3.6.3 Hydrological Monitoring

Both HGM hydrological monitoring methods will be conducted in Wet Seasons 1 - 4 – HGM "Surface and Subsurface Water Storage Function" (HGM Function 1) and "Hydrologic Networks" (HGM Function 2). HGM-defined "direct" data from ponding pools would be collected for both HGM functions 1 and 2 in each wet season. HGM-defined "indirect" dry season data would be collected in the dry season prior to construction but thereafter only in the event of inadequate seasonal rainfall (≤ 14cm rainfall).

In Wet Season 1 prior to grading, surveys for HGM functions 1 and 2 would be conducted in all four Reference/Control Pools and all Existing Pools to determine the range of vernal pool conditions at any given restoration site and in similar nearby pools and to inform restoration goals. Following grading, surveys for HGM functions 1 and 2 would be conducted in all four Reference/Control Pools and all Restoration Site Pools to further inform restoration goals and to track implementation.

The HGM Surface and Subsurface Water Storage Function 1 is defined as the capacity of a vernal pool wetland complex to capture and store precipitation falling on the basin and catchment areas. Moisture is stored within the pool as free water on the surface and/or in the surface and subsurface soils of the pool, swale(s) connecting pools, and adjacent uplands (Bauder et al. 2009).

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The HGM Hydrologic Networks Function 2 is defined as the water bodies through which water moves to the local master stream in a vernal pool landscape. The links include pools, the swales or subsurface flow paths that connect them or the drainages of various types through which flows move into the master stream (Bauder et al. 2009).

The quantitative, direct, wet season measures required for HGM Function 1 include precipitation, the number of days and number of times the surveyed pool is inundated, the maximum depth of inundation, and the extent of surface connections to other pools. Quantitative dry season indirect measures include the percentage of the basin covered with cobbles or pebbles, the maximum depth of the basin, the level of disturbance to the basin, the extent of surface connection to other basins, the presence of defined inlets or outlets, the length of the basin, and basin slope.

The quantitative, direct, wet season measures required for HGM Function 2 include the number and duration of ponding pools in a given network of pools including headwater pools. The quantitative indirect measures required for HGM Function 2 include the number of pools in a given pool network, the level of disturbance in and around pools, the types of modification to a

network, the level of sediment deposition or fill in a pool, and the presence and type of modifications to pool inlets or outlets.

Under the HGM Function 1 direct wet season hydrological monitoring method, precipitation and vernal pool water depths are measured 24 hours after the end of any storm producing 1.3 cm (0.5 in) and every 3-5 days thereafter until the pool is dry. Data is entered into the Hydrology Direct Assessment Data Form[19]. HGM Function 1 can only be measured directly in years with total seasonal precipitation ≥14cm. A rain gauge will be installed at each restoration site and rulers would be installed at the deepest point of each existing pool. Precipitation and pool levels would be measured after each major rainfall event. In the event shallow bedrock prevents installation of rulers, pool depth measurements would be taken using a handheld ruler placed in the deepest portion of the pool during each survey.

The same data collected for HGM direct Function 1 is utilized for analysis of HGM Function 2 direct wet season hydrological monitoring as supplemented with additional information gathered from topographic maps of the entire pool watershed area and the location of pools in the pool network(s). Data is entered in the Hydrologic Network Data Form[20].

Hydrological data collected in each of the 4 monitoring seasons will be evaluated to determine scores for the HGM Surface and Sub-surface Water Storage Function 1 and HGM Hydrologic Function 2 before, during, and after project implementation. The hydrological parameters listed above will be measured for offsite Reference/Control Pools and all other Existing Pools and Restoration Site Pools, as well the average of each hydrologic variable for each of these pool groups. A comparison of the scores of HGM function 1 and 2 in each monitoring year will track implementation of hydrological goals for the project.

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3.6.4 Floral Monitoring

The HGM direct flora monitoring method, the "Maintain Characteristic Plant Community Function (HGM Function 4)", would be conducted in Wet Seasons 1, 3, and 4.

In Wet Season 1 prior to grading, flora surveys would be conducted in all four Reference/Control Pools and at least four Existing Pools (including some pending Expanded Pools). Pre-grading surveys are intended to identify a baseline of possible vernal pool flora composition on any given restoration site and in similar nearby pools and to inform restoration goals.

19. Bauder et al. 2009 Appendix C.4
20. Bauder et al. 2009 Appendix C.5

In Wet Seasons 3 and 4, flora surveys would include the same pools as Wet Season 1 with the addition of at least 4 Newly Constructed Pools. Post-grading and project implementation surveys are intended to track implementation of restoration project goals. Due to expense and to allow for stabilization of Newly Constructed Pools and Expanded Pools following grading, vernal pool flora surveys are not proposed in Wet Season 2.

The HGM Maintain Characteristic Plant Community Function is defined as the capacity of a vernal pool to support persistent populations of plant species characteristic of vernal pools in southern California. These populations consist of actively growing plants; dormant structures such as roots, stems, caudices, corms, and bulbs; and the soil seed bank. Soil type and depth, pool hydrology and catchment topography interact with climate to provide suitable conditions for the growth and reproduction of the vernal pool plant community (Bauder et al. 2009). The quantitative, direct measures required for HGM Function 4 include thorough plant surveys in accordance with California Resources Agency guidelines in years of average or above average rainfall and categorization of identified species in seven "Plant Distribution Categories" for use under the HGM Maintain Characteristic Plant Community Function equation. In addition to HGM values, the cover, distribution, and abundance of vernal pool plants (including focal endangered plant species) will also be assessed and tracked.

Measurements for HGM Function 4 would be determined by completing flora surveys of Reference/Control Pools, Existing Pools, and, Newly Constructed Pools. Flora monitoring would use the HGM Vegetation Direct Assessment Data Form[21] and would be conducted in one survey per pool in each monitoring season with one follow-up survey as needed to identify later blooming plants. Assessments will typically occur in April but the exact timing will depend on the site and weather conditions. Plant cover will also be surveyed and recorded separately using visual estimates of the entire basin of each surveyed pool including cover, distribution, and abundance of plant species. Codes for the cover and distribution sampling of plant species are found in Table 8.

Flora monitoring data will then be evaluated to determine the HGM Maintain Characteristic Plant Community Function 4 score before and after project implementation. The flora parameters of species richness and cover will be calculated using the Simpson's Diversity Index (SDI) for each surveyed pool as well as the average of each vegetation variable for the entire restoration site (Zar 1999). Flora conditions in Restoration Site Pools would be compared to the range observed in Reference/Control Pools to track implementation of flora goals. A comparison of the scores of HGM Function 4 in each monitoring year would track implementation of flora goals.

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21. Bauder et al. 2009 Appendix C.6

Table 8.
Codes for Cover/Distribution Sampling of Plant Species

Code	Cover (%)	Distribution	Abundance (#)
1	0–5	Solitary	1–25
2	6–25	Clumps/Groups	26–50
3	26–50	Patches/Cushions	51–100
4	51–75	Carpets/Dense Colonies	101–500
5	>76	Pure Stands	>500

Note: A plant with a code of 2-1-5 would have 6 to 25 percent cover in the pool, plants distributed solitarily, and an estimated abundance of over 500 individuals.

3.6.5 Qualitative Monitoring

Qualitative vernal pool vegetation surveys would consist of a general site walkover and characterization of restoration work sites. Photo points will be established, recorded through GPS, and shown on detailed work maps. Observations and notes would include fitness and health of installed container plants, germination of seed, signs of desiccation, erosion and sedimentation, vandalism, nonnative species, and pest problems, among others. Qualitative monitoring will be conducted every two weeks in Wet Season 2 following grading, monthly during Wet Seasons 3 and 4, and quarterly for the remainder of the project.

During qualitative monitoring visits, vernal pools and nearby uplands will be examined for the presence or absence of Western spadefoot toads and two-striped garter snakes. Examination for spadefoot toads will include eggs, tadpoles, toadlets, and adults. Presence or absence of spadefoot toads and two-striped garter snakes will be documented in annual monitoring reports. In addition, all amphibian, reptile, and any other wildlife species observed during vernal pool monitoring will be documented.

Maintenance needs and site conditions will be recorded in memoranda and distributed to the resource agency property owner and Conservancy according to the above schedule of qualitative monitoring. Copies of each memorandum will be retained by the project biologist and used to compile annual monitoring reports.

3.6.6 Schedule of Vernal Pool Monitoring

Table 9 provides a summary and schedule of vernal pool monitoring activities. Monitoring will take place over four wet seasons with Wet Season 1 monitoring taking place prior to grading and

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Wet Season 2 - 4 taking place concurrent with and following project implementation. Annual monitoring results will dictate the need for major or minor remedial measures.

3.6.7 Vernal Pool Restoration Goal Criteria and Remedial Measures

Vernal pool restoration goals and remedial measures are shown in Table 10. Each project will have achieved its goals if these are met by completion of the project in Wet Season 4.

Conditions in Restoration Site Pools at completion of the project should be similar in hydological function and species composition in Reference/Control pools. In general, this means that data collected on Restoration Site Pools should fall within the range of data obtained from Reference/Control pools. The specific parameter goals for Restoration Site Pools are included in Table 10. Vernal pools vary considerably from one year to another and between years in each of these parameters; thus, the standards for determining whether restoration goals have been achieved are dependent on the range exhibited by Reference/Control pools during a given year. In Restoration Site Pools, achieving a reasonable stability of conditions under a wide variety of hydrological years is more important than meeting preset values. Upon completion of each season's monitoring period, Restoration Site Pools that do not demonstrate improvement in the monitored variables would be subject to remedial measures. Remedial measures are included in Table 10.

When determining whether restoration goals have been achieved for individual pools, all the evidence must be considered. For example, hydrology and flora goals are both included in Table 10 restoration goals. However, if a particular pool is meeting flora goals but not hydrology goals, restoration activities may still have improved overall pool function. If flora goals are being met, a Restoration Site Pool showing hydrology outside the range of Reference/Control Pools would still be providing hydrology within the natural range for vernal pool plant species. Additionally, site averages will be used to track implementation of project goals relative to reference conditions.

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Table 9.
Summary and Schedule of Vernal Pool Monitoring Activities

	Wet Season 1	Wet Season 2	Wet Season 3	Wet Season 4
Survey Full Invertebrate Fauna (November - April following rainfall)	All 4 Reference/Control Pools 4 Existing Pools (including some pending Expanded Pools)	*Any one pool where ponding was inadequate to conduct Wet Season 1 surveys*[22]	*Any one pool where ponding was inadequate to conduct Wet Season 1 surveys*	All 4 Reference/Control Pools 4 Newly Constructed Pools 4 Expanded Pools
Survey Fairy Shrimp (November - April following rainfall)	All 4 Reference/Control Pools All Existing Pools	*Any one pool where ponding was inadequate and/or where fairy shrimp surveys were inconclusive in Wet Season 1* All Newly Constructed Pools	*Any one pool where ponding was inadequate and/or where fairy shrimp surveys were inconclusive in Wet Seasons 1 and 2*	Any Existing Pools (including Expanded Pools but excluding those surveyed for full fauna) inoculated with Riverside fairy shrimp or San Diego fairy shrimp
Survey Hydrology (HGM Function 1 & 2 Direct Surveys; November - April following rainfall; HGM Function 1 & 2 Indirect Surveys in event of inadequate rainfall (≤ 14cm)	All 4 Reference/Control Pools All Existing Pools (HGM Direct & Indirect Surveys)	All 4 Reference/Control Pools All Restoration Site Pools (HGM Direct & Indirect Surveys)	All 4 Reference/Control Pools All Restoration Site Pools (HGM Direct Surveys Only)[23]	All 4 Reference/Control Pools All Restoration Site Pools (HGM Direct Surveys Only)
Survey Flora (HGM Function 4 Direct Surveys; March - May)	All 4 Reference/Control Pools 4 Existing Pools (including some pending Expanded Pools)	– –	All 4 Reference/Control Pools 4 Existing Pools (including some Expanded Pools 4 Newly Constructed Pools	All 4 Reference/Control Pools 4 Existing Pools (including some Expanded Pools 4 Newly Constructed Pools

22. Italics indicate conditional activities.
23. Indirect surveys are unnecessary as indirect variables change only with modification of pool topography and this was assessed in Season 2.

Table 10.
Vernal Pool Restoration Goal Criteria and Remedial Measures

Survey Type	Vernal Pool Parameter	Restoration Goal	Remedial Measures
Fauna	Fauna Composition	Number of crustacean species ≥ baseline in non-inoculated Existing Pools 4 or more crustacean species per inoculated pool[24]	Pool re-contouring Re-inoculation
	Site Average Density for Fauna	90% CI[25] around average density overlaps 90% CI in Reference/Control Pools	
Fairy Shrimp	Presence of Riverside fairy shrimp, San Diego Fairy Shrimp, Versatile Fairy Shrimp, or Hybrids	Riverside fairy shrimp present in suitable Restoration Site Pools San Diego fairy shrimp present in 25% of Restoration Site Pools Versatile fairy shrimp and/or hybrids absent from pools occupied by San Diego fairy shrimp Versatile fairy shrimp absent from 75% of Newly Constructed Pools	Pool re-contouring Solarizing Re-inoculation
	Density of San Diego Fairy Shrimp Per Pool	Range of values from Reference/Control Pools	
	Site Average Density for San Diego Fairy Shrimp	90% CI around average density overlaps 90% CI in baseline data	
Hydrology	HGM Function 1	Baseline + .25 (max 1.0)[26] ≥.75 for Newly Constructed Pools	Pool re-contouring
	HGM Function 2	Baseline + .25 (max 1.0) ≥.75 for Newly Constructed Pools	Pool re-contouring

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24. Inoculum containing San Diego fairy shrimp and other crustacean species that might otherwise increase crustacean diversity would not be introduced to Restoration Site Pools containing versatile fairy shrimp.
25. Confidence Interval
26. HGM formulas produce a number between 0.0 and 1.0 with 0.0 pools having no functionality and 1.0 pools functioning at optimum levels. See Bauder et al. 2009 Appendix D.6.

Survey Type	Vernal Pool Element	Restoration Goal	Remedial Measures
Flora	HGM Function 4	Baseline + .25 (max 1.0)	Seeding or container planting of absent and/or underrepresented reference species, vernal pool endemics, and/or other native species Supplemental watering of pools
	Vernal Pool Endemics Cover Per Pool	Range of values from Reference/Control Pools	
	Other Native Species Cover Per Pool	80% of initial container plants[27]	
	Simpson's Diversity Index Per Pool (Native Species Only)		
	Presence of *Downingia cuspidata, Eryngium aristulatum var. parishii, Myosurus minimus,* and *Navarretia fossalis,* and *Orcuttia californica* Per Pool	*Downingia cuspidata, Eryngium aristulatum var. parishii, Myosurus minimus,* and *Navarretia fossalis* present in 20% of Restoration Site Pools *Orcuttia californica* present in suitable Restoration Site Pools	
	Site Averages for Flora Elements	90% CI around averages of each flora element overlaps 90% CI in Reference/Control Pools	
	Non-Native Cover	0% cover for weed species categorized as High or Moderate in the Cal-IPC Invasive Plant Inventory[28] <5% regardless of nonnative cover in Reference/Control Pools	Increase in weeding visits and/or alternative treatments

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27. Biological Opinion condition
28. Biological Opinion condition

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CHAPTER 4.0 –
UPLAND HABITAT RESTORATION

4.1 INTRODUCTION

4.1.1 Goals of Uplands Restoration

The leading goal of recommended uplands restoration is to improve ecological and hydrological functions in local vernal pool watersheds. Another goal of upland vegetation restoration is to incorporate measures to facilitate population expansion or otherwise improve habitat for specific imperiled upland plants and animals including several of San Diego County's rarest animals such as the Burrowing owl, California gnatcatcher, Hermes copper butterfly, Quino checkerspot butterfly, and San Diego cactus wren. Specific uplands restoration objectives are as follows:

- Limit Future Harm – Limit future anthropogenic disturbance to sensitive uplands through fencing, signing, planting and vegetative camouflage of old dirt roads and paths, and public educational outreach.
- Repair Damaged Uplands – Repair degraded uplands geomorphic and ecological conditions including restoration of topography (e.g. smoothing and filling tire trenching and erosion gullies) and restoration of native uplands vegetation (coastal sage scrub, native grassland, and chaparral) through weeding, seeding, and container planting.
- Increase Populations of Endangered and Sensitive Upland Species – Establish new refugia populations of several endangered or sensitive upland species as appropriate considering existing populations, historic reports, species' existing ranges, and suitable habitats (Tables 11 and 12).

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4.1.2 Location of Upland Restoration

Upland revegetation and limited, local topographic restoration activities are recommended to restore habitat and watershed conditions in localized disturbed areas in and around each vernal pool restoration site.

In addition to any necessary general revegetation and local topographic restoration around vernal pool sites, three areas in particular are recommended for focused intensive uplands restoration work to obliterate and camouflage ORV tracks that would otherwise lead ORV trespassers to vernal pool restoration sites (Figures 6f, 6h, and 6i). Obliteration of all ORV tracks is not

practical. Rather, strategic ORV track obliteration is recommended at key locations to remove unauthorized ORV access to restoration sites and to remove connections to other tracks that are then expected to recover passively over time.

4.1.3 Sensitive Upland Plants

Eleven sensitive plant species are present in Proctor Valley and would benefit from direct incorporation into recommended upland vegetation restoration work through planting and seeding (Table 11; Figures 7a and 7b). Use of these sensitive plants as part of the project will improve the likelihood of success of upland vegetation planting and seeding due to their adaption to existing conditions, will improve vernal pool watershed ecological and hydrological conditions, and will benefit the sensitive upland plants themselves by increasing location population numbers.

4.2 PERMITTING

4.2.1 City of San Diego Right-of-Entry Permit

Please see section 3.2.1 above for a discussion of a right-of-entry permit.

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4.2.2 California Environmental Quality Act

Please see section 3.2.2 above for a discussion of compliance with the California Environmental Quality Act.

4.2.3 Endangered Species

One state and federal listed plant species – Otay tarplant (*Deinandra conjugens*) – would be included in recommended upland restoration activities were appropriate and with permission of the resource agency property owner, CDFG, and USFWS. The collection source for Otay tarplant would be the SDNWR in Proctor Valley. Permission and permits to collect and/or introduce this listed species will be required from the resource agency property owner of any given restoration site, CDFG as the permitting authority for California listed species, and the USFWS as both the donor site property owner and the permitting authority for federally listed plants. Anticipated endangered species legal compliance and permitting is described below.

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Table 11.
Upland Restoration Sensitive Plant Species

SPECIES	CURRENT PRESENCE / ABSENCE	HISTORIC PRESENCE / ABSENCE	PROPOSED DONOR SITE[29]	DONOR SITE JUSTIFICATION & OTHER NOTES
Artemisia palmeri (San Diego sagewort)	Present	Present	Rancho Jamul Ecological Reserve (Approx. 1 mile NE[30])	Closest recorded population
Brodiaea orcuttii (Orcutt's brodiaea)	Present	Present	San Diego National Wildlife Refuge (Approx. 1 mile N)	Closest recorded population
Calochortus dunnii (Dunn's mariposa lily)	Present	Present	Otay Ranch (Approx. 1 mile E)	Closest recorded population
Deinandra conjugens (Otay tarplant) Federal Threatened	Present	Present	San Diego National Wildlife Refuge (Approx. 1 mile SW)	Closest recorded population
Dudleya variegata (Variegated dudleya)	Present	Present	Otay Ranch (Approx. 1 mile NE)	Closest recorded population
Ericameria palmeri ssp. *palmeri* (Palmer's goldenbush)	Present	Present	Otay Ranch (Approx. 1 mile NE)	Closest recorded population
Ferocactus viridescens (San Diego barrel cactus)	Present	Present	Otay Ranch (Approx. .5 miles SE)	Closest recorded population
Lepidium virginicum L. var. robinsonii (Robinson's pepper grass)	Present	Present	Otay Ranch (Approx. 2 miles SW)	Closest recorded population
Muilla clevelandii (San Diego golden star)	Present	Present	Otay Ranch (Approx. 1 mile SE)	Closest recorded population
Salvia munzii (Munz's sage)	Present	Present	Otay Ranch (Approx. 1 mile SE)	Closest recorded population
Selaginella cinerascens (Ashy spike-moss)	Present	Present	Otay Ranch (Approx. 2 miles SW)	Closest recorded population

29. With property owner permission only.
30. Distances are from the approximate center of Proctor Valley at the ORV Site A.

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Table 12.
Beneficiary Sensitive Animal Species
NOTE – Species are reported from Proctor Valley and expected to occupy or regularly utilize restoration sites

SPECIES	AGENCY STATUS	CURRENT PROCTOR VALLEY PRESENCE / ABSENCE	NOTES
BIRDS *Aimophila ruficeps* ssp. *canescens* (Southern California rufous-crowned sparrow)	CA Species of Special Concern	Absent	– –
Amphispiza belli ssp. *belli* (Bell's sage sparrow)	CA Species of Special Concern	Absent	– –
Campylorhynchus brunneicapillus ssp. *couesi* (San Diego cactus wren)	CA Species of Special Concern	Absent	Cactus patches to be included in upland vegetation restoration.
Circus cyanus (Northern harrier)	CA Species of Special Concern	Present	– –
Polioptila californica ssp. *california* (California gnatcatcher)	Federal Threatened; CA Species of Special Concern	Absent	– –
Speotyto cunicularia ssp. *hypugaea* (Burrowing owl)	CA Species of Special Concern	Absent	Artificial burrows to be included in upland restoration.
INVERTEBRATES *Euphydryas editha* ssp. *quino* (Quino checkerspot butterfly)	Federal Endangered	Absent	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.
Hermelycaena hermes (Hermes copper butterfly)	Federal Candidate	Absent	Patches of species' host plant spiny redberry to be included in upland vegetation restoration.
AMPHIBIANS & REPTILES *Spea hammondii* (Western spadefoot toad)	CA Species of Special Concern	Present	Species common in existing restoration site vernal pools and expected to readily colonize constructed pools.
Thamnophis hammondii (Two-striped Garter Snake)	CA Species of Special Concern	Absent	– –

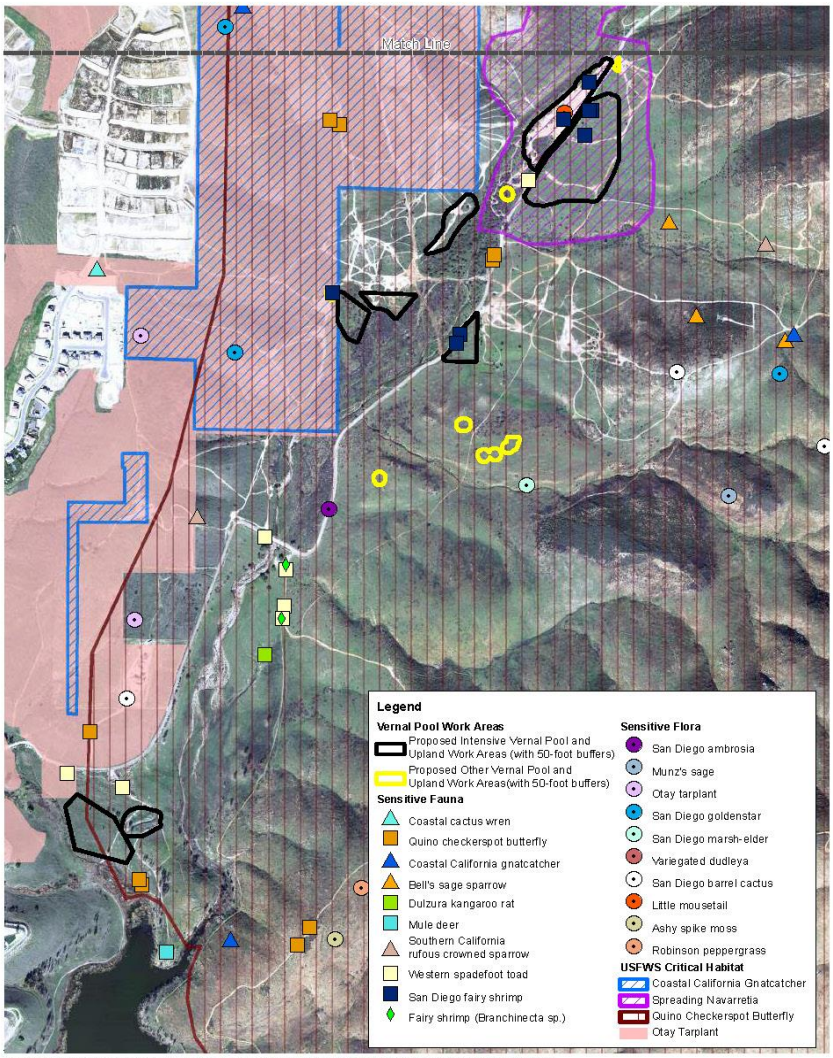

Figure 7a
Sensitive Species
Proctor Valley and Vicinity

Proctor Valley Vernal Pool Management Plan

Available on disc through David Hogan of The Chaparral Lands Conservancy - File name: CBFig7a_species_pts; GIS Editing - Civic Blue, 4475 Dwight St. San Diego, CA (619) 618-6382

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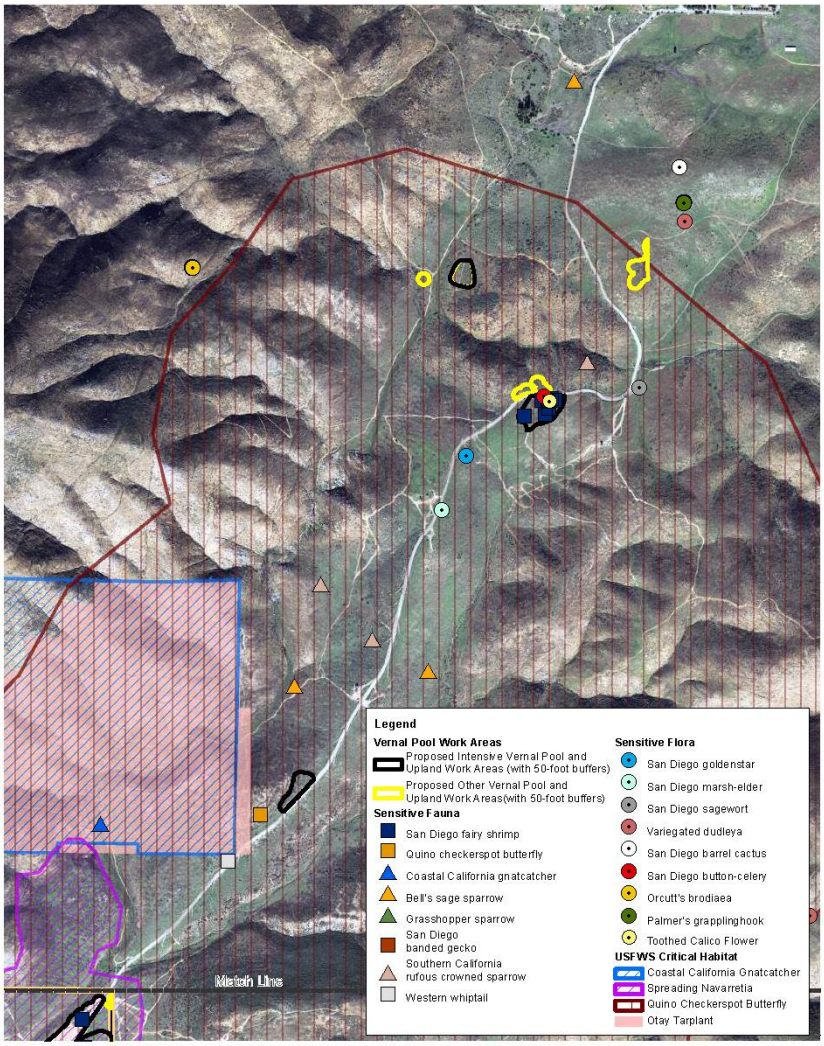

Source: DigitalGlobe 2008; DFG 2011; USFWS 2011; San Diego County 2011; SanGIS 2010; City of San Diego 2011

0.2 0 0.2 Miles

Scale: 1 = 14,475; 1 inch = 0.2 mile(s)

Figure 7b
Sensitive Species
Proctor Valley and Vicinity

Proctor Valley Vernal Pool Management Plan

Available on disc through David Hogan of The Chaparral Lands Conservancy - File name: CEFig7b_species_pts; GIS Editing - Civic Blue, 4475 Dwight St. San Diego, CA (619) 618-6382

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4.2.3.1 Federal Endangered Species Act

Permission for proposed upland restoration activities involving Otay tarplant is anticipated to be required from the USFWS under the Federal Endangered Species Act. Activities potentially subject to permitting under the Federal ESA include: Collection of seeds, greenhouse propagation, and/or seeding and container planting at new sites in Proctor Valley. Permission under the Federal ESA is anticipated to be provided through a USFWS internal formal Section 7 consultation and Biological Opinion triggered by a grant (for the pending ORV Site A Restoration Project) and technical support from the agency's Partners for Fish and Wildlife Program to support proposed restoration activities and by Clean Water Act permitting by the U.S. Army Corps of Engineers. The USFWS has prepared a Biological Opinion for the Proctor Valley ORV Site Vernal Pool Restoration Project and conservation conditions from that document have been fully integrated into this Restoration Plan.

For any given restoration site, the Conservancy will submit a final restoration plan to the USFWS for approval within 60 days of the applicant's receipt of the biological opinion, or at least 60 days prior to initiating project impacts, whichever comes first. The final plan will include the following information and conditions:

- Implementation of upland restoration will be conducted under the direction of a qualified biologist with at least three years of upland vegetation restoration experience, to be approved by the USFWS.
- Restoration activities will include addition of coastal sage scrub and native grassland plant species in upland work areas. All plant material used for restoration will be collected from areas identified in this Restoration Plan.

4.2.3.2 California Endangered Species Act

Permission for proposed project upland restoration activities involving Otay tarplant is anticipated to be required from the CDFG under the California Endangered Species Act (California ESA). Activities potentially subject to permitting under the California ESA include: Collection of seeds, greenhouse propagation, and/or seeding and container planting at new sites in Proctor Valley. Permission under the California ESA is anticipated to be provided through a Research and Management Permit under Section 1907(a) and Section 2081(a) of the Fish and Game Code.

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4.2.4 National Environmental Policy Act

Please see section 3.2.4 for a discussion of compliance with the National Environmental Policy Act.

4.3 IMPLEMENTATION OF UPLAND RESTORATION

4.3.1 Project Preparation and General Conditions

The following sections describe the activities that will take place to prepare each site before implementation of uplands restoration activities.

4.3.1.1 Seed and Propagule Collection

All seed and propagules from upland plants will be collected from the closest available Proctor Valley area at the appropriate time prior to restoration. Sensitive plant species listed in Table 11 will be prioritized for upland seeding efforts as appropriate. Seed from common shrub species like California buckwheat, California sagebrush and black sage will be collected along with native grasses (*Nasella* spp.) and bulbs. In addition, annual species like goldfields and dot seed plantain may be collected for open patches in the upland habitat areas.

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Collection will be performed by seed collectors with documented collection experience when seeds are ripe and prior to seed shedding. Seed and propagules will be collected manually or by using hand-held vacuums. All collected seed and propagules will be transported to a native plant nursery or seed bulking facility for bulking and/or propagation for use in each restoration work area.

Please see section 3.3.3 for discussion of other project preparation and general conditions also applicable to upland vegetation restoration.

4.3.2 Topographic Reconstruction

4.3.2.1 Grading Activities

Topographic grading activities for uplands restoration will be limited to minor localized smoothing and filling of degraded uplands to remove tire trenching and erosion gullies. Earthwork will be balanced so that export of soil from the site is not required, except for unsuitable waste materials such as asphalt, concrete, and other debris unearthed during grading.

The project biologist will be on-site to direct grading and contouring activities. The project biologist or land surveyor will check final grading and flow patterns using survey equipment (laser level or laser transit). Minor modifications may be required in the field to properly prepare the site for planting, as determined by the project biologist.

Grading will be carried out with a bulldozer small enough to access and maneuver within restoration sites and hand tools. Grading will only occur in delineated and marked uplands restoration work areas. Graded material will not be placed in areas of original topography with native vegetation. Final grading details will be carried out according to direction from the project biologist. Staging areas will be located outside of the MHPA.

Final pre-grading field visits will be conducted by the project biologist to delineate areas of cut and fill using pin flagging. No spray paint will be used. 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 to be manipulated with grading equipment or hand tools will be graded before the saturation of soils. All cut and fill will be balanced to avoid off-site export of usable soil.

4.3.2.2 Grading Conditions

Please see section 3.3.4.2 for a list of grading conditions also applicable to the Uplands Restoration Project.

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4.3.3 Greenhouse Seed Bulking and Plant Propagation

Seed collection must be limited to the extent that it will not adversely affect source plant populations. No more than 5% of the seed population will be collected from the existing source plant populations. Collected seed will be used to start a greenhouse population that can be used for both greenhouse seed production and for growing container plants for direct planting.

4.3.4 Container Planting and Seeding

Please see Table 13 for an upland planting and seeding palette. Tables 11 and 13 may be revised at the discretion of the project biologist based on the actual amount of collected seed.

Container plants will not be installed until the USFWS has approved of habitat restoration site grading. The project biologist will confirm upland 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, rootbound, stunted, pest-infested, diseased, or unacceptable for

Table 13.
Upland Planting and Seeding Palette

Species List	Proctor Valley Habitat Type	Container Size/Seed	Plantings Number & Density (Plants/ft^2)[31]
Acmispon glaber - deer weed	Coastal Sage Scrub	1 Gallon	.25
Adenostoma fasciculatum - chamise	Chaparral	1 Gallon	.25
Antirrhinum coulterianum - white snapdragon	Coastal Sage Scrub		
Artemisia californica - California sagebrush	Coastal Sage Scrub	Seed	--
Artemesia palmeri - San Diego sagewort	Coastal Sage Scrub	4 Inch	2
Baccharis pilularis - coyote brush	Coastal Sage Scrub	1 Gallon	.25
Brodiaea orcutii – Orcutt's brodiaea	Native Grasslands	4 Inch	2
Calochortus dunnii - Dunn's mariposa lily	Native Grasslands	4 Inch	2
Castilleja exerta - purple owl's clover	Native Grasslands	Seed	--
Chlorogalum parviflorum - soap plant	Native Grasslands	4 Inch	1
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	--
Deinandra conjugens - Otay tarplant	Native grasslands	4 Inch	2
Deinandra fasciculata - common tarplant	Coastal Sage Scrub	4 Inch	2
Dichelostemma capitatum - blue dicks	Coastal Sage Scrub	4 Inch	2
Dichondra occidentalis- western dichondra	Coastal Sage Scrub	4 Inch	4
Dodecatheon clevelandii - padre's shooting star	Native Grasslands	Seed	--
Dudleya variegata - variegated dudleya	Native grasslands	4 Inch	2
Ericameria palmeri ssp. *palmeri* - Palmer's goldernbush	Coastal Sage Scrub	1 Gallon	.25
Eriogonum fasciculatum ssp. fasciculatum - California buckwheat	Coastal Sage Scrub	1 Gallon	.25
Eriophyllum confertiflorum var. confertiflorum - golden yarrow	Coastal Sage Scrub	Seed	--
Ferocactus viridescens - San Diego barrel cactus	Coastal Sage Scrub	4 Inch	.25
Gnaphalium californicum - California everlasting	Coastal Sage Scrub	Seed	--
Heteromeles arbutifolia - toyon	Coastal Sage Scrub	1 Gallon	.25
Isomeris arborea - bladderpod	Coastal Sage Scrub	1 Gallon	.25
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	--

O-8-51 Cont.

31. Density is for target planting patches and not for the entire site, so planting densities are approximate. Exact planting densities will mirror the density of the surrounding original natural vegetation.

Species List	Proctor Valley Habitat Type	Container Size/Seed	Plantings Number & Density (Plants/ft^2)[31]
Lotus hamatus - grab lotus	Native Grasslands	Seed	--
Malosma laurina - laurel sumac	Coastal Sage Scrub	1 gallon	.25
Mimulus aurantiacus - monkey flower	Coastal Sage Scrub	1 Gallon	.25
Muilla clevelandii - San Diego goldenstar	Native Grasslands	Seed	--
Nasella pulchra - purple needlegrass	Native Grasslands	4 Inch	2
Navarretia hamata ssp. leptantha - hooked pincushion plant	Coastal Sage Scrub	Seed	--
Ophioglossum californicus - adder's tongue	Coastal Sage Scrub	Seed	4
Opuntia littoralis - prickly pear cactus	Coastal Sage Scrub	1 Gallon	
Opuntia prolifera - coastal cholla	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	.25
Rhus integrifolia - lemonade berry	Coastal Sage Scrub	1 Gallon	.25
Salvia clevelandii - Cleveland's sage	Coastal Sage Scrub	1 Gallon	.25
Salvia mellifera - black sage	Coastal Sage Scrub	1 Gallon	.25
Salvia munzii - Munz's sage	Coastal Sage Scrub	1 Gallon	.25
Selaginella cinerascens - ashy spike-moss	Chaparral	Seed	--
Sisyrinchium bellum - blue eyed grass	Native Grasslands	4 Inch	2
Zeltnera venustum - conchalagua	Coastal Sage Scrub	Seed	--

O-8-51 Cont.

other reasons. Container sizes larger than needed are not recommended, as they require much more disturbance of the site when planting and can be more difficult to install. The project biologist will also oversee plant layout before installation. Container plants will be installed in a manner that mimics natural plant distribution (e.g., random and/or aggregate distributions rather than uniform rows). At the first and second anniversary of plant installation, all dead plants will be replaced unless their function has been replaced by natural recruitment.

Seeds, and other types of propagules such as spores from ashy spikemoss, will be broadcast manually directly into the recipient sites. As with the seeding for the vernal pool species, seed will not be introduced on-site until the fall or early winter when rainfall is predicted.

4.3.5 ORV Track Obliteration

Certain old ORV tracks remain a nuisance visual draw for unauthorized vehicle access and will be fenced and obliterated with seeding and planting of upland vegetation and placement of

camouflaging "vertical mulch" (e.g. Figures 6f, 6h, and 6i). To limit the spread of weeds, ORV track obliteration will not include soil ripping.

4.4 UPLAND RESTORATION MAINTENANCE ACTIVITIES

4.4.1 Weed Control

Weed control in uplands will generally follow the same methods described in vernal pool restoration section 3.4.1. Please see Table 5 for a partial list of targeted weeds.

The methods and timing of mowing and line trimming will be similar to that described above for vernal pool habitat, but mowing and line trimming will be used more extensively in the upland habitats, where it will be more effective and the habitat is less sensitive to the treatment. Herbicide spraying, which will be prohibited in vernal pools, will be conducted in upland habitat. Hand weeding is difficult and expensive relative to the area that can be covered and can cause substantial damage. For uplands, hand weeding generally will not be used unless necessary for a specific species or location where herbicide and mechanical methods are not practicable.

4.4.2 Supplemental Watering

O-8-51 Cont.

Although supplemental watering is not proposed as a normal maintenance activity, there is a potential that restoration site upland plants will require watering if early rainfall does not provide enough moisture to keep container plants or germinated seed from dying.

The project biologist will be responsible for determining when and how much to water upland restoration plants. Watering will only be conducted by hand from a water truck or with backpack sprayers. This type of watering will only be conducted in strategic upland areas, usually at the sites of container planting.

4.4.3 Erosion Control

The project biologist will ensure erosion does not develop as a result of restoration activities. If erosion does develop, erosion control measures will be installed such as weed-free straw wattles, silt fencing, or other material to reduce erosion on-site and sediment flow off-site.

4.4.4 Maintenance Schedule

The general approach to the schedule for maintenance of upland restoration areas is shown in Table 14, which outlines the efforts for remedial planting and seeding, supplemental watering,

Table 14.
Upland Restoration Maintenance Schedule

Site Maintenance	Begin	End
Supplemental Watering (as needed)	January	May
Weed Control–Herbicide Application and Hand Weeding	November	June
Weed Control–Weed Mowing & Trimming	January	July
Remedial Planting and Seeding	October	November

and weed control. Some of the scheduled activities have a wide range of dates because the actual timing will be based on seasonal rainfall and resulting effects on site conditions.

In general, the schedule for the upland habitat maintenance will be similar to that for vernal pools. The difference will be the range of effort will start earlier for some activities and will last longer for other activities. There is greater weed diversity in the upland areas, requiring a greater diversity of treatments. Seeding, growing, and planting the wide variety of upland plant species will also take a wide range of methods and treatments. Supplemental watering, if needed, would be less frequent for the upland areas than for vernal pool habitat. Other maintenance activities like trash removal and access control will be conducted throughout the year, on an as-needed basis.

O-8-51
Cont.

4.5 UPLAND RESTORATION MONITORING

4.5.1 Quantitative Monitoring

Point-intercept transects (CNPS 1995) will be utilized in upland restoration areas at each intensive vernal pool restoration site and nearby reference sites to collect data on species richness, native cover, and nonnative cover, and to determine whether restoration goals have been achieved. Photo points will also be established. Four transect locations will be selected at each site. Four offsite reference transect locations will also be selected near each intensive restoration site in upland vegetation similar to that targeted for restoration at each site. Transects will be 25 meters in length and a 5-meter belt (2.5 meters on either side of the point-intercept transect) used to collect species richness data. All species observed in this 5-meter belt, not recorded as a point-intercept, will be recorded for inclusion in the species list, which gives species richness. Transects and photo points will be marked in the field using t-posts and/or rebar and GPS coordinates will be recorded. Transects and photo point locations will be marked on the detailed work map. Any transect markers will be removed upon completion of the project.

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 3 year project implementation period to determine whether goals of upland restoration have been achieved.

4.5.2 Qualitative Monitoring

Please see section 3.6.5 for a discussion of qualitative monitoring also applicable to uplands restoration.

4.5.3 Schedule of Upland Monitoring

Table 15 outlines the annual schedule for monitoring of upland restoration. Monitoring will extend for 3 years concurrent and following project implementation. Yearly monitoring results will indicate the need for any remedial measures (Table 16).

Table 15.
Upland Annual Monitoring Schedule

Task	Completed by
Qualitative Upland Vegetation Monitoring	Ongoing
Quantitative Upland Vegetation Transects	April-June

O-8-51
Cont.

4.5.4 Upland Restoration Goal Criteria and Remedial Meaures

Upland restoration goals are shown in Table 16. Goals would be achieved if these goals are met by Year 3.

4.5.5 Upland Goals Evaluation

Restored upland areas must be similar in species composition and ecosystem function to reference sites to achieve restoration goals by the end of the project and monitoring period. The 90 percent CI around the average of each upland parameter will be compared to the 90 percent CI around the averages of the reference site. If the intervals overlap, they are statistically equivalent and the upland restoration area would approximate the reference site and restoration goals would be achieved. The specific parameters for the uplands and remedial measures are provided in Table 16.

Table 16.
Upland Restoration Goal Criteria and Remedial Measures

Upland Parameter	Restoration Goal	Remedial Measure
Native Cover	90% CI around average native cover overlaps 90% CI of reference. 80% survival of initial container plantings.	Seeding or container planting of absent and/or underrepresented reference species, sensitive species, and/or other native species Supplemental watering
Native Species Richness	90% CI around average native species richness overlaps 90% CI of reference.	
Simpson's Diversity Index (SDI) (native species only)	90% CI around average SDI overlaps 90% CI of reference	
Nonnative Cover	0% cover for weed species categorized as High or Moderate in the Cal-IPC Invasive Plant Inventory[32] <10% regardless of nonnative cover in Reference Control Pools	Increase in weeding visits and/or alternative treatments

CI = confidence interval

O-8-51 Cont.

32. Biological Opinion condition

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Cont.

CHAPTER 5.0 – REPORTING

The project biologist will prepare monitoring reports that will include results from qualitative and quantitative monitoring, photographic documentation from established photopoints as well as other notable events, an assessment of the restoration site relative to restoration goals, a review of maintenance activities, and any problems and remedial measures necessary to achieve restoration goals (e.g., supplemental watering, seeding, or planting).

5.1 WEEKLY REPORTS

Weekly letter reports during active grading within and adjacent to vernal pools will be submitted to the Service and include photographs of restoration areas. The weekly reports will document that authorized impacts were not exceeded, work did not occur outside the areas approved by the Service, and general compliance with all conditions.

5.2 ANNUAL REPORTS

These reports will be prepared on an annual basis. A final annual report will be submitted to the Conservancy, resource agency property owner, wildlife agencies, and water agencies by July 30 following each work and monitoring season.

5.3 FINAL REPORT

For vernal pool restoration, the project biologist will submit a final report to the Conservancy, resource agency property owner, wildlife agencies, and water agencies within 60 days of project completion that includes: As-built restoration map with an overlay of habitat that was restored and any areas not restored; Photographs of habitat areas before, during, and after implementation; and any other relevant summary information documenting that authorized impacts were not exceeded and that general compliance with all conservation measures was achieved.

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CHAPTER 6.0 – REFERENCES

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APPENDIX A.
Flow Chart Schedule of Restoration and Monitoring Implementation

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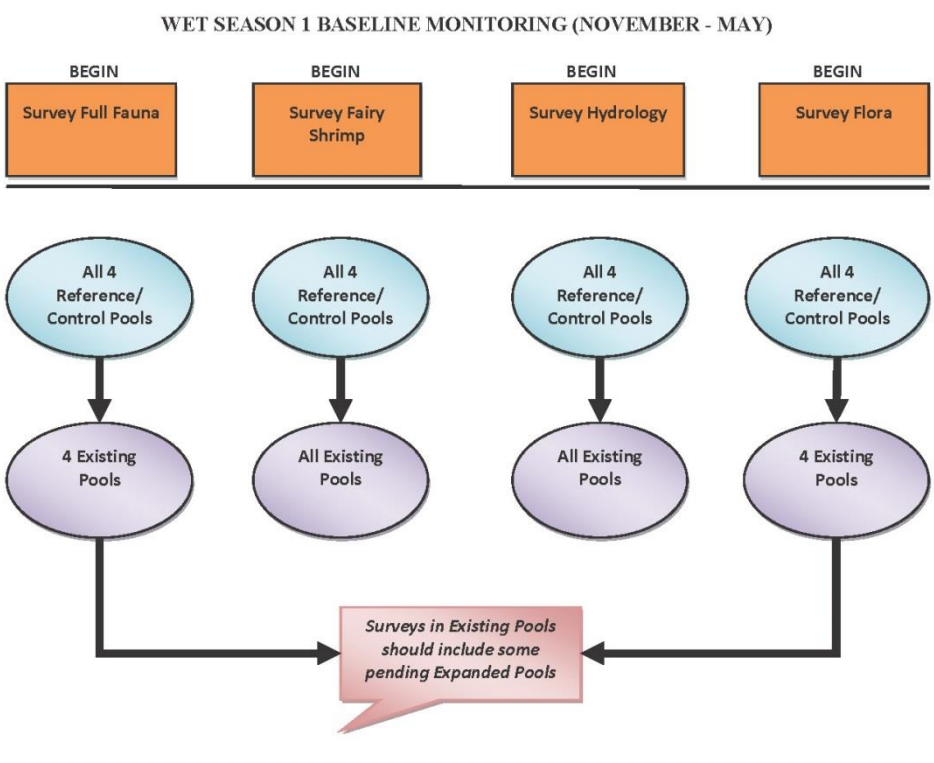
Cont.


WET SEASON 1 BASELINE MONITORING (NOVEMBER - MAY)
BEGIN
Survey Full Fauna
BEGIN
Survey Fairy Shrimp
BEGIN
Survey Hydrology
BEGIN
Survey Flora
All 4 Reference/ Control Pools
All 4 Reference/ Control Pools
All 4 Reference/ Control Pools
All 4 Reference/ Control Pools
4 Existing Pools
All Existing Pools
All Existing Pools
4 Existing Pools
Surveys in Existing Pools should include some pending Expanded Pools

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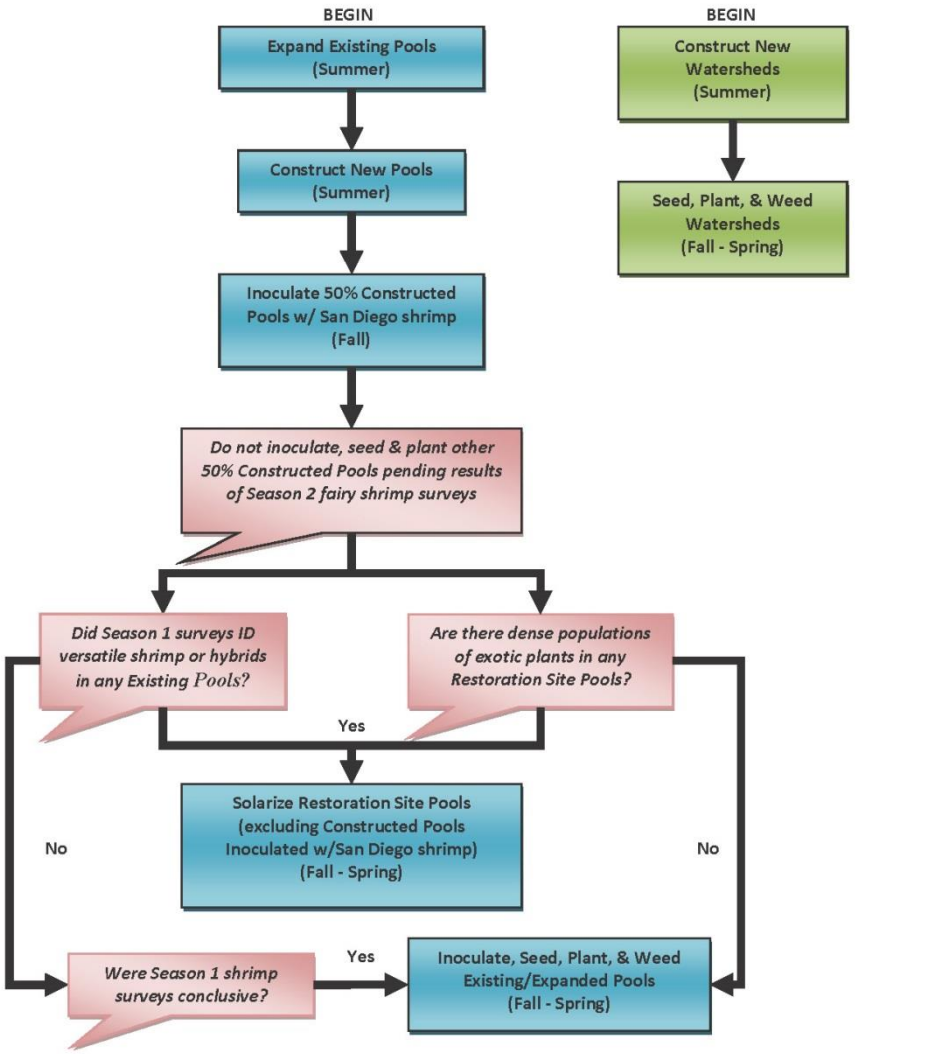
YEAR 1 RESTORATION IMPLEMENTATION ACTIVITIES (JULY - JUNE)



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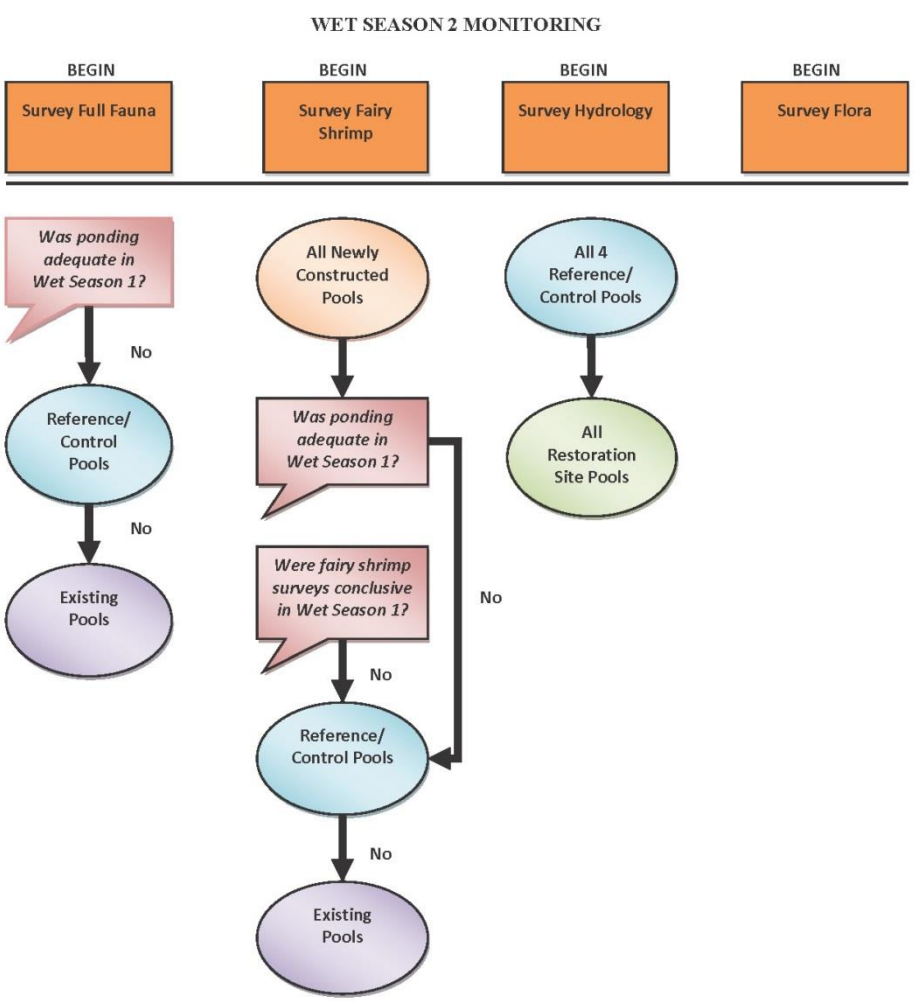
APPENDIX A Proctor Valley Vernal Pool Restoration Plan A3



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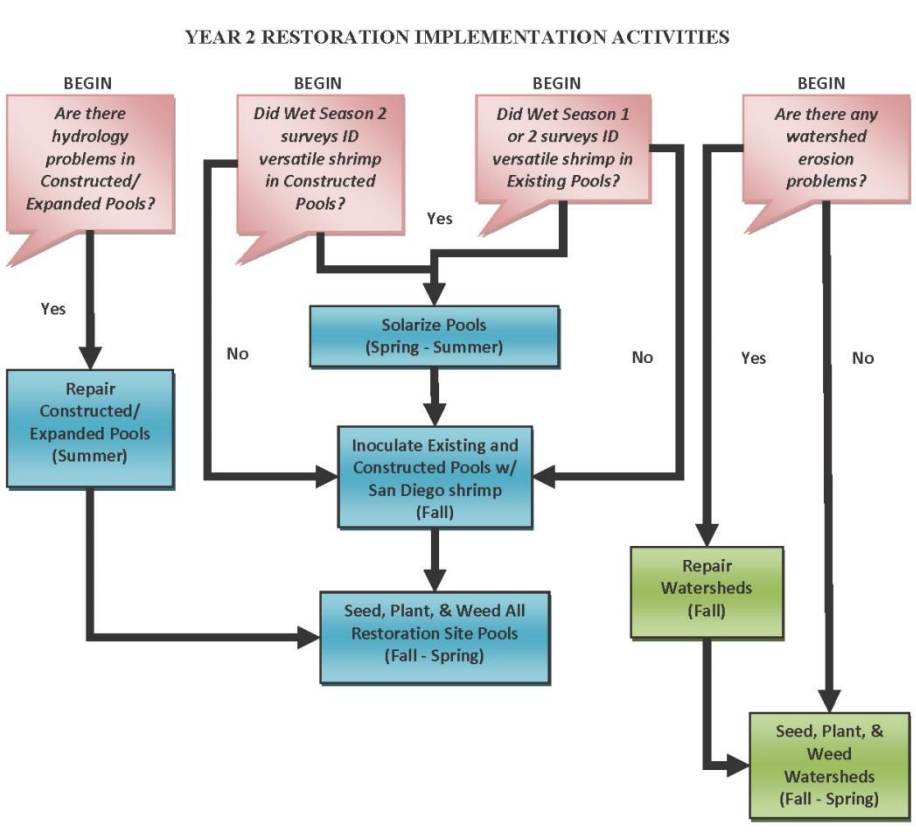
APPENDIX A Proctor Valley Vernal Pool Restoration Plan A4


YEAR 2 RESTORATION IMPLEMENTATION ACTIVITIES
BEGIN
Are there hydrology problems in Constructed/ Expanded Pools?
BEGIN
Did Wet Season 2 surveys ID versatile shrimp in Constructed Pools?
BEGIN
Did Wet Season 1 or 2 surveys ID versatile shrimp in Existing Pools?
BEGIN
Are there any watershed erosion problems?
Yes
Yes
No
Solarize Pools (Spring - Summer)
No
Yes
No
Repair Constructed/ Expanded Pools (Summer)
Inoculate Existing and Constructed Pools w/ San Diego shrimp (Fall)
Repair Watersheds (Fall)
Seed, Plant, & Weed All Restoration Site Pools (Fall - Spring)
Seed, Plant, & Weed Watersheds (Fall - Spring)

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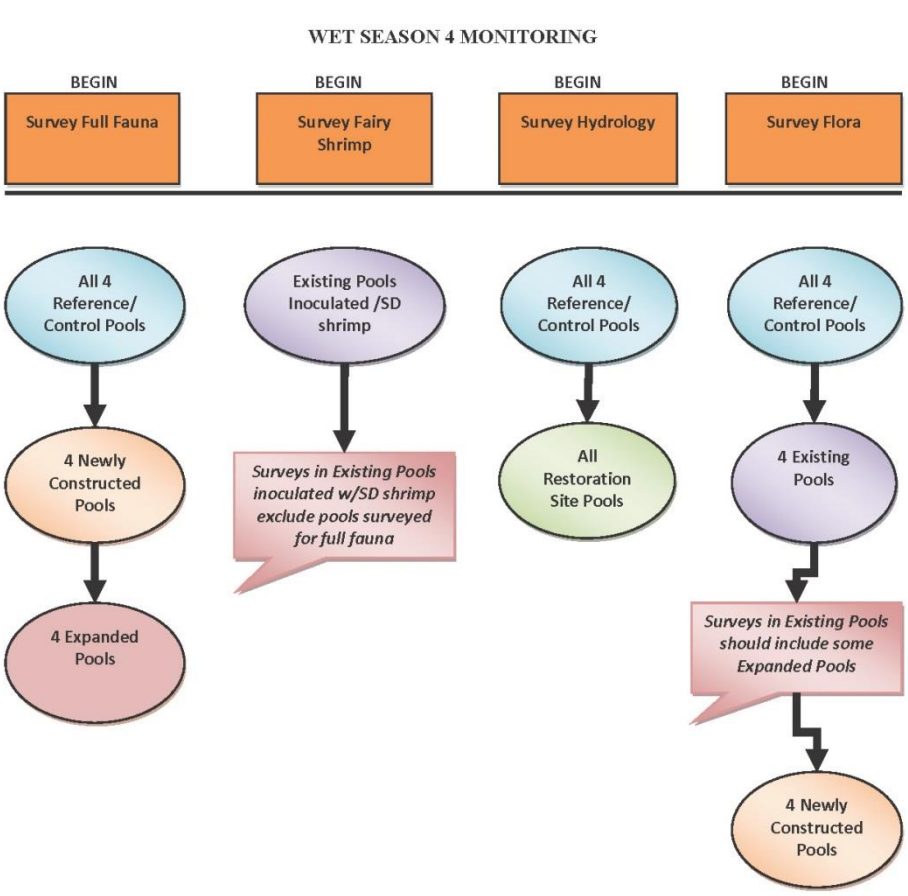
APPENDIX A Proctor Valley Vernal Pool Restoration Plan A6

YEAR 3 RESTORATION IMPLEMENTATION ACTIVITIES

O-8-51 Cont.



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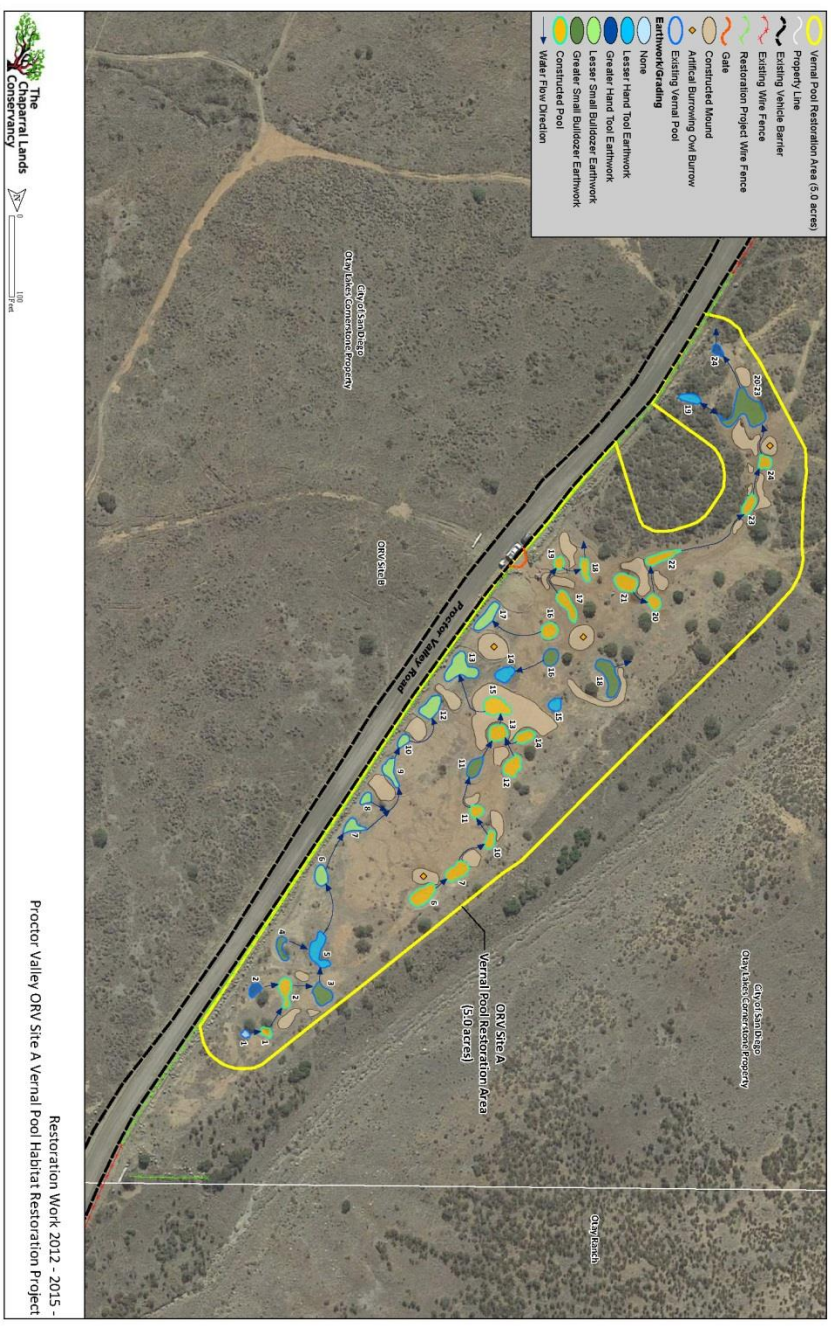
APPENDIX A Proctor Valley Vernal Pool Restoration Plan A8

ATTACHMENT 2

O-8-52


Vernal Pool Restoration Area (5.0 acres)
Property Line
Existing Vehicle Barrier
Existing Wire Fence
Restoration Project Wire Fence
Gate
Constructed Mound
Artificial Burrowing Owl Burrow
Existing Vernal Pool
Earthwork/Grading
None
Lesser Hand Tool Earthwork
Greater Hand Tool Earthwork
Lesser Small Bulldozer Earthwork
Greater Small Bulldozer Earthwork
Constructed Pool
Water Flow Direction
Proctor Valley Road
ORV Site B
City of San Diego
Otay Lakes Cornerstone Property
ORV Site A
Vernal Pool Restoration Area
(5.0 acres)
City of San Diego
Otay Ranch Conservation Property
Otay Ranch
The Chaparral Lands Conservancy
Restoration Work 2012 - 2015 -
Proctor Valley ORV Site A Vernal Pool Habitat Restoration Project

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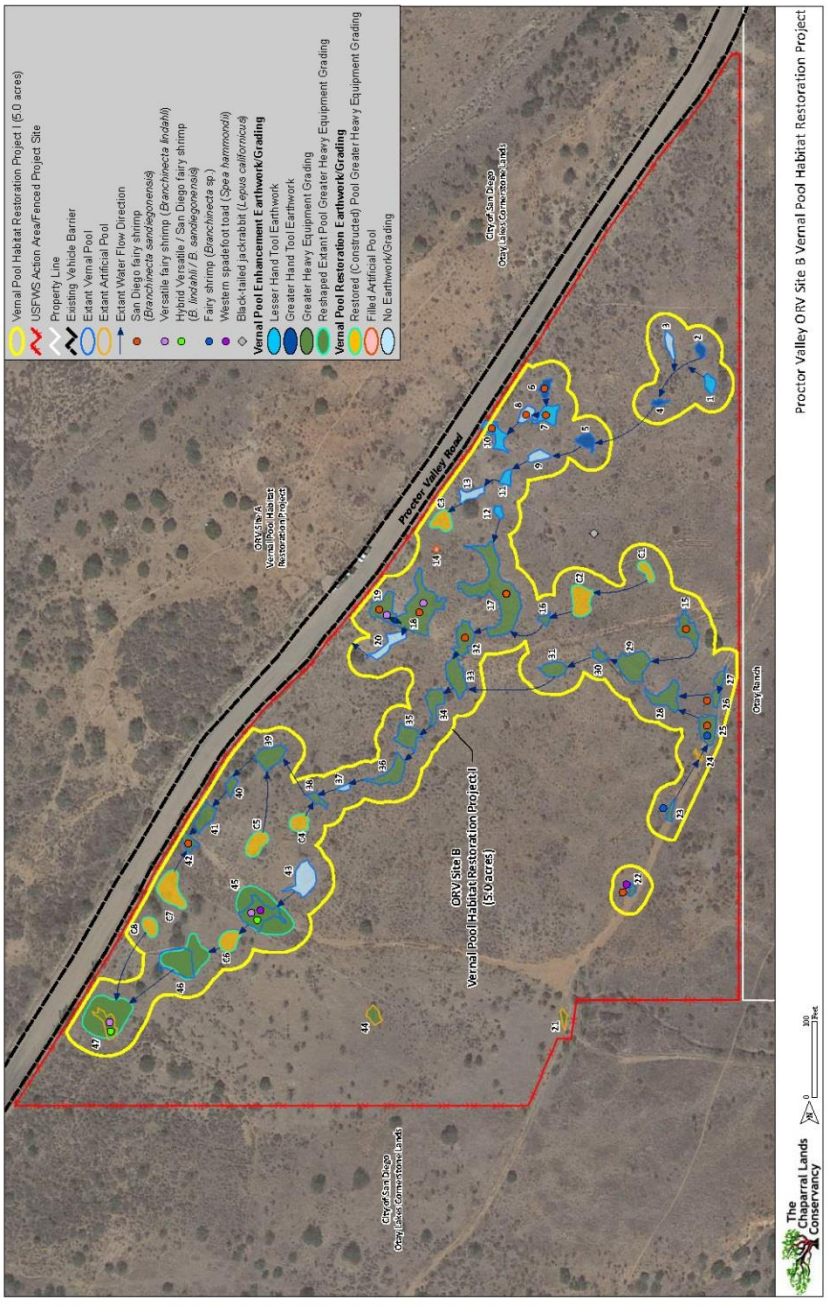
Cont.

ATTACHMENT 3

O-8-53


Vernal Pool Habitat Restoration Project I (5.0 acres)
USFWS Action Area/Fenced Project Site
Property Line
Existing Vehicle Barrier
Extant Vernal Pool
Extant Artificial Pool
Extant Water Flow Direction
San Diego fairy shrimp (Branchinecta sandiegonensis)
Versatile fairy shrimp (Branchinecta lindahli)
Hybrid Versatile / San Diego fairy shrimp (B. lindahli / B. sandiegonensis)
Fairy shrimp (Branchinecta sp.)
Western spadefoot toad (Spea hammondii)
Black-tailed jackrabbit (Lepus californicus)
Vernal Pool Enhancement Earthwork/Grading
Lesser Hand Tool Earthwork
Greater Hand Tool Earthwork
Greater Heavy Equipment Grading
Reshaped Extant Pool Greater Heavy Equipment Grading
Vernal Pool Restoration Earthwork/Grading
Restored (Constructed) Pool Greater Heavy Equipment Grading
Filled Artificial Pool
No Earthwork/Grading
Proctor Valley Road
ORV Site A Vernal Pool Habitat Restoration Project
ORV Site B Vernal Pool Habitat Restoration Project I (5.0 acres)
City of San Diego Otay Lakes Connemara Lands
Otay Ranch
The Chaparral Lands Conservancy
Proctor Valley ORV Site B Vernal Pool Habitat Restoration Project

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ATTACHMENT 4

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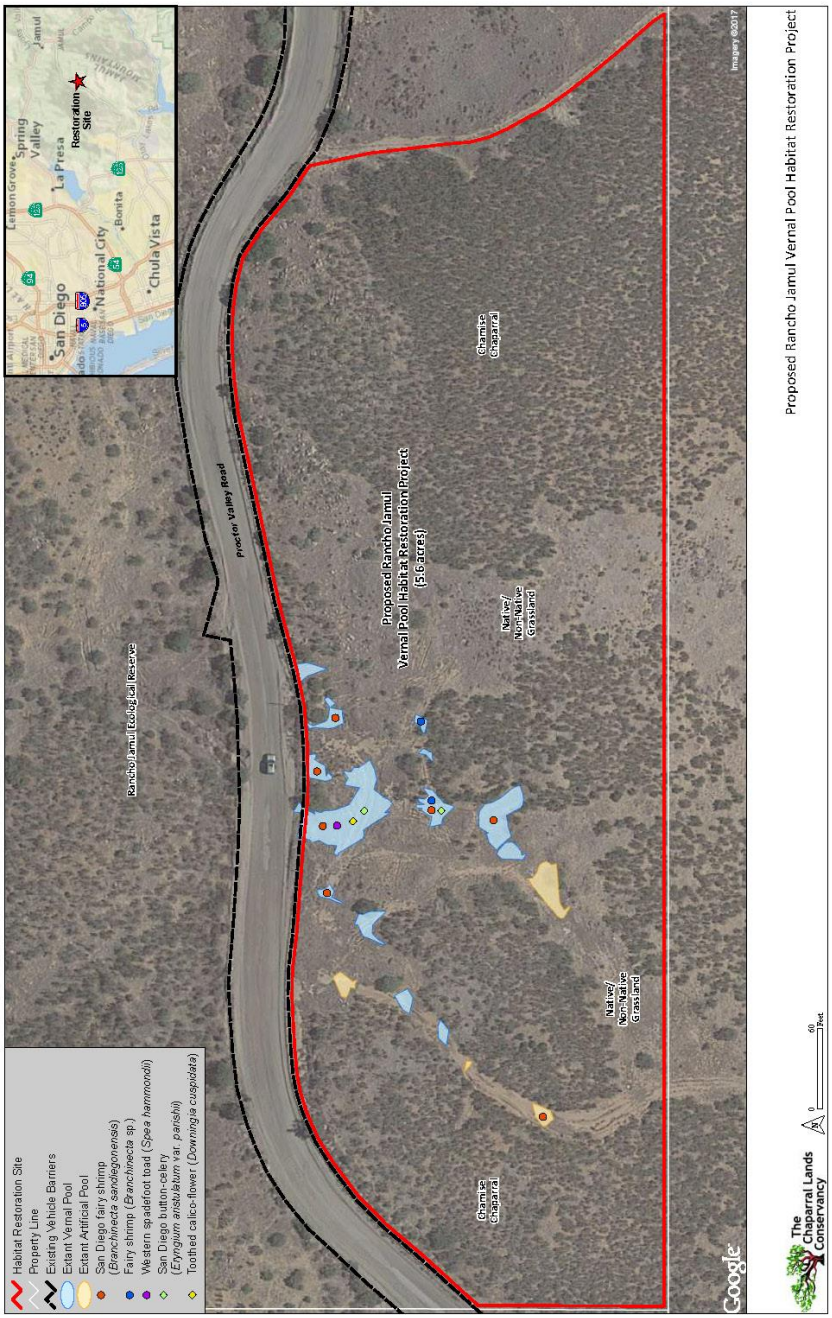
Habitat Restoration Site
Property Line
Existing Vehicle Barriers
Extant Vernal Pool
Extant Artificial Pool
San Diego fairy shrimp (Branchinecta sandiegonensis)
Fairy shrimp (Branchinecta sp.)
Western spadefoot toad (Spea hammondii)
San Diego button-celery (Eryngium aristulatum var. parishii)
Toothed calico-flower (Downingia cuspidata)
Rancho Jamul Ecological Reserve
Proctor Valley Road
Proposed Rancho Jamul Vernal Pool Habitat Restoration Project (5.6 acres)
Native/ Non-Native Grassland
Chamise Chaparral
Native/ Non-Native Grassland
Chamise Chaparral
Restoration Site
Spring Valley
La Presa
Lemon Grove
Jamul
Bonita
National City
Chula Vista
San Diego
Google
Imagery ©2017
The Chaparral Lands Conservancy
Proposed Rancho Jamul Vernal Pool Habitat Restoration Project

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ATTACHMENT 5

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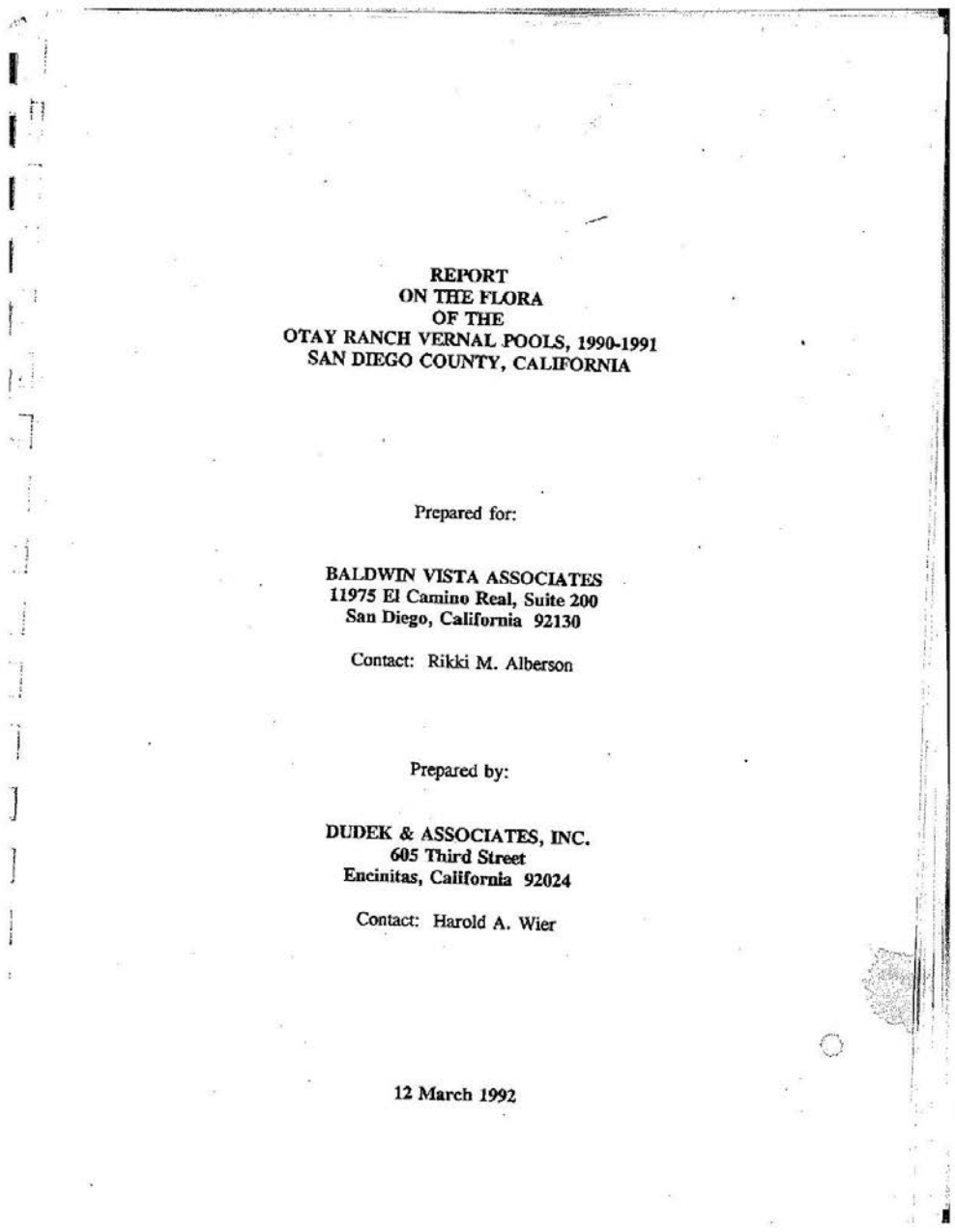

REPORT
ON THE FLORA
OF THE
OTAY RANCH VERNAL POOLS, 1990-1991
SAN DIEGO COUNTY, CALIFORNIA

Prepared for:

BALDWIN VISTA ASSOCIATES
11975 El Camino Real, Suite 200
San Diego, California 92130

Contact: Rikki M. Alberson

Prepared by:

DUDEK & ASSOCIATES, INC.
605 Third Street
Encinitas, California 92024

Contact: Harold A. Wier

12 March 1992

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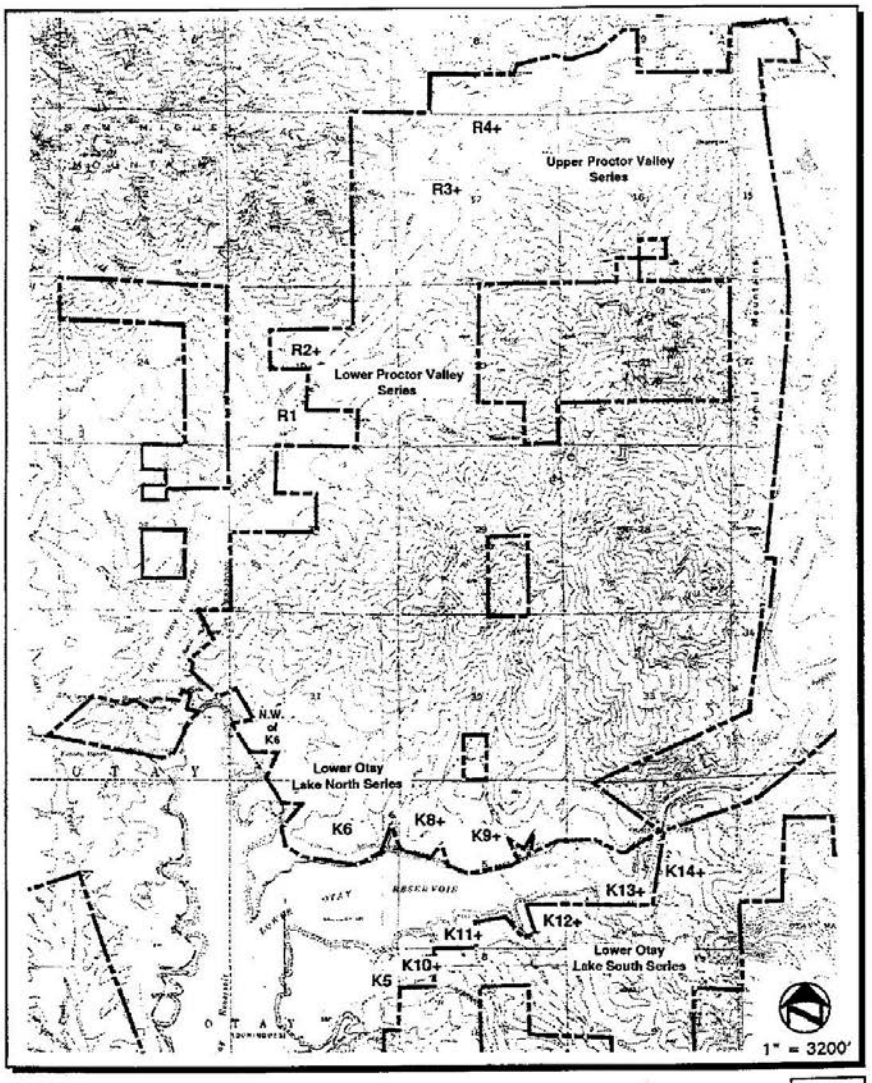

FIGURE 1

Otay Ranch Vernal Pools
Proctor Valley & San Ysidro Mts. Parcels Vernal Pool Groups

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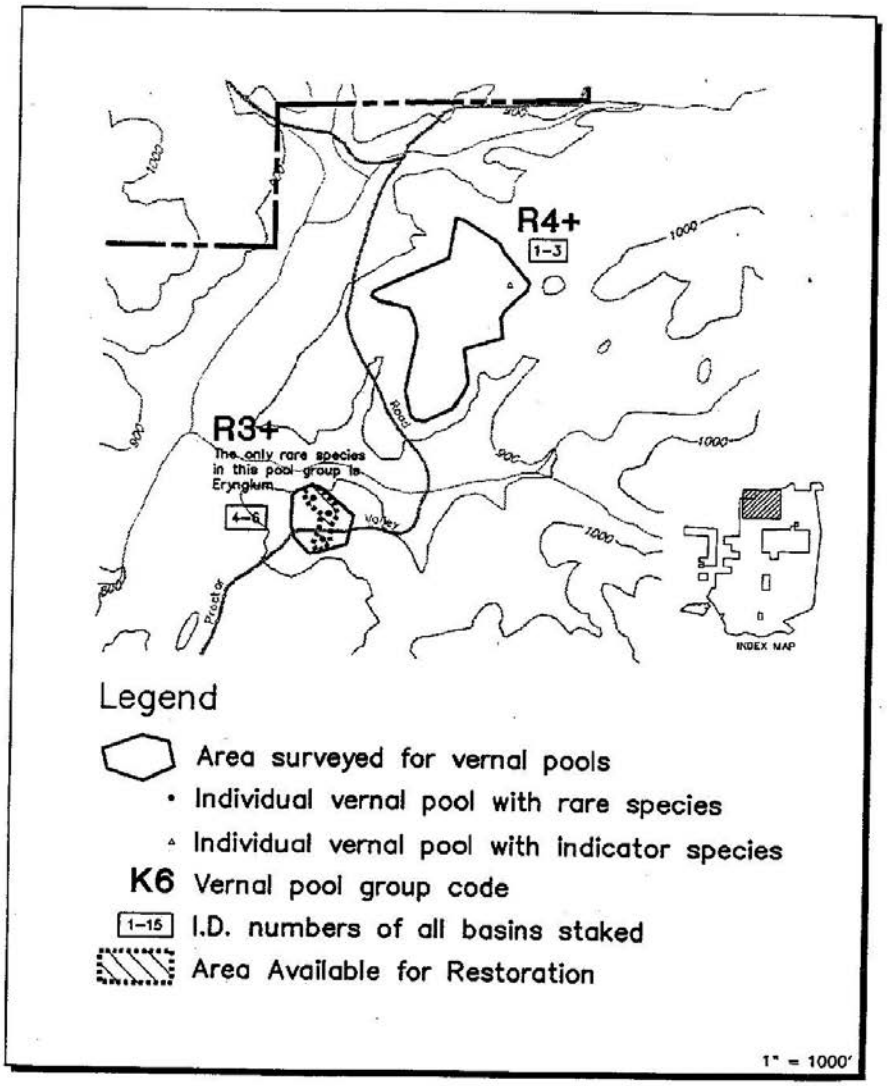
Cont.



Otay Ranch Vernal Pools
Vernal Pool Group R3+ Available Restoration Area

FIGURE 20

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Cont.

Table 3 (Continued)

	OTAY MESA					OTAY VALLEY				LOWER OTAY LAKE SOUTH				
	J-29 &J30	J31 S+	J31 N+	J23 & J24	J25	J32+	K1	K15 & K16	K17+	K5	K10+	K12+	K13	K14+
Plagiobothrys cf. acanthocarpus	4.1	*	*	6.6	9.3	33.3		60.0		*		50.0		
Plantago bigelovii							14.3							
Poa annua							14.3			14.3				
Polypogon monospeliensis						66.6		*						
Rumex crispus						33.3	14.3	*						
Sairynchium bellum	16.5	50.0		13.7	56.3									
Sporobolus airoides				0.2										
Tamarix sp.				0.7										
Veronica peregrina							28.6							

* Indicates species located in basins not identified as vernal pool.

	LOWER OTAY LAKE NORTH				LOWER PROCTOR VALLEY		UPPER PROCTOR VALLEY		POGGI CANYON	
	Mesa NW of K6 (Kaiser)	K6	K8+	K9+	R1	R2+	R3+	R4+	M2	M5+
Vernal Pool Species										
Callitriche longipedunculata		33.3	18.2		14.3	44.4		100.0		100.0
Crassula aquatica						11.1				
Deschampsia danthonioides		33.3	72.7		14.3	88.8	33.3			
Eryngium aristulatum ssp. parishii							100.0			
Isoetes orcuttii										
Lilaea scilloides										
Lythrum hyssopifolia		66.6	9.1				66.6		40.0	
Myosurus minimus var. apus		33.3								
Phalaris lemmonii			72.7							
Pilularia americana										
Pogogyne radiscula										
Psilocarphus brevissimus		66.6	90.9		85.7	55.5	66.6		100.0	100.0
Psilocarphus tenellus				100.0						

O-8-55
Cont.

Table 3 (Continued)

	LOWER OTAY LAKE NORTH				LOWER PROCTOR VALLEY		UPPER PROCTOR VALLEY		POGGI CANYON	
	Mesa NW of K6 (Reiser)	K6	K8+	K9+	R1	R2+	R3+	R4+	M2	M5+
Other Wetland Species										
Anagallis arvensis										
Atriplex semibaccata										
Baccharis sarothroides					*				*	
Cotula coronopifolia										
Cressa truxillensis										
Eleocharis macrostachya		33.3					66.6			
Isocoma veneta										
Juncus bufonius var. *halophilus*			9.1	100.0						
Lepidium latipes										
Malvella leprosa										
Monerma cylindrica			27.3							
Ophioglossum californicum	*				*	*				
Plagiobothrys cf. *acanthocarpus*		33.3	45.5	100.0					80.0	*
Plantago bigelovii							33.3			
Poa annua										
Polypogon monospeliensis										
Rumex crispus									20.0	
Stirynchium bellum	*	33.3	27.3				33.3			
Sporobolus airoides										
Tamarix sp.										
Veronica peregrina										

* Indicates species located in basins not identified as vernal pool.

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Cont.

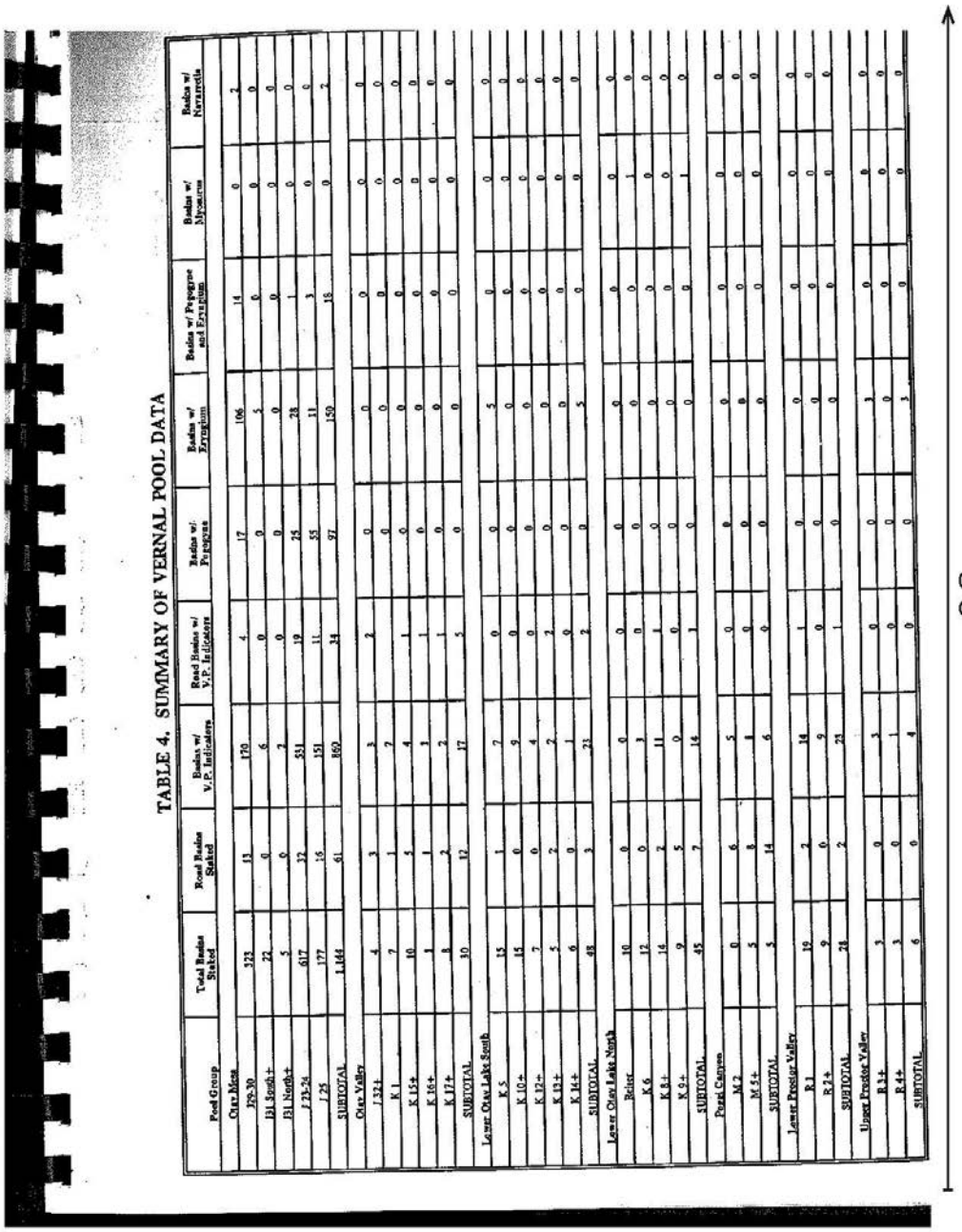

TABLE 4. SUMMARY OF VERNAL POOL DATA

Pool Group	Total Basins Staked	Road Basins Staked	Basins w/ V.P. Indicators	Road Basins w/ V.P. Indicators	Basins w/ Pyrogenic	Basins w/ Eryngium	Basins w/ Pyrogenic and Eryngium	Basins w/ Mycaurus	Basins w/ Navarretia
Otay Mesa									
J29-30	323	13	170	4	17	106	14	0	2
J31 South+	22	0	6	0	0	5	0	0	0
J31 North+	5	0	2	0	0	0	0	0	0
J 23-24	617	32	331	19	25	28	1	0	0
J 25	177	16	151	11	55	11	3	0	0
SUBTOTAL	1,144	61	860	34	97	150	18	0	2
Otay Valley									
J 32+	4	3	3	2	0	0	0	0	0
K 1	7	1	2	0	0	0	0	0	0
K 15+	10	5	4	1	0	0	0	0	0
K 16+	1	1	1	1	0	0	0	0	0
K 17+	8	2	2	1	0	0	0	0	0
SUBTOTAL	30	12	17	5	0	0	0	0	0
Lower Otay Lake South									
K 5	15	1	2	0	0	5	0	0	0
K 10+	15	0	9	0	0	0	0	0	0
K 12+	7	0	4	0	0	0	0	0	0
K 13+	5	2	2	2	0	0	0	0	0
K 14+	6	0	1	0	0	0	0	0	0
SUBTOTAL	48	3	21	2	0	5	0	0	0
Lower Otay Lake North									
Relict	10	0	0	0	0	0	0	0	0
K 6	12	0	3	0	0	0	0	1	0
K 8+	14	2	11	1	0	0	0	0	0
K 9+	9	5	0	0	0	0	0	1	0
SUBTOTAL	45	7	14	1	0	0	0	1	0
Pond Canyon									
M 2	0	6	5	0	0	0	0	0	0
M 5+	5	8	1	0	0	0	0	0	0
SUBTOTAL	5	14	6	0	0	0	0	0	0
Lower Proctor Valley									
R 1	19	2	14	1	0	0	0	0	0
R 2+	9	0	9	0	0	0	0	0	0
SUBTOTAL	28	2	23	1	0	0	0	0	0
Upper Proctor Valley									
R 3+	3	0	3	0	0	3	0	0	0
R 4+	3	0	1	0	0	0	0	0	0
SUBTOTAL	6	0	4	0	0	3	0	0	0

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Cont.

ATTACHMENT 6

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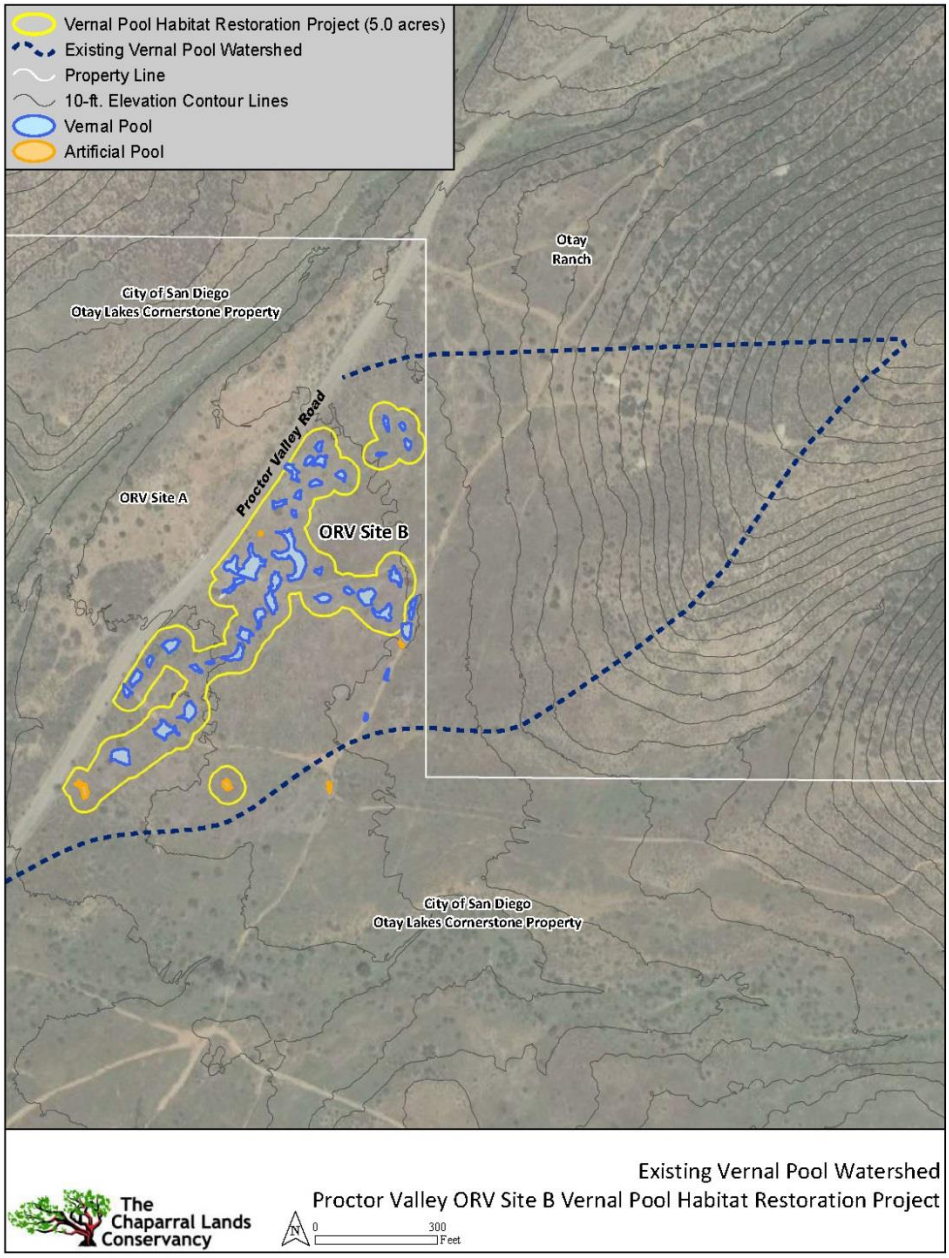
Vernal Pool Habitat Restoration Project (5.0 acres)
Existing Vernal Pool Watershed
Property Line
10-ft. Elevation Contour Lines
Vernal Pool
Artificial Pool
Otay Ranch
City of San Diego
Otay Lakes Cornerstone Property
Proctor Valley Road
ORV Site A
ORV Site B
City of San Diego
Otay Lakes Cornerstone Property
The Chaparral Lands Conservancy
0
300
Feet
Existing Vernal Pool Watershed
Proctor Valley ORV Site B Vernal Pool Habitat Restoration Project

0-8-56
Cont.

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