FINAL

VEGETATION MAPPING PROTOCOL
FOR
NAVAL WEAPONS STATION SEAL BEACH
DETACHMENT FALLBROOK
FALLBROOK, CALIFORNIA

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TABLE OF CONTENTS

Appendices

Appendix A – Plot Data Collection Form Description and Instructions
Appendix B – NWSSB-DF Classifications within NVC Hierarchy
Appendix C – Descriptions of Vegetation Types and Stand Tables that occur on NWSSB-DF

Attachments

1. Supplement to the Vegetation Classification Manual for Western San Diego County
2. Vegetation Classification Guidelines: National Park Service Vegetation Inventory
3. 12-Step Guidance for NPS Vegetation Inventories
4. CNPS Cover Diagrams
5. California Vegetation Map in Support of the Desert Renewable Energy Conservation Plan
6. Thematic Accuracy Assessment Procedures: National Park Service Vegetation Inventory

LIST OF FIGURES

LIST OF TABLES

List of Acronyms

BO	Biological Opinion
CAGN	California gnatcatcher
CDFW	California Department of Fish and Wildlife
CNPS	California Native Plant Society
CSS	coastal sage scrub
DoD	Department of Defense
GIS	Geographic Information System
GPS	Global Positioning System
INRMP	Integrated Natural Resources Management Plan
m^2	square meter
MCV	A Manual of California Vegetation
MCBCP	Marine Corps Base Camp Pendleton
MMU	Minimum mapping unit
NAVFAC	Naval Facilities Engineering Command Southwest
Navy	U.S. Department of the Navy
NPS	National Park Service
NVC	National Vegetation Classification
NWSSB-DF	Naval Weapons Station Seal Beach Detachment Fallbrook
SANDAG	San Diego Association of Governments
SKR	Stephens' kangaroo rat
STR	Station Technical Representative
SWSD	Supplement to Vegetation Classification Manual for Western San Diego County
VEGCAMP	Vegetation Classification and Mapping Program
WFMP	Wildland Fire Management Plan
WSD	Vegetation Classification Manual for Western San Diego County

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1. Introduction

1.1 Background

Naval Weapons Station Seal Beach Detachment Fallbrook (NWSSB-DF) is officially listed by the real estate office as an 8,852-acre installation in northern San Diego County, California. The northern installation boundary, however, is defined by a natural river and is the cause of some variability in total areal measurements. Current GIS and cadastral surveys map the Detachment as containing 8,894 total acres of land. With less than 10% of the installation developed, the landscape at NWSSB-DF consists mainly of open space and plant communities that provide habitat for many native and sensitive species, including several federally listed threatened and endangered species and California species of special concern.

Often vegetation mapping is the first step for the mapping of a species potential habitat. For species that are closely associated with certain vegetation types, or for species for which habitat features are less understood, vegetation mapping may be the only surrogate for defining potential habitat. Although vegetation (assemblage of plant life) is often an extremely important component of a species habitat, habitat is defined by the entirety of the particular environment of a species and includes biotic and abiotic features beyond the vegetation (e.g. slope, presence of prey, presence of refugia). Moreover, vegetation descriptions may require additional attributes to be considered suitable habitat for a species (e.g., SKR are associated with grasslands, but require a certain degree of bare ground; CAGN are generally associated with CSS, but the canopy cover should not be too sparse or too dense).

1.1.1 Drivers for Vegetation/Habitat Mapping

The classification and mapping of vegetation communities is a valuable tool for the management of natural resources at NWSSB-DF and for maintaining compliance with environmental laws and regulations.

Vegetation mapping can, among other things: (1) provide baseline information for the mapping of habitat for federally listed species; (2) serve as an indicator of potential habitat for other, non-listed species; (3) provide baseline information for range quality for agricultural purposes (e.g., available forage varies depending on vegetation cover types); (4) reveal the location and extent of invasive plant species; (5) assist with the monitoring of change detection through time; (6) contribute to wildland fire management planning; and (7) support the avoidance and minimization of impacts to sensitive resources from mission activities and aid in the potential effects assessments during mission planning and project reviews.

Regulatory drivers for vegetation and habitat mapping include, but are not limited to, the Endangered Species Act (e.g., protection of federally listed threatened or endangered species), Clean Water Act (e.g., protection of wetlands), Sikes Act (e.g., for the development and implementation of Integrated Natural Resources Management Plan (INRMP)), and OPNAV M-5090.1 (Navy's Environmental Readiness Program Manual). In accordance with the Detachment's Wildland Fire Management Plan Biological Opinion (WFMP BO) (USFWS 2003), the Navy is required to survey for threatened and endangered species habitat throughout the installation once every 5 years covering riverine, riparian, grassland, and coastal sage scrub (CSS) areas for the arroyo toad (ARTO; *Anaxyrus californicus*), least Bell's vireo (LBVI; *Vireo bellii pusillus*), the Stephens' kangaroo rat (SKR; *Dipodomys stephensii*), and the coastal California gnatcatcher (CAGN; *Polioptila californica californica*), respectively.

A conservation measure within the WFMP BO specifies, "The Navy will maintain a minimum of 2,000 acres of CSS in a state suitable for occupation by gnatcatchers. The majority of this CSS should be Types I, II, or III CSS (as defined in Varanus 2000) with greater than 20 percent shrub cover. If the

amount of suitable CSS falls below 2,000 acres, the Navy and CFWO will jointly determine actions required to promote regrowth of CSS above this acreage threshold." (p. 10, WFMP BO). Varanus identified five types of CSS, including:

- CSS Type I: Vegetation dominated by California sagebrush
- CSS Type II: Vegetation codominated by California sagebrush and California buckwheat
- CSS Type III: Vegetation dominated by white sage
- CSS Type IV: Vegetation dominated by laurel sumac
- CSS Type V: Post-fire, no dominant shrub cover

Below are excerpts from OPNAV M-5090.1 (Navy's Environmental Readiness Program Manual) that reference the surveying or mapping of vegetation/habitat on Navy installations:

- "All Navy properties shall be surveyed for wetlands. Wetlands shall be mapped with sufficient accuracy to protect them from potential unplanned impacts, using GIS data that are maintained and kept current." (12-3.8(b)(1))
- "Each installation shall conduct surveys to develop an inventory of fish and wildlife species and their habitats that may be present on the installation. These surveys should be conducted as necessary to keep inventories and INRMPs updated." (12-3.5(a)(1))
- "Once identified, these resources [species and habitats] should be monitored as necessary to determine their condition, abundance, and distribution and to document changes over time. Surveys and monitoring shall be conducted to a level sufficient to serve as a foundation for the integrated ecosystem management of those resources with the Navy mission." (12-3.5(a)(2))

1.1.2 Historical Mapping at NWSSB-DF

Since the late 1980s, a number for vegetation and habitat mapping efforts have been conducted at NWSSB-DF (Table 1-1).

Table 1-1. History of Vegetation Mapping at NWSSB-DF[a]

Year	Principal Author	Subject	Classification System	Source
1987	RECON Environmental	Vegetation mapping	Unknown	USDON 1987
1990	Tierra Data Inc.	Vegetation mapping, modification of USDON (1987)	Holland	Kellogg & Kellogg (1990)
1994	San Diego State University	Vegetation mapping	SDSU Ad Hoc	Hunsaker1994 [b]
1993-95	Dudek and Associates	Vegetation mapping verification	Holland and SDSU Ad Hoc	Dudek and Associates (1995)
2000	Varanus Biolocial Services	Gnatcatcher habitat	Varanus Ad Hoc	Tierra Data, Inc. (2002)
2003	NAVFAC SW	Least Bell's vireo habitat	Navy Ad Hoc	USDON 2003
2007	Tierra Data Inc.	Gnatcatcher habitat	Manual of California Vegetation	TDI (2011)
2008	Tierra Data Inc.	Least Bell's vireo habitat	Manual of California Vegetation	TDI (2013)

[a] All known vegetation surveys are included in this table; some habitat suitability studies are also included, especially if they emphasized vegetation classification and mapping.

[b] Unable to locate copy of this report; information in table is based on references in other documents.

Historically, these vegetation and habitat mapping surveys: (1) have been done in different years (e.g., 2007 = CSS; 2008 = riparian) to coincide with species surveys, which are staggered for manpower reasons; (2) followed contract scopes that did not consistently define the vegetation classification system or clearly distinguish between "habitat" versus "vegetation" mapping; and (3) lacked clearly defined mapping rules, resulting in limited repeatability/comparability through time. Even the more recent mapping efforts that endeavored to follow the MCV classification system were based on older versions of the Manual, which did not have the benefit of a larger suite of alliances and associations that have since been described for this region. In short, the piecemeal and inconsistent historical mapping efforts made it nearly impossible to identify true vegetation (or habitat) changes and potential trends through time.

1.1.3 Classification and Mapping Standards

In the early 1990s, the Nature Conservancy, the Ecological Society of America, and several federal agencies together recognized the need for a standardized and scientifically credible vegetation classification for North America. This effort resulted in the initial publication of the National Vegetation Classification Standard (NVCS) in 1997 by the Federal Geographic Data Committee. While not defining individual classifications of vegetation, the NVCS established a physiognomic and floristic hierarchy and the basis of approach for defining individual classifications. The members of this committee, which included federal agencies and non-governmental organizations (including the US Geological Survey, National Park Service, Department of Defense, NatureServe, and others) tasked with the management of natural lands, created a data-driven methodology for defining individual classification. The basis of the methodology for defining individual classifications is data-driven and requires standardized sampling to relate and contrast vegetation of any region. In this regard, vegetation classifications can be seen as dynamic – requiring modification as new regions are sampled and included in the larger hierarchy. Throughout the development of the NVCS, the National Park Service (NPS) has been a leader in applying the standard and has developed and published many of the sampling and analysis methods used at the national level for defining individual classifications.

Concurrently with this national work, the California Native Plant Society (CNPS) and researchers within the then California Department of Fish and Game (now known as the California Department of Fish and Wildlife; CDFW) Vegetation Classification and Mapping Program (VegCAMP) began using the NVCS methodology to define classifications for California, and in 1995, CNPS published a *Manual of California Vegetation* (MCV 1st ed., 1995). Since the 1990s, these state and national groups have continued to work in parallel to refine individual classifications and publish relevant updates.

In 2008, the San Diego Association of Governments was seeking to update their regional mapping of Habitat Preserve and Conserved Lands in western San Diego County. Based on input from a scientific advisory committee, SANDAG chose to use a classification system consistent with the NVCS and the Manual of California Vegetation. Sampling was conducted throughout the mapping area and an analysis was conducted which resulted in the publication of the Vegetation and Classification Manual for Western San Diego County (Sproul et al., 2012) and a subsequent update in 2015 (Dunn and Kentner, 2015). This publication presents a subset of the MCV classifications which occur in western San Diego County and differs from the larger work by including a quantitative key to vegetation types it contains.

The NVCS describes a vegetation classification hierarchy based on physiognomic and floristic composition. In its application, the NVCS approach provides for the description of vegetation at very coarse physiognomic scales to very fine floristic divisions at the species level scale. However, other manners of classifying biotic systems are imaginable. NatureServe has developed a meso-scale classification system for terrestrial systems based on an ecological approach. As a required element in the annual reporting for the implementation of its Integrated Natural Resources Plan, NWSSB-DF tracks

NatureServe Ecological Systems. A crosswalk between these floristic and ecological systems is provided in Appendix D.

1.2 Purpose of This Protocol

This protocol provides a methodology for producing a vegetation map for NWSSB-DF. It is intended for inclusion in future Statement of Work contracting documents to guide mapping contractors. The purpose of this protocol is to provide clear vegetation classification and mapping rules that are repeatable and quantifiable such that the results of successive mapping efforts are adequately comparable to detect true vegetation change and potential trends through time. Mapping results obtained under this protocol will allow for proactive natural resource management in compliance with the WFMP BO.

NWSSB-DF vegetation mapping products must be comparable to other regional mapping products and comply with regional, state, and federal standards for vegetation classification. Recent large-scale regional mapping projects in San Diego and Orange Counties, and mapping projects at local Department of Defense (DoD) installations, including Remote Training Site Warner Springs, Camp Michael Monsoor, and Marine Corp Base Camp Pendleton, have all relied on vegetation classifications that comply with the National Vegetation Classification Standard (NVCS; FGDC 2008). Recent extensive vegetation sampling and analyses throughout Southern California have led to robust descriptions of the regional vegetation (Sproul et al. 2011; AECOM 2013; Dunn and Kentner 2015). These prior developments make the adoption of an NVC-compliant classification both regionally comparable and cost-effective. For these reasons, this protocol requires that vegetation mapping on NWSSB-DF use an NVC-compliant classification.

1.3 Goal and Objectives

The overarching goal for vegetation mapping at NWSSB-DF is:

> To create an accurate and sufficiently attributed vegetation map to serve as a base analysis layer for natural resources management, monitoring of trends, and mission support.

The following are objectives for vegetation mapping at NWSSB-DF:

- Comply with State and Federal classification and mapping standards
- Seek comparability with regional mapping efforts
- Improve the accuracy and repeatability of vegetation mapping
- Provide sufficient resolution for change detection and monitoring trends through time
- Conduct vegetation mapping at a frequency appropriate for NR management and mission support
- Facilitate compliance with NWSSB-DF's Wildland Fire Management Plan BO and applicable Navy vegetation mapping regulations
- Implement methods that are cost-effective to the greatest extent feasible

1.4 Personnel Qualifications

The success of this protocol is dependent upon qualified biological staff, field surveyors, and GIS personnel. The following minimum requirements for the implementation of this protocol are identified:

- The project technical lead must have a minimum of 5 years of biological experience in Southern California including the design of ecological sampling plans and a working knowledge of the NVCS and MCV.
- The lead photo-interpreter must have a minimum of 5 years of experience mapping vegetation in Southern California.
- All field staff must have a minimum of 3 years of biological experience in Southern California and the ability to identify all taxa in the classification key.
- The GIS lead must have a minimum of 5 years of recent experience working in the ArcGIS Desktop environment.

1.5 How to Use This Protocol

This protocol compiles the definitions, methods, and reference materials necessary to prepare a vegetation map for NWSSB-DF. A Glossary providing a set of useful definitions for terminology used throughout the protocol is presented in Section 7. (Note: there is also a set of definition for terms specific to the classification key within Section 2.3.)

The protocol methods are separated into three parts: Vegetation Classification (Section 2), Vegetation Mapping (Section 3), and Accuracy Assessment (Section 4). Section 2 defines the vegetation classification that must be applied for all NWSSB-DF vegetation mapping efforts. Section 2 also provides details on how this classification was derived and how it may be modified. Most significantly, Section 2 provides a quantitative key to the classification of alliances and associations known to occur at NWSSB-DF. This key allows the vegetation ecologist or photo-interpreter to assign a named NVC-compliant alliance and/or association to any stand of vegetation based on the measured species composition of the stand. Section 3 defines the methodology to be employed to prepare the map products. Section 4 outlines measures to assess the accuracy and repeatability of the mapping product.

Several appendices and attachments are included to clarify or extend the information and instructions provided in the protocol. To provide consistency with other mapping products and repeatable results for NWSSB-DF products, standardized methodologies are adopted from published sources, including the National Park Service (NPS), the California Department of Fish and Wildlife (CDFW), and the San Diego Association of Governments (SANDAG). These documents are included as attachments to this protocol for immediate reference.

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2. Vegetation Classification

This protocol provides an NVC-compliant classification to be used for the attribution of vegetation types within the NWSSB-DF map products. This classification is a locally focused subset of vegetation alliances and associations previously defined through regional studies. CDFW maintains the expression of the NVC within the borders of California, and NVC-compliant vegetation classifications are the current standard for vegetation mapping in Southern California. This standard has been applied recently to several large-scale regional mapping projects in San Diego and Orange Counties. NVC-compliant classifications differ from other commonly used classifications in California, such as *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986), in that they are based on quantitative plot data, and uniform hierarchy across the nation.

Through extensive sampling and analysis, CDFW in partnership with the California Native Plant Society (CNPS) has compiled and published *A Manual of California Vegetation* (MCV) (Sawyer et al. 2009). Locally, CDFW has collaborated with SANDAG to publish the *Vegetation Classification Manual for Western San Diego County* (WSD) (Sproul et al. 2011) and the *Supplement to Vegetation Classification Manual for Western San Diego County* (SWSD) (Dunn and Kentner 2015) (Attachment 1), which provide regional refinements to the MCV with quantitative keys to the many vegetation alliances and associations present throughout western San Diego County. In preparation of this protocol, AECOM conducted vegetation sampling consistent with NVC Standard methods throughout NWSSB-DF to define the subset of MCV and SWSD vegetation alliances and associations that occur within the mapping area. This subset and the methods used to define it are presented in the following sections.

2.1 The NVC Standard

This protocol requires the use of vegetation classifications based on the National Vegetation Classification (NVC) Standard. The intended application of the protocol is the production of a fine scale vegetation map. As such the lowest levels of the Standard defined as Alliances and Associations are the most relevant to the protocol, however a comprehensive overview of the Standard is included below.

The NVC Standard establishes a consistent national approach to the classification of existing vegetation. It is intended to facilitate collaboration between state and federal agencies engaged in the collection of vegetation data, and to support vegetation map consistency (although it is not a map standard). The NVC Standard also defines and adopts standards for vegetation data collection and analysis. These minimum metadata requirements ensure consistent reporting on the nation's vegetation resources.

The National Vegetation Classification is a hierarchical system designed to classify existing vegetation (i.e. plant cover, floristic composition, and vegetation structure occurring in a specific place at a specific time) on the basis of both physiognomic and floristic criteria. The upper levels of the classification are physiognomic, defined primarily on the basis of growth form, structure, and cover, while the lower levels are floristic, based primarily on species composition and abundance. The middle-tiered levels are based on a combination of physiognomic and floristic characteristics.

The NVC also differentiates between natural and cultural vegetation, with separate classification hierarchies for each. Natural (and semi-natural) vegetation is vegetation in which species and site characteristics are determined primarily by ecological processes. By contrast, when the structure, composition, and development of vegetation are determined by regular human activity, such as land clearance, grazing, and/or fire regime management/fuels treatments, the vegetation is defined as cultural vegetation. Natural vegetation may be influenced to varying degrees by human activity.

Vegetation that has been shaped by both anthropogenic disturbances and ecological processes (e.g. reclaimed cropland or rangeland) is defined as semi-natural vegetation. The NVC encompasses all areas having one percent or more of their surface area covered with live vegetation. Non-vegetated lands and open water are excluded from classification.

Table 2-1. NVCS Hierarchy for Natural and Cultural Vegetation

NVC Hierarchy	Natural Vegetation	Cultural Vegetation
Upper Level		
	Level 1-Formation Class	Level 1- Cultural Class
	Level 2- Formation Subclass	Level 2- Cultural Subclass
	Level 3- Formation	Level 3- Cultural Formation
		Level 4- Cultural Subformation Row Crop
Mid Level		
	Level 4-Division	Level 5-Cultural Group
	Level 5-Macrogroup	Level 6-Cultural Subgroup
	Level 6-Group	Level 6-Cultural Subgroup
Lower Level		
	Level 7-Alliance	Level 7- Cultural Type
	Level 8-Association	Level 8- Cultural Subtype (optional)

2.1.1 Upper Level Units

With Natural Vegetation, the upper-level units consist of three classes defined on the basis of physiognomic and ecological factors.

1. **Formation Class**: A broad combination of dominant general growth forms that correspond to global moisture and temperature regimes and/or substrate or aquatic conditions.
2. **Formation Subclass**: A combination of general dominant and diagnostic growth forms reflecting global macroclimatic factors driven primarily by latitude and continental position or reflecting the overriding substrate or aquatic conditions.
3. **Formation**: A combination of general dominant and diagnostic growth forms reflecting global macroclimatic factors including by elevation, seasonality of precipitation, and soil moisture conditions.

2.1.2 Mid Level Units

The mid-level units consist of three classes defined on the basis of both physiognomic and floristic units.

4. **Division**: A combination of dominant and diagnostic growth forms and a broad set of diagnostic plant taxa reflecting biogeographic differences in composition, and continental differences in mesoclimate, geology, substrates, hydrology, and disturbance regimes.

5. **Macrogroup**: A combination of moderate sets of diagnostic plant species and diagnostic growth forms reflecting biogeographic differences in composition and sub-continental to regional differences in mesoclimate, geology, substrates, hydrology, and disturbance regimes.
6. **Group**: A combination of relatively narrow sets of diagnostic plant species (including dominants and co-dominants), with broadly similar composition, and diagnostic growth forms reflecting biogeographic differences in mesoclimate, geology, substrates, hydrology, and disturbance regimes.

2.1.3 Lower Level Units

The lower-level units consist of two classes defined on the basis of floristic units.

7. **Alliance**: A characteristic range of species composition, habitat conditions, physiognomy, and diagnostic species, typically at least one of which is found in the uppermost or dominant stratum of the vegetation layer, and reflecting regional to subregional climate, substrates, hydrology, moisture/nutrient factors and disturbance regimes. An alliance consists of one or more associations.
8. **Association**: A characteristic range of species composition, with diagnostic species occurrence, habitat conditions, and physiognomy reflecting topo-edaphic conditions, climate, substrates, hydrology, and disturbance regimes.

2.2 Methods for Defining the Vegetation Classification

This section provides the methods and results for the initial 2015-2016 development of the vegetation classification for NWSSB-DF. These same methods should be employed to amend this classification in the event that gaps are identified in subsequent mapping efforts (See Section 2.2.4 Amending the Classification).

2.2.1 Sampling Methods

The NVC is based on a scientific approach and requires the collection of quantitative environmental data to identify and classify biological associations that repeat across the landscape. There are numerous valid and published methods to collect these data. This protocol adopts the vegetation sampling guidelines and methods established by NPS in *Vegetation Classification Guidelines: National Park Service Vegetation Inventory* (Lea 2011) (Attachment 2). This standard was chosen in part because NPS and DoD are both federal organizations that manage lands of similar scale and extent and, at the time of this writing, these methods are also being applied for vegetation classification on the adjoining Marine Corps Base Camp Pendleton. By adopting this standardized methodology, the results of this sampling are directly comparable to other NVC-compliant classifications. NPS has also created a standardized database (PLOTS) and data forms within this database to collect and analyze the necessary field data (NPS 2011). A tabular list of all data collected and brief descriptions of each field are included in Appendix A. When this 2015 classification was conducted, the current PLOTS database was at Version 3.2. NPS updates and refines this database occasionally and provides descriptions of all changes so that datasets may remain analytically consistent; however, the basic methodology for data collection remains the same.

The NPS protocol calls for standardized plot sizes for each general physiognomic class. The standardized plot sampling areas, which are consistent with state and national standards, provide consistency between projects and allow the calculation of diversity statistics per unit area so that comparisons may be drawn across vegetation types. Standardized plot sizes are based on the dominant stratum (Table 2-2). Forest and woodland vegetation stands are defined as stands having greater than or

equal to 10% absolute cover of overstory trees, regardless of shrub and herb cover. Shrub-dominated vegetation must have less than 10% absolute cover of overstory trees and greater than 10% absolute cover of shrubs. Herbaceous vegetation consists of stands with less than 10% absolute tree cover and less than 10% absolute shrub cover. The shape of the plots were typically circular or rectangular, but the shape of the plots could be altered by the ecologist (while keeping the area constant) in order to capture unusually shaped stands of vegetation, such as narrow strips of riparian trees that may occur along drainages, or irregularly shaped patches of herbaceous vegetation.

Table 2-2. Vegetation Plot Sample Size Per Dominant Stratum

Physiognomic	Definition	Plot Size
Upland forest and woodland vegetation	≥ 10% absolute cover of overstory trees, regardless of shrub and herb cover	1000 m^2
Shrub-dominated vegetation and riparian forests and woodlands	<10% absolute cover of overstory trees and >10% absolute cover of shrubs	400 m^2
Herbaceous vegetation	<10% absolute tree cover and <10% absolute shrub cover	100 m^2

A total of 55 plots were sampled throughout NWSSB-DF. An additional 7 plots collected on MCBCP along the northern perimeter of NWSSB-DF were included in the data analysis. Sampling plots were stratified across the three primary physiognomic classes present on NWSSB-DF based on the dominate overstory (i.e., woodland, shrubland, and herbaceous vegetation). The *12-Step Guidance for NPS Vegetation Inventories* (Attachment 3) states that sampling efforts should strive to collect about five plots per vegetation type (i.e., alliance or association). However, due to the relatively small size of NWSSB-DF, the reduction of vegetation cover caused by the De Luz and Tomahawk fires during the 2 years prior to sampling, and constraints of pseudo-replication, five plots per type was not achievable for this effort. However, as no unique or undescribed vegetation alliances or associations defined in either the MCV or SWSD were encountered, the total number of samples was deemed by the lead ecologist as sufficient to define the vegetation classification for the study area.

Stands were selected based on field reconnaissance throughout NWSSB-DF and a review of prior mapping efforts. Each plot was placed in a representative location within the stand of vegetation. All plot data collection followed NPS guidelines, approved techniques, and field methods, therefore the resulting dataset is compatible with all other datasets collected using these methods. Plot data were collected directly into the NPS PLOTS database in the field using GPS enabled portable computers. All taxa evident within each plot were recorded. Sampling conducted from April 8, 2015 through June 10, 2015, and was timed to coincide with plant phenologies, which allowed identification to species. Cover values were recorded using the ocular estimation method, and a CNPS Cover Diagram was used for reference (Attachment 4).

Upon the completion of data collection for each plot, the PLOTS database entries were checked for accuracy and completeness by the supervising ecologist in the field before moving to the next plot. Visual inspection of the data and quality control queries contained within the PLOTS database were employed in this process.

A minimum of four digital field photographs were taken of each plot. These four photographs were taken from the edge of the plot toward the center in each of the cardinal directions (north, south, east, and west). Additional representative photographs were also taken at the discretion of the ecologist in order to provide potential insight during the analysis.

2.2.2 2015-2016 Classification Results

In recent years, extensive NVC-compliant vegetation sampling and analyses have occurred within the regional context of NWSSB-DF (Sproul et al. 2011; AECOM 2013; Dunn and Kentner 2015), resulting in a regionally refined set of MCV alliances and associations with extensively tested membership rules. Each NWSSB-DF plot was assessed individually to assign it to an NVCS alliance and association by comparing the field collected data values to published membership rules contained in the MCV and the SWSD. These analyses found a total of 21 alliances, 26 associations, and six semi-natural stands[1] conforming to vegetation types defined in the MCV and/or WSD (Table 2-3). Table 2-3 categorizes these types by traditional groupings used historically on NWSSB-DF. A list of each alliance and association within the complete NVC hierarchy for NWSSB-DF is provided in Appendix B. Stand tables that summarize the species composition and other environmental data collected for each plot within each classification are provided Appendix C.

Table 2-3. Alliances and Associations Occurring on NWSSB-DF in 2015-2016 Grouped by traditional NWSSB-DF Vegetation Types

Oak Woodland
Quercus agrifolia Alliance
Quercus agrifolia/Toxicodendron diversilobum/Grass Association
Quercus engelmannii Alliance
Quercus engelmannii–Quercus agrifolia/Toxicodendron diversilobum/Grass Association
Woodland (other)
Eucalyptus (globulus, camaldulensis) Semi-Natural Stands
Eucalyptus (globulus, camaldulensis) Semi-Natural Stands
Chaparral
Adenostoma fasciculatum Alliance
Adenostoma fasciculatum Association
Adenostoma fasciculatum–Ceanothus crassifolius Association
Quercus (berberidifolia, xacutidens) Alliance
Quercus (berberidifolia, ×acutidens) Association
Coastal Sage Scrub
Acmispon glaber Alliance
Acmispon glaber Association
Artemisia californica Alliance
Artemisia californica Association
Artemisia californica–Eriogonum fasciculatum Alliance
Artemisia californica–Eriogonum fasciculatum–Malosma laurina Association
Artemisia californica–Eriogonum fasciculatum–Opuntia littoralis/Dudleya (edulis) Coastal Association
Artemisia californica–Eriogonum fasciculatum–Opuntia littoralis/Dudleya (edulis) Inland Association
Artemisia californica–Salvia mellifera Alliance
Artemisia californica–Salvia mellifera Association
Malosma laurina Alliance
Malosma laurina–Acmispon glaber Association
Salvia apiana Alliance
Salvia apiana–Artemisia californica Association
Salvia mellifera Alliance
Salvia mellifera Alliance Only
Salvia mellifera–Eriogonum fasciculatum Association
Grassland
Avena barbata–Avena fatua Semi–Natural Stands
Brassica nigra and Other Mustards Semi-Natural Stands

[1] Semi-natural stands are equivalent to alliances but are dominated or mostly characterized by the presence of nonnative plant species.

Deinandra fasciculata Alliance
Deinandra fasciculata Association
Mediterranean California Naturalized Annual and Perennial Grassland Semi–Natural Stands
Stipa cernua Alliance
Stipa cernua Association
Riparian Woodland
Platanus racemosa Alliance
Platanus racemosa–Populus fremontii/Salix lasiolepis Association
Platanus racemosa–Quercus agrifolia Association
Quercus agrifolia Alliance
Quercus agrifolia/Salix lasiolepis Association
Salix laevigata Alliance
Salix laevigata Association
Riparian Scrub
Baccharis salicifolia Alliance
Baccharis salicifolia Association
Lepidospartum squamatum Alliance
Lepidospartum squamatum–Eriogonum fasciculatum Association
Pluchea sericea Alliance
Pluchea sericea Association
Salix lasiolepis Alliance
Salix lasiolepis Association
Tamarix spp. Semi-Natural Stands
Wetlands
Schoenoplectus californicus Alliance
Schoenoplectus californicus Association
Typha (angustifolia, domingensis, latifolia) Alliance
Typha (angustifolia, domingensis, latifolia) Association
Naturalized Warm–Temperate Riparian and Wetland Semi-Natural Stands

2.2.3 Limitations of the Classification

This vegetation classification was limited by two known factors: ecogeographic scale and temporal disturbance. The classification was conducted to suit the scale of the anticipated mapping effort. This protocol establishes a minimum mapping unit of 0.25 hectare for NWSSB-DF (Section 4.1). Therefore, ecological habitats falling below these limits, such as vernal pools, were not included in the sampling and analysis. In October 2013 and May 2014, the De Luz and Tomahawk fires burned approximately 5,200 acres of the 8,852-acre installation. While sampling in these areas produced results consistent with other regional post-fire sampling, vegetation recovery may present new information. Therefore, this current classification represents the current condition of the existing vegetation on NWSSB-DF.

2.2.4 Amending the Classification

Based on the level of field reconnaissance, plot sampling, analysis, and mapping conducted in the preparation of this protocol and comparisons to other regional work, it is expected that the classification presented here meets the stated requirements for vegetation mapping on NWSSB-DF. However, vegetation systems are dynamic, and the vegetation classification presented here only represents the current condition of existing vegetation at NWSSB-DF (see Limitations to the Classification). Areas that burned, for example, may support undetected diagnostic species indicating additional alliances and/or associations. Even species that are detected (e.g., *Artemesia californica* seedlings) may be too small in size to meet the minimum cover criteria to warrant re-classification of an association. These conditions or other unknowable future events may necessitate the future inclusion of additional alliances or associations to the vegetation classification for NWSSB-DF, and possibly for the SWSD.

In this event, plot data must be collected in the manner described by this protocol and compared to the keys and membership rules of the MVC and SWSD to select the appropriate alliances and/or associations to be added. No minimum number of sample plots will be required to add an alliance or association. The mapping contractor will submit justification for any addition to the classification to the Station Technical Representative (STR). Justification must include plot data and may include other supporting materials such as ground level or aerial photographs, and herbarium vouchers, and must demonstrate deviation from the ranges of values presented in the included stand tables (Appendix C). Any proposed addition to the classification requires authorization from the NWSSB-DF STR.

Two of the vegetation classifications included in this classification, the *Malosma laurina–Acmispon glaber* Association and the *Acmispon glaber* Association are common post-fire vegetation types. They typically occur in areas that have recently burned and that likely supported shrubs characteristic of chaparral and coastal scrub vegetation prior to burning. Both of these types are typically limited in their temporal expression, i.e., they are early-successional post-fire types. Particular effort should be focused on these areas to detect change as the post-fire vegetation develops.

2.3 Key to the Alliances and Associations Found on NWSSB-DF

This key (see below) to the vegetation on NWSSB-DF is based largely on the key in the SWSD (Dunn and Kentner 2015). It differs by the inclusion of the *Lepidospartum squamatum* alliance, which does not occur in the SWSD. As in the SWSD key, this key is deliberately ordered and is intended to be read from top to bottom. Definitions for the terms used in this key are identical to those of the SWSD and are provided at the end of the key. This key is first arranged by the dominant stratum class (i.e., tree types are presented first, followed by shrublands, and finally herbaceous vegetation). Following these stratum-level breaks are subsequent group-level keys based on presence and/or relative covers of dominant and diagnostic species.

The key below provides a decision tree for assigning vegetation types for all the currently known alliances and associations on NWSSB-DF. If in the future a vegetation stand does not appear to fit into the current classification key, additional classifications may need to be incorporated into the key (see Section 2.2.4 Amending the Classification).

Key to Stratum Classes

1.	Trees open to continuous, often dominant; if trees 5–10% absolute cover, shrubs gen < continuous	**Stratum Class A (Forest and Woodland Vegetation)**
1'	Trees absent or trace, or trees 5–10% absolute cover and shrubs ± continuous	
	2. Shrubs open to continuous, often dominant; if shrubs 5–10% absolute cover, herbs gen < continuous	**Stratum Class B (Shrubland Vegetation)**
	2' Shrubs absent or trace, or shrubs 5–10% absolute cover and herbs ± continuous	**Stratum Class C (Herbaceous Vegetation)**

STRATUM CLASS A: FOREST AND WOODLAND VEGETATION

Key to Groups

1.	Trees dominated by evergreen (non-deciduous) species; occurring on upland slopes or terraces; on NWSSB-DF, dominated by *Quercus* spp.; winter-deciduous, broad-leaved trees absent	**Group 1 (Upland Forests and Woodlands)**
1'	Trees including winter-deciduous, broad-leaved species; occurring on bottomlands or adjacent to perennial or episodic streams; tree canopy gen continuous; gen dominated by tree genera incl *Platanus*, *Quercus*, and/or *Salix*.	**Group 2 (Riparian Forests and Woodlands)**

Group 1: Upland Forests and Woodlands

A	Trees dominated by *Quercus agrifolia*; *Quercus engelmannii* absent	***Quercus agrifolia/Toxicodendron diversilobum*/Grass Association** ***Quercus agrifolia* Alliance**
B	Trees include *Quercus engelmannii*	***Quercus engelmannii-Quercus agrifolia/Toxicodendron diversilobum*/Grass Association** ***Quercus engelmannii* Alliance**
C	Trees dominated or strongly dominated by *Eucalyptus* spp.	***Eucalyptus (globulus, camaldulensis)* Semi-Natural Stands**

Group 2: Riparian Forests and Woodlands

A	Trees include > trace winter-deciduous, broad-leaved tree genera incl *Platanus*, *Populus*, and/or *Salix*		
	A.1	*Platanus racemosa* > trace; if present, *Populus* spp. < *P. racemosa*	
			***Platanus racemosa* Alliance**
		A.2.a	*Quercus agrifolia* > trace, often > *P. racemosa*; *Toxicodendron diversilobum* diagnostically present
			***Platanus racemosa*-*Quercus agrifolia* Association**
		A.2.b	*Quercus agrifolia* absent or trace; *Populus* spp. and/or *Salix* spp. diagnostically present
			***Platanus racemosa*-*Populus* spp./*Salix lasiolepis* Association**
	A.2	*S. laevigata* > trace; if present, *S. lasiolepis* ≤ *S. laevigata* and *P. racemosa*, *Populus* spp., and *S. gooddingii* all trace	
			***Salix laevigata* Association** ***Salix laevigata* Alliance (2)**
	A.3	*S. lasiolepis* > trace; if present, *S. laevigata* < *S. lasiolepis* and *P. racemosa*, and *Populus* spp., all trace	
		A.3.a	*Q. agrifolia* absent or trace
			***Salix lasiolepis* Association** ***Salix lasiolepis* Alliance (2)**
		A.3.b	*Q. agrifolia* > trace
			***Quercus agrifolia*/*Salix lasiolepis* Association** ***Quercus agrifolia* Alliance (2)**
B	Trees dominated or codominated by *Quercus agrifolia*; *Salix lasiolepis* diagnostically present; if present, *Platanus racemosa*, *Populus* spp., and *Salix* spp. other than *S. lasiolepis* all trace		
			***Quercus agrifolia*/*Salix lasiolepis* Association** ***Quercus agrifolia* Alliance (2)**

STRATUM CLASS B. SHRUBLAND VEGETATION

Key to Groups

1	Shrubs dominated by nonhydrophytic species, gen occurring on upland slopes or terraces; can occur on bottomlands with arid conditions and/or ephemeral hydrologic regimes	
	2	Shrubs dominated by sclerophyllous genera incl *Adenostoma*, and/or *Quercus*
		Group 1 (Sclerophyllous, Evergreen Shrublands)
	2′	Shrubs dominated by microphyllous, succulent, or drought-deciduous, soft-leaved genera incl *Artemisia*, *Encelia*, *Eriogonum*, *Isocoma*, *Salvia*, and/or *Bahiopsis*
		Group 2 (Soft-Leaved, Drought-Deciduous Shrublands)
1′	Shrubs dominated by hydrophytic species, including *Baccharis*, *Pluchea*, *Salix*, and/or *Lepidospartum* spp., gen occurring in bottomlands or areas adjacent to perennial or episodic streams.	
		Group 3 (Riparian Shrublands)

Group 1: Sclerophyllous, Evergreen Shrublands

A	Shrubs dominated by *Quercus* (*berberidifolia, ×acutidens*), or *Quercus* (*berberidifolia, ×acutidens*) accounts for more shrub cover than any other single shrub genus; *Adenostoma fasciculatum* absent or subdominant	
		***Quercus* (*berberidifolia, ×acutidens*) Association** ***Quercus* (*berberidifolia, ×acutidens*) Alliance**
B	Shrubs dominated by the combined cover of *Adenostoma fasciculatum* and/or *Ceanothus crassifolius*	
	B.1 *Ceanothus crassifolius* dominant or codominant	
		***Adenostoma fasciculatum-Ceanothus crassifolius* Association** ***Adenostoma fasciculatum* Alliance**
	B.2 *Adenostoma fasciculatum* dominant, or *Adenostoma fasciculatum* accounts for more shrub cover than any other single shrub genus	
		***Adenostoma fasciculatum* Association** ***Adenostoma fasciculatum* Alliance**

Group 2: Soft-Leaved, Drought-Deciduous Shrublands

A	Shrubs dominated by the combined cover of *Artemisia californica*, *Eriogonum fasciculatum*, *Salvia apiana*, *S. mellifera*, and succulent species, or the combined cover of these species accounts for more shrub cover than any other single shrub species		
	A.1 Two or more succulent species (e.g., *Dudleya* spp., *Ferocactus viridescens*, *Mammillaria* spp., *Opuntia* spp., and/or *Cylindropuntia* spp.) co-occur with *A. californica* and *E. fasciculatum*, or shrubs include > trace succulent species		
		A.1.a If present, *Opuntia littoralis* gen <5% absolute cover, one or more of the following species present, *Ferocactus viridescens*, *Euphorbia misera*, *Adolphia californica*, *Yucca schidigera*, *Lycium californicum*, *Mammillaria dioica*, or *Cylindropuntia prolifera*; gen coastal	
			***Artemisia californica-Eriogonum fasciculatum-Opuntia littoralis|Dudleya* (*edulis*) Coastal Association** ***Artemisia californica-Eriogonum fasciculatum* Alliance**
		A.1.b *Opuntia littoralis* gen >5%, *Cylindropuntia prolifera* may be present but other cactus spp., absent	
			***Artemisia californica-Eriogonum fasciculatum-Opuntia littoralis|Dudleya* (*edulis*) Inland Association** ***Artemisia californica-Eriogonum fasciculatum* Alliance**
	A.2 Salvia *apiana* and/or *S. mellifera* occurring with higher cover than any other species in the shrub stratum		
		A.2.a *S. apiana* is the dominant *Salvia* sp., *A. californica* diagnostically present, gen codominant; shrub stratum intermittent to continuous	
			***Salvia apiana-Artemisia californica* Association** ***Salvia apiana* Alliance**
		A.2.b *S. mellifera* is the dominant *Salvia* sp.; *A. californica* absent or trace	
			***Salvia mellifera* Alliance**
		A.2.b.(i) *E. fasciculatum* present with ≥ 5% absolute cover	
			***Salvia mellifera-Eriogonum fasciculatum* Association**
		A.2.b.(ii) No other diagnostic spp. present > trace	
			***Salvia mellifera* Alliance Only**
	A.3 *A. californica* is the sole dominant; *E. fasciculatum* absent or trace		
			***Artemisia californica* Association** ***Artemisia californica* Alliance**

	A.4	Combined cover of *E. fasciculatum and S. mellifera* accounts for more shrub cover than any other single shrub species ***Salvia mellifera -Eriogonum fasciculatum* Association** ***Salvia mellifera* Alliance (2)**
	A.5	Combined cover of *A. californica*, *E. fasciculatum*, and *M. laurina* (if present) dominant; vegetation does not meet criteria in A.1 through A.4 ***Artemisia californica-Eriogonum fasciculatum-Malosma laurina* Association** ***Artemisia californica-Eriogonum fasciculatum* Alliance**
B	Shrubs dominated or codominated by post-disturbance and/or fire-following species such as *Acmispon glaber (Lotus scoparius)* and/or *Malosma laurina*	
	B.1	*Acmispon glaber (Lotus scoparius)* dominant to strongly dominant; regenerating microphyllous, succulent, or drought-deciduous soft-leaved shrubs such as *Eriogonum fasciculatum*, *Hazardia squarrosa*, *Artemisia californica*, *and Salvia apiana* gen present ***Acmispon glaber (Lotus scoparius)* Association** ***Acmispon glaber (Lotus scoparius)* Alliance**
	B.2	*Malosma laurina* dominant to strongly dominant, or combined cover of *M. laurina and Acmispon glaber (Lotus scoparius)* accounts for more shrub cover than any other single shrub genus; if present, *L. scoparius* often > *M. laurina* ***Malosma laurina-Acmispon glaber (Lotus scoparius)* Association** ***Malosma laurina* Alliance**

Group 3: Riparian Shrublands

A	*Pluchea sericea* strongly dominant ***Pluchea sericea* Association** ***Pluchea sericea* Alliance**
B	*Lepidospartum squamatum* dominant or codominant with *Eriogonum fasciculatum* ***Lepidospartum squamatum-Eriogonum fasciculatum* Association** ***Lepidospartum squamatum* Alliance**
C	*Salix lasiolepis* > trace ***Salix lasiolepis* Association** ***Salix lasiolepis* Alliance**
D	*Baccharis salicifolia* dominant, or *B. salicifolia*. accounts for more shrub cover than any other single shrub genus ***Baccharis salicifolia* Association** ***Baccharis salicifolia* Alliance**
E	*Tamarix* spp. dominant. ***Tamarix spp. Semi-Natural Stands***

CLASS C: HERBACEOUS VEGETATION

Key to Groups

1	Vegetation dominated by nonhydrophytic herbaceous species, gen occurring on upland slopes and terraces **Group 1 (Upland Herbaceous Vegetation)**
1′	Vegetation dominated by hydrophytic herbaceous species; gen occurring in bottomlands, streams and channels, intertidal zones, or other areas with perennial or episodic soil saturation **Group 2 (Hydrophytic Herbaceous Vegetation)**

Group 1: Upland Herbaceous Vegetation

A	Herbs include *Stipa cernua* with > 1% absolute cover ***Stipa cernua* Association** ***Stipa cernua* Alliance**	
B	*Deinandra fasciculata* > trace, or *D. fasciculata* trace in association with at least one of the following indicators: clay soils, cryptogamic crust, and/or bulbiferous native species (e.g., *Allium*, *Brodiaea*, *Calochortus*, *Chlorogalum*, *Dodecatheon*, etc.); nonnative grasses such as *Avena* spp. often dominant ***Deinandra fasciculata* Association** ***Deinandra fasciculata* Alliance**	
C	Herbs dominated by nonnative grass and forb species; vegetation does not meet criteria listed above in A and B	
	C.1	*Avena* spp. dominant or codominant; *Bromus* spp. < *Avena* ***Avena barbata*-*Avena fatua* Semi-Natural Stands**
	C.2	Herbs dominated by *Brassica* spp., *Hirschfeldia* spp., and/or *Raphanus* spp. ***Brassica nigra* and Other Mustards Semi-Natural Stands**
	C.3	Herbs dominated by nonnative grass and forb species including, *Bromus* spp., *Erodium* spp., *Hypochaeris glabra*, and/or *Centaurea melitensis* **Mediterranean California Naturalized Annual and Perennial Grassland Semi-Natural Stands**

Group 2: Hydrophytic Herbaceous Vegetation

A	*Schoenoplectus californicus* dominant, or *Schoenoplectus* spp. account(s) for more herb cover than any other single herb genus ***Schoenoplectus californicus* Association** ***Schoenoplectus californicus* Alliance**
B	*Typha* spp. dominant, or *Typha* spp. account(s) for more herb cover than any other single herb genus ***Typha (angustifolia, domingensis, latifolia)* Association** ***Typha (angustifolia, domingensis, latifolia)* Alliance**
C	Herbs dominated by nonnative hydrophytic species **Naturalized Warm-Temperate Riparian and Wetland Semi-Natural Stands**

Definitions and Abbreviations for Classification Key

Terms that apply to species cover	
strongly dominant	Species with ≥ 75% relative cover.
dominant	Species with ≥ 50% and < 75% relative cover.
codominant	Species with ≥ 30% and < 50% relative cover.
subdominant	Species with < 30% relative cover. A generic term encompassing “sparse” and “trace” (see below).
sparse	Species with ≥ 5% and < 30% relative cover.
trace	Species with < 5% relative cover.
Terms that apply to species frequency	
diagnostic	Species with > 80% constancy within a vegetation type (i.e., there is a >80% probability of finding a diagnostic species with the associated vegetation type).
Terms that apply to overall stratum cover	
dominant	Stratum with the highest percent cover.
subdominant	All strata other than the dominant stratum.
continuous	Strata containing ≥ 66% absolute cover.
Intermittent	Strata containing ≥ 33% and < 66% absolute cover.
open	Strata containing ≥ 5% and < 33% absolute cover.
Abbreviations used in the key	
exc	Except; Exception(s)
gen	Generally
incl	Including

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3. Vegetation Mapping

The production of a vegetation map can be accomplished by various automated and manual methods, to achieve a map consistent with the limitations of each methodology. While it might be conjectured that automated methods could yield the most consistently repeatable results, the current state of technology is inadequate to produce a map with the thematic resolution required for natural resource monitoring and management at the scale needed for NWSSB-DF. At approximately 9,000 acres, NWSSB-DF is currently best suited for manual mapping methods, and this condition is expected to continue for the foreseeable future. This protocol defines the methodology to be applied for the production of a vegetation map for NWSSB-DF suitable for identifying vegetation changes and potential trends through time.

3.1 Minimum Mapping Unit

An MMU is a threshold size for the delineation and attribution of any feature in a map and provides a spatial standard for interpreting the results of a mapping effort. Defining an MMU for a mapping product depends on many factors, including the heterogeneity of the environment, the intended use of the map, the resolution of available imagery, and costs. NPS has established a default MMU of 0.5 hectare for its Vegetation Inventory (Lea and Curtis 2010). NPS guidance also suggests a range of MMU sizes from 0.1 to 1.0 hectare for various physiognomic categories of vegetation. The vegetation of NWSSB-DF generally falls within two of these categories: Arid to Semi-arid Woodlands, Shrublands, and Wooded Shrublands; and Herbaceous Vegetation and Non-vascular Vegetation. The suggested range of MMUs for these types of habitats is 0.5 hectare to 2.0 hectares and 0.1 to 0.5 hectare, respectively. Based on this guidance and the intended uses of the mapping products to be derived using this protocol, an MMU of 0.25 hectare has been established for the mapping of all vegetation types throughout NWSSB-DF. Polygon features less than the MMU may be allowed for ecologic units that are bisected by a road or other developed feature.

3.2 Base Layers

Developed areas and firebreaks account for approximately 6% of the total area of NWSSB-DF. The remapping of developed and other maintained features during successive vegetation mapping efforts adds an unnecessary element of potential error that may be incorrectly interpreted as change. As the goals of this protocol include consistent repeatability and the ability to detect significant change, developed and maintained areas will not be delineated by the vegetation mapping contractor. NWSSB-DF maintains a layer of developed or otherwise maintained areas. This layer is a composite of road, road shoulders, graded firebreaks, driveways, and buildings. This layer omits earth-cover and vegetated magazines, which must be mapped for vegetation cover. The mapping contractor will be provided with this base layer and will not re-digitize these features. Similarly, the mapping contractor will be provided with the installation boundary layer that totals 8,894 acres. Vegetation features will be “cut” and attributed from this base layer.

3.3 Mapping Methods

This methodology has five primary stages:

- Aerial photography acquisition
- Photographic Signature Training and Field Reconnaissance
- Photo-interpretation / feature creation / map attribution
- Map finalization
- Accuracy assessment

3.3.1 Aerial Photography Acquisition

Acquisition of aerial photography suitable for vegetation mapping can be made through commercial vendors or public sources such as the National Agriculture Imagery Program. Timing of the acquisition of aerial imagery is critical to the value of the imagery for photo-interpretation. Acquisition should be timed to provide the greatest distinction between the vegetation alliance and associations. For NWSSB-DF, this timing typically corresponds to late spring and summer, after some of the vegetation has dried allowing for better differentiation between plant species. However, due to the highly variable annual precipitation patterns in Southern California, it is important to monitor the phenology of key plant species to time the acquisition within any particular year. The minimum standards for the acquired aerial image are provided in Table 4-1.

Proposed acquisition timing must be approved by the STR. The contractor must submit all flight plans and arrange access authorization through MCBCP Range Control (Longrifle). The STR will provide contact information for Longrifle.

Table 3-1. Minimum Standards for Aerial Imagery

Parameter	Standard
Orthophoto type	4-band (color with color IR)
Orthophoto Resolution	0.5' (minimum), 0.25' (preferred)

3.3.2 Photographic Signature Training and Field Reconnaissance

The acquired aerial image should be studied and compared to prior vegetation map products prior to on the ground work in the field. The goal of this stage is for the photo-interpreter to acquire proficiency at recognizing the photo-signature of each of the mapping types. The photo-interpreter should note areas where the interpretation seems clear and areas that appear problematic. Both of these areas should be the initial focal points for field reconnaissance.

Field reconnaissance allows the photo-interpreter to compare the aerial imagery with the conditions on the ground. Using the vegetation key (Section 3.3), the photo-interpreter can assign the appropriate alliance and/or association to each reference site. During the field reconnaissance process, the photo-interpreter could use the PLOTS database for recording observations, but it is not required.

There is no minimum number of reference sites that need to be visited during field reconnaissance and photographic signature training, as the number of reference sites necessary will depends on the strength of the photo-interpretation team and the percent accuracy achieved. Examples of each alliance and association should be visited to gain familiarity with the species composition and photo-signature. This process should be considered iterative. Several field reconnaissance trips may be necessary to achieve confidence in photographic signature training for each alliance and association. Although achieving proficiency will depend on the skill and previous experience of the photo-interpreter, NWSSB-DF anticipates that at least one reference site per vegetation type will be necessary to achieve the desired accuracy. The value of field reconnaissance becomes most apparent during the subsequent accuracy assessment phase. Map products failing the accuracy assessment thresholds will not be accepted by NWSSB-DF. Having high confidence during the photo-interpretation and feature creation stage is generally based on thorough field reconnaissance.

3.3.3 Photo-interpretation, Feature Creation, and Map Attribution

To ensure consistency with subsequent mapping efforts, the photo-interpreter shall follow the guidelines presented in the Photointerpretation Mapping Procedures found in the *2013 California Vegetation Map in*

Support of the Desert Renewable Energy Conservation Plan (Menke et al. 2013) (Attachment 5). The procedures provide concise and repeatable methods for photo-interpretation and feature creation.

To provide consistent results throughout the mapping area, photo-interpretation and feature digitization shall be conducted at viewing scales no finer than 1:2,000 (approximately 1" = 200') (Figure 3-1). Viewing of the image at finer scales may be useful for the identification of diagnostic species and therefore assist in the attribution of vegetation classifications. However, it is important that drawing of features be limited to the 1:2,000 scale to reduce inconsistencies in the degree of line detail between adjoining polygons.

Figure 3-1. Example of photo-interpretation polygon creation conducted at a 1:2,000 scale.

Summary of mapping rules:

- MMU of 0.25 hectare for all vegetation types throughout NWSSB-DF.
- Polygon features less than the MMU may be allowed for ecologic units that are bisected by a road or other developed feature.
- Feature digitization shall be conducted at viewing scales no finer than 1:2,000.
- Field verification is required to establish photo-signature training. Each alliance and association should be represented in field verification.

Photo-interpretation, feature creation, and map attribution are typically completed in a controlled office situation. However, the use of portable Geographic Information System (GIS) enabled field computers can assist the photo-interpreter by conflating the field reconnaissance, photo-interpretation, and feature creation stages.

Vegetation feature creation will be accomplished by cutting the <Null> features provided in the base layer feature class. Each subsequent feature created through this process is then attributed with the appropriate vegetation alliance and association. Additional attribution will include an assessment of the ecological structure for each vegetation feature. This attribution includes an estimation of the relative cover for each vegetation stratum (tree, shrub, herb), the heterogeneity of the feature, whether the feature was field verified, and any descriptive notes relevant to feature interpretation. Estimations may be conducted using ocular estimates or by using an automated image classification process. When conducting ocular estimates, refer to the CNPS Cover Diagram for reference (Attachment 4). When using image classification for estimation, the following geoprocessing steps should be conducted in ArcGIS:

- Create training features to provide a representative photo-signature for each stratum
- Conduct a Maximum Likelihood Classification based on the training features using the ArcGIS Classification Toolset
- Summarize pixel value totals for each vegetation polygon using the ArcGIS Tabulate Area Toolset

Image classification should be conducted using the same ortho-photo used for photo-interpretation. Create training polygons for each of the three cover strata and an additional training feature for bare ground. Training features should be drawn independent of the vegetation mapping polygons and should be selected based on the photo-signature of areas of relatively homogenous cover that represent the stratum for the mapping effort as a whole. Five training features are recommended for the tree and herb strata. Two separate sets of five training features may be necessary for the shrub stratum, as it has been found through trial analysis that these two subsets may be necessary to distinguish between “hard” chaparral shrub types from “soft” coastal scrub shrub types.

Using these training features the aerial imagery should be classified using the Maximum Likelihood Classification from the ArcGIS Classification Toolset. The result of this step is a raster set with each individual raster assigned a value representing a land cover of tree, shrub, herb, or bare ground. Values from the resulting classified image may then be joined to vegetation features using the Tabulate Area geoprocessing tool in ArcGIS. This step will produce a summary of the number of cells (pixels) per stratum for each vegetation feature (polygon). Relative percent cover values for each stratum within each vegetation polygon may then be calculated by simple arithmetic and assigned to one of the five cover class categories defined in the Protocol (Table 3-2). The resultant classified image will be included with the project data deliverables. Limitations of the image classification method should be recognized. Image classification should be conducted in a single process on a single image. Classifications using multiple images and separate training features may introduce bias.

The value for heterogeneity may be calculated for each vegetation polygon using the cover class assignments. Heterogeneity is a measure of the inclusion of other cover strata (below the MMU) within each mapped feature (e.g. the relative cover of tree, herb, and bare ground cover within a shrub dominated polygon). Assignment of heterogeneity may be made using an arithmetic formula: cover class assignments for the non-dominant were summed, then assigned per the following ranges, (LOW) values < 3, (Moderate) values >3 and <7, (HIGH) values 7 or greater. The required attribution for each map feature is presented in Table 3-2.

Table 3-2. Required Attribution for Each Map Feature and Attribute Definitions

Attribute Table		*Definition*
OBJECTID	n	Defined by GIS application
SHAPE	Polygon	Defined by GIS application
FB_Historic_VegType	[List]	From Table 2-3
Alliance	[List]	From key (Section 2.3)
Association	[List]	From key (Section 2.3)
Heterogeneity[1, 2]	[Categorical]	<1%, 1-5%, 5-35%, 35-60%, >60%
Tree_Rel_Cov[2]	[Categorical]	<1%, 1-5%, 5-35%, 35-60%, >60%
Shrub_ Rel_Cov[2]	[Categorical]	<1%, 1-5%, 5-35%, 35-60%, >60%
Herb_ Rel_Cov[2]	[Categorical]	<1%, 1-5%, 5-35%, 35-60%, >60%
Field_ver	[Y/N]	Was attribution field verified?
Notes	[Text]	Field comments
Acres	[Value]	Area in acres
SHAPE_Length	[Value]	Defined by GIS application
SHAPE_Area	[Value]	Defined by GIS application

[1] Heterogeneity is a measure of inclusion of other vegetation classifications (below the MMU) within the mapped feature (e.g., an *Artemisia californica* alliance feature might have inclusions of grassland smaller than the minimum mapping unit that cumulatively total between 35-60% of the cover).

[2] Percent categories were based on Menke et al. 2013. In the future, NWSSB-DF may consider a scale, such as Daubenmire, that provides additional categories above 60% for possible application to potential habitat assessments for animals.

3.3.4 Map Finalization

After completion of feature digitization and attribution, a topology check should be conducted. All gaps and and/or overlaps between adjacent polygons must be eliminated to produce a continuous set of features. All features below the MMU should be reviewed and eliminated if they are not adjacent to a like feature divided by a “developed” feature. All alliance and association attributes should be checked for agreement (i.e., all associations belong to an appropriate alliance). The attribute table should be checked for completeness. No <Null> values should remain for any vegetation feature, except for the “Notes” attribute. <Null> values are acceptable for base layer features.

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4. Accuracy Assessment

The reliability of a map depends, in part, on the thematic accuracy (correctness of polygon labeling), the spatial accuracy (degree to which map coordinates correspond to real world coordinates), and the precision (level of specificity or detail provided; e.g., hierarchical level of vegetation classification, number of significant digits for geospatial coordinates). For the NWSSB-DF vegetation mapping product, an accuracy assessment shall be conducted to provide an estimate of error rate for the vegetation map. The accuracy assessment allows users of the map to apply confidence levels to any subsequent analytical applications of the spatial dataset. Thematic accuracy is a measure of the correctness of assignment of a vegetation classification (alliance and association) to the mapped polygons.

For thematic accuracy, the accuracy assessment will follow the guidelines in *Thematic Accuracy Assessment Procedures: National Park Service Vegetation Inventory,* Version 2.0 (Lea and Curtis 2010) (Attachment 6). These guidelines provide clear instructions for allocating sample sizes per mapping classification and applying random distribution for sampling locations (Table 4-1).

Table 4-1. Accuracy Assessment Sample Size Allocation[1]

Total Area of Mapped Classification	Number of Sample per Classification
>50 hectares	30
>8.33 and <50 hectares	0.6 per hectare
<8.33 hectares	5

[1] From Lea and Curtis 2010

The standard for map acceptance by NWSSB-DF is 95% thematic accuracy at the alliance level and 80% thematic accuracy at the association level of classification. Maps not meeting this level of accuracy will be rejected. Therefore, the contractor is encouraged to expend adequate effort during the field reconnaissance and photo-interpretation stages to ensure accuracy. Although high measures of accuracy do not necessarily translate to high repeatability, lower error rates for consecutive mapping products should at least provide greater confidence in potential trend detection.

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5. Data Deliverables

The vegetation mapping data deliverables include the vegetation features geodatabase, digital photographs, and a mapping report.

5.1.1 Key Amendments

If the vegetation classification key for NWSSB-DF needs to be amended, the appropriate changes will be made in the classification key for inclusion in the next revision of this Protocol. All amendments will be approved by the STR prior to map finalization.

5.1.2 Geodatabase

Mapping products will be delivered to the Navy in a file geodatabase format compatible with ArcGIS 10.1 (or as specified by the STR). This geodatabase will include:

- The vegetation feature class containing the attribution described in Section 3.3.3
- A point feature class of all accuracy assessment locations and results
- A point feature class containing all photo-signature training locations and field reconnaissance points. (Photos are not to be included in geodatabase.)
- Complete metadata, including the date and source of the aerial imagery used for photo-interpretation, the name and contact information of the lead photo-interpreter, and a citation for the associated mapping report

5.1.3 Digital Photos

- All photos collected on NWSSB-DF during reconnaissance and mapping efforts.
- All digital photos must be geo-referenced
- All digital photos must contain original metadata (EXIF files)

5.1.4 Mapping Report

The mapping contractor will prepare a report describing the mapping effort. At a minimum the report will include:

- A description of the aerial imagery used for photo-interpretation and its method of acquisition
- All data (including photographs) collected during field reconnaissance and accuracy assessment stages
- A summary table, including the acreages of each alliance and association mapped
- A summary of expected error rates arranged by physiognomic class
- A description of any limiting factors encountered during the mapping effort
- Comparison with previous mapping effort
- Crosswalk table for NatureServe comparison

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6. References

AECOM. 2013. Vegetation Classification Report for Orange County. Prepared for the Nature Reserve of Orange County.

Dudek and Associates, Inc. 1995. Report on the Plant Collections and Vegetation Surveys for Naval Weapons Station, Fallbrook Annex, San Diego County, California (1993-1995 Seasons). Prepared for the Nature Conservancy (contract M67004-91-D-0010, N68711, EJ01) by Dudek and Associates, Inc. (PI: John W. Brown), Encinitas, California.

Dunn, J., and Ed Kentner. 2015. *Supplement to the Vegetation Classification Manual for Western for Western San Diego County*. Prepared by AECOM for San Diego Association of Governments. San Diego, CA. [Provided as Attachment]

FGDC (Federal Geographic Data Committee). 2008. National Vegetation Classification Standard, Version 2. FGDC-STD-005-2008. Federal Geographic Data Committee, FGDC Secretariat U.S. Geological Survey, Reston, VA.

Holland, Robert F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. California Department of Fish and Game. Sacramento, CA.

Hunsaker II, D 1994. USN Fallbrook Naval Weapons Facility Resource Management Study (1 July-30 Sept and 1 Oct-31 Dec quarterly reports). San Diego State University.

Jepson eFlora. 2015. Jepson Flora Project (eds.) Jepson eFlora, available at http://ucjeps.berkeley.edu/IJM.html. Accessed April 2015.

Kellogg, E. M., and J. L. Kellogg. 1990. Soil erosion inventory, Naval Weapons Station, Seal Beach, Fallbrook, CA. May 1990. Contract No. N68711-89-M-5006.

Lea, C. 2011. *Vegetation Classification Guidelines: National Park Service Vegetation Inventory*, version 2.0. Natural Resource Report NPS/NRPC/NRR—2011/374. National Park Service, Fort Collins, CO. [Provided as Attachment]

Lea, C., and A. C. Curtis. 2010. *Thematic Accuracy Assessment Procedures: National Park Service Vegetation Inventory*, Version 2.0. Natural Resource Report NPS/2010/NRR—2010/204. National Park Service, Fort Collins, CO. [Provided as Attachment]

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. [Provided as Attachment]

National Park Service [NPS]. 2011. PLOTS version 3.2 vegetation database. Fort Collins, CO.

Sawyer, J. O., T. Keeler-Wolf, and J. Evens. 2009. *A Manual of California Vegetation*. Second Edition. California Native Plant Society. Sacramento, CA.

Sproul F., T. Keeler-Wolf, P. Gordon-Reedy, J. Dunn, A. Klein, and K. Harper. 2011. *Vegetation Classification Manual for Western San Diego County*, First Edition. Prepared by AECOM for San Diego Association of Governments. San Diego, CA.

Tierra Data, Inc. (TDI). 2002. Distribution and age structure of coastal sage scrub and other plant communities on Naval Weapons Station Seal Beach, Detachment Fallbrook, CA. Unpublished report prepared by Tierra Data, Inc. with support from Varanus Biological Services, Inc. for Southwest Division Naval Facilities Engineering Command, San Diego, California, under contract N68711-95-D-7605/0063. Note: This report has previously been cited as Varanus Biological Services (2000) or (2002).

Tierra Data, Inc. 2011. 2007-2008 California Gnatcatcher Habitat Mapping at Naval Weapons Station Seal Beach Detachment Fallbrook. Final (29 July 2011). Submitted to Naval Weapons Station Seal Beach Detachment Fallbrook, Fallbrook, California.

U.S. Department of the Navy (USDON). 1987. Comprehensive Natural Resources Management Plan (also: Land Management Plan), Naval Weapons Station, Seal Beach, Fallbrook Annex, California. Prepared by WESTNAVFACENGCOM Natural Resources Management Branch in cooperation with Regional Environmental Consultants (RECON) and includes a 1988 Prescribed Burn Plan Supplement. Note: document appears to have two different title pages; both are included here for cross-reference.

U.S. Fish and Wildlife Service (USFWS). 1992. California gnatcatcher and cactus wren surveys of the Naval Weapons Station, Fallbrook Annex (Spring 1990, Winter 1990-91). Unpublished report prepared by Doreen Stadtlander, U.S. Fish and Wildlife Service, for U.S. Navy, Southwestern Division, Naval Facilities Engineering Command, San Diego, California, under contract N68711-90-LT-0011.

U.S. Fish and Wildlife Service (USFWS). 2003. Wildland Fire Management Plan Biological Opinion for Naval Weapons Station Seal Beach Detachment Fallbrook. Original USFWS Tracking Number was FWS-SD-3506.3; Post-2015 Tracking Number is FWS-SDG-04B0004-04F0005-003.

7. Glossary

Abundance
The total number of individuals of a taxon in an area, population or community, often measured as canopy cover in plants.

Alliance
A lower level of classification in the NVC hierarchy that describes a characteristic range of species composition, habitat conditions, physiognomy, and diagnostic species, typically at least one of which is found in the uppermost or dominant stratum of the vegetation layer and reflecting regional to subregional climate, substrates, hydrology, moisture/nutrient factors, and disturbance regimes. An alliance consists of one or more associations.

Association
The lowest level (Level 8) in the NVC hierarchy that describes a characteristic range of species composition, diagnostic species occurrence, habitat conditions, and physiognomy reflecting topo-edaphic, climate, substrates, hydrology, and disturbance regimes

Community
A group of plant species living together and linked together by their effects on one another and their responses to the environment they share. Typically, plant species that co-occur in a plant community show a definite association or affinity with each other.

Cover
In the context of vegetation, cover is a measurement of plant abundance relative to area. Cover may refer to a species canopy or foliar cover, and can be expressed as an absolute percentage (absolute cover) or as a relative percentage (relative cover). Canopy cover refers to the area of ground covered by the vertical projection of the outermost perimeter of the natural spread of foliage of plants; small openings within the canopy are included. Foliar cover is the area of ground covered by the vertical projection of the aerial portions of the plants (including trunk, branches, stems, and leaves); small openings in the canopy and intraspecific overlap are excluded. Absolute cover refers to the percentage of the ground surface that is covered by the canopy or foliar cover of a single plant species. The sum of absolute cover percentage values for multiple species within an area may be greater than, less than, or equal to 100%. Relative cover is the proportion of the total of all absolute cover values (all species within the observation area or all species within a specified layer of the observation area) that is comprised of the species or group. The sum of relative cover estimates for all species (or groups) within a vegetation layer must total 100%.

In a cartographic context, cover may also refer to other unvegetated land and water features such as anthropogenic surfaces, bare ground, ponds.

Crosswalk
A term used to describe and document the relationships between members of one set of series. Those relationships can be one to one, one to many, or many to many. In vegetation mapping it refers to linking a specifically classified or defined vegetation type or community to another.

Cultural Vegetation
Vegetation with distinctive structure, composition, and development determined by regular human activity

Diagnostic species
A species which when present in a stand of vegetation directly indicates a particular alliance or association.

Dominant species
A species with the greatest abundance or cover in a unit of vegetation.

Feature
In a cartographic context, a feature (e.g., point, line, polygon) is a representation of a real-world object on a map (e.g., power pole, road, vegetation stand).

Habitat
Habitat is the particular environment in which an organism lives. The habitat for an organism may be defined as the collection of biotic and abiotic features to which its natural distribution is restricted.

Mapping types
Mapping types are the discrete categories assignable to features on a map. In the case of a vegetation map, such categories might include the types of vegetation as defined by a vegetation classification, as well as categories such as roads, buildings, and other nonvegetated types.

Maximum Likelihood Classification
A Maximum Likelihood Classification is raster process which utilizes training features to produce a new output raster of land cover classes based on the signature of the defined training features.

Minimum mapping unit
A minimum mapping unit (MMU) provides a standard for interpreting the results of a mapping effort by defining the minimum dimension at which any categorical feature on a map is to be recognized. MMUs are typically determined by assessing the level of precision required to define a habitat versus costs.

National Vegetation Classification (NVC)
The NVC is a vegetation classification that has been adopted by federal agencies and nongovernmental organizations such as the U.S. Geological Survey, National Park Service, and NatureServe. Thus, each of these classifications can be compared in context with the others nationwide. The hierarchy of the NVC is represented by eight primary levels, with the highest levels emphasizing physiognomic (structural and ecological) similarities and with floristic composition holding increasing emphasis toward the lower levels. The highest levels are far too broad for practical division of vegetation within a local context; therefore, this protocol focuses on floristic variation that defines the differences at the lowest levels, known as alliances and associations. Alliances are typically defined by the presence of diagnostic species within a range of cover values within a single plant stratum, whereas associations represent a subset of types within an alliance, which are further defined by additional diagnostic species that may be present in any stratum. For example, the *Quercus agrifolia* Alliance is defined by the relative dominance of *Q. agrifolia* within a stand of vegetation. One of its subordinate associations, the *Quercus agrifolia*/*Toxicodendron diversilobum*/Grass Association is further defined by the presence of *Toxicodendron diversilobum* in the shrub stratum and grass species in the herbaceous stratum.

Photo-interpretation
Photo-interpretation is one process used in map making to assign categorical attribution to features within a map. In this process, the interpreter is trained to recognize the photographic “signature” of the various categories to be mapped and then assigns attribution to the features based on these signatures.

Physiognomy
The set of functional and morphological attributes of vegetation. In this NWSSB-DF Protocol, for example, the dominant overstory is grouped into three primary physiognomic classes: woodland, shrubland, and herbaceous vegetation.

Stand
The stand is a fundamental unit of vegetation defined by its compositional and structural integrity. A stand is recognized in the field or on an aerial photograph as a repeating unit bordering other stands of dissimilar vegetation composition and structure.

Stratum/Strata
Vegetation strata are the layers of vegetation distinguished by similar height and compositional structure. The tree stratum is composed of woody plants that generally have singular trunks and heights greater than 3 to 5 meters. The shrub stratum is composed of woody plants that generally have multiple trunks and heights generally ranging from 0.5 meter to 5 meters. The herb stratum is composed of non-woody (herbaceous) plants regardless of height.

Training Feature
Training features (or training polygons) are defined (e.g., through field verification) regions of a raster image that denote a certain class of land cover. Following an image classification algorithm, a training feature can then be used to identify other locations of the same land cover class in the entire image.

Vegetation
Vegetation is an assemblage of plant life that collectively forms recurring units across a landscape.

Vegetation classification
A vegetation classification is a systematic approach to defining the recurring assemblages of plants within a geographic area.

Vegetation Type
A named category of plant community or vegetation defined on the basis shared floristic and/or physionomic characteristics that distinguish it from other kinds of plant communities or vegetation. This term can refer to units in any level of the NVC hierarchy, such as an alliance or association.

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Appendix A

Plot Data Collection Form Description and Instructions

APPENDIX A

Plot Data Collection Form Description and Instructions

PLOT LOCATION AND DESCRIPTION TAB

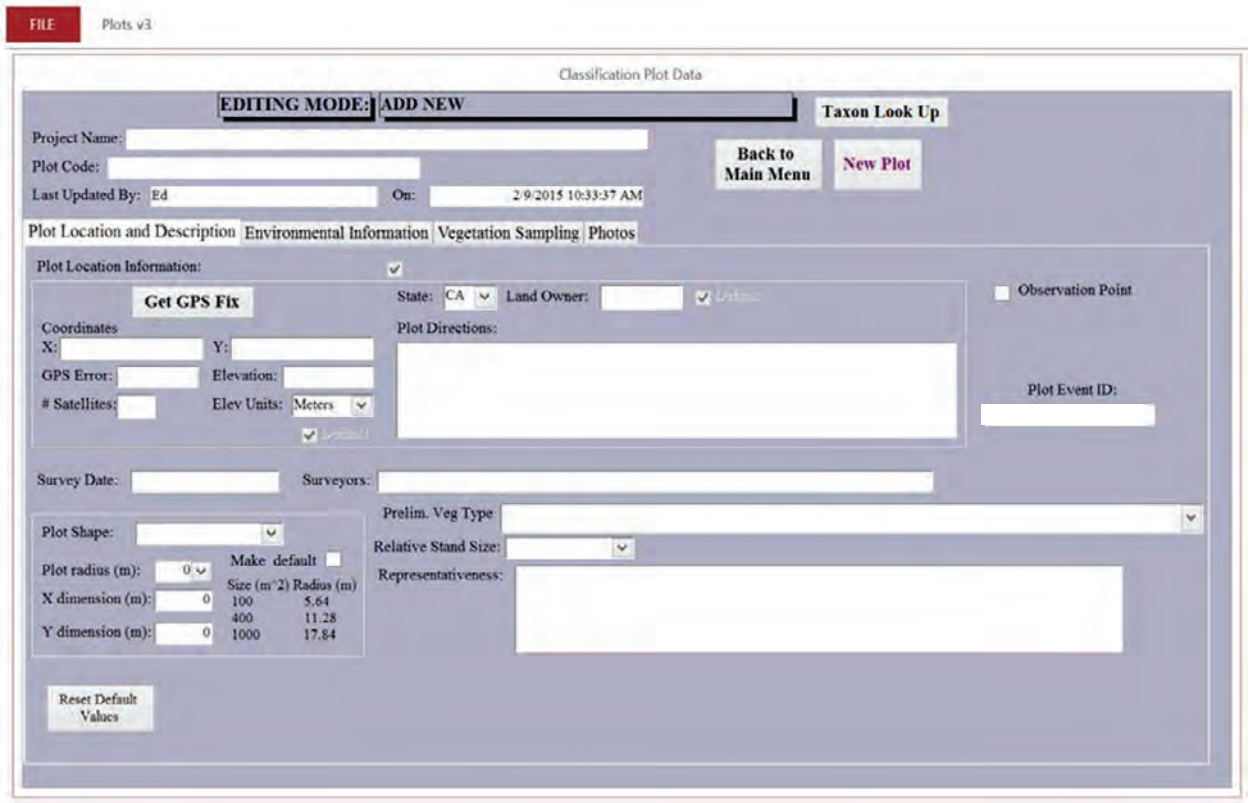

Figure A-1. NWSSB-DF PLOTS database field data entry form, Plot Location and Description Tab.

Table A-1. Data fields contained on the NWSSB-DF PLOTS database field data entry form, Plot Location and Description Tab

Data Field	Description
Project Name	"NWSSB-DF Vegetation Classification (FY2015)." Set by database, not field editable
Plot Code	Unique ID Set by database, not field editable
Last Updated By	Name of person entering data. Set by database user login name
On (Update Date)	Date of data entry. Set by database, not field editable
Coordinates X	Longitude in decimal degrees, WGS 84. Input from GPS unit using "Get GPS Fix" button
Coordinates Y	Latitude in decimal degrees, WGS 84. Input from GPS unit using "Get GPS Fix" button
GPS Error	PDOP (Position Dilution of Precision). Input from GPS unit using "Get GPS Fix" button

Data Field	Description
# Satellites	Number of Satellites. Input from GPS unit using “Get GPS Fix” button
Elevation	Elevation (in meters). Input from GPS unit using “Get GPS Fix” button
Elev Units	“Meters.” Set automatically using “Get GPS Fix” button
State	“CA” Set by database, not field editable
Landowner	“US NAVY” Set by database, not field editable
Plot Directions	Field worker entered narrative description of where the plot is and how to get to it
Survey Date	Date the plot was visited. Entered by field worker(s)
Surveyors	Name(s) of field worker(s) collecting the data
Prelim Veg Type	NVC vegetation type name for the plot. Determined by field worker(s) using keys and descriptions from Western San Diego and Orange Co. Entries not restricted to list.
Relative Stand size	Estimated size of the vegetation stand relative to size of the sample plot: “Extensive (>100X plot size),” “Large (10-100X plot size),” “Small (3-10X plot size),” “Very Small (1-3X plot size),” “Unknown.” Entries restricted to list
Representativeness	Narrative description of how similar the 1 hectare area surrounding the plot is to the vegetation within the plot
Plot Shape	Choices include “Rectangular,” “Square,” and “Circular”
Plot Radius	For circular plots only: “5.64 m (100 m^2),” “11.28 (400 m^2),” and “17.84 (1,000 m^2)”
X dimension	For Square and Rectangular plots, dimension in meters
Y dimension	For Square and Rectangular plots, dimension in meters
Plot Event ID	Unique ID for plot data entry event. Set by database, not field editable
Observation Point	Checkbox to identify plot as an “Observation Point”

ENVIRONMENTAL INFORMATION TAB

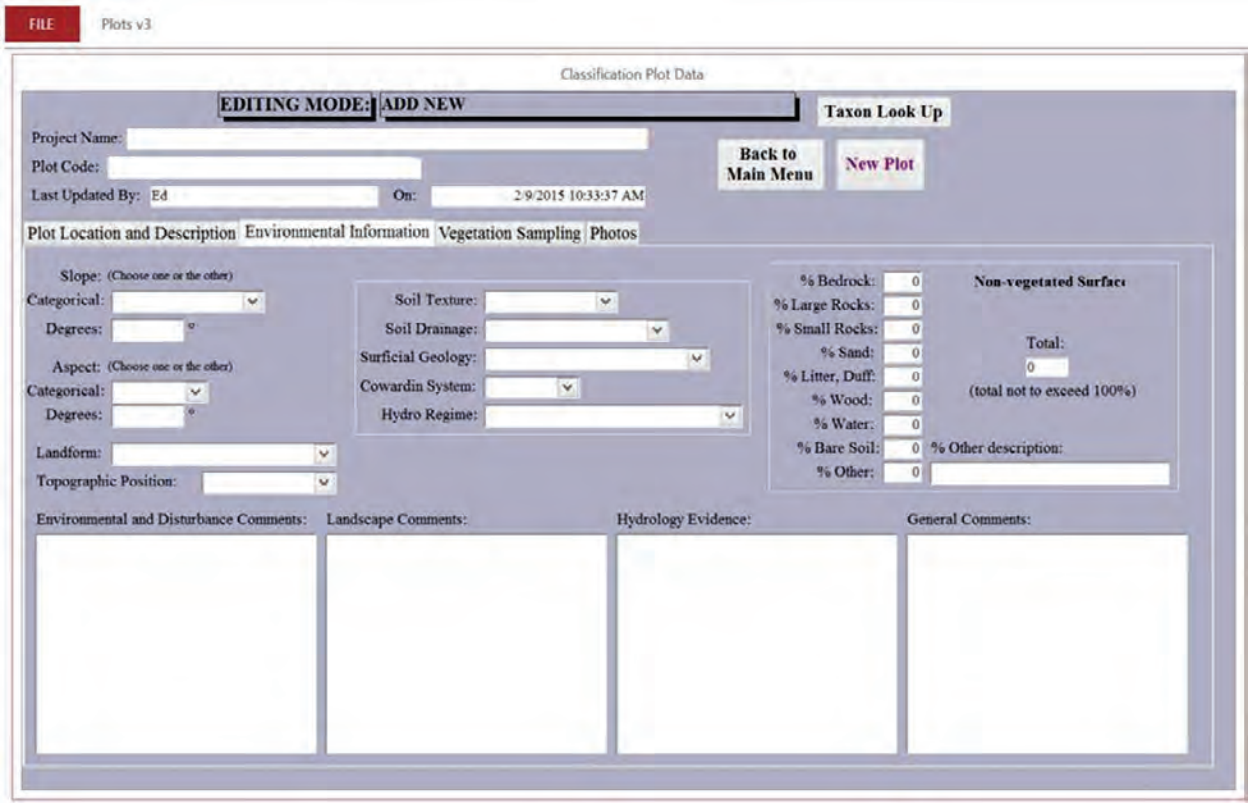

Figure A-2. NWSSB-DF PLOTS database field data entry form, Environmental Information Tab.

Table A-2. Data fields contained on the NWSSB-DF PLOTS database field data entry form, Environmental Information Tab

Data Field	Description
Slope, categorical	Slope description drop-down list, including entries such as “flat,” “gentle,” “moderate’, “somewhat steep,” etc. Entries restricted to list
Slope, degrees	Actual slope measured in degrees
Aspect, categorical	Aspect description drop down list, including entries such as “N,” “NE,” “E,” “SE,” “S,” etc. Entries restricted to list
Aspect, degrees	Compass direction of the predominant slope of the plot
Landform	Major landform description of plot and surrounding area. Drop-down list including entries such as “alluvial fan,” “coastal plain,” “canyon,” etc. Entries restricted to list modified for NWSSB-DF
Topographical position	Topographic position of plot. Drop-down list including entries such as “high slope,” “mid slope,” “basin floor,” etc. Entries restricted to list
Soil texture	General soil texture. Drop-down list including entries such as “clay,” “clay loam,” “sand,” etc. Entries restricted to list

Data Field	Description
Soil drainage	General soil drainage description. Drop-down list including entries such as “rapidly drained,” “moderately well drained,” “poorly drained,” etc. Entries restricted to list
Surficial geology	Surficial geology description. Drop-down list including entries such as “sandstone,” “granitic,” “gabbroic,” etc. Entries restricted to list modified for NWSSB-DF
Cowardin system	Drop down list of standardized Cowardin types
Hydro regime	Hydro regime description. Drop-down list including entries such as “Nontidal - 1) Permanently flooded,” “Nontidal - 4) Seasonally flooded,” “Upland - 3) Xeric,” etc. Entries restricted to list
Non-vegetative surface	This section contains the percent cover values for the following non-plant surface features
%Bedrock	Percent cover value
%Large Rocks	Percent cover value
%Small rocks	Percent cover value
%Sand	Percent cover value
%Litter, Duff	Percent cover value
%Wood	Percent cover value
%Water	Percent cover value
%Bare Soil	Percent cover value
%Other	Percent cover value
%Other description	Text description
Total	Non-editable database calculated field for checking the sum of the cover values listed above
Environmental and Disturbance Comments	Narrative description of the habitat, including animal use and disturbance, if any (maximum length; 65,535 characters)
Landscape Comments	Narrative description of the landscape and land use history including comments related to Slope, Aspect, Landform, etc. (maximum length; 65,535 characters)
Hydrology Evidence	Narrative description of hydrological influences in the area (maximum length; 65,535 characters)
General Comments	Any additional comments not falling under the above categories (maximum length; 65,535 characters)

VEGETATION SAMPLING TAB

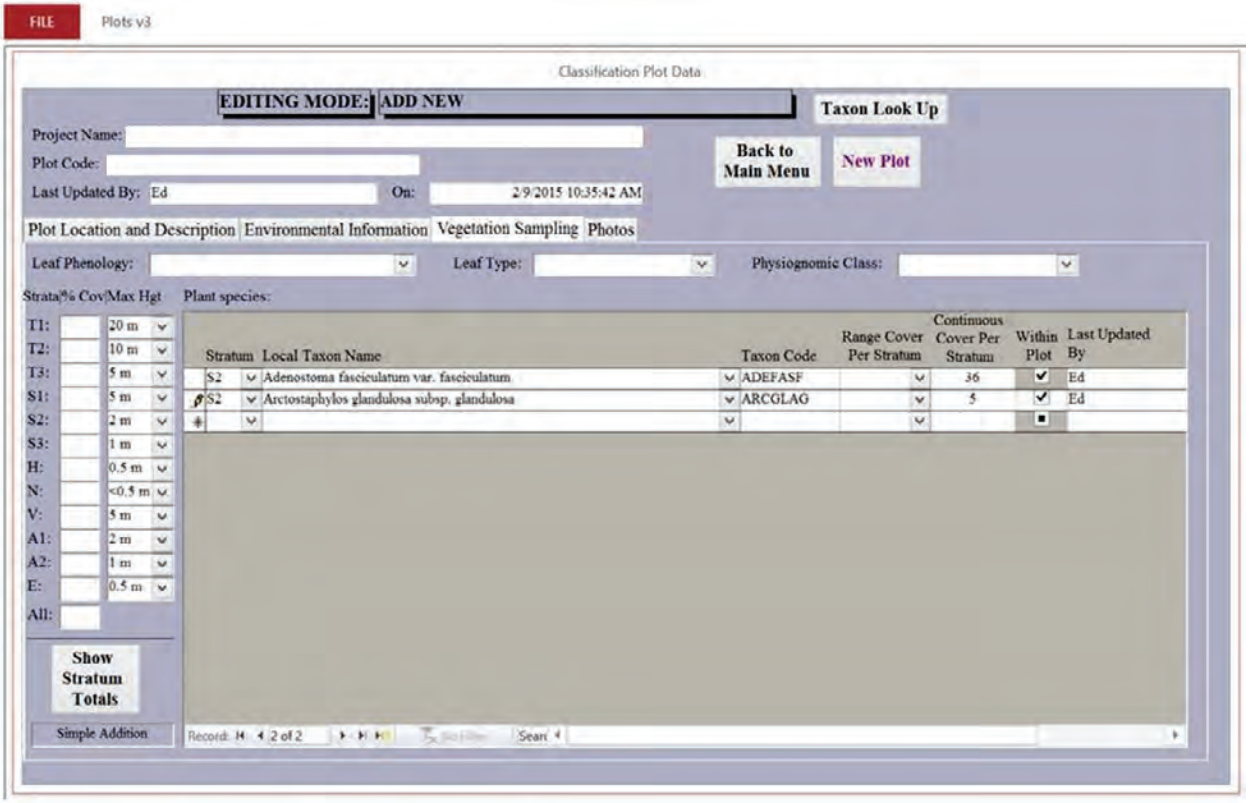

Figure A-3. NWSSB-DF PLOTS database field data entry form, Vegetation Sampling Tab

Table A-3. Data fields contained on the NWSSB-DF PLOTS database field data entry form, Vegetation Sampling Tab

Data Field	Description
Leaf Phenology	Leaf Phenology description. Drop-down list including entries such as “Evergreen,” “Drought-deciduous,” “Herb - annual,” etc. Entries restricted to list
Leaf Type	Leaf Type description. Drop-down list including entries such as “Broad-leaved,” “Microphyllous,” “Graminoid,” etc. Entries restricted to list
Pysiognomic Class	Pysiognomic Class description. Drop-down list including entries such as “Forest,” “Shrubland,” “Herbaceous,” etc. Entries restricted to list
Strata %Cover / Max Height	Table for entering percent cover values and maximum heights of the plants composing each vegetation stratum. The field abbreviations are defined below
T1	Emergent Tree
T2	Tree Canopy
T3	Tree Subcanopy
S1	Tall Shrub
S2	Medium Shrub

Data Field	Description
S3	Low Shrub
H	Herbaceous
N	Nonvascular
V	Vine
A1	Emergent Aquatic
A2	Floating-leaved Aquatic
E	Epiphyte
All	Total plot vegetated cover
Plant species sub-form	This sub-form is where each species present in the plot and its percent cover value in each of the strata in which it occurs is entered
Local Taxon Name	Drop-down list containing the SDNHM base checklist
Taxon Code	Six letter unique code for each taxon in the SDNHM base checklist. Set by database upon species entry into the *Local Taxon Name* field
Range Cover Per Stratum	Optional 1-10 scale of cover values for the species in a stratum. 01 = trace, 05 =5-10%, 10 = >=95%. Upon selection of a cover class, the midpoint of the class is entered by the database into the *Continuous Cover Per Stratum* field
Continuous Cover Per Stratum	Percent cover of the species in the selected stratum. The database will only allow one instance of each species in each stratum, *i.e.* multiple entries of a species name in a stratum are not allowed, but a species may appear in more than one stratum
Within Plot	Checkbox for the occurrence of a species within a plot
Last Updated By	Name of person entering data. Set by database user login name

PHOTOS TAB

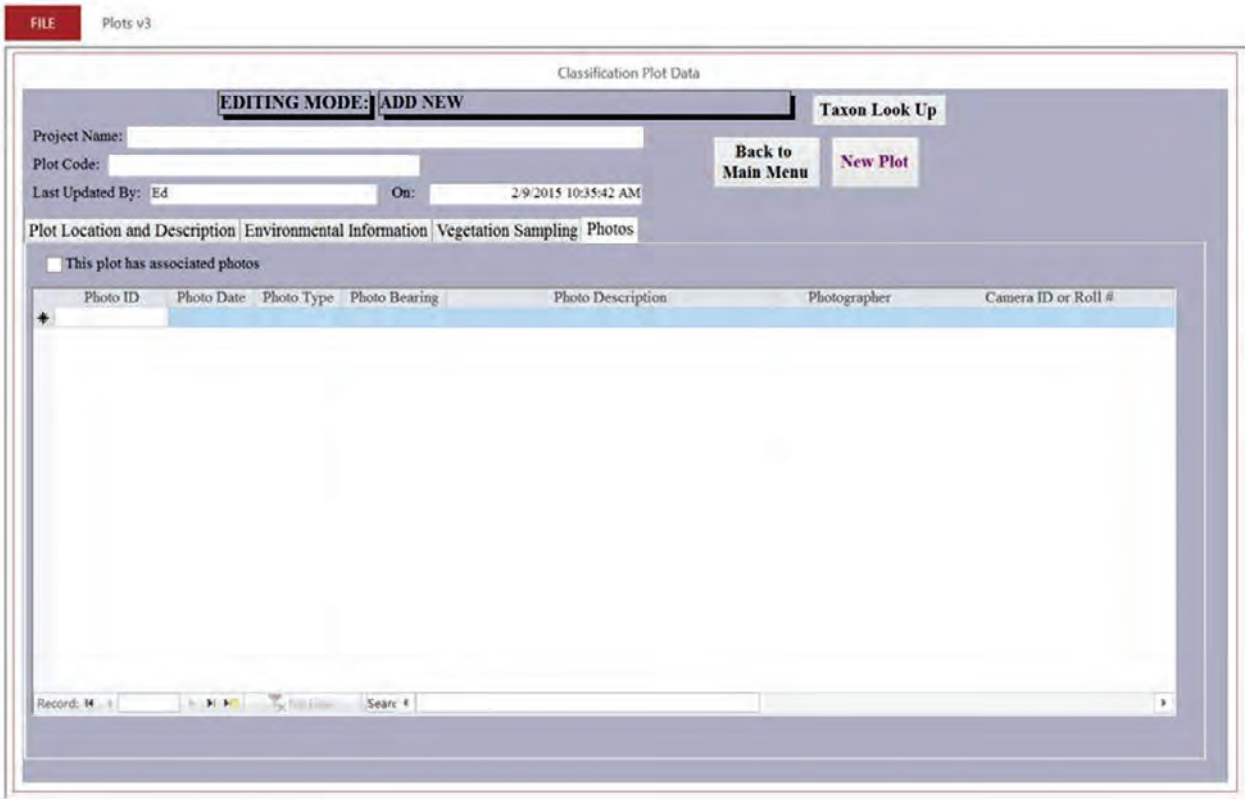

Figure A-4. NWSSB-DF PLOTS database field data entry form, Photos Tab

Table 4. Data fields contained on the NWSSB-DF PLOTS database field data entry form, Photos Tab

Data Field	Description
This plot has associated photo	Checkbox to indicate if plot has photos
Photo sub-form	Tabular form for photo information entry
Photo ID	Photo file number from camera
Photo Date	Date of photograph
Photo Type	Select “plot,” or “landscape”
Photo Bearing	Drop-down list of bearings including entries such as “N,” “NE,” “E,” “SE,” “S,” etc. Entries restricted to list
Photo Description	Text field for entering descriptive information
Photographer	Name of photographer
Camera ID or roll#	Name of camera

Appendix B

NWSSB-DF Classifications within NVC Hierarchy

Appendix B – NWSSB-DF Classifications within NVC Hierarchy

Fallbrook Historic VegType	Level 1 Formation Class	Level 2 Formation Subclass	Level 3 Formation	Level 4 Division	Level 5 Macrogroup	Level 6 Group	Level 7 Alliance	Level 8 Association
Oak Woodland	Mesomorphic Tree Vegetation (Forest and Woodland)	Temperate Forest	Warm Temperate Forest	Madrean Forest and Woodland	California Forest and Woodland	Californian broadleaf forest and woodland	Quercus agrifolia	Quercus agrifolia/Toxicodendron diversilobum/Grass Association
							Quercus engelmannii	Quercus engelmannii–Quercus agrifolia/Toxicodendron diversilobum/Grass Association
Chaparral	Mesomorphic Shrub and Herb Vegetation (Shrubland and Grassland)	Mediterranean Scrub and Grassland	Mediterranean Scrub	California Scrub	California Chaparral	Californian mesic chaparral	Quercus (berberidifolia, xacutidens)	Quercus (berberidifolia, ×acutidens) Association
						Californian xeric chaparral	Adenostoma fasciculatum	Adenostoma fasciculatum Association
								Adenostoma fasciculatum–Ceanothus crassifolius Association
Coastal Sage Scrub	Mesomorphic Shrub and Herb Vegetation (Shrubland and Grassland)	Mediterranean Scrub and Grassland	Mediterranean Scrub	California Scrub	California Chaparral	Californian maritime chaparral	Malosma laurina	Malosma laurina–Acmispon glaber Association
					California Coastal Scrub	Central and South Coastal Californian coastal sage scrub	Acmispon glaber	Acmispon glaber Association
							Artemisia californica	Artemisia californica Association
							Artemisia californica–Eriogonum fasciculatum	Artemisia californica–Eriogonum fasciculatum–Malosma laurina Association
								Artemisia californica–Eriogonum fasciculatum–Opuntia littoralis/Dudleya (edulis) Coastal Association
								Artemisia californica–Eriogonum fasciculatum–Opuntia littoralis/Dudleya (edulis) Inland Association
							Artemisia californica–Salvia mellifera	Artemisia californica–Salvia mellifera Association
							Salvia apiana	Salvia apiana–Artemisia californica Association
							Salvia mellifera	Salvia mellifera Alliance
								Salvia mellifera–Eriogonum fasciculatum Association

Fallbrook Historic VegType	Level 1 Formation Class	Level 2 Formation Subclass	Level 3 Formation	Level 4 Division	Level 5 Macrogroup	Level 6 Group	Level 7 Alliance	Level 8 Association
Grassland	Mesomorphic Shrub and Herb Vegetation (Shrubland and Grassland)	Mediterranean Scrub and Grassland	Mediterranean Grassland and Forb Meadow	California Grassland and Meadow	California Annual and Perennial Grassland	Mediterranean California naturalized annual and perennial grassland	Avena barbata–Avena fatua Semi–Natural Stands	
							Brassica nigra and Other Mustards Semi-Natural Stands	
							Mediterranean California Naturalized Annual and Perennial Grassland Semi–Natural Stands	
						California perennial grassland	Stipa cernua	Stipa cernua Association
		Temperate and Boreal Shrubland and Grassland	Temperate and Boreal Freshwater Marsh	Western North American Freshwater Marsh	Western North America Vernal Pool	Californian mixed annual/perennial freshwater vernal pool/swale/plain bottomland	Deinandra fasciculata	Deinandra fasciculata Association
Riparian Scrub	Mesomorphic Shrub and Herb Vegetation (Shrubland and Grassland)	Temperate and Boreal Shrubland and Grassland	Temperate and Boreal Freshwater Marsh	Western North American Freshwater Marsh	Western North America Wet Meadow and Low Shrub Carr	Naturalized warm-temperate riparian and wetland group	Naturalized Warm–Temperate Riparian and Wetland Semi-Natural Stands	
	Mesomorphic Tree Vegetation (Forest and Woodland)	Temperate Forest	Temperate Flooded and Swamp Forest*	Western North America Warm Temperate Flooded and Swamp Forest	Southwestern North American Riparian, Flooded and Swamp Forest	Southwestern North American riparian/wash scrub	Baccharis salicifolia	Baccharis salicifolia Association
							Salix lasiolepis	Salix lasiolepis Association
	Xeromorphic Scrub and Herb Vegetation (Semi-Desert)	Warm Semi-Desert Scrub and Grassland	Warm Semi-Desert Scrub and Grassland	Sonoran and Chihuahuan Semi-Desert Scrub and Grassland	Madrean Warm Semi-Desert Wash Woodland/Scrub	Mojavean semi-desert wash scrub	Lepidospartum squamatum	Lepidospartum squamatum–Eriogonum fasciculatum Association
						Sonoran-Coloradan semi-desert wash woodland/scrub	Pluchea sericea	Pluchea sericea Association
Riparian Woodland	Mesomorphic Tree Vegetation (Forest and Woodland)	Temperate Forest	Temperate Flooded and Swamp Forest*	Western North America Warm Temperate Flooded and Swamp Forest	Southwestern North American Riparian, Flooded and Swamp Forest	Southwestern North American riparian evergreen and deciduous woodland	Platanus racemosa	Platanus racemosa–Populus fremontii/Salix lasiolepis Association
								Platanus racemosa–Quercus agrifolia Association
							Salix laevigata	Salix laevigata Association
			Warm Temperate Forest	Madrean Forest and Woodland	California Forest and Woodland	Californian broadleaf forest and woodland	Quercus agrifolia	Quercus agrifolia/Salix lasiolepis Association

Fallbrook Historic VegType	Level 1 Formation Class	Level 2 Formation Subclass	Level 3 Formation	Level 4 Division	Level 5 Macrogroup	Level 6 Group	Level 7 Alliance	Level 8 Association
Woodland (other)	Mesomorphic Tree Vegetation (Forest and Woodland)	Temperate Forest	Cool Temperate Forest	North American Introduced Evergreen Broadleaf and Conifer Forest	Introduced North American Mediterranean woodland and forest	Introduced North American Mediterranean woodland and forest	Eucalyptus (globulus, camaldulensis) Semi-Natural Stands	

Appendix C

Descriptions of Vegetation Types and Stand Tables that occur on NWSSB-DF

Appendix C – Descriptions of Vegetation Types and Stand Tables

Woodlands

Platanus racemosa Alliance

Platanus racemosa–Populus fremontii/Salix lasiolepis Association

Samples Used To Describe Association (n=9)

Rapid Assessment(s), NWSSB-DF stands (n=2): CP-A-187, CP-A-192
Rapid Assessment(s), Other stands (n=7): 0520TK02, 0623AK01, 0709JS01, 1531EB01, 1541MB02, SDRP0141, SDRP0437

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	56.6 (52.5)	39-87 (52-53)
Herb cover (%)	18.2 (8)	2-40 (8-8)
Shrub cover (%)	22.9 (8.5)	1-58 (1-16)
Understory tree cover (%)	14.5 (12)	12-17 (12-12)
Overstory tree cover (%)	28.2 (34.5)	8-55 (18-51)
Litter cover (%)	56.9 (40)	2-94 (38-42)
Bare ground cover (%)	18.3 (41)	4-53 (29-53)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	310 (206)	5-702 (182-230)
Slope (degrees)	1 (0)	0-3 (0-0)

Aspect: Flat 4 (2), NW 2 (-), SW 3 (-)
Macrotopography: Bottom 8 (2), Bottom to Lower 1/3 of slope 1 (-)
Parent material: Colluvial 2 (2), Granitic 2 (-), Mixed alluvium 1 (-), Sandy alluvium 2 (-)
Soil texture: Clay Loam 1 (-), Sand 4 (2), Sandy Loam 2 (-), Silt 1 (-), Silty Loam 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Trees					
	Platanus racemosa	100 (100)	8 (13)	2 (8)	18 (18)
	Populus fremontii	88.9 (50)	11 (5)	0.2 (5)	35 (5)
	Salix laevigata	77.8 (100)	6.9 (2.1)	0.2 (0.2)	20 (4)
	Salix gooddingii	33.3 (-)	1.3 (-)	1 (-)	2 (-)
	Amorpha fruticosa	22.2 (-)	3.5 (-)	3 (-)	4 (-)
Shrubs					
	Salix lasiolepis	100 (100)	16.8 (22.5)	0.2 (6)	53 (39)
	Toxicodendron diversilobum	77.8 (100)	2.6 (1.6)	0.2 (0.2)	7 (3)
	Baccharis salicifolia	77.8 (50)	5.9 (8)	1 (8)	12 (8)
	Rubus ursinus	55.6 (50)	2.5 (0.2)	0.2 (0.2)	6 (0.2)
	Vitis girdiana	55.6 (100)	8.6 (2.5)	1 (1)	26 (4)
	Rosa californica	33.3 (-)	7.8 (-)	0.2 (-)	23 (-)
	Salix exigua	22.2 (-)	3.6 (-)	0.2 (-)	7 (-)
Herbs					
	Ambrosia psilostachya	88.9 (100)	4 (0.2)	0.2 (0.2)	16 (0.2)
	Artemisia douglasiana	66.7 (50)	2.5 (0.2)	0.2 (0.2)	5 (0.2)
	Stipa miliacea	33.3 (50)	0.8 (2)	0.2 (2)	2 (2)
	Typha domingensis	33.3 (50)	5.1 (1)	0.2 (1)	14 (1)
	Bromus diandrus	33.3 (50)	6 (1)	1 (1)	15 (1)
	Arundo donax	33.3 (50)	1.1 (0.2)	0.2 (0.2)	2 (0.2)
	Anemopsis californica	22.2 (-)	1.5 (-)	1 (-)	2 (-)
	Typha latifolia	22.2 (-)	1.1 (-)	0.2 (-)	2 (-)

Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Carex spissa	22.2 (-)	2.5 (-)	1 (-)	4 (-)
Melilotus albus	22.2 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
Cynodon dactylon	22.2 (-)	4.1 (-)	0.2 (-)	8 (-)
Cyperus eragrostis	22.2 (-)	0.2 (-)	0.2 (-)	0.2 (-)
Cyperus involucratus	22.2 (50)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
Festuca perennis	22.2 (-)	0.2 (-)	0.2 (-)	0.2 (-)
Bromus madritensis subsp. rubens	22.2 (50)	0.6 (1)	0.2 (1)	1 (1)
Hirschfeldia incana	22.2 (-)	0.2 (-)	0.2 (-)	0.2 (-)
Juncus textilis	22.2 (-)	4.5 (-)	1 (-)	8 (-)
Medicago polymorpha	22.2 (-)	1.6 (-)	0.2 (-)	3 (-)
Rumex crispus	22.2 (-)	0.6 (-)	0.2 (-)	1 (-)
Phacelia ramosissima	22.2 (50)	1.5 (2)	1 (2)	2 (2)
Oenothera elata	22.2 (50)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
Euthamia occidentalis	22.2 (-)	4.5 (-)	1 (-)	8 (-)

Platanus racemosa Alliance
Platanus racemosa–Quercus agrifolia Association

Samples Used To Describe Association (n=41)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-038

Rapid Assessment(s), Other stands (n=40): 0309AK21, 0310DH26, 0311TK23, 0504TK24, 0505AK03, 0505MG02, 0507TK04, 0603JS02, 0610DH01, 0610DH04, 0611RB01, 0gpsMB03, 1041MB01, 1067MB01, 1068MB02, 1123EK01, 1123MB01, 1126MB01, 1136MB01, 1229EK01, 1350EB02, 1450EK01, 1550MB02, 1576LS01, 1708JD01, 1708JD02, 1710JD08, 1710KH04, 1800FS01, 4448EK06, 4448FS13, 4448JD01, SDRP0191, SDRP0194, SDRP0196, SDRP0323, SDRP0433, SDRP0476, WS-EK002

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	64.3 (49)	24-97 (49-49)
Herb cover (%)	17.7 (5)	0.2-60 (5-5)
Shrub cover (%)	24.3 (14)	0.2-60 (14-14)
Understory tree cover (%)	13 (-)	0.2-52 (-)
Overstory tree cover (%)	33.1 (33)	8-85 (33-33)
Litter cover (%)	56.3 (85)	0-94 (85-85)
Bare ground cover (%)	16.7 (14)	0-86 (14-14)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	954 (130)	49-3136 (130-130)
Slope (degrees)	4 (5)	0-28 (5-5)

Aspect: Flat 8 (-), NE 6 (-), NW 4 (-), S 2 (-), SE 5 (-), SW 14 (-), W 1 (1)

Macrotopography: Bottom 29 (1), Bottom to Lower 1/3 of slope 5 (-), Lower 1/3 of slope 1 (-), Lower to Middle 1/3 of slope 1 (-), Middle 1/3 of slope 4 (-)

Parent material: Conglomerate 1 (-), Granitic 10 (1), Gravelly alluvium 1 (-), Metamorphic 1 (-), Mixed alluvium 4 (-), Sandstone 1 (-), Sandy alluvium 8 (-), Silty alluvium 1 (-)

Soil texture: Clay Loam 5 (-), Loam 4 (1), Sand 6 (-), Sandy Loam 21 (-), Silt 1 (-), Silty Loam 1 (-), Unknown 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Trees					
	Quercus agrifolia	100 (100)	22.6 (18)	0.2 (18)	60 (18)
	Platanus racemosa	100 (100)	11.1 (15)	1 (15)	63 (15)
	Salix laevigata	31.7 (-)	9.4 (-)	1 (-)	35 (-)
Shrubs					
	Toxicodendron diversilobum	80.5 (100)	14.7 (1)	0.2 (1)	55 (1)
	Salix lasiolepis	53.7 (-)	6.9 (-)	0.2 (-)	25 (-)
	Baccharis salicifolia	39 (-)	2.7 (-)	0.2 (-)	10 (-)
	Rubus ursinus	31.7 (100)	5.3 (1)	0.2 (1)	14 (1)
	Vitis girdiana	26.8 (100)	14.7 (12)	0.2 (12)	55 (12)
	Sambucus nigra subsp. caerulea	26.8 (100)	1.5 (0.2)	0.2 (0.2)	7 (0.2)
	Rosa californica	22 (100)	0.9 (0.2)	0.2 (0.2)	3 (0.2)
Herbs					
	Bromus diandrus	56.1 (100)	11.7 (2)	0.2 (2)	52 (2)
	Artemisia douglasiana	51.2 (-)	3.6 (-)	0.2 (-)	12 (-)
	Ambrosia psilostachya	26.8 (-)	2.2 (-)	0.2 (-)	7 (-)
	Nasturtium officinale	22 (-)	0.8 (-)	0.2 (-)	2 (-)
	Elymus condensatus	22 (100)	0.9 (1)	0.2 (1)	4 (1)
	Carex spissa	22 (-)	2.4 (-)	0.2 (-)	10 (-)
	Stipa miliacea	22 (-)	1.7 (-)	0.2 (-)	4 (-)

Quercus agrifolia Alliance
Quercus agrifolia/Salix lasiolepis Association

Samples Used To Describe Association (n=5)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-052
Rapid Assessment(s), Other stands (n=4): 0308TK21, 1355MB02, 1415EK01, 1710JD02

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	58 (30)	30-77 (30-30)
Herb cover (%)	9.8 (2)	2-19 (2-2)
Shrub cover (%)	24.6 (1)	1-45 (1-1)
Understory tree cover (%)	10.7 (-)	1-26 (-)
Overstory tree cover (%)	38.2 (29)	19-65 (29-29)
Litter cover (%)	60.4 (7)	7-95 (7-7)
Bare ground cover (%)	35.6 (91)	4-91 (91-91)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	403 (537)	108-810 (537-537)
Slope (degrees)	2 (0)	0-4 (0-0)

Aspect: Flat 2 (1), NE 1 (-), SW 2 (-)
Macrotopography: Bottom 5 (1)
Parent material: Granitic 1 (1), Sandstone 1 (-), Sandy alluvium 1 (-)
Soil texture: Clay 1 (-), Loam 1 (1), Sandy Loam 3 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Trees					
	Quercus agrifolia	100 (100)	35.4 (25.2)	16 (25.2)	60 (25.2)
	Salix gooddingii	40 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Salix laevigata	40 (100)	10.5 (4)	4 (4)	17 (4)
	Phoenix canariensis	40 (-)	1.1 (-)	0.2 (-)	2 (-)
Shrubs					
	Salix lasiolepis	80 (-)	14.8 (-)	7 (-)	24 (-)
	Toxicodendron diversilobum	80 (-)	18.2 (-)	10 (-)	30 (-)
	Sambucus nigra subsp. caerulea	60 (100)	0.5 (0.2)	0.2 (0.2)	1 (0.2)
	Heteromeles arbutifolia	40 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Baccharis pilularis	40 (-)	1.6 (-)	0.2 (-)	3 (-)
	Malosma laurina	40 (100)	0.6 (0.2)	0.2 (0.2)	1 (0.2)
Herbs					
	Brassica nigra	60 (-)	0.5 (-)	0.2 (-)	1 (-)
	Bromus diandrus	60 (-)	2.7 (-)	1 (-)	5 (-)
	Artemisia palmeri	40 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Artemisia douglasiana	40 (100)	2.1 (0.2)	0.2 (0.2)	4 (0.2)
	Anagallis arvensis	40 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Ambrosia psilostachya	40 (-)	1.1 (-)	0.2 (-)	2 (-)
	Hirschfeldia incana	40 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Hypochaeris glabra	40 (-)	0.6 (-)	0.2 (-)	1 (-)
	Carduus pycnocephalus	40 (-)	4.1 (-)	0.2 (-)	8 (-)
	Rumex crispus	40 (-)	0.6 (-)	0.2 (-)	1 (-)
	Bromus hordeaceus	40 (-)	2.5 (-)	2 (-)	3 (-)
	Stipa miliacea	40 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Marrubium vulgare	40 (-)	0.2 (-)	0.2 (-)	0.2 (-)

Quercus agrifolia Alliance
Quercus agrifolia/Toxicodendron diversilobum/Grass Association

Samples Used To Describe Association (n=54)

Rapid Assessment(s), NWSSB-DF stands (n=2): FB-A-028, FB-A-040

Rapid Assessment(s), Other stands (n=52): 0324DHF6, 0421RB02, 0421TK02, 0422DH03, 0422TK03, 0423AK03, 0423TK01, 0504DH22, 0504TK01, 0505TK01, 0507DH03, 0521DH02, 0603RB03, 0604JJ01, 0625JJ02, 0gpsMB02, 1015EK06, 1019EK02, 1021EK01, 1030MB01, 1048EK01, 1056EK03, 1069EK02, 1073EK01, 1075FS01, 1110EK02, 1133EK03, 1172MA01, 1202KH01, 1202KH02, 1214KH01, 1237EK01, 1253MA01, 1289EK01, 1350JD01, 1429EK01, 1449EK01, 1456EK01, 1463EK04, 1520MA01, 1708MM02, 1782MB02, 1811TK01, ek3.8.3, SDG0110, SDRP0069, SDRP0071, SDRP0134, WRAA.040, WRIV0351, WRIV0582, WRIV0586

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	57.8 (53)	29-88 (51-55)
Herb cover (%)	21.2 (15)	0.2-85 (15-15)
Shrub cover (%)	14.9 (2.5)	0.2-45 (2-3)
Understory tree cover (%)	4.3 (1)	0.2-20 (1-1)
Overstory tree cover (%)	35.3 (45.5)	7-70 (41-50)
Litter cover (%)	68.5 (89)	17-95 (85-93)
Bare ground cover (%)	17.2 (10)	0-46 (7-13)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	993 (541)	135-3330 (484-597)
Slope (degrees)	11 (2)	1-36 (1-2)

Aspect: E 2 (-), Flat 5 (-), N 4 (-), NE 9 (-), NW 8 (-), S 3 (1), SE 9 (-), SW 8 (-), Variable 3 (-), W 3 (1)

Macrotopography: Bottom 15 (2), Bottom to Lower 1/3 of slope 11 (-), Bottom to Mid 1/3 of slope 1 (-), Lower 1/3 of slope 10 (-), Lower to Middle 1/3 of slope 3 (-), Middle 1/3 of slope 9 (-), Middle to Upper 1/3 of slope 3 (-), Upper 1/3 of slope 1 (-)

Parent material: Diorite 1 (-), Gabbro 1 (-), Granitic 14 (2), Gravelly alluvium 2 (-), Igneous 1 (-), Metamorphic 2 (-), Mixed alluvium 3 (-), Sandstone 15 (-), Sandy alluvium 6 (-), Sedimentary 1 (-)

Soil texture: Clay 1 (-), Clay Loam 8 (-), Loam 10 (1), Sand 1 (-), Sandy Loam 27 (-), Silt Loam 1 (1), Silty Loam 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Trees					
	Quercus agrifolia	100 (100)	36.8 (45.7)	4 (41.2)	75 (50.2)
	Platanus racemosa	24.1 (50)	0.9 (1)	0.2 (1)	3 (1)
Shrubs					
	Toxicodendron diversilobum	98.1 (100)	7.7 (1.5)	0.2 (1)	35 (2)
	Rhamnus ilicifolia	40.7 (-)	3 (-)	0.2 (-)	10 (-)
	Diplacus ×australis	38.9 (50)	1.1 (0.2)	0.2 (0.2)	5 (0.2)
	Malosma laurina	33.3 (100)	2.9 (0.6)	0.2 (0.2)	18 (1)
	Sambucus nigra subsp. caerulea	31.5 (50)	0.6 (0.2)	0.2 (0.2)	4 (0.2)
	Heteromeles arbutifolia	29.6 (-)	4.9 (-)	0.2 (-)	18 (-)
	Rhus integrifolia	24.1 (-)	3.2 (-)	0.2 (-)	20 (-)
Herbs					
	Bromus diandrus	77.8 (100)	16.4 (7.1)	0.2 (0.2)	60 (14)
	Carduus pycnocephalus	37 (-)	2.5 (-)	0.2 (-)	15 (-)
	Marah macrocarpa	37 (-)	0.7 (-)	0.2 (-)	5 (-)
	Elymus condensatus	27.8 (50)	0.4 (0.2)	0.2 (0.2)	2 (0.2)
	Galium aparine	27.8 (-)	0.7 (-)	0.2 (-)	5 (-)
	Melica imperfecta	25.9 (-)	0.8 (-)	0.2 (-)	5 (-)
	Artemisia douglasiana	22.2 (-)	0.8 (-)	0.2 (-)	3 (-)
	Stipa miliacea	22.2 (-)	1.1 (-)	0.2 (-)	5 (-)

Quercus engelmannii Alliance
Quercus engelmannii–Quercus agrifolia/Toxicodendron diversilobum/Grass Association

Samples Used To Describe Association (n=16)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-037

Rapid Assessment(s), Other stands (n=15): 0609AK02, 1125KH01, 1125PG02, 1130FS01, 1162FS01, 1672FS01, 1676FS01, 4448EK21, 4448EK22, 4448LW12, SDG0057, SDRP0474, SDRP0478, WRIV0233, WRIV0990

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	64.6 (60)	35-98 (60-60)
Herb cover (%)	35.6 (42)	1-98 (42-42)
Shrub cover (%)	14.7 (12)	0.2-35 (12-12)
Understory tree cover (%)	4.9 (2)	0.2-12 (2-2)
Overstory tree cover (%)	26.1 (18)	11-55 (18-18)
Litter cover (%)	56.4 (75)	15-85 (75-75)
Bare ground cover (%)	21.6 (24)	0-65 (24-24)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	1863 (660)	660-3100 (660-660)
Slope (degrees)	11 (20)	1-25 (20-20)

Aspect: Flat 2 (-), N 1 (1), NE 3 (-), NW 6 (-), SE 2 (-), SW 1 (-), Variable 1 (-)

Macrotopography: Bottom 3 (-), Bottom to Upper 1/3 of slope 2 (-), Lower 1/3 of slope 4 (-), Middle 1/3 of slope 4 (1), Middle to Upper 1/3 of slope 2 (-), Ridge top 1 (-)

Parent material: Basalt 1 (-), Granitic 10 (1), Metamorphic 1 (-), Sedimentary 1 (-), Shale 1 (-)

Soil texture: Clay 1 (-), Clay Loam 2 (-), Loam 4 (1), Sandy Loam 7 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Trees					
	Quercus agrifolia	100 (100)	15.4 (6)	1 (6)	40 (6)
	Quercus engelmannii	100 (100)	11.9 (14.2)	3 (14.2)	25 (14.2)
Shrubs					
	Toxicodendron diversilobum	62.5 (100)	8 (0.2)	0.2 (0.2)	20 (0.2)
	Eriogonum fasciculatum	43.8 (-)	1.4 (-)	0.2 (-)	5 (-)
	Artemisia californica	37.5 (100)	2.1 (2)	0.2 (2)	5 (2)
	Malosma laurina	37.5 (100)	1.9 (2)	0.2 (2)	3 (2)
	Rhus aromatica	25 (-)	0.6 (-)	0.2 (-)	1 (-)
	Rhamnus ilicifolia	25 (-)	1.4 (-)	0.2 (-)	3 (-)
	Diplacus ×australis	25 (100)	1.4 (0.2)	0.2 (0.2)	5 (0.2)
	Heteromeles arbutifolia	25 (100)	0.8 (0.2)	0.2 (0.2)	1 (0.2)
	Lonicera subspicata	25 (-)	0.4 (-)	0.2 (-)	1 (-)
Herbs					
	Bromus diandrus	87.5 (100)	19.7 (40)	0.2 (40)	94 (40)
	Avena fatua	25 (-)	10.2 (-)	3 (-)	15 (-)
	Ambrosia psilostachya	25 (-)	1.4 (-)	0.2 (-)	3 (-)
	Hirschfeldia incana	25 (-)	1.6 (-)	0.2 (-)	5 (-)
	Erodium botrys	25 (-)	10.2 (-)	1 (-)	20 (-)
	Clarkia purpurea	25 (-)	1.3 (-)	0.2 (-)	3 (-)
	Muhlenbergia rigens	25 (-)	1.5 (-)	1 (-)	2 (-)

Salix laevigata Alliance
Salix laevigata Association

Samples Used To Describe Association (n=19)

Rapid Assessment(s), NWSSB-DF stands (n=3): CP-A-186, CP-A-190, FB-A-030
Rapid Assessment(s), Other stands (n=16): 0603JJ01, 1069EK03, 1128MA03, 1177KH01, 1187KH01, 1339EB01, 1521EK01, 1705KH01, 1705MM01, 1710KH02, 1737KH03, 1737KH04, 1744MB01, 1782MB01, 3.8jd06, SDG0072

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	58.5 (62.3)	23-85 (55-72)
Herb cover (%)	13.7 (12.5)	1-45 (10-15)
Shrub cover (%)	19 (4.3)	1-62 (2-8)
Understory tree cover (%)	19.3 (16.5)	1-55 (1-32)
Overstory tree cover (%)	30.4 (34.3)	2-77 (18-50)
Litter cover (%)	58.8 (85)	2-99 (85-85)
Bare ground cover (%)	24.1 (8.7)	0-95 (3-13)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	295 (250)	56-607 (175-317)
Slope (degrees)	1 (0)	0-3 (0-1)

Aspect: Flat 9 (2), NE 2 (-), NW 2 (-), S 1 (-), SE 1 (-), SW 3 (1), W 1 (-)
Macrotopography: Bottom 16 (3), Bottom to Lower 1/3 of slope 3 (-)
Parent material: Colluvial 2 (2), Granitic 3 (1), Gravelly alluvium 1 (-), Mixed alluvium 1 (-), Sandstone 2 (-), Sandy alluvium 6 (-), Sedimentary 1 (-)
Soil texture: Clay Loam 2 (-), Sand 12 (2), Sandy Loam 4 (-), Silt Loam 1 (1)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Trees					
	Salix laevigata	100 (100)	27.8 (32.3)	5 (12)	77 (50)
	Quercus agrifolia	26.3 (-)	3.3 (-)	0.2 (-)	7 (-)
	Salix gooddingii	26.3 (-)	1.4 (-)	0.2 (-)	4 (-)
	Platanus racemosa	21.1 (33.3)	2.3 (0.2)	0.2 (0.2)	8 (0.2)
Shrubs					
	Baccharis salicifolia	63.2 (66.7)	8 (2.6)	0.2 (0.2)	40 (5)
	Salix lasiolepis	52.6 (100)	12.4 (12.7)	1 (1)	31 (31)
	Baccharis pilularis	31.6 (33.3)	2.5 (3)	0.2 (3)	6 (3)
	Toxicodendron diversilobum	31.6 (33.3)	3.3 (2)	1 (2)	7 (2)
	Vitis girdiana	26.3 (66.7)	2.7 (0.6)	0.2 (0.2)	12 (1)
	Sambucus nigra subsp. caerulea	21.1 (33.3)	1 (0.2)	0.2 (0.2)	2 (0.2)
	Salix exigua	21.1 (33.3)	1.8 (2)	1 (2)	2 (2)
	Rhus integrifolia	21.1 (-)	6 (-)	0.2 (-)	12 (-)
Herbs					
	Artemisia douglasiana	42.1 (66.7)	2.8 (1)	0.2 (1)	10 (1)
	Hirschfeldia incana	36.8 (100)	1.5 (0.2)	0.2 (0.2)	5 (0.2)
	Helminthotheca echioides	31.6 (-)	1.3 (-)	0.2 (-)	5 (-)
	Conium maculatum	31.6 (66.7)	1 (0.2)	0.2 (0.2)	4 (0.2)
	Ambrosia psilostachya	31.6 (33.3)	0.8 (0.2)	0.2 (0.2)	2 (0.2)
	Raphanus sativus	26.3 (-)	1.9 (-)	0.2 (-)	4 (-)
	Artemisia palmeri	26.3 (-)	3 (-)	0.2 (-)	7 (-)
	Stipa miliacea	26.3 (100)	0.7 (0.7)	0.2 (0.2)	1 (1)
	Carduus pycnocephalus	21.1 (33.3)	1.6 (0.2)	0.2 (0.2)	5 (0.2)
	Bromus diandrus	21.1 (-)	14.3 (-)	0.2 (-)	38 (-)
	Melilotus albus	21.1 (33.3)	0.6 (0.2)	0.2 (0.2)	1 (0.2)

Shrublands

Acmispon glaber Alliance
Acmispon glaber Association

Samples Used To Describe Association (n=19)

Rapid Assessment(s), NWSSB-DF stands (n=4): FB-A-004, FB-A-005, FB-A-009, FB-B-009
Rapid Assessment(s), Other stands (n=15): 0423RB02, 0519DH05, 1197EK03, 1218EK02, 1237MA01, 1289MA01, 1425EK01, khunk01, SDG0084, SDG0086, SDG0104, SDRP0192, SDRP0193, WRIV0483, WRIV0486

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	44.9 (25.5)	8-83 (19-35)
Herb cover (%)	19.1 (10.5)	0.2-78 (4-25)
Shrub cover (%)	29.3 (16)	7-80 (11-26)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	- (-)	- (-)
Litter cover (%)	24 (5)	0-90 (0-10)
Bare ground cover (%)	55.1 (67.3)	0-92 (0-92)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	1054 (445)	371-2431 (371-484)
Slope (degrees)	20 (10)	0-40 (6-15)

Aspect: Flat 1 (-), N 1 (-), NE 3 (-), NW 3 (-), S 1 (1), SE 1 (-), SW 5 (1), Variable 1 (-), W 3 (2)
Macrotopography: Lower 1/3 of slope 1 (-), Lower to Middle 1/3 of slope 2 (-), Middle 1/3 of slope 8 (3), Middle 1/3 of slope to Ridgetop 2 (-), Middle to Upper 1/3 of slope 3 (-), Upper 1/3 of slope 1 (-), Upper 1/3 of slope to Ridgetop 2 (1)
Parent material: Granitic 9 (4), Igneous 3 (-), Metamorphic 1 (-), Sandstone 2 (-)
Soil texture: Clay 2 (-), Clay Loam 3 (1), Loam 1 (-), Sandy Clay 2 (2), Sandy Loam 10 (1), Silty Loam 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Acmispon glaber	100 (100)	21.8 (15)	4 (10)	72 (25)
	Artemisia californica	63.2 (50)	2.6 (0.2)	0.2 (0.2)	12 (0.2)
	Eriogonum fasciculatum	63.2 (-)	1.5 (-)	0.2 (-)	5 (-)
	Salvia apiana	42.1 (75)	0.6 (1)	0.2 (1)	1 (1)
	Salvia mellifera	31.6 (25)	0.9 (0.2)	0.2 (0.2)	2 (0.2)
	Malosma laurina	31.6 (75)	0.6 (0.2)	0.2 (0.2)	2 (0.2)
	Malacothamnus fasciculatus	31.6 (-)	0.9 (-)	0.2 (-)	2 (-)
	Hazardia squarrosa	26.3 (-)	2.4 (-)	1 (-)	6 (-)
	Rhus integrifolia	21.1 (-)	0.4 (-)	0.2 (-)	1 (-)
	Opuntia littoralis	21.1 (25)	0.4 (0.2)	0.2 (0.2)	1 (0.2)
Herbs					
	Bromus madritensis subsp. rubens	52.6 (25)	10.5 (0.2)	0.2 (0.2)	37 (0.2)
	Hirschfeldia incana	47.4 (75)	3.6 (0.2)	0.2 (0.2)	15 (0.2)
	Hypochaeris glabra	36.8 (100)	0.7 (0.2)	0.2 (0.2)	3 (0.2)
	Centaurea melitensis	26.3 (-)	6.2 (-)	0.2 (-)	18 (-)
	Erodium cicutarium	26.3 (25)	6.4 (0.2)	0.2 (0.2)	15 (0.2)
	Cryptantha intermedia	26.3 (50)	2.3 (0.2)	0.2 (0.2)	6 (0.2)
	Marah macrocarpa	21.1 (25)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Logfia gallica	21.1 (50)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Eucrypta chrysanthemifolia	21.1 (-)	0.4 (-)	0.2 (-)	1 (-)
	Acmispon strigosus	21.1 (100)	5.4 (5.4)	0.2 (0.2)	20 (20)
	Nuttallanthus texanus	21.1 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Erigeron canadensis	21.1 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)

Adenostoma fasciculatum Alliance
Adenostoma fasciculatum Association

Samples Used To Describe Association (n=30)

Rapid Assessment(s), NWSSB-DF stands (n=2): FB-A-039, FB-A-048

Rapid Assessment(s), Other stands (n=28): 0519RB05, 0520RB01, 1342MB02, 4424FS02, 4424FS07, 4424FS11, 4424FS12, 4424FS20, 4424JD06, 4424LW04, 4424LW07, 4424LW21, 4448EK05, 4448EK11, 4448EK19, 4448FS04, 4448FS10, CMMFS003, LWCMM002, OAKG042, OAKG046, SDRP0157, WRAA.021, WRAA.023, WRAA.083, WRAA.084, WRAA.095, WRIV0802

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	50.1 (49)	20-80 (45-53)
Herb cover (%)	7.8 (8.5)	0.1-35 (7-10)
Shrub cover (%)	46.5 (43.5)	20-80 (41-46)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	3 (-)	3-3 (-)
Litter cover (%)	22.1 (42.5)	0-85 (40-45)
Bare ground cover (%)	42.8 (51)	10-88 (50-52)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	2752 (589)	562-4690 (562-616)
Slope (degrees)	16 (14)	2-35 (13-14)

Aspect: E 2 (-), N 1 (-), NE 2 (-), NW 2 (-), S 5 (-), SE 4 (-), SW 7 (-), Variable 4 (-), W 3 (2)

Macrotopography: Bottom 2 (-), Lower 1/3 of slope 1 (-), Lower 1/3 of slope to Ridegetop 1 (-), Lower to Middle 1/3 of slope 4 (-), Lower to Upper 1/3 of slope 3 (-), Middle 1/3 of slope 4 (-), Middle 1/3 of slope to Ridgetop 2 (-), Middle to Upper 1/3 of slope 8 (-), Upper 1/3 of slope 1 (-), Upper 1/3 of slope to Ridgetop 4 (2)

Parent material: Gabbro 1 (-), Granitic 23 (2), Metamorphic 1 (-), Mixed igneous 1 (-), Mixed metamorphic 1 (-), Sedimentary 1 (-)

Soil texture: Clay 1 (-), Clay Loam 2 (-), Loamy Sand 1 (1), Sand 1 (-), Sandy Loam 25 (1)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Adenostoma fasciculatum	100 (100)	39.4 (41.5)	12 (41)	80 (42)
	Eriogonum fasciculatum	53.3 (50)	1.2 (0.2)	0.2 (0.2)	5 (0.2)
	Hesperoyucca whipplei	46.7 (100)	0.3 (0.6)	0.2 (0.2)	1 (1)
	Rhus ovata	43.3 (-)	3.2 (-)	0.2 (-)	15 (-)
	Acmispon glaber	36.7 (50)	1.7 (1)	0.2 (1)	6 (1)
	Quercus (berberidifolia, xacutidens)	36.7 (-)	2.8 (-)	0.1 (-)	10 (-)
	Prunus ilicifolia	30 (50)	1.2 (0.2)	0.2 (0.2)	5 (0.2)
	Yucca schidigera	26.7 (-)	0.4 (-)	0.2 (-)	1 (-)
	Cylindropuntia californica	26.7 (-)	0.9 (-)	0.2 (-)	3 (-)
Herbs					
	Bromus madritensis subsp. rubens	33.3 (100)	3.4 (4)	0.2 (3)	10 (5)

Artemisia californica Alliance
Artemisia californica Association

Samples Used To Describe Association (n=40)

Rapid Assessment(s), NWSSB-DF stands (n=7): FB-A-003, FB-A-012, FB-A-016, FB-A-018, FB-A-020, FB-A-023, FB-B-004

Rapid Assessment(s), Other stands (n=33): 0625DH01, 0707RB03, 0708AK02, 0709DH01, 0709MG03, 1003EK04, 1004EK01, 1015EK02, 1047EK03, 1093EK01, 1114EK01, 1137EK01, 1187EK02, 1204EK01, 1223EK01, 1366EK01, 1408EK01, 1419EK01, 1419EK02, 1472EK03, 1478EK01, 1494EK02, 1627MB02, 1634JD02, 1701JD01, 1705JD02, a1069EK01, ek3.8.1, SDRP0087, SDRP0138, SDRP0139, SDRP0236, SDRP0280

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	49.8 (57.1)	25-78 (37-78)
Herb cover (%)	15.8 (40.6)	0.2-74 (1-74)
Shrub cover (%)	37.4 (25.6)	4-65 (4-54)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	- (-)	- (-)
Litter cover (%)	38.8 (35)	0-75 (5-55)
Bare ground cover (%)	47.8 (62.6)	13-95 (45-95)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	531 (535)	5-1404 (450-600)
Slope (degrees)	14 (4)	0-40 (0-10)

Aspect: E 3 (-), Flat 2 (2), N 1 (-), NE 6 (-), NW 8 (2), S 4 (1), SE 5 (-), SW 7 (1), Variable 2 (-), W 2 (1)

Macrotopography: Entire slope 1 (-), Lower 1/3 of slope 3 (1), Lower to Middle 1/3 of slope 3 (-), Lower to Upper 1/3 of slope 1 (-), Middle 1/3 of slope 8 (4), Middle 1/3 of slope to Ridgetop 3 (-), Middle to Upper 1/3 of slope 7 (-), Ridge top 1 (-), Upper 1/3 of slope 10 (1), Upper 1/3 of slope to Ridgetop 2 (1)

Parent material: Granitic 10 (7), Metamorphic 2 (-), Sandstone 20 (-), Sedimentary 1 (-), Semi-schist 1 (-)

Soil texture: Clay 2 (-), Clay Loam 14 (3), Loam 2 (-), Sand 2 (-), Sandy Clay 2 (2), Sandy Loam 14 (2), Silt 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Artemisia californica	100 (100)	30.2 (25.6)	4 (4)	55 (54)
	Eriogonum fasciculatum	57.5 (28.6)	2 (0.2)	0.2 (0.2)	11 (0.2)
	Rhus integrifolia	50 (-)	3.2 (-)	0.2 (-)	17 (-)
	Baccharis pilularis	45 (-)	2.7 (-)	0.2 (-)	11 (-)
	Acmispon glaber	37.5 (42.9)	1.4 (0.2)	0.2 (0.2)	15 (0.2)
	Malosma laurina	35 (-)	3.8 (-)	0.2 (-)	12 (-)
	Diplacus ×australis	35 (-)	0.6 (-)	0.2 (-)	2 (-)
	Opuntia littoralis	32.5 (14.3)	0.6 (0.2)	0.2 (0.2)	4 (0.2)
	Isocoma menziesii	22.5 (14.3)	1.8 (0.2)	0.2 (0.2)	9 (0.2)
Herbs					
	Bromus madritensis subsp. rubens	47.5 (71.4)	4.8 (2)	0.2 (0.2)	35 (5)
	Pseudognaphalium californicum	40 (-)	0.4 (-)	0.2 (-)	1 (-)
	Brassica nigra	27.5 (-)	0.9 (-)	0.2 (-)	5 (-)
	Centaurea melitensis	27.5 (14.3)	2.2 (0.2)	0.2 (0.2)	10 (0.2)
	Festuca myuros	22.5 (57.1)	1.8 (0.2)	0.2 (0.2)	12 (0.2)
	Stipa pulchra	22.5 (28.6)	3.7 (0.2)	0.2 (0.2)	25 (0.2)

Artemisia californica–Eriogonum fasciculatum Alliance
Artemisia californica–Eriogonum fasciculatum–Malosma laurina Association

Samples Used To Describe Association (n=52)

Rapid Assessment(s), NWSSB-DF stands (n=2): FB-A-035, FB-A-036

Rapid Assessment(s), Other stands (n=50): 0505RB03, 0519TK01, 0520RB03, 0521RB03, 0521TK01, 0603DH01, 0610AK01, 1035MB01, 1056EK06, 1062EK02, 1076EK01, 1108EK01, 1353MB01, 1407EK01, 1414EK01, 1437KH01, 1516EK01, 1548MB01, 1549KH01, 1617MB01, 1700PG02, SDG0007, SDG0010, SDG0012, SDG0016, SDG0019, SDG0022, SDG0026, SDG0029, SDG0036, SDG0037, SDG0038, SDG0046, SDG0065, SDG0066, SDG0070, SDG0115, SDRP0090, SDRP0125, SDRP0130, SDRP0132, SDRP0190, SDRP0261, SDRP0319, SDRP0320, SDRP0467, WRIV0246, WRIV0294, WRIV0305, WRIV0357

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	50.1 (48)	15-75 (48-48)
Herb cover (%)	18.9 (20.5)	0.2-55 (15-26)
Shrub cover (%)	35.6 (34.5)	2-75 (34-35)
Understory tree cover (%)	7 (-)	7-7 (-)
Overstory tree cover (%)	0.2 (-)	0.2-0.2 (-)
Litter cover (%)	39.3 (37.5)	0-78 (35-40)
Bare ground cover (%)	41.2 (62.5)	8-85 (60-65)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	797 (666)	115-3062 (657-674)
Slope (degrees)	14 (9)	3-40 (8-10)

Aspect: E 2 (-), Flat 3 (-), NE 5 (-), NW 6 (-), S 3 (-), SE 15 (-), SW 12 (1), Variable 2 (-), W 3 (1)

Macrotopography: Bottom 3 (-), Bottom to Lower 1/3 of slope 1 (-), Lower 1/3 of slope 11 (-), Lower to Middle 1/3 of slope 7 (-), Lower to Upper 1/3 of slope 5 (-), Middle 1/3 of slope 10 (-), Middle to Upper 1/3 of slope 7 (-), Ridge top 1 (-), Upper 1/3 of slope 5 (-), Upper 1/3 of slope to Ridgetop 2 (2)

Parent material: Gabbro 1 (-), Granitic 17 (2), Igneous 2 (-), Metamorphic 3 (-), Sandstone 7 (-), Sedimentary 2 (-)

Soil texture: Clay Loam 12 (-), Loam 2 (-), Loamy Sand 1 (1), MCLS 1 (-), Sandy Loam 21 (1), Silty Loam 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Eriogonum fasciculatum	100 (100)	10.6 (14)	0.2 (10)	33 (18)
	Artemisia californica	100 (100)	16.1 (20.5)	0.2 (16)	38 (25)
	Malosma laurina	75 (-)	6.4 (-)	0.2 (-)	35 (-)
	Salvia apiana	38.5 (-)	1.2 (-)	0.2 (-)	5 (-)
	Acmispon glaber	34.6 (50)	1.1 (0.2)	0.2 (0.2)	5 (0.2)
	Bahiopsis laciniata	30.8 (-)	1.9 (-)	0.2 (-)	7 (-)
	Opuntia littoralis	23.1 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Eriophyllum confertiflorum	23.1 (-)	1.4 (-)	0.2 (-)	12 (-)
	Rhamnus crocea	23.1 (-)	2.2 (-)	0.2 (-)	13 (-)
Herbs					
	Bromus madritensis subsp. rubens	63.5 (100)	7.3 (8.5)	0.2 (8)	50 (9)
	Centaurea melitensis	51.9 (-)	3.5 (-)	0.2 (-)	25 (-)
	Hirschfeldia incana	30.8 (50)	2.6 (0.2)	0.2 (0.2)	25 (0.2)
	Erodium	26.9 (-)	9.5 (-)	0.2 (-)	40 (-)
	Bromus hordeaceus	23.1 (-)	9.4 (-)	0.2 (-)	45 (-)
	Festuca myuros	21.2 (50)	6.3 (15)	0.2 (15)	15 (15)

Artemisia californica–Eriogonum fasciculatum Alliance

Artemisia californica–Eriogonum fasciculatum–Opuntia littoralis/Dudleya (edulis) Coastal Association

Samples Used To Describe Association (n=34)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-047

Rapid Assessment(s), Other stands (n=33): 0521TK03, 0623AK03, 0623JS01, 0623RB04, 0706MG01, 0706TK06, 0707JS01, 0708DH02, 1064EK01, 1128EK04, 1339JD03, 1339LS01, 1410EK01, 1472EK01, 1479EK01, 1502JD01, 1502KH01, 1520KH01, 1546JD03, 1599JD01, 1599JD02, 1599KH02, 1629KH01, 1637JD01, 1700JD01, 1710JD03, 1766MB01, 1769KG01, 4408EK01, 4408EK02, 4452EK03, SDG0071, SDRP0093

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	44.5 (35)	18-71 (35-35)
Herb cover (%)	13.5 (6)	0.2-30 (6-6)
Shrub cover (%)	34.5 (31)	15-68 (31-31)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	0.2 (-)	0.2-0.2 (-)
Litter cover (%)	31.1 (5)	5-78 (5-5)
Bare ground cover (%)	46.3 (70)	7-85 (70-70)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	273 (690)	5-705 (690-690)
Slope (degrees)	22 (4)	3-75 (4-4)

Aspect: NE 2 (-), S 6 (-), SE 15 (-), SW 9 (-), Variable 1 (-), W 1 (1)

Macrotopography: Lower 1/3 of slope 3 (-), Lower 1/3 of slope to Ridegetop 1 (-), Lower 1/3 of slope to Ridgetop 1 (-), Lower to Middle 1/3 of slope 4 (-), Lower to Upper 1/3 of slope 5 (-), Middle 1/3 of slope 7 (-), Middle 1/3 of slope to Ridgetop 2 (-), Middle to Upper 1/3 of slope 6 (-), Ridge top 3 (-), Upper 1/3 of slope 2 (1)

Parent material: Conglomerate 2 (-), General volcanic extrusives 1 (-), Granitic 1 (1), Igneous 1 (-), Metamorphic 1 (-), Mixed alluvium 1 (-), Sandstone 8 (-), Sedimentary 2 (-)

Soil texture: Clay Loam 4 (-), MCLS 1 (-), Sand 6 (-), Sandy Loam 20 (1), Silty Loam 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Eriogonum fasciculatum	97.1 (100)	7.3 (14)	0.2 (14)	18 (14)
	Artemisia californica	94.1 (100)	14.7 (2)	2 (2)	33 (2)
	Opuntia littoralis	79.4 (100)	1.2 (0.2)	0.2 (0.2)	8 (0.2)
	Rhus integrifolia	79.4 (-)	4.1 (-)	0.2 (-)	12 (-)
	Cylindropuntia prolifera	64.7 (100)	2.4 (2)	0.2 (2)	20 (2)
	Ferocactus viridescens	50 (-)	0.2 (-)	0.2 (-)	1 (-)
	Encelia californica	44.1 (-)	5.3 (-)	0.2 (-)	26 (-)
	Malosma laurina	38.2 (100)	1.3 (0.2)	0.2 (0.2)	6 (0.2)
	Salvia mellifera	35.3 (-)	2.3 (-)	0.2 (-)	12 (-)
	Acmispon glaber	29.4 (100)	0.7 (1)	0.2 (1)	2 (1)
	Peritoma arborea	26.5 (-)	1.2 (-)	0.2 (-)	5 (-)
	Bahiopsis laciniata	23.5 (-)	3.2 (-)	1 (-)	8 (-)
Herbs					
	Bromus madritensis subsp. rubens	76.5 (100)	6.4 (4)	0.2 (4)	15 (4)
	Deinandra fasciculata	41.2 (-)	1.8 (-)	0.2 (-)	6 (-)
	Centaurea melitensis	38.2 (100)	2 (0.2)	0.2 (0.2)	8 (0.2)
	Stipa lepida	38.2 (-)	2.4 (-)	0.2 (-)	10 (-)
	Dudleya pulverulenta	35.3 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Selaginella cinerascens	32.4 (-)	2.5 (-)	0.2 (-)	8 (-)
	Avena barbata	29.4 (-)	0.6 (-)	0.2 (-)	1 (-)
	Dudleya edulis	23.5 (-)	1.1 (-)	0.2 (-)	3 (-)
	Festuca myuros	20.6 (-)	3 (-)	0.2 (-)	7 (-)

Artemisia californica–Eriogonum fasciculatum Alliance

Artemisia californica–Eriogonum fasciculatum–Opuntia littoralis/Dudleya (edulis) Inland Association

Samples Used To Describe Association (n=31)

Rapid Assessment(s), NWSSB-DF stands (n=4): FB-A-025, FB-A-026, FB-A-034, FB-A-045
Rapid Assessment(s), Other stands (n=27): 1017EK01, 1032EK02, 1056EK07, 1057EK04, 1066EK01, 1066EK02, 1066EK06, 1086EK01, 1092EK02, 1128EK02, 1128EK03, 1197EK02, 1339JD01, 1344EK01, 1347EK01, 1450EK03, 1463EK01, 1463EK02, 1513EK01, 1513EK06, 1705JD01, 3.8.2, 4448FS01-1, 4448FS02-1, 4448FS03-1, SDRP0246, SDRP0324

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	43 (41.5)	20-70 (33-47)
Herb cover (%)	4.7 (9.7)	0.2-26 (3-22)
Shrub cover (%)	39.3 (35.5)	15-74 (22-45)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	4 (-)	4-4 (-)
Litter cover (%)	30.4 (39.3)	0-65 (20-57)
Bare ground cover (%)	52.4 (56.8)	25-83 (35-75)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	623 (483)	148-1056 (278-749)
Slope (degrees)	19 (7)	1-50 (2-12)

Aspect: NE 1 (-), NW 1 (-), S 11 (1), SE 9 (-), SW 7 (2), W 2 (1)
Macrotopography: Bottom to Lower 1/3 of slope 1 (-), Lower 1/3 of slope 3 (-), Lower to Middle 1/3 of slope 2 (-), Lower to Upper 1/3 of slope 4 (-), Middle 1/3 of slope 7 (1), Middle to Upper 1/3 of slope 5 (-), Upper 1/3 of slope 4 (-), Upper 1/3 of slope to Ridgetop 5 (3)
Parent material: Granitic 5 (4), Mixed alluvium 2 (-), Other than on list 1 (-), Sandstone 14 (-)
Soil texture: Clay 1 (-), Clay Loam 5 (2), Loam 1 (-), Sand 3 (-), Sandy Loam 16 (2), Silty Loam 1 (-), Unknown 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Opuntia littoralis	100 (100)	10.5 (7.2)	1 (3)	40 (15)
	Eriogonum fasciculatum	100 (100)	8.8 (6.2)	0.2 (1)	35 (9)
	Artemisia californica	83.9 (100)	16.5 (21.8)	0.2 (17)	37 (32)
	Malosma laurina	74.2 (-)	2.1 (-)	0.2 (-)	25 (-)
	Acmispon glaber	48.4 (-)	2.8 (-)	0.2 (-)	12 (-)
	Rhus integrifolia	45.2 (-)	1.8 (-)	0.2 (-)	6 (-)
	Sambucus nigra subsp. caerulea	38.7 (-)	0.3 (-)	0.2 (-)	1 (-)
	Diplacus ×australis	38.7 (25)	1.4 (0.2)	0.2 (0.2)	7 (0.2)
	Baccharis pilularis	32.3 (50)	0.7 (0.6)	0.2 (0.2)	3 (1)
	Cuscuta occidentalis	32.3 (-)	0.4 (-)	0.2 (-)	1 (-)
	Brickellia californica	22.6 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Hesperoyucca whipplei	22.6 (-)	0.4 (-)	0.2 (-)	1 (-)
Herbs					
	Bromus madritensis subsp. rubens	48.4 (100)	2.2 (2.3)	0.2 (0.2)	20 (4)
	Pseudognaphalium californicum	38.7 (-)	0.3 (-)	0.2 (-)	1 (-)
	Centaurea melitensis	32.3 (25)	1.6 (1)	0.2 (1)	8 (1)
	Avena barbata	25.8 (-)	0.5 (-)	0.2 (-)	1 (-)
	Stipa pulchra	25.8 (-)	0.5 (-)	0.2 (-)	1 (-)
	Scrophularia californica	22.6 (-)	0.3 (-)	0.2 (-)	1 (-)

Artemisia californica–Salvia mellifera Alliance
Artemisia californica–Salvia mellifera Association

Samples Used To Describe Association (n=55)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-029

Rapid Assessment(s), Other stands (n=54): 0623RB02, 0623RB05, 0624AK01, 0625JJ01, 0625RB03, 0706AK01, 0707DH04, 0708DH04, 0708JS02, 0709DH02, 0709RB03, 1015EK05, 1047EK01, 1047EK04, 1056EK05, 1056EK08, 1088EK05, 1173EK01, 1202JD01, 1336FS01, 1413EK03, 1465MA01, 1470JD01, 1513KH01, 1520MA02, 1524EK01, 1698FS01, 1710JD05, 1710JD11, 1710KH01, 1710KH03, 1710KH05, 1737JD02, 1737JD06, 1737KH02, 1769JD01, 1769KH01, 3.8jd01, 4432FS04, 4442LW01, SDG0113, SDRP0062, SDRP0075, SDRP0142, SDRP0271, SDRP0272, SDRP0275, SDRP0276, SDRP0277, SDRP0278, SDRP0353, SDRP0354, SDRP0402, SDRP0403

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	52.8 (50)	15-92 (50-50)
Herb cover (%)	9.4 (-)	0.2-40 (-)
Shrub cover (%)	46.8 (50)	13-90 (50-50)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	2.1 (-)	0.2-4 (-)
Litter cover (%)	38.9 (45)	0-90 (45-45)
Bare ground cover (%)	37.7 (45)	5-83 (45-45)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	383 (517)	5-1453 (517-517)
Slope (degrees)	19 (20)	2-38 (20-20)

Aspect: E 2 (1), N 2 (-), NE 12 (-), NW 15 (-), S 1 (-), SE 11 (-), SW 10 (-), Variable 1 (-), W 1 (-)

Macrotopography: Bottom 1 (-), Entire slope 1 (-), Lower 1/3 of slope 8 (-), Lower 1/3 of slope to Ridgetop 1 (-), Lower 1/3 of slope to Ridgetop 1 (-), Lower to Middle 1/3 of slope 8 (-), Lower to Upper 1/3 of slope 7 (-), Middle 1/3 of slope 9 (1), Middle 1/3 of slope to Ridgetop 3 (-), Middle to Upper 1/3 of slope 10 (-), Ridge top 2 (-), Upper 1/3 of slope 3 (-), Upper 1/3 of slope to Ridgetop 1 (-)

Parent material: Conglomerate 1 (-), Diorite 1 (-), Granitic 4 (1), Metamorphic 3 (-), Mixed alluvium 4 (-), Mixed sedimentary 1 (-), Sandstone 18 (-), Sandy alluvium 2 (-), Sedimentary 3 (-)

Soil texture: Clay 3 (-), Clay Loam 14 (-), Loam 3 (-), Loamy Sand 1 (1), MCLS 2 (-), Sand 3 (-), Sandy Loam 21 (-), Silt 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Salvia mellifera	100 (100)	14.1 (47)	2 (47)	47 (47)
	Artemisia californica	100 (100)	15.3 (3)	2 (3)	50 (3)
	Rhus integrifolia	72.7 (-)	7.9 (-)	0.2 (-)	31 (-)
	Eriogonum fasciculatum	65.5 (100)	2.4 (0.2)	0.2 (0.2)	9 (0.2)
	Malosma laurina	58.2 (100)	4.2 (1)	0.2 (1)	15 (1)
	Diplacus ×australis	52.7 (-)	3.1 (-)	0.2 (-)	20 (-)
	Opuntia littoralis	43.6 (-)	1.2 (-)	0.2 (-)	6 (-)
	Acmispon glaber	32.7 (-)	2.6 (-)	0.2 (-)	37 (-)
	Baccharis sarothroides	23.6 (-)	4.4 (-)	0.2 (-)	20 (-)
	Encelia californica	21.8 (-)	4.1 (-)	0.2 (-)	28 (-)
	Heteromeles arbutifolia	21.8 (-)	2 (-)	0.2 (-)	8 (-)
Herbs					
	Bromus madritensis subsp. rubens	54.5 (-)	3.8 (-)	0.2 (-)	15 (-)
	Centaurea melitensis	36.4 (-)	2 (-)	0.2 (-)	8 (-)
	Stipa lepida	21.8 (-)	3.2 (-)	0.2 (-)	14 (-)

Baccharis salicifolia Alliance
Baccharis salicifolia Association

Samples Used To Describe Association (n=26)

Rapid Assessment(s), NWSSB-DF stands (n=1): CP-A-188

Rapid Assessment(s), Other stands (n=25): 0504MJ23, 0506AK05, 0506RB04, 0520DH06, 0709AK01, 1014EK01, 1019DH01, 1163FS01, 1243MA01, 1361JD02, 1426MA01, 1499EK01, 1510EK01, 1545EB01, 1604LS02, 1626KH01, 1766KH02, 1784FS01, SDG0106, SDRP0067, SDRP0078, SDRP0081, SDRP0150, SDRP0200, SDRP0316

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	48.9 (28)	15-90 (28-28)
Herb cover (%)	17.6 (15)	0.2-72 (15-15)
Shrub cover (%)	32.9 (16)	10-74 (16-16)
Understory tree cover (%)	0.2 (-)	0.2-0.2 (-)
Overstory tree cover (%)	2.5 (-)	0.2-10 (-)
Litter cover (%)	39 (10)	0-95 (10-10)
Bare ground cover (%)	27.2 (70)	0-75 (70-70)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	534 (216)	5-1263 (216-216)
Slope (degrees)	2 (0)	0-15 (0-0)

Aspect: Flat 9 (1), NE 2 (-), NW 3 (-), S 3 (-), SE 1 (-), SW 6 (-), Variable 2 (-)

Macrotopography: Bottom 20 (1), Bottom to Lower 1/3 of slope 1 (-), Bottom to Mid 1/3 of slope 1 (-), Lower 1/3 of slope 2 (-), Middle 1/3 of slope 1 (-)

Parent material: Clayey alluvium 1 (-), Colluvial 1 (1), Gravelly alluvium 1 (-), Mixed alluvium 6 (-), Sandstone 3 (-), Sandy alluvium 6 (-), Sedimentary 1 (-), Silty alluvium 3 (-)

Soil texture: Clay 2 (-), Clay Loam 1 (-), Loam 1 (-), Sand 10 (1), Sandy Loam 5 (-), Silty Loam 2 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Trees					
	Platanus racemosa	23.1 (100)	0.8 (0.2)	0.2 (0.2)	4 (0.2)
	Salix gooddingii	23.1 (-)	1.3 (-)	0.2 (-)	4 (-)
Shrubs					
	Baccharis salicifolia	100 (100)	26.5 (16)	8 (16)	72 (16)
	Salix lasiolepis	34.6 (100)	1.5 (1)	0.2 (1)	3 (1)
	Artemisia californica	30.8 (-)	0.6 (-)	0.2 (-)	1 (-)
	Tamarix	26.9 (-)	0.4 (-)	0.2 (-)	1 (-)
	Sambucus nigra subsp. caerulea	26.9 (-)	2.3 (-)	0.2 (-)	6 (-)
	Baccharis pilularis	23.1 (-)	2.1 (-)	0.2 (-)	7 (-)
Herbs					
	Hirschfeldia incana	42.3 (100)	1.3 (0.2)	0.2 (0.2)	4 (0.2)
	Bromus madritensis subsp. rubens	42.3 (100)	2.6 (0.2)	0.2 (0.2)	9 (0.2)
	Ambrosia psilostachya	42.3 (100)	1.1 (2)	0.2 (2)	4 (2)
	Centaurea melitensis	30.8 (-)	0.8 (-)	0.2 (-)	2 (-)
	Bromus diandrus	30.8 (100)	2.9 (0.2)	0.2 (0.2)	8 (0.2)
	Avena barbata	30.8 (100)	4.9 (0.2)	0.2 (0.2)	31 (0.2)
	Lactuca serriola	23.1 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Artemisia douglasiana	23.1 (100)	8.2 (0.2)	0.2 (0.2)	40 (0.2)

Lepidospartum squamatum Alliance
Lepidospartum squamatum–Eriogonum fasciculatum Association

Samples Used To Describe Association (n=9)

Rapid Assessment(s), NWSSB-DF stands (n=1): CP-A-185
Rapid Assessment(s), Other stands (n=8): 1088EK02, 1133EK04, 1142EK01, 4448JD07, WRIV0048, WRIV0691, WRIV0692, WRIV0945

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	36.9 (22)	20-60 (22-22)
Herb cover (%)	13.7 (2)	2-40 (2-2)
Shrub cover (%)	25.2 (20)	17-43 (20-20)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	0.2 (-)	0.2-0.2 (-)
Litter cover (%)	8.9 (0)	0-20 (0-0)
Bare ground cover (%)	32 (20)	1-77 (20-20)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	2022 (305)	305-3828 (305-305)
Slope (degrees)	2 (2)	1-3 (2-2)

Aspect: E 1 (1), Flat 3 (-), NW 1 (-), S 1 (-), SE 1 (-), SW 2 (-)
Macrotopography: Bottom 7 (1), Bottom to Lower 1/3 of slope 1 (-), Lower 1/3 of slope 1 (-)
Parent material: Colluvial 1 (1), Granitic 3 (-), Mixed alluvium 2 (-), Sandstone 1 (-), Sandy alluvium 1 (-)
Soil texture: Sand 7 (1), Sandy Loam 2 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Eriogonum fasciculatum	100 (100)	8 (4)	2 (4)	25 (4)
	Lepidospartum squamatum	100 (100)	8.9 (13)	1 (13)	22 (13)
	Acmispon glaber	44.4 (-)	1.6 (-)	0.2 (-)	3 (-)
	Hesperoyucca whipplei	44.4 (-)	0.4 (-)	0.2 (-)	1 (-)
	Sambucus nigra subsp. caerulea	44.4 (-)	0.8 (-)	0.2 (-)	2 (-)
	Cylindropuntia californica	44.4 (-)	5.2 (-)	2 (-)	11 (-)
	Brickellia californica	33.3 (100)	1.7 (2)	0.2 (2)	3 (2)
	Opuntia littoralis	33.3 (-)	1.7 (-)	0.2 (-)	3 (-)
	Malosma laurina	22.2 (-)	1.1 (-)	0.2 (-)	2 (-)
	Senecio flaccidus	22.2 (-)	2 (-)	2 (-)	2 (-)
	Salvia apiana	22.2 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Prunus ilicifolia	22.2 (-)	1.1 (-)	0.2 (-)	2 (-)
	Baccharis salicifolia	22.2 (-)	1.1 (-)	0.2 (-)	2 (-)
	Artemisia tridentata	22.2 (-)	3.5 (-)	1 (-)	6 (-)
	Artemisia dracunculus	22.2 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Artemisia californica	22.2 (-)	1.1 (-)	0.2 (-)	2 (-)
	Ribes quercetorum	22.2 (-)	0.6 (-)	0.2 (-)	1 (-)
Herbs					
	Bromus madritensis subsp. rubens	66.7 (100)	1.3 (0.2)	0.2 (0.2)	4 (0.2)
	Hirschfeldia incana	44.4 (100)	0.8 (0.2)	0.2 (0.2)	2 (0.2)
	Bromus diandrus	44.4 (-)	2.6 (-)	0.2 (-)	4 (-)
	Cryptantha intermedia	44.4 (-)	2 (-)	0.2 (-)	4 (-)
	Avena barbata	33.3 (-)	6.8 (-)	0.2 (-)	20 (-)
	Bromus tectorum	33.3 (-)	10.7 (-)	6 (-)	14 (-)
	Camissoniopsis bistorta	33.3 (-)	2.1 (-)	0.2 (-)	5 (-)
	Erodium cicutarium	22.2 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Festuca myuros	22.2 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Dudleya pulverulenta	22.2 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Centaurea melitensis	22.2 (-)	0.6 (-)	0.2 (-)	1 (-)
	Lupinus concinnus	22.2 (-)	1.5 (-)	1 (-)	2 (-)

Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Logfia gallica	22.2 (-)	1.6 (-)	0.2 (-)	3 (-)
Hypochaeris glabra	22.2 (-)	0.2 (-)	0.2 (-)	0.2 (-)
Acmispon strigosus	22.2 (-)	1 (-)	1 (-)	1 (-)
Brassica nigra	22.2 (-)	0.2 (-)	0.2 (-)	0.2 (-)
Pseudognaphalium biolettii	22.2 (100)	1.5 (2)	1 (2)	2 (2)

Malosma laurina Alliance
Malosma laurina–Acmispon glaber Association

Samples Used To Describe Association (n=44)

Rapid Assessment(s), NWSSB-DF stands (n=7): FB-A-007, FB-A-008, FB-A-014, FB-A-015, FB-A-017, FB-A-027, FB-A-043

Rapid Assessment(s), Other stands (n=37): 0421RB01, 0422AK02, 0422AK04, 0422RB01, 0422RB03, 0423AK01, 0506TK02, 0507DH02, 0519AK01, 0519RB01, 0603JJ02, 0611AK01, 1069FS02, 1216MB01, 1216MM01, 1218EK01, 1327KH01, 1393KG02, 1529MM01, 1536EB01, 1538JD01, 1539PG02, 1539PJ01, 1604EB01, SDG0008, SDG0020, SDG0031, SDG0039, SDG0040, SDG0048, SDG0052, SDG0103, SDG0108, SDG0109, SDG0116, SDRP0427, SDRP0477

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	40 (26.1)	5-85 (5-50)
Herb cover (%)	21.9 (13.9)	1-65 (1-37)
Shrub cover (%)	21.8 (14.6)	3-80 (3-30)
Understory tree cover (%)	0.5 (-)	0.5-0.5 (-)
Overstory tree cover (%)	2.1 (-)	0.2-5 (-)
Litter cover (%)	23.7 (13.9)	0-82 (0-60)
Bare ground cover (%)	44.6 (81.3)	4-99 (38-99)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	944 (552)	346-1654 (346-870)
Slope (degrees)	20 (14)	1-45 (1-30)

Aspect: Flat 1 (-), N 3 (3), NE 7 (-), NW 5 (1), SE 14 (-), SW 12 (1), W 2 (2)

Macrotopography: Bottom to Lower 1/3 of slope 1 (-), Lower 1/3 of slope 7 (1), Lower 1/3 of slope to Ridgetop 1 (-), Lower to Middle 1/3 of slope 2 (-), Lower to Upper 1/3 of slope 4 (-), Middle 1/3 of slope 15 (3), Middle 1/3 of slope to Ridgetop 2 (-), Middle to Upper 1/3 of slope 5 (-), Ridge top 1 (-), Upper 1/3 of slope 3 (1), Upper 1/3 of slope to Ridgetop 3 (2)

Parent material: Gabbro 2 (-), Granitic 23 (7), Metamorphic 1 (-), Phyllite 1 (-), Quartz diorite 1 (-), Sandstone 1 (-), Sedimentary 1 (-)

Soil texture: Clay 1 (-), Clay Loam 8 (1), Loam 4 (1), Loamy Sand 2 (2), MCLS 2 (-), Sand 1 (-), Sandy Loam 19 (3), Silty Loam 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Malosma laurina	100 (100)	8.6 (6.7)	1 (1)	23 (20)
	Acmispon glaber	81.8 (100)	10 (6.5)	0.2 (0.2)	80 (17)
	Artemisia californica	79.5 (100)	1.1 (0.5)	0.2 (0.2)	5 (2)
	Salvia apiana	54.5 (14.3)	1 (0.2)	0.2 (0.2)	4 (0.2)
	Eriogonum fasciculatum	52.3 (-)	2.1 (-)	0.2 (-)	8 (-)
	Diplacus ×australis	31.8 (42.9)	0.8 (1.5)	0.2 (0.2)	4 (4)
	Hesperoyucca whipplei	31.8 (-)	0.4 (-)	0.2 (-)	1 (-)
	Hazardia squarrosa	29.5 (57.1)	0.6 (0.2)	0.2 (0.2)	3 (0.2)
	Rhamnus crocea	29.5 (-)	2 (-)	0.2 (-)	15 (-)
	Eriophyllum confertiflorum	22.7 (-)	1.9 (-)	0.2 (-)	6 (-)
	Malacothamnus fasciculatus	20.5 (-)	1.3 (-)	0.2 (-)	5 (-)
Herbs					
	Bromus madritensis subsp. rubens	72.7 (71.4)	6.2 (5.2)	0.2 (0.2)	25 (25)
	Centaurea melitensis	50 (57.1)	2 (0.4)	0.2 (0.2)	10 (1)
	Festuca myuros	47.7 (85.7)	3 (1.3)	0.2 (0.2)	12 (5)
	Hirschfeldia incana	45.5 (57.1)	5.1 (0.4)	0.2 (0.2)	50 (1)
	Avena barbata	29.5 (-)	5 (-)	0.2 (-)	23 (-)
	Hypochaeris glabra	29.5 (28.6)	4.3 (0.2)	0.2 (0.2)	20 (0.2)
	Marah macrocarpa	29.5 (42.9)	0.3 (0.2)	0.2 (0.2)	1 (0.2)
	Calystegia macrostegia	27.3 (-)	4 (-)	0.2 (-)	18 (-)
	Logfia gallica	25 (57.1)	0.4 (0.2)	0.2 (0.2)	2 (0.2)

Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Eucrypta chrysanthemifolia	22.7 (71.4)	1.4 (0.5)	0.2 (0.2)	7 (1)
Chaenactis artemisiifolia	20.5 (-)	0.6 (-)	0.2 (-)	3 (-)
Bromus diandrus	20.5 (28.6)	3.6 (0.2)	0.2 (0.2)	14 (0.2)
Pterostegia drymarioides	20.5 (57.1)	1.1 (0.4)	0.2 (0.2)	3 (1)
Erodium botrys	20.5 (42.9)	4.7 (11.1)	0.2 (0.2)	33 (33)
Erodium cicutarium	20.5 (-)	3.8 (-)	0.2 (-)	10 (-)
Mirabilis laevis	20.5 (-)	0.6 (-)	0.2 (-)	4 (-)

Pluchea sericea Alliance
Pluchea sericea Association

Samples Used To Describe Association (n=7)

Rapid Assessment(s), NWSSB-DF stands (n=1): CP-A-191
Rapid Assessment(s), Other stands (n=6): 0310AK21, 0310RB21, 0310RB23, 0311AK26, 0505AK21, 0707DH03

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	46.1 (36)	32-68 (36-36)
Herb cover (%)	17 (13)	0.2-32 (13-13)
Shrub cover (%)	32.4 (27)	13-68 (27-27)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	1.7 (-)	0.2-4 (-)
Litter cover (%)	67.9 (38)	38-92 (38-38)
Bare ground cover (%)	25.9 (47)	5-47 (47-47)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	62 (137)	5-272 (137-137)
Slope (degrees)	7 (3)	0-40 (3-3)

Aspect: Flat 2 (-), NE 1 (-), NW 1 (-), S 1 (1), SE 1 (-), SW 1 (-)
Macrotopography: Bottom 5 (1), Lower 1/3 of slope 2 (-)
Parent material: Colluvial 1 (1), Mixed alluvium 1 (-), Sandy alluvium 5 (-)
Soil texture: Clay Loam 1 (-), Sand 2 (1), Sandy Loam 4 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Pluchea sericea	100 (100)	31.7 (26)	12 (26)	68 (26)
	Baccharis salicifolia	28.6 (100)	1.6 (0.2)	0.2 (0.2)	3 (0.2)
	Baccharis pilularis	28.6 (-)	1.6 (-)	0.2 (-)	3 (-)
	Artemisia californica	28.6 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
Herbs					
	Bromus diandrus	57.1 (100)	17 (0.2)	0.2 (0.2)	27 (0.2)
	Distichlis spicata	42.9 (-)	7.7 (-)	0.2 (-)	22 (-)
	Raphanus sativus	28.6 (-)	0.6 (-)	0.2 (-)	1 (-)
	Frankenia salina	28.6 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Bromus madritensis subsp. rubens	28.6 (100)	0.6 (1)	0.2 (1)	1 (1)
	Brassica nigra	28.6 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Ambrosia psilostachya	28.6 (100)	3 (5)	1 (5)	5 (5)
	Hirschfeldia incana	28.6 (100)	1.1 (2)	0.2 (2)	2 (2)

Quercus (berberidifolia, xacutidens) Alliance
Quercus (berberidifolia, ×acutidens) Association

Samples Used To Describe Association (n=28)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-049

Rapid Assessment(s), Other stands (n=27): 0506RB02, 0506RB23, 0609AK03, 0609RB01, 0610DH03, 0610TK03, 1038MB01, 1304JD02, 1361KH01, 1384JD01, 1561JD01, 1607MM01, 1607MM03, 1613MB01, 1645FS02, 1696LS01, 1702MB01, 1702PG01, 1710JD04, 1710JD07, 1710JD09, 1710JD12, 1737JD04, 1817TK02, 4433FS01, SDG0053, SDRP0197

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	61.2 (50)	28-87 (50-50)
Herb cover (%)	9.5 (21)	0.2-60 (21-21)
Shrub cover (%)	56.2 (35)	25-86 (35-35)
Understory tree cover (%)	5 (-)	5-5 (-)
Overstory tree cover (%)	1.5 (-)	1-2 (-)
Litter cover (%)	48.1 (45)	0-87 (45-45)
Bare ground cover (%)	19.3 (32)	1-65 (32-32)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	1107 (182)	182-3153 (182-182)
Slope (degrees)	21 (35)	4-45 (35-35)

Aspect: N 2 (1), NE 10 (-), NW 11 (-), SE 2 (-), SW 2 (-), Variable 1 (-)

Macrotopography: Bottom 1 (-), Bottom to Upper 1/3 of slope 2 (-), Entire slope 1 (-), Lower 1/3 of slope 1 (-), Lower 1/3 of slope to Ridegetop 1 (-), Lower 1/3 of slope to Ridgetop 1 (-), Lower to Middle 1/3 of slope 5 (-), Lower to Upper 1/3 of slope 3 (-), Middle 1/3 of slope 3 (-), Middle 1/3 of slope to Ridgetop 1 (-), Middle to Upper 1/3 of slope 4 (-), Upper 1/3 of slope 4 (-)

Parent material: Diorite 1 (-), Gabbro 2 (-), Granitic 6 (1), Igneous 1 (-), Metamorphic 5 (-)

Soil texture: Clay 2 (-), Clay Loam 4 (-), Loam 4 (1), MCLS 1 (-), Sandy Loam 16 (-), Silty Loam 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Quercus (berberidifolia, xacutidens)	100 (100)	39 (25)	6 (25)	75 (25)
	Heteromeles arbutifolia	53.6 (100)	1.9 (1)	0.2 (1)	6 (1)
	Lonicera subspicata	50 (-)	1.1 (-)	0.2 (-)	5 (-)
	Adenostoma fasciculatum	46.4 (-)	3.4 (-)	0.2 (-)	15 (-)
	Rhus integrifolia	39.3 (-)	2.4 (-)	0.2 (-)	10 (-)
	Hazardia squarrosa	39.3 (100)	0.5 (0.2)	0.2 (0.2)	1 (0.2)
	Diplacus ×australis	35.7 (100)	0.8 (0.2)	0.2 (0.2)	3 (0.2)
	Eriophyllum confertiflorum	35.7 (100)	1.3 (0.2)	0.2 (0.2)	6 (0.2)
	Acmispon glaber	32.1 (100)	2.2 (0.2)	0.2 (0.2)	7 (0.2)
	Xylococcus bicolor	28.6 (-)	3.6 (-)	1 (-)	12 (-)
	Toxicodendron diversilobum	28.6 (-)	2.3 (-)	0.2 (-)	6 (-)
	Arctostaphylos glandulosa subsp. glandulosa	25 (-)	4.7 (-)	0.2 (-)	10 (-)
	Artemisia californica	21.4 (100)	3.5 (1)	0.2 (1)	10 (1)
	Crocanthemum scoparium	21.4 (-)	2.2 (-)	0.2 (-)	9 (-)
	Eriogonum fasciculatum	21.4 (100)	1.3 (0.2)	0.2 (0.2)	5 (0.2)
	Rhamnus ilicifolia	21.4 (100)	2.9 (2)	0.2 (2)	7 (2)
	Keckiella cordifolia	21.4 (100)	3 (3)	1 (3)	6 (3)
	Malosma laurina	21.4 (-)	7.4 (-)	0.2 (-)	25 (-)
Herbs					
	Bromus madritensis subsp. rubens	39.3 (100)	6.1 (10)	0.2 (10)	28 (10)
	Marah macrocarpa	39.3 (100)	0.5 (0.2)	0.2 (0.2)	3 (0.2)
	Festuca myuros	35.7 (100)	2.5 (0.2)	0.2 (0.2)	7 (0.2)
	Stipa lepida	25 (-)	0.3 (-)	0.2 (-)	1 (-)

Salix lasiolepis Alliance
Salix lasiolepis Association

Samples Used To Describe Association (n=17)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-051
Rapid Assessment(s), Other stands (n=16): 0310TK21, 0311TK25, 0421TK03, 0504TK21, 0624RB01, 0625DH03, 0625DH05, 0707RB02, 0709JS02, 0709RB01, 1702FS01, 1730KH02, 1766KH01, SDRP0066, SDRP0095, SDRP0339

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	56.8 (60)	24-96 (60-60)
Herb cover (%)	18.6 (15)	0.2-45 (15-15)
Shrub cover (%)	40.1 (49)	6-92 (49-49)
Understory tree cover (%)	10.5 (3)	3-18 (3-3)
Overstory tree cover (%)	8.8 (-)	0.2-25 (-)
Litter cover (%)	60.6 (60)	0-88 (60-60)
Bare ground cover (%)	18.9 (0)	0-78 (0-0)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	218 (231)	5-1014 (231-231)
Slope (degrees)	1 (0)	0-3 (0-0)

Aspect: Flat 5 (1), NW 4 (-), SE 1 (-), SW 7 (-)
Macrotopography: Bottom 17 (1)
Parent material: Colluvial 1 (1), Granitic 1 (-), Igneous 1 (-), Mixed alluvium 4 (-), Sandstone 1 (-), Sandy alluvium 4 (-), Silty alluvium 3 (-)
Soil texture: Clay 1 (-), Clay Loam 1 (-), Muck 2 (-), Sand 5 (1), Sandy Loam 2 (-), Silt 1 (-), Silty Loam 2 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Trees					
	Platanus racemosa	41.2 (100)	1.4 (1)	0.2 (1)	5 (1)
	Salix gooddingii	35.3 (-)	4.2 (-)	1 (-)	8 (-)
Shrubs					
	Salix lasiolepis	100 (100)	34.4 (45)	9 (45)	88 (45)
	Baccharis salicifolia	64.7 (100)	8.9 (5)	0.2 (5)	30 (5)
	Salix exigua	29.4 (100)	4.3 (0.2)	0.2 (0.2)	10 (0.2)
	Baccharis pilularis	23.5 (-)	1.2 (-)	0.2 (-)	4 (-)
	Heteromeles arbutifolia	23.5 (-)	0.2 (-)	0.2 (-)	0.2 (-)
Herbs					
	Anemopsis californica	47.1 (-)	2.5 (-)	0.2 (-)	10 (-)
	Artemisia douglasiana	35.3 (100)	3.9 (15)	0.2 (15)	15 (15)
	Juncus acutus subsp. leopoldii	29.4 (-)	0.4 (-)	0.2 (-)	1 (-)
	Carex spissa	29.4 (-)	8.5 (-)	0.2 (-)	37 (-)
	Xanthium strumarium	23.5 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Cyperus	23.5 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Bromus diandrus	23.5 (-)	15.8 (-)	0.2 (-)	30 (-)
	Apium graveolens	23.5 (-)	2.1 (-)	0.2 (-)	7 (-)

Salvia apiana Alliance
Salvia apiana–Artemisia californica Association

Samples Used To Describe Association (n=20)

Rapid Assessment(s), NWSSB-DF stands (n=3): FB-A-010, FB-A-033, FB-A-044

Rapid Assessment(s), Other stands (n=17): 0603RB01, 1073FS01, 1102MB01, 1161EK02, 1161MA02, 1172EK01, 1633MB01, 1686FS01, 1720FS01, SDG0009, SDG0030, SDG0033, SDG0042, SDRP0097, SDRP0136, SDRP0140, SDRP0471

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	49.7 (51)	22-75 (46-54)
Herb cover (%)	20.9 (23.3)	0.2-52 (17-30)
Shrub cover (%)	31.9 (31)	10-55 (17-41)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	2.6 (-)	0.2-5 (-)
Litter cover (%)	40.9 (51.7)	6-90 (30-90)
Bare ground cover (%)	40 (46)	5-70 (5-68)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	1178 (585)	374-3346 (378-725)
Slope (degrees)	20 (14)	1-42 (7-20)

Aspect: E 1 (1), N 1 (-), NE 5 (-), NW 4 (1), SE 4 (-), SW 2 (-), Variable 1 (-), W 2 (1)

Macrotopography: Bottom 1 (-), Lower 1/3 of slope 3 (-), Lower to Middle 1/3 of slope 3 (-), Lower to Upper 1/3 of slope 3 (-), Middle 1/3 of slope 2 (1), Middle to Upper 1/3 of slope 5 (-), Ridge top 1 (-), Upper 1/3 of slope to Ridgetop 2 (2)

Parent material: Gabbro 2 (-), Granitic 13 (3)

Soil texture: Clay Loam 5 (1), Loam 3 (1), Sandy Loam 6 (1), Silty Loam 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Salvia apiana	100 (100)	12.6 (7.7)	2 (2)	37 (12)
	Artemisia californica	95 (100)	12.6 (18.7)	0.2 (6)	37 (37)
	Eriogonum fasciculatum	80 (66.7)	2.4 (1.1)	0.2 (0.2)	15 (2)
	Malosma laurina	70 (66.7)	3.4 (1.1)	0.2 (0.2)	12 (2)
	Diplacus ×australis	40 (33.3)	5.2 (10)	0.2 (10)	23 (10)
	Hazardia squarrosa	35 (66.7)	0.5 (0.2)	0.2 (0.2)	2 (0.2)
	Eriophyllum confertiflorum	35 (33.3)	0.3 (0.2)	0.2 (0.2)	1 (0.2)
	Hesperoyucca whipplei	25 (33.3)	1.1 (0.2)	0.2 (0.2)	4 (0.2)
	Rhamnus crocea	25 (-)	0.4 (-)	0.2 (-)	1 (-)
	Isocoma menziesii	25 (-)	0.7 (-)	0.2 (-)	2 (-)
	Acmispon glaber	25 (-)	3 (-)	0.2 (-)	14 (-)
Herbs					
	Bromus madritensis subsp. rubens	60 (100)	4.6 (7.3)	0.2 (1)	15 (15)
	Hirschfeldia incana	40 (-)	2.2 (-)	0.2 (-)	10 (-)
	Festuca myuros	30 (66.7)	3.4 (4.5)	0.2 (4)	6 (5)
	Centaurea melitensis	30 (33.3)	1.1 (0.2)	0.2 (0.2)	3.2 (0.2)
	Erodium	25 (-)	27.8 (-)	2 (-)	45 (-)

Salvia mellifera Alliance
Salvia mellifera Alliance

Samples Used To Describe Association (n=2)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-024
Rapid Assessment(s), Other stands (n=1): 1339LS03

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	47 (54)	40-54 (54-54)
Herb cover (%)	25 (-)	25-25 (-)
Shrub cover (%)	54 (54)	54-54 (54-54)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	- (-)	- (-)
Litter cover (%)	44 (68)	20-68 (68-68)
Bare ground cover (%)	41 (32)	32-50 (32-32)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	387 (574)	200-574 (574-574)
Slope (degrees)	16 (8)	8-23 (8-8)

Aspect: SE 1 (-), SW 1 (1)
Macrotopography: Bottom to Mid 1/3 of slope 1 (-), Middle 1/3 of slope 1 (1)
Parent material: Granitic 1 (1)
Soil texture: Sandy Loam 1 (1), Unknown 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Salvia mellifera	100 (100)	29 (52)	6 (52)	52 (52)
	Baccharis sarothroides	50 (-)	5 (-)	5 (-)	5 (-)
	Diplacus ×australis	50 (-)	2 (-)	2 (-)	2 (-)
	Sambucus nigra subsp. caerulea	50 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Opuntia littoralis	50 (100)	1 (1)	1 (1)	1 (1)
	Artemisia californica	50 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Acmispon glaber	50 (-)	1 (-)	1 (-)	1 (-)
	Baccharis pilularis	50 (100)	1 (1)	1 (1)	1 (1)
	Encelia californica	50 (-)	3 (-)	3 (-)	3 (-)
Herbs					
	Bromus madritensis subsp. rubens	50 (-)	2 (-)	2 (-)	2 (-)
	Pennisetum setaceum	50 (-)	20 (-)	20 (-)	20 (-)
	Melilotus albus	50 (-)	7 (-)	7 (-)	7 (-)

Salvia mellifera Alliance
Salvia mellifera–Eriogonum fasciculatum Association

Samples Used To Describe Association (n=22)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-031

Rapid Assessment(s), Other stands (n=21): 0625RB01, 0625RB02, 0706TK01, 0707TK05, 1099EK01, 1099EK04, 1099EK05, 1099MA01, 1101EK01, 1101EK02, 1115PG01, 1126FS01, 1128EK01, 1312KH01, 1406EK01, 1730KH01, 3.8jd05, ek3.8.4, SDG0093, SDG0099, SDRP0334

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	44.7 (60)	21-73 (60-60)
Herb cover (%)	3.5 (-)	0.2-17 (-)
Shrub cover (%)	43.4 (60)	21-73 (60-60)
Understory tree cover (%)	1 (-)	1-1 (-)
Overstory tree cover (%)	- (-)	- (-)
Litter cover (%)	43.5 (87)	0-95 (87-87)
Bare ground cover (%)	39.7 (3)	3-73 (3-3)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	508 (644)	62-1188 (644-644)
Slope (degrees)	19 (6)	2-55 (6-6)

Aspect: E 2 (-), NE 1 (-), NW 1 (-), SE 8 (-), SW 8 (-), Variable 1 (-), W 1 (1)

Macrotopography: Bottom 1 (-), Lower 1/3 of slope 1 (-), Lower to Upper 1/3 of slope 2 (-), Middle 1/3 of slope 6 (1), Middle to Upper 1/3 of slope 7 (-), Upper 1/3 of slope 3 (-), Upper 1/3 of slope to Ridgetop 1 (-)

Parent material: Granitic 5 (1), Mixed alluvium 1 (-), Sandstone 11 (-), Sedimentary 1 (-)

Soil texture: Clay Loam 3 (-), Loam 2 (-), Sand 3 (-), Sandy Loam 10 (1), Silty Loam 1 (-), Unknown 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Salvia mellifera	100 (100)	17.2 (30)	5 (30)	35 (30)
	Eriogonum fasciculatum	100 (100)	11.1 (27)	2 (27)	30 (27)
	Artemisia californica	86.4 (100)	6 (2)	0.2 (2)	20 (2)
	Rhus integrifolia	68.2 (-)	5.4 (-)	0.2 (-)	20 (-)
	Malosma laurina	59.1 (-)	3.3 (-)	0.2 (-)	10 (-)
	Opuntia littoralis	45.5 (-)	0.3 (-)	0.2 (-)	1 (-)
	Diplacus ×australis	40.9 (100)	1.8 (0.2)	0.2 (0.2)	5 (0.2)
	Acmispon glaber	40.9 (-)	0.6 (-)	0.2 (-)	2 (-)
	Encelia californica	31.8 (-)	2.1 (-)	0.2 (-)	9 (-)
	Cneoridium dumosum	22.7 (-)	1.6 (-)	0.2 (-)	5 (-)
Herbs					
	Bromus madritensis subsp. rubens	50 (-)	1.4 (-)	0.2 (-)	5 (-)
	Pseudognaphalium californicum	22.7 (-)	0.4 (-)	0.2 (-)	1 (-)
	Deinandra fasciculata	22.7 (-)	0.6 (-)	0.2 (-)	2 (-)

Herbaceous Vegetation

Avena barbata–Avena fatua Semi–Natural Stands

Avena barbata–Avena fatua Semi–Natural Stands

Samples Used To Describe Association (n=16)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-042

Rapid Assessment(s), Other stands (n=15): 0519DH01, 0519RB04, 0519TK02, 1041EK02, 1187EK04, 1339EB02, 1361KH03, 1361LS01, 1545LS01, 1560LS01, 1587LS01, 1596KH01, 1697LS01, 1737JD08, SDRP0237

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	48.5 (50)	29-65 (50-50)
Herb cover (%)	46 (50)	25-65 (50-50)
Shrub cover (%)	3.3 (-)	0.2-10 (-)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	- (-)	- (-)
Litter cover (%)	40.6 (35)	0-92 (35-35)
Bare ground cover (%)	37.6 (65)	5-72 (65-65)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	647 (277)	115-1289 (277-277)
Slope (degrees)	17 (8)	0-42 (8-8)

Aspect: NE 2 (-), NW 2 (-), S 1 (1), SE 3 (-), SW 5 (-), Variable 2 (-), W 1 (-)

Macrotopography: Bottom 1 (-), Bottom to Lower 1/3 of slope 1 (-), Bottom to Mid 1/3 of slope 3 (-), Bottom to Upper 1/3 of slope 1 (-), Entire slope 1 (-), Lower 1/3 of slope 1 (-), Lower 1/3 of slope to Ridgetop 1 (-), Lower to Upper 1/3 of slope 2 (-), Middle 1/3 of slope 2 (1), Middle 1/3 of slope to Ridgetop 1 (-), Upper 1/3 of slope to Ridgetop 2 (-)

Parent material: Granitic 3 (1), Metamorphic 2 (-), Sandstone 2 (-), Sandy alluvium 1 (-)

Soil texture: Clay 1 (-), Clay Loam 4 (1), Loam 2 (-), Sandy Loam 9 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Artemisia californica	56.2 (-)	0.8 (-)	0.2 (-)	3 (-)
	Eriogonum fasciculatum	37.5 (-)	0.9 (-)	0.2 (-)	3 (-)
	Malosma laurina	31.2 (-)	2.2 (-)	0.2 (-)	6 (-)
Herbs					
	Avena fatua	37.5 (100)	22.8 (14)	3 (14)	40 (14)
	Avena barbata	81.2 (-)	22.4 (-)	6 (-)	45 (-)
	Bromus diandrus	62.5 (100)	4.8 (0.2)	0.2 (0.2)	23 (0.2)
	Bromus madritensis subsp. rubens	50 (-)	8.2 (-)	0.2 (-)	15 (-)
	Centaurea melitensis	43.8 (-)	6.2 (-)	0.2 (-)	20 (-)
	Brassica nigra	37.5 (-)	3.6 (-)	0.2 (-)	17 (-)
	Hirschfeldia incana	31.2 (-)	1.3 (-)	0.2 (-)	5 (-)
	Salsola tragus	25 (-)	0.8 (-)	0.2 (-)	2 (-)
	Stipa pulchra	25 (-)	1 (-)	0.2 (-)	2 (-)

Deinandra fasciculata Alliance
Deinandra fasciculata Association

Samples Used To Describe Association (n=25)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-011

Rapid Assessment(s), Other stands (n=24): 0505DH21, 0505DH22, 0505MJ21, 0505TK21, 0505TK23, 0505TK24, 0507TK21, 0602JJ01, 0622AK02, 0707TK03, 0708DH03, 1021FS02, 1169JD01, 1169KH01, 1310KH01, 1338JD01, 1339JD04, 1455LS01, 1513KH02, 1545JD02, WRIV0977, WRIV0979, WRIV0982, WRIV0985

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	36.8 (20)	10-94 (20-20)
Herb cover (%)	34.4 (20)	10-95 (20-20)
Shrub cover (%)	3.3 (-)	0.2-10 (-)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	- (-)	- (-)
Litter cover (%)	19.4 (8)	0-75 (8-8)
Bare ground cover (%)	60.5 (92)	20-92 (92-92)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	858 (601)	7-2414 (601-601)
Slope (degrees)	8 (14)	0-18 (14-14)

Aspect: Flat 3 (-), NE 2 (-), NW 3 (-), SE 5 (-), SW 9 (1), Variable 3 (-)

Macrotopography: Bottom 2 (-), Bottom to Lower 1/3 of slope 1 (-), Lower 1/3 of slope 3 (-), Lower to Middle 1/3 of slope 1 (-), Middle 1/3 of slope 5 (-), Middle to Upper 1/3 of slope 2 (-), Ridge top 4 (-), Upper 1/3 of slope 2 (-), Upper 1/3 of slope to Ridgetop 4 (1)

Parent material: Clayey alluvium 1 (-), Conglomerate 2 (-), Gabbro 2 (-), Granitic 5 (1), Igneous 1 (-), Metamorphic 1 (-), Mixed alluvium 1 (-), Sandstone 1 (-), Sedimentary 1 (-), Silty alluvium 2 (-), Volcanic mud 1 (-)

Soil texture: Clay 6 (-), Clay Loam 11 (1), Sand 1 (-), Sandy Loam 6 (-), Silty Loam 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Eriogonum fasciculatum	48 (-)	1 (-)	0.2 (-)	6 (-)
	Artemisia californica	40 (-)	1.3 (-)	0.2 (-)	4 (-)
	Acmispon glaber	32 (-)	0.6 (-)	0.2 (-)	2 (-)
	Malosma laurina	24 (-)	1.3 (-)	0.2 (-)	4 (-)
Herbs					
	Deinandra fasciculata	100 (100)	7 (3)	1 (3)	30 (3)
	Bromus madritensis subsp. rubens	84 (100)	3.1 (0.2)	0.2 (0.2)	14 (0.2)
	Centaurea melitensis	68 (100)	5 (0.2)	0.2 (0.2)	45 (0.2)
	Avena barbata	56 (-)	1.9 (-)	0.2 (-)	7 (-)
	Logfia gallica	44 (100)	0.7 (0.2)	0.2 (0.2)	5 (0.2)
	Erodium cicutarium	44 (-)	8.3 (-)	0.2 (-)	50 (-)
	Hirschfeldia incana	40 (100)	8.2 (1)	0.2 (1)	65 (1)
	Stipa lepida	28 (-)	1.5 (-)	0.2 (-)	6 (-)
	Plantago erecta	24 (-)	0.7 (-)	0.2 (-)	3 (-)
	Bromus hordeaceus	24 (-)	5.7 (-)	0.2 (-)	29 (-)
	Calochortus splendens	24 (-)	0.3 (-)	0.2 (-)	1 (-)

Mediterranean California Naturalized Annual and Perennial Grassland Semi–Natural Stands

Mediterranean California Naturalized Annual and Perennial Grassland Semi–Natural Stands

Samples Used To Describe Association (n=27)

Rapid Assessment(s), NWSSB-DF stands (n=8): FB-A-019, FB-A-021, FB-A-032, FB-B-003, FB-B-005, FB-B-006, FB-B-007, FB-B-008

Rapid Assessment(s), Other stands (n=19): 0309TK01, 0324DHF5, 0519TK05, 1099EK02, 1197EK01, 1471EK01, 1606JD02, 1684FS01, 1695LS01, SDG0015, SDG0023, SDG0024, SDG0035, SDG0047, SDG0050, SDG0119, SDRP0146, WRIV0302, WRIV0570

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	47 (54.7)	8-85 (8-78)
Herb cover (%)	43.9 (54.7)	8-84 (8-78)
Shrub cover (%)	5.2 (-)	0.2-26 (-)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	- (-)	- (-)
Litter cover (%)	28.3 (14.8)	1-72 (1-45)
Bare ground cover (%)	57.3 (85.3)	5-99 (55-99)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	743 (409)	5-2840 (159-592)
Slope (degrees)	10 (7)	0-40 (0-15)

Aspect: E 2 (2), Flat 1 (1), N 1 (1), NE 3 (1), NW 7 (3), S 1 (-), SE 2 (-), SW 10 (-)

Macrotopography: Bottom 3 (-), Lower 1/3 of slope 8 (4), Lower to Middle 1/3 of slope 2 (-), Lower to Upper 1/3 of slope 2 (-), Middle 1/3 of slope 4 (1), Middle to Upper 1/3 of slope 2 (-), Ridge top 1 (-), Upper 1/3 of slope 2 (1), Upper 1/3 of slope to Ridgetop 3 (2)

Parent material: Granitic 10 (8), Gravelly alluvium 1 (-), Igneous 1 (-), Metamorphic 1 (-), Sandstone 2 (-), Sedimentary 2 (-), Shale 1 (-)

Soil texture: Clay Loam 9 (6), Sandy Clay 1 (1), Sandy Loam 8 (1), Silty Loam 2 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Artemisia californica	40.7 (25)	0.4 (0.2)	0.2 (0.2)	2 (0.2)
	Malosma laurina	29.6 (12.5)	1.1 (0.2)	0.2 (0.2)	4 (0.2)
	Isocoma menziesii	25.9 (-)	0.7 (-)	0.2 (-)	2 (-)
	Eriogonum fasciculatum	25.9 (-)	0.6 (-)	0.2 (-)	2 (-)
	Salvia apiana	22.2 (-)	1.1 (-)	0.2 (-)	2 (-)
Herbs					
	Erodium botrys	51.9 (87.5)	43.3 (54.4)	10 (20)	75 (75)
	Bromus madritensis subsp. rubens	51.9 (37.5)	4.1 (0.2)	0.2 (0.2)	15 (0.2)
	Bromus hordeaceus	40.7 (50)	4.1 (0.4)	0.2 (0.2)	20 (1)
	Avena barbata	37 (25)	2.3 (0.6)	0.2 (0.2)	10 (1)
	Hirschfeldia incana	37 (50)	0.9 (0.4)	0.2 (0.2)	5 (1)
	Stipa pulchra	29.6 (25)	0.4 (0.6)	0.2 (0.2)	1 (1)
	Bromus diandrus	25.9 (12.5)	3.3 (0.2)	0.2 (0.2)	10 (0.2)
	Logfia gallica	22.2 (62.5)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Hypochaeris glabra	22.2 (37.5)	1.2 (0.2)	0.2 (0.2)	6 (0.2)
	Centaurea melitensis	22.2 (12.5)	5.4 (0.2)	0.2 (0.2)	16 (0.2)
	Croton setiger	22.2 (12.5)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)

Natualized Warm–Temperate Riparian and Wetland Semi-Natural Stands
Natualized Warm–Temperate Riparian and Wetland Semi–Natural Stands

Samples Used To Describe Association (n=1)

Rapid Assessment(s), NWSSB-DF stands (n=1): FB-A-050
Rapid Assessment(s), Other stands (n=0):

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	76 (76)	76-76 (76-76)
Herb cover (%)	76 (76)	76-76 (76-76)
Shrub cover (%)	0.2 (-)	0.2-0.2 (-)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	- (-)	- (-)
Litter cover (%)	80 (80)	80-80 (80-80)
Bare ground cover (%)	12 (12)	12-12 (12-12)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	241 (241)	241-241 (241-241)
Slope (degrees)	0 (0)	0-0 (0-0)

Aspect: Flat 1 (1)
Macrotopography: Bottom 1 (1)
Parent material: Colluvial 1 (1)
Soil texture: Muck 1 (1)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Salix exigua	100 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Salix lasiolepis	100 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
Herbs					
	Schoenoplectus americanus	100 (100)	3 (3)	3 (3)	3 (3)
	Pluchea odorata	100 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Nasturtium officinale	100 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Melilotus indicus	100 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Ludwigia hexapetala	100 (100)	70 (70)	70 (70)	70 (70)
	Typha domingensis	100 (100)	3 (3)	3 (3)	3 (3)
	Urtica dioica	100 (100)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)

Stipa cernua Alliance
Stipa cernua Association

Samples Used To Describe Association (n=3)

Rapid Assessment(s), NWSSB-DF stands (n=2): FB-A-013, FB-A-041
Rapid Assessment(s), Other stands (n=1): 4448FS14

Local Vegetation Description All stands (NWSSB-DF stands)

	Average	Range
Total vegetation cover (%)	58 (57)	45-69 (45-69)
Herb cover (%)	63.3 (57)	45-76 (45-69)
Shrub cover (%)	1 (-)	1-1 (-)
Understory tree cover (%)	- (-)	- (-)
Overstory tree cover (%)	- (-)	- (-)
Litter cover (%)	40.3 (53)	15-68 (38-68)
Bare ground cover (%)	57.7 (47)	32-79 (32-62)

Local Environmental Description All stands (NWSSB-DF stands)

	Average	Range
Elevation (ft.)	1304 (570)	449-2772 (449-690)
Slope (degrees)	13 (13)	12-14 (12-14)

Aspect: Flat 1 (-), N 1 (1), NW 1 (1)
Macrotopography: Middle 1/3 of slope 3 (2)
Parent material: Granitic 3 (2)
Soil texture: Clay Loam 2 (2), Sandy Loam 1 (-)

Stand Table All stands (NWSSB-DF stands)

	Species Name	Constancy %	Ave Cover	Min Cover	Max Cover
Shrubs					
	Artemisia tridentata	33.3 (-)	1 (-)	1 (-)	1 (-)
Herbs					
	Stipa cernua	100 (100)	6.7 (8.5)	3 (5)	12 (12)
	Erodium botrys	66.7 (100)	47.5 (47.5)	40 (40)	55 (55)
	Ambrosia psilostachya	66.7 (50)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Gilia capitata	33.3 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Lupinus bicolor	33.3 (50)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Logfia gallica	33.3 (50)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Lessingia glandulifera	33.3 (-)	5 (-)	5 (-)	5 (-)
	Chamaesyce polycarpa	33.3 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Hypochaeris glabra	33.3 (50)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Hordeum murinum	33.3 (-)	5 (-)	5 (-)	5 (-)
	Hirschfeldia incana	33.3 (-)	1 (-)	1 (-)	1 (-)
	Festuca myuros	33.3 (50)	2 (2)	2 (2)	2 (2)
	Festuca bromoides	33.3 (-)	2 (-)	2 (-)	2 (-)
	Erodium cicutarium	33.3 (-)	20 (-)	20 (-)	20 (-)
	Deinandra fasciculata	33.3 (50)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Clarkia purpurea	33.3 (-)	0.2 (-)	0.2 (-)	0.2 (-)
	Bromus tectorum	33.3 (-)	30 (-)	30 (-)	30 (-)
	Bromus hordeaceus	33.3 (-)	4 (-)	4 (-)	4 (-)
	Bromus diandrus	33.3 (-)	5 (-)	5 (-)	5 (-)
	Avena fatua	33.3 (50)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)
	Corethrogyne filaginifolia	33.3 (50)	0.2 (0.2)	0.2 (0.2)	0.2 (0.2)

Attachments