2016-2017*	All Project I pools *All other ORV Site B pools & control pools if ≤ 14cm rain in each previous water year*	*All Project I pools if ≤ 14cm rain in water year 2018-2019* *Any Project I pool where flora goals were not achieved in water year 2018-2019* *All other ORV Site B pools & control pools if ≤ 14cm rain in each previous water year*	*All Project I pools if ≤ 14cm rain in each previous water year since 2018-2019* *Any Project I pool where flora goals were not achieved since water year 2018-2019* *All other ORV Site B pools & control pools if ≤ 14cm rain in each previous water year*	*All Project I pools if ≤ 14cm rain in each previous water year since 2018-2019* *Any Project I pool where flora goals were not achieved since water year 2018-2019* *All other ORV Site B pools & control pools if ≤ 14cm rain in each previous water year*
Uplands Flora April or May at discretion of biologist	All Project I transects All control transects	*All Project I transects & all control transects if ≤ 14cm rain in water year 2016-2017*	All Project I transects *All control transects if ≤ 14cm rain in each previous water years*	*All Project I transects & all control transects if ≤ 14cm rain in water year 2018-2019* *Any Project I transect where goals were not achieved in water year 2018-2019*	*All Project I transects & all control transects if ≤ 14cm rain in each previous water year since 2018-2019* *Any Project I transect where goals were not achieved since water year 2018-2019*	*All Project I transects & all control transects if ≤ 14cm rain in each previous water year since 2018-2019* *Any Project I transect where goals were not achieved since water year 2018-2019*

(table continues)

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	Water Year 2016-2017 (Baseline Monitoring)	Water Year 2017-2018	Water Year 2018-2019	***Conditional Additional Water Year 2019-2020***	***Conditional Additional Water Year 2020-2021***	***Conditional Additional Water Year 2021-2022***
Photograph Monitoring	All ORV Site B pools and all control pools once per water year through period of greatest ponding All Project I perimeter and interior photograph points All Project I and control upland vegetation transect photograph points at time of transect surveys	All ORV Site B pools and all control pools once per water year through period of greatest ponding All Project I perimeter and interior photograph points All Project I and control upland vegetation transect photograph points at time of transect surveys	All ORV Site B pools and all control pools once per water year through period of greatest ponding All Project I perimeter and interior photograph points All Project I and control upland vegetation transect photograph points at time of transect surveys	All ORV Site B pools and all control pools once per water year through period of greatest ponding All Project I perimeter and interior photograph points All Project I and control upland vegetation transect photograph points at time of transect surveys	All ORV Site B pools and all control pools once per water year through period of greatest ponding All Project I perimeter and interior photograph points All Project I and control upland vegetation transect photograph points at time of transect surveys	All ORV Site B pools and all control pools once per water year through period of greatest ponding All Project I perimeter and interior photograph points All Project I and control upland vegetation transect photograph points at time of transect surveys

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representative ecological and hydrological vernal pool conditions and are some of the last and least disturbed original natural vernal pools in Proctor Valley.

The results of monitoring will be presented in annual reports and a final report to track implementation of project goals and inform project implementation decisions on the introduction of endangered fairy shrimp, sensitive vernal pool plants, and sensitive upland plants.

2.8.1 Vernal Pool Hydrological Monitoring

Vernal pool hydrology monitoring is intended to identify the range of hydrologic conditions in Project I site pools, other ORV Site B pools, and control pools to inform goals for the project, to inform project implementation decisions on inoculation of Riverside fairy shrimp and San Diegofairy shrimp (endangered fairy shrimp) and seeding of sensitive plants, and to track implementation of project goals.

Vernal pool hydrology monitoring will be conducted as follows and as scheduled in Table 8:

- Precipitation will be measured and recorded from rain gauges at the ORV Site and control pools site within 24-hours after any storm (or series of storms) producing 1.3 cm (0.5 in) at the closest available weather station between the months of November and May.
- Vernal pool water depths will be measured at the deepest point in each Project I site pool, each other ORV Site B pool, and each control pool within 24-hours after any storm (or series of storms) producing 1.3 cm (0.5 in) at the closest available weather station between the months of November and May and during each subsequent two-week monitoring visit. Two-week monitoring visits will be conducted until all pools are dry and will be reinitiated following any storm that triggers 24-hour monitoring.

2.8.2 Fairy Shrimp Monitoring

Fairy shrimp monitoring is intended to identify the presence or absence of endangered fairy shrimp, Versatile fairy shrimp, and Versatile/San Diego fairy shrimp hybrids in Project I site pools, other ORV Site B pools, and control pools. Monitoring to identify amphibian species will be conducted concurrent with monitoring for fairy shrimp.

Fairy shrimp monitoring is intended to inform project goals for endangered fairy shrimp, to inform project implementation decisions on inoculation of endangered fairy shrimp or control of the weedy Versatile fairy shrimp, and to track implementation of project goals. Fairy shrimp monitoring will be conducted in Project I site pools, other ORV Site B pools, and control pools

during each 24-hour and two-week monitoring visit as scheduled in Table 8. Monitored pools will be sampled to identify fairy shrimp and sampling will follow USFWS protocol fairy shrimp survey methods (USFWS 1996)[25]. Estimated numbers of active shrimp will be recorded. Fairy shrimp monitoring will be conducted by a certified biologist holding a valid Section 10(a) permit. All amphibian species will also be recorded during fairy shrimp monitoring.

2.8.3 Vernal Pool Fauna Monitoring

Vernal pool fauna monitoring is intended to supplement fairy shrimp monitoring to identify the composition of other invertebrate fauna in select Project I site pools and control pools, to inform invertebrate fauna composition goals for the project, and to track implementation of project goals. Vernal pool fauna monitoring can be time consuming and costly; therefore, the purpose of vernal pool fauna monitoring is to identify the overall composition of invertebrate fauna other than fairy shrimp in Project I site pools and control pools rather than in each pool.

Vernal pool fauna monitoring will be conducted in select Project I site pools, select other ORV Site B property pools, and all control pools. Monitoring for vernal pool invertebrates will follow the method and schedule in the *Macroinvertebrate Bioassessment Method to Assess California Vernal Pools* (macroinvertebrate method) (Rogers, in review) as modified for infrequent- and shorter-ponding pools at the ORV Site B and control pool sites. Monitoring for vernal pool fauna will be conducted as follows and as scheduled in tables 8 and 9:

Table 9. Aquatic Phase Vernal Pool Fauna Monitoring Schedule

Sampling Description	Fauna Sampling Schedule
Early Aquatic Phase Sampling	Two weeks following first continuous ponding.
Mid-Aquatic Phase Sampling	One month after first continuous ponding if floating hydrophytes are present and have begun to colonize pool margins. If hydrophyte conditions are not present, then delay sampling in two-week increments until such conditions are present. Sampling may be conducted even if pool has dried and re-filled as later season and/or warmer conditions may trigger different species.
Late Aquatic Phase Sampling	Six weeks after first continuous ponding if floating hydrophytes are present, have thoroughly colonized pool margins, and pool is drying. If hydrophyte and drying conditions are not present, then delay sampling in two-week increments until such conditions are present. Sampling may be conducted even if pool has dried and re-filled as later season and/or warmer conditions may trigger different species.

25. Project I fairy shrimp monitoring will follow the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* (USFWS 1996) rather than the *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2015).

- An inventory of vernal pool fauna will be recorded by collecting fauna samples at three times each scheduled monitoring year (Table 8) during the vernal pool aquatic phase (early, mid, and late aquatic phase; Table 9). In the event that a particular monitored pool dries prior to mid or late aquatic phase monitoring or does not pond in subsequent monitoring years, monitoring may be conducted in different pools to achieve monitoring in the same number of pools and phases as described for vernal pool fauna monitoring in Table 8.
- Samples will be collected using a fine mesh sweep net with a mesh size between 1 – 2 mm. Each sample will be collected from the water column by pulling the net through 1.5 horizontal meters of the pool. If the pool depth at the time of collection is only half the net aperture height, then two 1.5m sweeps are taken.
- All sampled vernal pool fauna will be identified and reported including both invertebrates and amphibians. Identification of sampled invertebrate fauna will follow taxonomic standards for aquatic macroinvertebrates set by the Southwest Association of Freshwater Invertebrate Taxonomists (SAFIT) Standard Taxonomic Effort list (Richards and Rogers 2006). Amphibian species should be recorded and returned alive to the pool to the extent possible.
- Collection of vernal pool fauna samples will be conducted by a certified biologist holding a valid Section 10(a) permit.

2.8.4 Vernal Pool Flora Monitoring

Vernal pool flora monitoring is intended to identify the composition of vernal pool flora in Project I site pools, other ORV Site B pools, and control pools to inform vernal pool flora composition goals for the project, and to track implementation of project goals.

Vernal pool flora monitoring will be conducted as follows and as scheduled in Table 8:

- Monitoring will be conducted as scheduled during both the aquatic and dry phases of each Project I site pool, each other ORV Site B pool, and each control pool.
- Limited vernal pool flora monitoring will be conducted during the vernal pool aquatic phase to identify any sensitive vernal pool plants and floating or emergent hydrophytes. Aquatic phase vernal pool flora monitoring will be conducted concurrent with monitoring for hydrology and fairy shrimp.
- Thorough dry phase vernal pool flora monitoring will be conducted once each scheduled monitoring year in the months of April or May with specific timing at the discretion of

the monitoring biologist. Dry phase vernal pool flora monitoring will include an inventory of all vernal pool plants and estimates of vernal pool vegetation cover (general native plant cover, general non-native plant cover, cover of each vernal pool sensitive plant, and cover of any high or moderate Cal-IPC invasive plant).

2.8.5 Uplands Flora Monitoring

Uplands flora monitoring is intended to identify the composition of uplands flora at the Project I site and uplands vegetation control site to inform upland flora composition goals for the Project and to track implementation of Project goals.

Uplands flora monitoring will be conducted at the Project I site and at the uplands vegetation control site and will use point-intercept transects (CNPS, 1995) to measure native species richness and cover and nonnative cover. Uplands flora monitoring will be conducted as follows in scheduled monitoring years (Table 8).

- Eight uplands vegetation monitoring transect locations will be selected with four transects at the Project I site and four transects at the uplands vegetation control site;
- Transects will be 25 meters in length and 5-meters in width (2.5 meters on either side of the point-intercept transect) and used to collect species richness data. All species observed in this 5-meter belt and not recorded as a point-intercept will be recorded for inclusion in the species inventory to identify species richness;
- Average species richness, native cover, nonnative cover, and SDI will be calculated with 90 percent confidence intervals for sites. Site averages will be tracked over the project implementation period to determine whether upland restoration goals have been achieved.
- Uplands flora monitoring will be conducted once each scheduled monitoring year in the months of April or May with timing at the discretion of the monitoring biologist.

2.8.6 Photograph Monitoring

Photograph monitoring is intended to provide comparative visual evidence of baseline conditions and the progress of enhancement and restoration of vernal pools and uplands. Photograph monitoring will be conducted as follows in scheduled monitoring years (Table 8):

- Photographs will be taken of each ORV Site B pool and each control pool during two-week monitoring visits during the period of greatest pool ponding in each year. Exact photograph points at each pool are not possible given the variation in position of the sun

at the time of monitoring visits. Photographs of relatively full pools where ponding is visible should typically be taken from the south side of each pool with sun behind the photographer and with no shadow cast into the photo. For pools where ponding is mostly hidden by vegetation, photographs should be taken from the north side of the pool to capture sunlight reflecting off ponded water but at an angle to minimize glare.

- Photographs will be taken from twelve established photograph points around the perimeter of the Project I site once per year in April or May at the discretion of the monitoring biologist. Each perimeter photograph should be directed into the Project I site at an angle perpendicular to the Project I site perimeter at that location.
- Photographs will be taken from three established photograph points in the central interior of the Project I site once per year in April or May at the discretion of the monitoring biologist. One photograph will be taken facing compass point (north, south, east, and west) at each interior photograph point for a total of twelve interior photographs per year.
- Photographs will be taken of each upland vegetation transect on the Project I site and uplands vegetation control site during uplands flora monitoring. Photograph points will be located at each end of each transect and oriented to view the length of the transect for a total of sixteen photograph points.
- Photograph points will be marked using t-posts or re-bar and GPS coordinates recorded. T-posts in the ORV Site B perimeter wire fence may also be marked and used as photograph points. Except for fence posts, any photograph point markers will be removed upon completion of the project.

2.8.7 Qualitative Monitoring

Qualitative monitoring will be conducted on the Project I site, the remainder of the ORV Site B, and vernal pool and uplands control sites during site visits for quantitative monitoring and will include recording any ponding areas not previously mapped as vernal pools, any other observed sensitive animal species, any other observed sensitive plant species, and any notable site management issues (e.g. recent ORV activity, cut fence, vandalism, trespass, trash dumping). Any site management issues should be reported as soon as possible to TCLC.

2.9 RESTORATION GOALS AND REMEDIAL MEASURES

Project I goals and remedial measures for enhancement and restoration of vernal pools and uplands vegetation are shown in tables 10 and 11. The Project I will have achieved its goals if these are met by the end of the project in water years 2018-2019, 2019-2020, 2020-2021, or 2021-2022.

Upon completion of the Project I, conditions in enhanced and restored pools should be similar in hydologic function and species composition to those in control pools with data collected from enhanced and restored pools falling within the range of data obtained from control pools. Specific goals for Project I vernal pool enhancement and restoration are included in Table 10.

Vernal pools vary considerably from one year to another and between years in each of these parameters so the standards for determining whether Project I goals have been achieved are dependent on the range exhibited by control pools during a given year. In enhanced and restored pools, achieving a reasonable stability of conditions under a wide variety of hydrological years is more important than meeting preset values. Upon completion of monitoring in each water year, enhanced and restored pools that do not demonstrate the range of conditions in the control pools will be subject to remedial measures identified in Table 10.

All evidence should be considered when determining whether Project I goals have been achieved for any particular vernal pool. For example, goals for vernal pool hydrology and flora are both included in Table 10 restoration goals. However, if a particular pool is meeting flora goals but not hydrology goals, enhancement and restoration activities likely still improved overall pool function. If flora goals are met, an enhanced or restored pool exhibiting hydrology outside the range of the control pools would still be providing hydrology within the range required for vernal pool plant species. Additionally, site averages will be used to track implementation of Project I goals relative to the control pools.

Restored uplands vegetation should be similar in species composition and ecosystem function to the uplands vegetation control site to achieve Project I goals by the end of the project and monitoring period. The 90 percent CI around the average of native species cover and richness will be compared to the 90 percent CI around the averages of the control site. If the intervals overlap, they are statistically equivalent and the uplands restoration area would approximate the control sites and restoration goals would be achieved. The specific parameters for uplands vegetation and remedial measures are described in Table 11.

Table 10. Vernal Pool Goals and Remedial Measures

Monitoring Elements	Monitoring Element Parameters	Restoration & Enhancement Goals	Remedial Measures
Hydrology	Duration of Aquatic Phase	Range of values in control pools	Pool reshaping
Fairy Shrimp	Presence of Riverside fairy shrimp, San Diego Fairy Shrimp, Versatile Fairy Shrimp, or Versatile/San Diego Fairy Shrimp Hybrids	Riverside fairy shrimp present in $\geq$ 25% inoculated Project I pools ponding continuously for $\geq$ eight weeks San Diego fairy shrimp present in Project I pools occupied by the species (and not occupied by Versatile fairy shrimp or Versatile/San Diego fairy shrimp hybrids) prior to Project I implementation San Diego fairy shrimp present in $\geq$ 25% of inoculated Project I pools that pond within the range of control pools occupied by the species Versatile fairy shrimp and/or Versatile/San Diego fairy shrimp hybrids absent from Project I pools	Disposal of topsoil from pools supporting Versatile/San Diego fairy shrimp hybrids Solarizing Additional soil inoculation Pool reshaping
	Site Average Density for Riverside fairy shrimp and San Diego Fairy Shrimp	90% CI[26] around average density overlaps 90% CI in control pools	
Fauna	Fauna Composition	Number of crustacean species per Project I pool $\geq$ 75% of crustacean species in control pools	Additional soil inoculation Pool reshaping
	Site Average Density for Fauna	90% CI around average density overlaps 90% CI in control pools	

(table continues)

26. Confidence Interval.

Monitoring Elements	Monitoring Element Parameters	Restoration & Enhancement Goals	Remedial Measures
Flora	Flora composition	Range of values in control pools	Supplemental Seeding Supplemental watering of pools Pool reshaping
	Common native plants cover per pool	Common native plant cover per Project I pool ≥ 50% of range of values in control pools	
	Presence of endangered or sensitive vernal pool plants: *Downingia cuspidata, Eryngium aristulatum* ssp. *parishii, Hordeum intercedens, Myosurus minimus, Navarretia fossalis,* and/or *Orcuttia californica*	*Downingia cuspidata, Eryngium aristulatum* ssp. *parishii, Hordeum intercedens, Myosurus minimus, Navarretia fossalis,* and/or *Orcuttia californica* present in ≥ 25% of seeded Project I pools ponding within range of control pools occupied by the species	
	Site Averages for Flora Elements	90% CI averages of each flora element overlaps 90% CI in control pools	
	Non-Native Cover	< 5% cover for any weed species per Project I pool	Increase in weed control and/or alternative treatments

Table 11. Uplands Flora Goals & Remedial Measures

Uplands Element Parameters	Restoration & Enhancement Goals	Remedial Measures
Native Species Cover	90% CI around average native cover overlaps 90% CI of control 80% survival of container plantings	Seeding or container planting of absent and/or underrepresented species Supplemental watering Supplemental pest control
Native Species Richness	90% CI around average native species richness overlaps 90% CI of control	
Nonnative Cover	<10% cover <5% cover for weed species categorized as High or Moderate in the Cal-IPC Invasive Plant Inventory	Increase in weed control and/or alternative treatments

3.0 REPORTING

Project reports will describe project implementation activities, document results from quantitative and qualitative monitoring, provide photographic documentation from established photograph points, provide assessments of the Project I implementation relative to project goals, and document any problems and remedial measures necessary to achieve project goals. Monitoring reports will be provided to the City and to each permitting agency.

3.1 ANNUAL REPORTS

Annual reports will be prepared by September following each year of Project I implementation and will describe project implementation activities, provide the results of monitoring, describe progress towards project goals, and recommend any remedial measures.

3.2 FINAL REPORT

A final report will be prepared by September of the final year of Project I implementation and include as-built restoration map(s) illustrating the completed project and photographs of habitat areas before, during, and after implementation. The final report will also describe project implementation activities, provide the results of monitoring, describe whether project goals were achieved, and provide any other information documenting whether authorized impacts were exceeded and whether compliance with all conservation measures was achieved.

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4.0 REFERENCES

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APPENDIX A

Existing & Planned Conditions – Restored & Enhanced Vernal Pools

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
Extant Pools											**Enhanced Extant Pools**								
EP 1	Project I	Damaged Extant Natural Pool	287	0.007	12.50	59-72	*Brodiaea sp.; Callitriche marginata; Castilleja densiflora; Crassula connata; Croton setiger; Deinandra fasciculata; Juncus bufonius; Lysimachia minima; Plagiobothrys acanthocarpus; Plantago elongata; Psilocarphus brevissimus; Selaginella cinerascens*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Gastridium phleoides; Hypochaeris glabra; Lythrum hyssopifolia; Silene gallica*	-	-	Weed dethatching; Lesser hand tool earthwork; Hand-weeding	287	0.007	Same as extant / baseline conditions		< 5% cover	Same as extant / baseline conditions	
EP 2	Project I	Damaged Extant Natural Pool	167	0.004	12.50	59-72	*Acmispon glaber; Castilleja densiflora; Crassula connata; Croton setiger; Deinandra fasciculata; Juncus bufonius; Lysimachia minima; Muilla maritima; Plagiobothrys collinus; Plantago elongata; Selaginella cinerascens; Silene gallica; Trifolium sp.*	*Avena barbata; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia*	-	-	Weed dethatching; Greater hand tool earthwork; Hand-weeding	167	0.004	Same as extant / baseline conditions		< 5% cover	Same as extant / baseline conditions	

(table continues)

1. Ponding duration is from surveys by Rocks Biological Consulting in 2016 / 2017. Maximum continuous ponding duration is provided as a range of number of days. Site visits occurred every one to two weeks therefore the exact number of days a pool was ponding is unknown. It is difficult to predict the exact date a pool dried due to the effect that temperature changes and rain events between surveys can have on ponding. The lower number in the range of ponding duration is calculated using the dates of the surveys in which the pool was observed holding water. If a pool was holding water on consecutive surveys, it was assumed that it held water everyday between visits. The higher number in the range of ponding duration is calculated using the number of days between the last survey day a pool was holding water and the survey during which pool was recorded dry. For example, if a pool was recorded holding water on 1/1/17 and 1/13/17 but was recorded dry on 1/25/17 the ponding duration would be 13-24 days. If the pool experienced multiple ponding events, the longest continuous ponding duration is provided.

2. *DoCu = Downingia cuspidata;* ErAr = *Eryngium aristulatum ssp. Parishii;* HoIn = *Hordeum intercedens;* MiDo = *Microseris douglasii ssp. platycarpha;* MyMi = *Myosurus minimus;* NaFo = *Navarretia fossalis;* OrCa = *Orcuttia californica.* Project goal is presence of vernal pool sensitive plant species in $\geq$ 25% of Project I pools that pond within range of control pools.

3. Fairy shrimp results are monitoring results from AECOM 2010 / 2011 and Rocks Biological Consulting in 2015 / 2016 AND 2016 / 2017. BrLi = *Branchinecta lindahli*; BrSa = *Branchinecta sandiegonensis*; BrLi/BrSa = Hybrid *Branchinecta lindahli* and *Branchinecta sandiegonensis*; BrUnk = Unknown *Branchinecta* species where *Branchinecta* were immature at time of observation or collection; StWo = *Streptocephalus woottoni.* Project I goal for *Branchinecta sandiegonensis* is species presence in $\geq$ 25% of inoculated Project I pools that pond within range of control pools occupied by the species. Project goal for *Streptocephalus woottoni* is species presence in inoculated Project I pools ponding continuously for $\geq$ eight weeks.

4. Planned depths are approximate, based on a graded vernal pool slope ratio of 18":1" applied at the shortest pool diameter, and rounded to nearest centimeter. Final depths will be established during grading and other earthwork.

5. Project goals are native plant cover in Project I pools $\geq$ 50% range of control pools and relative native plant cover 90% CI averages in Project I pools overlap 90% CI in control pools.

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 3	Project I	Extant Natural Pool	285	0.007	5.00	59-72	*Acmispon glaber ssp. glaber; Brodiaea terrestris ssp. kernensis; Castilleja densiflora; Clarkia purpurea ssp. quadrivulnera; Crassula connata; Croton setiger; Deinandra fasciculata; Gnaphalium palustre; Isocoma menziesii; Juncus bufonius; Lasthenia gracilis; Plantago elongata; Psilocarphus brevissimus; Selaginella cinerascens; Trifolium sp.; Zeltnera venusta*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica*	-	-	Weed dethatching; Hand-weeding	285	0.007	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	
EP 4	Project I	Damaged Extant Natural Pool	105	0.002	7.00	25-38	*Brodiaea sp.; Castilleja densiflora; Crassula connata; Croton setiger; Deinandra fasciculata; Eriogonum fasciculatum ssp. fasciculatum; Juncus bufonius; Lysimachia minima; Nuttallanthus texanus; Selaginella cinerascens; Sisyrinchium bellum; Stipa cernua; Zeltnera venusta*	*Avena barbata; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Festuca perennis; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Sonchus oleraceus*	-	-	Weed dethatching; Greater hand tool earthwork; Hand-weeding	105	0.002	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	
EP 5	Project I	Damaged Extant Natural Pool	338	0.008	10.50	25-38	*Castilleja densiflora; Corethrogyne filaginifolia; Crassula connata; Deinandra fasciculata; Gnaphalium palustre; Juncus bufonius; Lasthenia gracilis; Lepidium nitidum; Lysimachia minima; Muilla maritima; Nuttallanthus texanus; Plantago elongata; Psilocarphus brevissimus; Zeltnera venusta*	*Avena barbata; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Erodium botrys; Erodium moschatum; Festuca myuros; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Sonchus oleraceus*	-	-	Weed dethatching; Greater hand tool earthwork; Hand-weeding	338	0.008	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 6	Project I	Damaged Extant Natural Pool	266	0.006	24.00	59-72	*Acmispon micranthus; Castilleja densiflora; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Deschampsia danthonioides; Gnaphalium palustre; Isocoma menziesii; Juncus bufonius; Lasthenia gracilis; Lepidium nitidum; Lysimachia minima; Phacelia sp.; Plagiobothrys acanthocarpus; Plantago elongata; Psilocarphus brevissimus; Selaginella cinerascens; Veronica peregrina; Zeltnera venusta*	*Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Sonchus asper; Spergularia sp.*	-	BrSa	Weed dethatching; Greater hand tool earthwork; Hand-weeding	266	0.006	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	
EP 7	Project I	Damaged Extant Natural Pool	542	0.012	7.00	25-38	*Brodiaea sp.; Castilleja densiflora; Crassula connata; Croton setiger; Deinandra fasciculata; Eriogonum fasciculatum ssp. fasciculatum; Juncus bufonius; Lysimachia minima; Nuttallanthus texanus; Selaginella cinerascens; Sisyrinchium bellum; Stipa cernua; Zeltnera venusta*	*Avena barbata; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Festuca perennis; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Sonchus oleraceus*	NaFo	BrSa	Weed dethatching; Lesser hand tool earthwork; Hand-weeding	542	0.012	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 8	Project I	Extant Natural Pool	297	0.007	10.50	25-38	*Castilleja densiflora; Corethrogyne filaginifolia; Crassula connata; Deinandra fasciculata; Gnaphalium palustre; Juncus bufonius; Lasthenia gracilis; Lepidium nitidum; Lysimachia minima; Muilla maritima; Nuttallanthus texanus; Plantago elongata; Psilocarphus brevissimus; Zeltnera venusta*	*Avena barbata; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Erodium botrys; Erodium moschatum; Festuca myuros; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Sonchus oleraceus*	-	BrSa	Weed dethatching; Hand-weeding	297	0.007	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	
EP 9	Project I	Extant Natural Pool	318	0.007	24.00	59-72	*Acmispon micranthus; Castilleja densiflora; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Deschampsia danthonioides; Gnaphalium palustre; Isocoma menziesii; Juncus bufonius; Lasthenia gracilis; Lepidium nitidum; Lysimachia minima; Phacelia sp.; Plagiobothrys acanthocarpus; Plantago elongata; Psilocarphus brevissimus; Selaginella cinerascens; Veronica peregrina; Zeltnera venusta*	*Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Sonchus asper; Spergularia sp.*	-	-	Weed dethatching; Hand-weeding	318	0.007	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 10	Project I	Damaged Extant Natural Pool	601	0.014	19.00	63-76	*Acmispon glaber; Artemisia californica; Brodiaea terrestris ssp. kernensis; Castilleja densiflora; Crassula connata; Croton setiger; Deinandra fasciculata; Deschampsia danthonioides; Eriogonum fasciculatum; Isocoma menziesii var. decumbens; Juncus bufonius; Lasthenia gracilis; Lysimachia minima; Muilla maritima; Pilularia americana; Plantago elongata; Psilocarphus brevissimus; Psilocarphus tenellus; Selaginella cinerascens; Veronica sp.; Zeltnera venusta*	*Bromus hordeaceus; Bromus rubens; Centaurea melitensis; Erodium botrys; Festuca myuros; Festuca perennis; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Spergularia sp.*	-	BrSa	Weed dethatching; Lesser hand tool earthwork; Hand-weeding	601	0.014	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	
EP 11	Project I	Damaged Extant Natural Pool	223	0.005	6.50	25-38	*Baccharis sarothroides; Castilleja densiflora; Crassula connata; Deinandra fasciculata; Juncus bufonius; Lasthenia gracilis; Lepidium nitidum; Lythrum hyssopifolia; Muilla maritima; Plagiobothrys acanthocarpus; Plantago elongata; Plantago erecta; Psilocarphus tenellus; Selaginella cinerascens; Zeltnera venusta*	*Avena barbata; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hypocharis glabra; Logfia gallica; Silene gallica*	-	-	Weed dethatching; Lesser hand tool earthwork; Hand-weeding	223	0.005	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 12	Project I	Damaged Extant Natural Pool	137	0.003	10.00	25-38	*Acmispon americanus; Acmispon micranthus; Callitriche marginata; Castilleja densiflora; Crassula connata; Deinandra fasciculata; Juncus bufonius; Lasthenia gracilis; Lysimachia minima; Muilla maritima; Psilocarphus brevissimus; Psilocarphus tenellus; Selaginella cinerascens; Stipa cernua; Zeltnera venusta*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia*	-	-	Weed dethatching; Lesser hand tool earthwork; Hand-weeding	137	0.003	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	
EP 13	Project I	Extant Natural Pool	367	0.008	24.00	25-38	*Allium sp.; Crassula aquatica; Crassula connata; Deinandra fasciculata; Juncus bufonius; Lasthenia gracilis; Lepidium nitidum; Lysimachia minima; Psilocarphus brevissimus; Psilocarphus tenellus; Selaginella cinerascens; Stipa cernua; Veronica peregrina; Zeltnera venusta*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Festuca perennis; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Spergularia sp.*	-	-	Weed dethatching; Hand-weeding	367	0.008	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	
EP 14	Project I	Damaged Extant Artificial Pool	46	0.001	27.00	13-26	*Acmispon americanus; Calandrinia menziesii; Crassula connata; Croton setiger; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Nuttallanthus texanus; Pilularia americana; Stipa cernua; Zeltnera venusta*	*Avena fatua; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Cynodon dactylon; Erodium botrys; Festuca myuros; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Spergularia sp.*	-	-	Greater heavy equipment grading to fill pool and enhance Mima mound								

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 15	Project I	Damaged Extant Natural Pool	710	0.016	20.50	74-87	*Acmispon americanus; Acmispon glaber; Calandrinia menziesii; Crassula aquatica; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Muilla maritima; Plantago elongata; Psilocarphus brevissimus; Psilocarphus tenellus; Trifolium depauperatum; Veronica peregrina*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hypochaeris glabra; Lythrum hyssopifolia; Silene gallica; Spergularia sp.*	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	710	0.016	21	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 16	Project I	Damaged Extant Natural Pool	163	0.004	12.50	59-72	*Acmispon glaber; Calandrinia menziesii; Callitriche marginata; Crassula aquatica; Crassula connata; Croton setiger; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Psilocarphus brevissimus; Psilocarphus tenellus; Stylocline gnaphaloides; Zeltnera venusta*	*Avena barbata; Bromus rubens; Erodium botrys; Festuca myuros; Festuca perennis; Gastridium phleoides; Hypochaeris glabra; Lythrum hyssopifolia*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	163	0.004	9	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 17	Project I	Damaged Extant Natural Pool	3569	0.082	17.50	59-72	*Acmispon glaber; Castilleja densiflora; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Eleocharis macrostachya; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Plantago elongata; Psilocarphus brevissimus; Psilocarphus tenellus; Stipa cernua; Zeltnera venusta*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Festuca perennis; Hypochaeris glabra; Lythrum hyssopifolia; Silene gallica*	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	3569	0.082	25	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa; StWo

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6. To attempt to eliminate *Branchinecta lindahli* and reduce plant weed infestations in just those pools with *Branchinecta lindahli* and no listed species, the top two inches of vernal pool topsoil will be removed and buried onsite in enhanced or restored mima mounds.

7. Solarizing will only be conducted if fairy shrimp are found and identified as *Branchinecta lindahli.*

8. Shrimp soil inoculation will only be conducted if solarizing successfully eliminates any *Branchinecta lindahli*.

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 18	Project I	Damaged Extant Natural Pool	2470	0.057	22.50	88-102	*Acmispon glaber; Brodiaea terrestris ssp. kernensis; Castilleja densiflora; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Deschampsia danthonioides; Eleocharis macrostachya; Gnaphalium palustre; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Psilocarphus brevissimus; Veronica peregrina; Zeltnera venusta*	*Bromus diandrus; Bromus hordeaceus; Bromus rubens; Cotula coronopifolia; Erodium botrys; Festuca perennis; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Rumex cripsus; Silene gallica; Spergularia sp.*	-	BrSa; BrLi	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	2470	0.057	31	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa; StWo
EP 19	Project I	Damaged Extant Natural Pool	897	0.021	36.50	88-102	*Castilleja densiflora; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Deschampsia danthonioides; Eleocharis macrostachya; Gnaphalium palustre; Juncus bufonius; Lysimachia minima; Pilularia americana; Psilocarphus brevissimus; Zeltnera venusta*	*Bromus hordeaceus; Bromus rubens; Cotula coronopifolia; Erodium botrys; Erodium brachycarpum; Erodium cicutarium; Festuca myuros; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis*	-	BrSa; BrLi	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	897	0.021	31	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa; StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 20	Project I	Extant Natural Pool	552	0.013	9.00	59-72	*Acmispon glaber; Acmispon micranthus; Brodiaea terrestris ssp. kernensis; Castilleja densiflora; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Gnaphalium palustre; Juncus bufonius; Lysimachia minima; Plantago elongata; Plantago erecta; Psilocarphus brevissimus; Selaginella cinerascens; Zeltnera venusta*	*Avena barbata; Brachypodium distachyon; Bromus rubens; Festuca myuros; Gastridium phleoides; Logfia gallica; Lythrum hyssopifolia*	-	-	Weed dethatching; Hand-weeding	552	0.013	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	
EP 21	Future Project	Damaged Extant Artificial Pool	135	0.003	10.00	25-38	*Acmispon americanus; Baccharis sarothroides; Callitriche marginata; Crassula aquatica; Deinandra fasciculata; Elatine brachysperma; Eriogonum fasciculatum ssp. fasciculatum; Juncus bufonius; Psilocarphus tenellus*	*Avena fatua; Bromus hordeaceus; Bromus rubens; Cotula coronopifolia; Erodium botrys; Erodium brachycarpum; Erodium moschatum; Festuca myuros; Festuca perennis; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Rumex cripsus; Silene gallica; Spergularia sp.*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	TBD			Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
EP 22	Project I	Damaged Extant Natural Pool	95	0.002	22.50	113-127	*Acmispon glaber; Callitriche marginata; Crassula aquatica; Deinandra fasciculata; Isocoma menziesii; Psilocarphus brevissimus; Psilocarphus tenellus*	*Bromus hordeaceus; Festuca myuros; Lythrum hyssopifolia; Polypogon monspeliensis; Silene gallica; Spergularia bocconi*	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	95	0.002	6	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa; StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 23	Project I	Damaged Extant Natural Pool	152	0.003	16.00	74-87	*Acmispon americanus; Acmispon glaber; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Isocoma menziesii; Navarretia hamata; Plagiobothrys acanthocarpus; Plantago elongata; Psilocarphus tenellus; Stipa cernua*	*Avena barbata; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Festuca myuros; Hypochaeris glabra; Logfia gallica; Spergularia sp.*	-	BrUnk	Weed dethatching; Soil salvage; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	152	0.003	5	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 24	Project I	Damaged Extant Artificial Pool	55	0.001	15.00	74-87	*Castilleja densiflora; Crassula aquatica; Crassula connata; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Plantago elongata; Psilocarphus brevissimus; Psilocarphus tenellus*	*Bromus hordeaceus; Cotula coronopifolia; Erodium botrys; Festuca myuros; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Spergularia sp.*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	55	0.001	3	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 25	Project I	Damaged Extant Natural Pool	728	0.017	15.00	74-87	*Castilleja densiflora; Crassula aquatica; Crassula connata; Crassula solieri; Croton setiger; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Muilla maritima; Plagiobothrys acanthocarpus ; Plantago elongata; Psilocarphus brevissimus; Stipa cernua; Zeltnera venusta*	*Bromus hordeaceus; Bromus rubens; Cotula coronopifolia; Festuca myuros; Festuca perennis; Hypochaeris glabra; Lamarkia aurea; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Silene gallica; Spergularia sp.; Trifolium hirtum*	-	BrSa; BrUnk	Weed dethatching; Soil salvage; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	728	0.017	19	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa; StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 26	Project I	Damaged Extant Natural Pool	217	0.005	18.00	74-87	*Callitriche marginata; Castilleja densiflora; Corethrogyne filaginifolia; Cotula coronopifolia; Crassula aquatica; Crassula connata; Crassula solieri; Croton setiger; Isocoma menziesii; Juncus bufonius; Plagiobothrys acanthocarpus ; Plantago elongata; Psilocarphus brevissimus*	*Bromus hordeaceus; Erodium sp.; Festuca myuros; Hypochaeris glabra; Lythrum hyssopifolia; Polypogon monspeliensis; Spergularia sp.*	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	217	0.005	9	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 27	Project I	Damaged Extant Natural Pool	209	0.005	18.50	25-38	*Callitriche marginata; Clarkia purpurea; Corethrogyne filaginifolia; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Plantago elongata; Psilocarphus brevissimus; Psilocarphus tenellus*	*Bromus diandrus; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Silene gallica; Spergularia sp.*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	209	0.005	8	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 28	Project I	Damaged Extant Natural Pool	884	0.020	12.00	59-72	*Acmispon americanus; Acmispon glaber; Acmispon micranthus; Brodiaea terrestris ssp. kernensis; Calandrinia menziesii; Castilleja densiflora; Clarkia purpurea; Crassula connata; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Nuttallanthus texanus; Plagiobothrys acanthocarpus; Psilocarphus tenellus; Selaginella cinerascens; Stipa cernua; Trifolium depauperatum*	*Avena barbata; Brachypodium distachyon; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Festuca perennis; Helminthotheca echioides; Hirschfeldia incana; Hypochaeris glabra; Lythrum hyssopifolia; Silene gallica; Sonchus asper*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	884	0.020	15	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 29	Project I	Damaged Extant Natural Pool	1220	0.028	12.50	59-72	*Brodiaea sp.; Calandrinia menziesii; Castilleja densiflora; Clarkia purpurea; Crassula connata; Croton setiger; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Plagiobothrys acanthocarpus; Psilocarphus tenellus; Selaginella cinerascens*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Cotula coronopifolia; Erodium botrys; Festuca myuros; Festuca perennis; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Silene gallica*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	1220	0.028	30	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
EP 30	Project I	Damaged Extant Natural Pool	236	0.005	23.00	59-72	*Acmispon glaber; Calandrinia menziesii; Castilleja densiflora; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Eriogonum fasciculatum ssp. fasciculatum; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Psilocarphus tenellus; Trifolium depauperatum*	*Avena fatua; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Festuca perennis; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Sonchus asper*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	236	0.005	10	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 31	Project I	Damaged Extant Natural Pool	535	0.012	12.00	59-72	*Brodiaea sp.; Callitriche marginata; Calyptridium monandrum; Clarkia purpurea ssp. quadrivulnera; Crassula connata; Croton setiger; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hypochaeris glabra; Lythrum hyssopifolia; Spergularia bocconi*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	535	0.012	17	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 32	Project I	Damaged Extant Natural Pool	804	0.018	18.50	63-76	*Acmispon glaber; Baccharis sarothroides; Brodiaea terrestris; Crassula connata; Croton setiger; Deinandra fasciculata; Erigeron canadensis; Isocoma menziesii var. decumbens; Nuttallanthus texanus; Plantago elongata; Psilocarphus tenellus; Stipa cernua*	*Bromus hordeaceus; Bromus rubens; Erodium botrys; Erodium cicutarium; Festuca perennis; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Sonchus oleraceus; Spergularia rubra*	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	804	0.018	19	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa; StWo
EP 33	Project I	Damaged Extant Natural Pool	930	0.021	5.50	59-72	*Calandrinia menziesii; Castilleja densiflora; Crassula connata; Deinandra fasciculata; Gnaphalium palustre; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Psilocarphus brevissimus; Stipa cernua; Veronica peregrina*	*Avena barbata; Bromus rubens; Erodium botrys; Festuca myuros; Festuca perennis; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Spergularia bocconi*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	930	0.021	17	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
EP 34	Project I	Damaged Extant Natural Pool	687	0.016	9.50	59-72	*Clarkia purpurea ssp. quadrivulnera; Crassula connata; Deinandra fasciculata; Gnaphalium palustre; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Psilocarphus tenellus; Sisyrinchium bellum*	*Avena barbata; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hypochaeris glabra; Lythrum hyssopifolia; Rumex cripsus*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	687	0.016	15	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 35	Project I	Damaged Extant Natural Pool	700	0.016	18.00	59-72	*Clarkia purpurea ssp. quadrivulnera; Crassula connata; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Lepidium nitidum; Lysimachia minima; Psilocarphus tenellus; Sisyrinchium bellum; Veronica sp.*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca perennis; Gastridium phleoides; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	700	0.016	22	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 36	Project I	Damaged Extant Natural Pool	817	0.019	7.00	13-26	*Crassula connata; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Sisyrinchium bellum*	*Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Festuca perennis; Hypochaeris glabra; Lythrum hyssopifolia; Silene gallica; Sonchus oleraceus*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	817	0.019	15	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 37	Project I	Extant Natural Pool	98	0.002	7.50	13-26	*Callitriche marginata; Crassula connata; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Sisyrinchium bellum; Stipa cernua*	*Brachypodium distachyon; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Erodium sp.; Festuca myuros; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia*	-	-	Weed dethatching; Hand-weeding	98	0.002	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	
EP 38	Project I	Damaged Extant Natural Pool	244	0.006	6.50	25-38	*Callitriche marginata; Crassula connata; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Psilocarphus brevissimus; Psilocarphus tenellus; Selaginella cinerascens; Sisyrinchium bellum; Stipa cernua*	*Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hypochaeris glabra; Lythrum hyssopifolia*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	244	0.006	9	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 39	Project I	Damaged Extant Natural Pool	841	0.019	12.50	13-26	*Acmispon micranthus; Baccharis sarothroides; Callitriche marginata; Clarkia purpurea ssp. quadrivulnera; Crassula connata; Croton setiger; Deinandra fasciculata; Gnaphalium palustre; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Navarretia hamata ssp. leptantha; Psilocarphus tenellus; Sisyrinchium bellum; Zeltnera venusta*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Logfia gallica; Lythrum hyssopifolia; Silene gallica*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	841	0.019	25	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 40	Project I	Damaged Extant Natural Pool	250	0.006	11.50	13-26	*Acmispon glaber; Acmispon micranthus; Clarkia purpurea; Crassula connata; Gnaphalium palustre; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Navarretia hamata; Stipa cernua; Zeltnera venusta*	*Brachypodium distachyon; Bromus hordeaceus; Centaurea melitensis; Erodium botrys; Festuca myuros; Hypochaeris glabra; Logfia gallica; Silene gallica*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	250	0.006	11	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 41	Project I	Damaged Extant Natural Pool	606	0.014	16.50	13-26	*Acmispon americanus; Acmispon micranthus; Baccharis saraothroides; Calandrinia menziesii; Clarkia purpurea; Crassula connata; Croton setiger; Gnaphalium palustre; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Navarretia hamata ssp. leptantha; Psilocarphus tenellus; Sisyrinchium bellum; Stipa cernua; Veronica peregrina; Zeltnera venusta*	*Brachypodium distachyon; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Cerastium glomeratum; Erodium botrys; Festuca myuros; Festuca perennis; Helminthotheca echioides; Hirschfeldia incana; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Rumex crispus; Spergularia sp.*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	606	0.014	15	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 42	Project I	Damaged Extant Natural Pool	314	0.007	32.00	74-87	*Baccharis sarothroides; Callitriche marginata; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Gnaphalium palustre; Juncus bufonius; Lysimachia minima; Navarretia hamata; Psilocarphus brevissimus; Psilocarphus tenellus; Stipa cernua*	*Brachypodium distachyon; Bromus hordeaceus; Erodium botrys; Festuca myuros; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Rumex crispus; Spergularia sp.*	-	BrSa	Weed dethatching; Soil salvage; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	314	0.007	14	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa; StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 43	Project I	Extant Natural Pool	1026	0.024	14.00	25-38	*Acmispon americanus; Clarkia purpurea; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Deschampsia danthonioides; Dichelostemma capitatum; Gnaphalium palustre; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Muilla maritima; Nuttallanthus texanus; Psilocarphus brevissimus; Sisyrinchium bellum; Stipa cernua*	*Brachypodium distachyon; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Convolvulus arvensis; Erodium botrys; Erodium brachycarpum; Festuca myuros; Festuca perennis; Gastridium phleoides; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Sonchus asper*	-	-	Weed dethatching; Hand-weeding	1026	0.024	Same as extant / baseline conditions			< 5% cover	Same as extant / baseline conditions	
EP 44	Future Project	Damaged Extant Artificial Pool	325	0.007	7.00	13-26	*Acmispon glaber; Baccharis sarothroides; Crassula connata; Croton setiger; Isocoma menziesii; Juncus bufonius; Stipa pulchra; Zeltnera venusta*	*Avena barbata; Brachypodium distachyon; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Silene gallica; Sonchus asper*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	TBD			Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa
EP 45	Project I	Damaged Extant Natural Pool	1263	0.029	44.00	103-114	*Callitriche marginata; Corethrogyne filaginifolia; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Eleocharis macrostachya; Juncus bufonius; Pilularia americana; Psilocarphus tenellus*	*Bromus diandrus; Bromus hordeaceus; Bromus rubens; Cotula coronopifolia; Erodium botrys; Festuca myuros; Hypochaeris glabra; Logfia gallica; Lysimachia arvensis; Lythrum hyssopifolia; Polypogon monspeliensis; Rumex crispus; Sonchus asper; Spergularia rubra*	-	BrLi; BrLi/BrSa	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	3222	0.074	28	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
EP 46	Project I	Damaged Extant Natural Pool	1334	0.031	21.50	13-26	*Acmispon americanus; Calandrinia menziesii; Chlorogalum parviflorum; Clarkia purpurea; Crassula aquatica; Crassula connata; Croton setiger; Deinandra fasciculata; Isocoma menziesii; Juncus bufonius; Lysimachia minima*	*Avena fatua; Brachypodium distachyon; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Convolvulus arvensis; Erodium botrys; Erodium brachycarpum; Festuca myuros; Festuca perennis; Hirschfeldia incana; Hypochaeris glabra; Lysimachia arvensis; Lythrum hyssopifolia; Polypogon monspeliensis; Rumex crispus; Silene gallica; Sonchus asper; Spergularia sp.*	-	-	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	2025	0.046	27	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
EP 47	Project I	Damaged Extant Artificial Pool	529	0.012	25.50	74-87	*Crassula aquatica; Crassula connata; Deinandra fasciculata; Hordeum intercedens; Isocoma menziesii; Juncus bufonius; Lysimachia minima; Psilocarphus brevissimus; Psilocarphus tenellus; Veronica peregrina*	*Avena barbata; Avena fatua; Bromus hordeaceus; Bromus rubens; Erodium botrys; Erodium brachycarpum; Festuca myuros; Festuca perennis; Gastridium phleoides; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Medicago polymorpha; Rumex crispus; Sonchus asper; Spergularia sp.*	*Hordeum intercedens*	BrLi; BrLi/BrSa	Weed dethatching; Soil disposal[6]; Greater heavy equipment grading; Solarizing[7]; Seeding; Shrimp soil inoculation[8]; Hand-weeding	2681	0.062	12	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
											Restored (Constructed) Pools								
C1		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	322	0.007	9	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
C2		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	901	0.021	19	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo

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Pool Number	Project Number	EXISTING CONDITIONS									PLANNED CONDITIONS								
		Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]	Planned Enhancement or Restoration	Area (Square Feet)	Area (Acres)	Depth (cm)[4]	Maximum Continuous Ponding (Days)[1]	Native Plant Cover[5]	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants[2]	Fairy Shrimp[3]
C3		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	555	0.013	21	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
C4		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	466	0.011	18	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
C5		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	690	0.016	18	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
C6		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	575	0.013	19	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
C7		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	1140	0.026	23	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo
C8		-	-	-	-	-	-	-	-	-	Weed dethatching; Greater heavy equipment grading; Seeding; Shrimp soil inoculation; Hand-weeding	419	0.010	16	Range of Control Pools		< 5% cover	DoCu; ErAr; HoIn; MiDo; MyMi; NaFo; and/or OrCa	BrSa and/or StWo

	Area (Square Feet)	Area (Acres)
Subtotal All Extant Pools (47 Pools)	**27574**	**0.633**
Subtotal Extant Pools Phase I (45 Pools)	**27114**	**0.622**

	Area (Square Feet)	Area (Acres)
Subtotal All Enhanced Pools (46 Pools)	**27528**	**0.632**
Subtotal Enhanced Pools Phase I (44 Pools)	**31870**	**0.732**
Subtotal Filled Pool Phase I (1 Pool)	**46**	**0.001**
Subtotal Restored Pools Phase I (8 Pools)	**5068**	**0.116**

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APPENDIX B
Existing Conditions – Rancho Jamul Ecological Reserve Control Pools

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Pool Number	Existing Conditions Proctor Valley Rancho Jamul Control Pools								
	Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants	Fairy Shrimp[2]
RJ1	Damaged Extant Artificial Pool	150	0.003	7.50	47-60	*Castilleja densiflora; Crassula aquatica; Crassula connata; Deinandra fasciculata; Juncus bufonius; Navarretia hamata ssp. leptantha; Psilocarphus tenellus*	*Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Spergularia bocconi*	-	BrSa
RJ2	Damaged Extant Artificial Pool	20	0.000	6.00	47-60	*Chlorogalum parviflorum; Crassula connata; Plantago elongata; Psilocarphus tenellus*	*Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Logfia gallica; Spergularia sp.*	-	-
RJ3	Damaged Extant Natural Pool	97	0.002	9.00	47-60	*Calandrinia breweri; Chlorogalum parviflorum; Crassula aquatica; Crassula connata; Deinandra fasciculata; Navarretia hamata ssp. leptantha; Plantago elongata; Psilocarphus tenellus; Selaginella cinerascens*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Logfia gallica; Spergularia bocconi*	-	-
RJ4	Damaged Extant Natural Pool	141	0.003	12.50	74-87	*Crassula aquatica; Crassula connata; Deinandra fasciculata; Juncus bufonius; Lysimachia minima; Plantago elongata; Psilocarphus tenellus*	*Avena barbata; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hirschfeldia incana; Hypochaeris glabra; Lamarckia aurea; Logfia gallica; Lythrum hyssopifolia; Poa annua; Spergularia bocconi*	-	-
RJ5	Damaged Extant Artificial Pool	177	0.004	6.50	47-60	-	*Avena fatua; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hedypnois cretica; Hypochaeris glabra; Melilotus indicus*	-	-
RJ6	Damaged Extant Natural Pool	259	0.006	15.50	63-76	*Acmispon americanus; Allium sp.; Calandrinia menziesii; Chlorogalum parviflorum; Croton setiger; Deinandra fasciculata; Juncus bufonius; Lepidium nitidum; Lysimachia minima; Psilocarphus tenellus; Selaginella cinerascens; Sisyrinchium bellum; Stipa cernua; Zeltnera venusta*	*Avena barbata; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Logfia gallica; Lythrum hyssopifolia; Sonchus oleraceus*	-	-
RJ7	Damaged Extant Natural Pool	94	0.002	7.50	47-60	*Castilleja densiflora; Crassula aquatica; Crassula connata; Deinandra fasciculata; Juncus bufonius; Navarretia hamata ssp. leptantha; Psilocarphus tenellus*	*Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hirschfeldia incana; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Spergularia bocconi*	-	BrSa
RJ8	Damaged Extant Artificial Pool	575	0.013	6.00	47-60	*Chlorogalum parviflorum; Crassula connata; Plantago elongata; Psilocarphus tenellus*	*Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Logfia gallica; Spergularia sp.*	-	-
RJ9	Damaged Extant Natural Pool	189	0.004	9.00	47-60	*Calandrinia breweri; Chlorogalum parviflorum; Crassula aquatica; Crassula connata; Deinandra fasciculata; Navarretia hamata ssp. leptantha; Plantago elongata; Psilocarphus tenellus; Selaginella cinerascens*	*Avena barbata; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Logfia gallica; Spergularia bocconi*	-	-
RJ10	Damaged Extant Natural Pool	813	0.019	12.50	74-87	*Crassula aquatica; Crassula connata; Deinandra fasciculata; Juncus bufonius; Lysimachia minima; Plantago elongata; Psilocarphus tenellus*	*Avena barbata; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hirschfeldia incana; Hypochaeris glabra; Lamarckia aurea; Logfia gallica; Lythrum hyssopifolia; Poa annua; Spergularia bocconi*	-	BrSa

(table continues)

1. Ponding duration is from surveys by Rocks Biological Consulting in 2016 / 2017. Maximum continuous ponding duration is provided as a range of number of days. Site visits occurred every one to two weeks therefore the exact number of days a pool was ponding is unknown. It is difficult to predict the exact date a pool dried due to the effect that temperature changes and rain events between surveys can have on ponding. The lower number in the range of ponding duration is calculated using the dates of the surveys in which the pool was observed holding water. If a pool was holding water on consecutive surveys, it was assumed that it held water everyday between visits. The higher number in the range of ponding duration is calculated using the number of days between the last survey day a pool was holding water and the survey during which pool was recorded dry. For example, if a pool was recorded holding water on 1/1/17 and 1/13/17 but was recorded dry on 1/25/17 the ponding duration would be 13-24 days. If the pool experienced multiple ponding events, the longest continuous ponding duration is provided.

2. BrSa = *Branchinecta sandiegonensis*; BrUnk = Unknown Branchinecta species where Branchinecta were immature at time of observation or collection.

Pool Number	Existing Conditions Proctor Valley Rancho Jamul Control Pools								
	Description	Area (Square Feet)	Area (Acres)	Maximum Depth (cm)	Maximum Continuous Ponding (Days)[1]	Native Plant Cover	Non-Native Plant Cover	Vernal Pool Listed & Sensitive Plants	Fairy Shrimp[2]
RJ11	Damaged Extant Natural Pool	72	0.002	6.50	47-60	-	*Avena fatua; Brachypodium distachyon; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Hedypnois cretica; Hypochaeris glabra; Melilotus indicus*	-	BrUnk
RJ12	Damaged Extant Natural Pool	40	0.001	15.50	63-76	*Acmispon americanus; Allium sp.; Calandrinia menziesii; Chlorogalum parviflorum; Croton setiger; Deinandra fasciculata; Juncus bufonius; Lepidium nitidum; Lysimachia minima; Psilocarphus tenellus; Selaginella cinerascens; Sisyrinchium bellum; Stipa cernua; Zeltnera venusta*	*Avena barbata; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Logfia gallica; Lythrum hyssopifolia; Sonchus oleraceus*	-	-
RJ13	Damaged Extant Natural Pool	371	0.009	30	63-76	*Crassula connata; Croton setiger; Deinandra fasciculata; Elatine brachysperma; Eleocharis macrostachya; Eryngium aristulatum ssp. parishii; Juncus bufonius; Muilla maritima; Phacelia minor; Pilularia americana; Psilocarphus brevissimus; Sisyrinchium bellum*	*Avena fatua; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Erodium botrys; Festuca myuros; Festuca perennis; Gastridium phleoides; Hypochaeris glabra; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Rumex crispus; Silene gallica*	*Eryngium aristulatum var. parishii*	BrSa; BrUnk
RJ14	Damaged Extant Natural Pool	2117	0.049	55	115-144	*Acmispon americanus; Baccharis sarothroides; Callitriche marginata; Chlorogalum parviflorum; Crassula aquatica; Crassula connata; Deinandra fasciculata; Downingia cuspidata; Elatine brachysperma; Eleocharis macrostachya; Eriogonum fasciculatum ssp. fasciculatum; Eryngium aristulatum ssp. parishii; Isocoma menziesii; Isoetes orcuttii; Juncus bufonius; Pilularia americana; Plantago elongata; Psilocarphus brevissimus; Psilocarphus tenellus; Sisyrinchium bellum; Zeltnera venusta*	*Avena fatua; Bromus diandrus; Bromus hordeaceus; Bromus rubens; Cotula coronipifolia; Cynodon dactylon; Erodium botrys; Festuca myuros; Festuca perennis; Hordeum murinum; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis; Rumex crispus; Spergularia rubra*	*Downingia cuspidata; Eryngium aristulatum var. parishii*	BrSa
RJ15	Damaged Extant Natural Pool	204	0.005	19.5	47-60	*Crassula aquatica; Deinandra fasciculata; Juncus bufonius; Navarretia hamata ssp. leptantha; Pilularia americana; Plantago elongata; Psilocarphus brevissimus; Psilocarphus tenellus*	*Avena barbata; Brachypodium distachyon; Bromus hordeaceus; Cotula coronipifolia; Erodium botrys; Festuca myuros; Festuca perennis; Logfia gallica; Lythrum hyssopifolia; Polypogon monspeliensis*	-	BrSa
RJ16	Damaged Extant Natural Pool	225	0.005	18.5	59-72	*Crassula aquatica; Croton setiger; Deinandra fasciculata; Eryngium aristulatum ssp. parishii; Juncus bufonius; Lysimachia minima; Navarretia hamata ssp. leptantha; Pilularia americana; Psilocarphus brevissimus; Psilocarphus tenellus; Sisyrinchium bellum; Stipa cernua*	*Brachypodium distachyon; Bromus diandrus; Bromus hordeaceus; Cotula coronipifolia; Erodium botrys; Festuca myuros; Festuca perennis; Lythrum hyssopifolia; Polypogon monspeliensis*	*Eryngium aristulatum var. parishii*	BrSa
RJ17	Damaged Extant Natural Pool	172	0.004	16	59-72	*Allium sp.; Baccharis sarothroides; Crassula aquatica; Crassula connata; Juncus bufonius; Lysimachia minima; Muilla maritima; Navarretia sp.; Psilocarphus brevissimus; Psilocarphus tenellus; Sisyrinchium bellum; Trifolium depauperatum; Zeltnera venusta*	*Brachypodium distachyon; Bromus hordeaceus; Cotula coronipifolia; Erodium botrys; Festuca myuros; Logfia gallica; Lythrum hyssopifolia*	-	-

Total Pool Area	5716	0.131
	Area (Square Feet)	Area (Acres)