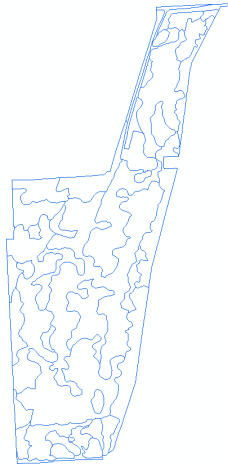


# Heber Dunes SVRA

## Vegetation Mapping Report 2022

California State Parks



### Credits:

[Melissa Patten, Natural Resources Division](#)  
fieldwork, data analysis, report  
[Leah Gardner, Natural Resources Division](#)  
fieldwork, data analysis  
[Casey Paredes, Ocotillo Wells District](#)  
fieldwork

## Table of Contents

Link to GIS data files.....	2
Introduction.....	2
Goals and Purpose .....	2
Summary of Vegetation Mapping Effort.....	3
Description of Heber Dunes SVRA.....	3
Methods .....	3
Existing data.....	3
Fieldwork .....	3
Data interpretation and linework.....	3
Vegetation Types and Descriptions .....	4
References .....	5
Link to GIS data files .....	5
Appendices .....	6
Appendix A: Map Figures.....	6
Appendix B: Field datasheets .....	7
Appendix C: Plant species list .....	9
Appendix D: Reconnaissance protocol and field form .....	11

Link to GIS data files

[Finescale Vegetation Mapping at the SVRAs \(arcgis.com\)](#)

## Introduction

### Goals and Purpose

This finescale vegetation map for Heber Dunes SVRA was developed by California State Park staff in 2022. Its development was prompted by the passage of Senate Bill 249, in which California Department of Parks and Recreation’s Off-Highway Motor Vehicle Recreation Division (OHMVRD) was charged with meeting new legislative mandates to ensure resources compliance within all State Vehicular Recreation Areas (SVRAs). These mandates require (among other things) that OHMVRD compile an inventory of native plant communities within each SVRA [PRC 5090.35 (c)(1)]. To meet this requirement, OHMVRD has consulted the California Department of Fish and Wildlife’s Vegetation Classification and Mapping Program (VegCAMP) to source finescale vegetation maps that cover the SVRA footprint, or, if not available, used the VegCAMP methods to develop a new finescale vegetation map.

The finescale vegetation map and associated data is intended to provide an inventory of native plant communities, inform the park’s natural resource management planning including the Wildlife Habitat Protection Plan (WHPP), and establish a baseline for measuring future vegetation change.

## Summary of Vegetation Mapping Effort

July 2021	Review existing maps and vegetation surveys and develop a draft map
March 28, 2022	Conduct field surveys to sample vegetation and groundtruth draft map
July 2022	Finalize vegetation types and finalize map

## Description of Heber Dunes SVRA

Heber Dunes SVRA is a small, 364-acre park in unincorporated Imperial County, seven miles northeast of Calexico, and is surrounded by agricultural fields, irrigation canals, and an undeveloped parcel owned by California Department of Transportation (CalTrans). It consists of open sand dunes, planted athel tamarisk (*Tamarix aphylla*) trees, and native and exotic desert scrub vegetation. The entire park is designated as open riding for off-highway vehicles.

## Methods

### Existing data

Currently there is no existing finescale vegetation map from VegCAMP that covers the footprint of the park. A vegetation map consisting of 6 community types was created for the park’s General Plan in 1998. However, when reviewing it against current aerial imagery, this map appears outdated and the minimum mapping unit is much larger than VegCAMP standards. Since the park is so small, state park staff developed an updated draft map without conducting a field visit by using the park’s past vegetation transect surveys and photo points, and by interpreting aerial imagery (NAIP 2020), with the intention of groundtruthing in Spring 2022.

### Fieldwork

A field visit was conducted on March 28, 2022 in order to sample vegetation, confirm vegetation types, and groundtruth the draft map. Four reconnaissance samples were taken (see Appendix D) and every polygon was visited to confirm vegetation type.

### Data interpretation and linework

Since no vegetation classification exists for the area, the classification for the Mojave Desert was used in order to assign vegetation alliances (Menke et al 2013), as well as the descriptions in the Manual of California Vegetation online (California Native Plant Society). NAIP 2020 imagery was used to delineate polygons and interpret vegetation cover when field data for cover was not available. Google Earth historic imagery was used as a supplement to view seasonal color changes that distinguish some species.

Linework followed the mapping standards found in the “Survey of California Vegetation Classification and Mapping Standards”(CDFW b) as much as possible. The minimum mapping unit

was 1 acre. Shrub and tree polygons were split if there was a change in cover class using the Braun-Blanquet categories (1=<1%, 2=1-5%, 3=>5-15%, 4=>15-25%, 5=>25-50%, 6=>50-75%, 7=>75%). The minimum mapping unit required for cover class breaks was 3 acres for overstory cover and 5 acres for understory cover.

## Vegetation Types and Descriptions

### ***Pluchea sericea* (Arrow weed thickets) Shrubland Alliance**

This alliance is strongly dominated by arrow weed (*Pluchea sericea*), with low cover of other shrubs including quailbush (*Atriplex lentiformis*) and willow baccharis (*Baccharis salicina*). This alliance covers 31 acres of Heber Dunes SVRA, primarily along the park edges near the perimeter roads. Arrow weed stands form dense thickets in the park, especially along the eastern and western sides of the park. Some parts of the stands on the east side of the park have significant dead material, likely related to drought stress.

### ***Larrea tridentata* (Creosote bush scrub) Shrubland Alliance**

This alliance is dominated by creosote bush (*Larrea tridentata*), and covers 52 acres of Heber Dunes SVRA, mostly along the western and southern boundaries of the unit. Stands are open to intermittent, with evenly spaced shrubs and a sparse to absent herbaceous layer.

### ***Atriplex lentiformis* (Quailbush scrub) Shrubland Alliance**

This alliance is dominated by quailbush (*Atriplex lentiformis*), mixed with a lower cover of arrow weed (*Pluchea sericea*). Stands cover 5 acres of Heber Dunes SVRA, at the southern end of the park. Canopy cover is dense to intermittent.

### ***Suaeda moquinii* (Bush seepweed scrub) Shrubland Alliance**

This alliance is dominated by bush seepweed (*Suaeda moquinii* alt. *S. nigra*). There is one stand of this alliance at the SVRA, covering 4 acres, with sparse cover. At the time of sampling, shrubs were mature to decadent, with significant amounts of dead material, likely related to drought stress.

### ***Tamarix* spp. (Tamarisk thickets) Semi-Natural Alliance**

At Heber Dunes SVRA, two species of non-native tamarisk are present: athel tamarisk (*Tamarix aphylla*) and saltcedar (*Tamarix ramosissima*). The NVCS classifies all tamarisk species under one alliance and association. However, because of the distinct difference in height of the two species at Heber Dunes SVRA, stands of each species were mapped separately. Total cover for both species is 168 acres.

#### **Athel Tamarisk**

Athel tamarisk (*Tamarix aphylla*) stands are widely distributed in the SVRA, covering 143 acres. Athel tamarisk trees are tall (5-10 meters) and occur in dense clusters with close to 100% cover. Due to the size of athel tamarisk present at the SVRA, it is presumed to be historical, likely planted as a wind barrier. This non-native species is of minor management concern as it does not spread rapidly at the SVRA.

#### **Saltcedar**

Saltcedar (*Tamarix ramosissima*) stands cover 25 acres of the SVRA. This species is more shrub-like than athel tamarisk, at 2-4 meters in height. Stands are dense to intermittent.

This species is of greater management concern as it tends to be invasive throughout the southwest. However, historic imagery available on Google Earth (see imagery taken in December-February for distinctive rusty foliage color) shows that stands at the SVRA have not significantly expanded in the past 20 years.

### **Non-Vegetated mapping units**

#### **Bare Sand**

Bare sand covers 64 acres of the SVRA, primarily towards the center of both the northern and southern parts of the park. Bare sand areas consist of open dunes with less than 1% vegetation cover.

#### **Developed**

Developed areas consist of park facilities, including paved roads, and covers 10 acres of the SVRA. There are two primary developed areas identified in the SVRA, with a smaller area towards the northern part of the unit and a larger developed area in the park center.

## **References**

Link to GIS data files

Finescale Vegetation Mapping at the SVRAs ([arcgis.com](https://arcgis.com))

California Native Plant Society. A Manual of California Vegetation Online. Available at <https://vegetation.cnps.org/>. Accessed July 2021 – July 2022.

CDFW a. “Combined Vegetation Rapid Assessment and Relevé Field Form”. Available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18598&inline>

CDFW b. “Survey of California Vegetation Classification and Mapping Standards” Available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=102342&inline>

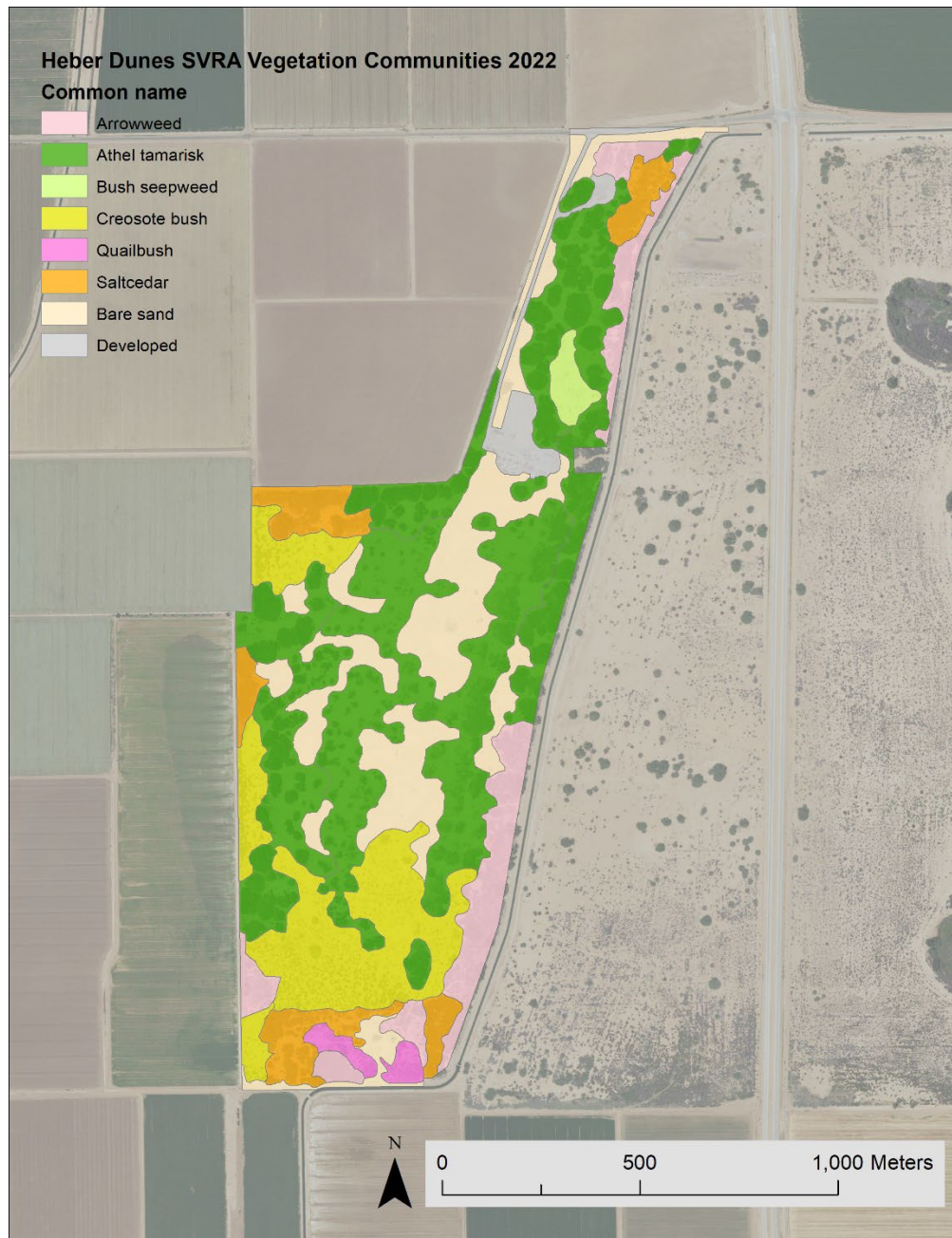
CDFW-CNPS. “CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form” Available at: <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18599&inline>

Menke, J., E. Reyes, A. Glass, D. Johnson, and J. Reyes. 2013. 2013 California Vegetation Map in Support of the Desert Renewable Energy Conservation Plan. Final Report. Prepared for the California Department of Fish and Wildlife Renewable Energy Program and the California Energy Commission. Aerial Information Systems, Inc., Redlands, CA. Available at <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=62826&inline>



# Appendices

## Appendix A: Map Figures



## Appendix B: Field datasheets

### RECON FIELD FORM (March 6, 2019, with slope/aspect)

Recorder: MP	Other Surveyors: Casey, Leah	Date: 3-28-22 Return? <input type="checkbox"/>																																																																																
Waypoint ID: HD 01	GPS Name: MP Phone Projected? <input checked="" type="radio"/> No / Yes / Base / Digitized If Yes, enter: Bearing (°): _____ Distance (m): _____ Inclination (°): _____ If Yes or Digitized, enter: Base Waypoint ID: _____																																																																																	
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Location Name:	Stand Size: <1 1-5 >5 Camera: MP Phone Photos: (TN) View Radius _____																																																																																	
Exposure, Actual °: _____ NE NW SE SW Flat <input checked="" type="radio"/> Variable   Steepness, Actual °: <input checked="" type="radio"/> 0° 1-5° >5-25° >25°																																																																																		
Field Alliance name: <i>Suaeda moquini</i>																																																																																		
Comments: 49% Lots of bare sand, dead bushes, no salt bush. Alliance isn't a perfect fit - not a playa, etc. OHV activity, rabbit tracks mounds, rolling. Creosote is mostly in southern end of stand.																																																																																		
<table border="1"> <thead> <tr> <th colspan="2">% Cover: Conifer</th> <th colspan="2">Hardwood</th> <th colspan="2">Total Tree</th> <th colspan="2">Regen Tree</th> <th colspan="2">Shrub</th> <th colspan="2">Herb</th> <th colspan="2">Total Veg</th> <th colspan="2">Exotics (L,M,H)</th> </tr> <tr> <th>Strata</th> <th>Species</th> <th>% cover</th> <th>Strata</th> <th>Species</th> <th>% cover</th> <th>Strata</th> <th>Species</th> <th>% cover</th> <th>Strata</th> <th>Species</th> <th>% cover</th> <th>Strata</th> <th>Species</th> <th>% cover</th> <th>Strata</th> </tr> </thead> <tbody> <tr> <td></td> <td><i>Suaeda moq.</i></td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td><i>Pinus sericea</i></td> <td>1.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td><i>L. tridentata</i></td> <td>.5</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			% Cover: Conifer		Hardwood		Total Tree		Regen Tree		Shrub		Herb		Total Veg		Exotics (L,M,H)		Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata		<i>Suaeda moq.</i>	2															<i>Pinus sericea</i>	1.5															<i>L. tridentata</i>	.5													
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Location Name: Heber	Stand Size: <1 1-5 >5 Camera: Photos: 220° 320° View Radius _____																																																																	
Exposure, Actual °: _____ NE NW SE SW Flat <input checked="" type="radio"/> Variable   Steepness, Actual °: <input checked="" type="radio"/> 0° 1-5° >5-25° >25°																																																																		
Field Alliance name: <i>Pinus sericea</i>																																																																		
Comments: dense arroyo, some arroyo. Not seeing any behavior. Some dead material. See photos taken from road																																																																		
<table border="1"> <thead> <tr> <th colspan="2">% Cover: Conifer</th> <th colspan="2">Hardwood</th> <th colspan="2">Total Tree</th> <th colspan="2">Regen Tree</th> <th colspan="2">Shrub</th> <th colspan="2">Herb</th> <th colspan="2">Total Veg</th> <th colspan="2">Exotics (L,M,H)</th> </tr> <tr> <th>Strata</th> <th>Species</th> <th>% cover</th> <th>Strata</th> <th>Species</th> <th>% cover</th> <th>Strata</th> <th>Species</th> <th>% cover</th> <th>Strata</th> <th>Species</th> <th>% cover</th> <th>Strata</th> <th>Species</th> <th>% cover</th> <th>Strata</th> </tr> </thead> <tbody> <tr> <td></td> <td><i>Pinus sericea</i></td> <td>33</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td><i>Artemisia tridentata</i></td> <td>7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			% Cover: Conifer		Hardwood		Total Tree		Regen Tree		Shrub		Herb		Total Veg		Exotics (L,M,H)		Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata		<i>Pinus sericea</i>	33															<i>Artemisia tridentata</i>	7													
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	<i>Artemisia tridentata</i>	7																																																																

RECON FIELD FORM (March 6, 2019, with slope/aspect)

Recorder: \_\_\_\_\_ Other Surveyors: \_\_\_\_\_ Date: 3-28-22 Return? ☐

Waypoint ID: H003

GPS Name \_\_\_\_\_ Projected? No / Yes / Base / Digitized

If Yes, enter: Bearing (°): \_\_\_\_\_ Distance (m): \_\_\_\_\_ Inclination (°): \_\_\_\_\_

If Yes or Digitized, enter: Base Waypoint ID: \_\_\_\_\_

Base / Projected (circle one) Record either UTM's or Decimal Degrees GPS error: ft./ m./ PDOP \_\_\_\_\_

UTMs: UTM \_\_\_\_\_ UTMN \_\_\_\_\_

Decimal degrees: LAT \_\_\_\_\_ LONG \_\_\_\_\_

Stand Size: <1 1-5 >5 Camera: \_\_\_\_\_ Photos: (N) View Radius \_\_\_\_\_

Exposure, Actual °: \_\_\_\_\_ NE NW SE SW Flat Variable | Steepness, Actual °: \_\_\_\_\_ 0° 1-5° > 5-25° > 25

Field Alliance name: \_\_\_\_\_

Comments: Geosote stand, variable monody, hummocky, OHV tracks. Geosote is mix of S3 and S4 (decadent) (mature)

% Cover: Conifer		Hardwood		Total Tree		Regen Tree		Shrub		Herb		Total Veg		Exotics (L,M,H)	
Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata
	Larrea tridentata	8													

Recorder: \_\_\_\_\_ Other Surveyors: \_\_\_\_\_ Date: 3-28-22 Return? ☐

Waypoint ID: H004

GPS Name \_\_\_\_\_ Projected? No / Yes / Base / Digitized

If Yes, enter: Bearing (°): \_\_\_\_\_ Distance (m): \_\_\_\_\_ Inclination (°): \_\_\_\_\_

If Yes or Digitized, enter: Base Waypoint ID: \_\_\_\_\_

Base / Projected (circle one) Record either UTM's or Decimal Degrees GPS error: ft./ m./ PDOP \_\_\_\_\_

UTMs: UTM \_\_\_\_\_ UTMN \_\_\_\_\_

Decimal degrees: LAT \_\_\_\_\_ LONG \_\_\_\_\_

Stand Size: <1 1-5 >5 Camera: \_\_\_\_\_ Photos: \_\_\_\_\_ View Radius \_\_\_\_\_

Exposure, Actual °: \_\_\_\_\_ NE NW SE SW Flat Variable | Steepness, Actual °: \_\_\_\_\_ 0° 1-5° > 5-25° > 25

Field Alliance name: \_\_\_\_\_

Comments: \_\_\_\_\_

% Cover: Conifer		Hardwood		Total Tree		Regen Tree		Shrub		Herb		Total Veg		Exotics (L,M,H)	
Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata	Species	% cover	Strata
	Artemisia tridentata	4													
	Baccharis sp.	1													
	Pinus sericea	1													



## Appendix C: Plant species list

Heber Dunes SVRA Plant Species List – assembled from historic surveys and surveys for this vegetation mapping project.

Common Name	Scientific name	Lifeform
Fourwing Saltbush	<i>Atriplex canescens</i>	Perennial
Wheelscale	<i>Atriplex elegans</i>	Perennial
Desert Holly	<i>Atriplex hymenelytra</i>	Perennial
Quail Bush	<i>Atriplex lentiformis</i>	Perennial
Saltbush	<i>Atriplex polycarpa</i>	Perennial
Willow baccharis	<i>Baccharis salicina</i>	Perennial
Black Mustard	<i>Brassica nigra</i>	Annual
Palo Verde	<i>Cercidium floridum</i>	Perennial
Sand Mat, Prostrate Spurge	<i>Chamaesyce polycarpa</i>	Perennial
Desert Willow	<i>Chilopsis linearis</i> ssp. <i>Arcuata</i>	Perennial
Forget Me Not	<i>Cryptantha</i> sp.	Annual
Teddy-Bear Cholla	<i>Cylindropuntia bigelovii</i>	Perennial
Gander's Cholla	<i>Cylindropuntia ganderi</i>	Perennial
Brittlebush, Incienso	<i>Encelia farinosa</i>	Perennial
Rayless Encelia	<i>Encelia frutescens</i>	Perennial
Barrel cactus	<i>Ferocactus cylindraceus</i>	Perennial
Ocotillo	<i>Fouquieria splendens</i>	Perennial
Common Sunflower	<i>Helianthus annuus</i>	Annual
Desert Lily	<i>Hesperocallis undulata</i>	Annual
Cheesebush, Winged Ragweed	<i>Hymenoclea salsola</i>	Perennial
Desert-Lavender	<i>Hyptis emoryi</i>	Perennial
Alkali Goldenbush	<i>Isocoma acradenia</i>	Perennial
White Rhatany	<i>Krameria grayi</i>	Perennial
Creosote	<i>Larrea tridentata</i>	Perennial
Desert Thorn	<i>Lycium brevipes</i>	Perennial
Leaved Cambess	<i>Oligomeris linifolia</i>	Annual
Ironwood	<i>Olneya tesota</i>	Perennial
Beavertail cactus	<i>Opuntia basilaris</i>	Perennial
Desert Fir-Pygmy Cedar	<i>Peucephyllum schottii</i>	Perennial
Mistletoe	<i>Phoradendrum californicum</i>	Perennial
Big Galleta Grass	<i>Pleuaphis rigida</i>	Perennial
Arrowweed	<i>Pluchea sericea</i>	Perennial
Fremont Cottonwood	<i>Populus fremontii</i>	Perennial
Honey Mesquite	<i>Prosopis glandulosa</i>	Perennial
Dye Plant	<i>Psoralea arguta</i>	Perennial
Indigo Bush	<i>Psoralea schottii</i>	Perennial
Smoke Tree	<i>Psoralea spinosa</i>	Perennial

Goodding's Black Willow	Salix gooddingii	Perennial
Russian Thistle, Tumbleweed	Salsola tragus	Perennial
Common Mediterranean Grass	Schismus barbatus	Annual
Apricot mallow, Desert Mallow	Sphaeralcea ambigua	Annual
Bush Seepweed	Suaeda nigra	Perennial
Bush Seepweed	Sueda nigra aka Sueda moquinii	Perennial
Athel Tamarisk	Tamarix aphylla	Perennial
Saltcedar Tamarisk	Tamarix ramosissima	Perennial
Tiquilia	Tiquilia palmeri	Perennial
Tiquilia	Tiquilia plicata	Perennial
California Fan Palm	Washingtonia filifera	Perennial
Orcutt's Woody Aster	Xylorhiza orcutti	Perennial

## Appendix D: Reconnaissance protocol and field form

Protocols and blank forms for the “Recon” protocol, a shortened version of the Relevé/Rapid Assessment survey, is included here, since it is not published on the VegCAMP website.

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE PROTOCOL FOR  
RECON FIELD FORM  
(March 30, 2017)

This protocol describes the methodology for the reconnaissance technique as recorded in the Recon Field Form dated March 30, 2017. Reconnaissance surveys (recons) are complementary to relevés and rapid assessments, but collect only a small subset of the data gathered using the more detailed methods. Recons are generally used as an aid to digital vegetation mapping, to determine the boundaries of a stand, or to illustrate a particular vegetation signature. For more background on the relevé and rapid assessment sampling methods, see the relevé and rapid assessment protocol at <http://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18599>.

**Definitions of fields in the form**

LOCATIONAL/ENVIRONMENTAL DESCRIPTION

**Recorder:** The full name of the recorder should be provided for the first field form for the day. On successive forms, initials can be recorded.

**Other Surveyors:** The full name of each person assisting should be provided for the first field form for the day. On successive forms, initials of each person assisting can be recorded.

**Date:** Date of the sampling.

**Return?:** Check this box if team members should return to this spot at a later date to take a recon or RA/relevé. This can be used if the phenology is not conducive to identification of the major species, or if there is not enough time to take the survey.

**Waypoint ID:** The Waypoint ID in this format: GPS device name + date (yymmdd) + time (hhmm). For example, for a survey taken on iPad "V" on March 27 at 1:45 in the afternoon, the Waypoint ID will be "V1803271345."

**UID:** The ID number of a reference point or polygon which this reconnaissance describes.

**Location Name:** The name of the property, park, or the location within large holdings (like USFS or BLM properties).

**GPS name:** The name/number assigned to the GPS unit.

**Projected? Yes / No / Base / Digitized:** Circle the appropriate option:

**Yes** - The point is a projected, or offset point. The surveyor used a bearing and distance to project the point to match what they are describing with the survey.

**No** - The surveyors are in the vegetation they are describing and the point is where the observer was standing for photographs. This location can also be used as a base location for an offset survey.

**Base** - Base point only. This is where a surveyor was standing when taking an offset survey to describe vegetation not at that point. No plant data or vegetation descriptions are associated with this location. However, cardinal photos taken at this point will be stored in a directory of this name.

**Digitized** - An offset point was created on the GPS unit without taking bearing and distance readings. This option should only be used when the imagery on the GPS unit is unique and unmistakable.

**Bearing (°):** The compass bearing from the Base point to the Projected point.

**Distance (m):** The distance in meters from the Base point to the Projected point, determined by use of a range finder.

**Inclination (°):** The vertical offset from the Base point to the Projected point.

**Base Waypoint ID:** For a projected or digitized point, this is the location where the surveyor was standing when the information was collected. Cardinal photographs will be taken at this point and will be stored on the computer under this ID. Photographs of the stand vegetation will be taken from this point and will be stored on the computer under the Projected point's ID.


**Base / Projected UTM's or Decimal degrees:** If the point is projected or digitized, circle whether the coordinates of the base point or the offset point have been recorded. These will generally be for the offset point.

**GPS error: ft./m./PDOP:** The accuracy of the GPS location. Record the error reading and circle the appropriate units.

**GPS coordinates:** Record either UTM coordinates, easting (**UTME**) and northing (**UTMN**), or decimal degrees, **LAT** (latitude) and **LONG** (longitude). Record this information from a GPS unit.

**Stand Size:** Estimate the size of the entire stand in which the sample is taken and circle the appropriate range. As a measure, one acre is similar in size to a football field.

**View Radius:** Enter the radius, in meters, of the viewable area of the stand from the survey point; the radius should be a minimum of 20 meters.

**Camera/Photos:** Write the name camera, JPG numbers, and direction of photos. Take four photos in the main cardinal directions (N, E, S, W) clockwise from the north, from the GPS location. This symbol can be used to indicate the cardinal photos: . If additional photos are taken in other directions, please note the JPG numbers and a description of each photo.

## HABITAT AND VEGETATION DESCRIPTION

**Field alliance name:** Name of alliance following the most recent Manual of California Vegetation (Sawyer, Keeler-Wolf, and Evens 2009), using scientific nomenclature, *e.g.*, *Quercus agrifolia*. An alliance is based on the dominant or diagnostic species of the stand, and usually reflects the uppermost and/or dominant height stratum. A dominant species covers the greatest area. A diagnostic species is consistently found in some vegetation types but not others.

Please note: The field-assessed alliance name may not exist in the present classification, in which case you can provide a new alliance name in this field.

**Comments:** Briefly describe the stand age/seral stage, disturbance history, nature and extent of land use, and other site environmental and vegetation factors that will aid in the mapping effort.

### % Cover:

**Conifer:** The total cover of all the conifer trees taking into consideration the porosity, or the holes, in the vegetation. This is an estimate of the absolute conifer cover, disregarding the overlap<sup>1</sup> of individual trees.

**Hardwood:** The total cover of all the hardwood trees taking into consideration the porosity, or the holes, in the vegetation. This is an estimate of the absolute hardwood tree cover, disregarding the overlap<sup>1</sup> of individual trees.

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<sup>1</sup> Porosity reduces the total cover of the canopy. Overlapping strata should not be included in the total cover percent; for instance, if a shrub is growing under a tree, only the cover of the tree will be added into the total; the cover of the shrub will be disregarded, except for the amount by which it fills in the porosity of the tree canopy.



**Total Tree:** The total cover of all the trees taking into consideration the porosity, or the holes, in the vegetation. This is an estimate of the absolute tree cover, disregarding the overlap<sup>1</sup> of individual trees.

**Regen Tree:** The total foliar cover of seedlings and saplings, disregarding overlap<sup>1</sup> of individual recruits. See seedling and sapling definitions below.

**Shrub:** The total cover of all the shrubs taking into consideration the porosity, or the holes, in the vegetation. This is an estimate of the absolute shrub cover, disregarding the overlap<sup>1</sup> of individual shrubs.

**Herb:** The total cover of all the herbs taking into consideration the porosity, or the holes, in the vegetation. This is an estimate of the absolute herbaceous cover, disregarding the overlap<sup>1</sup> of individual herbs.

**Total Veg:** The total cover of all vascular vegetation taking into consideration the porosity, or the holes, in the vegetation. This is an estimate of the absolute vegetation cover, disregarding the overlap<sup>1</sup> of the various tree, shrub, and/or herbaceous layers and species.

**Exotics (L,M,H):** The extent to which the stand is impacted by exotic/non-native species. Divide the total exotic cover (e.g. 25% *Bromus diandrus* + 8% *Bromus madritensis* + 5% *Centaurea melitensis* = 38% total exotics) by the Total Veg cover (e.g. 80% total) and multiply by 100 to get the % relative cover of exotics (e.g. 38% total exotics / 80% total cover = 48% relative exotic cover). **L** = 0-33% *relative* cover of exotics; **M** = 34-66% relative cover, and **H** = >66% relative cover.

## Species List and Coverage

List the species that are dominant or that are characteristically consistent throughout the stand. This list is used if there is some uncertainty in the field-assessed alliance name, so the most common species should be listed. In the interests of time and efficiency, this species list should not be exhaustive.

### Strata:

**T = Tree.** A woody perennial plant that has a single trunk.

**A = SApling.** 1" - <6" dbh and young in age, OR small trees that are <1" dbh, are clearly of appreciable age, and are kept short by repeated browsing, burning, or other disturbance. Includes trees that are re-sprouting from roots or stumps following fire, logging or other disturbance. These re-sprouts may exhibit a shrubby form, with multiple small trunks, but are species that are generally considered trees. If a majority of the trunks are >6" dbh, then the re-sprouts would be recorded under the "Tree" stratum.

**E = SEedling.** A tree species clearly of a very young age that is < 1" dbh or has not reached breast height. Applies only to trees propagating from seed; re-sprouts are not recorded here even if they meet the size requirements.

**S = Shrub.** A perennial, woody plant, that is multi-branched and doesn't die back to the ground every year.

**H = Herb.** An annual or perennial that dies down to ground level every year.

**N = Non-vascular.** Includes moss, lichen, liverworts, hornworts, cryptogammic crust, and algae.

When one or more tree species are regenerating, the Tree, Seedling and/or Sapling strata may be noted on the same line, e.g.:

Strata	Species	%Cover	C
T/A/E	Quercus douglasii	40/<1/<1	

**Species:** Use Jepson Manual nomenclature. When uncertain of an identification (which you intend to confirm later) use parentheses to indicate what part of the determination needs to be confirmed. For example, you could write out *Brassica (nigra)* if you are sure it is a *Brassica* but you need further clarification on the specific epithet.

**% cover:** provide the % absolute aerial cover for each species listed. All species percent covers may total over 100% because of overlap.

**Collections:** If a species collection is made, it should be indicated in the blank column next to “% cover” with a “C” (for collected). If the species is later keyed out, cross out the species name or description and write the keyed species name in pen on the data sheet. Do not erase what was written in the field, because this information can be used if specimens get mixed up later. If the specimen is then thrown out, add a “T” to the “C” in that column (CT = thrown out after confirmation) or cross out the “C”. If the specimen is kept but is still not confidently identified, add a

“U” to the “C” (CU = collected and unconfirmed). In this case the unconfirmed species epithet should be put in parentheses [e.g. *Hordeum (murinum)*]. If the specimen is kept and is confidently identified, add a “C” to the existing “C” (CC = collected and confirmed). If the specimen is later deposited in an herbarium, add a “D” to the existing “C” (CD = collected and deposited) and note the receiving herbarium.

#### RECON FIELD FORM (March 6, 2019, with slope/aspect)

<b>Recorder:</b>		<b>Other Surveyors:</b>		<b>Date:</b>		<b>Return?</b> <input type="checkbox"/>																																																																																																																									
<b>Waypoint ID:</b>		<b>GPS Name</b> _____ <b>Projected? No / Yes / Base / Digitized</b> If Yes, enter: <b>Bearing (°):</b> _____ <b>Distance (m):</b> _____ <b>Inclination (°):</b> _____ If Yes or Digitized, enter: <b>Base Waypoint ID:</b> _____																																																																																																																													
<b>UID:</b>																																																																																																																															
<b>Location Name:</b>		<b>Base / Projected (circle one)</b> Record either UTM's or Decimal Degrees <b>GPS error: ft./ m./ PDOP</b> _____ UTM's: <b>UTME</b> _____ <b>UTMN</b> _____ Decimal degrees: <b>LAT</b> _____ <b>LONG</b> - _____																																																																																																																													
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