

Vegetation Alliances and Associations of the Great Valley Ecoregion, California



By

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INTRODUCTION

The Vegetation Program of the California Native Plant Society (CNPS) has developed a floristic classification of alliances and associations within the Great Valley Ecoregion Section of the USDA Ecological Subregions of California (Miles and Goudey 1997). This study area encompasses a wide range of plant communities from vernal pool grasslands and alkali flats to densely wooded riparian corridors. The resulting vegetation classification is supported by both new and compiled data from this region including 808 surveys collected across 2010-2011 by staff of Chico State University's Geographical Information Center (GIC) and the California Department of Fish and Game (CDFG). The CNPS-CDFG Combined Vegetation Rapid Assessment and Relevé protocol was implemented for these new field surveys. An additional 1807 field surveys, collected across 2001-2011, have been collated and merged with the new data, and a total of 2615 surveys have been used to develop a floristic classification analysis.

The vegetation classification has been produced using the National Vegetation Classification System's hierarchy of alliances and associations. The plant communities are floristically and environmentally defined, following the format of *A Manual of California Vegetation* (Sawyer et al. 2009). In this report, vegetation types are summarized within a key and descriptions that differentiate 138 alliances and 242 finer-level associations. Of the vegetation alliances currently identified within the Great Valley Ecoregion, 6 are newly described types (with at least 10 samples) and 13 are new provisional types (with fewer than 10 samples).

The floristic vegetation classification was translated into a mapping classification to produce a fine-scale map of the natural vegetation features in this region. The resulting map can serve as a baseline for future climate-change monitoring, environmental assessment, fire/fuels modeling, rare and invasive species management, and a host of other valuable analyses.

BACKGROUND AND STANDARDS

The Great Valley of California was once covered by vast grasslands, oak savannas, riparian/marsh habitats, vernal pools and large lakes. Although much of this environment has been altered, the remaining natural and semi-natural vegetation provide important habitat for a large number of plant and animal species.

The vegetation classification in this report is based upon the U.S. National Vegetation Classification (NVC). In California, the classification has been developed by NatureServe (2011) in partnership with the State Natural Heritage Program of the Department of Fish and Game (CDFG) and CNPS. The first and second edition of the national classification provides a thorough introduction to the classification, its structure, and the list of vegetation units known in the United States (Grossman et al. 1998, FGDC 2008). Refinements to the classification have occurred during its application, and these refinements are best seen using the NatureServe Web site at <http://www.natureserve.org/explorer/>.

The alliance and association levels are the finest levels of vegetation groups in the classification hierarchy (Table 1).

Table 1. Classification of Vegetation: Example Hierarchy

Class	Temperate Forest
Formation	Temperate Flooded and Swamp Forest
Division	Western North America Warm Temperate Flooded and Swamp Forest
Macrogroup	Southwestern North American Riparian, Flooded and Swamp Forest
Group	Southwestern N. American riparian evergreen and deciduous woodland
Alliance	<i>Quercus lobata</i>
Association	<i>Quercus lobata/Rubus ursinus-Rosa californica</i>

A floristic vegetation classification of field surveys has been completed in the Great Valley Ecoregion of California. One purpose of developing this detailed classification is to integrate new data with existing information from California's current vegetation classification and the NVC, and to establish a fuller understanding of vegetation within the Great Valley. Likewise, the NVC supports the development and use of a consistent national vegetation classification to produce uniform statistics about vegetation resources across the nation, based on vegetation data gathered at local, regional or national levels (FGDC 2008).

METHODS

Study Area

The study area focused on vegetation within the Great Valley Ecoregion Section of the USDA Ecological Subregions of California (Miles and Goudey 1997) including a 1 km buffer zone (Figure 1).

Field Sampling

The sampling protocol for data collected in 2010–2011 was based on standardized vegetation sampling methods developed by CNPS's Vegetation Committee (see Appendix 1). These protocols comply with state and national standards for vegetation classification and habitat assessment, as defined by the CDFG, CNPS and the National Vegetation Classification. The relevé method is plot-based and can be used to classify vegetation and assist in mapping of vegetation at a fine-scale. The rapid assessment method is a plot-less survey, though both methods use vegetation stands as the basic sampling unit. A stand is defined as an area of vegetation that has both compositional and structural integrity and represents a relatively homogeneous vegetation type that repeats across the landscape.

Field data included recording of the date of sampling, GPS location, environmental characteristics of the stand (microtopography, substrate, soil texture, slope, aspect, ground surface characteristics, disturbance type and intensity), vegetation structure (tree, shrub and herb cover and height, total vegetation cover), species composition and cover, site history, and field-assessed alliance and association names. Additionally, at least four digital photos were taken in the cardinal directions from each sample location. Any unknown plant specimens collected during the field season were identified using the Jepson Manual (Hickman 1993) and other currently accepted taxonomic keys. The vegetation data were then entered into a custom MS Access database and all field photos were digitally archived.

Vegetation Classification Data and Analysis

Classification analysis process

Following the 2010–2011 field sampling effort by GIC staff and partners, field data were collated and extensive quality control procedures were conducted by CNPS vegetation program staff. Staff from CDFG contributed to the compilation of existing field survey data for a comprehensive classification analyses. In addition to the GIC-CDFG surveys, data were compiled from other projects in the region, including vegetation sampling in the San Joaquin Valley by CNPS and CDFG in 2008, as well as herbaceous surveys collected by CNPS in 2010-11 using funds from the National Resource Conservation Service. Table 2 lists the compiled field survey data by project and date. The data compilation totaled 2,615 surveys from the Great Valley Ecoregion. Existing data from the Suisun Marsh (Keeler-Wolf and Vaghti 2000), and vernal pool basin surveys from a UC Davis Barbour study (Barbour et al. 2007) were not re-analyzed in this effort. However, the vegetation types from these reports were reviewed and incorporated in the classification results.

The PC-ORD software suite of classification and ordination tools was used to generate multivariate analyses such as Cluster Analysis and Indicator Species Analysis (McCune and Mefford 1997). These analyses were employed to order vegetation surveys into groups related by their species composition and abundance, so that a formalized classification of community types would be created.

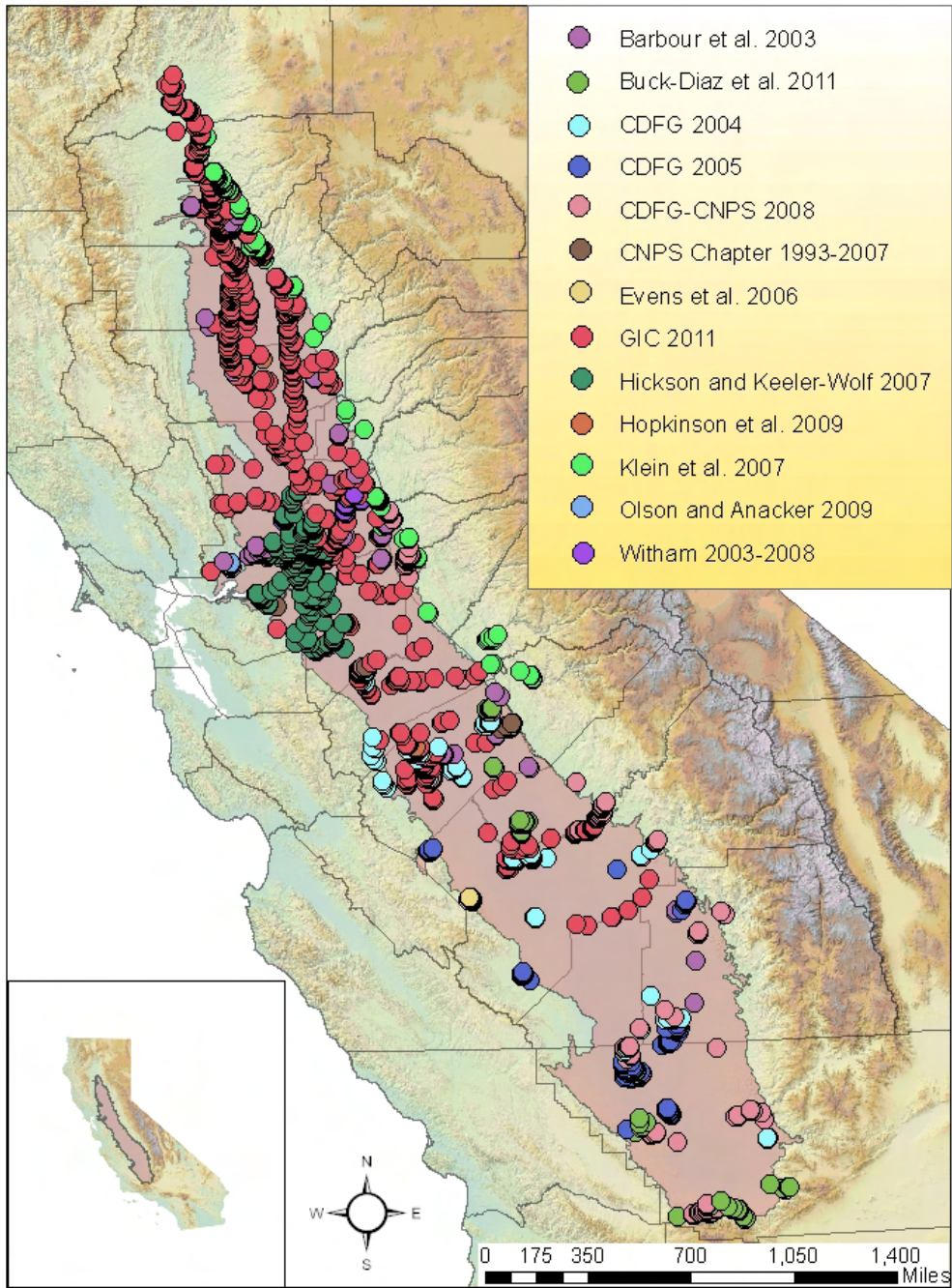


Figure 1. Study area map of new and compiled surveys used in the classification of vegetation types of the Great Valley Ecoregion Section (Miles and Goudey 1997)

Table 2. Count of compiled field survey data by project.

Project Citation	Survey Count
Barbour et al. 2003	129
Buck-Diaz et al. 2011	120
CDFG 2004	58
CDFG 2005	155
CDFG-CNPS 2008	436
CNPS Chapter 1993-2007	49
Evens et al. 2006	24
TNC 2008	9
GIC 2011	808
Hickson and Keeler-Wolf 2007	377
Hopkinson et al. 2009	3
Klein et al. 2007	220
Olson and Anacker 2009	31
Solomeshch 2004	61
Witham 2003-2008	135

Since plant community datasets are inherently complex and multiple environmental variables may determine pattern heterogeneity, Cluster Analysis with a hierarchical agglomerative technique was employed using a Sorenson distance measure and a flexible beta linkage method set at $\beta = -0.25$. These parameters are recommended to minimize both spatial distortion and chaining within the cluster analysis. This cluster analysis technique was based on abundance (percent cover) values translated to seven different classes using the following modified Braun-Blanquet (1932) cover categories: 1= $<1\%$, 2= $1-5\%$, 3= $\Rightarrow 5-15\%$, 4= $\Rightarrow 15-25\%$, 5= $\Rightarrow 25-50\%$, 6= $\Rightarrow 50-75\%$, 7= $\Rightarrow 75\%$. The cluster groups were first split into six major vegetation divisions which corresponded roughly to riparian trees, oaks and chaparral, alkaline shrubs/herbs, aquatic herbs, as well as California vernal pool and grassland vegetation types. These six groups were then analyzed and interpreted separately using the techniques described below.

All vegetation surveys were analyzed together, and the cluster analysis groupings were displayed in dendrogram outputs. The dendrograms were interpreted at 2 to 30 cluster group levels. The intent was to display and interpret the groups generated by the cluster analyses first at generic levels (to classify alliances) and subsequently finer levels (to classify associations and distinctive stands).

Prior to the cluster analysis runs, outlier analysis was performed on the dataset using PC-ORD (McCune and Mefford 1997). Plots with Sorenson distances more than two standard deviations away from the mean were removed from the final analyses and analyzed separately. To reduce heterogeneity within each data set, rare species (fewer than 2, 3, 4 or 5 occurrences) were removed from the various datasets.

After groups were generated in the cluster analyses, Indicator Species Analysis (ISA) was employed to objectively decide what number of “groups” or cut levels to explicitly interpret the cluster dendrograms (McCune and Grace 2002). Further, ISA was used to determine which species were characteristic indicators for the different groups. ISA produced indicator values for each species in each of the group levels within the dendrogram, and the statistical significance of the indicator species was evaluated using a Monte Carlo test with 1000 randomizations (Dufrene and Legendre 1997). For this dataset, ISA was repeated from group level 2 to 30. The group analyses were evaluated to determine the total number of significant indicator species (p-value ≤ 0.5) and the mean p-value for all species within each group level. The group level with the highest number of significant indicators and lowest overall mean p-value was selected for the final evaluations of the community classification (McCune and Grace 2002). At this grouping level, plant community names within floristic classes (e.g., association names) were applied to each field survey.

Further, each survey was reviewed within the context of the cluster to which it had been assigned to quantitatively define the “membership rules” for each association. The membership rules were defined by species composition, degree of constancy, indicator species, and species cover values. Upon revisiting each survey, some types were misclassified in earlier fusions of the cluster analysis, and these surveys were reclassified based on the membership rules. The set of data collected throughout the study area was used as the principal means for defining the association and alliance composition and membership rules. However, pre-existing classifications and floras were consulted to locate analogous/similar classifications or descriptions of vegetation. A summary of the above analysis process is provided in the following steps:

1. Run cover category Cluster Analysis to display a specific arrangement of plots based on species presence and abundance.
2. Run Indicator Species Analysis (ISA) at successive group levels for each of the Cluster Analysis dendrograms from 2 groups up to the maximum number of groups (all groups with at least 2 samples).
3. Settle on the final representative grouping level of each Cluster Analysis to use in the preliminary labeling.
4. Preliminarily label alliance and association for each of the samples, and denote indicator species from the ISA.
5. Develop decision rules for each association and alliance based on review of species cover on a sample-by-sample basis.
6. Re-label final alliance labels for each sample and arrange in a database table.

Attributes that distinguish each vegetation type, including species composition, structure and cover, were used to develop a diagnostic key for field identification. The resulting floristic classification and key of alliances and associations follows the hierarchical National Vegetation Classification System (Jennings et al. 2009) and as published in the Manual of California (Sawyer et al. 2009). However, ecologists are currently working to define the upper levels of the national classification hierarchy through an extensive peer review process whereby updates will be made to the names in the hierarchy, and they will be making modifications to how alliances and associations are nested within it. Thus, the table displaying the Great Valley vegetation types within the hierarchy may be modified in the future using the latest information available.

Definitions for Classification

The classification was produced to substantiate vegetation types identified through field surveys, based on two floristic and hierarchical levels of the U.S. National Vegetation Classification System (NVCS) per NatureServe (2010) and Grossman et al. (1998). These alliance and association levels are characterized by species composition, abundance, and habitat/environment as described below.

Surveys were classified to the association level, which is the finest unit in vegetation classification per the NVCS and the Manual of California Vegetation (MCV; Sawyer et al. 2009). An association is characterized by multiple stands of vegetation that repeat in the landscape with specific floristic and environmental features. An association is defined by the presence of character and dominant species in the overstory and other important and indicator species in the understory, which are distinctively assembled in a particular environmental setting. Thus, significant indicator species were drawn from the analyses and applied to the determinations of associations by the classification analysis team. Similar associations and/or distinctive, unusual surveys that had similar overstory canopies were classified to the alliance level, which is the next floristic unit of the vegetation classification above association. An alliance is defined as the generic unit that is usually represented by dominant and/or characteristic plant species in the upper layer of vegetation (such as in the Fremont Cottonwood or *Populus fremontii* Forest/Woodland Alliance).

While some vegetation types have been defined with a limited number of surveys, they are listed here to establish names for these types and to allow comparisons to other locations where the plant community may occur. By providing as much information as possible in this classification, future efforts will build upon this knowledge of vegetation within the Great Valley Ecoregion.

Descriptions and Stand Tables

Following the analysis of field data and the development of a classification and key, alliance and association-level stand tables were generated. They were based on field data and available literature. Scientific names of plants follow Hickman (1993), UCB (2011), and USDA-NRCS (2011). Common names follow the USDA-NRCS (2011).

The following definitions and conventions were set in developing the keys and descriptions:

1. **Cover:** The primary metric used to quantify the importance/abundance of a particular species or a particular vegetation layer within a survey. It was measured by estimating the aerial extent of the living plants, or the "bird's-eye view" looking from above for each category. In this vegetation classification project and other National Park Service projects in California, cover is assessed using the concept of "porosity" or foliar cover rather than "opaque" or crown cover. Thus, field crews were trained to estimate the amount of shade produced by the canopy of a plant or a stratum by taking into account the amount of shade it casts, whereby the cover estimates exclude the openings it may have in the interstitial spaces (e.g., between leaves or branches). This is assumed to provide a more realistic estimate of the actual amount of cover cast by the individual or stratum, which, in turn relates to the actual amount of light available to individual species or strata beneath it.
2. **Relative cover:** Refers to the amount of the surface of the plot or stand sampled that is covered by one species (or physiognomic group) as compared to (relative to) the amount of surface of the plot or stand covered by all species (in that group). Thus, 50 percent relative

cover means that half of the total cover of all species or physiognomic groups is composed of the single species or group in question. Relative cover values are proportional numbers and, if added, total 100 percent for each stand (sample).

3. **Absolute cover:** Refers to the actual percentage of the ground (surface of the plot or stand) that is covered by a species or group of species. For example, *Populus fremontii* covers between 5 percent and 10 percent of the stand. Absolute cover of all species or groups if added in a stand or plot may total greater or less than 100 percent because it is not a proportional number.

4. **Characteristic/Consistent/Diagnostic species (C):** Must be present in at least 75 percent of the samples, with no restriction on cover.

5. **Dominant (D):** Must be in at least 75 percent of the samples, with at least 50 percent relative cover in all samples.

6. **Co-dominant (cD):** Must be in at least 75 percent of the samples, with at least 30 percent relative cover in all samples.

7. **Stand:** Is the basic physical unit of vegetation in a landscape. It has no set size. Some vegetation stands are very small such as wetland seeps, and some may be several square kilometers in size such as desert or forest types. A stand is defined by two main unifying characteristics:

a. It has *compositional* integrity. Throughout the site, the combination of species is similar. The stand is differentiated from adjacent stands by a discernable boundary that may be abrupt or gradual.

b. It has *structural* integrity. It has a similar history or environmental setting, affording relatively similar horizontal and vertical spacing of plant species. For example, a hillside forest formerly dominated by the same species, but that has burned on the upper part of the slope and not the lower is divided into two stands. Likewise, a sparse woodland occupying a slope with shallow rocky soils is considered a different stand from an adjacent slope of a denser woodland/forest with deep moister soil and the same species.

8. **Tree:** Is a one-stemmed woody plant that normally grows to be greater than 5 meters tall. In some cases trees may be multiple-stemmed following a fire or other disturbance, but size of mature plants is typically greater than 5 m and undisturbed individuals of these species are usually single stemmed.

9. **Shrub:** Is normally a multi-stemmed woody plant that generally has several erect, spreading, or prostrate stems and that is usually between 0.2 meters and 5 meters tall, giving it a bushy appearance. Definitions are blurred at the low and the high ends of the height scales. At the tall end, shrubs may approach trees based on disturbance frequencies (e.g., old-growth re-sprouting chaparral species such as *Cercocarpus betuloides*, *Heteromeles arbutifolia*, *Prunus ilicifolia*, *Sambucus nigra* etc., may frequently attain “tree size”). At the low end, woody perennial herbs or sub-shrubs of various species are often difficult to categorize into a consistent life-form; usually sub-shrubs (per USDA-NRCS 2011) were categorized in the “shrub” category.

10. **Herbaceous plant:** Is any vascular plant species that has no main woody stem-development, and includes grasses, forbs, and perennial species that die-back seasonally.

11. **Cryptogam:** Is a nonvascular plant or plant-like organism without specialized water or fluid conductive tissue (xylem and phloem). Includes mosses, lichens, liverworts, hornworts, and algae.

12. **Con, Avg, Min, Max, C, D, cD:** A species table is provided at the end of each alliance and association description. The “Con” column provides the overall constancy value for each species within all rapid assessments and relevés classified as that vegetation type. The constancy values are between 0 and 100. Species that occurred with at least 20% constancy and greater than 0.1% average cover are listed in the table. The “Avg” column provides the average cover value for each species, as calculated across all samples in that vegetation type. The “Min” and “Max” values denote the minimum and maximum values for estimated cover of

species listed in the table. The other coded columns refer to whether each taxon is Characteristic (C), Dominant (D), and Co-dominant (cD) in the alliance or association with these terms defined above.

13. Location(s) Sampled: The Great Valley Ecoregion was split into four quadrants in order to broadly define location information for each vegetation type. These quadrants are labeled by compass direction (i.e. Northeast, Northwest, Southwest, and Southeast) Great Valley. If a type occurred in all four quadrants, All Great Valley Ecoregion is reported for this field. Two adjacent Ecoregions are also listed for those surveys that occurred within the 1 kilometer buffer applied to the Ecoregion boundary. These include the Northern California Interior Coast Ranges and the Sierra Nevada Foothills.

13. References: Citations include both literature that has previously defined the vegetation type as well as specific projects from which field surveys were compiled and analyzed.

RESULTS

Species and Survey Data

In the 2615 compiled vegetation samples, 1248 plant taxa were documented. Generic names were used when vascular plant species were not identified to species and common names were used for non-vascular taxa (i.e., Lichen, Moss). Appendix 2 provides a complete list of scientific and common names for the taxa identified in the combined field surveys, and includes alpha-numeric codes for the taxa used in the data analyses following USDA-NRCS (2011).

Samples were conducted across the Great Valley Ecoregion Section of the USDA Ecological Subregions of California (Miles and Goudey 1997). Some surveys were sampled within a 1 km buffer of the ecoregion boundary and their respective associations are included in this report since they could occur within the ecoregion.

Vegetation Data and Analysis

The surveys compiled within the Great Valley Ecoregion include 777 woodland/forest samples, 541 shrub-dominated samples and 1,297 herbaceous stands. Interpretation of the data with both cluster analysis and indicator species analysis resulted in a floristic classification of vegetation assemblages. Table 3 summarizes the classification and demonstrates the wide diversity of types occurring in the Great Valley Ecoregion. These types are displayed as a nested hierarchy per the National Vegetation Classification (NCV), in which 138 different alliances or semi-natural stands and 242 finer-level associations or stand types are defined. For example, different types of *Quercus lobata* (Valley Oak) Alliance are classified at the association level depending on co-occurring and characteristic shrub species (e.g., *Quercus lobata* / *Rubus ursinus* – *Rosa californica* as compared to *Quercus lobata* / *Rubus armeniacus*), while the *Quercus lobata* alliance is based on the characteristic presence of *Quercus lobata* in the tree canopy.

A diagnostic key to the alliances and associations and their respective alliance descriptions and summary stand tables are available in Appendix 3 and 4. Alliances and associations represented by less than 10 samples are considered provisional and are indicated by “Provisional” following the community type name.

Vegetation types from the Suisun Marsh (Keeler-Wolf and Vaghti 2000), and a UC Davis vernal pool study (Barbour et al. 2007) were reviewed, and types that were well-validated were incorporated into the classification table, crosswalk and key. Existing types from these reports were not re-analyzed in this effort, yet were included here to provide a robust list of vegetation types known for the Great Valley Ecoregion. Stand tables and descriptions of these additional types are available in their original publications. In future research, we recommend a comprehensive analysis of all existing data sets along with any new data to further understand the vegetation patterns of this region.

A hierarchical crosswalk was developed by CNPS relating the floristic vegetation classification to the mapping classification; this crosswalk will be made available in a final report by Chico State University’s Geographical Information Center when their mapping is completed.

Changes Since the 2nd Edition of the Manual of California Vegetation

When new surveys were analyzed and did not fit into existing defined types, new classification names were applied at the alliance and/or association level. From the compilation and

classification of data in this project, we have defined 19 new alliances, of which 13 are provisional types. We also defined 65 new associations, and an additional 16 associations were redefined from existing types in the region.

Examples of redefined types include the expansion of the provisional Alliance *Grindelia (stricta)* to *Grindelia (camporum, stricta)* and the merging of finely divided associations such as *Schoenoplectus acutus – Typha latifolia*, *Schoenoplectus acutus – Typha domingensis*, and *Schoenoplectus acutus – Xanthium strumarium* into a more generalized *Schoenoplectus acutus* Association where *S. acutus* is dominant. Explanations of the redefined type can be found in the field key along with references to their previous names.

The remaining associations and alliances listed in Table 3 conform to existing classification names as listed in Sawyer et al. (2009).

Table 3. Vegetation classification for the Great Valley Ecoregion Section (per the USDA Ecological Subregions of California by Miles and Goudey (1997)). Alliances and associations are placed within the NVCS classification hierarchy of Macrogroups and Groups. The map unit code used in Group level mapping is provided after the Group name. The most recently revised NVC hierarchy names are provided in parentheses after the Macrogroup or Group names (per <http://usnvc.org/explore-classification/>); if the hierarchy does not capture the types, then the parentheses denote (No name currently applicable). Types new to the NVCS and MCV are bolded.

Macro group	Group	Alliance	Association	# of surveys
California Forest and Woodland (M009 California Forest & Woodland)				
Californian Broadleaf Forest and Woodland – WVO (California Broadleaf Forest & Woodland)				
		<i>Aesculus californica</i>	<i>Aesculus californica</i> / <i>Toxicodendron diversilobum</i> /Moss	1
		<i>Quercus agrifolia</i>	(alliance level)	2
		<i>Quercus chrysolepis</i>	<i>Quercus chrysolepis</i>	1
		<i>Quercus douglasii</i>	(alliance level)	3
			<i>Quercus douglasii</i> / <i>Arctostaphylos manzanita</i> /Herbaceous	7
			<i>Quercus douglasii</i> / <i>Brachypodium distachyon</i>	4
			<i>Quercus douglasii</i> /Grass	16
			<i>Quercus douglasii</i> / <i>Selaginella hansenii</i> – <i>Navarretia pubescens</i> Provisional	0
			<i>Quercus douglasii</i> – <i>Aesculus californica</i> /grass	4
			<i>Quercus douglasii</i> – <i>Pinus sabiniana</i>	2
			<i>Quercus douglasii</i> – <i>Quercus wislizeni</i>	4
		<i>Quercus kelloggii</i>	(alliance level)	1
		<i>Quercus wislizeni</i>	(alliance level)	9
			<i>Quercus wislizeni</i> / <i>Arctostaphylos viscida</i>	4
			<i>Quercus wislizeni</i> / <i>Heteromeles arbutifolia</i>	5
			<i>Quercus wislizeni</i> – <i>Aesculus californica</i>	3
			<i>Quercus wislizeni</i> – <i>Pinus sabiniana</i> /annual grass–herb	5
			<i>Quercus wislizeni</i> – <i>Pinus sabiniana</i> / <i>Arctostaphylos manzanita</i>	3
			<i>Quercus wislizeni</i> – <i>Pinus sabiniana</i> / <i>Arctostaphylos viscida</i>	3
			<i>Quercus wislizeni</i> – <i>Quercus douglasii</i> /Herbaceous	3
			<i>Quercus wislizeni</i> – <i>Quercus douglasii</i> – <i>Aesculus californica</i>	2
			<i>Quercus wislizeni</i> – <i>Salix laevigata</i> / <i>Frangula californica</i>	6
Californian Evergreen Coniferous Forest and Woodland – ECW (California Conifer Forest & Woodland)				
		<i>Juniperus californica</i>	<i>Juniperus californica</i> /Herbaceous	2

Macro group	Group	Alliance	Association	# of surveys
		<i>Pinus sabiniana</i>	<i>Pinus sabiniana/Ceanothus cuneatus-Heteromeles arbutifolia</i>	1
			<i>Pinus sabiniana/Frangula californica ssp. tomentella</i> Provisional	1
			<i>Pinus sabiniana</i> /grass-herb	1
Introduced North American Mediterranean woodland and forest (M036 Warm Mediterranean & Desert Riparian, Flooded & Swamp Forest and M298. Western North American Warm Temperate Ruderal Flooded & Swamp Forest)				
	Introduced North American Mediterranean woodland and forest – IMF (Mediterranean California Lowland Flooded & Swamp Forest Group and Southwest North American Ruderal Riparian Scrub Group)			
		<i>Ailanthus altissima</i> Provisional	<i>Ailanthus altissima</i> Provisional	8
		<i>Eucalyptus (globulus, camaldulensis)</i>	<i>Eucalyptus (globulus, camaldulensis)</i>	6
		Ornamental Trees Mapping Unit	<i>Morus alba</i>	1
			Non-native tree	2
		<i>Prosopis pubescens</i>	(alliance level)	1
		<i>Robinia pseudoacacia</i> Provisional	<i>Robinia pseudoacacia</i> Provisional	2
Californian–Vancouverian Montane and Foothill Forest (M019 Californian-Vancouverian Foothill & Valley Forest & Woodland)				
	Californian Montane Conifer Forest – CMF (No name currently applicable)			
		<i>Pinus ponderosa</i>	<i>Pinus ponderosa/Arctostaphylos viscida</i> Provisional	1
Western Cordilleran montane–boreal riparian scrub (M035 Vancouverian Flooded & Swamp Forest and M036 Warm Mediterranean & Desert Riparian, Flooded & Swamp Forest)				
	Vancouverian riparian deciduous forest – VRF (North Pacific Lowland Riparian Forest & Woodland Group and Mediterranean California Lowland Flooded & Swamp Forest Group)			
		<i>Alnus rhombifolia</i>	(alliance level)	1
			<i>Alnus rhombifolia/Cornus sericea</i>	9
			<i>Alnus rhombifolia/Salix exigua(-Rosa californica)</i>	18
			<i>Alnus rhombifolia</i>	12
			<i>Alnus rhombifolia-Salix laevigata-Platanus racemosa</i>	5
		<i>Fraxinus latifolia</i>	<i>Fraxinus latifolia</i>	10
			<i>Fraxinus latifolia-Alnus rhombifolia</i>	4
		<i>Salix lucida</i>	<i>Salix lucida ssp. lasiandra</i>	8
Southwestern North American Riparian, Flooded and Swamp Forest (M036 Warm Mediterranean & Desert Riparian, Flooded & Swamp Forest)				
	Southwestern North American riparian evergreen and deciduous woodland – RWF (Mediterranean California Lowland Flooded & Swamp Forest Group and Sonoran-Chihuahuan Warm Desert Riparian Scrub Group)			
		<i>Acer negundo</i>	(alliance level)	5
			<i>Acer negundo</i>	15
			<i>Acer negundo-Salix gooddingii</i>	27

Macro group	Group	Alliance	Association	# of surveys
		<i>Juglans hindsii</i> and Hybrids	<i>Juglans hindsii</i>/Herbaceous Provisional	29
		<i>Platanus racemosa</i>	(alliance level)	6
			<i>Platanus racemosa</i> (/annual grass)	7
			<i>Platanus racemosa</i> – <i>Populus fremontii</i> / <i>Salix lasiolepis</i>	3
			<i>Platanus racemosa</i>–<i>Quercus lobata</i>	23
		<i>Populus fremontii</i>	(alliance level)	11
			<i>Populus fremontii</i> Great Valley	34
			<i>Populus fremontii</i> / <i>Baccharis salicifolia</i>	2
			<i>Populus fremontii</i> / <i>Salix exigua</i>	3
			<i>Populus fremontii</i> / <i>Vitis californica</i>	22
			<i>Populus fremontii</i> – <i>Acer negundo</i>	24
			<i>Populus fremontii</i> – <i>Salix gooddingii</i>	31
			<i>Populus fremontii</i> – <i>Salix laevigata</i>	5
			<i>Populus fremontii</i> – <i>Salix lasiolepis</i>	11
		<i>Quercus lobata</i>	(alliance level)	15
			<i>Quercus lobata</i>/<i>Carex barbarae</i>	15
			<i>Quercus lobata</i> /Herbaceous Semi-Riparian	54
			<i>Quercus lobata</i> / <i>Rubus armeniacus</i>	49
			<i>Quercus lobata</i>/<i>Rubus ursinus</i>–<i>Rosa californica</i>	30
			<i>Quercus lobata</i> – <i>Alnus rhombifolia</i>	28
			<i>Quercus lobata</i> – <i>Fraxinus latifolia</i> / <i>Vitis californica</i>	30
			<i>Quercus lobata</i> – <i>Quercus agrifolia</i> /grass	1
			<i>Quercus lobata</i> – <i>Quercus wislizeni</i>	6
			<i>Quercus lobata</i> – <i>Salix lasiolepis</i>	5
		<i>Salix gooddingii</i>	(alliance level)	2
			<i>Salix gooddingii</i>/<i>Salix exigua</i> Provisional	11
			<i>Salix gooddingii</i>	59
			<i>Salix gooddingii</i>–<i>Fraxinus latifolia</i> Provisional	4
			<i>Salix gooddingii</i> – <i>Quercus lobata</i> /wetland herb Provisional	11
		<i>Salix laevigata</i>	(alliance level)	4
	<i>Salix laevigata</i>	9		
	<i>Salix laevigata</i> – <i>Salix lasiolepis</i>	5		

California Chaparral (M043 California Chaparral)

Macro group	Group	Alliance	Association	# of surveys
	Californian mesic chaparral – CMC (California Mesic Sclerophyll Scrub)			
		<i>Heteromeles arbutifolia</i>	<i>Heteromeles arbutifolia</i> Serpentine Provisional	2
		<i>Quercus berberidifolia</i>	(alliance level)	0
	Californian xeric chaparral – CXC (California Xeric Chaparral)			
		<i>Adenostoma fasciculatum</i>	<i>Adenostoma fasciculatum</i>	5
		<i>Arctostaphylos manzanita</i>	Arctostaphylos manzanita	3
		<i>Arctostaphylos myrtifolia</i>	<i>Arctostaphylos myrtifolia</i>	13
		<i>Arctostaphylos viscida</i>	<i>Arctostaphylos viscida</i>	9
			<i>Arctostaphylos viscida</i> – <i>Adenostoma fasciculatum</i>	13
		<i>Ceanothus cuneatus</i>	<i>Ceanothus cuneatus</i>	4
			<i>Ceanothus cuneatus</i> / <i>Plantago erecta</i>	4
			<i>Ceanothus cuneatus</i> – <i>Adenostoma fasciculatum</i>	2
		<i>Eriodictyon californicum</i>	<i>Eriodictyon californicum</i> /herbaceous	4
	California Coastal Scrub (M044 California Coastal Scrub)			
	Central and south coastal California seral scrub – CSS (No name currently applicable)			
		<i>Baccharis pilularis</i>	<i>Baccharis pilularis</i>	9
		<i>Ericameria linearifolia</i>–<i>Isomeris arborea</i>	<i>Eastwoodia elegans</i>	2
			<i>Isomeris arborea</i>	7
		<i>Gutierrezia californica</i>	<i>Gutierrezia californica</i>/<i>Poa secunda</i>	3
		<i>Isocoma acradenia</i>	<i>Isocoma acradenia</i>	9
			<i>Isocoma acradenia</i>–<i>Suaeda nigra</i> Provisional	12
		<i>Lotus scoparius</i>	<i>Lotus scoparius</i>	8
		<i>Lupinus albifrons</i>	<i>Lupinus albifrons</i>	9
	Central and South Coastal Californian coastal sage scrub – CSS (Central & Southern California Coastal Sage Scrub Group)			
		<i>Eriogonum fasciculatum</i>	<i>Eriogonum fasciculatum</i>	4
		<i>Eriogonum wrightii</i>	<i>Eriogonum wrightii</i> Provisional	1
		<i>Mimulus aurantiacus</i>	<i>Mimulus aurantiacus</i>	3
	Naturalized non-native Mediterranean scrub (No name currently applicable)			
	Vancouverian Coastal Dune and Bluff (No name currently applicable)			
	California Coastal evergreen bluff and dune scrub (No name currently applicable)			
		<i>Frangula californica</i>	<i>Frangula californica</i> ssp. <i>tomentella</i>	2
	Madrean Warm Semi-Desert Wash Woodland/Scrub (M092 North American Warm-Desert Xero-Riparian)			
	Mojavean semi-desert wash scrub (Warm Semi-Desert Shrub & Herb Wash-Arroyo Group)			

Macro group	Group	Alliance	Association	# of surveys
		<i>Encelia virginensis</i>	<i>Encelia virginensis ssp. actoni</i>	1
		<i>Ephedra californica</i>	<i>Ephedra californica</i> /Annual-perennial herb	2
			<i>Ephedra californica</i> – <i>Ambrosia salsola</i>	2
			<i>Ephedra californica</i> – <i>Gutierrezia californica</i> / <i>Eriastrum pluriflorum</i>	6
		<i>Lepidospartum squamatum</i>	<i>Lepidospartum squamatum</i> /mixed ephemeral annuals	3
			<i>Lepidospartum squamatum</i> – <i>Baccharis salicifolia</i>	2
Madrean Warm Semi-Desert Wash Woodland/Scrub (M076 Warm Desert Freshwater Shrubland, Meadow & Marsh)				
	Sonoran-Coloradan semi-desert wash woodland/scrub (North American Warm Desert Riparian Low Bosque & Shrubland Group)			
		<i>Pluchea sericea</i>	<i>Pluchea sericea</i>	2
Mojavean–Sonoran Desert Scrub (M088 Mojave-Sonoran Semi-Desert Scrub)				
	Lower Bajada and Fan Mojavean–Sonoran desert scrub (Sonoran-Mojave Creosotebush - White Bursage Desert Scrub Group)			
		<i>Ambrosia salsola</i>	<i>Ambrosia salsola</i>	4
		<i>Atriplex polycarpa</i>	<i>Atriplex polycarpa</i> /Annual Herbaceous	19
Vancouverian Lowland Grassland and Shrubland (No name currently applicable)				
	Vancouverian coastal deciduous scrub (No name currently applicable)			
		<i>Rubus (parviflorus, spectabilis, ursinus)</i>	<i>Ribes aureum</i> Provisional	1
		<i>Toxicodendron diversilobum</i>	<i>Toxicodendron diversilobum</i> /Herbaceous	1
Western Cordilleran Montane Shrubland and Grassland (M049 Southern Rocky Mountain Montane Grassland & Shrubland)				
	Western Cordilleran montane deciduous scrub (Southern Rocky Mountain Cercocarpus-Mixed [Dry] Foothill Shrubland Group)			
		<i>Prunus virginiana</i>	<i>Prunus virginiana</i> Provisional	1
		<i>Ribes quercetorum</i>	<i>Ribes quercetorum</i>	2
Western cool temperate scrub swamp (M073 Western North American Lowland Freshwater Wet Meadow, Marsh & Shrubland)				
	Western dogwood thicket (Vancouverian Lowland Riparian & Wet Slope Shrubland Group)			
		<i>Cornus sericea</i>	<i>Cornus sericea</i> – <i>Salix exigua</i>	2
			<i>Cornus sericea</i> – <i>Salix lasiolepis</i>	15
Southwestern North American Riparian, Flooded and Swamp Forest (M076 Warm Desert Freshwater Shrubland, Meadow & Marsh and M073 Western North American Lowland Freshwater Wet Meadow, Marsh & Shrubland)				
	Southwestern North American introduced riparian scrub – RIS (Southwest North American Ruderal Riparian Scrub Group)			
		<i>Rubus armeniacus</i>	<i>Rubus armeniacus</i>	6
		<i>Tamarix</i> spp.	<i>Tamarix</i> spp.	10
	Southwestern North American riparian/wash scrub – RWS ((Rocky Mountain & Great Basin Lowland & Foothill Riparian & Seep Shrubland Group and Vancouverian Lowland Riparian & Wet Slope Shrubland Group)			
		<i>Baccharis salicifolia</i>	<i>Baccharis salicifolia</i>	6

Macro group	Group	Alliance	Association	# of surveys
		<i>Cephalanthus occidentalis</i>	<i>Cephalanthus occidentalis</i>	12
		<i>Forestiera pubescens</i>	<i>Forestiera pubescens</i> – <i>Sambucus nigra</i>	1
		<i>Rosa californica</i>	<i>Rosa californica</i>	4
		<i>Salix exigua</i>	(alliance level)	2
			<i>Salix exigua</i> (– <i>Salix lasiolepis</i>)– <i>Rubus armeniacus</i>	45
			<i>Salix exigua</i>	61
			<i>Salix exigua</i> – <i>Salix melanopsis</i>	16
		<i>Salix lasiolepis</i>	<i>Salix lasiolepis</i>	11
			<i>Salix lasiolepis</i> / <i>Rubus armeniacus</i>	15
		<i>Sambucus nigra</i>	(alliance level)	2
			<i>Sambucus nigra</i>	9
		<i>Vitis californica</i> Provisional	<i>Vitis californica</i> Provisional	11
Inter-Mountain Dry Shrubland and Grassland (M088 Mojave-Sonoran Semi-Desert Scrub)				
	Intermontane deep or well-drained soil scrub (Mojave Mid-Elevation Mixed Desert Scrub Group)			
		<i>Ephedra viridis</i>	<i>Ephedra viridis</i> Provisional	1
Warm Semi-Desert/Mediterranean Alkali–Saline Wetland (M082 Cool Semi-Desert Alkali-Saline Wetland)				
	Southwestern North American salt basin and high marsh group – SSB (Intermountain Basins Alkaline-Saline Shrub Wetland Group and Intermountain Basins Alkaline-Saline Herb Wet Flat Group)			
		<i>Allenrolfea occidentalis</i>	<i>Allenrolfea occidentalis</i>	17
			<i>Allenrolfea occidentalis</i>/<i>Distichlis spicata</i>	6
			<i>Allenrolfea occidentalis</i> – <i>Suaeda nigra</i>	47
		<i>Atriplex lentiformis</i>	<i>Atriplex lentiformis</i>	18
		<i>Atriplex spinifera</i>	<i>Atriplex spinifera</i> /Herbaceous	9
		<i>Suaeda nigra</i>	<i>Suaeda nigra</i>/<i>Lepidium dictyotum</i>	39
California Annual and Perennial Grassland (M045 California Annual & Perennial Grassland)				
	California annual herb/grass – CFG (No name currently applicable)			
		<i>Amsinckia (menziesii, tessellata)</i>	<i>Amsinckia menziesii</i>	19
			<i>Phacelia tanacetifolia</i> Provisional	2
		<i>Croton setigerus</i> Provisional	<i>Croton setigerus</i> Provisional	2
		<i>Eschscholzia (californica)</i>	<i>Eschscholzia californica</i>	6
		<i>Holocarpha virgata</i>	<i>Holocarpha virgata</i>	45
		<i>Lasthenia californica</i> – <i>Plantago erecta</i> – <i>Vulpia microstachys</i>	<i>Lasthenia (californica, gracilis)</i>	13

Macro group	Group	Alliance	Association	# of surveys
			<i>Lasthenia californica</i> – <i>Plagiobothrys acanthocarpa</i> – <i>Medicago polymorpha</i> Provisional	10
			<i>Lasthenia minor</i> Provisional	1
			<i>Layia pentachaeta</i> – <i>Plagiobothrys (canescens)</i> Provisional	6
			<i>Lepidium nitidum</i> – <i>Trifolium gracilentum</i> – <i>Vulpia microstachys</i>	4
			<i>Selaginella hansenii</i> – <i>Vulpia microstachys</i>	8
			<i>Vulpia microstachys</i> Provisional	11
			<i>Vulpia microstachys</i> – <i>Lasthenia californica</i> – <i>Agrostis elliotiana</i>	7
			<i>Vulpia microstachys</i> – <i>Lasthenia californica</i> – <i>Sedella pumila</i>	1
			<i>Vulpia microstachys</i> – <i>Navarretia tagetina</i>	32
			<i>Vulpia microstachys</i> – <i>Plantago erecta</i>	10
		<i>Lotus purshianus</i>	<i>Lotus purshianus</i>	8
		<i>Plagiobothrys nothofulvus</i>	(alliance level)	1
			<i>Plagiobothrys nothofulvus</i>–<i>Castilleja exserta</i>–<i>Lupinus nanus</i> Provisional	6
			<i>Plagiobothrys nothofulvus</i> – <i>Daucus pusillus</i> – <i>Trifolium microcephalum</i>	8
		<i>Toxicoscordion fremontii</i> Provisional	<i>Toxicoscordion fremontii</i> (– <i>Lolium perenne</i>) Provisional	7
	California perennial grassland – CPG (California Native Bunchgrass Grassland Group)			
		<i>Eriogonum (elongatum, nudum)</i>	<i>Eriogonum nudum</i> Provisional	4
		<i>Nassella cernua</i> Provisional	<i>Nassella cernua</i> Provisional	2
		<i>Nassella pulchra</i>	<i>Nassella pulchra</i>	8
			<i>Nassella pulchra</i> – <i>Leontodon taraxacoides</i> Provisional	7
			<i>Nassella pulchra</i> – <i>Sanicula bipinnatifida</i>	1
	Mediterranean California naturalized annual and perennial grassland – CAI (California Ruderal Grassland & Meadow)			
		<i>Avena (barbata, fatua)</i>	<i>Avena barbata</i>	15
			<i>Avena fatua</i>	5
		<i>Brassica nigra</i> and other mustards	<i>Brassica nigra</i>	1
			<i>Hirschfeldia incana</i> Provisional	2
		<i>Bromus (diandrus, hordeaceus)</i> – <i>Brachypodium distachyon</i>	(alliance level)	3
			<i>Bromus diandrus</i>	29

Macro group	Group	Alliance	Association	# of surveys
			<i>Bromus hordeaceus</i> (– <i>Vicia villosa</i> – <i>Lolium multiflorum</i>)– <i>Trifolium hirtum</i>	5
			<i>Bromus hordeaceus</i> – <i>Erodium (botrys)</i> – <i>Plagiobothrys fulvus</i>	47
			<i>Bromus hordeaceus</i>–<i>Hordeum spp.</i>–<i>Medicago polymorpha</i>	12
			<i>Bromus hordeaceus</i> – <i>Leontodon taraxacoides</i>	49
			<i>Bromus hordeaceus</i> – <i>Lupinus nanus</i> – <i>Trifolium spp.</i> Provisional	1
			<i>Bromus hordeaceus</i> – <i>Taeniatherum caput-medusae</i>	17
			<i>Hypochaeris glabra</i>–<i>Vulpia bromoides</i>	91
		<i>Bromus rubens</i> – <i>Schismus (arabicus, barbatus)</i>	<i>Bromus rubens</i>	3
			<i>Schismus barbatus</i>	2
		<i>Centaurea (solstitialis, melitensis)</i>	<i>Centaurea solstitialis</i>	20
		<i>Conium maculatum</i> – <i>Foeniculum vulgare</i>	<i>Conium maculatum</i>	1
		<i>Cortaderia (jubata, selloana)</i>	<i>Cortaderia (jubata, selloana)</i>	1
		<i>Lolium perenne</i>	(alliance level)	1
			<i>Lolium perenne</i>	21
Western North American Freshwater Aquatic Vegetation (M401 North American Ruderal Aquatic Vegetation)				
	Naturalized temperate Pacific freshwater vegetation – NTF (No name currently applicable)			
		<i>Eichhornia crassipes</i> Provisional	<i>Eichhornia crassipes</i> Provisional	3
		<i>Ludwigia (hexapetala, peploides)</i>	<i>Ludwigia (hexapetala, peploides)</i>	32
		<i>Myriophyllum spp.</i> Provisional	<i>Myriophyllum spp.</i> – <i>Egeria densa</i> Provisional	4
Western North American Freshwater Aquatic Vegetation (M109 Western North American Freshwater Aquatic Vegetation)				
	Temperate freshwater floating mat – TFF (Western North American Temperate Freshwater Aquatic Bed Group)			
		<i>Azolla (filiculoides, mexicana)</i> Provisional	<i>Azolla (filiculoides, mexicana)</i> Provisional	9
		<i>Lemna (minor)</i> and Relatives Provisional	<i>Lemna (minor)</i> Provisional	1
	Temperate Pacific freshwater aquatic bed – TFB (Western North American Temperate Freshwater Aquatic Bed Group)			
		<i>Brasenia schreberi</i> Provisional	<i>Brasenia schreberi</i> Western Provisional	2
		<i>Potamogeton spp.</i>–<i>Ceratophyllum spp.</i>–<i>Elodea spp.</i> Provisional	<i>Ceratophyllum demersum</i> Provisional	1
Temperate Pacific Intertidal Shore (M109 Western North American Freshwater Aquatic Vegetation and M186 Ditch-grass Saline Aquatic Vegetation)				
	Temperate Pacific intertidal flat(Western North American Temperate Freshwater Aquatic Bed Group and No name currently applicable)			
		<i>Stuckenia (pectinata)</i> – <i>Potamogeton spp.</i>	<i>Stuckenia pectinata</i>	1

Macro group	Group	Alliance	Association	# of surveys
North American Pacific Coastal Salt Marsh (M081 North American Pacific Coastal Salt Marsh)				
	Temperate Pacific tidal salt and brackish meadow – TBM (Temperate Pacific Tidal Salt & Brackish Marsh Group)			
		<i>Distichlis spicata</i>	(alliance level)	1
			<i>Distichlis spicata</i>	29
			<i>Distichlis spicata</i> –annual grasses	19
			<i>Distichlis spicata</i> – <i>Juncus arcticus</i> var. <i>balticus</i> (<i>J. arcticus</i> var. <i>mexicanus</i>)	3
		<i>Sarcocornia pacifica</i> (<i>Salicornia depressa</i>)	<i>Sarcocornia pacifica</i> –annual grasses	0
			<i>Sarcocornia pacifica</i> – <i>Distichlis spicata</i>	6
			<i>Sarcocornia pacifica</i> – <i>Frankenia salina</i>	1
			<i>Sarcocornia pacifica</i> –Moist annual Provisional	1
North American Pacific Coastal Salt Marsh (M083 Warm Semi-Desert & Mediterranean Alkaline-Saline Wetland)				
	Western North American disturbed alkaline marsh and meadow – DAM (North American Warm Desert Alkaline Scrub & Herb Playa & Wet Flat Group)			
		<i>Sesuvium verrucosum</i>	<i>Sesuvium verrucosum</i> – <i>Distichlis spicata</i>	1
Western Cordilleran Montane Shrubland and Grassland (M073 Western North American Lowland Freshwater Wet Meadow, Marsh & Shrubland)				
	Western Cordilleran montane moist graminoid meadow (Western North American Maritime Lowland Wet Meadow & Seep Herbaceous Group)			
		<i>Hordeum brachyantherum</i>	<i>Hordeum brachyantherum</i>	7
Western Cordilleran montane-boreal wet meadow (M073 Western North American Lowland Freshwater Wet Meadow, Marsh & Shrubland and M075 Western North American Montane Wet Meadow & Low Shrubland)				
	Western cordilleran montane-boreal mesic wet meadow (Western North American Maritime Lowland Wet Meadow & Seep Herbaceous Group and Vancouverian & Rocky Mountain Montane Wet Meadow Group)			
		<i>Deschampsia caespitosa</i>	<i>Deschampsia caespitosa</i> – <i>Lilaeopsis masonii</i> Provisional	5
Western North American Temperate Grassland and Meadow (Western North American Ruderal Wet Meadow & Marsh Macrogroup)				
	Vancouverian and Rocky Mountain naturalized perennial grassland and Naturalized warm-temperate riparian and wetland group – NRW (Western North American Ruderal Wet Meadow & Marsh Group)			
		<i>Cynodon dactylon</i>–<i>Crypsis</i> spp.–<i>Paspalum</i> spp. Moist Ruderal	(alliance level)	12
			<i>Cynodon dactylon</i> Provisional	4
			<i>Crypsis</i> (<i>schoenoides</i>, <i>vaginiflora</i>) Provisional	6
		<i>Helianthus annuus</i> Provisional	<i>Helianthus annuus</i> Provisional	3
		<i>Heterotheca</i> (<i>oregona</i>, <i>sessiliflora</i>)	<i>Heterotheca oregona</i>	23
		<i>Lepidium latifolium</i>	<i>Lepidium latifolium</i>	5

Macro group	Group	Alliance	Association	# of surveys
		<i>Phalaris aquatica</i> Provisional	<i>Phalaris aquatica</i> Provisional	1
		Phalaris arundinacea Provisional	Phalaris arundinacea Western Provisional	3
		<i>Persicaria (lapathifolia)–Xanthium strumarium</i>	(alliance level)	4
			Persicaria (amphibia, lapathifolia)	10
			Xanthium strumarium	14
Western North American Temperate Grassland and Meadow (Western North American Montane Wet Meadow & Low Shrubland and M073 Western North American Lowland Freshwater Wet Meadow, Marsh & Shrubland)				
	Western dry upland perennial grassland (Vancouverian & Rocky Mountain Montane Wet Meadow Group and Western North American Maritime Lowland Wet Meadow & Seep Herbaceous Group)			
		<i>Elymus glaucus</i>	Elymus glaucus Provisional	2
		<i>Leymus cinereus</i>	Leymus cinereus Provisional	1
		<i>Poa secunda</i>	Poa secunda–Bromus rubens	1
Southwestern North American Riparian, Flooded and Swamp Forest (M076 Warm Desert Freshwater Shrubland, Meadow & Marsh)				
	Southwestern North American introduced riparian scrub – RIS (Arid West Emergent Marsh Group)			
		<i>Arundo donax</i>	<i>Arundo donax</i>	8
			<i>Arundo donax–Salix exigua</i>	2
Inter-Mountain Dry Shrubland and Grassland (M171 Great Basin & Intermountain Dry Shrubland & Grassland)				
	Northern Great Basin semi-desert grassland group (Intermountain Semi-Desert Grassland Group)			
		<i>Achnatherum hymenoides</i>	(alliance level)	1
Western North America Vernal Pool (M074 Western North American Vernal Pool)				
	Californian mixed annual/perennial freshwater vernal pool / swale bottomland – VPB (California Vernal Pool Group)			
		<i>Centromadia (pungens)</i>	Centromadia pungens–Lepidium dictyotum	42
		<i>Cressa truxillensis–Distichlis spicata</i>	Cressa truxillensis–Distichlis spicata Provisional	7
		<i>Eleocharis macrostachya</i>	<i>Eleocharis macrostachya</i>	9
			<i>Eleocharis macrostachya(–Pleuropogon californicus)</i> Provisional	4
		<i>Eryngium aristulatum</i>	Hemizonia congesta Provisional	10
		<i>Grindelia (camporum, stricta)</i>	Grindelia camporum	10
		<i>Lasthenia fremontii–Distichlis spicata</i>	(alliance level)	1
			<i>Downingia pulchella–Cressa truxillensis</i>	1
			Frankenia salina–Psilocarphus brevissimus Provisional	6
			<i>Limnanthes douglasii ssp. rosea–Pleuropogon californicus</i>	2
		<i>Lasthenia fremontii–Downingia (bicornuta)</i>	(alliance level)	3
			<i>Downingia (bicornuta, cuspidata)</i>	2

Macro group	Group	Alliance	Association	# of surveys
			<i>Downingia insignis</i> – <i>Psilocarphus brevissimus</i>	1
			<i>Eryngium</i> (<i>vaseyi</i> , <i>castrense</i>)	13
			<i>Lasthenia fremontii</i> Provisional	3
			<i>Lasthenia fremontii</i> – <i>Downingia bicornuta</i>	1
			<i>Lasthenia fremontii</i> – <i>Downingia ornatissima</i>	24
		<i>Lasthenia glaberrima</i>	<i>Lasthenia glaberrima</i> – <i>Downingia insignis</i>	1
			<i>Lasthenia glaberrima</i> – <i>Lupinus bicolor</i>	1
			<i>Lasthenia glaberrima</i> – <i>Pleuropogon californicus</i>	0
		<i>Layia fremontii</i> – <i>Achyrrachaena mollis</i>	<i>Layia fremontii</i> – <i>Achyrrachaena mollis</i>	32
			<i>Plagiobothrys austinae</i> – <i>Achyrrachaena mollis</i>	6
		<i>Montia fontana</i> – <i>Sidalcea calycosa</i>	<i>Montia fontana</i> – <i>Sidalcea calycosa</i>	2
		<i>Trifolium variegatum</i>	(<i>Trifolium variegatum</i> – <i>Vulpia bromoides</i>)– <i>Hypochaeris glabra</i> – <i>Leontodon taraxacoides</i>	5
			<i>Trifolium gracilentum</i>	5
			<i>Trifolium variegatum</i> – <i>Hesperervax caulescens</i>	5
			<i>Trifolium variegatum</i> – <i>Juncus bufonius</i>	17
			<i>Trifolium variegatum</i> – <i>Lolium perenne</i> – <i>Leontodon taraxacoides</i>	0
Western North America Wet Meadow and Low Shrub Carr (M073 Western North American Lowland Freshwater Wet Meadow, Marsh & Shrubland and M075 Western North American Montane Wet Meadow & Low Shrubland)				
	California warm temperate marsh/seep – WTM (Western North American Maritime Lowland Wet Meadow & Seep Herbaceous Group and Vancouverian & Rocky Mountain Montane Wet Meadow Group)			3
		<i>Artemisia douglasiana</i> Provisional	<i>Artemisia douglasiana</i> Provisional	8
		<i>Carex barbarae</i>	<i>Carex barbarae</i>	5
		<i>Equisetum</i> (<i>arvense</i>, <i>variegatum</i>, <i>hyemale</i>) Provisional	<i>Equisetum hyemale</i> Provisional	1
		<i>Juncus</i> (<i>oxymetris</i> , <i>xiphioides</i>) Provisional	<i>Juncus xiphioides</i> Provisional	1
		<i>Juncus arcticus</i> (<i>var. balticus</i> , <i>mexicanus</i>)	<i>Juncus arcticus</i> <i>var. balticus</i>	10
			<i>Juncus arcticus</i> <i>var. balticus</i> – <i>Carex praegracilis</i>	2
			<i>Juncus arcticus</i> <i>var. balticus</i> – <i>Lepidium latifolium</i> Provisional	2
			<i>Juncus arcticus</i> <i>var. mexicanus</i>	4
		<i>Leymus triticoides</i>	<i>Leymus triticoides</i>	38
			<i>Leymus triticoides</i> – <i>Bromus</i> spp.– <i>Avena</i> spp.	7
		<i>Mimulus</i> (<i>guttatus</i>)	<i>Mimulus guttatus</i> – <i>Vulpia microstachys</i> <i>Serpentine</i>	1

Macro group	Group	Alliance	Association	# of surveys
		<i>Muhlenbergia rigens</i>	<i>Muhlenbergia rigens</i>	1
Western North American Freshwater Marsh (M073 Western North American Lowland Freshwater Wet Meadow, Marsh & Shrubland and M081 North American Pacific Coastal Salt Marsh)				
	Arid West freshwater emergent marsh – FEM (Western North American Temperate Interior Freshwater Marsh Group and Temperate Pacific Tidal Salt & Brackish Marsh Group)			1
		<i>Phragmites australis</i>	<i>Phragmites australis</i>	0
		<i>Schoenoplectus acutus</i>	(alliance level)	1
			<i>Schoenoplectus acutus</i>	35
			<i>Schoenoplectus acutus</i> – <i>Phragmites australis</i>	10
		<i>Schoenoplectus californicus</i>	(alliance level)	4
			<i>Schoenoplectus californicus</i>	5
			<i>Schoenoplectus californicus</i> – <i>Schoenoplectus acutus</i> Provisional	10
		<i>Typha (angustifolia, domingensis, latifolia)</i>	(alliance level)	2
			<i>Typha angustifolia</i>	5
			<i>Typha domingensis</i>	2
			<i>Typha latifolia</i>	22
	Vancouverian coastal/tidal marsh and meadow (Vancouverian Freshwater Coastal Marsh & Meadow Group)			
		<i>Juncus effusus</i>	<i>Juncus effusus</i>	2
Warm Semi-Desert/Mediterranean Alkali–Saline Wetland (M083 Warm Semi-Desert & Mediterranean Alkaline-Saline Wetland)				
	Southwestern North American alkali marsh/seep vegetation – SAM (North American Warm Desert Alkaline Herb Marsh & Seep Group)			
		<i>Anemopsis californica</i>	Anemopsis californica Provisional	3
		<i>Schoenoplectus americanus</i>	<i>Schoenoplectus americanus</i>	1
		<i>Sporobolus airoides</i>	<i>Sporobolus airoides</i>	33
			<i>Sporobolus airoides</i> / <i>Allenrolfea occidentalis</i>	2
	Southwestern North American salt basin and high marsh group – SSB (North American Warm Desert Alkaline Scrub & Herb Playa & Wet Flat Group)			
		<i>Arthrocnemum subterminale</i>	<i>Arthrocnemum subterminale</i> Provisional	1
		<i>Frankenia salina</i>	(alliance level)	2
			<i>Frankenia salina</i>	17
			<i>Frankenia salina</i> – <i>Distichlis spicata</i>	16

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APPENDIX 1. Protocol and field forms used for vegetation sampling in 2010 and 2011.

CALIFORNIA NATIVE PLANT SOCIETY / DEPARTMENT OF FISH AND GAME
PROTOCOL FOR COMBINED VEGETATION RAPID ASSESSMENT
AND RELEVÉ SAMPLING FIELD FORM
(July 15, 2010)

Introduction

This protocol describes the methodology for both the relevé and rapid assessment vegetation sampling techniques as recorded in the combined relevé and rapid assessment field survey form dated March 22, 2010. The same environmental data are collected for both techniques. However, the relevé sample is plot-based, with each species in the plot and its cover being recorded. The rapid assessment sample is based not on a plot but on the entire stand, with 12-20 of the dominant or characteristic species and their cover values recorded. For more background on the relevé and rapid assessment sampling methods, see the relevé and rapid assessment protocols at www.cnps.org.

Selecting stands to sample:

To start either the relevé or rapid assessment method, a stand of vegetation needs to be defined. A stand is the basic physical unit of vegetation in a landscape. It has no set size. Some vegetation stands are very small, such as alpine meadow or tundra types, and some may be several square kilometers in size, such as desert or forest types. A stand is defined by two main unifying characteristics:

- 1) It has compositional integrity. Throughout the site, the combination of species is similar. The stand is differentiated from adjacent stands by a discernable boundary that may be abrupt or indistinct.
- 2) It has structural integrity. It has a similar history or environmental setting that affords relatively similar horizontal and vertical spacing of plant species. For example, a hillside forest originally dominated by the same species that burned on the upper part of the slopes, but not the lower, would be divided into two stands. Likewise, sparse woodland occupying a slope with very shallow rocky soils would be considered a different stand from an adjacent slope with deeper, moister soil and a denser woodland or forest of the same species.

The structural and compositional features of a stand are often combined into a term called homogeneity. For an area of vegetated ground to meet the requirements of a stand, it must be homogeneous (uniform in structure and composition throughout).

Stands to be sampled may be selected by evaluation prior to a site visit (*e.g.*, delineated from aerial photos or satellite images), or they may be selected on site during reconnaissance (to determine extent and boundaries, location of other similar stands, etc.).

Depending on the project goals, you may want to select just one or a few representative stands of each homogeneous vegetation type for sampling (*e.g.*, for developing a classification for a

vegetation mapping project), or you may want to sample all of them (*e.g.*, to define a rare vegetation type and/or compare site quality between the few remaining stands).

For the rapid assessment method, you will collect data based on the entire stand.

Selecting a plot to sample within in a stand (for relevés only):

Because many stands are large, it may be difficult to summarize the species composition, cover, and structure of an entire stand. We are also usually trying to capture the most information as efficiently as possible. Thus, we are typically forced to select a representative portion to sample.

When sampling a vegetation stand, the main point to remember is to select a sample that, in as many ways possible, is representative of that stand. This means that you are not randomly selecting a plot; on the contrary, you are actively using your own best judgment to find a representative example of the stand.

Selecting a plot requires that you see enough of the stand you are sampling to feel comfortable in choosing a representative plot location. Take a brief walk through the stand and look for variations in species composition and in stand structure. In many cases in hilly or mountainous terrain look for a vantage point from which you can get a representative view of the whole stand. Variations in vegetation that are repeated throughout the stand should be included in your plot. Once you assess the variation within the stand, attempt to find an area that captures the stand's common species composition and structural condition to sample.

Plot Size

All relevés of the same type of vegetation to be analyzed in a study need to be the same size. Plot shape and size are somewhat dependent on the type of vegetation under study. Therefore, general guidelines for plot sizes of tree-, shrub-, and herbaceous communities have been established. Sufficient work has been done in temperate vegetation to be confident the following conventions will capture species richness:

Herbaceous communities: 100 sq. m plot

Special herbaceous communities, such as vernal pools, fens: 10 sq m plot

Shrublands and Riparian forest/woodlands: 400 sq. m plot

Open desert and other shrublands with widely dispersed but regularly occurring woody species: 1000 sq. m plot

Upland Forest and woodland communities: 1000 sq. m plot

Plot Shape

A relevé has no fixed shape, though plot shape should reflect the character of the stand. If the stand is about the same size as a relevé, the plot boundaries may be similar to that of the entire stand. If we are sampling streamside riparian or other linear communities, our plot dimensions should not go beyond the community's natural ecological boundaries. Thus, a relatively long, narrow plot capturing the vegetation within the stand, but not outside it would be appropriate. Species present along the edges of the plot that are clearly part of the adjacent stand should be excluded.

If we are sampling broad homogeneous stands, we would most likely choose a shape such as a circle (which has the advantage of the edges being equidistant to the center point) or a square (which can be quickly laid out using perpendicular tapes).

Definitions of fields in the protocol

Relevé or Rapid Assessment: Circle the method that you are using.

LOCATIONAL/ENVIRONMENTAL DESCRIPTION

Polygon/Stand #: Number assigned either in the field or in the office prior to sampling. It is usually denoted with a four-letter abbreviation of the sampling location and then a four-number sequential number of that locale (*e.g.* CARR0001 for Carrizo sample #1). The maximum number of letters/numbers is eight.

Air photo #: The number given to the aerial photo in a vegetation-mapping project, for which photo interpreters have already done photo interpretation and delineations of polygons. If the sample site has not been photo-interpreted, leave blank.

Date: Date of the sampling.

Name(s) of surveyors: The full names of each person assisting should be provided for the first field form for the day. On successive forms, initials of each person assisting can be recorded. Please note: The person recording the data on the form should circle their name/initials.

GPS waypoint #: The waypoint number assigned by a Global Positioning System (GPS) unit when marking and storing a waypoint for the sample location. Stored points should be downloaded in the office to serve as a check on the written points and to enter into a GIS.

For relevé plots, take the waypoint in the southwest corner of the plot or in the center of a circular plot.

GPS name: The name/number assigned to each GPS unit. This can be the serial number if another number is not assigned.

Datum: (NAD 83) The standard GPS datum used is NAD 83. If you are using a different datum, note it here.

Bearing, left axis at SW pt (note in degrees) of Long or Short side: For square or rectangular plots: from the SW corner (= the GPS point location), looking towards the plot, record the bearing of the axis to your left. If the plot is a rectangle, indicate whether the left side of the plot is the long or short side of the rectangle by circling “long” or “short” side (no need to circle anything for circular or square plots). If there are no stand constraints, you would choose a circular or square plot and straight-sided plots should be set up with boundaries running in the cardinal directions. If you choose a rectangular plot that is not constrained by the stand

dimensions, the short side should run from east to west, while the long side should run from north to south.

UTM coordinates: Easting (UTME) and northing (UTMN) location coordinates using the Universal Transverse Mercator (UTM) grid. Record in writing the information from a GPS unit or a USGS topographic map.

UTM zone: Universal Transverse Mercator zone. Zone 10 is for California west of the 120th longitude, zone 11 is for California east of 120th longitude, which is the same as the straight portion of California's eastern boundary.

Error: ± The accuracy of the GPS location, when taking the UTM field reading. Please record the error units by circling feet (ft), meters (m), or positional dilution of precision (pdop). If your GPS does not determine error, insert N/A in this field.

Is GPS within stand? Yes/No Circle "Yes" to denote that the GPS waypoint was taken directly within or at the edge of the stand being assessed for a rapid assessment, or circle "No" if the waypoint was taken at a distance from the stand (such as with a binocular view of the stand).

If No, cite from waypoint to stand, distance (note in meters) & bearing (note in degrees): An estimate of the number of meters and the compass bearing from the GPS waypoint to the stand.

Elevation: Recorded from the GPS unit or USGS topographic map. Please circle feet (ft) or meters (m).

Photograph #s: Write the name or initials of the camera owner, JPG/frame number, and direction of photos (note the roll number if using film). *Take four photos in the main cardinal directions (N, E, S, W) clockwise from the north, from the GPS location.* If additional photos are taken in other directions, please note this information on the form.

Stand Size: Estimate the size of the entire stand in which the sample is taken. As a measure, one acre is about 4000 square meters (approximately 64 x 64 m), or 208 feet by 208 feet. One acre is similar in size to a football field.

Plot Size: If this is a relevé, circle the size of the plot.

Plot Shape: Record the length and width of the plot and circle measurement units (i.e., ft or m). If it is a circular plot, enter radius (or just put a check mark in the space).

Exposure: (Enter actual ° and circle general category): With your back to the general uphill direction of the slope (i.e., by facing downhill of the slope), read degrees of the compass for the aspect or the direction you are standing, using degrees from north, adjusted for declination. Average the reading over the entire stand, even if you are sampling a relevé plot, since your plot is representative of the stand. If estimating the exposure, write "N/A" for the actual degrees, and circle the general category chosen. "Variable" may be selected if the same, homogenous stand

of vegetation occurs across a varied range of slope exposures. Select “all” if stand is on top of a knoll that slopes in all directions or if the same, homogenous stand of vegetation occurs across all ranges of slope.

Steepness: (Enter actual ° and circle general category): Read degree slope from a compass or clinometer. If estimating, write “N/A” for the actual degrees, and circle the general category chosen. Make sure to average the reading across the entire stand even if you are sampling in a relevé plot.

Topography: First assess the broad (macro) topographic feature or general position of the stand in the surrounding watershed, that is, the stand is at the bottom, lower (1/3 of slope), middle (1/3 of slope), upper (1/3 of slope), or at the top. **Circle all of the positions that apply.** Then, assess the local (micro) topographic features or the lay of the area (*e.g.*, surface is flat or concave). **Circle only one of the microtopographic descriptors.**

Geology: Geological parent material of site. If exact type is unknown, use a more general category (*e.g.*, igneous, metamorphic, sedimentary). *See code list for types.*

Soil Texture: Record soil texture that is characteristic of the site (*e.g.*, coarse loamy sand, sandy clay loam). *See soil texture key and code list for types.*

Upland or Wetland/Riparian (circle one): Indicate if the stand is in an upland or a wetland. There are only two options. Wetland and riparian are one category. Note that a site need not be officially delineated as a wetland to qualify as such in this context (*e.g.*, seasonally wet meadow).

% Surface cover (abiotic substrates). It is helpful to imagine “mowing off” all of the live vegetation at the base of the plants and removing it – you will be estimating what is left covering the surface. **The total should sum to 100%.** Note that non-vascular cover (lichens, mosses, cryptobiotic crusts) is not estimated in this section.

% Water: Estimate the percent surface cover of running or standing water, ignoring the

substrate below the water.

% BA Stems: Percent surface cover of the plant basal area, *i.e.*, the basal area of stems at the ground surface. Note that for most vegetation types BA is 1-3% cover.

% Litter: Percent surface cover of litter, duff, or wood on the ground.

% Bedrock: Percent surface cover of bedrock.

% Boulders: Percent surface cover of rocks > 60 cm in diameter.

% Stone: Percent surface cover of rocks 25-60 cm in diameter.

% Cobble: Percent surface cover of rocks 7.5 to 25 cm in diameter.

% Gravel: Percent surface cover of rocks 2 mm to 7.5 cm in diameter.

% Fines: Percent surface cover of bare ground and fine sediment (*e.g.* dirt) < 2 mm in diameter.

% Current year bioturbation: Estimate the percent of the sample or stand exhibiting soil disturbance by fossorial organisms (any organism that lives underground). Do not include disturbance by ungulates. Note that this is a separate estimation from surface cover.

Past bioturbation present? Circle Yes if there is evidence of bioturbation from previous years.

% Hoof punch: Note the percent of the sample or stand surface that has been punched down by hooves (cattle or native grazers) in wet soil.

Fire Evidence: Circle Yes if there is visible evidence of fire, and note the type of evidence in the “Site history, stand age and comments section,” for example, “charred dead stems of *Quercus berberidifolia* extending 2 feet above resprouting shrubs.” If you are certain of the year of the fire, put this in the Site history section. If there is no visible evidence of fire, select No. If the stand includes fire-following plants, but there is no other physical evidence of fire, select No and comment in the site history.

Site history, stand age, and comments: Briefly describe the stand age/seral stage, disturbance history, nature and extent of land use, and other site environmental and vegetation factors. Examples of disturbance history: fire, landslides, avalanching, drought, flood, animal burrowing, or pest outbreak. Also, try to estimate year or frequency of disturbance. Examples of land use: grazing, timber harvest, or mining. Examples of other site factors: exposed rocks, soil with fine-textured sediments, high litter/duff build-up, multi-storied vegetation structure, or other stand dynamics.

Disturbance code / Intensity (L,M,H): List codes for potential or existing impacts on the stability of the plant community. Characterize each impact each as **L** (=Light), **M** (=Moderate), or **H** (=Heavy). For invasive exotics, divide the total exotic cover (e.g. 25% *Bromus diandrus* + 8% *Bromus madritensis* + 5% *Centaurea melitensis* = 38% total exotics) by the total % cover of all the layers when added up (e.g. 15% tree + 5% low tree + 25% shrub + 40% herbs = 85% total) and multiply by 100 to get the % relative cover of exotics (e.g. 38% total exotics/85% total cover = 45% relative exotic cover). L = 0-33% relative cover of exotics; M = 34-66% relative cover, and H = > 66% relative cover. *See code list for impacts.*

II. HABITAT AND VEGETATION DESCRIPTION per California Wildlife-Habitat Relationships (CWHR)

For CWHR, identify the size/height class of the stand using the following tree, shrub, and/or herbaceous categories. These categories are based on functional life forms.

Tree DBH: Record tree size classes when the tree canopy closure exceeds 10 percent of the total cover (except in desert types), or if young tree density indicates imminent tree dominance. Size class is based on the average diameter at breast height (dbh) of each trunk (standard breast height is 4.5ft/137cm). When marking the main size class, make sure to estimate the mean diameter of all trees over the entire stand, and weight the mean if there are some larger tree dbh's. The “**T6 multi-layered**” dbh size class contains a multi-layered tree canopy (with a size class T3 and/or T4 layer growing under a T5 layer and a distinct height separation between the

classes) exceeding 60% total cover. Stands in the T6 class need also to contain at least 10% cover of size class 5 (>24" dbh) trees growing over a distinct layer with at least 10% combined cover of trees in size classes 3 or 4 (>11-24" dbh).

Shrub (mark one): Record shrub size classes when shrub canopy closure exceeds 10 percent (except in desert types). You can record shrub size class by circling the class that is predominant in the survey. Shrub size class is based on the average amount of crown decadence (dead standing vegetation on live shrubs when looking across the crowns of the shrubs).

Herb (mark one): Record herb height when herbaceous cover exceeds 2 percent. You can record herb class by the size class that is predominant in the survey (H1 or H2). *This height class is based on the average plant height at maturity, not necessarily at the time of observation.*

Overall cover of vegetation

Provide an estimate of cover for the following categories below (based on functional life forms). Record a specific number for the total aerial cover or "bird's-eye view" looking from above for each category, estimating cover for the living plants only. Litter/duff should not be included in these estimates. The porosity of the vegetation should be taken into consideration when estimating percent cover (how much of the sky can you see when you are standing under the canopy of a tree, or how much light passes through the canopy of the shrub layer?).

To come up with a specific number estimate for percent cover, first use to the following CWHR cover intervals as a reference aid to get a generalized cover estimate: <2%, 2-9%, 10-24%, 25-39%, 40-59%, 60-100%. While keeping these intervals in mind, you can then refine your estimate to a specific percentage for each category below.

% Total Non-Vasc cover: The total cover of all lichens, bryophytes (mosses, liverworts, hornworts), and cryptogammic crust on substrate surfaces including downed logs, rocks and soil, but not on standing or inclined trees or vertical rock surfaces.

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

% Cover

% Conifer Tree /Hardwood Tree: The total foliar cover (considering porosity) of all live tree species, disregarding overlap of individual trees. Estimate conifer and hardwood covers separately. **Please note:** These cover values should not include the coverage of regenerating tree species (i.e., tree seedlings and saplings).

% Regenerating Tree: The total foliar % cover of seedlings and saplings, disregarding overlap of individual recruits. See seedling and sapling definitions below.

%Shrub: The total foliar cover (considering porosity) of all live shrub species disregarding overlap of individual shrubs.

%Herbaceous: The total cover (considering porosity) of all herbaceous species, disregarding overlap of individual herbs.

Height Class

Modal height for conifer tree /hardwood tree, shrub, and herbaceous categories: Provide an estimate of height for each category listed. Record an average height value per each category by estimating the mean height for each group. Please use the following height intervals to record a height class: 01 =< 1/2m, 02=1/2-1m, 03 = 1-2 m, 04 = 2-5 m, 05 = 5-10 m, 06 = 10-15 m, 07 = 15-20 m, 08 = 20-35 m, 09 = 35-50 m, 10 => 50m.

Species list and coverage

For rapid assessments, list the 10-20 species that are dominant or that are characteristically consistent throughout the stand. These species may or may not be abundant, but they should be constant representatives in the survey. When different layers of vegetation occur in the stand, make sure to list species from each stratum. As a general guide, make sure to list at least 1-2 of the most abundant species per stratum.

For relevés, list all species present in the plot, using the second species list page if necessary.

For both sample types, provide the stratum where:

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

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

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

E = Seedling. A tree species clearly of a very young age that is less than 1" dbh.

A = Sapling. 1" - <6" dbh and young in age, OR small trees that are less than 1" diameter at breast height and are clearly of appreciable age and kept short by repeated browsing or burning.

N = Non-vascular. Includes mosses, liverworts, hornworts, cryptogamic crust, lichens, and algae.

Be consistent and don't break up a single species into two separate strata. The only time it would be appropriate to do so is when one or more tree species are regenerating, in which case the Seedling and/or Sapling strata should be recorded for that species. These may be noted on the same line, e.g.:

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

If a species collection is made, it should be indicated in the collection column with a “C” (for collected). If the species is later keyed out, cross out the species name or description and write the keyed species name in pen on the data sheet. Do not erase what was written in the field, because this information can be used if specimens get mixed up later. If the specimen is then thrown out, the “C” in the collection column should be crossed out. If the specimen is kept but is still not confidently identified, add a “U” to the “C” in the collection column (CU = collected and unconfirmed). In this case the unconfirmed species epithet should be put in parentheses [e.g. *Hordeum (murinum)*]. If the specimen is kept and is confidently identified, add a “C” to the existing “C” in the collection column (CC = Collected and confirmed).

Use Jepson Manual nomenclature. Write out the genus and species of the plant. Do not abbreviate. When uncertain of an identification (which you intend to confirm later) use parentheses to indicate what part of the determination needs to be confirmed. For example, you could write out *Brassica (nigra)* if you are sure it is a *Brassica* but you need further clarification on the specific epithet.

Provide the % absolute aerial cover for each species listed. When estimating, it is often helpful to think of coverage in terms of the following cover intervals at first:

<1%, 1-5%, >5-15%, >15-25%, >25-50%, >50-75%, >75%.

Keeping these classes in mind, then refine your estimate to a specific percentage. All species percent covers may total over 100% because of overlap.

Include the percent cover of snags (standing dead) of trees and shrubs. Note their species, if known, in the “Stand history, stand age and comments” section.

For rapid assessments, make sure that the major non-native species occurring in the stand also are listed in the space provided in the species list with their strata and % cover. For relevés, all non-native species should be included in the species list.

Unusual species: List species that are locally or regionally rare, endangered, or atypical (e.g., range extension or range limit) within the stand. This field will be useful to the Program for obtaining data on regionally or locally significant populations of plants.

INTERPRETATION OF STAND

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

Please note: The field-assessed alliance name may not exist in the present classification, in which case you can provide a new alliance name in this field. If this is the case, also make sure to state that it is not in the MCV under the explanation for “Confidence in alliance identification.”

Field-assessed association name (optional): Name of the species in the alliance and additional dominant/diagnostic species from any strata, as according to CNPS classification. In following naming conventions, species in differing strata are separated with a slash, and species in the uppermost stratum are listed first (e.g., *Quercus douglasii*/*Toxicodendron diversilobum*). Species in the same stratum are separated with a dash (e.g., *Quercus lobata-Quercus douglasii*).

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

Adjacent Alliances/direction: Identify other vegetation types that are directly adjacent to the stand being assessed by noting the dominant species (or known type). Also note the distance away in meters from the GPS waypoint and the direction in degrees aspect that the adjacent alliance is found
(e.g., *Amsinckia tessellata* / 50m, 360° N *Eriogonum fasciculatum* /100m, 110°).

Confidence in Identification: (L, M, H) With respect to the “field-assessed alliance name”, note whether you have L (=Low), M (=Moderate), or H (=High) confidence in the interpretation of this alliance name.

Explain: Please elaborate if your “Confidence in Identification” is low or moderate. Low confidence can occur from such things as a poor view of the stand, an unusual mix of species that does not meet the criteria of any described alliance, or a low confidence in your ability to identify species that are significant members of the stand.

Phenology: Indicate early (E), peak (P) or late (L) phenology for each of the strata.

Other identification problems or mapping issues: Discuss any further problems with the identification of the assessment or issues that may be of interest to mappers. Note if this sample represents a type that is likely too small to map. If it does, how much of the likely mapping unit would be comprised of this type. For example: “this sample represents the top of kangaroo rat precincts in this general area, which are surrounded by vegetation represented by CARR000x; this type makes up 10% of the mapping unit.”

Is polygon >1 type: Yes / No (circle one): In areas that have been delineated as polygons on aerial photographs/imagery for a vegetation-mapping project, assess if the polygon is mapped as a single stand. “Yes” is noted when the polygon delineated contains the field-assessed alliance and other vegetation type(s), as based on species composition and structure. “No” is noted when the polygon is primarily representative of the field-assessed alliance.

If yes, explain: If “Yes” above, explain the other vegetation alliances that are included within the polygon, and explain the amount and location that they cover in the polygon.

APPENDIX 2. List of plants analyzed in all surveys of the Great Valley Ecoregion with scientific names and nativity status accepted by UCB (2009) and codes and common names by USDA-NRCS (2011).

Code	Species Name	Common Name	Family	Native
ABIES	<i>Abies</i> sp.	fir	Pinaceae	Yes
ABTH	<i>Abutilon theophrasti</i>	velvetleaf	Malvaceae	No
ACMA3	<i>Acer macrophyllum</i>	bigleaf maple	Aceraceae	Yes
ACNE2	<i>Acer negundo</i>	boxelder	Aceraceae	Yes
ACSA2	<i>Acer saccharinum</i>	silver maple	Aceraceae	No
ACMI2	<i>Achillea millefolium</i>	common yarrow	Asteraceae	Yes
ACHNA	<i>Achnatherum</i> sp.	needlegrass	Poaceae	Yes
ACHY	<i>Achnatherum hymenoides</i>	Indian ricegrass	Poaceae	Yes
ACLE8	<i>Achnatherum lemmonii</i>	Lemmon's needlegrass	Poaceae	Yes
ACSP12	<i>Achnatherum speciosum</i>	desert needlegrass	Poaceae	Yes
ACMO2	<i>Achyraea mollis</i>	blow wives	Asteraceae	Yes
ACRE3	<i>Acroptilon repens</i>	hardheads	Asteraceae	No
ADFA	<i>Adenostoma fasciculatum</i>	chamise	Rosaceae	Yes
ADIAN	<i>Adiantum</i> sp.	maidenhair fern	Pteridaceae	Yes
AETR	<i>Aegilops triuncialis</i>	barbed goatgrass	Poaceae	No
AECA	<i>Aesculus californica</i>	California buckeye	Hippocastanaceae	Yes
AGOSE	<i>Agoseris</i> sp.	agoseris	Asteraceae	Yes
AGROS2	<i>Agrostis</i> sp.	bentgrass	Poaceae	No
AGAV	<i>Agrostis avenacea</i>	Pacific bentgrass	Poaceae	No
AGEL4	<i>Agrostis elliotiana</i>	Elliott's bentgrass	Poaceae	Yes
AGEX	<i>Agrostis exarata</i>	spike bentgrass	Poaceae	Yes
AGGI2	<i>Agrostis gigantea</i>	redtop	Poaceae	No
AGID	<i>Agrostis idahoensis</i>	Idaho bentgrass	Poaceae	Yes
AGMI3	<i>Agrostis microphylla</i>	small-leaf bentgrass	Poaceae	Yes
AGPA8	<i>Agrostis pallens</i>	seashore bentgrass	Poaceae	Yes
AIAL	<i>Ailanthus altissima</i>	tree of heaven	Simaroubaceae	No
AICA	<i>Aira caryophyllea</i>	silver hairgrass	Poaceae	No
ALJU	<i>Albizia julibrissin</i>	silk tree	Fabaceae	No
ALTR7	<i>Alisma triviale</i>	northern water plantain	Alismataceae	Yes
ALOC2	<i>Allenrolfea occidentalis</i>	iodinebush	Chenopodiaceae	Yes
ALLIU	<i>Allium</i> sp.	onion	Liliaceae	Yes
ALAM2	<i>Allium amplexans</i>	narrowleaf onion	Liliaceae	Yes
ALHY	<i>Allium hyalinum</i>	glassy onion	Liliaceae	Yes
ALPEP2	<i>Allium peninsulare</i> var. <i>peninsulare</i>	peninsula onion	Liliaceae	Yes
ALSE3	<i>Allium serra</i>	jeweled onion	Liliaceae	Yes
ALTU	<i>Allium tuolumnense</i>	Rawhide Hill onion	Liliaceae	Yes
ALRH2	<i>Alnus rhombifolia</i>	white alder	Betulaceae	Yes
ALSA3	<i>Alopecurus saccatus</i>	Pacific foxtail	Poaceae	Yes
AMARA	<i>Amaranthus</i>	pigweed	Amaranthaceae	Yes
AMAL	<i>Amaranthus albus</i>	prostrate pigweed	Amaranthaceae	No

Code	Species Name	Common Name	Family	Native
AMBL	<i>Amaranthus blitoides</i>	mat amaranth	Amaranthaceae	Yes
AMCA	<i>Amaranthus californicus</i>	California amaranth	Amaranthaceae	Yes
AMBRO	<i>Ambrosia</i> sp.	ragweed	Asteraceae	Yes
AMAC2	<i>Ambrosia acanthicarpa</i>	flatspine bur ragweed	Asteraceae	Yes
AMAR2	<i>Ambrosia artemisiifolia</i>	annual ragweed	Asteraceae	No
AMPS	<i>Ambrosia psilostachya</i>	Cuman ragweed	Asteraceae	Yes
AMSA7	<i>Ambrosia salsola</i>	common cheese-bush	Asteraceae	Yes
AMVI2	<i>Ammi visnaga</i>	toothpickweed	Apiaceae	No
AMSIN	<i>Amsinckia</i> sp.	fiddleneck	Boraginaceae	Yes
AMEA2	<i>Amsinckia eastwoodiae</i>	Eastwood's fiddleneck	Boraginaceae	Yes
AMLY	<i>Amsinckia lycopsoides</i>	tarweed fiddleneck	Boraginaceae	Yes
AMME	<i>Amsinckia menziesii</i>	Menzies' fiddleneck	Boraginaceae	Yes
AMTE3	<i>Amsinckia tessellata</i>	bristly fiddleneck	Boraginaceae	Yes
ANAR	<i>Anagallis arvensis</i>	scarlet pimpernel	Primulaceae	No
ANMI4	<i>Anagallis minima</i>	chaffweed	Primulaceae	Yes
ANMA	<i>Anaphalis margaritacea</i>	western pearly everlasting	Asteraceae	Yes
ANGLS	<i>Andropogon glomeratus</i> var. <i>scabriglumis</i>	roughglume bushy bluestem	Poaceae	Yes
ANCA10	<i>Anemopsis californica</i>	yerba mansa	Saururaceae	Yes
ANGE3	<i>Antennaria geyeri</i>	pinewoods pussytoes	Asteraceae	Yes
ANCO2	<i>Anthemis cotula</i>	stinking chamomile	Asteraceae	No
ANCA14	<i>Anthriscus caucalis</i>	bur chervil	Apiaceae	No
APAR2	<i>Aphanes arvensis</i>	field parsley piert	Rosaceae	No
APGR2	<i>Apium graveolens</i>	wild celery	Apiaceae	No
APCA	<i>Apocynum cannabinum</i>	Indianhemp	Apocynaceae	Yes
ARCTO3	<i>Arctostaphylos</i>	manzanita	Ericaceae	Yes
ARMA	<i>Arctostaphylos manzanita</i>	whiteleaf manzanita	Ericaceae	Yes
ARMY	<i>Arctostaphylos myrtifolia</i>	lone manzanita	Ericaceae	Yes
ARVI4	<i>Arctostaphylos viscida</i>	sticky whiteleaf manzanita	Ericaceae	Yes
ARAN7	<i>Argentina anserina</i>	silverweed cinquefoil	Rosaceae	Yes
AROL	<i>Aristida oligantha</i>	prairie threeawn	Poaceae	Yes
ARCA10	<i>Aristolochia californica</i>	California dutchman's pipe	Aristolochiaceae	Yes
ARTEM	<i>Artemisia</i> sp.	sagebrush	Asteraceae	Yes
ARCA11	<i>Artemisia californica</i>	coastal sagebrush	Asteraceae	Yes
ARDO3	<i>Artemisia douglasiana</i>	Douglas' sagewort	Asteraceae	Yes
ARDR4	<i>Artemisia dracunculus</i>	tarragon	Asteraceae	Yes
ARLU	<i>Artemisia ludoviciana</i>	white sagebrush	Asteraceae	Yes
ARTR2	<i>Artemisia tridentata</i>	big sagebrush	Asteraceae	Yes
ARSU11	<i>Arthrocnemum subterminale</i>	Parish's glasswort	Chenopodiaceae	Yes
ARDO4	<i>Arundo donax</i>	giant reed	Poaceae	No
ASCLE	<i>Asclepias</i> sp.	milkweed	Asclepiadaceae	Yes
ASCA3	<i>Asclepias californica</i>	California milkweed	Asclepiadaceae	Yes
ASER2	<i>Asclepias erosa</i>	desert milkweed	Asclepiadaceae	Yes

Code	Species Name	Common Name	Family	Native
ASFA	<i>Asclepias fascicularis</i>	Mexican whorled milkweed	Asclepiadaceae	Yes
ASSP	<i>Asclepias speciosa</i>	showy milkweed	Asclepiadaceae	Yes
ASOF	<i>Asparagus officinalis</i>	garden asparagus	Liliaceae	No
ASTER	<i>Aster</i> sp.	aster	Asteraceae	Yes
ASTRA	<i>Astragalus</i> sp.	milkvetch	Fabaceae	Yes
ASDI3	<i>Astragalus didymocarpus</i>	dwarf white milkvetch	Fabaceae	Yes
ASGA	<i>Astragalus gambelianus</i>	Gambel's dwarf milkvetch	Fabaceae	Yes
ASLE8	<i>Astragalus lentiginosus</i>	freckled milkvetch	Fabaceae	Yes
ASTEF	<i>Astragalus tener</i> var. <i>ferrisiae</i>	Ferris' milkvetch	Fabaceae	Yes
ASTET2	<i>Astragalus tener</i> var. <i>tener</i>	alkali milkvetch	Fabaceae	Yes
ATPU	<i>Athysanus pusillus</i>	common sandweed	Brassicaceae	Yes
ATAR2	<i>Atriplex argentea</i>	silverscale saltbush	Chenopodiaceae	Yes
ATCO2	<i>Atriplex cordulata</i>	heartscale	Chenopodiaceae	Yes
ATCO3	<i>Atriplex coronata</i>	crownscale	Chenopodiaceae	Yes
ATFR	<i>Atriplex fruticulosa</i>	ball saltbush	Chenopodiaceae	Yes
ATLE	<i>Atriplex lentiformis</i>	big saltbush	Chenopodiaceae	Yes
ATPO	<i>Atriplex polycarpa</i>	cattle saltbush	Chenopodiaceae	Yes
ATPR	<i>Atriplex prostrata</i>	triangle orache	Chenopodiaceae	No
ATRO	<i>Atriplex rosea</i>	tumbling saltweed	Chenopodiaceae	No
ATSE	<i>Atriplex semibaccata</i>	Australian saltbush	Chenopodiaceae	No
ATSP	<i>Atriplex spinifera</i>	spinescale saltbush	Chenopodiaceae	Yes
AVENA	<i>Avena</i> sp.	oat	Poaceae	No
AVBA	<i>Avena barbata</i>	slender oat	Poaceae	No
AVFA	<i>Avena fatua</i>	wild oat	Poaceae	No
AZOLL	<i>Azolla</i> sp.	mosquitofern	Azollaceae	Yes
AZFI	<i>Azolla filiculoides</i>	Pacific mosquitofern	Azollaceae	Yes
BACCH	<i>Baccharis</i> sp.	baccharis	Asteraceae	Yes
BADO	<i>Baccharis douglasii</i>	saltmarsh baccharis	Asteraceae	Yes
BAPI	<i>Baccharis pilularis</i>	coyotebrush	Asteraceae	Yes
BASA4	<i>Baccharis salicifolia</i>	mule-fat	Asteraceae	Yes
BASSI	<i>Bassia</i> sp.	smotherweed	Chenopodiaceae	Yes
BACA21	<i>Bassia californica</i>	rusty molly	Chenopodiaceae	Yes
BAHY	<i>Bassia hyssopifolia</i>	fivehorn smotherweed	Chenopodiaceae	No
BASC5	<i>Bassia scoparia</i>	burningbush	Chenopodiaceae	Yes
BEER	<i>Berula erecta</i>	cutleaf waterparsnip	Apiaceae	Yes
BIDEN	<i>Bidens</i> sp.	beggarticks	Asteraceae	Yes
BIFR	<i>Bidens frondosa</i>	devil's beggartick	Asteraceae	Yes
BILA	<i>Bidens laevis</i>	smooth beggartick	Asteraceae	Yes
BLNAN	<i>Blennosperma nanum</i> var. <i>nanum</i>	common stickyseed	Asteraceae	Yes
BOEHM	<i>Boehmeria</i> sp.	false nettle	Urticaceae	No
BONI2	<i>Boehmeria nivea</i>	Chinese grass	Urticaceae	No
BOGL9	<i>Bolboschoenus glaucus</i>	glaucous scirpus	Cyperaceae	Yes
BOCAC	<i>Bombycilaena californica</i> var.	q-tips	Asteraceae	Yes

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	<i>californica</i>			
BRDI2	<i>Brachypodium distachyon</i>	purple false brome	Poaceae	No
BRASE	<i>Brasenia</i> sp.	brasenia	Cabombaceae	Yes
BRASS2	<i>Brassica</i> sp.	mustard	Brassicaceae	No
BRNI	<i>Brassica nigra</i>	black mustard	Brassicaceae	No
BRRRA	<i>Brassica rapa</i>	field mustard	Brassicaceae	No
BRTO	<i>Brassica tournefortii</i>	Asian mustard	Brassicaceae	No
BRCA3	<i>Brickellia californica</i>	California brickellbush	Asteraceae	Yes
BRMA	<i>Briza maxima</i>	big quakinggrass	Poaceae	No
BRMI2	<i>Briza minor</i>	little quakinggrass	Poaceae	No
BRODI	<i>Brodiaea</i> sp.	brodiaea	Liliaceae	Yes
BRAP	<i>Brodiaea appendiculata</i>	appendage brodiaea	Liliaceae	Yes
BRCA4	<i>Brodiaea californica</i>	California brodiaea	Liliaceae	Yes
BRCO3	<i>Brodiaea coronaria</i>	crown brodiaea	Liliaceae	Yes
BREL	<i>Brodiaea elegans</i>	harvest brodiaea	Liliaceae	Yes
BRMI3	<i>Brodiaea minor</i>	vernalpool brodiaea	Liliaceae	Yes
BRST	<i>Brodiaea stellaris</i>	starflower brodiaea	Liliaceae	Yes
BROMU	<i>Bromus</i> sp.	brome	Poaceae	No
BRAR3	<i>Bromus arenarius</i>	Australian brome	Poaceae	No
BRAR4	<i>Bromus arizonicus</i>	Arizona brome	Poaceae	Yes
BRBE6	<i>Bromus berterioanus</i>	Chilean chess	Poaceae	No
BRCA5	<i>Bromus carinatus</i>	California brome	Poaceae	Yes
BRCA6	<i>Bromus catharticus</i>	rescuegrass	Poaceae	No
BRDI3	<i>Bromus diandrus</i>	ripgut brome	Poaceae	No
BRHO2	<i>Bromus hordeaceus</i>	soft brome	Poaceae	No
BRMA3	<i>Bromus madritensis</i>	compact brome	Poaceae	No
BRRU2	<i>Bromus rubens</i>	red brome	Poaceae	No
BRST2	<i>Bromus sterilis</i>	poverty brome	Poaceae	No
BRTE	<i>Bromus tectorum</i>	cheatgrass	Poaceae	No
CACTXX	<i>Cactaceae</i> sp.	cactus	Cactaceae	Yes
CALAM	<i>Calamagrostis</i> sp.	reedgrass	Poaceae	Yes
CACI2	<i>Calandrinia ciliata</i>	fringed redmaids	Portulacaceae	Yes
CALLI6	<i>Callitriche</i> sp.	water-starwort	Callitrichaceae	Yes
CAHE3	<i>Callitriche heterophylla</i>	twoheaded water-starwort	Callitrichaceae	Yes
CAMA3	<i>Callitriche marginata</i>	winged water-starwort	Callitrichaceae	Yes
CALOC	<i>Calochortus</i> sp.	mariposa lily	Liliaceae	Yes
CAAL2	<i>Calochortus albus</i>	white fairy-lantern	Liliaceae	Yes
CALU9	<i>Calochortus luteus</i>	yellow mariposa lily	Liliaceae	Yes
CAVE3	<i>Calochortus venustus</i>	butterfly mariposa lily	Liliaceae	Yes
CALYC	<i>Calycadenia</i> sp.	western rosinweed	Asteraceae	Yes
CAFR	<i>Calycadenia fremontii</i>	Fremont's western rosinweed	Asteraceae	Yes
CAMU3	<i>Calycadenia multiglandulosa</i>	sticky western rosinweed	Asteraceae	Yes
CATR3	<i>Calycadenia truncata</i>	Oregon western rosinweed	Asteraceae	Yes

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CAOC5	<i>Calycanthus occidentalis</i>	western sweetshrub	Calycanthaceae	Yes
CALYS	<i>Calystegia</i> sp.	false bindweed	Convolvulaceae	Yes
CAOCF	<i>Calystegia occidentalis</i> ssp. <i>fulcrata</i>	chaparral false bindweed	Convolvulaceae	Yes
CASE13	<i>Calystegia sepium</i>	hedge false bindweed	Convolvulaceae	Yes
CAMAS	<i>Camassia</i> sp.	camas	Liliaceae	Yes
CAMIS	<i>Camissonia</i> sp.	suncup	Onagraceae	Yes
CABOD	<i>Camissonia boothii</i> ssp. <i>decorticans</i>	shredding suncup	Onagraceae	Yes
CACA33	<i>Camissonia campestris</i>	Mojave suncup	Onagraceae	Yes
CACO34	<i>Camissonia contorta</i>	plains evening primrose	Onagraceae	Yes
CAMI22	<i>Camissonia micrantha</i>	miniature suncup	Onagraceae	Yes
CAPA39	<i>Camissonia parvula</i>	Lewis River suncup	Onagraceae	Yes
CANBY	<i>Canbya</i> sp.	pygmy poppy	Papaveraceae	Yes
CABU2	<i>Capsella bursa-pastoris</i>	shepherd's purse	Brassicaceae	No
CAOL	<i>Cardamine oligosperma</i>	little western bittercress	Brassicaceae	Yes
CAPU6	<i>Cardaria pubescens</i>	hairy whitetop	Brassicaceae	No
CARDU	<i>Carduus</i> sp.	plumeless thistle	Asteraceae	No
CAPY2	<i>Carduus pycnocephalus</i>	Italian plumeless thistle	Asteraceae	No
CATE2	<i>Carduus tenuiflorus</i>	winged plumeless thistle	Asteraceae	No
CAREX	<i>Carex</i> sp.	sedge	Cyperaceae	Yes
CABA4	<i>Carex barbarae</i>	Santa Barbara sedge	Cyperaceae	Yes
CADE8	<i>Carex densa</i>	dense sedge	Cyperaceae	Yes
CANU5	<i>Carex nudata</i>	naked sedge	Cyperaceae	Yes
CAPR5	<i>Carex praegracilis</i>	clustered field sedge	Cyperaceae	Yes
CASE2	<i>Carex serratodens</i>	twotooth sedge	Cyperaceae	Yes
CAVU2	<i>Carex vulpinoidea</i>	fox sedge	Cyperaceae	No
CASTI2	<i>Castilleja</i> sp.	Indian paintbrush	Scrophulariaceae	Yes
CAAF	<i>Castilleja affinis</i>	coast Indian paintbrush	Scrophulariaceae	Yes
CAAT25	<i>Castilleja attenuata</i>	attenuate Indian paintbrush	Scrophulariaceae	Yes
CABR37	<i>Castilleja brevistyla</i>	shortstyle Indian paintbrush	Scrophulariaceae	Yes
CACA79	<i>Castilleja campestris</i>	vernal pool Indian paintbrush	Scrophulariaceae	Yes
CADE29	<i>Castilleja densiflora</i>	denseflower Indian paintbrush	Scrophulariaceae	Yes
CAEX14	<i>Castilleja exserta</i>	exserted Indian paintbrush	Scrophulariaceae	Yes
CALA68	<i>Castilleja lacera</i>	cutleaf Indian paintbrush	Scrophulariaceae	Yes
CALA24	<i>Castilleja lanata</i>	Sierra woolly Indian paintbrush	Scrophulariaceae	Yes
CARUL	<i>Castilleja rubicundula</i> ssp. <i>lithospermoides</i>	cream sacs	Scrophulariaceae	Yes
CABI8	<i>Catalpa bignonioides</i>	southern catalpa	Bignoniaceae	No
CACO38	<i>Caulanthus coulteri</i>	Coulter's wild cabbage	Brassicaceae	Yes
CECU	<i>Ceanothus cuneatus</i>	buckbrush	Rhamnaceae	Yes
CELE2	<i>Ceanothus leucodermis</i>	chaparral whitethorn	Rhamnaceae	Yes

Code	Species Name	Common Name	Family	Native
CETO	<i>Ceanothus tomentosus</i>	woollyleaf ceanothus	Rhamnaceae	Yes
CENTA	<i>Centaurea</i> sp.	knapweed	Asteraceae	No
CECA2	<i>Centaurea calcitrapa</i>	red star-thistle	Asteraceae	No
CEME2	<i>Centaurea melitensis</i>	Maltese star-thistle	Asteraceae	No
CESO3	<i>Centaurea solstitialis</i>	yellow star-thistle	Asteraceae	No
CENTA2	<i>Centaurium</i> sp.	centaury	Gentianaceae	Yes
CEMU2	<i>Centaurium muehlenbergii</i>	Muhlenberg's centaury	Gentianaceae	Yes
CEVE3	<i>Centaurium venustum</i>	charming centaury	Gentianaceae	Yes
CEPU14	<i>Centromadia pungens</i>	common tarweed	Asteraceae	Yes
CENTR4	<i>Centrostegia</i> sp.	centrostegia	Polygonaceae	Yes
CEOC2	<i>Cephalanthus occidentalis</i>	common buttonbush	Rubiaceae	Yes
CEAR4	<i>Cerastium arvense</i>	field chickweed	Caryophyllaceae	Yes
CEGL2	<i>Cerastium glomeratum</i>	sticky chickweed	Caryophyllaceae	No
CEDE4	<i>Ceratophyllum demersum</i>	coon's tail	Ceratophyllaceae	Yes
CEOR9	<i>Cercis orbiculata</i>	California redbud	Fabaceae	Yes
CEMOG	<i>Cercocarpus montanus</i> var. <i>glaber</i>	birchleaf mountain mahogany	Rosaceae	Yes
CHGL	<i>Chaenactis glabriuscula</i>	yellow pincushion	Asteraceae	Yes
CHST	<i>Chaenactis stevioides</i>	Esteve's pincushion	Asteraceae	Yes
CHAMA15	<i>Chamaesyce</i> sp.	sandmat	Euphorbiaceae	Yes
CHAL11	<i>Chamaesyce albomarginata</i>	whitemargin sandmat	Euphorbiaceae	Yes
CHMA15	<i>Chamaesyce maculata</i>	spotted sandmat	Euphorbiaceae	No
CHNU9	<i>Chamaesyce nutans</i>	eyebane	Euphorbiaceae	No
CHOC	<i>Chamaesyce ocellata</i>	Contura Creek sandmat	Euphorbiaceae	Yes
CHANC	<i>Chamerion angustifolium</i> ssp. <i>circumvagum</i>	fireweed	Onagraceae	Yes
CHENO	<i>Chenopodium</i> sp.	goosefoot	Chenopodiaceae	Yes
CHAL7	<i>Chenopodium album</i>	lambsquarters	Chenopodiaceae	No
CHAM	<i>Chenopodium ambrosioides</i>	Mexican tea	Chenopodiaceae	No
CHAT	<i>Chenopodium atrovirens</i>	pinyon goosefoot	Chenopodiaceae	Yes
CHCA3	<i>Chenopodium californicum</i>	California goosefoot	Chenopodiaceae	Yes
chde	<i>Chenopodium desiccatum</i>	aridland goosefoot	Chenopodiaceae	Yes
CHPU	<i>Chenopodium pumilio</i>	clammy goosefoot	Chenopodiaceae	No
CHLOR3	<i>Chlorogalum</i> sp.	soapplant	Liliaceae	Yes
CHAN2	<i>Chlorogalum angustifolium</i>	narrowleaf soap plant	Liliaceae	Yes
CHGR3	<i>Chlorogalum grandiflorum</i>	red hills soap plant	Liliaceae	Yes
CHPO3	<i>Chlorogalum pomeridianum</i>	wavyleaf soap plant	Liliaceae	Yes
CHOR12	<i>Chorizanthe</i> sp.	spineflower	Polygonaceae	Yes
CHME2	<i>Chorizanthe membranacea</i>	pink spineflower	Polygonaceae	Yes
CHPO4	<i>Chorizanthe polygonoides</i>	knotweed spineflower	Polygonaceae	Yes
CIQU3	<i>Cicendia quadrangularis</i>	Oregon timwort	Gentianaceae	Yes
CIIN	<i>Cichorium intybus</i>	chicory	Asteraceae	No
CICUT	<i>Cicuta</i> sp.	water hemlock	Apiaceae	Yes
CIDO	<i>Cicuta douglasii</i>	western water hemlock	Apiaceae	Yes
CIMA2	<i>Cicuta maculata</i>	spotted water hemlock	Apiaceae	Yes

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CIRSI	<i>Cirsium</i> sp.	thistle	Asteraceae	No
CIBR2	<i>Cirsium brevistylum</i>	clustered thistle	Asteraceae	Yes
CIOC	<i>Cirsium occidentale</i>	cobwebby thistle	Asteraceae	Yes
CIVU	<i>Cirsium vulgare</i>	bull thistle	Asteraceae	No
CLARK	<i>Clarkia</i> sp.	clarkia	Onagraceae	Yes
CLAR	<i>Clarkia arcuata</i>	glandular clarkia	Onagraceae	Yes
CLBI	<i>Clarkia biloba</i>	twolobe clarkia	Onagraceae	Yes
CLCY	<i>Clarkia cylindrica</i>	speckled clarkia	Onagraceae	Yes
CLGR	<i>Clarkia gracilis</i>	slender clarkia	Onagraceae	Yes
CLPU2	<i>Clarkia purpurea</i>	winecup clarkia	Onagraceae	Yes
CLUN	<i>Clarkia unguiculata</i>	elegant clarkia	Onagraceae	Yes
CLAYT	<i>Claytonia</i> sp.	springbeauty	Portulacaceae	Yes
CLPA5	<i>Claytonia parviflora</i>	streambank springbeauty	Portulacaceae	Yes
CLPE	<i>Claytonia perfoliata</i>	miner's lettuce	Portulacaceae	Yes
CLEMA	<i>Clematis</i> sp.	leather flower	Ranunculaceae	Yes
CLLA3	<i>Clematis lasiantha</i>	pipestem clematis	Ranunculaceae	Yes
CLLI2	<i>Clematis ligusticifolia</i>	western white clematis	Ranunculaceae	Yes
CLIS	<i>Cleome isomeris</i>	bladderpod spiderflower	Capparaceae	Yes
CNBE	<i>Cnicus benedictus</i>	blessed thistle	Asteraceae	No
COCO	<i>Collinsia concolor</i>	Chinese houses	Scrophulariaceae	Yes
COHE	<i>Collinsia heterophylla</i>	purple Chinese houses	Scrophulariaceae	Yes
COSPC	<i>Collinsia sparsiflora</i> var. <i>collina</i>	spinster's blue eyed Mary	Scrophulariaceae	Yes
COMA2	<i>Conium maculatum</i>	poison hemlock	Apiaceae	No
CONVO	<i>Convolvulus</i> sp.	bindweed	Convolvulaceae	No
COAR4	<i>Convolvulus arvensis</i>	field bindweed	Convolvulaceae	No
CONYZ	<i>Conyza</i> sp.	horseweed	Asteraceae	Yes
COBO	<i>Conyza bonariensis</i>	asthmaweed	Asteraceae	No
COCA5	<i>Conyza canadensis</i>	Canadian horseweed	Asteraceae	Yes
COFL	<i>Conyza floribunda</i>	asthmaweed	Asteraceae	No
COPA8	<i>Cordylanthus palmatus</i>	palmbrect bird's-beak	Scrophulariaceae	Yes
COFI2	<i>Corethrogyne filaginifolia</i>	common sandaster	Asteraceae	Yes
COGL3	<i>Cornus glabrata</i>	brown dogwood	Cornaceae	Yes
COSE16	<i>Cornus sericea</i>	redosier dogwood	Cornaceae	Yes
COSE4	<i>Cortaderia selloana</i>	Uruguayan pampas grass	Poaceae	No
COTUL	<i>Cotula</i> sp.	waterbuttons	Asteraceae	Yes
COAU3	<i>Cotula australis</i>	Australian waterbuttons	Asteraceae	No
COCO7	<i>Cotula coronopifolia</i>	common brassbuttons	Asteraceae	No
CRASS	<i>Crassula</i> sp.	pygmyweed	Crassulaceae	Yes
CRAQ	<i>Crassula aquatica</i>	water pygmyweed	Crassulaceae	Yes
CRCO34	<i>Crassula connata</i>	sand pygmyweed	Crassulaceae	Yes
CRSO4	<i>Crassula solierii</i>	smoothseed pygmyweed	Crassulaceae	Yes
CRTI	<i>Crassula tillaea</i>	moss pygmyweed	Crassulaceae	No
CRTR5	<i>Cressa truxillensis</i>	spreading alkaliweed	Convolvulaceae	Yes

Code	Species Name	Common Name	Family	Native
CRCA5	<i>Croton californicus</i>	California croton	Euphorbiaceae	Yes
CRSE11	<i>Croton setigerus</i>	dove weed	Euphorbiaceae	Yes
CRAN11	<i>Crucianella angustifolia</i>	narrowleaf crucianella	Rubiaceae	No
CRSC	<i>Crypsis schoenoides</i>	swamp prickleglass	Poaceae	No
CRVA2	<i>Crypsis vaginiflora</i>	modest prickleglass	Poaceae	No
CRYPT	<i>Cryptantha</i> sp.	cryptantha	Boraginaceae	Yes
CRFL4	<i>Cryptantha flaccida</i>	weakstem cryptantha	Boraginaceae	Yes
CRYPTO	<i>Cryptogammic crust</i>			Yes
CUCUR	<i>Cucurbita</i> sp.	gourd	Cucurbitaceae	Yes
CUFI2	<i>Cucurbita ficifolia</i>	figleaf gourd	Cucurbitaceae	Yes
CUFO	<i>Cucurbita foetidissima</i>	Missouri gourd	Cucurbitaceae	Yes
CUPRE	<i>Cupressus</i> sp.	cypress	Cupressaceae	No
CUSCU	<i>Cuscuta</i> sp.	dodder	Cuscutaceae	Yes
CUCAC	<i>Cuscuta californica</i> var. <i>californica</i>	chaparral dodder	Cuscutaceae	Yes
CUHO	<i>Cuscuta howelliana</i>	Boggs Lake dodder	Cuscutaceae	Yes
CUIN	<i>Cuscuta indecora</i>	bigseed alfalfa dodder	Cuscutaceae	Yes
CUSAS	<i>Cuscuta salina</i> var. <i>salina</i>	saltmarsh dodder	Cuscutaceae	Yes
CYDA	<i>Cynodon dactylon</i>	Bermudagrass	Poaceae	No
CYEC	<i>Cynosurus echinatus</i>	bristly dogstail grass	Poaceae	No
CYPEXX	<i>Cyperaceae</i> sp.	sedge	Cyperaceae	Yes
CYPER	<i>Cyperus</i> sp.	flatsedge	Cyperaceae	Yes
CYAC2	<i>Cyperus acuminatus</i>	tapertip flatsedge	Cyperaceae	Yes
CYER	<i>Cyperus eragrostis</i>	tall flatsedge	Cyperaceae	Yes
CYER2	<i>Cyperus erythrorhizos</i>	redroot flatsedge	Cyperaceae	Yes
CYES	<i>Cyperus esculentus</i>	yellow nutsedge	Cyperaceae	Yes
CYRO	<i>Cyperus rotundus</i>	nutgrass	Cyperaceae	No
CYST	<i>Cyperus strigosus</i>	strawcolored flatsedge	Cyperaceae	Yes
DAGL	<i>Dactylis glomerata</i>	orchardgrass	Poaceae	No
DANTH	<i>Danthonia</i> sp.	oatgrass	Poaceae	Yes
DAPE	<i>Darmera peltata</i>	Indian rhubarb	Saxifragaceae	Yes
DAGL2	<i>Datisca glomerata</i>	Durango root	Datisceae	Yes
DATUR	<i>Datura</i> sp.	jimsonweed	Solanaceae	Yes
DAST	<i>Datura stramonium</i>	jimsonweed	Solanaceae	No
DAWR2	<i>Datura wrightii</i>	sacred thorn-apple	Solanaceae	Yes
DAUCU	<i>Daucus</i> sp.	wild carrot	Apiaceae	Yes
DACA6	<i>Daucus carota</i>	Queen Anne's lace	Apiaceae	No
DAPU3	<i>Daucus pusillus</i>	American wild carrot	Apiaceae	Yes
DEINA2	<i>Deinandra</i> sp.		Asteraceae	Yes
DEPA17	<i>Deinandra pallida</i>	Kern tarweed	Asteraceae	Yes
DELPH	<i>Delphinium</i> sp.	larkspur	Ranunculaceae	Yes
DEGY	<i>Delphinium gypsophilum</i>	Pinoche Creek larkspur	Ranunculaceae	Yes
DEHEH	<i>Delphinium hesperium</i> ssp. <i>hesperium</i>	foothill larkspur	Ranunculaceae	Yes
DEPA3	<i>Delphinium patens</i>	zigzag larkspur	Ranunculaceae	Yes

Code	Species Name	Common Name	Family	Native
DERE2	<i>Delphinium recurvatum</i>	Byron larkspur	Ranunculaceae	Yes
DEVA	<i>Delphinium variegatum</i>	royal larkspur	Ranunculaceae	Yes
DESCH	<i>Deschampsia</i> sp.	hairgrass	Poaceae	Yes
DECE	<i>Deschampsia cespitosa</i>	tufted hairgrass	Poaceae	Yes
DEDA	<i>Deschampsia danthonioides</i>	annual hairgrass	Poaceae	Yes
DEINI2	<i>Descurainia incana</i> ssp. <i>incisa</i>	mountain tansymustard	Brassicaceae	Yes
DIACA	<i>Dichanthelium acuminatum</i> var. <i>acuminatum</i>	tapered rosette grass	Poaceae	Yes
DICHE2	<i>Dichelostemma</i> sp.	snakelily	Liliaceae	Yes
DICA14	<i>Dichelostemma capitatum</i>	bluedicks	Liliaceae	Yes
DICO19	<i>Dichelostemma congestum</i>	ookow	Liliaceae	Yes
DIMU5	<i>Dichelostemma multiflorum</i>	roundtooth snakelily	Liliaceae	Yes
DIVO	<i>Dichelostemma volubile</i>	twining snakelily	Liliaceae	Yes
DISA	<i>Digitaria sanguinalis</i>	hairy crabgrass	Poaceae	No
DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	orange bush monkeyflower	Scrophulariaceae	Yes
DIPSA	<i>Dipsacus</i> sp.	teasel	Dipsacaceae	No
DISA9	<i>Dipsacus sativus</i>	Indian teasel	Dipsacaceae	No
DISP	<i>Distichlis spicata</i>	saltgrass	Poaceae	Yes
DODEC	<i>Dodecatheon</i> sp.	shootingstar	Primulaceae	Yes
DOCL	<i>Dodecatheon clevelandii</i>	padre's shootingstar	Primulaceae	Yes
DOWNI	<i>Downingia</i> sp.	calicoflower	Campanulaceae	Yes
DOBI	<i>Downingia bicornuta</i>	doublehorn calicoflower	Campanulaceae	Yes
DOCU	<i>Downingia cuspidata</i>	toothed calicoflower	Campanulaceae	Yes
DOIN	<i>Downingia insignis</i>	harlequin calicoflower	Campanulaceae	Yes
DOOR	<i>Downingia ornatissima</i>	folded calicoflower	Campanulaceae	Yes
DOPU2	<i>Downingia pulchella</i>	flatface calicoflower	Campanulaceae	Yes
DRVE2	<i>Draba verna</i>	spring draba	Brassicaceae	Yes
DRYOP	<i>Dryopteris</i> sp.	woodfern	Dryopteridaceae	Yes
DUCYC3	<i>Dudleya cymosa</i> ssp. <i>cymosa</i>	canyon liveforever	Crassulaceae	Yes
EAEL	<i>Eastwoodia elegans</i>	yellow aster	Asteraceae	Yes
ECHIN4	<i>Echinochloa</i> sp.	cockspur grass	Poaceae	No
ECCO2	<i>Echinochloa colona</i>	jungle rice	Poaceae	No
ECCR	<i>Echinochloa crus-galli</i>	barnyardgrass	Poaceae	No
ECBE2	<i>Echinodorus berteroi</i>	upright burhead	Alismataceae	Yes
EGDE	<i>Egeria densa</i>	Brazilian waterweed	Hydrocharitaceae	No
EICR	<i>Eichhornia crassipes</i>	common water hyacinth	Pontederiaceae	No
ELCA	<i>Elatine californica</i>	California waterwort	Elatinaceae	Yes
ELEOC	<i>Eleocharis</i> sp.	spikerush	Cyperaceae	Yes
ELAC	<i>Eleocharis acicularis</i>	needle spikerush	Cyperaceae	Yes
ELACA	<i>Eleocharis acicularis</i> var. <i>acicularis</i>	needle spikerush	Cyperaceae	Yes
ELEN	<i>Eleocharis engelmannii</i>	Engelmann's spikerush	Cyperaceae	Yes
ELMA5	<i>Eleocharis macrostachya</i>	pale spikerush	Cyperaceae	Yes
ELMO2	<i>Eleocharis montevidensis</i>	sand spikerush	Cyperaceae	Yes
ELPA4	<i>Eleocharis parishii</i>	Parish's spikerush	Cyperaceae	Yes

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ELODE	<i>Elodea</i> sp.	waterweed	Hydrocharitaceae	Yes
ELYMU	<i>Elymus</i> sp.	wildrye	Poaceae	Yes
ELEL5	<i>Elymus elymoides</i>	squirreltail	Poaceae	Yes
ELGL	<i>Elymus glaucus</i>	blue wildrye	Poaceae	Yes
ELMU3	<i>Elymus multisetus</i>	big squirreltail	Poaceae	Yes
ELRE4	<i>Elymus repens</i>	quackgrass	Poaceae	No
ELTR7	<i>Elymus trachycaulus</i>	slender wheatgrass	Poaceae	Yes
EMPE	<i>Emmenanthe penduliflora</i>	whisperingbells	Hydrophyllaceae	Yes
ENVIA2	<i>Encelia virginensis</i> ssp. <i>actoni</i>	Acton's brittlebush	Asteraceae	Yes
EPCA2	<i>Ephedra californica</i>	California jointfir	Ephedraceae	Yes
EPVI	<i>Ephedra viridis</i>	mormon tea	Ephedraceae	Yes
EPILO	<i>Epilobium</i> sp.	willowherb	Onagraceae	Yes
EPBR3	<i>Epilobium brachycarpum</i>	tall annual willowherb	Onagraceae	Yes
EPCI	<i>Epilobium ciliatum</i>	fringed willowherb	Onagraceae	Yes
EPCL3	<i>Epilobium cleistogamum</i>	selfing willowherb	Onagraceae	Yes
EPDE4	<i>Epilobium densiflorum</i>	denseflower willowherb	Onagraceae	Yes
EPGL	<i>Epilobium glaberrimum</i>	glaucus willowherb	Onagraceae	Yes
EPPA7	<i>Epilobium pallidum</i>	largeflower spike-primrose	Onagraceae	Yes
EPY4	<i>Epilobium pygmaeum</i>	smooth spike-primrose	Onagraceae	Yes
EPTO4	<i>Epilobium torreyi</i>	Torrey's willowherb	Onagraceae	Yes
EPGI	<i>Epipactis gigantea</i>	stream orchid	Orchidaceae	Yes
EQUIS	<i>Equisetum</i> sp.	horsetail	Equisetaceae	Yes
EQFE	<i>Equisetum xferrissii</i>		Equisetaceae	Yes
EQAR	<i>Equisetum arvense</i>	field horsetail	Equisetaceae	Yes
EQHYA	<i>Equisetum hyemale</i> var. <i>affine</i>	scouringrush horsetail	Equisetaceae	Yes
EQLA	<i>Equisetum laevigatum</i>	smooth horsetail	Equisetaceae	Yes
ERSE	<i>Eragrostis secundiflora</i>	red lovegrass	Poaceae	Yes
ERPA14	<i>Eremalche parryi</i>	Parry's mallow	Malvaceae	Yes
ERPL2	<i>Eriastrum pluriflorum</i>	Tehachapi woollystar	Polemoniaceae	Yes
ERICA2	<i>Ericameria</i> sp.	goldenbush	Asteraceae	Yes
ERNA10	<i>Ericameria nauseosa</i>	rubber rabbitbrush	Asteraceae	Yes
ERIGE2	<i>Erigeron</i> sp.	fleabane	Asteraceae	Yes
ERFOF	<i>Erigeron foliosus</i> var. <i>foliosus</i>	leafy fleabane	Asteraceae	Yes
ERCA6	<i>Eriodictyon californicum</i>	California yerba santa	Hydrophyllaceae	Yes
ERIOG	<i>Eriogonum</i> sp.	buckwheat	Polygonaceae	Yes
ERAN3	<i>Eriogonum angulosum</i>	anglestem buckwheat	Polygonaceae	Yes
ERAP4	<i>Eriogonum apricum</i>	lone buckwheat	Polygonaceae	Yes
ERCO17	<i>Eriogonum covilleianum</i>	Coville's buckwheat	Polygonaceae	Yes
ERFA2	<i>Eriogonum fasciculatum</i>	Eastern Mojave buckwheat	Polygonaceae	Yes
ERGR6	<i>Eriogonum gracillimum</i>	rose and white buckwheat	Polygonaceae	Yes
ERLU5	<i>Eriogonum luteolum</i>	goldencarpet buckwheat	Polygonaceae	Yes
ERNU3	<i>Eriogonum nudum</i>	naked buckwheat	Polygonaceae	Yes
ERRO6	<i>Eriogonum roseum</i>	wand buckwheat	Polygonaceae	Yes

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ERVE4	<i>Eriogonum vestitum</i>	Idria buckwheat	Polygonaceae	Yes
ERWRT2	<i>Eriogonum wrightii</i> var. <i>trachygonum</i>	bastardsage	Polygonaceae	Yes
ERiop2	<i>Eriophyllum</i> sp.	woolly sunflower	Asteraceae	Yes
ERLA6	<i>Eriophyllum lanatum</i>	common woolly sunflower	Asteraceae	Yes
ERODI	<i>Erodium</i> sp.	stork's bill	Geraniaceae	No
ERBO	<i>Erodium botrys</i>	longbeak stork's bill	Geraniaceae	No
ERBR14	<i>Erodium brachycarpum</i>	shortfruit stork's bill	Geraniaceae	No
ERCI6	<i>Erodium cicutarium</i>	redstem stork's bill	Geraniaceae	No
ERMO7	<i>Erodium moschatum</i>	musky stork's bill	Geraniaceae	No
ERYNG	<i>Eryngium</i> sp.	eryngo	Apiaceae	Yes
ERAL8	<i>Eryngium alismifolium</i>	Modoc eryngo	Apiaceae	Yes
ERAR11	<i>Eryngium aristulatum</i>	California eryngo	Apiaceae	Yes
ERAR14	<i>Eryngium articulatum</i>	beethistle	Apiaceae	Yes
ERCA33	<i>Eryngium castrense</i>	Great Valley eryngo	Apiaceae	Yes
ERVA5	<i>Eryngium vaseyi</i>	coyotethistle	Apiaceae	Yes
ERCA14	<i>Erysimum capitatum</i>	sanddune wallflower	Brassicaceae	Yes
ESCHS	<i>Eschscholzia</i> sp.	California poppy	Papaveraceae	Yes
ESCA	<i>Eschscholzia caespitosa</i>	tufted poppy	Papaveraceae	Yes
ESCA2	<i>Eschscholzia californica</i>	California poppy	Papaveraceae	Yes
ESLE	<i>Eschscholzia lemmonii</i>	Lemmon's poppy	Papaveraceae	Yes
ESLO	<i>Eschscholzia lobbii</i>	fryingpans	Papaveraceae	Yes
EUCAL	<i>Eucalyptus</i> sp.	gum	Myrtaceae	No
EUCA2	<i>Eucalyptus camaldulensis</i>	river redgum	Myrtaceae	No
EUGL	<i>Eucalyptus globulus</i>	Tasmanian bluegum	Myrtaceae	No
EUSI2	<i>Eucalyptus sideroxylon</i>	red ironbark	Myrtaceae	No
EUPHO	<i>Euphorbia</i> sp.	spurge	Euphorbiaceae	No
EUCR2	<i>Euphorbia crenulata</i>	Chinese caps	Euphorbiaceae	Yes
EUES	<i>Euphorbia esula</i>	leafy spurge	Euphorbiaceae	No
EUPE6	<i>Euphorbia pepus</i>	petty spurge	Euphorbiaceae	No
EUSP	<i>Euphorbia spathulata</i>	warty spurge	Euphorbiaceae	Yes
EUOC4	<i>Euthamia occidentalis</i>	western goldentop	Asteraceae	Yes
FESTU	<i>Festuca</i> sp.	fescue	Poaceae	Yes
FICA	<i>Ficus carica</i>	edible fig	Moraceae	No
FILAG	<i>Filago</i> sp.	cottonrose	Asteraceae	Yes
FOVU	<i>Foeniculum vulgare</i>	sweet fennel	Apiaceae	No
FOPU2	<i>Forestiera pubescens</i>	stretchberry	Oleaceae	Yes
FRCAC5	<i>Frangula californica</i> ssp. <i>californica</i>	California buckthorn	Rhamnaceae	Yes
FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	California buckthorn	Rhamnaceae	Yes
FRSA	<i>Frankenia salina</i>	alkali seaheath	Frankeniaceae	Yes
FRAXI	<i>Fraxinus</i> sp.	ash	Oleaceae	Yes
FRDI2	<i>Fraxinus dipetala</i>	California ash	Oleaceae	Yes
FRLA	<i>Fraxinus latifolia</i>	Oregon ash	Oleaceae	Yes

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FRVE2	<i>Fraxinus velutina</i>	velvet ash	Oleaceae	Yes
FRIT1	<i>Fritillaria</i> sp.	fritillary	Liliaceae	Yes
FRAFA2	<i>Fritillaria affinis</i> var. <i>affinis</i>	checker lily	Liliaceae	Yes
FRPL	<i>Fritillaria pluriflora</i>	adobe lily	Liliaceae	Yes
GALI1	<i>Galium</i> sp.	bedstraw	Rubiaceae	Yes
GAAP2	<i>Galium aparine</i>	stickywilly	Rubiaceae	Yes
GADI	<i>Galium divaricatum</i>	Lamarck's bedstraw	Rubiaceae	No
GAME3	<i>Galium mexicanum</i>	Mexican bedstraw	Rubiaceae	Yes
GAMU4	<i>Galium murale</i>	yellow wall bedstraw	Rubiaceae	No
GAPA5	<i>Galium parisiense</i>	wall bedstraw	Rubiaceae	No
GAPO	<i>Galium porrigens</i>	graceful bedstraw	Rubiaceae	Yes
GATR2	<i>Galium trifidum</i>	threepetal bedstraw	Rubiaceae	Yes
GAPH2	<i>Gastridium phleoides</i>	nit grass	Poaceae	No
GADI2	<i>Gayophytum diffusum</i>	spreading groundsmoke	Onagraceae	Yes
GEMO2	<i>Genista monspessulana</i>	French broom	Fabaceae	No
GERAN	<i>Geranium</i> sp.	geranium	Geraniaceae	No
GECA5	<i>Geranium carolinianum</i>	Carolina geranium	Geraniaceae	Yes
GEDI	<i>Geranium dissectum</i>	cutleaf geranium	Geraniaceae	No
GEMO	<i>Geranium molle</i>	dovefoot geranium	Geraniaceae	No
GILIA	<i>Gilia</i> sp.	gilia	Polemoniaceae	Yes
GICA5	<i>Gilia capitata</i>	bluehead gilia	Polemoniaceae	Yes
GITR2	<i>Gilia tricolor</i>	bird's-eye gilia	Polemoniaceae	Yes
GITHO	<i>Githopsis</i>	bluecup	Campanulaceae	Yes
GIPU2	<i>Githopsis pulchella</i>	Sierra bluecup	Campanulaceae	Yes
GLOC	<i>Glyceria occidentalis</i>	northwestern mannagrass	Poaceae	Yes
GLDE	<i>Glyceria declinata</i>	waxy mannagrass	Poaceae	No
GLST	<i>Glyceria striata</i>	fowl mannagrass	Poaceae	Yes
GLYCY	<i>Glycyrrhiza</i> sp.	licorice	Fabaceae	Yes
GLLE3	<i>Glycyrrhiza lepidota</i>	American licorice	Fabaceae	Yes
GNAPH	<i>Gnaphalium</i> sp.	cudweed	Asteraceae	Yes
GNPA	<i>Gnaphalium palustre</i>	western marsh cudweed	Asteraceae	Yes
GREB	<i>Gratiola ebracteata</i>	bractless hedgehyssop	Scrophulariaceae	Yes
GRIND	<i>Grindelia</i> sp.	gumweed	Asteraceae	Yes
GRCA	<i>Grindelia camporum</i>	Great Valley gumweed	Asteraceae	Yes
GRHI	<i>Grindelia hirsutula</i>	hairy gumweed	Asteraceae	Yes
GRST3	<i>Grindelia stricta</i>	Oregon gumweed	Asteraceae	Yes
GUILL2	<i>Guillenia</i> sp.	mustard	Brassicaceae	Yes
GULA4	<i>Guillenia lasiophylla</i>	California mustard	Brassicaceae	Yes
GUCA	<i>Gutierrezia californica</i>	San Joaquin snakeweed	Asteraceae	Yes
HACY	<i>Hainardia cylindrica</i>	barbgrass	Poaceae	No
HEHE	<i>Hedera helix</i>	English ivy	Araliaceae	No
HECR2	<i>Hedypnois cretica</i>	Cretanweed	Asteraceae	No
HELEN	<i>Helenium</i> sp.	sneezeweed	Asteraceae	Yes
HEPU2	<i>Helenium puberulum</i>	rosilla	Asteraceae	Yes

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HELIA2	<i>Helianthemum</i> sp.	frostweed	Cistaceae	Yes
HESC2	<i>Helianthemum scoparium</i>	Bisbee Peak rushrose	Cistaceae	Yes
HELIA3	<i>Helianthus</i> sp.	sunflower	Asteraceae	Yes
HEAN3	<i>Helianthus annuus</i>	common sunflower	Asteraceae	Yes
HEBO3	<i>Helianthus bolanderi</i>	serpentine sunflower	Asteraceae	Yes
HELIO3	<i>Heliotropium</i> sp.	heliotrope	Boraginaceae	Yes
HECU3	<i>Heliotropium curassavicum</i>	salt heliotrope	Boraginaceae	Yes
HEEU	<i>Heliotropium europaeum</i>	European heliotrope	Boraginaceae	No
HEMIZ	<i>Hemizonia</i> sp.	tarweed	Asteraceae	Yes
HECO7	<i>Hemizonia congesta</i>	hayfield tarweed	Asteraceae	Yes
HEFI	<i>Hemizonia fitchii</i>	Fitch's tarweed	Asteraceae	Yes
HEHI7	<i>Herniaria hirsuta</i>	hairy rupturewort	Caryophyllaceae	No
HEAC8	<i>Hesperevax acaulis</i>	stemless dwarf-cudweed	Asteraceae	Yes
HECA30	<i>Hesperevax caulescens</i>	dwarf dwarf-cudweed	Asteraceae	Yes
HECA11	<i>Hesperolinon californicum</i>	California dwarf-flax	Linaceae	Yes
HEWH	<i>Hesperoyucca whipplei</i>	chaparral yucca	Agavaceae	Yes
HERA3	<i>Heterocodon rariflorum</i>	rareflower heterocodon	Campanulaceae	Yes
HEAR5	<i>Heteromeles arbutifolia</i>	toyon	Rosaceae	Yes
HETER8	<i>Heterotheca</i> sp.	false goldenaster	Asteraceae	Yes
HEGR7	<i>Heterotheca grandiflora</i>	telegraphweed	Asteraceae	Yes
HEOR2	<i>Heterotheca oregona</i>	Oregon false goldenaster	Asteraceae	Yes
HESE	<i>Heterotheca sessiliflora</i>	sessileflower false goldenaster	Asteraceae	Yes
HILA6	<i>Hibiscus lasiocarpus</i>	rosemallow	Malvaceae	Yes
HIIN3	<i>Hirschfeldia incana</i>	shortpod mustard	Brassicaceae	No
HOGL2	<i>Hoffmannseggia glauca</i>	Indian rushpea	Fabaceae	Yes
HOMA4	<i>Hoita macrostachya</i>	large leather-root	Fabaceae	Yes
HOLA	<i>Holcus lanatus</i>	common velvetgrass	Poaceae	No
HOHE	<i>Holocarpha heermannii</i>	Heermann's tarweed	Asteraceae	Yes
HOVI	<i>Holocarpha virgata</i>	yellowflower tarweed	Asteraceae	Yes
HOFI	<i>Holozonia filipes</i>	whitecrown	Asteraceae	Yes
HORDE	<i>Hordeum</i> sp.	barley	Poaceae	No
HOB2	<i>Hordeum brachyantherum</i>	meadow barley	Poaceae	Yes
HODE2	<i>Hordeum depressum</i>	dwarf barley	Poaceae	Yes
HOJU	<i>Hordeum jubatum</i>	foxtail barley	Poaceae	Yes
HOMA2	<i>Hordeum marinum</i>	seaside barley	Poaceae	No
HOMU	<i>Hordeum murinum</i>	mouse barley	Poaceae	No
HOCAD	<i>Horkelia californica</i> ssp. <i>dissita</i>	California horkelia	Rosaceae	Yes
HOPA2	<i>Horkelia parryi</i>	Parry horkelia	Rosaceae	Yes
HYDRO2	<i>Hydrocotyle</i> sp.	hydrocotyle	Apiaceae	Yes
HYRA	<i>Hydrocotyle ranunculoides</i>	floating marshpennywort	Apiaceae	Yes
HYVE2	<i>Hydrocotyle verticillata</i>	whorled marshpennywort	Apiaceae	Yes
HYPER	<i>Hypericum</i> sp.	St. Johnswort	Clusiaceae	No
HYAN2	<i>Hypericum anagalloides</i>	tinker's penny	Clusiaceae	Yes

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HYCO3	<i>Hypericum concinnum</i>	goldwire	Clusiaceae	Yes
HYPE	<i>Hypericum perforatum</i>	common St. Johnswort	Clusiaceae	No
HYPOC	<i>Hypochaeris</i> sp.	cat's ear	Asteraceae	No
HYGL2	<i>Hypochaeris glabra</i>	smooth cat's ear	Asteraceae	No
HYRA3	<i>Hypochaeris radicata</i>	hairy cat's ear	Asteraceae	No
ILEX	<i>Ilex</i> sp.	holly	Aquifoliaceae	No
IRPS	<i>Iris pseudacorus</i>	paleyellow iris	Iridaceae	No
ISOCO	<i>Isocoma</i> sp.	goldenbush	Asteraceae	Yes
ISAC2	<i>Isocoma acradenia</i>	alkali goldenbush	Asteraceae	Yes
ISME5	<i>Isocoma menziesii</i>	Menzies' goldenbush	Asteraceae	Yes
ISHO	<i>Isoetes howellii</i>	Howell's quillwort	Isoetaceae	Yes
ISOR	<i>Isoetes orcuttii</i>	Orcutt's quillwort	Isoetaceae	Yes
ISCE	<i>Isolepis cernua</i>	low bulrush	Cyperaceae	Yes
JUGLA	<i>Juglans</i> sp.	walnut	Juglandaceae	Yes
JUCA	<i>Juglans californica</i>	Southern California walnut	Juglandaceae	Yes
JUHI	<i>Juglans hindsii</i>	Northern California walnut	Juglandaceae	Yes
JURE80	<i>Juglans regia</i>	English walnut	Juglandaceae	No
JUNCU	<i>Juncus</i> sp.	rush	Juncaceae	Yes
JUAC	<i>Juncus acuminatus</i>	tapertip rush	Juncaceae	Yes
JUAC2	<i>Juncus acutus</i>	spiny rush	Juncaceae	Yes
JUARL	<i>Juncus arcticus</i> var. <i>balticus</i>	mountain rush	Juncaceae	Yes
JUBU	<i>Juncus bufonius</i>	toad rush	Juncaceae	Yes
JUCA5	<i>Juncus capitatus</i>	leafybract dwarf rush	Juncaceae	No
JUDI2	<i>Juncus diffusissimus</i>	slimpod rush	Juncaceae	No
JUDU	<i>Juncus dubius</i>	questionable rush	Juncaceae	Yes
JUEF	<i>Juncus effusus</i>	common rush	Juncaceae	Yes
JUHEA	<i>Juncus hemiendytus</i> var. <i>abjectus</i>	Herman's dwarf rush	Juncaceae	Yes
JUME4	<i>Juncus mexicanus</i>	Mexican rush	Juncaceae	Yes
JUNE	<i>Juncus nevadensis</i>	Sierra rush	Juncaceae	Yes
JUOX	<i>Juncus oxymersis</i>	pointed rush	Juncaceae	Yes
JUTE	<i>Juncus tenuis</i>	poverty rush	Juncaceae	Yes
JUXI	<i>Juncus xiphioides</i>	irisleaf rush	Juncaceae	Yes
JUCA7	<i>Juniperus californica</i>	California juniper	Cupressaceae	Yes
KEBR	<i>Keckiella breviflora</i>	bush beardtongue	Scrophulariaceae	Yes
KICKX	<i>Kickxia</i> sp.	cancerwort	Scrophulariaceae	No
KIEL	<i>Kickxia elatine</i>	sharpleaf cancerwort	Scrophulariaceae	No
LACTU	<i>Lactuca</i> sp.	lettuce	Asteraceae	No
LASA	<i>Lactuca saligna</i>	willowleaf lettuce	Asteraceae	No
LASE	<i>Lactuca serriola</i>	prickly lettuce	Asteraceae	No
LACO13	<i>Laennecia coulteri</i>	Coulter's horseweed	Asteraceae	Yes
LARA	<i>Lagophylla ramosissima</i>	branched lagophylla	Asteraceae	Yes
LASTH	<i>Lasthenia</i> sp.	goldfields	Asteraceae	Yes
LACA7	<i>Lasthenia californica</i>	California goldfields	Asteraceae	Yes

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LACH2	<i>Lasthenia chrysantha</i>	alkalisink goldfields	Asteraceae	Yes
LAFR4	<i>Lasthenia fremontii</i>	Fremont's goldfields	Asteraceae	Yes
LAGL3	<i>Lasthenia glaberrima</i>	smooth goldfields	Asteraceae	Yes
LAGL4	<i>Lasthenia glabrata</i>	yellowray goldfields	Asteraceae	Yes
LAMI5	<i>Lasthenia minor</i>	coastal goldfields	Asteraceae	Yes
LAPL2	<i>Lasthenia platycarpha</i>	alkali goldfields	Asteraceae	Yes
LATHY	<i>Lathyrus</i> sp.	pea	Fabaceae	Yes
LAHI2	<i>Lathyrus hirsutus</i>	Caley pea	Fabaceae	No
LAJE	<i>Lathyrus jepsonii</i>	Delta tule pea	Fabaceae	Yes
LALA4	<i>Lathyrus latifolius</i>	perennial pea	Fabaceae	No
LATI	<i>Lathyrus tingitanus</i>	Tangier pea	Fabaceae	No
LAYIA	<i>Layia</i> sp.	tidytips	Asteraceae	Yes
LACH	<i>Layia chrysanthemoides</i>	smooth tidytips	Asteraceae	Yes
LAFR2	<i>Layia fremontii</i>	Fremont's tidytips	Asteraceae	Yes
LAGL5	<i>Layia glandulosa</i>	whitedaisy tidytips	Asteraceae	Yes
LAMU2	<i>Layia munzii</i>	Munz's tidytips	Asteraceae	Yes
LAPE	<i>Layia pentachaeta</i>	Sierra tidytips	Asteraceae	Yes
LAPL	<i>Layia platyglossa</i>	coastal tidytips	Asteraceae	Yes
LEOR	<i>Leersia oryzoides</i>	rice cutgrass	Poaceae	Yes
LEMNA	<i>Lemna</i> sp.	duckweed	Lemnaceae	Yes
LETA	<i>Leontodon taraxacoides</i>	lesser hawkbit	Asteraceae	No
LEPID	<i>Lepidium</i> sp.	pepperweed	Brassicaceae	Yes
LEDI2	<i>Lepidium dictyotum</i>	alkali pepperweed	Brassicaceae	Yes
LELA2	<i>Lepidium latifolium</i>	broadleaved pepperweed	Brassicaceae	No
LELA3	<i>Lepidium latipes</i>	San Diego pepperweed	Brassicaceae	Yes
LELAH2	<i>Lepidium latipes</i> var. <i>heckardii</i>	Heckard's pepperweed	Brassicaceae	Yes
LELAL3	<i>Lepidium latipes</i> var. <i>latipes</i>	San Diego pepperweed	Brassicaceae	Yes
LENI	<i>Lepidium nitidum</i>	shining pepperweed	Brassicaceae	Yes
LEOX	<i>Lepidium oxycarpum</i>	forked pepperweed	Brassicaceae	Yes
LESQ	<i>Lepidospartum squamatum</i>	California broomsage	Asteraceae	Yes
LEFUU	<i>Leptochloa fusca</i> ssp. <i>uninervia</i>	Mexican sprangletop	Poaceae	Yes
LEPTO22	<i>Leptosiphon</i> sp.	leptosiphon	Polemoniaceae	Yes
LEBI8	<i>Leptosiphon bicolor</i>	true babystars	Polemoniaceae	Yes
LEBO9	<i>Leptosiphon bolanderi</i>	Bolander's linanthus	Polemoniaceae	Yes
LECIC2	<i>Leptosiphon ciliatus</i> ssp. <i>ciliatus</i>	whiskerbrush	Polemoniaceae	Yes
LEFI14	<i>Leptosiphon filipes</i>	thread linanthus	Polemoniaceae	Yes
LELI14	<i>Leptosiphon liniflorus</i>	narrowflower flaxflower	Polemoniaceae	Yes
LEPA51	<i>Leptosiphon parviflorus</i>	variable linanthus	Polemoniaceae	Yes
LEPYP	<i>Leptosiphon pygmaeus</i> ssp. <i>pygmaeus</i>	pygmy linanthus	Polemoniaceae	Yes
LESSI	<i>Lessingia</i> sp.	lessingia	Asteraceae	Yes
LEGL18	<i>Lessingia glandulifera</i>	valley lessingia	Asteraceae	Yes
LELE7	<i>Lessingia leptoclada</i>	Sierra lessingia	Asteraceae	Yes
LENE3	<i>Lessingia nemaclada</i>	slenderstem lessingia	Asteraceae	Yes

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LEVI8	<i>Lessingia virgata</i>	wand lessingia	Asteraceae	Yes
LEYMU	<i>Leymus</i> sp.	wildrye	Poaceae	Yes
LECI4	<i>Leymus cinereus</i>	basin wildrye	Poaceae	Yes
LETR5	<i>Leymus triticoides</i>	beardless wildrye	Poaceae	Yes
LIGUS2	<i>Ligustrum</i> sp.	privet	Oleaceae	No
LISC4	<i>Lilaea scilloides</i>	awl-leaf lilaea	Juncaginaceae	Yes
LIMA7	<i>Lilaeopsis masonii</i>	mudflat quillplant	Apiaceae	Yes
LILIXX	<i>Liliaceae</i> sp.	lily	Liliaceae	Yes
LIMNA	<i>Limnanthes</i> sp.	meadowfoam	Limnanthaceae	Yes
LIAL3	<i>Limnanthes alba</i>	white meadowfoam	Limnanthaceae	Yes
LIDOR2	<i>Limnanthes douglasii</i> ssp. <i>rosea</i>	Douglas' meadowfoam	Limnanthaceae	Yes
LIFLC2	<i>Limnanthes floccosa</i> ssp. <i>californica</i>	California meadowfoam	Limnanthaceae	Yes
LIAC2	<i>Limosella acaulis</i>	Owyhee mudwort	Scrophulariaceae	Yes
LINAN2	<i>Linanthus</i> sp.	linanthus	Polemoniaceae	Yes
LIDI2	<i>Linanthus dichotomus</i>	eveningsnow	Polemoniaceae	Yes
LIPA5	<i>Lithophragma parviflorum</i>	smallflower woodland-star	Saxifragaceae	Yes
LOSC6	<i>Loeseliastrum schottii</i>	Schott's calico	Polemoniaceae	Yes
LOCA19	<i>Logfia californica</i>	California cottonrose	Asteraceae	Yes
LOGA2	<i>Logfia gallica</i>	narrowleaf cottonrose	Asteraceae	No
LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	Italian ryegrass	Poaceae	No
LOMAT	<i>Lomatium</i> sp.	desertparsley	Apiaceae	Yes
LOCA5	<i>Lomatium caruifolium</i>	alkali desertparsley	Apiaceae	Yes
LOCO3	<i>Lomatium congdonii</i>	Mariposa desertparsley	Apiaceae	Yes
LOMA3	<i>Lomatium macrocarpum</i>	bigseed biscuitroot	Apiaceae	Yes
LOMA4	<i>Lomatium marginatum</i>	butte desertparsley	Apiaceae	Yes
LOUT	<i>Lomatium utriculatum</i>	common lomatium	Apiaceae	Yes
LONIC	<i>Lonicera</i> sp.	honeysuckle	Caprifoliaceae	Yes
LOHIV	<i>Lonicera hispidula</i> var. <i>vacillans</i>	pink honeysuckle	Caprifoliaceae	Yes
LOIN4	<i>Lonicera interrupta</i>	chaparral honeysuckle	Caprifoliaceae	Yes
LOIN5	<i>Lonicera involucrata</i>	twinberry honeysuckle	Caprifoliaceae	Yes
LOJA	<i>Lonicera japonica</i>	Japanese honeysuckle	Caprifoliaceae	No
LOTUS	<i>Lotus</i> sp.	trefoil	Fabaceae	Yes
LOCO6	<i>Lotus corniculatus</i>	bird's-foot trefoil	Fabaceae	Yes
LODE	<i>Lotus denticulatus</i>	riverbar bird's-foot trefoil	Fabaceae	Yes
LOHU2	<i>Lotus humistratus</i>	foothill deervetch	Fabaceae	Yes
LOMI	<i>Lotus micranthus</i>	desert deervetch	Fabaceae	Yes
LOPU3	<i>Lotus purshianus</i>	bird's-foot trefoil	Fabaceae	Yes
LOSC2	<i>Lotus scoparius</i>	common deerweed	Fabaceae	Yes
LOST4	<i>Lotus strigosus</i>	strigose bird's-foot trefoil	Fabaceae	Yes
LOWR2	<i>Lotus wrangelianus</i>	Chilean bird's-foot trefoil	Fabaceae	Yes
LUDWI	<i>Ludwigia</i> sp.	primrose-willow	Onagraceae	No
LUGR9	<i>Ludwigia grandiflora</i>	large-flower primrose	Onagraceae	No

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LUPE5	<i>Ludwigia peploides</i>	floating primrose-willow	Onagraceae	No
LUPIN	<i>Lupinus</i> sp.	lupine	Fabaceae	Yes
LUAL4	<i>Lupinus albifrons</i>	silver lupine	Fabaceae	Yes
LUBE	<i>Lupinus benthamii</i>	spider lupine	Fabaceae	Yes
LUBI	<i>Lupinus bicolor</i>	miniature lupine	Fabaceae	Yes
LUCO	<i>Lupinus concinnus</i>	bajada lupine	Fabaceae	Yes
LUFO2	<i>Lupinus formosus</i>	summer lupine	Fabaceae	Yes
LUNA3	<i>Lupinus nanus</i>	sky lupine	Fabaceae	Yes
LUPO3	<i>Lupinus polycarpus</i>	smallflower lupine	Fabaceae	Yes
LUSP3	<i>Lupinus spectabilis</i>	shaggyhair lupine	Fabaceae	Yes
LUSUS	<i>Lupinus subvexus</i> var. <i>subvexus</i>	valley lupine	Fabaceae	Yes
LUSU3	<i>Lupinus succulentus</i>	hollowleaf annual lupine	Fabaceae	Yes
LUZUL	<i>Luzula</i> sp.	woodrush	Juncaceae	Yes
LYAM	<i>Lycopus americanus</i>	American water horehound	Lamiaceae	Yes
LYTHR	<i>Lythrum</i> sp.	loosestrife	Lythraceae	No
LYCA4	<i>Lythrum californicum</i>	California loosestrife	Lythraceae	Yes
LYHY3	<i>Lythrum hyssopifolium</i>	hyssop loosestrife	Lythraceae	No
LYPO4	<i>Lythrum portula</i>	spatulaleaf loosestrife	Lythraceae	No
LYTR2	<i>Lythrum tribracteatum</i>	threebract loosestrife	Lythraceae	No
MAPO	<i>Maclura pomifera</i>	osage orange	Moraceae	No
MADIA	<i>Madia</i> sp.	tarweed	Asteraceae	Yes
MAEL	<i>Madia elegans</i>	common madia	Asteraceae	Yes
MAEX	<i>Madia exigua</i>	small tarweed	Asteraceae	Yes
MAGR3	<i>Madia gracilis</i>	grassy tarweed	Asteraceae	Yes
MASU	<i>Madia subspicata</i>	slender tarweed	Asteraceae	Yes
MALAC2	<i>Malacothamnus</i>	bushmallow	Malvaceae	Yes
MALAC3	<i>Malacothrix</i> sp.	desertdandelion	Asteraceae	Yes
MACA6	<i>Malacothrix californica</i>	California desertdandelion	Asteraceae	Yes
MACO3	<i>Malacothrix coulteri</i>	snake's head	Asteraceae	Yes
MALVA	<i>Malva</i> sp.	mallow	Malvaceae	No
MANE	<i>Malva neglecta</i>	common mallow	Malvaceae	No
MANI2	<i>Malva nicaeensis</i>	bull mallow	Malvaceae	No
MAPA5	<i>Malva parviflora</i>	cheeseweed mallow	Malvaceae	Yes
MALE3	<i>Malvella leprosa</i>	alkali mallow	Malvaceae	Yes
MARAH	<i>Marah</i> sp.	manroot	Cucurbitaceae	Yes
MAFA3	<i>Marah fabaceus</i>	California manroot	Cucurbitaceae	Yes
MAHO	<i>Marah horridus</i>	Sierra manroot	Cucurbitaceae	Yes
MAWA2	<i>Marah watsonii</i>	taw manroot	Cucurbitaceae	Yes
MAVU	<i>Marrubium vulgare</i>	horehound	Lamiaceae	No
MAVE2	<i>Marsilea vestita</i>	hairy waterclover	Marsileaceae	Yes
MADI6	<i>Matricaria discoidea</i>	disc mayweed	Asteraceae	No
MAOC	<i>Matricaria occidentalis</i>	valley mayweed	Asteraceae	Yes
MEDIC	<i>Medicago</i> sp.	alfalfa	Fabaceae	No

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MEPO3	<i>Medicago polymorpha</i>	burclover	Fabaceae	No
MEPR	<i>Medicago praecox</i>	Mediterranean medick	Fabaceae	No
MESA	<i>Medicago sativa</i>	alfalfa	Fabaceae	No
MELIC	<i>Melica</i> sp.	melicgrass	Poaceae	Yes
MEBU	<i>Melica bulbosa</i>	oniongrass	Poaceae	Yes
MECA2	<i>Melica californica</i>	California melicgrass	Poaceae	Yes
MEIM	<i>Melica imperfecta</i>	smallflower melicgrass	Poaceae	Yes
METO	<i>Melica torreyana</i>	Torrey's melicgrass	Poaceae	Yes
MELIL	<i>Melilotus</i> sp.	sweetclover	Fabaceae	Yes
MEIN2	<i>Melilotus indicus</i>	annual yellow sweetclover	Fabaceae	No
MEOF	<i>Melilotus officinalis</i>	yellow sweetclover	Fabaceae	Yes
MEOF2	<i>Melissa officinalis</i>	common balm	Lamiaceae	No
MENTH	<i>Mentha</i> sp.	mint	Lamiaceae	No
MEAQ	<i>Mentha aquatica</i>	water mint	Lamiaceae	No
MEAR4	<i>Mentha arvensis</i>	wild mint	Lamiaceae	Yes
MEPU	<i>Mentha pulegium</i>	pennyroyal	Lamiaceae	No
MESP3	<i>Mentha spicata</i>	spearmint	Lamiaceae	No
MENTZ	<i>Mentzelia</i> sp.	blazingstar	Loasaceae	Yes
MENO2	<i>Mesembryanthemum nodiflorum</i>	slenderleaf iceplant	Aizoaceae	No
MICRO6	<i>Microseris</i> sp.	silverpuffs	Asteraceae	Yes
MIAC	<i>Microseris acuminata</i>	Sierra foothill silverpuffs	Asteraceae	Yes
MICA2	<i>Microseris campestris</i>	San Joaquin silverpuffs	Asteraceae	Yes
MIDO	<i>Microseris douglasii</i>	Douglas' silverpuffs	Asteraceae	Yes
MIEL	<i>Microseris elegans</i>	elegant silverpuffs	Asteraceae	Yes
MILI5	<i>Microseris lindleyi</i>	Lindley's silverpuffs	Asteraceae	Yes
MIGRG4	<i>Microsteris gracilis</i> var. <i>gracilis</i>	slender phlox	Polemoniaceae	Yes
MIMUL	<i>Mimulus</i> sp.	monkeyflower	Scrophulariaceae	Yes
MICA3	<i>Mimulus cardinalis</i>	scarlet monkeyflower	Scrophulariaceae	Yes
MIFL2	<i>Mimulus floribundus</i>	manyflowered monkeyflower	Scrophulariaceae	Yes
MIFR2	<i>Mimulus fremontii</i>	Fremont's monkeyflower	Scrophulariaceae	Yes
MIGL2	<i>Mimulus glaucescens</i>	shieldbract monkeyflower	Scrophulariaceae	Yes
MIGU	<i>Mimulus guttatus</i>	seep monkeyflower	Scrophulariaceae	Yes
MIMO3	<i>Mimulus moschatus</i>	muskflower	Scrophulariaceae	Yes
MITR3	<i>Mimulus tricolor</i>	tricolor monkeyflower	Scrophulariaceae	Yes
MINUA	<i>Minuartia</i> sp.	stitchwort	Caryophyllaceae	Yes
MICA7	<i>Minuartia californica</i>	California sandwort	Caryophyllaceae	Yes
MIDO3	<i>Minuartia douglasii</i>	Douglas' stitchwort	Caryophyllaceae	Yes
MIRAB	<i>Mirabilis</i> sp.	four o'clock	Nyctaginaceae	Yes
MOVE	<i>Mollugo verticillata</i>	green carpetweed	Molluginaceae	No
MONAR2	<i>Monardella</i> sp.	monardella	Lamiaceae	Yes
MOLI3	<i>Monardella linoides</i>	flaxleaf monardella	Lamiaceae	Yes
MOVI2	<i>Monardella villosa</i>	coyote mint	Lamiaceae	Yes

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MONOL2	<i>Monolopia</i> sp.	monolopia	Asteraceae	Yes
MONT1	<i>Montia</i> sp.	minerslettuce	Portulacaceae	Yes
MOFO	<i>Montia fontana</i>	annual water minerslettuce	Portulacaceae	Yes
MOAL	<i>Morus alba</i>	white mulberry	Moraceae	No
MUPE2	<i>Mucronea perfoliata</i>	perfoliate spineflower	Polygonaceae	Yes
MURI2	<i>Muhlenbergia rigens</i>	deergrass	Poaceae	Yes
MUMA2	<i>Muilla maritima</i>	sea muilla	Liliaceae	Yes
MYMI2	<i>Myosurus minimus</i>	tiny mousetail	Ranunculaceae	Yes
MYRIO	<i>Myriophyllum</i> sp.	watermilfoil	Haloragaceae	No
NASSE	<i>Nassella</i> sp.	needlegrass	Poaceae	Yes
NACE	<i>Nassella cernua</i>	nodding needlegrass	Poaceae	Yes
NAPU4	<i>Nassella pulchra</i>	purple needlegrass	Poaceae	Yes
NAOF	<i>Nasturtium officinale</i>	watercress	Brassicaceae	Yes
NAVAR	<i>Navarretia</i> sp.	pincushionplant	Polemoniaceae	Yes
NAHAH	<i>Navarretia hamata</i> ssp. <i>hamata</i>	hooked pincushionplant	Polemoniaceae	Yes
NAHE	<i>Navarretia heterandra</i>	Tehama pincushionplant	Polemoniaceae	Yes
NAIN2	<i>Navarretia intertexta</i>	needleleaf navarretia	Polemoniaceae	Yes
NALE	<i>Navarretia leucocephala</i>	whitehead navarretia	Polemoniaceae	Yes
NANI	<i>Navarretia nigelliformis</i>	adobe navarretia	Polemoniaceae	Yes
NAPU2	<i>Navarretia pubescens</i>	downy pincushionplant	Polemoniaceae	Yes
NATA3	<i>Navarretia tagetina</i>	marigold pincushionplant	Polemoniaceae	Yes
NAVI	<i>Navarretia viscidula</i>	sticky pincushionplant	Polemoniaceae	Yes
NEMOP	<i>Nemophila</i> sp.	baby blue eyes	Hydrophyllaceae	Yes
NEHE	<i>Nemophila heterophylla</i>	small baby blue eyes	Hydrophyllaceae	Yes
NEME	<i>Nemophila menziesii</i>	baby blue eyes	Hydrophyllaceae	Yes
NEPE	<i>Nemophila pedunculata</i>	littlefoot nemophila	Hydrophyllaceae	Yes
NEOL	<i>Nerium oleander</i>	oleander	Apocynaceae	No
NICOT	<i>Nicotiana</i> sp.	tobacco	Solanaceae	No
NIAC	<i>Nicotiana acuminata</i>	manyflower tobacco	Solanaceae	No
NIGL	<i>Nicotiana glauca</i>	tree tobacco	Solanaceae	No
NIQU	<i>Nicotiana quadrivalvis</i>	Indian tobacco	Solanaceae	Yes
NYOD	<i>Nymphaea odorata</i>	American white waterlily	Nymphaeaceae	No
ODHA	<i>Odontostomum hartwegii</i>	Hartweg's doll's-lily	Liliaceae	Yes
OESA	<i>Oenanthe sarmentosa</i>	water parsely	Apiaceae	Yes
OENOT	<i>Oenothera</i> sp.	evening primrose	Onagraceae	Yes
OEBI	<i>Oenothera biennis</i>	common evening primrose	Onagraceae	No
OEDE2	<i>Oenothera deltooides</i>	birdcage evening primrose	Onagraceae	Yes
OEEL	<i>Oenothera elata</i>	Hooker's evening primrose	Onagraceae	Yes
OLEU	<i>Olea europaea</i>	olive	Oleaceae	No
OPBAT	<i>Opuntia basilaris</i> var. <i>treleasei</i>	Trelease's beavertail pricklypear	Cactaceae	Yes
OROBA	<i>Orobanche</i> sp.	broomrape	Orobanchaceae	Yes

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OSTE	<i>Osmadenia tenella</i>	false rosinweed	Asteraceae	Yes
OXALI	<i>Oxalis</i> sp.	woodsorrel	Oxalidaceae	No
OXRA	<i>Oxalis radicata</i>	dwarf woodsorrel	Oxalidaceae	No
PACA6	<i>Panicum capillare</i>	witchgrass	Poaceae	Yes
PAIN	<i>Parapholis incurva</i>	curved sicklegrass	Poaceae	No
PALO8	<i>Paraserianthes lophantha</i>	plume albizia	Fabaceae	Yes
PAVI3	<i>Parentucellia viscosa</i>	yellow glandweed	Scrophulariaceae	No
PAVI5	<i>Parthenocissus vitacea</i>	woodbine	Vitaceae	No
PASPA2	<i>Paspalum</i> sp.	crowgrass	Poaceae	No
PADI3	<i>Paspalum dilatatum</i>	dallisgrass	Poaceae	No
PADI6	<i>Paspalum distichum</i>	knotgrass	Poaceae	Yes
PEPE26	<i>Pectocarya penicillata</i>	sleeping combseed	Boraginaceae	Yes
PEDIC	<i>Pedicularis</i> sp.	lousewort	Scrophulariaceae	Yes
PEDE	<i>Pedicularis densiflora</i>	Indian warrior	Scrophulariaceae	Yes
PEMU	<i>Pellaea mucronata</i>	birdfoot cliffbrake	Pteridaceae	Yes
PEEXE	<i>Pentachaeta exilis</i> ssp. <i>exilis</i>	meager pygmydaisy	Asteraceae	Yes
PEPA40	<i>Pentagramma pallida</i>	pale silverback fern	Pteridaceae	Yes
PETR7	<i>Pentagramma triangularis</i>	goldback fern	Pteridaceae	Yes
PERID	<i>Perideridia</i> sp.	yampah	Apiaceae	Yes
PETRO	<i>Petrorhagia</i> sp.	pink	Caryophyllaceae	No
PEDU2	<i>Petrorhagia dubia</i>	hairypink	Caryophyllaceae	No
PEPR4	<i>Petrorhagia prolifera</i>	childing pink	Caryophyllaceae	No
PHACE	<i>Phacelia</i> sp.	phacelia	Hydrophyllaceae	Yes
PHCI	<i>Phacelia cicutaria</i>	caterpillar phacelia	Hydrophyllaceae	Yes
PHCI2	<i>Phacelia ciliata</i>	Great Valley phacelia	Hydrophyllaceae	Yes
PHDI	<i>Phacelia distans</i>	distant phacelia	Hydrophyllaceae	Yes
PHHEV	<i>Phacelia heterophylla</i> ssp. <i>virgata</i>	varileaf phacelia	Hydrophyllaceae	Yes
PHIM	<i>Phacelia imbricata</i>	imbricate phacelia	Hydrophyllaceae	Yes
PHTA	<i>Phacelia tanacetifolia</i>	lacy phacelia	Hydrophyllaceae	Yes
PHALA2	<i>Phalaris</i> sp.	canarygrass	Poaceae	No
PHAQ	<i>Phalaris aquatica</i>	bulbous canarygrass	Poaceae	No
PHAR3	<i>Phalaris arundinacea</i>	reed canarygrass	Poaceae	Yes
PHCA5	<i>Phalaris canariensis</i>	annual canarygrass	Poaceae	No
PHLE3	<i>Phalaris lemmonii</i>	Lemmon's canarygrass	Poaceae	Yes
PHPA5	<i>Phalaris paradoxa</i>	hood canarygrass	Poaceae	No
PHPR3	<i>Phleum pratense</i>	timothy	Poaceae	No
PHLOX	<i>Phlox</i> sp.	phlox	Polemoniaceae	Yes
PHCA13	<i>Phoenix canariensis</i>	Canary Island date palm	Arecaceae	No
PHAU4	<i>Pholistoma auritum</i>	blue fiestaflower	Hydrophyllaceae	Yes
PHORA	<i>Phoradendron</i> sp.	mistletoe	Viscaceae	Yes
PHDE14	<i>Phoradendron densum</i>	dense mistletoe	Viscaceae	Yes
PHMA18	<i>Phoradendron macrophyllum</i>	Colorado Desert mistletoe	Viscaceae	Yes
PHVI9	<i>Phoradendron villosum</i>	Pacific mistletoe	Viscaceae	Yes

Code	Species Name	Common Name	Family	Native
PHAU7	<i>Phragmites australis</i>	common reed	Poaceae	Yes
PHNO2	<i>Phyla nodiflora</i>	turkey tangle fogfruit	Verbenaceae	Yes
PHAM4	<i>Phytolacca americana</i>	American pokeweed	Phytolaccaceae	No
PIEC	<i>Picris echioides</i>	bristly oxtongue	Asteraceae	No
PIAM	<i>Pilularia americana</i>	American pillwort	Marsileaceae	Yes
PIJE	<i>Pinus jeffreyi</i>	Jeffrey pine	Pinaceae	Yes
PILA	<i>Pinus lambertiana</i>	sugar pine	Pinaceae	Yes
PIMO	<i>Pinus monophylla</i>	singleleaf pinyon	Pinaceae	Yes
PIPO	<i>Pinus ponderosa</i>	ponderosa pine	Pinaceae	Yes
PISA2	<i>Pinus sabiniana</i>	California foothill pine	Pinaceae	Yes
PIMI3	<i>Piptatherum miliaceum</i>	smilgrass	Poaceae	No
PICH4	<i>Pistacia chinensis</i>	Chinese pistache	Anacardiaceae	No
PLAGI	<i>Plagiobothrys</i> sp.	popcornflower	Boraginaceae	Yes
PLAC	<i>Plagiobothrys acanthocarpus</i>	adobe popcornflower	Boraginaceae	Yes
PLAR	<i>Plagiobothrys arizonicus</i>	Arizona popcornflower	Boraginaceae	Yes
PLAU	<i>Plagiobothrys austiniae</i>	Austin's popcornflower	Boraginaceae	Yes
PLCA2	<i>Plagiobothrys canescens</i>	valley popcornflower	Boraginaceae	Yes
PLCHU	<i>Plagiobothrys chorisianus</i> var. <i>undulatus</i>	artist's popcornflower	Boraginaceae	Yes
PLCOC	<i>Plagiobothrys collinus</i> var. <i>californicus</i>	Cooper's popcornflower	Boraginaceae	Yes
PLDI2	<i>Plagiobothrys distantiflorus</i>	California popcornflower	Boraginaceae	Yes
PLFU	<i>Plagiobothrys fulvus</i>	fulvous popcornflower	Boraginaceae	Yes
PLGL2	<i>Plagiobothrys glyptocarpus</i>	sculptured popcornflower	Boraginaceae	Yes
PLGR	<i>Plagiobothrys greenei</i>	Greene's popcornflower	Boraginaceae	Yes
PLHU	<i>Plagiobothrys humistratus</i>	dwarf popcornflower	Boraginaceae	Yes
PLLE	<i>Plagiobothrys leptocladus</i>	finebranched popcornflower	Boraginaceae	Yes
PLNO	<i>Plagiobothrys nothofulvus</i>	rusty popcornflower	Boraginaceae	Yes
PLST	<i>Plagiobothrys stipitatus</i>	stalked popcornflower	Boraginaceae	Yes
PLSTM	<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	stalked popcornflower	Boraginaceae	Yes
PLSTS	<i>Plagiobothrys stipitatus</i> var. <i>stipitatus</i>	stalked popcornflower	Boraginaceae	Yes
PLTR	<i>Plagiobothrys trachycarpus</i>	roughfruit popcornflower	Boraginaceae	Yes
PLANT	<i>Plantago</i> sp.	plantain	Plantaginaceae	Yes
PLCO3	<i>Plantago coronopus</i>	buckhorn plantain	Plantaginaceae	No
PLEL	<i>Plantago elongata</i>	prairie plantain	Plantaginaceae	Yes
PLER3	<i>Plantago erecta</i>	dotseed plantain	Plantaginaceae	Yes
PLLA	<i>Plantago lanceolata</i>	narrowleaf plantain	Plantaginaceae	No
PLMA2	<i>Plantago major</i>	common plantain	Plantaginaceae	No
PLSU2	<i>Plantago subnuda</i>	tall coastal plantain	Plantaginaceae	Yes
PLRA	<i>Platanus racemosa</i>	California sycamore	Platanaceae	Yes
PLECT	<i>Plectritis</i> sp.	seablush	Valerianaceae	Yes
PLCI	<i>Plectritis ciliosa</i>	longspur seablush	Valerianaceae	Yes
PLMA4	<i>Plectritis macrocera</i>	longhorn plectritis	Valerianaceae	Yes

Code	Species Name	Common Name	Family	Native
PLCA6	<i>Pleuropogon californicus</i>	annual semaphoregrass	Poaceae	Yes
PLOD	<i>Pluchea odorata</i>	sweetscent	Asteraceae	Yes
PLSE	<i>Pluchea sericea</i>	arrowweed	Asteraceae	Yes
POA	<i>Poa</i> sp.	bluegrass	Poaceae	Yes
POAN	<i>Poa annua</i>	annual bluegrass	Poaceae	No
POBU	<i>Poa bulbosa</i>	bulbous bluegrass	Poaceae	No
POPR	<i>Poa pratensis</i>	Kentucky bluegrass	Poaceae	No
POSE	<i>Poa secunda</i>	Sandberg bluegrass	Poaceae	Yes
POTE5	<i>Poa tenerrima</i>	delicate bluegrass	Poaceae	Yes
POTR2	<i>Poa trivialis</i>	rough bluegrass	Poaceae	No
POGOG	<i>Pogogyne</i> sp.	mesamint	Lamiaceae	Yes
PODO2	<i>Pogogyne douglasii</i>	Douglas' mesamint	Lamiaceae	Yes
POSE2	<i>Pogogyne serpylloides</i>	thymeleaf mesamint	Lamiaceae	Yes
POZI	<i>Pogogyne ziziphoroides</i>	Sacramento mesamint	Lamiaceae	Yes
PODO3	<i>Polanisia dodecandra</i>	redwhisker clammyweed	Capparaceae	Yes
POLYG4	<i>Polygonum</i> sp.	knotweed	Polygonaceae	Yes
POAM8	<i>Polygonum amphibium</i>	water knotweed	Polygonaceae	Yes
POAR11	<i>Polygonum arenastrum</i>	oval-leaf knotweed	Polygonaceae	No
POBI4	<i>Polygonum bidwelliae</i>	Bidwell's knotweed	Polygonaceae	Yes
POBO3	<i>Polygonum bolanderi</i>	Bolander's knotweed	Polygonaceae	Yes
POCA7	<i>Polygonum californicum</i>	California knotweed	Polygonaceae	Yes
POHY	<i>Polygonum hydropiper</i>	marshpepper knotweed	Polygonaceae	No
POHY2	<i>Polygonum hydropiperoides</i>	swamp smartweed	Polygonaceae	Yes
POLA4	<i>Polygonum lapathifolium</i>	curlytop knotweed	Polygonaceae	Yes
POPE2	<i>Polygonum pensylvanicum</i>	Pennsylvania smartweed	Polygonaceae	No
POPE3	<i>Polygonum persicaria</i>	spotted ladysthumb	Polygonaceae	No
POPU5	<i>Polygonum punctatum</i>	dotted smartweed	Polygonaceae	Yes
PORA3	<i>Polygonum ramosissimum</i>	bushy knotweed	Polygonaceae	Yes
POLYP	<i>Polypodium</i> sp.	polypody	Polypodiaceae	Yes
POLYP2	<i>Polypogon</i> sp.	rabbitsfoot grass	Poaceae	No
POAU3	<i>Polypogon australis</i>	Chilean rabbitsfoot grass	Poaceae	No
POEL	<i>Polypogon elongatus</i>	streambank rabbitsfoot grass	Poaceae	No
POIN7	<i>Polypogon interruptus</i>	ditch rabbitsfoot grass	Poaceae	No
POMA10	<i>Polypogon maritimus</i>	Mediterranean rabbitsfoot grass	Poaceae	No
POMO5	<i>Polypogon monspeliensis</i>	annual rabbitsfoot grass	Poaceae	No
POVI9	<i>Polypogon viridis</i>	beardless rabbitsfoot grass	Poaceae	No
POFR2	<i>Populus fremontii</i>	Fremont cottonwood	Salicaceae	Yes
PORTU	<i>Portulaca</i> sp.	purslane	Portulacaceae	No
POOL	<i>Portulaca oleracea</i>	little hogweed	Portulacaceae	No
POTAM	<i>Potamogeton</i> sp.	pondweed	Potamogetonaceae	Yes
POFO3	<i>Potamogeton foliosus</i>	leafy pondweed	Potamogetonaceae	Yes
PONO2	<i>Potamogeton nodosus</i>	longleaf pondweed	Potamogetonaceae	Yes
POGL9	<i>Potentilla glandulosa</i>	sticky cinquefoil	Rosaceae	Yes

Code	Species Name	Common Name	Family	Native
PRGL2	<i>Prosopis glandulosa</i>	honey mesquite	Fabaceae	Yes
PRPU	<i>Prosopis pubescens</i>	screwbean mesquite	Fabaceae	Yes
PRUNE	<i>Prunella</i> sp.	selfheal	Lamiaceae	Yes
PRVU	<i>Prunella vulgaris</i>	common selfheal	Lamiaceae	Yes
PRUNU	<i>Prunus</i> sp.	plum	Rosaceae	No
PRCE2	<i>Prunus cerasifera</i>	cherry plum	Rosaceae	No
PRDU	<i>Prunus dulcis</i>	sweet almond	Rosaceae	No
PREM	<i>Prunus emarginata</i>	bitter cherry	Rosaceae	Yes
PRVI	<i>Prunus virginiana</i>	chokecherry	Rosaceae	Yes
PSHE	<i>Pseudobahia heermannii</i>	foothill sunburst	Asteraceae	Yes
PSCA13	<i>Pseudognaphalium californicum</i>	ladies' tobacco	Asteraceae	Yes
PSLU6	<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed	Asteraceae	No
PSRA5	<i>Pseudognaphalium ramosissimum</i>	pink cudweed	Asteraceae	Yes
PSST7	<i>Pseudognaphalium stramineum</i>	cottonbatting plant	Asteraceae	Yes
PSILO	<i>Psilocarphus</i> sp.	woollyheads	Asteraceae	Yes
PSBR	<i>Psilocarphus brevissimus</i>	short woollyheads	Asteraceae	Yes
PSOR	<i>Psilocarphus oregonus</i>	Oregon woollyheads	Asteraceae	Yes
PSTE	<i>Psilocarphus tenellus</i>	slender woollyheads	Asteraceae	Yes
PTERI	<i>Pteridium</i> sp.	brackenfern	Dennstaedtiaceae	Yes
PTDR	<i>Pterostegia drymarioides</i>	woodland pterostegia	Polygonaceae	Yes
PUSI	<i>Puccinellia simplex</i>	California alkaligrass	Poaceae	Yes
PYCA	<i>Pycnanthemum californicum</i>	Sierra mint	Lamiaceae	Yes
PYRAC	<i>Pyracantha</i> sp.	firethorn	Rosaceae	No
PYAN	<i>Pyracantha angustifolia</i>	narrowleaf firethorn	Rosaceae	No
PYCR7	<i>Pyracantha crenulata</i>	Nepalese firethorn	Rosaceae	No
QUJO	<i>Quercus xjolonensis</i>		Fagaceae	Yes
QUMO2	<i>Quercus xmoreha</i>	oracle oak	Fagaceae	Yes
QUAG	<i>Quercus agrifolia</i>	California live oak	Fagaceae	Yes
QUCH2	<i>Quercus chrysolepis</i>	canyon live oak	Fagaceae	Yes
QUDO	<i>Quercus douglasii</i>	blue oak	Fagaceae	Yes
QUKE	<i>Quercus kelloggii</i>	California black oak	Fagaceae	Yes
QULO	<i>Quercus lobata</i>	valley oak	Fagaceae	Yes
QUWI2	<i>Quercus wislizeni</i>	interior live oak	Fagaceae	Yes
RANUN	<i>Ranunculus</i> sp.	buttercup	Ranunculaceae	Yes
RAAQ	<i>Ranunculus aquatilis</i>	white water crowfoot	Ranunculaceae	Yes
RABOT	<i>Ranunculus bonariensis</i> var. <i>trisepalus</i>	Carter's buttercup	Ranunculaceae	Yes
RACA3	<i>Ranunculus canus</i>	Sacramento Valley buttercup	Ranunculaceae	Yes
RAHE	<i>Ranunculus hebecarpus</i>	delicate buttercup	Ranunculaceae	Yes
RAMU2	<i>Ranunculus muricatus</i>	spinyfruit buttercup	Ranunculaceae	No
RAOC	<i>Ranunculus occidentalis</i>	western buttercup	Ranunculaceae	Yes
RARA2	<i>Raphanus raphanistrum</i>	wild radish	Brassicaceae	No
RASA2	<i>Raphanus sativus</i>	cultivated radish	Brassicaceae	No

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RHAMN	<i>Rhamnus</i> sp.	buckthorn	Rhamnaceae	Yes
RHIL	<i>Rhamnus ilicifolia</i>	hollyleaf redberry	Rhamnaceae	Yes
RHTR	<i>Rhus trilobata</i>	skunkbush sumac	Anacardiaceae	Yes
RIBES	<i>Ribes</i> sp.	currant	Grossulariaceae	Yes
RIAU	<i>Ribes aureum</i>	golden currant	Grossulariaceae	Yes
RIME	<i>Ribes menziesii</i>	canyon gooseberry	Grossulariaceae	Yes
RIQU	<i>Ribes quercetorum</i>	rock gooseberry	Grossulariaceae	Yes
RILE2	<i>Rigiopappus leptocladus</i>	wireweed	Asteraceae	Yes
ROPS	<i>Robinia pseudoacacia</i>	black locust	Fabaceae	No
RORIP	<i>Rorippa</i> sp.	yellowcress	Brassicaceae	Yes
ROCU2	<i>Rorippa curvipes</i>	bluntleaf yellowcress	Brassicaceae	Yes
ROCU	<i>Rorippa curvisiliqua</i>	curvepod yellowcress	Brassicaceae	Yes
ROPA2	<i>Rorippa palustris</i>	bog yellowcress	Brassicaceae	Yes
ROSA5	<i>Rosa</i> sp.	rose	Rosaceae	Yes
ROCA2	<i>Rosa californica</i>	California wildrose	Rosaceae	Yes
ROMU	<i>Rosa multiflora</i>	multiflora rose	Rosaceae	
ROCR3	<i>Rostraria cristata</i>	Mediterranean hairgrass	Poaceae	No
RORA	<i>Rotala ramosior</i>	lowland rotala	Lythraceae	Yes
RUBUS	<i>Rubus</i> sp.	blackberry	Rosaceae	Yes
RUAR9	<i>Rubus armeniacus</i>	Himalayan blackberry	Rosaceae	No
RUPA	<i>Rubus parviflorus</i>	thimbleberry	Rosaceae	Yes
RUUR	<i>Rubus ursinus</i>	California blackberry	Rosaceae	Yes
RUMEX	<i>Rumex</i> sp.	dock	Polygonaceae	No
RUAC3	<i>Rumex acetosella</i>	common sheep sorrel	Polygonaceae	No
RUCO2	<i>Rumex conglomeratus</i>	clustered dock	Polygonaceae	No
RUCR	<i>Rumex crispus</i>	curly dock	Polygonaceae	No
RUDE3	<i>Rumex dentatus</i>	toothed dock	Polygonaceae	No
RUHY	<i>Rumex hymenosepalus</i>	canaigre dock	Polygonaceae	Yes
RUOB	<i>Rumex obtusifolius</i>	bitter dock	Polygonaceae	No
RUPU3	<i>Rumex pulcher</i>	fiddle dock	Polygonaceae	No
RUSA	<i>Rumex salicifolius</i>	willow dock	Polygonaceae	Yes
RUST4	<i>Rumex stenophyllus</i>	narrowleaf dock	Polygonaceae	No
RUVI	<i>Rumex violascens</i>	violet dock	Polygonaceae	Yes
SAAP	<i>Sagina apetala</i>	annual pearlwort	Caryophyllaceae	Yes
SADEO	<i>Sagina decumbens</i> ssp. <i>occidentalis</i>	western pearlwort	Caryophyllaceae	Yes
SAGIT	<i>Sagittaria</i> sp.	arrowhead	Alismataceae	Yes
SALA2	<i>Sagittaria latifolia</i>	broadleaf arrowhead	Alismataceae	Yes
SALO2	<i>Sagittaria longiloba</i>	longbarb arrowhead	Alismataceae	Yes
SASA2	<i>Sagittaria sanfordii</i>	valley arrowhead	Alismataceae	Yes
SAME	<i>Salazaria mexicana</i>	Mexican bladdersage	Lamiaceae	Yes
SALIX	<i>Salix</i> sp.	willow	Salicaceae	Yes
SAPE12	<i>Salix xpendulina</i>	Wisconsin weeping willow	Salicaceae	No
SASE10	<i>Salix xsepulcralis</i>	weeping willow	Salicaceae	No

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SAEX	<i>Salix exigua</i>	narrowleaf willow	Salicaceae	Yes
SAGO	<i>Salix gooddingii</i>	Goodding's willow	Salicaceae	Yes
SALA3	<i>Salix laevigata</i>	red willow	Salicaceae	Yes
SALA6	<i>Salix lasiolepis</i>	arroyo willow	Salicaceae	Yes
SALUL	<i>Salix lucida</i> ssp. <i>lasiandra</i>	Pacific willow	Salicaceae	Yes
SAME2	<i>Salix melanopsis</i>	dusky willow	Salicaceae	Yes
SATR12	<i>Salsola tragus</i>	prickly Russian thistle	Chenopodiaceae	No
SACA8	<i>Salvia carduacea</i>	thistle sage	Lamiaceae	Yes
SACO6	<i>Salvia columbariae</i>	chia	Lamiaceae	Yes
SANI4	<i>Sambucus nigra</i>	black elderberry	Caprifoliaceae	Yes
SARAM4	<i>Sambucus racemosa</i> var. <i>melanocarpa</i>	Rocky Mountain elder	Caprifoliaceae	Yes
SANIC	<i>Sanicula</i> sp.	sanicle	Apiaceae	Yes
SABI2	<i>Sanicula bipinnata</i>	poison sanicle	Apiaceae	Yes
SABI3	<i>Sanicula bipinnatifida</i>	purple sanicle	Apiaceae	Yes
SACR2	<i>Sanicula crassicaulis</i>	Pacific blacksnakeroot	Apiaceae	Yes
SAPA30	<i>Sarcocornia pacifica</i>	Pacific swampfire	Chenopodiaceae	Yes
SACA18	<i>Saxifraga californica</i>	California saxifrage	Saxifragaceae	Yes
SAIN4	<i>Saxifraga integrifolia</i>	wholeleaf saxifrage	Saxifragaceae	Yes
SAXIXX	<i>Saxifragaceae</i> sp.	saxifrage	Saxifragaceae	Yes
SCPE	<i>Scandix pecten-veneris</i>	shepherdsneedle	Apiaceae	No
SCPH	<i>Schedonorus phoenix</i>	tall fescue	Poaceae	No
SCMO	<i>Schinus molle</i>	Peruvian peppertree	Anacardiaceae	No
SCHIS	<i>Schismus</i> sp.	Mediterranean grass	Poaceae	No
SCHOE6	<i>Schoenoplectus</i> sp.	bulrush	Cyperaceae	Yes
SCAC3	<i>Schoenoplectus acutus</i>	hardstem bulrush	Cyperaceae	Yes
SCAM6	<i>Schoenoplectus americanus</i>	chairmaker's bulrush	Cyperaceae	Yes
SCCA11	<i>Schoenoplectus californicus</i>	California bulrush	Cyperaceae	Yes
SCMA8	<i>Bolboshoenus maritimus</i>	cosmopolitan bulrush	Cyperaceae	Yes
SCPU10	<i>Schoenoplectus pungens</i>	common threesquare	Cyperaceae	Yes
SCTA2	<i>Schoenoplectus tabernaemontani</i>	softstem bulrush	Cyperaceae	Yes
SCIRP	<i>Scirpus</i> sp.	bulrush	Cyperaceae	Yes
SCAN2	<i>Scleranthus annuus</i>	German knotgrass	Caryophyllaceae	No
SCBO	<i>Scribneria bolanderi</i>	Scribner's grass	Poaceae	Yes
SCCA2	<i>Scrophularia californica</i>	California figwort	Scrophulariaceae	Yes
SCCA3	<i>Scutellaria californica</i>	California skullcap	Lamiaceae	Yes
SEPU4	<i>Sedella pumila</i>	Sierra mock stonecrop	Crassulaceae	Yes
SELAG	<i>Selaginella</i> sp.	spikemoss	Selaginellaceae	Yes
SEHA2	<i>Selaginella hansenii</i>	Hansen's spikemoss	Selaginellaceae	Yes
SENEC	<i>Senecio</i> sp.	ragwort	Asteraceae	Yes
SEFL3	<i>Senecio flaccidus</i>	threadleaf ragwort	Asteraceae	Yes
SEHY	<i>Senecio hydrophiloides</i>	tall groundsel	Asteraceae	Yes
SEVU	<i>Senecio vulgaris</i>	old-man-in-the-Spring	Asteraceae	No
SESBA	<i>Sesbania</i> sp.	riverhemp	Fabaceae	No

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SEPU7	<i>Sesbania punicea</i>	rattlebox	Fabaceae	No
SEVE2	<i>Sesuvium verrucosum</i>	verrucose seapurslane	Aizoaceae	Yes
SETAR	<i>Setaria</i> sp.	bristlegrass	Poaceae	No
SEPA10	<i>Setaria parviflora</i>	marsh bristlegrass	Poaceae	Yes
SHAR2	<i>Sherardia arvensis</i>	blue fieldmadder	Rubiaceae	No
SIDAL	<i>Sidalcea</i> sp.	checkerbloom	Malvaceae	Yes
SICA	<i>Sidalcea calycosa</i>	annual checkerbloom	Malvaceae	Yes
SIDI	<i>Sidalcea diploscypha</i>	fringed checkerbloom	Malvaceae	Yes
SIHA	<i>Sidalcea hartwegii</i>	valley checkerbloom	Malvaceae	Yes
SIH2	<i>Sidalcea hirsuta</i>	hairy checkerbloom	Malvaceae	Yes
SIMA2	<i>Sidalcea malviflora</i>	dwarf checkerbloom	Malvaceae	Yes
SIGA	<i>Silene gallica</i>	common catchfly	Caryophyllaceae	No
SIVU	<i>Silene vulgaris</i>	maidenstears	Caryophyllaceae	No
SIMA3	<i>Silybum marianum</i>	blessed milkthistle	Asteraceae	No
SIAR4	<i>Sinapis arvensis</i>	charlock mustard	Brassicaceae	No
SISYM	<i>Sisymbrium</i> sp.	hedgemustard	Brassicaceae	No
SIAL2	<i>Sisymbrium altissimum</i>	tall tumbledustard	Brassicaceae	No
SIIR	<i>Sisymbrium irio</i>	London rocket	Brassicaceae	No
SIOF	<i>Sisymbrium officinale</i>	hedgemustard	Brassicaceae	No
SIOR4	<i>Sisymbrium orientale</i>	Indian hedgemustard	Brassicaceae	No
SIBE	<i>Sisyrinchium bellum</i>	western blue-eyed grass	Iridaceae	Yes
SMCA2	<i>Smilax californica</i>	California greenbrier	Smilacaceae	Yes
SMJA	<i>Smilax jamesii</i>	English Peak greenbrier	Smilacaceae	Yes
SOLAN	<i>Solanum</i> sp.	nightshade	Solanaceae	Yes
SOAM	<i>Solanum americanum</i>	American black nightshade	Solanaceae	Yes
SODO	<i>Solanum douglasii</i>	greenspot nightshade	Solanaceae	Yes
SOPA	<i>Solanum parishii</i>	Parish's nightshade	Solanaceae	Yes
SOUM	<i>Solanum umbelliferum</i>	bluewitch nightshade	Solanaceae	Yes
SOLID	<i>Solidago</i> sp.	goldenrod	Asteraceae	Yes
SOSE2	<i>Soliva sessilis</i>	field burrweed	Asteraceae	No
SONCH	<i>Sonchus</i> sp.	sowthistle	Asteraceae	No
SOAS	<i>Sonchus asper</i>	spiny sowthistle	Asteraceae	No
SOOL	<i>Sonchus oleraceus</i>	common sowthistle	Asteraceae	No
SOBIA	<i>Sorghum bicolor</i> ssp. <i>arundinaceum</i>	common wild sorghum	Poaceae	No
SOHA	<i>Sorghum halepense</i>	Johnsongrass	Poaceae	No
SPARG	<i>Sparganium</i> sp.	bur-reed	Sparganiaceae	Yes
SPJU2	<i>Spartium junceum</i>	Spanish broom	Fabaceae	No
SPAR	<i>Spergula arvensis</i>	corn spurry	Caryophyllaceae	No
SPERG2	<i>Spergularia</i> sp.	sandspurry	Caryophyllaceae	Yes
SPAT	<i>Spergularia atrosperma</i>	blackseed sandspurry	Caryophyllaceae	Yes
SPBO	<i>Spergularia bocconii</i>	Boccone's sandspurry	Caryophyllaceae	No
SPMA	<i>Spergularia macrotheca</i>	sticky sandspurry	Caryophyllaceae	Yes
SPMA10	<i>Spergularia maritima</i>	media sandspurry	Caryophyllaceae	No

Code	Species Name	Common Name	Family	Native
SPRU	<i>Spergularia rubra</i>	red sandspurry	Caryophyllaceae	No
SPSA5	<i>Spergularia salina</i>	salt sandspurry	Caryophyllaceae	Yes
SPDO	<i>Spiraea douglasii</i>	rose spirea	Rosaceae	Yes
SPAI	<i>Sporobolus airoides</i>	alkali sacaton	Poaceae	Yes
STACH	<i>Stachys</i> sp.	hedgenettle	Lamiaceae	Yes
STAL	<i>Stachys albens</i>	whitestem hedgenettle	Lamiaceae	Yes
STRIR3	<i>Stachys rigida</i> var. <i>rigida</i>	rough hedgenettle	Lamiaceae	Yes
STST	<i>Stachys stricta</i>	Sonoma hedgenettle	Lamiaceae	Yes
STELL	<i>Stellaria</i> sp.	starwort	Caryophyllaceae	No
STME2	<i>Stellaria media</i>	common chickweed	Caryophyllaceae	No
STNI	<i>Stellaria nitens</i>	shiny chickweed	Caryophyllaceae	Yes
STEPH	<i>Stephanomeria</i> sp.	wirelettuce	Asteraceae	Yes
STEX	<i>Stephanomeria exigua</i>	small wirelettuce	Asteraceae	Yes
STMIM	<i>Stephanomeria minor</i> var. <i>minor</i>	narrowleaf wirelettuce	Asteraceae	Yes
STPA4	<i>Stephanomeria pauciflora</i>	brownplume wirelettuce	Asteraceae	Yes
STVI2	<i>Stephanomeria virgata</i>	rod wirelettuce	Asteraceae	Yes
STREP2	<i>Streptanthus</i> sp.	twistflower	Brassicaceae	Yes
STPO2	<i>Streptanthus polygaloides</i>	milkwort jewelflower	Brassicaceae	Yes
STTO3	<i>Streptanthus tortuosus</i>	shieldplant	Brassicaceae	Yes
STPE15	<i>Stuckenia pectinata</i>	sago pondweed	Potamogetonaceae	Yes
STRE4	<i>Styrax redivivus</i>	drug snowbell	Styracaceae	Yes
SUMO	<i>Suaeda nigra</i>	Mojave seablite	Chenopodiaceae	Yes
SYMPH	<i>Symphoricarpos</i> sp.	snowberry	Caprifoliaceae	Yes
SYALL	<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	common snowberry	Caprifoliaceae	Yes
SYMO	<i>Symphoricarpos mollis</i>	creeping snowberry	Caprifoliaceae	Yes
SYEX	<i>Symphyotrichum expansum</i>	southwestern annual saltmarsh aster	Asteraceae	Yes
SYLE2	<i>Symphyotrichum lentum</i>	Suisun Marsh aster	Asteraceae	Yes
TACA8	<i>Taeniatherum caput-medusae</i>	medusahead	Poaceae	No
TAMAR2	<i>Tamarix</i> sp.	tamarisk	Tamaricaceae	No
TAAP	<i>Tamarix aphylla</i>	Athel tamarisk	Tamaricaceae	No
TAGA	<i>Tamarix gallica</i>	French tamarisk	Tamaricaceae	No
TAPA4	<i>Tamarix parviflora</i>	smallflower tamarisk	Tamaricaceae	No
TARA	<i>Tamarix ramosissima</i>	saltcedar	Tamaricaceae	No
TAOF	<i>Taraxacum officinale</i>	common dandelion	Asteraceae	No
TAHA2	<i>Tauschia hartwegii</i>	Hartweg's umbrellawort	Apiaceae	Yes
THOC	<i>Thalictrum occidentale</i>	western meadow-rue	Ranunculaceae	Yes
THIN6	<i>Thinopyrum intermedium</i>	intermediate wheatgrass	Poaceae	No
THPO7	<i>Thinopyrum ponticum</i>	tall wheatgrass	Poaceae	No
THCU	<i>Thysanocarpus curvipes</i>	sand fringepod	Brassicaceae	Yes
THRA	<i>Thysanocarpus radians</i>	ribbed fringepod	Brassicaceae	Yes
TORIL	<i>Torilis</i> sp.	hedgепarsley	Apiaceae	No
TOAR	<i>Torilis arvensis</i>	spreading hedgепarsley	Apiaceae	No
TONO	<i>Torilis nodosa</i>	knotted hedgепarsley	Apiaceae	No

Code	Species Name	Common Name	Family	Native
TODI	<i>Toxicodendron diversilobum</i>	Pacific poison oak	Anacardiaceae	Yes
ZIFR	<i>Toxicoscordion fremontii</i>	Fremont's deathcamas	Melanthiaceae	Yes
TRAGO	<i>Tragopogon</i> sp.	goatsbeard	Asteraceae	No
TRDU	<i>Tragopogon dubius</i>	yellow salsify	Asteraceae	No
TRPO2	<i>Trianthema portulacastrum</i>	desert horsepurslane	Aizoaceae	Yes
TRTE	<i>Tribulus terrestris</i>	puncturevine	Zygophyllaceae	No
TRICH9	<i>Trichostema</i> sp.	bluecurls	Lamiaceae	Yes
TRLA4	<i>Trichostema lanceolatum</i>	vinegarweed	Lamiaceae	Yes
TROB	<i>Trichostema oblongum</i>	oblong bluecurls	Lamiaceae	Yes
TROV	<i>Trichostema ovatum</i>	San Joaquin bluecurls	Lamiaceae	Yes
TRIFO	<i>Trifolium</i> sp.	clover	Fabaceae	Yes
TRAL5	<i>Trifolium albopurpureum</i>	rancheria clover	Fabaceae	Yes
TRBA	<i>Trifolium barbigerum</i>	bearded clover	Fabaceae	Yes
TRBI	<i>Trifolium bifidum</i>	notchleaf clover	Fabaceae	Yes
TRCA5	<i>Trifolium campestre</i>	field clover	Fabaceae	No
TRCI	<i>Trifolium ciliolatum</i>	foothill clover	Fabaceae	Yes
TRDE	<i>Trifolium depauperatum</i>	cowbag clover	Fabaceae	Yes
TRDU2	<i>Trifolium dubium</i>	suckling clover	Fabaceae	No
TRFR2	<i>Trifolium fragiferum</i>	strawberry clover	Fabaceae	No
TRFU	<i>Trifolium fucatum</i>	bull clover	Fabaceae	Yes
TRGL4	<i>Trifolium glomeratum</i>	clustered clover	Fabaceae	No
TRGR2	<i>Trifolium gracilentum</i>	pinpoint clover	Fabaceae	Yes
TRHI4	<i>Trifolium hirtum</i>	rose clover	Fabaceae	No
TRHY	<i>Trifolium hybridum</i>	alsike clover	Fabaceae	No
TRMA3	<i>Trifolium macrocephalum</i>	largehead clover	Fabaceae	Yes
TRMI4	<i>Trifolium microcephalum</i>	smallhead clover	Fabaceae	Yes
TRMI5	<i>Trifolium microdon</i>	thimble clover	Fabaceae	Yes
TROL	<i>Trifolium oliganthum</i>	fewflower clover	Fabaceae	Yes
TRRE3	<i>Trifolium repens</i>	white clover	Fabaceae	No
TRSU3	<i>Trifolium subterraneum</i>	subterranean clover	Fabaceae	No
TRVA	<i>Trifolium variegatum</i>	whitetip clover	Fabaceae	Yes
TRWI3	<i>Trifolium willdenovii</i>	tomcat clover	Fabaceae	Yes
TRWO	<i>Trifolium wormskioldii</i>	cows clover	Fabaceae	Yes
TRIGL	<i>Triglochin</i> sp.	arrowgrass	Juncaginaceae	Yes
TRST16	<i>Triglochin striata</i>	three-rib arrowgrass	Juncaginaceae	Yes
TRIPH3	<i>Triphysaria</i> sp.	owl's-clover	Scrophulariaceae	Yes
TRER6	<i>Triphysaria eriantha</i>	johnny-tuck	Scrophulariaceae	Yes
TRPU16	<i>Triphysaria pusilla</i>	dwarf owl's-clover	Scrophulariaceae	Yes
TRVEF	<i>Triphysaria versicolor</i> ssp. <i>faucibarbatius</i>	yellowbeak owl's-clover	Scrophulariaceae	Yes
TRITE	<i>Triteleia</i> sp.	triteleia	Liliaceae	Yes
TRBR7	<i>Triteleia bridgesii</i>	Bridges' brodiaea	Liliaceae	Yes
TRGRH	<i>Triteleia grandiflora</i> var. <i>howellii</i>	Howell's triteleia	Liliaceae	Yes
TRHY3	<i>Triteleia hyacinthina</i>	white brodiaea	Liliaceae	Yes
TRIX	<i>Triteleia ixioides</i>	prettyface	Liliaceae	Yes

Code	Species Name	Common Name	Family	Native
TRLA16	<i>Triteleia laxa</i>	Ithuriel's spear	Liliaceae	Yes
TRLI8	<i>Triteleia lilacinum</i>	foothill triteleia	Liliaceae	Yes
TRITI	<i>Triticum</i> sp.	wheat	Poaceae	No
TRGR5	<i>Tropidocarpum gracile</i>	dobie pod	Brassicaceae	Yes
TYPHA	<i>Typha</i> sp.	cattail	Typhaceae	Yes
TYAN	<i>Typha angustifolia</i>	narrowleaf cattail	Typhaceae	Yes
TYDO	<i>Typha domingensis</i>	southern cattail	Typhaceae	Yes
TYLA	<i>Typha latifolia</i>	broadleaf cattail	Typhaceae	Yes
ULMUS	<i>Ulmus</i> sp.	elm	Ulmaceae	No
ULPR	<i>Ulmus procera</i>	English elm	Ulmaceae	No
UMCA	<i>Umbellularia californica</i>	California laurel	Lauraceae	Yes
2ALGA	<i>Unknown Algae</i>			Yes
2LICHN	<i>Unknown Lichen</i>			Yes
2LW	<i>Unknown Liverwort</i>			Yes
2MOSS	<i>Unknown Moss</i>			Yes
URTIC	<i>Urtica</i> sp.	nettle	Urticaceae	Yes
URDI	<i>Urtica dioica</i>	stinging nettle	Urticaceae	Yes
URUR	<i>Urtica urens</i>	dwarf nettle	Urticaceae	No
UTGI	<i>Utricularia gibba</i>	humped bladderwort	Lentibulariaceae	Yes
VERI	<i>Velezia rigida</i>	velezia	Caryophyllaceae	No
VEBL	<i>Verbascum blattaria</i>	moth mullein	Scrophulariaceae	No
VETH	<i>Verbascum thapsus</i>	common mullein	Scrophulariaceae	No
VERBE	<i>Verbena</i> sp.	vervain	Verbenaceae	Yes
VEBO	<i>Verbena bonariensis</i>	purpletop vervain	Verbenaceae	Yes
VECA9	<i>Verbena californica</i>	Red Hills vervain	Verbenaceae	Yes
VEHA2	<i>Verbena hastata</i>	swamp verbena	Verbenaceae	Yes
VELA	<i>Verbena lasiostachys</i>	western vervain	Verbenaceae	Yes
VELI	<i>Verbena litoralis</i>	seashore vervain	Verbenaceae	No
VERON	<i>Veronica</i> sp.	speedwell	Scrophulariaceae	Yes
VEAM2	<i>Veronica americana</i>	American speedwell	Scrophulariaceae	Yes
VEAN2	<i>Veronica anagallis-aquatica</i>	water speedwell	Scrophulariaceae	No
VEPEX2	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	hairy purslane speedwell	Scrophulariaceae	Yes
VICIA	<i>Vicia</i> sp.	vetch	Fabaceae	Yes
VIAM	<i>Vicia americana</i>	American vetch	Fabaceae	Yes
VIBE	<i>Vicia benghalensis</i>	reddish tufted vetch	Fabaceae	No
VINI81	<i>Vicia nigricans</i>	black vetch	Fabaceae	Yes
VISA	<i>Vicia sativa</i>	garden vetch	Fabaceae	No
VIVI	<i>Vicia villosa</i>	winter vetch	Fabaceae	No
VIMA	<i>Vinca major</i>	bigleaf periwinkle	Apocynaceae	No
VIPE3	<i>Viola pedunculata</i>	Johnny-jump-up	Violaceae	Yes
VICA5	<i>Vitis californica</i>	California wild grape	Vitaceae	Yes
VIVI5	<i>Vitis vinifera</i>	wine grape	Vitaceae	No
VULPI	<i>Vulpia</i> sp.	fescue	Poaceae	No
VUBR	<i>Vulpia bromoides</i>	brome fescue	Poaceae	No

Code	Species Name	Common Name	Family	Native
VUMI	<i>Vulpia microstachys</i>	small fescue	Poaceae	Yes
VUMY	<i>Vulpia myuros</i>	rat-tail fescue	Poaceae	No
WAFI	<i>Washingtonia filifera</i>	California fan palm	Areaceae	Yes
WIRE	<i>Wislizenia refracta</i>	spectacle fruit	Capparaceae	Yes
WOBR	<i>Wolffia brasiliensis</i>	Brazilian watermeal	Lemnaceae	Yes
WOFI	<i>Woodwardia fimbriata</i>	giant chainfern	Blechnaceae	Yes
WYETH	<i>Wyethia</i> sp.	mule-ears	Asteraceae	Yes
WYAN	<i>Wyethia angustifolia</i>	California compassplant	Asteraceae	Yes
WYHE	<i>Wyethia helenioides</i>	whitehead mule-ears	Asteraceae	Yes
XANTH2	<i>Xanthium</i> sp.	cocklebur	Asteraceae	Yes
XASP2	<i>Xanthium spinosum</i>	spiny cocklebur	Asteraceae	No
XAST	<i>Xanthium strumarium</i>	rough cocklebur	Asteraceae	Yes
XOGU	<i>Xolantha guttata</i>	European frostweed	Cistaceae	No
YAMI	<i>Yabea microcarpa</i>	false carrot	Apiaceae	Yes
ZIGAD	<i>Zigadenus</i> sp.	deathcamas	Liliaceae	Yes

APPENDIX 3. Field key to vegetation types of the Great Valley, California.

The following field key was created to distinguish the classified vegetation types in the Great Valley Ecoregion of California. The alliances and associations within this key are based on one or more dominant and/or characteristic species occurring in the landscape and on environmental settings. This key will ultimately be used to distinguish different mapping units for a primary end product of the project, an alliance-level vegetation map.

The field key is based on the classification of more than 2600 new and existing field surveys, collected between 2001 and 2010 by a variety of entities, including the California Department of Fish and Game, the California Native Plant Society, the Geographic Information Center, and various researchers. Some surveys were sampled within a 1 km buffer of the ecoregion boundary and their respective associations are listed in this key since they could occur within the ecoregion.

Vegetation types denoted with an * are types that were described in other studies within the Great Valley ecoregion, but surveys of this type were not analyzed within this classification. The associated stand tables and descriptions are not included within this report. These types are shown here for reference purposes and detailed descriptions are available within the source reports.

Because the key is based on both directed and stratified random sampling of vegetation, it may not denote all vegetation types that occur within the Great Valley Ecoregion, nor explain the full range of variation of vegetation types as they appear on the ground. Additionally, species interact in a continuum based on a complex set of habitat preferences, and they can intermix in wide or narrow zones within the landscape. While this key attempts to reflect this complexity, unusual or site-specific assemblages of plants may exist in the landscape and may not be easily keyed.

Due to the diversity of vegetation, and to avoid an excessively long document, a series of paired statements (or couplets) was not developed for each option. Instead, sets of characteristics with choices beneath them are provided. The key will first lead the user to the general options, and the individual selections for the vegetation associations will be listed beneath these options. The user will need to work through the numbered list of types from the more general to the most specific options until the best fit is reached. The choices are identified by a combination of alpha-numeric codes, using capital letters, numerals, upper- and lowercase letters, and decimal points to distinguish the different key levels. The most basic, general levels in the key are on the left side of the alpha-numeric code, and the most specific are on the right side. The coding system in this key relates to a series of left indentations. Thus, the major groupings are down the left-hand side of the pages; nested within them are the sub-groupings. The preliminary key will direct you to the major groups, such as forest/woodland, shrubland, and herbaceous, with the more specific choices beneath them. The more specific lists within these are generally based on the presence/absence or dominance/sub-dominance of individual species.

Please note: since there may be more than two alternatives in a group, be sure to work through all of the options in a list before you decide on the best choice.

Terms and Concepts Used Throughout the Key

Terms regarding species abundance/cover/constancy:

Dominance by layer: Tree, shrub, and herbaceous layers are considered physiognomically distinct. A vegetation type is considered to belong to a certain physiognomic group if it is dominated by one layer. Layers are prioritized in order of height when naming the type.

Dominant: Dominance refers to the preponderance of vegetation cover in a stand of uniform composition and site history. It may refer to cover of an individual species (as in "dominated by valley oak"), or it may refer to dominance by a physiognomic group, as in "dominated by shrubs." Dominance refers to the relative cover of one species or physiognomic group as compared to another species or physiognomic group.

Co-dominant: Co-dominance refers to two or more species in a stand that share dominance and have between 30 and 60 percent relative cover each.

Diagnostic (species): any species or group of species whose relative constancy or abundance differentiates one vegetation type from another. A species of high fidelity to a particular type and one whose presence serves as a criterion of recognition of that type (Jennings et al. 2009).

Terms regarding vegetation types:

Alliance: A vegetation classification unit containing one or more associations, and defined by 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 (Jennings et al., 2009).

Association: A vegetation classification unit defined on the basis of a characteristic range of species composition, diagnostic species occurrence, habitat conditions, and physiognomy (Jennings et al., 2009).

Sub-Alliance: An informal subdivision of an alliance usually developed when an alliance contains various associations but incomplete floristic data exist for analyzing and defining specific associations.

Phase: An informal subdivision of an association (within a subset of the samples used to define the association) that often describes and emphasizes the dominance of certain non-diagnostic species, or sometimes denotes the absence of certain typical but not diagnostic species of the association.

Mapping Unit: An informal classification unit for mapping of groups of types that may be planted stands of vegetation, agricultural and/or urban.

Semi-natural Stands: A vegetation classification unit defined by the strong dominance of naturalized (non-native) plants, and they often grow in non-agricultural settings with insignificant cover of native plants. These stands can be valuable habitat for wildlife species (e.g., *Eucalyptus* stands as nesting and perching sites for raptors, *Bromus (hordeaceus, diandrus)*–*Brachypodium distachyon* stands as burrowing and feeding sites for small mammals and hunting grounds for birds and larger mammals). While these types are differentiated from the natural Alliance stands, little effort has been taken to differentiate many associations/stand types of this classification unit. Ultimately, with areas of semi-natural stands identified, future management efforts could be undertaken to enhance native diversity and abundance in these stands to restore them to more native states.

Other terms:

Phenology (peak): The study of periodic species life cycle events, which are influenced by seasonal and interannual variations. Peak phenology for annual plant types in Mediterranean California is typically early to mid spring, whereby some annual types may be difficult to properly identify the alliances in late spring and summer in most years.

Key to vegetation types in the Great Valley Ecoregion of California

Class A. Vegetation characterized by an even distribution of overstory trees. Tree canopy is generally greater than 10%, but occasionally may be less than 10% over a denser understory of shrub and/or herbaceous species = **Tree-Overstory (Woodland / Forest Vegetation)**

Class B. Vegetation characterized by woody shrubs in the canopy. Tree species, if present, generally total less than 10% absolute cover. Herbaceous species may total higher cover than shrubs. Shrubs are usually at least 5% cover = **Shrubland Vegetation**

Class C. Vegetation characterized by non-woody, herbaceous species in the canopy including grass, graminoids, and broad-leaved herbaceous species. Shrubs, if present, usually comprise <5% of the vegetation. Trees, if present, generally compose <5% cover: = **Herbaceous Vegetation**

Class D. Non-vegetated or urbanized types with <2% total vegetation cover = **Unvegetated or Urbanized**

Class A. Tree-Overstory (Woodland / Forest Vegetation)

Group I: Woodlands and forests characterized by needle or scale-leaved conifer trees, including various species of pine (*Pinus*) or juniper (*Juniperus*). The conifers may only occur intermittently in the overstory and may be associated with shrubs.

I.A. The overstory is dominated by *Pinus* trees alone...

IA.1. Foothill or ghost pine (*Pinus sabiniana*) is the dominant tree in the overstory, and it is generally >10% absolute cover...

***Pinus sabiniana* Woodland/Forest Alliance**

IA1.a. *Pinus sabiniana* occurs over an herbaceous and shrub understory with hoary coffeeberry (*Frangula californica* ssp. *tomentella*) at 2% or greater absolute cover...

***Pinus sabiniana* / *Frangula californica* ssp. *tomentella* Woodland Association (Provisional)**

IA1.b. *Pinus sabiniana* occurs over an herbaceous and shrub understory with wedgeleaf ceanothus (*Ceanothus cuneatus*), toyon (*Heteromeles arbutifolia*), and other chaparral species...

***Pinus sabiniana* / *Ceanothus cuneatus* – *Heteromeles arbutifolia* Woodland Association**

IA1.c. *Pinus sabiniana* occurs over a primarily herbaceous understory with a variety of non-native and native herbs. Shrubs if present are typically disturbance-following species including *Lotus scoparius* and *Lupinus albifrons*...

***Pinus sabiniana* / Grass–Herb Woodland Association**

IA.2. Ponderosa pine (*Pinus ponderosa*) is dominant in the tree canopy with >50% relative cover...

***Pinus ponderosa* Woodland/Forest Alliance**

IA2.a. Shrubs make up the intermittent cover in the understory, with whiteleaf manzanita (*Arctostaphylos viscida*) dominant...

***Pinus ponderosa* / *Arctostaphylos viscida* Woodland Association (Provisional)**

I.B. The overstory is dominated by California juniper (*Juniperus californica*). Oaks or other trees, if present, are low in cover...

***Juniperus californica* Woodland Alliance**

IB.1. *Juniperus californica* is dominant and the understory contains a mixture of herbs...

***Juniperus californica* / Herbaceous Woodland Association**

Group II. Woodlands and forests characterized mainly by broad-leaved evergreen and deciduous tree species such as oaks (*Quercus*), willows (*Salix*), etc.

II.A. One or more *Quercus* spp. species are the primary overstory canopy tree, or oaks share dominance with conifers...

IIA.1. Valley oak (*Quercus lobata*) is the dominant species in the tree overstory, or other oaks or riparian species may be co-dominant...

***Quercus lobata* Woodland/Forest Alliance**

IIA1.a. *Quercus lobata* is usually dominant in the overstory. Himalaya berry (*Rubus armeniacus*) usually has 20% or more cover as a (co-)dominant shrub in the understory. Some stands may also have high cover of understory herbs including *Bromus diandrus* and *Carex barbarae*, Found primarily in riparian settings...

***Quercus lobata* / *Rubus armeniacus* Woodland Association**

IIA1.b. *Quercus lobata* is usually dominant in the overstory. California rose (*Rosa californica*) and/or California blackberry (*Rubus ursinus*) are present and (co-)dominant shrubs in the understory. Other shrubs/lianas may be present including *Rubus armeniacus* and California grape (*Vitis californica*). Found along streambanks, levees, sloughs, alluvial bottomlands and swales...

***Quercus lobata* / *Rubus ursinus* – *Rosa californica* Woodland Association**

IIA1.c. *Quercus lobata* is usually dominant in the overstory. Arroyo willow (*S. lasiolepis*) and/or other willows (e.g., *S. exigua*) are present and (co-)dominant shrubs in the understory...

***Quercus lobata* – *Salix lasiolepis* Woodland Association**

IIA1.d. *Quercus lobata* is usually dominant in the overstory. White-root sedge (*Carex barbarae*) and/or creeping rye grass (*Leymus triticoides*) are present in the understory and (co-)dominant with other herbs including *Bromus diandrus*, *Carex praegracilis*, and *Cynodon dactylon*. Rose and blackberry, if present, have relatively low cover compared to the indicator riparian graminoids. Found primarily in riparian settings including river banks and seasonal streams...

***Quercus lobata* / *Carex barbarae* Woodland Association**

IIA1.e. *Quercus lobata* is the sole dominant over a grassy or herbaceous understory (especially *Bromus diandrus*, *Lactuca serriola*, and *Hordeum murinum*). Shrubs may sometimes be present and intermittent. Usually associated with small creeks, stream terraces, bottomlands and other low-lying features within the Valley and Sierra foothills...

***Quercus lobata* / Herbaceous Semi-Riparian Woodland Association**

IIA1.f. *Quercus lobata* is usually dominant, while white alder (*Alnus rhombifolia*) is present and averages >5% absolute cover. *Rubus armeniacus* and *Vitis californica* are often present and are variable in cover. Found strictly in riparian settings in the Valley and Sierra foothills...

***Quercus lobata* – *Alnus rhombifolia* Woodland Association**

IIA1.g. *Quercus lobata* and Oregon ash (*Fraxinus latifolia*) generally co-dominate, although the latter may have low cover. *Alnus rhombifolia* is largely absent. *Vitis californica* characteristically present (with average 10% cover), but sometimes may be absent. Found strictly in riparian settings...

***Quercus lobata* – *Fraxinus latifolia* / *Vitis californica* Woodland Association**

IIA1.h. *Quercus lobata* is usually dominant to co-dominant with interior live oak (*Quercus wislizeni*) in the overstory. Poison oak (*Toxicodendron diversilobum*) is usually present and variable in cover, while *Rubus armeniacus* is sometimes present with low cover. Other trees may be present, including California buckeye (*Aesculus californica*), foothill pine (*Pinus sabiniana*) and California sycamore (*Platanus racemosa*). Found within and adjacent to riparian settings...

***Quercus lobata* – *Quercus wislizeni* Woodland Association**

IIA1.i. *Quercus lobata* is dominant to co-dominant with coast live oak (*Quercus agrifolia*) in the overstory. Various understory riparian and upland herbs may occur in the understory...

***Quercus lobata* – *Quercus agrifolia* / Grass Woodland Association**

IIA1.j. *Platanus racemosa* occurs in association with *Quercus lobata*. *Rubus armeniacus* and *Vitis californica* are usually present (at >5% absolute cover). Found strictly in riparian settings...

***Platanus racemosa* – *Quercus lobata* Woodland Association
of the *Platanus racemosa* Woodland/Forest Alliance**

IIA.2. Blue oak (*Quercus douglasii*) is the dominant oak species at >50% relative cover in the overstory. Other trees, such as foothill pine (*Pinus sabiniana*), California buckeye (*Aesculus californica*), or other oaks, may be present, but *Quercus douglasii* generally has greater cover...

***Quercus douglasii* Woodland/Forest Alliance**

IIA2.a. *Aesculus californica* is present and conspicuous in the overstory at >2% cover with *Quercus douglasii*. Other tree species may be present, but at relatively lower cover. The understory is usually well-developed with herbs...

***Quercus douglasii* – *Aesculus californicus* / Grass Woodland Association**

IIA2.b. Other oaks as well as *Quercus douglasii* occur in the overstory. *Aesculus californica* is absent or inconspicuous...

IIA2b.i. Interior live oak (*Quercus wislizeni*) is present and conspicuous in the overstory at >2% cover, with *Quercus douglasii* having >50% relative cover. *Pinus sabiniana* may be present. The understory is open to dense with herbs...

***Quercus douglasii* – *Quercus wislizeni* Woodland Association**

IIA2.c. Other broad-leaf tree species are not conspicuous with *Quercus douglasii*. Instead, *Pinus sabiniana* is present and conspicuous in the overstory at >2% cover. Shrubs are present in the understory, including chaparral species and poison oak...

IIA2c.i. Common manzanita (*Arctostaphylos manzanita*) is characteristically present in the understory at >2% cover, and the herb layer is usually intermittent to dense...

***Quercus douglasii* / *Arctostaphylos manzanita* / Herbaceous Woodland Association**

IIA2c.ii. *Pinus sabiniana* is present at >2% cover, and shrubs if present are low in cover including toyon (*Heteromeles arbutifolia*) and other manzanita species. The herbaceous layer is usually intermittent to dense in cover...

***Quercus douglasii* – *Pinus sabiniana* Woodland Association**

IIA2.d. *Quercus douglasii* is the primary dominant tree in the overstory. The understory may be shrubby or grassy...

IIA2d.i. *Arctostaphylos manzanita* is characteristically present in the understory at >2% cover, and the herb layer is usually intermittent to dense...

***Quercus douglasii* / *Arctostaphylos manzanita* / Herbaceous Woodland Association**

IIA2d.ii. Annual grasses, forbs, and bulbs dominate the understory, and shrubs are low in cover. The most common species include non-natives such as *Bromus hordeaceus*, *Trifolium hirtum*, *Torilis arvensis*, *Avena barbata*, and *Lolium perenne*. However, annual species vary significantly both seasonally and annually, and further research likely could identify a variety of finer-scale associations...

***Quercus douglasii* / Grass Woodland Sub-Alliance**

IIA2d.ii.x. Annual native forbs including *Navarretia pubescens*, *Centaureum muehlenbergii*, *Clarkia purpurea*, and *Selaginella hansenii* occur with non-native grasses such as *Avena barbata*, *Bromus hordeaceus*, and *Trifolium hirtum* in the understory. Found on volcanic substrates in the Lassen Foothills...

Quercus douglasii* / *Selaginella hansenii* – *Navarretia pubescens* Woodland Association (Provisional)

IIA2d.ii.xx. Non-native annual grasses such as *Brachypodium distachyon* occur as the dominant or co-dominant with other non-natives in the understory. Found on recently burned soils in the Central Foothills...

***Quercus douglasii* / *Brachypodium distachyon* Woodland Association**

IIA.3. Interior live oak (*Quercus wislizeni*) is dominant or co-dominant at >30% relative cover, with other tree species in the overstory...

***Quercus wislizeni* Woodland/Forest Alliance**

IIA3.a. *Quercus wislizeni* occurs as a riparian (or semi-riparian) forest or tall shrubland with riparian indicators such as red willow (*Salix laevigata*), Oregon ash (*Fraxinus latifolia*), coffeeberry (*Rhamnus=Frangula californica*), mugwort (*Artemisia douglasiana*), Himalaya blackberry (*Rubus armeniacus*), and others...

***Quercus wislizeni* – *Salix laevigata* / *Frangula californica* Woodland Association**

IIA3.b. *Aesculus californica* occurs as a conspicuous member of the canopy with *Quercus wislizeni*, and *Pinus sabiniana* is variable in cover if present...

IIA3b.i. *Quercus wislizeni* and *Aesculus californica* occur with *Q. douglasii*, which is conspicuous with at least 5% cover in the overstory...

***Quercus wislizenii* – *Quercus douglasii* – *Aesculus californica* Woodland Association**

IIA3b.ii. *Quercus wislizeni* and *Aesculus californica* occur without *Q. douglasii*, or *Q. douglasii* is low in cover (<5%) in the overstory...

***Quercus wislizenii* – *Aesculus californica* Woodland Association**

IIA3.c. *Quercus douglasii* is either sub-dominant or co-dominant with *Q. wislizeni*. No other tree species is conspicuous in the overstory...

***Quercus wislizeni* – *Quercus douglasii* / Herbaceous Woodland Association**

IIA3d. *Pinus sabiniana* is usually at least 5% cover with *Quercus wislizeni* dominant in tree layer, and *Quercus douglasii* is less than 5% cover. The understory has no significant cover of toyon (*Heteromeles arbutifolia*), but may have other shrubs significant in cover...

IIA3d.i. *Arctostaphylos manzanita* is present with at least 5% cover in a mixed shrub layer, and *Quercus wislizeni* is in the tree or tall shrub layer...

***Quercus wislizeni* – *Pinus sabiniana* / *Arctostaphylos manzanita* Woodland Association**

IIA3d.ii. Whiteleaf manzanita (*Arctostaphylos viscida*) is present with at least 5% cover in a mixed shrub layer, and *Quercus wislizeni* is in the tree or tall shrub layer...

***Quercus wislizeni* – *Pinus sabiniana* / *Arctostaphylos viscida* Woodland Association**

IIA3d.iii. Manzanita spp. are absent, though other shrubs may be present and variable in cover in the understory...

***Quercus wislizeni* – *Pinus sabiniana* / Annual grass – herb Woodland Association**

IIA3.e. *Quercus wislizeni* is the primary species in the overstory, occurring as a tree or a tall shrub with *Arctostaphylos viscida*. Both species typically have at least 5% absolute cover. May include *Heteromeles arbutifolia* and other shrubs. Typically of upper slopes and relatively exposed, upland settings...

***Quercus wislizeni* / *Arctostaphylos viscida* Woodland Association**

IIA3.f. *Quercus wislizeni* occurs as a tree or tall shrub with *Heteromeles arbutifolia* as the major shrub associate (at least 5% cover). May include up to 5% cover of *Arctostaphylos viscida*, but if so, *Heteromeles arbutifolia* has at least two times the cover of manzanita. *Toxicodendron diversilobum* may be significant. Typically of mesic settings (concavities and northerly-facing slopes)...

***Quercus wislizenii* / *Heteromeles arbutifolia* Woodland Association**

IIA.4. Canyon live oak (*Quercus chrysolepis*) is dominant in the overstory (>60% relative cover), and sometimes conifers such as *Pinus sabiniana* are emergent at low cover. No significant indicator species are identified in the understory, though shrubs may be sparse to intermittent in cover, usually occurring on ridgetops and northerly slopes...

***Quercus chrysolepis* Woodland Association
of the *Quercus chrysolepis* Woodland/Forest Alliance**

IIA.5. Coast live oak (*Quercus agrifolia*) is the dominant species in the overstory, and other trees if present are lower in cover. Stands in the valley are rare and represented by plots with *Equisetum hyemale*, *Carex barbara*, and other herbs...

**(no association defined)
Quercus agrifolia Woodland/Forest Alliance**

IIA.6. An oak of hybrid origin (*Quercus xmorehus*) occurs as a dominant, or is co-dominant with *Quercus wislizeni* or other oaks in the overstory...

**(no association defined)
Quercus kelloggii Woodland/Forest Alliance**

II.B. California buckeye (*Aesculus californica*) is dominant (>60% relative cover) as a tree or tall shrub in the overstory. If *Aesculus californica* is co-dominant with an oak species, see the *Quercus douglasii* and *Q. wislizeni* Alliances...

***Aesculus californica* Woodland/Forest Alliance**

II.B.1. *Aesculus californica* is dominant as a tree or shrub; oaks may be present but not abundant. *Toxicodendron diversilobum*, herbs, and moss characteristically occur in the understory. Usually on very rocky, upland substrates...

***Aesculus californica* / *Toxicodendron diversilobum* / Moss Woodland Association**

II.C. Stands dominated by Hinds's Walnut (*Juglans hindsii*), tree-of-heaven (*Ailanthus altissima*), eucalyptus (*Eucalyptus* spp.), black locust (*Robinia pseudoacacia*), European olive (*Olea europaea*), or other non-native trees in riparian zones...

II.C.1. Hinds's Walnut (*Juglans hindsii*) is dominant in the overstory. Most stands in the Valley and Sierra Foothills are planted or of hybrid origin...

***Juglans hindsii* and hybrids Special Stands and Semi-Natural Woodland Stands**

II.C1.a. *Juglans hindsii* is dominant in the overstory with *Quercus lobata* and *Vitis californica* present at low cover. The understory is characterized by herbs including *Bromus diandrus*...

***Juglans hindsii* / Herbaceous Woodland Association (Provisional)**

IIC.2. *Platanus racemosa* co-dominates the overstory with Hinds's walnut (*Juglans hindsii*)...
(no association defined)
***Platanus racemosa* Woodland/Forest Alliance**

IIC.3. Red river gum (*Eucalyptus camaldulensis*), Blue gum (*E. globulus*), or other eucalyptus strongly dominant in the overstory...
***Eucalyptus (globulus, camaldulensis)* Woodland Stand Type**
***Eucalyptus (globulus, camaldulensis)* Semi-Natural Woodland Stands**

IIC.4. Tree-of-heaven (*Ailanthus altissima*) strongly dominant in the overstory...
***Ailanthus altissima* Woodland Stand Type (Provisional)**
***Ailanthus altissima* Semi-Natural Woodland Stands (Provisional)**

IIC.5. Black locust (*Robinia pseudoacacia*) strongly dominant in the overstory...
***Robinia pseudoacacia* Woodland Stand Type (Provisional)**
of the *Robinia pseudoacacia* Semi-Natural Woodland Stands (Provisional)

IIC.6. Other non-native trees occur in the overstory as planted stands, including cypress (*Cupressus* sp.), olive (*Olea europaea*), and mulberry (*Morus alba*)...
Ornamental Trees Woodland/Forest Mapping Unit

II.D. Stands dominated or characterized by other typical riparian winter deciduous trees or tall shrubs that are native in the following genera: *Acer*, *Alnus*, *Fraxinus*, *Platanus*, *Populus*, or *Salix*...

IID.1. Box-elder (*Acer negundo*) is typically dominant or co-dominant with other riparian species in the overstory...
***Acer negundo* Woodland/Forest Alliance**

IID1.a. *Acer negundo* co-dominant to dominant with black willow (*Salix gooddingii*) and/or Fremont cottonwood (*Populus fremontii*)...
***Acer negundo* – *Salix gooddingii* Woodland Association**

IID1.b. *Acer negundo* dominates the tree layer and others trees are absent or low in cover. Shrubs are variable in the understory...
***Acer negundo* Woodland Association**

IID.2. Fremont cottonwood (*Populus fremontii*) has $\geq 5\%$ cover in overstory, usually as a dominant or co-dominant in the overstory with other trees (especially willows)...
***Populus fremontii* Woodland/Forest Alliance**

IID2.a. *Populus fremontii* is the dominant tree in the overstory. Other riparian trees may be present at lower cover, including *Quercus lobata*. *Vitis californica* is present along with other shrubs, including Himalaya or California blackberry (*Rubus* spp.) at $\geq 10\%$ absolute cover in the understory...
***Populus fremontii* / *Vitis californica* Woodland Association**

IID2.b. *Populus fremontii* is the dominant tree in the overstory. Other riparian trees may be present at low cover. Mulefat (*Baccharis salicifolia*) present at has $\geq 5\%$ absolute cover, and herbs are variable in the understory including various wetland species...
***Populus fremontii* / *Baccharis salicifolia* Woodland Association**

IID2.c. *Populus fremontii* is the dominant tree in the overstory. Other riparian trees may be present at low cover, including *Quercus lobata*. Shrubs, if present, are usually low in cover (<10%); herbs are variable in cover in the understory and may include *Bromus diandrus*, *Artemisia douglasiana*, *Leymus triticoides*, and *Galium aparine*. This association was previously defined by Vaghti (2003) as *Populus fremontii* Sacramento River, *Populus fremontii* / *Artemisia douglasiana*, and *Populus fremontii* / *Galium aparine* Associations which have been merged together into this association...

***Populus fremontii* Great Valley Woodland Association**

IID2.d. *Populus fremontii* occurs in an association with red willow (*Salix laevigata*), where red willow usually has ≥5% absolute cover. Other riparian trees may be present and sometimes co-dominant, including *Quercus lobata*, white alder (*Alnus rhombifolia*), and/or Oregon ash (*Fraxinus latifolia*)...

***Populus fremontii* – *Salix laevigata* Woodland Association**

IID2.e. *Populus fremontii* occurs in an association with arroyo willow (*Salix lasiolepis*), where arroyo willow has ≥5% absolute cover. Other riparian trees may be present at low cover, including *Quercus lobata* and/or *Fraxinus latifolia*...

***Populus fremontii* – *Salix lasiolepis* Woodland Association**

IID2.f. *Populus fremontii* occurs in an association with sandbar willow (*Salix exigua*), where sandbar willow has ≥5% absolute cover. Other riparian trees may be present at low cover, including *Quercus lobata*, black willow (*S. gooddingii*), and/or *Fraxinus latifolia*...

***Populus fremontii* / *Salix exigua* Woodland Association**

IID2.g. *Populus fremontii* is a dominant to co-dominant tree with box elder (*Acer negundo*) in the tree canopy. Other riparian trees may be present at low cover including *Salix gooddingii* and *Juglans hindsii*, and shrubs are variable in cover including *Vitis californica*, Himalaya and California blackberry (*Rubus* spp.)...

***Populus fremontii* – *Acer negundo* Woodland Association**

IID2.h. *Populus fremontii* is co-dominant with *Salix gooddingii* in the tree canopy. Other riparian trees may be present including *Quercus lobata*, box elder (*Acer negundo*), arroyo willow (*S. lasiolepis*) and red willow (*S. laevigata*), and they may also be co-dominant. This association was previously defined as the *Salix gooddingii*–*Populus fremontii* Association by Hickson and Keeler-Wolf (2007)...

***Populus fremontii* – *Salix gooddingii* Woodland Association**

IID3. California sycamore (*Platanus racemosa*) has >5% absolute cover in the overstory as the dominant or co-dominant tree. Other species may intermix in the overstory, including Fremont cottonwood (*Populus fremontii*), Hinds's walnut (*Juglans hindsii*), oaks (*Quercus* spp.), and/or Oregon ash (*Fraxinus latifolia*)...

***Platanus racemosa* Woodland/Forest Alliance**

IID3.a. *Platanus racemosa* is the sole dominant tree. Annual grasses and forbs are present, including *Amsinckia menziesii* and *Bromus diandrus*, and are variable in cover...

***Platanus racemosa* (/ Annual Grass) Woodland Association**

IID3.b. *Platanus racemosa* occurs in association with *Quercus lobata*. *Vitis californica* and *Rubus armeniacus* are usually present at >5% absolute cover.

***Platanus racemosa* – *Quercus lobata* Woodland Association**

IID3.c. *Platanus racemosa* occurs in association with *Populus fremontii*. Arroyo willow (*Salix lasiolepis*) and/or other willows are also present and variable in cover...

***Platanus racemosa* – *Populus fremontii* / *Salix lasiolepis* Woodland Association**

IID.3.d. *Platanus racemosa* co-dominants with *Juglans hindsii*...

(no association defined)

***Platanus racemosa* Woodland/Forest Alliance**

IID.4. White alder (*Alnus rhombifolia*) is dominant or co-dominant with other riparian species in the overstory...

***Alnus rhombifolia* Woodland/Forest Alliance**

IID4.a. *Platanus racemosa* is usually present with red willow (*Salix laevigata*), and both trees usually have >5% absolute cover in a mix with white alder...

***Alnus rhombifolia* – *Salix laevigata* – *Platanus racemosa* Woodland Association**

IID4.b. *Alnus rhombifolia* is typically the dominant tree. Sandbar willow (*Salix exigua*) is usually present in the shrub layer along with California wild rose (*Rosa californica*) at 1% or greater. Red-osier dogwood (*Cornus sericea*), if present, has relatively low cover...

***Alnus rhombifolia* / *Salix exigua* – (*Rosa californica*) Woodland Association**

IID4.c. *Alnus rhombifolia* is typically the dominant tree with an understory of *Cornus sericea*. Arroyo willow (*Salix lasiolepis*) may also dominate the shrub layer...

***Alnus rhombifolia* / *Cornus sericea* Woodland Association**

IID4.d. *Alnus rhombifolia* is typically the dominant tree. *Salix exigua*, *Rosa californica*, and *Cornus sericea* are not significant in the understory, though other shrubs or herbs may be present and variable in cover...

***Alnus rhombifolia* Association**

IID.5. Black willow (*Salix gooddingii*) is the dominant tree in the overstory or co-dominant with Fremont cottonwood (*Populus fremontii*), Oregon ash (*Fraxinus latifolia*) or valley oak (*Quercus lobata*)...

***Salix gooddingii* Woodland/Forest Alliance**

IID5.a. *Salix gooddingii* is the sole dominant in the tree canopy. Himalaya blackberry (*Rubus armeniacus*), button-willow (*Cephalanthus occidentalis*), or other shrubs and/or herbs may have high cover in the understory...

***Salix gooddingii* Woodland Association**

IID5.b. *Salix gooddingii* is the sole dominant in the tree canopy. Sandbar willow (*Salix exigua*) is present as a co-dominant or dominant shrub in the understory...

***Salix gooddingii* / *Salix exigua* Woodland Association (Provisional)**

IID5.c. *Salix gooddingii* is dominant or co-dominant with *Quercus lobata* in the tree canopy. Stands rarely have additional trees as a co-dominant. The understory is characterized by *Cynodon dactylon*, *Lolium perenne*, *Polygonum* spp., *Xanthium* spp., or other wetland species...

***Salix gooddingii* – *Quercus lobata* / Wetland Herb Woodland Association (Provisional)**

IID5.d. *Salix gooddingii* is dominant or co-dominant with *Fraxinus latifolia* in the tree canopy, and both trees have >5% cover. The understory is variable with herbs such as *Cynodon dactylon* and shrubs including *Salix exigua*...

***Salix gooddingii* – *Fraxinus latifolia* Woodland Association (Provisional)**

IID5.e. *Salix gooddingii* is typically co-dominant with *Populus fremontii* in the tree canopy, and both trees are usually 5% or more cover. Other riparian trees may be present including *Quercus lobata* and arroyo willow (*Salix lasiolepis*). This association was previously defined as the *Salix gooddingii*–*Populus fremontii* Association by Keeler-Wolf and Hickson (2007)...

***Populus fremontii* – *Salix gooddingii* Woodland Association
of the *Populus fremontii* Woodland/Forest Alliance**

IID.6. Red willow (*Salix laevigata*) is the dominant tree in the overstory with at least 10% cover. Arroyo willow (*Salix lasiolepis*) may occur as a sub- or co-dominant in the shrub or low tree layer...

***Salix laevigata* Woodland/Forest Alliance**

IID6.a. *Salix laevigata* is dominant in the overstory and *S. lasiolepis* has at least 5% cover in the shrub layer. Himalaya blackberry (*Rubus armeniacus*) and *Artemisia douglasiana* are usually present in the understory with a variety of other herbs and shrubs, including *Typha* spp....

***Salix laevigata* – *Salix lasiolepis* Woodland Association**

IID6.b. *Salix laevigata* is dominant in the overstory with an absence or relatively low cover of other trees or willows. *Rubus armeniacus* may be present with variable cover in the understory, and various herbs including wetland and alkaline plants may also be present...

***Salix laevigata* Woodland Association**

IID.7. Not as above. Oregon ash (*Fraxinus latifolia*) is co-dominant or dominant in the tree canopy and makes up more than 5% absolute cover...

***Fraxinus latifolia* Woodland/Forest Alliance**

IID7.a. *Fraxinus latifolia* mixes with white alder (*Alnus rhombifolia*) and/or red willow (*Salix laevigata*) and the two species often co-dominate...

***Fraxinus latifolia* – *Alnus rhombifolia* Woodland Association**

IID7.b. *Fraxinus latifolia* is dominant in the tree canopy, and other trees may be present at low cover including valley oak (*Quercus lobata*) and Fremont cottonwood (*Populus fremontii*)...

***Fraxinus latifolia* Woodland Association**

IID7.c. Black willow (*Salix gooddingii*) is dominant or co-dominant with *Fraxinus latifolia* in the tree canopy, and both trees have >5% cover. The understory is variable with herbs such as *Cynodon dactylon* and shrubs including *Salix exigua*...

***Salix gooddingii* – *Fraxinus latifolia* Woodland Association (Provisional)
of the *Salix gooddingii* Woodland/Forest Alliance**

IID.8. Arroyo willow (*Salix lasiolepis*) is dominant as a shrub or low tree, with at least 10% absolute cover (and >60% relative cover)...

***Salix lasiolepis* Shrubland Alliance**

IID8.a. *Salix lasiolepis* is dominant in the canopy. Himalaya blackberry (*Rubus armeniacus*) is characteristic in the understory with a variety of wetland shrubs and herbs. Additional willow species and California rose (*Rosa californica*) may be present with low cover...

***Salix lasiolepis* / *Rubus armeniacus* Shrubland Association**

IID8.b. *Salix lasiolepis* is dominant as a shrub or low tree, with at least 10% absolute cover (and >60% relative cover)...

***Salix lasiolepis* Shrubland Association**

IID.9. Sandbar willow (*Salix exigua*) is co-dominant with *S. lasiolepis* in the canopy, and *Rubus armeniacus* is typically over 5% cover...

***Salix exigua* – (*Salix lasiolepis*) – *Rubus armeniacus* Shrubland Association
of the *Salix exigua* Shrubland Alliance**

IID.10. Shining willow (*Salix lucida* ssp. *lasiandra*) is dominant in the tree or shrub canopy, and other trees if present are <30% relative cover. Understory is variable though typically shrubby...

***Salix lucida* ssp. *lasiandra* Woodland Association
of the *Salix lucida* Woodland/Forest Alliance**

IID.11. Screwbean mesquite (*Prosopis pubescens*) is dominant in the overstory with other riparian trees and/or shrubs also present. Singular stand sampled along an arroyo in a 1km buffer of the study area, (localized stand in the inner South Coast Ranges may have been planted)...

(no association defined)

***Prosopis pubescens* Woodland/Forest Alliance**

Class B. Shrubland Vegetation

Group I. Shrublands dominated by sclerophyllous temperate shrubs (with leaves hardened by a waxy cuticle). They are dominated by typical chaparral shrub genera, including chamise (*Adenostoma fasciculatum*), manzanita (*Arctostaphylos*), yerba santa (*Eriodictyon californicum*), scrub oaks (*Quercus*), etc...

I.A. Hoary coffeeberry (*Frangula californica* ssp. *tomentella*=*Rhamnus tomentella*) is dominant in the shrub canopy, and other shrubs may be present at relatively low cover. Found on alluvial and rocky substrates, including riparian areas...

***Frangula californica* ssp. *tomentella* Shrubland Association
of the *Frangula californica* Shrubland Alliance**

I.B. Toyon (*Heteromeles arbutifolia*) is dominant the shrub canopy, other shrubs may be present at relatively low cover. Found primarily on serpentinite substrate, toyon recovers quickly from sprouting and tends to dominate on south-facing slopes for long periods following fires...

***Heteromeles arbutifolia* Serpentine Shrubland Association (Provisional)
of the *Heteromeles arbutifolia* Shrubland Alliance**

I.C. California yerba santa (*Eriodictyon californicum*) dominates the shrub canopy with open to intermittent cover over annual grasses and forbs. Other shrubs may intermix at relatively low cover. Found often in recently disturbed sites including those recently burned, and tolerates serpentinite substrates...

***Eriodictyon californicum* / Herbaceous Shrubland Association
of the *Eriodictyon californicum* Shrubland Alliance**

I.D. Interior live oak (*Quercus wislizeni*) is dominant or co-dominant in the shrub and/or tree canopy...

***Quercus wislizeni* Alliance**

(Also see Class A, Group IIA.3. for key to tree Associations)

I.E. Scrub oak (*Quercus berberidifolia*) is dominant or co-dominant with other shrubs in the canopy including *Cercocarpus montanus*, *Ceanothus* spp., and *Fraxinus dipetala*. This vegetation type is localized in the southern portion of the Sutter Buttes. Data was not analyzed for this type within the Great Valley but it is described in the neighboring foothills of the Sierra Nevada; see Klein et al. (2007) for full description...

Quercus berberidifolia* Shrubland Alliance

I.E. The overstory is dominated by wedgeleaf ceanothus (*Ceanothus cuneatus*) alone or in shared dominance with other chaparral species such as chamise (*Adenostoma fasciculatum*), coffeeberry (*Rhamnus* spp.), and common manzanita (*Arctostaphylos manzanita*)...

***Ceanothus cuneatus* Shrubland Alliance**

IE.1. *Ceanothus cuneatus* is dominant forming an open to intermittent shrub canopy. Other chaparral shrubs may occur occasionally with low cover. Native herbs are characteristically present in an open to intermittent understory including *Plantago erecta* and *Vulpia microstachys*. Found primarily on serpentinite substrates...

***Ceanothus cuneatus* / *Plantago erecta* Shrubland Association**

IE.2. *Ceanothus cuneatus* is dominant forming an open to continuous shrub canopy. Other chaparral shrubs may occur occasionally with low cover. The understory is comprised mostly of non-native grasses and forbs. Found primarily on igneous, especially volcanic, substrates...

***Ceanothus cuneatus* Shrubland Association**

IE.3. *Ceanothus cuneatus* and *Adenostoma fasciculatum* are co-dominant in an intermittent to continuous shrub canopy; other chaparral species may intermix at low cover. The herb layer is sparse with *Aira caryophyllea* and other herbs comprising an open understory...

***Ceanothus cuneatus* – *Adenostoma fasciculatum* Shrubland Association**

I.F. The overstory is characterized by common manzanita (*Arctostaphylos manzanita*), lone manzanita (*Arctostaphylos myrtifolia*), and/or Whiteleaf manzanita (*Arctostaphylos viscida*); intermixing with a variety of associated shrubs in the canopy...

IF.1. *Arctostaphylos myrtifolia* typically dominates or co-dominates with *A. viscida* in an intermittent to continuous canopy...

***Arctostaphylos myrtifolia* Shrubland Association
of the *Arctostaphylos myrtifolia* Shrubland Alliance**

IF.2. *Arctostaphylos viscida* forms an intermittent to continuous canopy intermixing with a variety of associated shrubs in the canopy...

***Arctostaphylos viscida* Shrubland Alliance**

IF2.a. *Arctostaphylos viscida* forms an intermittent to continuous canopy as the sole dominant shrub. Chamise is absent or relatively low in cover, and other chaparral shrubs such as toyon (*Heteromeles arbutifolia*) may occur at low cover...

***Arctostaphylos viscida* Shrubland Association**

IF2.b. *Arctostaphylos viscida* is a co-dominant or sub-dominant shrub with chamise (*Adenostoma fasciculatum*). *Heteromeles arbutifolia* is often present and may be similar in cover to the manzanita. Found primarily on sedimentary, volcanic, metamorphic and serpentinite substrates (not found on gabbro substrate)...

***Arctostaphylos viscida* – *Adenostoma fasciculatum* Shrubland Association**

IF.3. *Arctostaphylos manzanita* typically dominates or co-dominates with other shrubs in an intermittent to continuous canopy...

***Arctostaphylos manzanita* Shrubland Association
of the *Arctostaphylos manzanita* Shrubland Alliance**

I.G. The overstory is dominated by chamise (*Adenostoma fasciculatum*) and other chaparral species if present, are relatively low in cover, including manzanita, wedgeleaf ceanothus (*Ceanothus cuneatus*), and/or California yerba santa (*Eriodictyon californicum*). Found typically on sedimentary and igneous substrates, and occasionally on ultramafic substrate...

***Adenostoma fasciculatum* Shrubland Association
of the *Adenostoma fasciculatum* Shrubland Alliance**

I.H. *Arctostaphylos viscida* is a co-dominant or sub-dominant shrub with *Adenostoma fasciculatum*. Toyon (*Heteromeles arbutifolia*) is often present and may be similar in cover to the manzanita. Found primarily on sedimentary, volcanic, metamorphic and serpentinite substrates...

***Arctostaphylos viscida* – *Adenostoma fasciculatum* Shrubland Association
of the *Arctostaphylos viscida* Shrubland Alliance**

Group II. Shrublands dominated by scale-like or broad-leaved species. These are generally considered to be part of desert transition, riparian, or other more soft - leaved shrub habitats; including Coyote brush (*Baccharis pilularis*), dogwood (*Cornus sericea*), blackberry (*Rubus* spp.), willows (*Salix* spp.), and poison oak (*Toxicodendron diversilobum*), etc...

II.A. Upland and mesic stands dominated by shrubs that have broad, deciduous leaves, including poison oak (*Toxicodendron diversilobum*), monkeyflower (*Mimulus aurantiacus*), gooseberry (*Ribes* spp.), and elderberry (*Sambucus nigra*)...

IIA.1. Poison oak (*Toxicodendron diversilobum*) dominates the shrub overstory. Other shrubs such as wedgeleaf ceanothus (*Ceanothus cuneatus*) may intermix at low cover, and the herbaceous layer is usually well-developed with annual grasses and forbs; extensive stands often indicate recent and moderately severe browsing and fire history...

***Toxicodendron diversilobum* / Herbaceous Shrubland Association
of the *Toxicodendron diversilobum* Shrubland Alliance**

IIA.2. Coyote brush (*Baccharis pilularis*) is the dominant in the shrub overstory, forming an open to intermittent canopy. Willows may be present and lower in cover, and the herbaceous understory is often well-developed. Found in moist, grazed meadows and disturbed riparian areas...

***Baccharis pilularis* Shrubland Association
of the *Baccharis pilularis* Shrubland Alliance**

IIA.3. Bush monkey flower (*Mimulus aurantiacus*) is the dominant shrub in the overstory, while shrubby oak (*Quercus wislizeni*) and *Toxicodendron diversilobum* may be present at lower cover...

***Mimulus aurantiacus* Shrubland Association
of the *Mimulus aurantiacus* Shrubland Alliance**

IIA.4. Elderberry (*Sambucus nigra*) dominates the shrub layer. Other shrubs may be present at lower cover, and herbs are usually present and variable in cover in the understory. Occurs in sandy and gravelly riparian and semi-riparian areas...

***Sambucus nigra* Shrubland Association
of the *Sambucus nigra* Shrubland Alliance**

IIA.5. Oak gooseberry (*Ribes quercetorum*) dominates the shrub layer. Found on mesic, rocky slopes and concavities; most stands occur in the inner South Coast ranges...

***Ribes quercetorum* Shrubland Association
of the *Ribes quercetorum* Shrubland Alliance**

IIA.6. Choke cherry (*Prunus virginiana*) dominates in the shrub layer. Found in moist draws and dry ravines; primarily in the coast ranges adjacent to the central valley sometimes on serpentinite...

***Prunus virginiana* Shrubland Association (Provisional)
of the *Prunus virginiana* Shrubland Alliance**

IIA.7. California buckwheat (*Eriogonum fasciculatum*) dominates the shrub layer. Found typically on south-facing slopes and ridges; primarily in the South Coast Ranges and northward to the Kern R drainage of the S Sierra Foothills...

***Eriogonum fasciculatum* Shrubland Association
of the *Eriogonum fasciculatum* Shrubland Alliance**

IIA.8. Wright's buckwheat (*Eriogonum wrightii*) dominates the shrub layer as a dwarf shrub. Found on slopes and flats...

***Eriogonum wrightii* Shrubland Association (Provisional)
of the *Eriogonum wrightii* Shrubland Alliance**

IIA.9. Silver bush lupine (*Lupinus albifrons*) dominates the shrub layer, or sometimes co-dominates with other short-lived woody species including *Lotus scoparius* or *Brickellia californica*. Found in recently disturbed areas, including riparian/wash terraces, road cuts, and steep erosive slopes...

***Lupinus albifrons* Shrubland
of the *Lupinus albifrons* Shrubland Alliance**

IIA.10. Deerweed (*Lotus scoparius*) is dominant to co-dominant with other short-lived shrubs in the shrub overstory including yerba santa (*Eriodictyon californicum*) in the shrub overstory, forming an open to intermittent canopy. Found in recently disturbed areas, often from fire and/or mining...

***Lotus scoparius* Shrubland Association
Lotus scoparius Shrubland Alliance**

IIA.11. Virgin River encelia (*Encelia virginensis*) or Acton's brittlebush (*Encelia virginensis* ssp. *actoni*) is dominant in the shrub overstory, forming a sparse to open canopy. Found in disturbed areas including washes and blown sandy areas, only in southern-most portion of the study area near Tehachapi Mtns...

***Encelia virginensis* ssp. *actoni* Shrubland Association
of the *Encelia virginensis* Shrubland Alliance**

IIA.12. Interior goldenbush (*Ericameria linearifolia*), Bladderpod (*Isomeris arborea*), and/or Eastwoodia (*Eastwoodia elegans*) is dominant or co-dominant in the shrub overstory, forming a sparse to open canopy. Found typically on hillslopes...

***Ericameria linearifolia* – *Isomeris arborea* Shrubland Alliance**

IIA12.a. *Isomeris arborea* is dominant in the shrub overstory. Found often on steep slopes and in washes...

***Isomeris arborea* Shrubland Association**

IIA12.b. *Eastwoodiae elegans* is dominant or co-dominant in the shrub overstory, including *Atriplex polycarpa*, *Eriogonum* spp. Found often on steep east-to-north-facing slopes...

***Eastwoodiae elegans* Shrubland Association**

IIA.13. California joint fir (*Ephedra californica*) is dominant or co-dominant in the shrub overstory, forming a sparse to open canopy. Found in disturbed areas including washes and blown sandy areas, or on fine textured upland soils near the Carrizo Plain...

***Ephedra californica* Shrubland Alliance**

IIA13.a. *Ephedra californica* is dominant in the overstory; the herbaceous layer is usually much higher in cover than the shrub layer...

***Ephedra californica* / Annual-Perennial herb Shrubland Association**

IIA13.b. *Ephedra californica* is co-dominant with California matchweed (*Gutierrezia californica*) in the shrub layer, and various herbs including *Bromus rubens* and *Eriastrum pluriflorum* occur in the understory...

***Ephedra californica* – *Gutierrezia californica* / *Eriastrum pluriflorum* Shrubland Association**

IIA13.c. *Ephedra californica* is co-dominant with other shrubs including cheesebush (*Ambrosia salsola*) and California buckwheat (*Eriogonum fasciculatum*) in the shrub layer...

***Ephedra californica* – *Ambrosia salsola* Shrubland Association**

IIA.14. Mormon tea (*Ephedra viridis*) is dominant in the shrub overstory, forming a sparse to open canopy. Found on cliffs and other rocky areas...

***Ephedra viridis* Shrubland Association (Provisional)
of the *Ephedra viridis* Shrubland Alliance**

IIA.15. Cheesebush (*Ambrosia salsola*=*Hymenoclea salsola*) is dominant or co-dominant with *Opuntia basilaris* var. *treleasei* in the shrub overstory, forming a sparse to open canopy. Found in lower rocky slopes.

***Ambrosia salsola* Shrubland Association
of the *Ambrosia salsola* Shrubland Alliance**

IIA.16. California matchweed (*Gutierrezia californica*) is dominant in the shrub overstory, forming a sparse to open canopy. Found on slopes that are often north-facing and disturbed by livestock and mammals...

***Gutierrezia californica* / *Poa secunda* Shrubland Association
of the *Gutierrezia californica* Shrubland Alliance**

IIA.17. Other native shrubs are dominant in the overstory, forming a sparse to intermittent canopy. Found adjacent to riparian areas on terraces and banks or on steep slopes that have erosional or fire disturbance. Shrubs include *Brickellia californica*, *Mimulus aurantiacus*, and *Eriodictyon* spp. ...

Central and South Coastal California Seral Scrub Group

II.B. Shrublands characterized by riparian and upland species that can tolerate saline or alkaline soils, though not necessarily restricted to these conditions. Includes iodine bush (*Allenrolfea occidentalis*), *Atriplex* spp., frankenia (*Frankenia salina*), alkali goldenbush (*Isocoma acradenia*), and bush seepweed *Suaeda nigra* (= *S. moquinii*)...

IIB.1. Iodine bush (*Allenrolfea occidentalis*) dominates with > 2% absolute cover on seasonally saturated soils, and other alkaline-tolerant shrubs such as *Frankenia salina* and *Suaeda nigra* may be present. Annual and perennial herbs are often present and variable in cover...

***Allenrolfea occidentalis* Shrubland Alliance**

IIB1.a. *Allenrolfea occidentalis* occurs with *Suaeda nigra*, and other shrubs and herbs may be present...

***Allenrolfea occidentalis* – *Suaeda nigra* Shrubland Association**

IIB1.b. *Allenrolfea occidentalis* occurs without *Suaeda nigra*, and other shrubs and herbs may be present including annuals *Amsinckia* spp., *Bromus* spp., *Hordeum* spp., *Polypogon monspeliensis*, and *Vulpia* spp....

***Allenrolfea occidentalis* Shrubland Association**

IIB1.c. *Allenrolfea occidentalis* occurs without *Suaeda nigra*, and the understory contains *Distichlis spicata* as a dominant or co-dominant herb. Other herbs may be present including *Amsinckia* spp., *Hordeum* spp. and *Bolboschoenus* (= *Scirpus*) *maritimus*...

***Allenrolfea occidentalis* / *Distichlis spicata* Shrubland Association**

IIB.2. Bush seepweed *Suaeda nigra* (= *S. moquinii*) dominates the shrub canopy. Herbs, including *Lepidium dictyotum*, *Atriplex* spp., *Centromadia pungens*, *Frankenia salina*, *Hordeum murinum*, *Lasthenia glabrata*, and other alkaline-tolerant species, may be present and high in cover...

***Suaeda nigra* / *Lepidium dictyotum* Shrubland Association
of the *Suaeda nigra* Shrubland Alliance**

IIB.3. *Atriplex lentiformis* dominates with > 5% absolute cover on seasonally saturated soils, and other alkaline-tolerant shrubs such as *Frankenia salina* and *Suaeda nigra* may be present at low cover. Annual and perennial herbs are often present and variable in cover...

***Atriplex lentiformis* Shrubland Association
of the *Atriplex lentiformis* Shrubland Alliance**

IIB.4. *Atriplex spinifera* dominates with > 2% absolute cover on seasonally saturated soils, and other alkaline-tolerant shrubs such as *Isocoma acradenia* and *Suaeda nigra* may be present at low cover. Annual and perennial herbs are often present and open to continuous in cover, including *Amsinckia menziesii*, *Bromus* spp., *Centromadia pungens*, *Lasthenia* spp., and *Vulpia* spp. ...

***Atriplex spinifera* / Herbaceous Shrubland Association
of the *Atriplex spinifera* Shrubland Alliance**

IIB.5. *Atriplex polycarpa* dominates with > 5% absolute cover on seasonally saturated soils, and other shrubs such as *Atriplex lentiformis* may be present at low cover. Annual and perennial herbs are typically present and open to continuous in cover...

***Atriplex polycarpa* / Annual herbaceous Shrubland Association
of the *Atriplex polycarpa* Shrubland Alliance**

IIB.6. Alkali goldenbush (*Isocoma acradenia*) is characteristic as a dominant to co-dominant perennial forb co-occurring with *Suaeda nigra*. The herbaceous layer is well-developed and also includes *Bromus* spp., *Centromadia pungens*, *Lasthenia glabrata*, *Schismus* sp. and *Vulpia myuros*. Stands occur along edges of alkali rain pools, alkali scalds and bottomlands...

***Isocoma acradenia* – *Suaeda nigra* Shrubland Association (Provisional)
of the *Isocoma acradenia* Shrubland Alliance**

II.C. Stands dominated by typical desert riparian species, including cheesebush (*Ambrosia salsola*), brittlebush (*Encelia*), CA joint fir (*Ephedra californica*), desert olive (*Forestiera pubescens*), California scale broom (*Lepidospartum squamatum*), arrow weed (*Pluchea sericea*), and tamarix (*Tamarix*)...

IIC.1. Tamarisk (*Tamarix*) is the strong dominant in the shrub canopy. Other trees or shrubs may be present at low cover, including *Quercus* spp., *Salix* spp. and *Rubus* spp....

***Tamarix* spp. Semi-Natural Shrubland Stand Type
of the *Tamarix* spp. Semi-Natural Shrubland Stands**

IIC.2. California joint fir (*Ephedra californica*) is dominant or co-dominant in the shrub overstory, forming a sparse to open canopy. Found in disturbed areas including washes and blown sandy areas...

***Ephedra californica* Shrubland Alliance**

IIC2.a. *Ephedra californica* is dominant in the overstory with herbaceous layer usually much higher in cover than the shrub layer...

***Ephedra californica* – *Ambrosia salsola* Shrubland Association**

IIC.3. Cheesebush (*Ambrosia*=*Hymenoclea salsola*) is dominant in the shrub overstory, forming a sparse to open canopy. Found in washes and lower alluvial fans.

***Ambrosia salsola* Shrubland Association
of the *Ambrosia salsola* Shrubland Alliance**

IIC.4. Acton's brittlebush (*Encelia virginensis* ssp. *actoni*) is dominant in the shrub overstory, forming a sparse to open canopy. Found in disturbed areas including washes, steep unstable gravelly slopes, and blown sandy areas...

***Encelia virginensis* ssp. *actoni* Shrubland Association
of the *Encelia virginensis* Shrubland Alliance**

IIC.5. Desert olive (*Forestiera pubescens*) is dominant in the shrub overstory, and associates with elderberry (*Sambucus nigra*) and other shrubs. Found in draws along slopes and drainages...

***Forestiera pubescens* – *Sambucus nigra* Shrubland Association
Forestiera pubescens Shrubland Alliance**

IIC.6. California scale broom (*Lepidospartum squamatum*) characterizes an open shrub canopy along alluvial streams, washes, or fans. Other shrubs such as *Artemisia* spp. and *Baccharis salicifolia* may intermix at varying cover in the overstory...

***Lepidospartum squamatum* Shrubland Alliance**

IIC6.a. *Baccharis salicifolia* is sub-dominant to co-dominant in the shrub canopy...

***Lepidospartum squamatum* – *Baccharis salicifolia* Shrubland Association**

IIC6.b. Other shrubs, if present, are at low cover and a variety of herbs are present in the understory...

***Lepidospartum squamatum* / Mixed ephemeral annuals Shrubland Association**

II.C.7. Arrow weed (*Pluchea sericea*) is dominant in the shrub canopy, and stands may include *Baccharis salicifolia*, *Sambucus nigra*, and others at lower cover. Stands typically occur around springs, seeps, irrigation ditches, streamsides, and seasonally flooded washes...

***Pluchea sericea* Shrubland Association
Pluchea sericea Shrubland Alliance**

II.D. Stands dominated by other riparian and/or wetland species, including *Baccharis* spp., button-willow (*Cephalanthus occidentalis*), red-osier dogwood (*Cornus sericea*), bush lupine (*Lupinus albifrons*), California rose (*Rosa californica*), Himalaya blackberry (*Rubus armeniacus*), willow (*Salix*), elderberry (*Sambucus nigra*), tamarisk (*Tamarix*), and California wild grape (*Vitis californica*)...

IID.1. Red-osier dogwood (*Cornus sericea*) dominates the shrub layer or co-dominates with shrubby willows (i.e., *Salix lasiolepis*, *S. exigua*)...

***Cornus sericea* Shrubland Alliance**

IID1.a. *Cornus sericea* dominates or co-dominates the shrub overstory with sandbar willow (*Salix exigua*)...

***Cornus sericea* – *Salix exigua* Shrubland Association**

IID1.b. *Cornus sericea* dominates or co-dominates the shrub overstory with arroyo willow (*Salix lasiolepis*)...

***Cornus sericea* – *Salix lasiolepis* Shrubland Association**

IID.2. Button-willow (*Cephalanthus occidentalis*) dominates and forms an open to intermittent shrub canopy, and trees such as Oregon ash (*Fraxinus latifolia*), oak (*Quercus* spp.) or *Salix* spp. may intermix in the overstory at low cover. A variety of riparian/wetland shrubs and herbs occur in the understory. Found along streams, sloughs, and rocky draws...

***Cephalanthus occidentalis* Shrubland Association
of the *Cephalanthus occidentalis* Shrubland Alliance**

IID.3. Mule-fat (*Baccharis salicifolia*) dominates an open to continuous shrub canopy, and other shrubs if present are lower in cover. Herbs may be present with variable cover in the understory. Found in riparian corridors and floodplains...

***Baccharis salicifolia* Shrubland Association
of the *Baccharis salicifolia* Shrubland Alliance**

IID.4. Coyote brush (*Baccharis pilularis*) is the dominant in the shrub overstory, forming an open to intermittent canopy. Willows may be present and lower in cover, and the herbaceous understory is usually well-developed. Found in meadows and disturbed riparian areas...

***Baccharis pilularis* Shrubland Association
of the *Baccharis pilularis* Shrubland Alliance**

IID.5. Silver bush lupine (*Lupinus albifrons*) dominates the shrub layer, or sometimes co-dominates with other disturbance species including *Lotus scoparius*. Found in recently disturbed areas, including riparian/wash terraces, road cuts, and steep erosive slopes...

***Lupinus albifrons* Shrubland Association
of the *Lupinus albifrons* Shrubland Alliance**

IID.6. One or more *Salix* spp. dominates the shrub layer. (Note: some shrub willows may be tall enough to be identified as trees and thus, are also included in the tree-overstory section of this key)...

IID6.a. Arroyo willow (*Salix lasiolepis*) is dominant as a shrub or low tree. Other shrubs and trees may be present at lower cover including shining willow (*S. lucida* ssp. *lasiandra*), Himalaya berry (*Rubus armeniacus*), and California blackberry (*Rubus ursinus*)...

***Salix lasiolepis* Shrubland Alliance**

IID6a.i. *Salix lasiolepis* is dominant in the canopy. *Rubus armeniacus* is typically present in the understory with a variety of wetland shrubs and herbs. *Rosa californica* and other willow species may be present at low cover...

***Salix lasiolepis* / *Rubus armeniacus* Shrubland Association**

IID6a.ii. *Salix lasiolepis* is dominant in the canopy. Other shrubs and herbs that are present in the understory include *Rosa californica* and *Rubus ursinus* at variable though lower cover...

***Salix lasiolepis* Shrubland Association**

IID6.b. Sandbar willow (*Salix exigua*) is dominant or co-dominant as a shrub. It forms an open to continuous canopy along riparian corridors...

***Salix exigua* Shrubland Alliance**

IID6b.i. *Salix exigua* is dominant and forms an open to continuous shrub canopy, over a variety of wetland shrubs and herbs such as *Rubus armeniacus* and mugwort (*Artemisia douglasiana*)...

***Salix exigua* Shrubland Association**

IID6b.ii. *Salix exigua* is the dominant or co-dominant with *Salix lasiolepis* and *Rubus armeniacus*, and *R. armeniacus* is typically greater than 5% cover. Other shrubs and herbs may also be present, such as *Cephalanthus occidentalis*, *Rubus ursinus*, and *Rosa californica*. Rarely *Rubus ursinus* has high cover instead of *R. armeniacus*...

***Salix exigua* – (*Salix lasiolepis*) – *Rubus armeniacus* Shrubland Association**

IID6b.iii. *Salix exigua* and Dusky sandbar willow (*S. melanopsis*) are co-dominant, forming an open to intermittent shrub canopy along exposed, sandy or cobbled river terraces...

***Salix exigua* – *Salix melanopsis* Shrubland Association**

IID6.c. Dusky sandbar willow (*S. melanopsis*) is dominant as a shrub. It forms an open to intermittent shrub canopy along exposed, sandy or cobbled river terraces...

***Salix exigua* – *Salix melanopsis* Shrubland Association**

IID6.d. Red willow (*Salix laevigata*) is dominant in the overstory with at least 10% cover, or co-dominant with another willow, usually Arroyo willow (*Salix lasiolepis*) which may occur as a sub- or co-dominant in the shrub or low tree layer...

***Salix laevigata* Woodland/Forest Alliance**

IID6d.i. *Salix laevigata* is dominant in the overstory and *S. lasiolepis* has at least 5% cover in the shrub layer. *Rubus armeniacus* and *Artemisia douglasiana* are usually present in the understory with a variety of other herbs and shrubs, including *Typha* spp....

***Salix laevigata* – *Salix lasiolepis* Woodland Association**

IID6d.ii. *Salix laevigata* is dominant in the overstory with an absence or relatively low cover of other trees or willows. *Rubus armeniacus* may be present with variable cover in the understory, and various herbs including wetland and alkaline plants may also be present...

***Salix laevigata* Woodland Association**

IID.7. Elderberry (*Sambucus nigra*) dominates the shrub canopy. Other shrubs may be present at lower cover, and herbs are usually present and variable in cover in the understory. Occurs in sandy and gravelly riparian and semi-riparian areas, generally in small to moderate sized, patchy stands...

***Sambucus nigra* Shrubland Association
of the *Sambucus nigra* Shrubland Alliance**

IID.8. California wild grape (*Vitis californica*) is the dominant in the shrub overstory forming an open to continuous canopy, or co-dominant with *Rubus armeniacus*. Other shrubs, including California blackberry (*R. ursinus*), buttonwillow (*Cephalanthus occidentalis*), or elderberry (*Sambucus nigra*) may occur at lower cover. Stands occur adjacent to riparian tree or shrub types along streamsides, levee banks and other riparian areas, around springs, and steep rocky seeps...

***Vitis californica* Shrubland Association (Provisional)
of the *Vitis californica* Shrubland Alliance (Provisional)**

IID.9. California rose (*Rosa californica*) is dominant in the shrub overstory forming an open to continuous canopy. Other shrubs, including *Salix exigua* and *Rubus ursinus*, may occur at lower cover. Stands occur along stream banks and bottomland depressions; they are ecologically similar to stands with *Rubus armeniacus*...

***Rosa californica* Shrubland Association
of the *Rosa californica* Shrubland Alliance**

IID.10. Himalaya blackberry (*Rubus armeniacus*) is the strong dominant (>80% relative cover) in the shrub overstory forming an open to continuous canopy. Other shrubs such as *Vitis californica* and coffeeberry (*Frangula=Rhamnus* spp.) may occur at relatively low cover. Stands occur adjacent to riparian or wetland types...

***Rubus armeniacus* Semi-Natural Shrubland Association
of the *Rubus armeniacus* Semi-Natural Shrubland Stands**

IID.11. Golden current (*Ribes aureum*) is the dominant in the shrub overstory forming an open to continuous canopy. Other riparian shrubs such as *Rubus ursinus* and *Salix* spp., often occur at relatively low cover. Stands occur adjacent to streams...

***Ribes aureum* Shrubland Association (Provisional)
of the *Rubus* (*parviflorus*, *spectabilis*, *ursinus*) Shrubland Alliance**

IID.12. Other non-native shrubs are the strong dominant (>80% relative cover) in the shrub overstory forming an open to continuous canopy. Shrubs include common tree tobacco (*Nicotiana glauca*). Stands occur adjacent to riparian areas on terraces and other disturbed uplands...

Naturalized Non-native Mediterranean Scrub Group

Class C. Herbaceous Vegetation

Group I. Stands found in wetland and riparian settings (water or wet ground present throughout the growing season, or water is temporarily or seasonally present), and in alkaline lowlands (where water is present in the winter). Includes >30% absolute cover of true wetland herbs graminoid genera (such as *Typha*, *Carex*, *Eleocharis*, *Juncus*, or *Schoenoplectus* (= *Scirpus*)), wetland forb genera (such as *Azolla*, *Eichhornia*, *Ludwigia*, *Potamogeton*, *Stuckenia*, *Myriophyllum*), tall riparian grasses (e.g., *Arundo donax*, *Cortaderia* spp., *Deschampsia caespitosa*, *Leymus* spp., *Phalaris* spp., or *Muhlenbergia rigens*), alkaline-tolerant seasonally flooded perennials (such as *Arthrocnemum subterminale*, *Crypsis schoenoides*, *Frankenia salina*, *Salicornia* spp., *Sesuvium verrucosum*), or other seasonally flooded, perennial and annual forbs (such as *Anemopsis californica*, *Artemisia douglasiana*, *Equisetum* spp., *Heterotheca oregona*, *Lepidium latifolium*, *Lotus purshianus*, *Persicaria* spp., *Polygonum* spp., and *Xanthium strumarium*). Note: some stands may occur in ephemeral wetlands and can also be keyed in the ephemeral wetland category (Group II)...

I.A. Annual or perennial forb vegetation dominated by aquatic, floating or submerged plants.

IA.1. *Azolla filiculoides* and/or *A. mexicana* is dominant in stands or co-dominant with *Egeria densa*, *Myriophyllum* spp. or *Brasenia schreberi*...

***Azolla (filiculoides, mexicana)* Herbaceous Association (Provisional)
of the *Azolla (filiculoides, mexicana)* Herbaceous Alliance (Provisional)**

IA.2. *Brasenia schreberi* is dominant in stands or co-dominant with non-natives including *Egeria* spp. and *Myriophyllum* spp....

***Brasenia schreberi* Western Herbaceous Association (Provisional)
of the *Brasenia schreberi* Herbaceous Alliance (Provisional)**

IA.3. *Ludwigia peploides* ssp. *montevidensis*, *L. p.* ssp. *peploides*, and/or *Ludwigia hexapetala* dominates the stands, or sometimes *Azolla* sp. or *Myriophyllum* sp. is sub-dominant to co-dominant with *Ludwigia*...

***Ludwigia (hexapetala, peploides)* Herbaceous Association
of the *Ludwigia (hexapetala, peploides)* Herbaceous Alliance**

IA.4. *Typha latifolia* co-dominant with *Ludwigia* spp....

***Typha latifolia* Herbaceous Association
of the *Typha (angustifolia, domingensis, latifolia)* Herbaceous Alliance**

IA.5. *Stuckenia pectinata* dominates the herbaceous layer...

***Stuckenia pectinata* Herbaceous Association
of the *Stuckenia (pectinata)* – *Potamogeton* spp. Herbaceous Alliance**

IA.6. *Lemna* sp. and/or *Wolffia* spp. is dominant in stands; in sampled stands the *Lemna* was not determined to species though likely *Lemna gibba* and *L. minor*...

***Lemna (minor)* Herbaceous Association (Provisional)
of the *Lemna (minor)* and relatives Herbaceous Alliance (Provisional)**

IA.7. *Myriophyllum* spp. and/or *Egeria densa* strongly dominate stands; native plants such as *Ceratophyllum demersum* and *Azolla filiculoides* <10% absolute and relative cover if present. Other similar stands may have *Cabomba* dominant, but have not yet been sampled and defined. This association was previously defined by Hickson and Keeler-Wolf 2007 as the *Egeria* – *Cabomba* – *Myriophyllum* spp. Association...

***Myriophyllum* spp. – *Egeria densa* Herbaceous Association (Provisional)
of the *Myriophyllum* spp. Semi-Natural Herbaceous Stands (Provisional)**

IA.8. *Eichhornia crassipes* strongly dominates the stands, and native plants <10% absolute and relative cover if present...

***Eichhornia crassipes* Herbaceous Association (Provisional)
of the *Eichhornia crassipes* Semi-Natural Herbaceous Stands (Provisional)**

IA.9. Other aquatic plants are dominant, including *Ceratophyllum demersum*...

***Ceratophyllum demersum* Herbaceous Association (Provisional)
of the *Potamogeton* spp. – *Ceratophyllum* spp. – *Elodea* spp. Herbaceous Alliance
(Provisional)**

I.B. *Typha* spp. and/or *Schoenoplectus* (= *Scirpus*) dominant in the herbaceous layer...

IB.1. A species of *Typha* is dominant in the herbaceous layer. If *Schoenoplectus* is present, it has <50% relative cover compared to the *Typha* species...

***Typha* (*angustifolia*, *domingensis*, *latifolia*) Herbaceous Alliance**

IB1.a. *Typha latifolia* is dominant, and intermixes with a variety of wetland herbs such as *Carex* spp., *Juncus* spp., *Epilobium* spp., and *Schoenoplectus* spp. ...

***Typha latifolia* Herbaceous Association**

IB1.b. *Typha angustifolia* is dominant and occurs with other wetland herbs including *Azolla filiculoides*...

***Typha angustifolia* Herbaceous Association**

IB1.c. *Typha domingensis* is co-dominant to dominant, and occurs with other wetland herbs such as *Azolla* spp., *Lemna* spp., and *Schoenoplectus* spp. ...

***Typha domingensis* Herbaceous Association**

IB.2. *Schoenoplectus* (= *Scirpus*) *acutus* typically dominates with the highest absolute cover in the herbaceous layer. *Typha* spp. may intermix as a sub- to co-dominant (at < 50% relative cover)...

***Schoenoplectus acutus* Herbaceous Alliance**

IB2.a *Schoenoplectus acutus* is strongly dominant in the herbaceous layer. A variety of taxa such as *Juncus* spp., *Persicaria* spp., *Rumex* spp., and *Typha* spp. may intermix with lower cover. This association includes stands previously defined by Hickson and Keeler-Wolf (2007) as *Schoenoplectus acutus* – *Typha latifolia*, *Schoenoplectus acutus* – *Typha domingensis*, and *Schoenoplectus acutus* – *Xanthium strumarium*...

***Schoenoplectus acutus* Herbaceous Association**

IB2.b. *Schoenoplectus acutus* is dominant or co-dominant with *Phragmites australis* and *Typha* spp. (*T. angustifolia* and/or *T. latifolia* may be present). This association includes stands previously defined by Hickson and Keeler-Wolf (2007) as *Schoenoplectus acutus* – *Typha latifolia* – *Phragmites australis*...

***Schoenoplectus acutus* – *Phragmites australis* Herbaceous Association**

IB.3. *Schoenoplectus americanus* is dominant in stands...

***Schoenoplectus americanus* Herbaceous Association
of the *Schoenoplectus americanus* Herbaceous Alliance**

IB.4. *Schoenoplectus californicus* is dominant or co-dominant in stands (with at least 10% absolute cover). If *Schoenoplectus acutus* is present, it has less cover than, or is a co-dominant with, *S. californicus*...

***Schoenoplectus californicus* Herbaceous Alliance**

IB4.a. *Schoenoplectus californicus* is dominant in stands. Sometimes *Eichhornia crassipes* is sub-dominant to co-dominant, and other plants in stands may include *Ludwigia peploides* and *Hydrocotyle ranunculoides*. This association (in part) was previously defined by Keeler-Wolf and Hickson (2007) as *Schoenoplectus californicus*–*Eichhornia crassipes* Association, though we are taking a more conservative approach that parallels the work of Keeler-Wolf and Vaghti (2000) in defining this type where *S. californicus* is clearly the dominant...

***Schoenoplectus californicus* Herbaceous Association**

IB4.b. *Schoenoplectus acutus* is usually subdominant and sometimes co-dominant with *S. californicus*. *Phragmites australis* may also be present and co-dominant...

***Schoenoplectus californicus* – *Schoenoplectus acutus* Herbaceous Association
(Provisional)**

IB.5. Other *Schoenoplectus* sp. is dominant or co-dominant in stands (with at least 10% absolute cover). This includes *S. pungens*...

Arid West Freshwater Emergent Marsh Group

I.C. Vegetation dominated by native alkaline or salt-tolerant annual and/or perennials including *Allenrolfea*, *Arthrocnemum* (=Salicornia), *Cressa*, *Distichlis*, *Frankenia salina*, *Sarcocornia pacifica* (=Salicornia virginica), *Sporobolus airoides* and others...

IC.1. *Arthrocnemum subterminale* (=Salicornia) is dominant in the herbaceous layer...

***Arthrocnemum subterminale* Herbaceous Association (Provisional)
of the *Arthrocnemum subterminale* Herbaceous Alliance**

IC.2. *Sporobolus airoides* is characteristic and often co-dominant in the herbaceous layer with other plants including *Bromus* spp., *Cressa truxillensis*, *Distichlis spicata*, *Frankenia salina*, *Hordeum marinum*, and *Vulpia* spp....

***Sporobolus airoides* Herbaceous Alliance**

IC2.a. *Sporobolus airoides* is co-dominant with other grasses including non-natives such as *Bromus diandrus*, *B. hordeaceus*, *Hordeum marinum* and *Vulpia myuros*. Other species often present at low cover include *Frankenia salina*, *Distichlis spicata*, *Cressa truxillensis*, and *Vulpia bromoides*...

***Sporobolus airoides* Herbaceous Association**

IC2.b. *Sporobolus airoides* is characteristically present to co-dominant with other grasses, including *Bromus diandrus*, *B. hordeaceus*, *Hordeum marinum*, *H. depressum*, and *Vulpia myuros*, and *Allenrolfea occidentalis* characteristically occurs at low cover (<2% absolute cover). Other non-native and native herbs are typically present at higher cover including *Trifolium gracilentum*, *T. depauperatum*, and *Lepidium* spp. ...

***Sporobolus airoides* / *Allenrolfea occidentalis* Herbaceous Association**

IC.3. *Allenrolfea occidentalis* dominates with > 2% absolute cover on seasonally saturated soils with *Distichlis spicata*, and other alkaline-tolerant shrubs such as *Frankenia salina* and *Suaeda nigra* may be present...

***Allenrolfea occidentalis* Shrubland Alliance**

IC3.a. *Allenrolfea occidentalis* occurs with *Suaeda nigra*, and other shrubs and herbs may be present...

***Allenrolfea occidentalis* – *Suaeda nigra* Shrubland Association**

IC3.b. *Allenrolfea occidentalis* occurs without *Suaeda nigra*, and other shrubs and herbs may be present including annuals *Amsinckia* spp., *Bromus* spp., *Hordeum* spp., *Polypogon monspeliensis*, and *Vulpia* spp....

***Allenrolfea occidentalis* Shrubland Association**

IC3.c. *Allenrolfea occidentalis* occurs without *Suaeda nigra*, and the understory contains *Distichlis spicata* as a dominant or co-dominant herb. Other herbs may be present including *Amsinckia* spp., *Hordeum* spp. and *Bolboschoenus* (= *Scirpus*) *maritimus*...

***Allenrolfea occidentalis* / *Distichlis spicata* Shrubland Association**

IC.4. *Distichlis spicata* is dominant in the herb layer, or co-dominant with *Juncus arcticus* var. *balticus*, *Echinochloa crus-galli* and/or other grasses and forbs. Soils are often alkaline or saline and poorly drained...

***Distichlis spicata* Herbaceous Alliance**

IC4.a. *Distichlis spicata* dominant in the herb layer, though various annual or perennial plants may be present at relatively lower cover...

***Distichlis spicata* Herbaceous Association**

IC4.b. *Distichlis spicata* is co-dominant in stands with moderate to high cover of non-native annual grasses such as *Bromus hordeaceus*, *B. diandrus*, *Lolium perenne*, *Hordeum marinum* or *Vulpia myuros*...

***Distichlis spicata* – Annual grasses Herbaceous Association**

IC4.c. *Juncus arcticus* var. *balticus* is sub-dominant to co-dominant with *Distichlis spicata*. In Suisun, high quality brackish tidal marsh habitats may include *Limonium californica*, *Glaux maritima*, and *Triglochin maritima*...

***Distichlis spicata* – *Juncus arcticus* var. *balticus* (*J. arcticus* var. *mexicanus*) Herbaceous Association**

IC.5. *Cressa truxillensis* and *Distichlis spicata* are characteristically present in alkaline sites typical vernal pool indicator plants are not present...

***Cressa truxillensis* – *Distichlis spicata* Herbaceous Association (Provisional) of the *Cressa truxillensis* – *Distichlis spicata* Herbaceous Alliance**

IC.6. *Frankenia salina* is dominant in the herb layer, or co-dominant with *Distichlis spicata* and/or annual grasses. Soils are typically alkaline or saline and poorly drained...

***Frankenia salina* Herbaceous Alliance**

IC6.a. *Frankenia salina* is dominant in the herb layer, or co-dominant with annual plants...

***Frankenia salina* Herbaceous Association**

IC6.b. *Distichlis spicata* co-dominates with *Frankenia salina* and other herbs including non-native grasses...

***Frankenia salina* – *Distichlis spicata* Herbaceous Association**

IC.7. *Frankenia salina* is often dominant or characteristic in the herb layer and occurs with vernal pool species including *Achyrochaena mollis*, *Myosurus minimus*, *Psilocarphus brevissimus*, and *Plagiobothrys* spp. This type may be related to *Downingia pulchella* – *Cressa truxillensis* from Barbour et al. (2007)...

***Frankenia salina* – *Psilocarphus brevissimus* Herbaceous Association (Provisional) of the *Lasthenia fremontii* – *Distichlis spicata* Herbaceous Alliance**

IC.8. *Sarcocornia pacifica* (= *Salicornia virginica*) is dominant in the herb layer, or co-dominant with *Distichlis spicata*, *Frankenia salina* and/or annual grasses. Soils are typically alkaline or saline and poorly drained...

***Sarcocornia pacifica* (*Salicornia depressa*) Herbaceous Alliance**

IC8.a. *Distichlis spicata* is sub-dominant to co-dominant with *Sarcocornia pacifica*...

***Sarcocornia pacifica* – *Distichlis spicata* Herbaceous Association**

IC8.b. *Sarcocornia pacifica* occurs with annual herbs including *Cotula coronopifolia*, *Crypsis schoenoides* and *Sesuvium verrucosum* which are seasonally present. This association is redefined here, and encompasses *Sarcocornia pacifica* – *Cotula coronopifolia*, *Sarcocornia pacifica* – *Crypsis* spp., and *Sarcocornia pacifica* – *Sesuvium verrucosum* from the previous reports Hickson and Keeler-Wolf (2007) and Keeler-Wolf and Vaghti (2000)...

***Sarcocornia pacifica* – Moist annual Herbaceous Association (Provisional)**

IC8.c. *Sarcocornia pacifica* is co-dominant with *Frankenia salina*...

***Sarcocornia pacifica* – *Frankenia salina* Herbaceous Association**

IC8.d. *Sarcocornia pacifica* is co-dominant with non-native grasses, including *Polypogon monspeliensis*, *Hordeum* spp., *Lolium perenne*. Type is defined from Keeler-Wolf and Vaghti (2000) from stands in Suisun Marsh...

Sarcocornia pacifica*/annual grasses Herbaceous Association

IC.9. *Sesuvium verrucosum* is dominant or co-dominant with other plants including *Juncus bufonius*, *Distichlis spicata*, *Atriplex triangularis* and others...

***Sesuvium verrucosum* Herbaceous Alliance**

IC9.a. *Distichlis spicata* is typically sub-dominant and sometimes co-dominant with *Sesuvium verrucosum*...

***Sesuvium verrucosum* – *Distichlis spicata* Herbaceous Association**

IC.10. *Centromadia* (= *Hemizonia*) *pungens* and *Lepidium dictyotum* are characteristically present with other forb and grass species such as *Distichlis spicata*. This type may be related to *Downingia bella* – *Centromadia pungens* from Barbour et al. (2007)...

***Centromadia pungens* – *Lepidium dictyotum* Herbaceous Association of the *Centromadia* (*pungens*) Herbaceous Alliance**

I.D. Spikerushes (*Eleocharis* spp.) dominate the herb layer...

ID.1. *Eleocharis macrostachya* has at least 2% cover, and is often dominant. Stands are usually found in wetland ponds and may contain a high combined cover of other species including *Lolium perenne*. In vernal pools and swales, stands may contain *Eryngium castrense*, but do not include other typical vernal pool species such as *Lasthenia fremontii* and *Downingia* spp....

***Eleocharis macrostachya* Herbaceous Association of the *Eleocharis macrostachya* Herbaceous Alliance**

I.E. Rushes (*Juncus* spp.) dominate the herb layer though other species may occur with high cover such as *Carex praegracilis* and *Lepidium latifolium*...

IE.1. *Juncus effusus* dominates the herbaceous layer and intermixes with other wetland herbs...

***Juncus effusus* Herbaceous Association of the *Juncus effusus* Herbaceous Alliance**

IE.2. *Juncus arcticus* var. *balticus* and/or var. *mexicanus* are dominant or co-dominant with a variety of other wetland species. In some cases, *Carex praegracilis* may be dominant, but *J. arcticus* is present and usually has >5% cover...

***Juncus arcticus* (var. *balticus*, *mexicanus*) Herbaceous Alliance**

IE2.a. *Juncus arcticus* var. *balticus* is typically co-dominant to dominant with other wetland species, may co-occur with *J. arcticus* var. *mexicanus*...

***Juncus arcticus* var. *balticus* Herbaceous Association**

IE2.b. *Juncus arcticus* var. *mexicanus* dominates and occurs with a variety of other wetland species...

***Juncus arcticus* var. *mexicanus* Herbaceous Association**

IE2.c. *Carex praegracilis* dominates the herbaceous layer with *Juncus arcticus* var. *balticus* in swales or other moist places, often surrounded by open grasslands...

***Juncus arcticus* var. *balticus* – *Carex praegracilis* Herbaceous Association**

IE2.d. *Lepidium latifolium* is co-dominant to dominant with *Juncus arcticus*...

***Juncus arcticus* var. *balticus* – *Lepidium latifolium* Herbaceous Association
(Provisional)**

IE.3. *Juncus xiphioides* dominates the herbaceous layer and occurs with a variety of obligate wetland species. Stands are in wet to moist swales and on riparian margins...

***Juncus xiphioides* Herbaceous Association (Provisional)
of the *Juncus (oxymeris, xiphioides)* Herbaceous Alliance (Provisional)**

IE.4. Other *Juncus* sp. dominates the herbaceous layer with other riparian or wetland plants...

California Warm Temperate Marsh/Seep Group

I.F. Sedges (*Carex* spp.) dominate the herbaceous layer...

IF.1. *Carex barbarae*, a species often associated with stream terraces, is the dominant species in the herbaceous layer, and intermixes with various native and non-native forbs and grasses...

***Carex barbarae* Herbaceous Association
of the *Carex barbarae* Herbaceous Alliance**

IF.2. *Carex praegracilis* dominates the herbaceous layer with *Juncus arcticus* var. *balticus* in swales or other moist places, often surrounded by open grasslands...

***Juncus arcticus* var. *balticus* – *Carex praegracilis* Herbaceous Association
of the *Juncus arcticus* (var. *balticus, mexicanus*) Herbaceous Alliance**

I.G. Native perennial grasses dominate or are characteristic in the herbaceous layer (including *Deschampsia caespitosa*, *Leymus* spp., *Hordeum brachyantherum* or *Muhlenbergia rigens*); usually found in wet areas or riparian margins. Other wetland graminoids (*Juncus* sp., *Carex* sp.) may also be present...

IG.1. *Muhlenbergia rigens* is constant and often co-dominant (with greater than 10% absolute cover). Non-native grasses and forbs usually intermix with variable cover...

***Muhlenbergia rigens* Herbaceous Association
of the *Muhlenbergia rigens* Herbaceous Alliance**

IG.2. *Hordeum brachyantherum* is characteristic in the herbaceous layer and co-occurs with annual grasses and forbs including *Hordeum marinum*, *Lolium perenne*, *Medicago polymorpha*, and *Trifolium repens*...

***Hordeum brachyantherum* Herbaceous Association
of the *Hordeum brachyantherum* Herbaceous Alliance**

IG.3. Stands have at least 10% cover of *Deschampsia caespitosa* and the rare species *Lilaeopsis masonii* is present...

***Deschampsia caespitosa* – *Lilaeopsis masonii* Herbaceous Association (Provisional)
of the *Deschampsia caespitosa* Herbaceous Alliance**

IG.4. *Leymus triticoides* dominates or co-dominates in the herbaceous layer with alkali-tolerant species such as *Frankenia salina* and *Distichlis spicata* and non-natives including *Bromus hordeaceus* and *Lactuca serriola*...

***Leymus triticoides* Herbaceous Alliance**

IG4.a. *Leymus triticoides* dominates the herbaceous layer and may occur with alkali-tolerant species such as *Frankenia salina* and *Distichlis spicata* and non-native *Bromus hordeaceus* and *Lactuca serriola*...

***Leymus triticoides* Herbaceous Association**

IG4.b. *Leymus triticoides* is characteristic in the herbaceous layer with non-natives including *Bromus diandrus*, *Centaurea solstitialis* and *Erodium botrys*...

***Leymus triticoides* – *Bromus* spp. – *Avena* spp. Herbaceous Association**

IG.5. *Leymus cinereus* dominates the herbaceous layer...

***Leymus cinereus* Herbaceous Association (Provisional)
of the *Leymus cinereus* Herbaceous Alliance**

IG.6. Other native species dominate the herbaceous layer with riparian or wetland plants...

California Warm Temperate Marsh/Seep Group

I.H. Non-native perennial grasses are dominant in the herbaceous layer (including *Arundo donax*, *Cortaderia* spp., *Cynodon dactylon*, *Phalaris* spp., and *Phragmites australis*); compared to native cover, non-native cover is typically >80% relative cover. Usually found in wet areas and riparian margins. Other wetland graminoids (*Juncus* spp., *Carex* spp.) may also be present...

IH.1. *Arundo donax* is the dominant species...

***Arundo donax* Semi-Natural Herbaceous Stands**

IH1.a. *Arundo donax* is dominant with other wetland species...

***Arundo donax* Herbaceous Association**

IH1.b. *Arundo donax* is dominant in the herbaceous layer and *Salix exigua* is present with at least 5% absolute cover...

***Arundo donax* – *Salix exigua* Herbaceous Association**

IH.2. *Cortaderia selloana* and/or *C. jubata* is the dominant species. *Phragmites australis* may also occur...

***Cortaderia (selloana, jubata)* Herbaceous Stand Type
Cortaderia (selloana, jubata) Semi-Natural Herbaceous Stands**

IH.3. *Phragmites australis* is the dominant species; see Hickson and Keeler-Wolf (2007) for full description...

***Phragmites australis* Herbaceous Stand Type*
of the *Phragmites australis* Herbaceous Alliance and Semi-Natural Stands***

IH.4. *Phalaris arundinacea* is the dominant species. Other herbs and shrubs occur at low cover including *Carex* spp., *Baccharis salicifolia*, and *Salix* spp. ...

***Phalaris arundinacea* Western Herbaceous Stand Type (Provisional)
Phalaris arundinacea Semi-Natural Herbaceous Stands (Provisional)**

IH.5. *Phalaris aquatica* is the dominant species. Other herbs occur at lower cover including *Bromus* spp. ...

***Phalaris aquatica* Herbaceous Stand Type (Provisional)
Phalaris aquatica Semi-Natural Herbaceous Stands (Provisional)**

IH.6. Other non-native plants typically dominant (including *Cotula coronopifolia*, *Cyperus eragrostis*, *Panicum capillare*, *Paspalum* spp., *Scirpus tuberosus* (= *Bolboschoenus glaucus*) individually or collectively in stands...

***Cynodon dactylon* – *Crypsis* spp. – *Paspalum* spp. Moist Ruderal Semi-Natural Herbaceous Stands**

IH6.i. *Cynodon dactylon* dominant in stands, especially in heavily grazed and/or other disturbed soils in moist settings...

***Cynodon dactylon* Herbaceous Stand Type (Provisional)**

I.I. *Xanthium strumarium*, *Persicaria* spp., and/or *Polygonum* spp. are dominant or co-dominant in stands together or with other herbaceous species including *Chenopodium album*, *Echinochloa crus-galli*, and *Rumex* spp. ...

***Persicaria (lapathifolia)* – *Xanthium strumarium* Herbaceous Alliance**

II.1. *Xanthium strumarium* is dominant or co-dominant with other herbs including *Cynodon dactylon*, *Echinochloa crus-galli*, *Lythrum hyssopifolium*, *Persicaria lapathifolia*, and/or *Rumex dentatus*...

***Xanthium strumarium* Herbaceous Association**

II.2. *Persicaria amphibia* and/or *P. lapathifolia* are dominant or co-dominant in stands. Other plants may also be co-dominant including *Echinochloa crus-galli*, *Lolium perenne*, *Ludwigia peploides*, *Rumex* spp. and/or *Xanthium strumarium*...

***Persicaria (amphibia, lapathifolia)* Herbaceous Association**

I.J. *Cressa truxillensis* and *Distichlis spicata* are characteristically present in alkaline sites and typical vernal pool indicator plants are not present...

***Cressa truxillensis* – *Distichlis spicata* Herbaceous Association (Provisional)
of the *Cressa truxillensis* – *Distichlis spicata* Herbaceous Alliance**

I.K. *Lepidium latifolium* is strongly dominant species and occurs with other non-native species including *Bromus diandrus* and native species such as *Frankenia salina* and *Malvella leprosa*...

***Lepidium latifolium* Herbaceous Stand Type
of the *Lepidium latifolium* Semi-Natural Herbaceous Stands**

I.L. *Crypsis schoenoides* or *C. vaginiflora* is dominant. Stands occur in lowlands that are usually managed wetlands within wildlife areas and alkaline marshes that dry by summer...

***Crypsis (schoenoides, vaginiflora)* Semi-Natural Herbaceous Stands (Provisional)
of the *Cynodon dactylon* – *Crypsis* spp. – *Paspalum* spp. Moist Ruderal Semi-Natural Herbaceous Stands**

I.M. Other native or non-native plants (including *Cynodon dactylon*, *Crypsis schoenoides*, *Cyperus eragrostis*, *Panicum capillare*, *Paspalum* spp., *Bolboschoenus glaucus* (= *Scirpus tuberosus*) dominant in stands...

***Cynodon dactylon* – *Crypsis* spp. – *Paspalum* spp. Moist Ruderal Semi-Natural Herbaceous Stands**

I.N. *Helianthus annuus* dominates the herbaceous with other forbs and grasses...

***Helianthus annuus* Herbaceous Association (Provisional)
of the *Helianthus annuus* Herbaceous Alliance (Provisional)**

I.O. *Artemisia douglasiana* dominates the herbaceous layer and other forbs and grasses co-occur including *Hirschfeldia incana* and *Urtica dioica*...

***Artemisia douglasiana* Herbaceous Association (Provisional)
of the *Artemisia douglasiana* Herbaceous Alliance (Provisional)**

I.P. *Anemopsis californica* dominates the herbaceous layer with >30% relative cover...

***Anemopsis californica* Herbaceous Association (Provisional)
of the *Anemopsis californica* Herbaceous Alliance**

I.Q. *Equisetum hyemale* dominates the herbaceous layer...

***Equisetum hyemale* Herbaceous Association (Provisional)
of the *Equisetum (arvense, variegatum, hyemale)* Herbaceous Alliance (Provisional)**

I.R. *Lotus purshianus* dominates or co-dominates wetland stands with non-native grasses including *Bromus hordeaceus*, *Vulpia bromoides*, and/or *V. myuros*, and other native and non-native herbs also occur in stands...

***Lotus purshianus* Herbaceous Association
of the *Lotus purshianus* Herbaceous Alliance**

I.S. Oregon golden-aster (*Heterotheca oregona*) is dominant in the herbaceous layer with sparse to intermittent cover. Found on sandy and cobbled gravel bars in floodplains, along riparian terraces and stream banks, flats or slopes adjacent to riparian areas, and other seasonally disturbed areas...

***Heterotheca oregona* Herbaceous Association
of the *Heterotheca (oregona, sessiliflora)* Herbaceous Alliance**

Group II. Vegetation is dominated by herbaceous species of seasonally moist to dry areas (but not usually wet conditions throughout the growing season); vegetation types on alkaline lowlands are keyed above. This group includes upland grasslands, mesa tops, or vernal wet to moist habitats, including swales and vernal pools. Species include native and non-native grasses (*Bromus*, *Lolium*, *Nassella*, *Vulpia*, etc.) forbs (*Lasthenia*, *Plagiobothrys*, *Trifolium*, etc.), and cryptogamic species. Stand identification may be contingent upon appropriate phenology. Stands should be identified in early to mid spring and will be more difficult to identify in late spring and summer in most years...

II.A. Stands are in relatively moist areas that are associated with flat to gradually sloping terrain. Landforms may include vernal pools or shallow ponds, lake margins, swales, and vernal seeps on slopes...

IIA.1. Stands are on moist edges of vernal pools, swales, and seeps, and are usually not inundated for multiple days during the pool or swale wetting phases, although they may have sheet flow across slopes. Stands include significant cover of native annual forbs and grasses, but may be dominated in cover by non-native annual grasses and forbs. Seasonality is extremely important when assessing these stands, since dominance shifts rapidly from early spring dominants (*Blennosperma*, *Limnanthes*) to mid and late season dominants (*Deschampsia danthonioides*, *Achyrachaena mollis*, *Layia fremontii*, *Trifolium variegatum*, *Leontodon taraxacoides*)...

IIA1.a. *Trifolium variegatum* or *T. gracilentum* is characteristic of stands in the early- to mid-spring, growing in swales, seeps, and moist grassy areas. Often found with the following non-native species: *Vulpia bromoides*, *Hypochaeris glabra*, *Leontodon taraxacoides*, and *Lolium perenne*...

***Trifolium variegatum* Herbaceous Alliance**

IIA1a.i. *Trifolium variegatum* is typically dominant or co-dominant with natives such as *Juncus bufonius*, *Lepidium* spp., *Trifolium* spp. or other herbs of vernal moist settings. If present, *Vulpia bromoides*, *Hypochaeris glabra*, and/or *Leontodon taraxacoides* are each lower in cover than the *Trifolium*...

***Trifolium variegatum* Herbaceous Association**

IIA1a.ii. *Trifolium variegatum*, *Leontodon taraxacoides* and/or *Lolium perenne* collectively have significant cover in the herbaceous layer, and *Juncus bufonius* and *Trifolium dubium* are characteristically present. *Vulpia bromoides* and *Hypochaeris glabra* are often absent or insignificant; see Klein et al. (2007) for full description...

Trifolium variegatum* – *Lolium perenne* – *Leontodon taraxacoides* Herbaceous Association

IIA1a.iii. *Trifolium variegatum*, *Vulpia bromoides*, *Hypochaeris glabra*, *Juncus bufonius*, and *Leontodon taraxacoides* collectively characterize the herbaceous layer, though occasionally 1-2 of these species may not be evident. A number of grass and broad-leaf annuals intermix. Found on relatively clay rich sites...

IIA1a.iii.x. *Hypochaeris glabra* and/or *Leontodon taraxacoides* are usually co-dominant to dominant in the herbaceous layer. If present, *Trifolium variegatum* and *Juncus bufonius* each tend to have <3% cover. Often found in late season or degraded settings...

(*Trifolium variegatum* – *Vulpia bromoides*) – *Hypochaeris glabra* – *Leontodon taraxacoides* Herbaceous Association

IIA1a.iii.xx. *Trifolium variegatum* and *Juncus bufonius* characterize stands, frequently with more than 5% combined cover. Stands are found primarily in early season or moist (but not wet) settings, and *Hypochaeris glabra* and *Leontodon taraxacoides* are less significant than in previous association. This association was previously defined by Klein et al. (2007) as *Trifolium variegatum*–*Vulpia bromoides* (*Hypochaeris glabra*–*Leontodon taraxacoides*) Association...

***Trifolium variegatum* – *Juncus bufonius* Herbaceous Association**

IIA1a.iv. *Trifolium gracilentum* and *Hesperervax caulescens* are characteristically present at low cover with other herbs including *Leontodon taraxacoides*, *Lolium perenne*, *Taeniatherum caput-medusae*, and *Microseris douglasii*...

***Trifolium gracilentum* – *Hesperervax caulescens* Herbaceous Association**

IIA1.b. *Mimulus guttatus* and *Vulpia microstachys* are constant with other characteristic species including *Lotus purshianus*, *Mimulus moschatus*, and *Pentagramma triangularis*. Found on rocky, vernal wet serpentinite substrates...

***Mimulus guttatus* – *Vulpia microstachys* Serpentine Herbaceous Association of the *Mimulus guttatus* Herbaceous Alliance**

IIA1.c. *Layia fremontii* is an indicator (may be dominant to sub-dominant), forming early spring displays along edges of vernal pools, and in vernal moist flats and swales. It often occurs with *Triphysaria eriantha* subsp. *eriantha*, *Navarretia tagetina*, and *Lasthenia californica*. This is a transitional alliance, occurring between upland and vernal pool settings (see IIA.2. group). *Cicendia quadrangularis*, *Plantago erecta*, and other more upland species, usually occur with low cover and combine with vernal moist site indicators such as *Plagiobothrys austiniae*, *Navarretia tagetina*, and *Deschampsia danthonioides*. Non-native species such as *Hypochaeris glabra*, *Bromus hordeaceus*, and *Taeniatherum caput-medusae* may be present with as much cover as the native species, especially later in the season. If *Lasthenia californica*, *Plantago erecta*, and/or *Vulpia microstachys* are present in more upland settings, they are less than half the cover as the indicator species of this vernal wet alliance...

***Layia fremontii* – *Achyrrachaena mollis* Herbaceous Alliance**

IIA1c.i. *Plagiobothrys austiniae* and *Achyrrachaena mollis* are often present as sub-dominant herbs on volcanic basalt flows, volcanic mudflows in vernal pools, or moist swales. *Layia fremontii*, *Pogogyne zizyphoroides*, *Triphysaria eriantha*, *Bromus hordeaceus*, *Hypochaeris glabra*, *Taeniatherum caput-medusae*, and *Cicendia quadrangularis* are characteristic with variable cover. May include Butte County meadowfoam (*Limnanthes floccosa*)...

***Plagiobothrys austiniae* – *Achyrrachaena mollis* Herbaceous Association**

IIA1c.ii. *Plagiobothrys austini* is typically absent, while *Layia fremontii*, *Achyrrachaena mollis*, *Triphysaria eriantha*, *Clarkia purpurea*, *Taeniatherum caput-medusae* as well as vernal pool species such as *Lasthenia fremontii*, *Eryngium* spp., *Limnanthes alba*, *Psilocarphus brevissimus*, and *Pogogyne* spp. are present and abundant. Usually found on vernal pool edges, swale edges, or broad vernal moist flats in open grasslands on volcanic soils. This is a broadly defined association with multiple phases. One phase includes *Layia chrysanthemoides* instead of *L. fremontii*, though other plants are similar to the typical stands of this association. Another phase includes *Lasthenia californica* with *Layia fremontii* and *Achyrrachaena* as characteristic species, this phase was previously defined by Klein et al. (2007) as *Layia fremontii* – *Lasthenia californica* – *Achyrrachaena mollis* Herbaceous Association...

***Layia fremontii* – *Achyrrachaena mollis* Herbaceous Association**

IIA1.d. *Toxicoscordion* (= *Zigadenus*) *fremontii* is characteristic in the herbaceous layer with non-native species such as *Lolium perenne* and *Taeniatherum caput-medusae*. This type is clearly related to the *Layia fremontii* – *Achyrrachaena mollis* Alliance, but *Layia fremontii* is absent or present with trace cover. Stands were previously placed by Klein et al. (2007) in the *Lolium perenne* Herbaceous Alliance; while this type is related to that Alliance, the *Toxicoscordion* type has characteristic presence of native species...

***Toxicoscordion fremontii* Herbaceous Alliance (Provisional)**

IIA1d.i. *Toxicoscordion fremontii* is constant and often intermixes with *Triphysaria eriantha* ssp. *eriantha*, *Achyrrachaena mollis*, *Fritillaria pluriflora* as well as non-natives species *Lolium perenne*, *Erodium botrys*, *Hypochaeris glabra*, *Geranium dissectum*, *Medicago polymorpha*, and *Taeniatherum caput-medusae*. Found on vernal wet or saturated clay soils...

***Toxicoscordion fremontii* – (*Lolium perenne*) Herbaceous Association (Provisional)**

IIA1.e. *Centromadia* (= *Hemizonia*) *pungens* and *Lepidium dictyotum* are characteristically present with other forb and grass species such as *Distichlis spicata*. This type may be related to *Downingia bella* – *Centromadia pungens* from Barbour et al. (2007)...

***Centromadia pungens* – *Lepidium dictyotum* Herbaceous Association of the *Centromadia* (*pungens*) Herbaceous Alliance**

IIA.2. Vegetation characterized by herbs of ephemeral wetlands in swales and vernal pools with very gradual or no slope. All have standing water during the winter and early spring, which may fill and evaporate multiple times during a normal rainy season (“flashy” hydrology). *Deschampsia danthonioides*, *Frankenia salina*, *Plagiobothrys stipitatus*, *Lasthenia fremontii*, *Downingia bicornuta*, *D. cuspidata*, *D. ornatissima*, and/or *Eryngium castrense* may be characteristic. *Layia fremontii*, *Trifolium variegatum*, and other species of moist stands described above typically are absent or not high in cover. Deeper pools with longer inundation periods and *Eleocharis* spp. diagnostically present may also be keyed here...

IIA2.a. *Lasthenia fremontii*, *Downingia* spp., *Navarretia leucocephala*, and/or *Eryngium* (*castrense*, *vaseyi*) are present and *Deschampsia danthonioides* is characteristic. Upland species such as *Holocarpha virgata*, *Trifolium variegatum*, *Trifolium depauperatum*, *Hypochaeris glabra*, *Erodium botrys*, *Bromus hordeaceus*, and *Vulpia bromoides* are typically absent. Found in shallow pools and broad pool margins throughout the region...

***Lasthenia fremontii* – *Downingia* (*bicornuta*) Herbaceous Alliance**

IIA2a.i. *Downingia bicornuta* and *Lasthenia fremontii* are conspicuous in the herb layer, while *Ranunculus bonariensis* var. *trisepalus*, *Gratiola ebracteata*, and *Castilleja campestris* subsp. *campestris* are present in part or collectively. Found in hardpan pools on low terraces, high terraces, and (occasionally) on volcanic landforms...

***Lasthenia fremontii* – *Downingia bicornuta* Herbaceous Association**

IIA2a.ii. *Downingia ornatissima* is characteristic with other herbs including *Alopecurus saccatus*, *Deschampsia danthonioides*, and *Plagiobothrys stipitatus*. Other species present may include natives *Lasthenia fremontii*, *Navarretia leucocephala*, *Eryngium castrense*, and *Blennosperma nanum*. Found in northeastern and northwestern Sacramento Valley regions on northern hardpan and volcanic mudflow vernal pools...

***Lasthenia fremontii* – *Downingia ornatissima* Herbaceous Association**

IIA2a.iii. *Downingia bicornuta* and/or *Downingia cuspidata* are present with characteristic species *Psilocarphus brevissimus*, *Deschampsia danthonioides*, and *Eryngium castrense*. *Gratiola ebracteata* and *Lasthenia fremontii* are either absent or insignificant. Found in the northeastern Sacramento Valley region in volcanic vernal pools including high terrace and mudflows...

***Downingia (bicornuta, cuspidata)* Herbaceous Association**

IIA2a.iv. *Downingia insignis* is characteristically present along with other vernal pool species such as *Lasthenia fremontii*, *Deschampsia danthonioides*, and *Eryngium vaseyi*. Stands are found in the northern Solano-Colusa vernal pool region

***Downingia insignis*–*Psilocarphus brevissimus* Herbaceous Association**

IIA2a.v. *Downingia ornatissima*, *D. cuspidata*, *D. bicornuta*, and *Lasthenia fremontii* are absent or insignificant in the herbaceous layer. *Eryngium vaseyi*, *E. castrense*, *Plagiobothrys stipitatus* var. *micranthus*, and *Psilocarphus brevissimus* are present and abundant with other vernal pool taxa. Found in vernal pools with deeper or longer inundation, hardpan pools, and volcanic mudflows in the northeastern and northwestern Sacramento Valley as well as central and northeastern San Joaquin Valley regions...

***Eryngium (vaseyi, castrense)* Herbaceous Association**

IIA2a.vi. *Lasthenia fremontii* is constant and conspicuous while species of *Downingia* are absent or insignificant. *Lolium perenne*, *Deschampsia danthonioides*, *Alopecurus saccatus*, *Achyrachaena mollis*, and *Navarretia* spp. are characteristic...

***Lasthenia fremontii* Herbaceous Association (Provisional)**

IIA2.b. *Hemizonia congesta* ssp. *luzulifolia*, *Lasthenia glabrata*, *Lepidium latipes* var. *latipes*, *Lupinus bicolor*, *Medicago polymorpha*, and/or *Trifolium willdenovii* are characteristic species in the herbaceous layer. Other common non-native species include *Bromus hordeaceus*, *Lolium perenne* and *Medicago polymorpha*. See Barbour et al. 2007 for full alliance description...

***Hemizonia congesta* Herbaceous Association (Provisional)
of the *Eryngium aristulatum* Herbaceous Alliance**

IIA2.c. *Montia fontana* and/or *Sidalcea calycosa* is characteristically present along with other vernal pool species such as *Lasthenia fremontii*, *Limnanthes alba*, *Plagiobothrys* spp., and *Trifolium* spp. ...

***Montia fontana* – *Sidalcea calycosa* Herbaceous Association
of the *Montia fontana* – *Sidalcea calycosa* Herbaceous Alliance**

IIA2.d. *Cotula coronopifolia*, *Cressa truxillensis*, *Crypsis schoenoides*, *Distichlis spicata*, *Frankenia salina*, *Triphysaria* spp., and *Myosurus minimus* present along with diagnostic vernal pool plants including *Downingia insignis*, *D. pulchella*, *Lasthenia fremontii*, and *Psilocarphus brevissimus*. Found in alkaline or saline vernal pools...

***Lasthenia fremontii* – *Distichlis spicata* Herbaceous Alliance**

IIA2d.i. *Cressa truxillensis* is characteristically present and usually abundant, and *Downingia pulchella* is also present and often abundant...

***Downingia pulchella* – *Cressa truxillensis* Herbaceous Association**

IIA2d.ii. *Limnanthes douglasii* ssp. *rosea* and *Pleuropogon californicus* are present along with characteristic species *Achyrachaena mollis*, *Blennosperma nanum*, *Distichlis spicata*, *Trifolium depauperatum*, and *Triphysaria eriantha*...

***Limnanthes douglasii* ssp. *rosea* – *Pleuropogon californicus* Herbaceous Association**

IIA2d.iii. *Frankenia salina* is often dominant or characteristic in the herb layer and occurs with vernal pool species including *Achyrachaena mollis*, *Myosurus minimus*, *Psilocarphus brevissimus*, and *Plagiobothrys* spp. This type may be related to *Downingia pulchella* – *Cressa truxillensis* from Barbour et al. (2007)...

***Frankenia salina* – *Psilocarphus brevissimus* Herbaceous Association (Provisional)**

IIA2.e. *Cressa truxillensis* and *Distichlis spicata* are characteristically present in alkaline or saline sites that are similar to the above alliance, but do not include typical vernal pool indicator plants...

***Cressa truxillensis* – *Distichlis spicata* Herbaceous Association (Provisional)
of the *Cressa truxillensis* – *Distichlis spicata* Herbaceous Alliance**

IIA2.f. *Lasthenia glaberrima* is dominant or characteristically present in the herbaceous layer with *Eleocharis macrostachya* and other vernal pool species including *Eryngium vaseyi*, *Lasthenia fremontii*, *Plagiobothrys stipitatus* var. *micranthus*, *Psilocarphus brevissimus* var. *brevissimus*, *Myosurus minimus* and others...

***Lasthenia glaberrima* Herbaceous Alliance**

IIA2f.i. *Lasthenia glaberrima* is dominant or characteristically present in the herbaceous layer with *Eleocharis macrostachya* and *Downingia insignis*; stands occur within claypan pools of the Solano-Colusa and Northern Sacramento Valley vernal pool regions;

***Lasthenia glaberrima* – *Downingia insignis* Herbaceous Association**

IIA2f.ii. *Lasthenia glaberrima* is dominant or characteristically present in the herbaceous layer with *Eleocharis macrostachya* and other indicator species including *Lupinus bicolor*, *Pogogyne* spp., *Epilobium* spp., and *Medicago polymorpha*; on Vertisols in Solano-Colusa vernal pool region...

***Lasthenia glaberrima* – *Lupinus bicolor* Herbaceous Association**

IIA2f.iii. *Lasthenia glaberrima* is dominant or characteristically present in the herbaceous layer with *Eleocharis macrostachya* and other species including *Distichlis spicata*, *Pleuropogon californicus*, and *Downingia concolor* present; latter species has lower constancy but when present it is a good indicator of this community type; stands occur in the southern part of the Solano-Colusa vernal pool region; see Barbour et al. 2007 for full description...

Lasthenia glaberrima* – *Pleuropogon californicus* Herbaceous Association

IIA2.g *Eleocharis macrostachya* has at least 2% cover, and is often dominant. Stands are usually found in wetland ponds and may contain a high combined cover of other species including *Lolium perenne*. In vernal pools and swales, stands may contain *Eryngium castrense*, but do not include other typical vernal pool species such as *Lasthenia fremontii* and *Downingia* spp...

***Eleocharis macrostachya* Herbaceous Alliance**

IIA2g.i. *Pleuropogon californicus*, *Glyceria declinata*, or *G. occidentalis* is present with *Eleocharis macrostachya*. Stands usually support a high cover of disturbance-related, non-native wetland species such as *Ranunculus muricatus*, *Rorippa nasturtium-aquaticum*, *Hordeum* spp., or *Rumex* spp. Note: there is question about the identification of the grass *Glyceria* versus *Pleuropogon* in some of these stands found in the valley and adjacent northern Sierra Foothills; thus, parentheses are used to include either *Glyceria* or *Pleuropogon*. Stands are in riparian habitats (draws and basins inundated during springtime)...

***Eleocharis macrostachya* - (*Pleuropogon californicus*) Herbaceous Association
(Provisional)**

IIA2g.ii. *Eleocharis macrostachya* is dominant to co-dominant with a variety of native and non-native wetland species such as *Deschampsia danthonioides*, *Lolium perenne*, and *Lythrum hyssopifolia*. Stands are inundated until late spring, as vernal wet pools and ponds...

***Eleocharis macrostachya* Herbaceous Association**

II.B. Stands occur in upland areas that dry quickly by mid to late spring; not on flats or swales. *Trifolium variegatum* and *Layia fremontii* are not typically conspicuous. Stands may be dominated or characterized by native or non-native annual or perennial grasses or forbs. Settings include steep rocky slopes, rock outcrops, or moderately sloping uplands, among others...

II.B.1. *Lasthenia californica*, *L. gracilis*, *L. minor*, *Plantago erecta*, and/or *Vulpia microstachys* are characteristically present in herbaceous stands. A variety of native forbs including *Lepidium nitidum*, *Trifolium* spp. *Layia pentachaeta*, and upland *Plagiobothrys* spp. are present. If *Achyrachaena mollis* or *Layia fremontii* are present, they are less than half the cover of the indicator species in this upland and vernal moist alliance...

***Lasthenia californica* – *Plantago erecta* – *Vulpia microstachys* Herbaceous Alliance**

II.B1.a. *Lasthenia californica* or *L. gracilis* is dominant in the herbaceous layer. Other characteristic or often present herbs include *Lepidium dictyotum*, *Centromadia pungens*, *Crassula connata*, *Bromus hordeaceus*, and *Vulpia myuros*. Found on vernal alkaline flats, scalds and low mounds...

***Lasthenia (californica, gracilis)* Herbaceous Association**

II.B1.b. *Lasthenia minor* is dominant or co-dominant with other herbs on vernal alkaline flats...

***Lasthenia minor* Herbaceous Association (Provisional)**

II.B1.c. *Vulpia microstachys*, *Lasthenia californica*, and/or *Plantago erecta* occur with characteristic species *Sedella pumila*, *Triphysaria eriantha*, *Hypochaeris glabra*, and *Lepidium nitidum*. Found on skeletal soils of rocky volcanic tablelands and ridge-top mudflows...

***Vulpia microstachys* – *Lasthenia californica* – *Sedella pumila* Herbaceous Association**

II.B1.d. *Vulpia microstachys*, *Lasthenia californica*, and/or *Plantago erecta* occur with characteristic species such as *Triphysaria eriantha*, *Juncus bufonius*, *Chlorogalum angustifolium*, and *Briza minor*. *Agrostis elliotiana* and other species found on weathered volcanic clay soils (e.g., *Cicendia quadrangularis* and *Navarretia tagetina*) are often present. Found mostly on sedimentary and metamorphic substrates in Sacramento County...

***Vulpia microstachys* – *Lasthenia californica* – *Agrostis elliotiana* Herbaceous Association**

II.B1.e. *Vulpia microstachys* and/or *Plantago erecta* occur with characteristic species *Navarretia tagetina*, *Triphysaria eriantha*, and *Bromus hordeaceus*. Typically absent are *Agrostis elliotiana*, *Elymus elymoides*, and *Calycadenia* spp. Stands occur in the Sacramento Valley on upland grazed grasslands with rocky or thin clay soils...

***Vulpia microstachys* – *Navarretia tagetina* Herbaceous Association**

II.B1.f. *Vulpia microstachys* and *Plantago erecta* occur with other native and non-native species including *Trifolium depauperatum*, *Bromus hordeaceus*, and *Hypochaeris glabra*. *Navarretia tagetina* is typically absent. Found in moist upland grassland of the southern Sacramento and northern San Joaquin Valley...

***Vulpia microstachys* – *Plantago erecta* Herbaceous Association**

IIB1.g. *Selaginella hansenii*, *Vulpia microstachys*, and/or *Plantago erecta* intermix with a variety of other native species including *Lupinus spectabilis*, *Eschscholzia lobbii*, *Holocarpha virgata* subsp. *virgata*, *Plantago erecta*, *Dudleya cymosa* subsp. *cymosa*, and *Trifolium willdenovii*. Found on serpentinite and volcanic substrates...

***Selaginella hansenii* – *Vulpia microstachys* Herbaceous Association (Provisional)**

IIB1.h. *Vulpia microstachys* characterizes the herbaceous layer with a variety of other native and non-native herbs. Other native annuals can be high in cover including *Brodiaea* spp or *Gilia tricolor* in the early season and *Clarkia* spp. or *Centromadia fitchii* in the later season. Occurs across the valley on dry sites adjacent to vernal pools and oak woodlands...

***Vulpia microstachys* Herbaceous Association (Provisional)**

IIB1.i. *Lepidium nitidum* is dominant to co-dominant with other native and non-native plants including *Bromus rubens*, *Crassula connata*, *Erodium cicutarium*, *Lasthenia californica* and *Trifolium gracilentum*, and *Vulpia microstachys*...

***Lepidium nitidum* – *Trifolium gracilentum* – *Vulpia microstachys* Herbaceous Association**

IIB1.j. *Plagiobothrys acanthocarpa* is dominant to co-dominant with other native and non-native plants including *Lasthenia californica*, *Plantago erecta*, *Juncus bufonius*, *Hedypnois cretica*, *Medicago polymorpha*, and *Soliva sessilis*. Stands are currently sampled in Merced County on upland alluvium...

***Lasthenia californica* – *Plagiobothrys acanthocarpa* – *Medicago polymorpha* Herbaceous Association (Provisional)**

IIB1.k. *Layia pentachaeta*, *Plagiobothrys canescens* and/or *P. arizonicus* are characteristic and sub-dominant to co-dominant with other native and non-native plants including *Amsinckia menziesii*, *Bromus rubens*, *Erodium cicutarium*, *Hordeum murinum*, *Lasthenia* spp., *Pectocarya* spp. and *Schismus* spp. In open, patchy grasslands that are in upland grassland and hummocky or concave moist sites...

***Layia pentachaeta* – *Plagiobothrys (canescens)* Herbaceous Association (Provisional)**

IIB.2. Stands are characterized or dominated by perennial grasses or forbs such as *Achnatherum hymenoides*, *Elymus glaucus*, *Eriogonum nudum*, *Grindelia camporum*, *Hordeum brachyantherum*, *Isocoma acradenia*, *Nassella* spp., and *Phalaris aquatica*. Non-native annuals including *Bromus* sp., *Avena* sp., and *Brachypodium distachyon* may be more abundant than the perennials. Stands usually occur in upland to moist riparian settings and are not a component of wet meadows or marsh vegetation...

IIB2.a. *Achnatherum hymenoides* is the dominant or co-dominant perennial with annual species such as *Bromus* spp and *Erodium cicutarium*...

(no association defined)

***Achnatherum hymenoides* Herbaceous Alliance**

IIB2.b. *Nassella pulchra* is co-dominant or characteristically present (with at least 2% cover). Other native and non-native species, including *Bromus hordeaceus*, *Leontodon taraxacoides* and *Vulpia bromoides*, intermix with variable cover...

***Nassella pulchra* Herbaceous Alliance**

IIB2b.i. *Nassella pulchra* is characteristic in stands and non-native plants (including *Bromus* spp., *Vulpia bromoides*, and *Taeniatherum caput-medusa*) may be high in cover. Native grasses and forbs, including *Nassella*, *Distichlis spicata*, and *Dichelostemma capitata*, have at least 10% relative cover in these stands...

***Nassella pulchra* Herbaceous Association**

IIB2b.ii. *Nassella pulchra* is characteristic in stands, and occurs with *Leontodon taraxacoides*, *Juncus bufonius*, *Vulpia bromoides*, and variety of *Trifolium* spp. ...

***Nassella pulchra* – *Leontodon taraxacoides* Herbaceous Association (Provisional)**

IIB2b.iii. *Nassella pulchra* is co-dominant in stands (with at least 30% relative cover). Other native plants including *Navarretia* spp., *Sanicula bipinnatifida*, *S. crassicaulis*, and *Wyethia* sp., and non-native plants including *Bromus* spp. and *Taeniatherum caput-medusa* are present...

***Nassella pulchra* – *Sanicula bipinnatifida* Herbaceous Association**

IIB2.c. *Nassella cernua* is typically co-dominant as a characteristic grass. Other native and non-native species, including *Bromus hordeaceus*, *B. rubens*, and *Eschscholzia californica*, intermix with variable cover...

***Nassella cernua* Herbaceous Association (Provisional)
of the *Nassella cernua* Herbaceous Alliance (Provisional)**

IIB2.d. *Elymus glaucus* co-dominates the herbaceous layer with *Bromus hordeaceus*...

***Elymus glaucus* Herbaceous Association (Provisional)
of the *Elymus glaucus* Herbaceous Alliance**

IIB2.e. *Hordeum brachyantherum* is characteristic in the herbaceous layer and co-occurs with annual grasses and forbs including *Hordeum marinum*, *Lolium perenne*, *Medicago polymorpha*, and *Trifolium repens*...

***Hordeum brachyantherum* Herbaceous Association
of the *Hordeum brachyantherum* Herbaceous Alliance**

IIB2.f. *Poa secunda* is dominant or co-dominant with *Bromus* spp. and *Claytonia* spp., *Erodium cicutarium*, *Dichelostemma capitata*, *Trifolium willdenovii*, and/or other herbs may also be present. Stands typically occur on north-facing hill slopes...

***Poa secunda*–*Bromus rubens* Herbaceous Association
of the *Poa secunda* Herbaceous Alliance**

IIB2.g. *Isocoma acradenia* is characteristic in the herbaceous layer with variable cover, as a perennial forb or sub-shrub. Other herbs, including *Bromus* spp., *Frankenia salina*, *Hordeum* spp. and *Lepidium dictyotum*, are present and may be co-dominant. Stands occur on edges of alkali rain pools as well as clay flats to sandy toe-slopes, and they are often seasonally flooded...

***Isocoma acradenia* Shrubland Association
of the *Isocoma acradenia* Shrubland Alliance**

IIB2.h. *Grindelia camporum* is characteristic in the herbaceous layer with variable cover, and other herbs may be present and dominant, including *Anthemis cotula*, *Bromus* spp., *Centromadia pungens*, *Distichlis spicata*, *Eryngium vaseyi*, *Hordeum* spp., *Lolium perenne*, *Medicago polymorpha*, and *Phyla nodiflora*...

***Grindelia camporum* Herbaceous Association
of the *Grindelia (camporum, stricta)* Herbaceous Alliance**

IIB2.i. *Eriogonum nudum* is characteristic in the herbaceous layer with variable cover. Other herbs, including *Bromus rubens*, may be co-dominant. The shrub layer may be sparse and may include *Gutierrezia californica*. Stands occur on hills, slopes and grassy flats. This association was previously defined from the Inner Central Coast Range by Evens et al. 2006 as *Eriogonum nudum* var. *indictum*–*Eriogonum vestitum*...

***Eriogonum nudum* Herbaceous Association (Provisional)
of the *Eriogonum (elongatum, nudum)* Herbaceous Alliance**

IIB2.j. *Heterotheca oregona* is dominant in the herbaceous layer with sparse to intermittent cover. Found on sandy and cobbled gravel bars in floodplains, along riparian terraces and stream banks, and flats or slopes adjacent to riparian areas...

***Heterotheca oregona* Herbaceous Association
of the *Heterotheca (oregona, sessiliflora)* Herbaceous Alliance**

IIB2.k. *Phalaris aquatica* is strongly dominant alone or with other non-native plants including *Elytrigia pontica* and others (>80% relative cover compared to natives). Herbs may occur at lower cover including *Bromus* spp. ...

***Phalaris aquatica* Herbaceous Association (Provisional)
Phalaris aquatica Semi-Natural Herbaceous Stands (Provisional)**

IIB2.l. Other herbs seasonally dominant on upland sites and irregularly flooded riparian sites...

California Annual and Perennial Grassland Macrogroup

IIB3. Stands have a characteristic presence in the spring of native and annual upland forbs, though non-natives are often present with conspicuous cover. Diagnostic natives include *Amsinckia* spp., *Clarkia* spp., *Croton* (= *Eremocarpus*) *setigerus*, *Eschscholzia californica*, *Holocarpha virgata*, *Lupinus nanus*, *L. bicolor*, *Plagiobothrys nothofulvus*, and *Phacelia* spp....

IIB3.a. *Holocarpha virgata* is characteristic in the herbaceous layer with variable cover. Other herbs such as *Bromus hordeaceus*, *Erodium botrys*, *Juncus bufonius*, *Lupinus bicolor*, *Taeniatherum caput-medusae*, and *Vulpia bromoides* are present. This association was previously defined by Klein et al. (2007) as *Bromus hordeaceus*–*Holocarpha virgata*–*Taeniatherum caput-medusae*...

***Holocarpha virgata* Herbaceous Association
of the *Holocarpha virgata* Herbaceous Alliance**

IIB3.b. *Amsinckia menziesii*, *A. tessellata*, *Phacelia distans* and/or *P. tanacetifolia* is/are dominant or seasonally characteristic in the herbaceous layer with greater than 15% relative cover. Soils are often well-drained and loamy and may have high levels of (past/current) grazing and/or other disturbance...

***Amsinckia (menziesii, tessellata)* Herbaceous Alliance**

IIB3b.i. *Amsinckia menziesii* is present and dominant to sub-dominant with *Erodium* spp., and non-native grasses including *Hordeum murinum* and *Vulpia myuros* may be present with a variety of other native and non-native herbs. This association was previously defined by Buck-Diaz et al. (2011) and Klein and Evens (2005) as *Amsinckia menziesii* – *Bromus diandrus* and *Amsinckia menziesii* – *Erodium* spp. Association, respectively...

***Amsinckia menziesii* Herbaceous Association**

IIB3b.ii. *Phacelia tanacetifolia* is seasonally dominant or co-dominant with a variety of other herbs such as *Amsinckia menziesii*, *Erodium cicutarium*, and *Layia pentachaeta*. Sometimes *P. distans* or *P. imbricata* may be the dominant instead of *P. tanacetifolia*, though stands occur in similar environments that are typically sloped (rarely flat) with sandy/clay loam to clay soils...

***Phacelia tanacetifolia* Herbaceous Association (Provisional)**

IIB3.c. *Plagiobothrys nothofulvus* is characteristically present with variable cover and may be sub-dominant to dominant with *Bromus* spp., *Castilleja* spp., *Erodium* spp., and *Trifolium* spp....

***Plagiobothrys nothofulvus* Herbaceous Alliance**

IIB3c.i. *Plagiobothrys nothofulvus* and *Trifolium microcephalum* are characteristically present with *Bromus hordeaceus*, *Erodium botrys*, and other non-natives. Native species *Amsinckia menziesii*, *Castilleja attenuata*, and *Daucus pusillus* are often present with a variety of other forbs and grasses. A similar association of *Trifolium microcephalum* – *Daucus pusillus* – *Bromus hordeaceus* was previously defined in Yosemite National Park by Keeler-Wolf et al. (2003a)...

***Plagiobothrys nothofulvus* – *Daucus pusillus* – *Trifolium microcephalum* Herbaceous Association**

IIB3c.ii. *Plagiobothrys nothofulvus*, *Castilleja exserta* and *Lupinus nanus* are characteristic with other species including non-native *Erodium cicutarium*, *Bromus rubens* and/or other non-natives. Native species such as *Crassula connata*, *Lotus wrangelianus*, and *Plagiobothrys arizonicus* are often present with a variety of other forbs and grasses...

***Plagiobothrys nothofulvus* – *Castilleja exserta* – *Lupinus nanus* Herbaceous Association (Provisional)**

IIB3.d. *Lupinus nanus* has low to moderate cover and frequently intermixes with *Trifolium hirtum*, *Hypochaeris glabra*, *Bromus hordeaceus*, *Trifolium dubium*, *Erodium botrys*, *Lotus micranthus*, and *Castilleja attenuata*. Other species of *Trifolium* that may intermix include natives *T. willdenovii*, *T. microcephalum*, *T. variegatum*, and/or *T. depauperatum*...

***Bromus hordeaceus* – *Lupinus nanus* – *Trifolium* spp. Herbaceous Stand Type (Provisional)
of the *Bromus (diandrus, hordeaceus)*–*Brachypodium distachyon*
Semi-Natural Herbaceous Stands**

IIB3.e. *Plagiobothrys fulvus* is characteristic with low cover in stands that are dominated by *Bromus hordeaceus* and/or *Erodium botrys*. *Croton* (= *Eremocarpus*) *setigerus*, *Eschscholzia lobbii*, *Trifolium* spp. and a variety of other herbs are frequently present...

***Bromus hordeaceus* – *Erodium botrys* – *Plagiobothrys fulvus* Herbaceous Stand Type of the *Bromus (diandrus, hordeaceus)*–*Brachypodium distachyon* Semi-Natural Herbaceous Stands**

IIB3.f. *Croton* (= *Eremocarpus*) *setigerus* dominates the herbaceous layer with other forbs and grasses...

***Croton setigerus* Herbaceous Association (Provisional)
of the *Croton setigerus* Herbaceous Alliance (Provisional)**

IIB3.g. *Eschscholzia californica* is seasonally dominant on upland slopes or flats with sandy to loamy soils that are well drained. A variety of other native and non-native forbs and grasses may be present...

***Eschscholzia californica* Herbaceous Association
of the *Eschscholzia (californica)* Herbaceous Alliance**

IIB3.h. Other herbs seasonally dominant on upland sites and irregularly flooded riparian sites...

**California Annual Herb/Grass Group
of the California Annual and Perennial Grassland Macrogroup**

IIB.4. Stands have low or insignificant cover of native grasses or forbs, even during peak phenology. Stands are strongly dominated by non-native annual grasses and/or forbs including species of *Lolium*, *Bromus*, *Avena*, and *Trifolium*...

IIB4.a. *Lolium perenne* including *L. p.* var. *multiflorum* is dominant in the herbaceous layer or co-dominant with *Hordeum* spp. *Taeniatherum caput-medusae* and *Bromus hordeaceus* are often present, though lower in cover. Stands found in settings that have a slightly higher than ambient moisture regime...

***Lolium perenne* Semi-Natural Herbaceous Stands**

IIB4.a.i. *Lolium perenne* is dominant and occurs with other herbs including *Convolvulus arvensis*, *Hordeum murinum*, *Lactuca serriola*, *Rumex crispus* and *Xanthium strumarium*. This association includes stands previously defined by Hickson and Keeler-Wolf (2007) as *Lolium multiflorum* – *Convolvulus arvensis*...

***Lolium perenne* Herbaceous Stand Type**

IIB4.b. *Toxicoscordion* (= *Zigadenus*) *fremontii* is characteristic in the herbaceous layer with non-native species such as *Lolium perenne* and *Taeniatherum caput-medusae*. This type is clearly related to the *Layia fremontii* – *Achyrrachaena mollis* Alliance, but *Layia fremontii* is absent or present with trace cover. Stands were previously placed by Klein et al. (2007) in the *Lolium perenne* Herbaceous Alliance; while this type is related to that Alliance, the *Toxicoscordion* type has characteristic presence of native species...

***Toxicoscordion fremontii* Herbaceous Alliance (Provisional)**

IIB4b.i. *Toxicoscordion fremontii* is constant and often intermixes with natives *Triphysaria eriantha* subsp. *eriantha*, *Achyrrachaena mollis*, *Fritillaria pluriflora* and non-natives *Lolium perenne*, *Taeniatherum caput-medusae*, *Hypochaeris glabra*, *Geranium dissectum*, *Erodium botrys*, and *Medicago polymorpha*. Found on vernal wet or saturated clay soils...

***Toxicoscordion fremontii* – (*Lolium perenne*) Herbaceous Association (Provisional)**

IIB4.c. *Avena barbata* or *A. fatua* dominates or co-dominates with *Taeniatherum caput-medusae* in the herbaceous layer...

***Avena (barbata, fatua)* Semi-Natural Herbaceous Stands**

IIB4c.i. *Avena barbata* is dominant. Additional non-native herbs intermix with varying cover, including *Bromus hordeaceus*. Usually found in stands with shallow soils and higher nativity than other non-native types, including *Clarkia purpurea*...

***Avena barbata* Herbaceous Stand Type**

IIB4c.ii. *Avena fatua* strongly dominates the herbaceous layer with other non-native herbs. *Bromus* spp. if present, have low cover...

***Avena fatua* Herbaceous Stand Type**

IIB4.d. *Bromus diandrus*, *B. hordeaceus*, *Brachypodium distachyon*, and *Erodium* spp. are dominant or co-dominant with other non-natives in the herbaceous layer...

***Bromus (diandrus, hordeaceus)* – *Brachypodium distachyon*
Semi-Natural Herbaceous Stands**

IIB4d.i. *Bromus diandrus* strongly dominates stands composed largely of non-natives, including *Bromus hordeaceus* and *Hordeum murinum*...

***Bromus diandrus* Herbaceous Stand Type**

IIB4d.ii. *Bromus hordeaceus* and *Leontodon taraxacoides* collectively dominate stands and often have similar cover. Stands are composed largely of non-natives, including characteristic species *Aira caryophyllea*, *Erodium botrys*, *Trifolium dubium*, *Hypochaeris glabra*, *Briza minor* and *Trifolium hirtum*...

***Bromus hordeaceus* – *Leontodon taraxacoides* Herbaceous Stand Type**

IIB4d.iii. *Bromus hordeaceus* and *Hordeum* spp. co-dominate stands composed largely of non-natives including *Medicago polymorpha*...

***Bromus hordeaceus* – *Hordeum* spp. – *Medicago polymorpha* Herbaceous Stand Type**

IIB4d.iv. *Plagiobothrys fulvus* is characteristic with low cover in stands that are dominated by *Bromus hordeaceus* and/or *Erodium botrys*. *Croton* (= *Eremocarpus*) *setigerus*, *Eschscholzia lobbii*, *Trifolium* spp. and a variety of other herbs are frequently present...

***Bromus hordeaceus* – *Erodium (botrys)* – *Plagiobothrys fulvus* Herbaceous Stand Type**

IIB4d.v. *Taeniatherum caput-medusae* and *Bromus hordeaceus* co-dominate stands composed largely of non-natives...

***Bromus hordeaceus* – *Taeniatherum caput-medusae* Herbaceous Stand Type**

IIB4d.vi. *Bromus diandrus* and/or *B. hordeaceus* occur as dominants with native and non-native species including *Avena fatua*, *Lactuca serriola*, *Lolium perenne*, *Lotus purshianus*, *Trifolium hirtum*, and *Vicia* spp....

***Bromus hordeaceus* (– *Vicia villosa* – *Lolium perenne*) – *Trifolium hirtum* Herbaceous Stand Type**

IIB4d.vii. *Lupinus nanus* has low to moderate cover and frequently intermixes with *Trifolium hirtum*, *Hypochaeris glabra*, *Bromus hordeaceus*, *Trifolium dubium*, *Erodium botrys*, *Lotus micranthus*, and *Castilleja attenuata*. Other species of *Trifolium* that may intermix include natives *T. willdenovii*, *T. microcephalum*, *T. variegatum*, and/or *T. depauperatum*...

***Bromus hordeaceus* – *Lupinus nanus* – *Trifolium* spp. Herbaceous Stand Type (Provisional)**

IIB4.e. *Hypochaeris glabra*, *Vulpia bromoides*, *V. myuros*, and/or *Bromus* spp. are dominant or co-dominant in the herbaceous layer with other non-natives including *Erodium botrys*...

***Hypochaeris glabra* – *Vulpia bromoides* Herbaceous Stand Type of the *Bromus (diandrus, hordeaceus)* – *Brachypodium distachyon* Semi-Natural Herbaceous Stands**

IIB4.f. *Holocarpha virgata* is characteristic in the herbaceous layer with variable cover. Other herbs such as *Bromus hordeaceus*, *Erodium botrys*, *Juncus bufonius*, *Lupinus bicolor*, *Taeniatherum caput-medusae*, and *Vulpia bromoides* are present. This association was previously defined by Klein et al. (2007) as *Bromus hordeaceus*–*Holocarpha virgata*–*Taeniatherum caput-medusae*...

***Holocarpha virgata* Herbaceous Association of the *Holocarpha virgata* Herbaceous Alliance**

IIB4.g. *Bromus rubens* and/or *Schismus* spp. are conspicuous in the herbaceous layer, with virtually no significant cover of native species...

***Bromus rubens* – *Schismus (arabicus, barbatus)* Semi-Natural Herbaceous Stands**

IIB4g.i. *Bromus rubens* intermixes with other non-natives such as *Bromus diandrus* and *Erodium cicutarium*...

***Bromus rubens* Herbaceous Stand Type**

IIB4g.ii. *Schismus* spp. dominates the herbaceous layer...

***Schismus barbatus* Herbaceous Stand Type**

IIB4.h. *Centaurea solstitialis* (in late season) is conspicuous in the herbaceous layer, with virtually no significant or detectable cover of native species. Other non-natives include *Bromus hordeaceus*, *B. diandrus*, *Trifolium hirtum*, and *Vulpia myuros*...

***Centaurea solstitialis* Herbaceous Stand Type of the *Centaurea (melitensis, solstitialis)* Semi-Natural Herbaceous Stands**

IIB4.i. *Conium maculatum* dominates the herbaceous layer with other herbs and grasses...

***Conium maculatum* Herbaceous Stand Type
of the *Conium maculatum*–*Foeniculum vulgare* Semi-Natural Herbaceous Stands**

IIB4.j. Upland mustard species including *Brassica nigra*, *Hirschfeldia incana* and *Raphanus sativus* dominate the herbaceous layer with other non-native herbs and grasses, if native species are present they have low cover...

***Brassica (nigra)* and Other Mustards Semi-Natural Herbaceous Stands**

IIB4j.i. *Hirschfeldia incana* dominates the herbaceous layer with other non-natives...

***Hirschfeldia incana* Herbaceous Stand Type (Provisional)**

IIB4j.ii. *Brassica nigra* dominates the herbaceous layer...

***Brassica nigra* Herbaceous Stand Type**

IIB4.k. Other non-native herbs are strongly dominant (>80% relative cover) in the herbaceous layer forming open to continuous cover. Non-natives include (*Hordeum murinum*, *Silybum marianum*, *Sorghum halepense*, and *Vulpia myuros*). Stands occur adjacent to riparian areas and upland sites...

Mediterranean California Naturalized Annual and Perennial Grassland Group

Class D. Unvegetated or Urbanized Areas

Group I: Sparsely vegetated and unvegetated areas that are of natural origin including playas, streambeds and open water.

I.A. Ground covered by riverwash such as cobbles, gravels, or sand bars...

Bare, Gravel, Sand (BGS)

I.B. Standing water covers the mapping area...

Water (WAT)

Group II: Sparsely vegetated and unvegetated areas that are developed areas OR agricultural lands and planted stands.

II.A. Ground covered by urban landscapes such as houses, other buildings, roads, etc...

Urban (URB)

II.B. Ground covered with annual or perennial agriculture...

Agriculture (AGR)

APPENDIX 4. Descriptions and stand tables summarizing the environmental, vegetation and plant constancy/cover data for alliances and associations in the Great Valley Ecoregion.

A. Tree Overstory Types

Acer negundo Alliance (Box-elder forest)

Acer negundo is dominant in the tree canopy, often occurring with *Salix gooddingii*, *Quercus lobata*, *Populus fremontii*, *Juglans hindsii*, and *Fraxinus latifolia*. The tree canopy is intermittent to continuous, and it may be two-tiered. The shrub layer is open to intermittent, and the herbaceous layer is sparse to abundant. Stands occur near streams and in bottomlands. Soils are deep alluvium.

Five stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 47

Local Environmental Table:

Elevation: range 1 - 122, average 26 m
 Total vegetation cover: range 29 - 100 %, average 57 %
 Tree cover: range 0 - 100%, average 35 %
 Shrub cover: range 0.2 - 98%, average 13 %
 Herb cover: range 0 - 86%, average 12 %
 Percent native cover relative to non-native cover: 86 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	ACNE2	<i>Acer negundo</i>	100	33	7	96	X	X	
	SAGO	<i>Salix gooddingii</i>	60	4	0.2	25			
	QULO	<i>Quercus lobata</i>	45	1	0.2	27			
	POFR2	<i>Populus fremontii</i>	40	3	0.2	35			
	JUHI	<i>Juglans hindsii</i>	40	0.8	0.2	14			
	FRLA	<i>Fraxinus latifolia</i>	38	4	0.2	42			
Shrub	RUUR	<i>Rubus ursinus</i>	55	4	0.2	35			
	VICA5	<i>Vitis californica</i>	51	7	0.2	90			
	SAEX	<i>Salix exigua</i>	45	2	0.2	23			
	RUAR9	<i>Rubus armeniacus</i>	36	2	0.2	33			
	ROCA2	<i>Rosa californica</i>	23	0.9	0.2	20			
	CEOC2	<i>Cephalanthus occidentalis</i>	21	0.5	0.2	12			
Herb	BRDI3	<i>Bromus diandrus</i>	36	4	0.2	35			
	ARDO3	<i>Artemisia douglasiana</i>	32	0.5	0.2	5			
	CABA4	<i>Carex barbarae</i>	26	2	0.2	37			
	URDI	<i>Urtica dioica</i>	21	1	0.2	46			

Association(s) Defined: *Acer negundo*
Acer negundo–Salix gooddingii

***Acer negundo* Association**

Samples used to describe type: 15

Local Environmental Table:

Elevation: range 6 - 122, average 35 m
 Total vegetation cover: range 35 - 95 %, average 54 %
 Tree cover: range 10 - 60 %, average 32 %
 Shrub cover: range 0.2- 74 %, average 12 %
 Herb cover: range 0 - 59 %, average 16 %
 Percent native cover relative to non-native cover: 72 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	ACNE2	<i>Acer negundo</i>	100	31	10	55	X	X	
	QULO	<i>Quercus lobata</i>	47	0.8	0.2	7			
	JUHI	<i>Juglans hindsii</i>	47	0.5	0.2	4			
Shrub									
	RUUR	<i>Rubus ursinus</i>	53	2	0.2	20			
	VICA5	<i>Vitis californica</i>	47	7	0.2	70			
	RUAR9	<i>Rubus armeniacus</i>	40	3	0.2	33			
	SANI4	<i>Sambucus nigra</i>	40	0.3	0.2	2			
	FICA	<i>Ficus carica</i>	33	4	0.2	50			
	ROCA2	<i>Rosa californica</i>	33	2	0.2	20			
	SAEX	<i>Salix exigua</i>	33	0.8	0.2	6			
Herb									
	BRDI3	<i>Bromus diandrus</i>	53	7	0.2	33			
	SIMA3	<i>Silybum marianum</i>	33	3	0.2	35			
	ARDO3	<i>Artemisia douglasiana</i>	33	0.6	0.2	5			
	ANCA14	<i>Anthriscus caucalis</i>	33	0.4	0.2	5			
	URDI	<i>Urtica dioica</i>	33	0.4	0.2	5			
	HOMU	<i>Hordeum murinum</i>	27	0.9	2	5			

***Acer negundo*–*Salix gooddingii* Association**

Samples used to describe type: 27

Local Environmental Table:

Elevation: range 1 - 122, average 24 m
 Total vegetation cover: range 29 - 95 %, average 56 %
 Tree cover: range 3 - 85 %, average 35 %
 Shrub cover: range 1 - 50 %, average 12 %
 Herb cover: range 0 - 39 %, average 5 %
 Percent native cover relative to non-native cover: 94 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	ACNE2	<i>Acer negundo</i>	100	30	7	86	X	X	
	SAGO	<i>Salix gooddingii</i>	96	7	0.2	25	X		
	POFR2	<i>Populus fremontii</i>	56	5	0.2	35			
	FRLA	<i>Fraxinus latifolia</i>	56	5	0.2	42			
	QULO	<i>Quercus lobata</i>	41	0.4	0.2	5			
	JUHI	<i>Juglans hindsii</i>	37	0.4	0.2	4			
Shrub									
	RUUR	<i>Rubus ursinus</i>	59	6	1	35			
	VICA5	<i>Vitis californica</i>	56	5	0.2	46			
	SAEX	<i>Salix exigua</i>	52	2	0.2	23			
	RUAR9	<i>Rubus armeniacus</i>	37	1	0.2	11			
	CEOC2	<i>Cephalanthus occidentalis</i>	37	0.9	0.2	12			
Herb									
	ARDO3	<i>Artemisia douglasiana</i>	37	0.5	0.2	5			
	CABA4	<i>Carex barbarae</i>	30	0.9	0.2	10			
	BRDI3	<i>Bromus diandrus</i>	26	2	0.2	35			
	GAAP2	<i>Galium aparine</i>	22	0.4	0.2	10			

***Aesculus californica* Alliance (California buckeye groves)**

Aesculus californica is dominant in the tree canopy, often occurring with *Pinus sabiniana*, *Quercus douglasii*, and *Q. wislizeni*. The canopy is open to continuous, and is one- or two-tiered. Stands of *Aesculus californica* occur on varied slopes and topography. Soils are shallow and moderately to excessively drained. If *Aesculus californica* is co-dominant with an oak species, see the *Quercus douglasii* and *Q. wislizeni* alliances.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 96 m

Total vegetation cover: 30 %

Tree cover: 12 %

Shrub cover: 6 %

Herb cover: 0.2 %

Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	AECA	<i>Aesculus californica</i>	100	20	20	20	X	X	
	QUWI2	<i>Quercus wislizeni</i>	100	7	7	7	X		
	PISA2	<i>Pinus sabiniana</i>	100	5	5	5	X		
Shrub									
	TODI	<i>Toxicodendron diversilobum</i>	100	4	4	4	X	X	
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	100	2	2	2	X		X
Herb									
	MECA2	<i>Melica californica</i>	100	0.2	0.2	0.2	X	X	
	VUMY	<i>Vulpia myuros</i>	100	0.2	0.2	0.2	X	X	
Non-vasc									
	2MOSS	Unknown Moss	100	13	13	13	X	X	
	2LICHN	Unknown Lichen	100	3	3	3	X		

Associations defined: *Aesculus californica*/*Toxicodendron diversilobum*/Moss

Aesculus californica/Toxicodendron diversilobum/Moss Association

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

***Ailanthus altissima* Provisional Semi-Natural Stands (Tree-of-heaven groves)**

Ailanthus altissima is strongly dominant (>80% relative cover) in the tree canopy, often with *Quercus lobata*, *Q. wislizeni*, and other riparian trees and shrubs at low cover. The canopy is open to continuous and is one- or two-tiered. Stands occur along riparian corridors and bottomlands. Soils are clayey and loamy.

Samples used to describe type: 8

Local Environmental Table:

Elevation: range 6 - 91, average 45 m

Total vegetation cover: range 21 - 86 %, average 53 %

Tree cover: range 4 - 70 %, average 31 %

Shrub cover: range 0 - 6 %, average 1 %

Herb cover: range 4 - 80 %, average 24 %

Percent native cover relative to non-native cover: 12 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: CDFG-CNPS 2008, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	AIAL	<i>Ailanthus altissima</i>	100	35	8	82	X	X	
	QULO	<i>Quercus lobata</i>	63	0.3	0.2	1			
	QUWI2	<i>Quercus wislizeni</i>	38	0.4	0.2	2			
	FRLA	<i>Fraxinus latifolia</i>	25	0.2	0.2	1			
Shrub									
	SANI4	<i>Sambucus nigra</i>	50	0.9	0.2	4			
	RUUR	<i>Rubus ursinus</i>	38	0.6	1	3			
	RUAR9	<i>Rubus armeniacus</i>	38	0.1	0.2	0.2			
	VICA5	<i>Vitis californica</i>	25	0.3	0.2	2			
Herb									
	BRDI3	<i>Bromus diandrus</i>	100	16	1	49	X	X	
	SIMA3	<i>Silybum marianum</i>	50	1	0.2	4			
	LETR5	<i>Leymus triticoides</i>	25	3	5	16			
	ARDO3	<i>Artemisia douglasiana</i>	25	0.4	0.2	3			
	ANCA14	<i>Anthriscus caucalis</i>	25	0.4	1	2			
	CYEC	<i>Cynosurus echinatus</i>	25	0.3	0.2	2			
	GAAP2	<i>Galium aparine</i>	25	0.3	1	1			
	TOAR	<i>Torilis arvensis</i>	25	0.3	1	1			
	HOMU	<i>Hordeum murinum</i>	25	0.2	0.2	1			

Stand Type(s) Defined: *Ailanthus altissima* Provisional

***Ailanthus altissima* Provisional Stand Type**

Since only one type was defined for the semi-natural stands in the study area, its description is the same as the semi-natural stand information above.

References: CDFG-CNPS 2008, GIC 2011

***Alnus rhombifolia* Alliance (White alder groves)**

Alnus rhombifolia is dominant in the tree canopy, often occurring with *Salix lasiolepis*, *Fraxinus latifolia*, *Acer negundo*, *Populus fremontii*, *Quercus lobata*, *Salix gooddingii*, *Platanus racemosa*, and *Juglans hindsii*. The canopy is open to continuous. The shrub layer is sparse to continuous and the herbaceous layer is variable. Stands occur along riparian corridors, incised canyons, seeps, stream banks, mid-channel bars, floodplains, and terraces.

One stand showed additional variation and was classified to the alliance level only.

Samples used to describe type: 45

Local Environmental Table:

Elevation: range 0 - 182, average 24 m
 Total vegetation cover: range 24 - 95 %, average 75 %
 Tree cover: range 0.2- 80 %, average 30 %
 Shrub cover: range 1 - 65 %, average 23 %
 Herb cover: range 0 - 70 %, average 11 %
 Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: Buck-Diaz et al 2011a, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	ALRH2	<i>Alnus rhombifolia</i>	98	31	4	80	X	X	
	SALA6	<i>Salix lasiolepis</i>	60	9	0.2	44			
	FRLA	<i>Fraxinus latifolia</i>	47	2	0.2	16			
	ACNE2	<i>Acer negundo</i>	47	1	0.2	20			
	POFR2	<i>Populus fremontii</i>	36	3	0.2	35			
	QULO	<i>Quercus lobata</i>	36	1	0.2	12			
	SAGO	<i>Salix gooddingii</i>	33	2	0.2	21			
	PLRA	<i>Platanus racemosa</i>	27	0.9	0.2	15			
	JUHI	<i>Juglans hindsii</i>	24	1	0.2	28			
Shrub	RUAR9	<i>Rubus armeniacus</i>	73	8	0.2	65			
	SAEX	<i>Salix exigua</i>	58	7	0.2	53			
	CEOC2	<i>Cephalanthus occidentalis</i>	56	2	0.2	17			
	ROCA2	<i>Rosa californica</i>	44	6	0.2	60			
	VICA5	<i>Vitis californica</i>	38	3	0.2	58			
	RUUR	<i>Rubus ursinus</i>	29	2	0.2	30			
	COSE16	<i>Cornus sericea</i>	24	5	2	30			
Herb	ARDO3	<i>Artemisia douglasiana</i>	36	0.7	0.2	12			
	JUEF	<i>Juncus effusus</i>	36	0.4	0.2	4			
	CABA4	<i>Carex barbarae</i>	33	4	0.2	68			
	PADI3	<i>Paspalum dilatatum</i>	24	0.2	0.2	5			
	BRDI3	<i>Bromus diandrus</i>	22	0.8	0.2	8			

Association(s) Defined: *Alnus rhombifolia*
Alnus rhombifolia/Cornus sericea,
Alnus rhombifolia/Salix exigua(-Rosa californica)
Alnus rhombifolia-Salix laevigata-Platanus racemosa

***Alnus rhombifolia* Association**

Samples used to describe type: 12

Local Environmental Table:

Elevation: range 0 - 91, average 28 m
 Total vegetation cover: range 24 - 85 %, average 61 %
 Tree cover: range 0.2- 45 %, average 19 %
 Shrub cover: range 1 - 28 %, average 8 %
 Herb cover: range 0 - 70 %, average 16 %
 Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: Northwest and Southeast Great Valley

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	ALRH2	<i>Alnus rhombifolia</i>	100	30	14	60	X	X	
	FRLA	<i>Fraxinus latifolia</i>	83	2	0.2	6	X		
	ACNE2	<i>Acer negundo</i>	67	1	0.2	5			
	SALA6	<i>Salix lasiolepis</i>	50	7	0.2	35			
	POFR2	<i>Populus fremontii</i>	50	5	0.2	22			
	PLRA	<i>Platanus racemosa</i>	42	0.3	0.2	3			
	JUHI	<i>Juglans hindsii</i>	33	4	0.2	28			
	QULO	<i>Quercus lobata</i>	33	0.9	0.2	5			
	SAGO	<i>Salix gooddingii</i>	33	0.5	0.2	5			
	QUAG	<i>Quercus agrifolia</i>	25	0.2	0.2	1			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	67	4	0.2	25			
	CEOC2	<i>Cephalanthus occidentalis</i>	58	2	0.2	15			
	SAEX	<i>Salix exigua</i>	33	0.6	0.2	4			
	ROCA2	<i>Rosa californica</i>	25	0.6	0.2	5			
	RUUR	<i>Rubus ursinus</i>	25	0.5	1	3			
Herb									
	BRDI3	<i>Bromus diandrus</i>	50	2	0.2	8			
	CABA4	<i>Carex barbarae</i>	42	8	0.2	68			
	CYDA	<i>Cynodon dactylon</i>	42	1	0.2	10			
	ARDO3	<i>Artemisia douglasiana</i>	42	0.9	0.2	5			
	JUEF	<i>Juncus effusus</i>	42	0.6	0.2	4			

***Alnus rhombifolia*/Cornus sericea Association**

Samples used to describe type: 9

Local Environmental Table:

Elevation: average 0 m

Total vegetation cover: range 70 - 95 %, average 82 %

Tree cover: range 11 - 60 %, average 28 %

Shrub cover: range 10 - 40 %, average 21 %

Herb cover: range 0.2- 2 %, average 1 %

Percent native cover relative to non-native cover: 97 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	ALRH2	<i>Alnus rhombifolia</i>	100	27	11	58	X		X
	SALA6	<i>Salix lasiolepis</i>	100	27	3.	44	X		X
	POFR2	<i>Populus fremontii</i>	56	1	0.2	5			
	SALUL	<i>Salix lucida</i> ssp. <i>lasiandra</i>	44	7	0.2	20			
	QULO	<i>Quercus lobata</i>	33	1	0.2	8			
	SAGO	<i>Salix gooddingii</i>	22	3	2	21			
	ACNE2	<i>Acer negundo</i>	22	0.8	2	5			
Shrub									
	COSE16	<i>Cornus sericea</i>	100	21	2	30	X	X	
	VICA5	<i>Vitis californica</i>	78	3	0.2	10	X		
	SAEX	<i>Salix exigua</i>	67	1	0.2	3			
	RUAR9	<i>Rubus armeniacus</i>	56	2	0.2	8			
	RUUR	<i>Rubus ursinus</i>	44	5	0.2	30			
	CEOC2	<i>Cephalanthus occidentalis</i>	44	0.3	0.2	2			
	ROCA2	<i>Rosa californica</i>	33	3	7	10			
	FICA	<i>Ficus carica</i>	33	0.3	0.2	2			
	HOMA4	<i>Hoita macrostachya</i>	33	0.2	0.2	1			
Herb									
	JUNCU	<i>Juncus</i> sp.	33	0.1	0.2	0.2			

***Alnus rhombifolia*/*Salix exigua*(–*Rosa californica*) Association**

Samples used to describe type: 18

Local Environmental Table:

Elevation: range 0 - 1, average 0.1 m
 Total vegetation cover: range 65 - 92 %, average 80 %
 Tree cover: range 0.2- 80 %, average 32 %
 Shrub cover: range 3 - 65 %, average 27 %
 Herb cover: range 1 - 65 %, average 16 %
 Percent native cover relative to non-native cover: 86 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	ALRH2	<i>Alnus rhombifolia</i>	100	36	5	80	X	X	
	ACNE2	<i>Acer negundo</i>	61	2	0.2	20			
	SALA6	<i>Salix lasiolepis</i>	56	3	0.2	20			
	SAGO	<i>Salix gooddingii</i>	44	2	0.2	13			
	FRLA	<i>Fraxinus latifolia</i>	44	2	0.2	16			
	JUHI	<i>Juglans hindsii</i>	33	0.3	0.2	1			
	QULO	<i>Quercus lobata</i>	28	0.3	0.2	2			
Shrub									
	SAEX	<i>Salix exigua</i>	78	16	1	53	X		
	ROCA2	<i>Rosa californica</i>	78	13	0.2	60	X		X
	RUAR9	<i>Rubus armeniacus</i>	78	11	0.2	65	X		
	CEOC2	<i>Cephalanthus occidentalis</i>	61	1	0.2	10			
	RUUR	<i>Rubus ursinus</i>	33	1	0.2	10			
Herb									
	CABA4	<i>Carex barbarae</i>	50	6	0.2	60			
	JUEF	<i>Juncus effusus</i>	50	0.6	0.2	3			
	PADI3	<i>Paspalum dilatatum</i>	44	0.2	0.2	1			
	ARDO3	<i>Artemisia douglasiana</i>	39	1	0.2	12			
	SCCA11	<i>Schoenoplectus californicus</i>	22	4	0.2	55			

***Alnus rhombifolia*–*Salix laevigata*–*Platanus racemosa* Association**

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 72 - 182, average 135 m
 Total vegetation cover: range 67 - 90 %, average 79 %
 Tree cover: range 17 - 72 %, average 44 %
 Shrub cover: range 27 - 64 %, average 43 %
 Herb cover: range 1 - 18 %, average 5 %
 Percent native cover relative to non-native cover: 75 %

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SALA3	<i>Salix laevigata</i>	100	11	0.2	26	X		
	ALRH2	<i>Alnus rhombifolia</i>	80	21	4	55	X		X
	PLRA	<i>Platanus racemosa</i>	80	7	4	15	X		
	QULO	<i>Quercus lobata</i>	60	2	0.2	4			
	POFR2	<i>Populus fremontii</i>	40	9	8	35			
	SALA6	<i>Salix lasiolepis</i>	40	2	4	8			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	100	19	0.4	35	X		X
	VICA5	<i>Vitis californica</i>	100	18	5	58	X		X
	CAOC5	<i>Calycanthus occidentalis</i>	80	1	0.2	5	X		
	FICA	<i>Ficus carica</i>	60	4	0.2	20			
	BRCA3	<i>Brickellia californica</i>	40	0.4	0.2	2			
	CEOC2	<i>Cephalanthus occidentalis</i>	40	0.4	1	1			
	TODI	<i>Toxicodendron diversilobum</i>	40	0.2	0.2	1			
Herb									
	ARDO3	<i>Artemisia douglasiana</i>	60	0.1	0.2	0.2			
	CYEC	<i>Cynosurus echinatus</i>	60	0.1	0.2	0.2			
	MEOF	<i>Melilotus officinalis</i>	40	0.2	0.2	1			
	DAPE	<i>Darmera peltata</i>	40	0.1	0.2	0.2			
	EPGI	<i>Epipactis gigantea</i>	40	0.1	0.2	0.2			

Eucalyptus (globulus, camaldulensis) Semi-Natural Stands (Eucalyptus groves)

Eucalyptus camaldulensis is dominant in the tree canopy, often occurring with *Quercus lobata*, *Populus fremontii*, *Juglans hindsii*, and *Salix gooddingii*. The tree canopy is intermittent to continuous, the shrub layer is sparse to intermittent, and the herbaceous layer is sparse to intermittent. Eucalyptus is planted as trees, groves, and windbreaks. Naturalized on uplands and stream courses.

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 30 - 91, average 65 m

Total vegetation cover: range 17 - 53 %, average 36 %

Tree cover: range 11 - 50 %, average 27 %

Shrub cover: range 0 - 4 %, average 1 %

Herb cover: range 2 - 17 %, average 8 %

Percent native cover relative to non-native cover: 9 %

Location(s) Sampled: Northwest and Southeast Great Valley

References: CDFG-CNPS 2008, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	EUCA2	<i>Eucalyptus camaldulensis</i>	83	20	1	46	X	X	
	QULO	<i>Quercus lobata</i>	33	0.4	0.2	2			
	POFR2	<i>Populus fremontii</i>	33	0.2	0.2	1			
	JUHI	<i>Juglans hindsii</i>	33	0.1	0.2	0.2			
	SAGO	<i>Salix gooddingii</i>	33	0.1	0.2	0.2			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	33	0.8	1	4			
	SAEX	<i>Salix exigua</i>	33	0.2	0.2	1			
	VICA5	<i>Vitis californica</i>	33	0.1	0.2	0.2			
Herb									
	BRDI3	<i>Bromus diandrus</i>	67	5	0.2	15			
	RUCR	<i>Rumex crispus</i>	50	0.1	0.2	0.2			
	ANCA14	<i>Anthriscus caucalis</i>	33	0.4	0.2	2			
	BRHO2	<i>Bromus hordeaceus</i>	33	0.1	0.2	0.2			
	CESO3	<i>Centaurea solstitialis</i>	33	0.1	0.2	0.2			
	LASE	<i>Lactuca serriola</i>	33	0.1	0.2	0.2			

Stand Type(s) Defined: *Eucalyptus (globulus, camaldulensis)*

Eucalyptus (globulus, camaldulensis) Stand Type

Since only one stand type was defined for the semi-natural stands in the study area, its description is the same as the semi-natural stand information above.

References: CDFG-CNPS 2008, GIC 2011

Fraxinus latifolia Alliance (Oregon ash groves)

Fraxinus latifolia is dominant in the tree canopy, often occurring with *Quercus lobata*, *Acer negundo*, *Alnus rhombifolia*, *Salix gooddingii*, *S. lasiolepis*, *Platanus racemosa*, and *Populus fremontii*. The tree canopy is open to continuous, and the shrub layer is sparse to intermittent. *Fraxinus latifolia* stands form in riparian corridors, incised canyons, seeps, stream banks, and on stream terraces. Soils are alluvial.

Samples used to describe type: 14

Local Environmental Table:

Elevation: range 0 - 183, average 62 m
 Total vegetation cover: range 15 - 80 %, average 55 %
 Tree cover: range 1 - 73 %, average 38 %
 Shrub cover: range 0 - 27 %, average 9 %
 Herb cover: range 0.2 - 62 %, average 13 %
 Percent native cover relative to non-native cover: 80 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	FRLA	<i>Fraxinus latifolia</i>	93	26	5	73	X	X	
	QULO	<i>Quercus lobata</i>	43	1	0.2	10			
	ACNE2	<i>Acer negundo</i>	36	2	0.2	15			
	ALRH2	<i>Alnus rhombifolia</i>	29	8	7	55			
	SAGO	<i>Salix gooddingii</i>	29	1	1	13			
	PLRA	<i>Platanus racemosa</i>	29	0.4	1	2			
	POFR2	<i>Populus fremontii</i>	29	0.2	0.2	2			
	SALA6	<i>Salix lasiolepis</i>	29	0.2	0.2	1			
Shrub	RUAR9	<i>Rubus armeniacus</i>	57	3	2	19			
	CEOC2	<i>Cephalanthus occidentalis</i>	50	1	0.2	7			
	SAEX	<i>Salix exigua</i>	43	1	1	7			
	VICA5	<i>Vitis californica</i>	29	1	0.2	10			
Herb	BRDI3	<i>Bromus diandrus</i>	64	3	0.2	28			
	ARDO3	<i>Artemisia douglasiana</i>	57	1	0.2	10			
	CABA4	<i>Carex barbarae</i>	43	1	0.2	12			
	CYER	<i>Cyperus eragrostis</i>	29	0.3	0.2	3			

Association(s) Defined: *Fraxinus latifolia*

Fraxinus latifolia–*Alnus rhombifolia*

Fraxinus latifolia Association

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 4 - 183, average 66 m
 Total vegetation cover: range 15 - 80 %, average 52 %
 Tree cover: range 1 - 70 %, average 34 %
 Shrub cover: range 0 - 27 %, average 8 %
 Herb cover: range 0.2 - 62 %, average 13 %
 Percent native cover relative to non-native cover: 78 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	FRLA	<i>Fraxinus latifolia</i>	90	29	5	73	X	X	
	QULO	<i>Quercus lobata</i>	40	1	0.2	10			
	POFR2	<i>Populus fremontii</i>	40	0.3	0.2	2			
	ACNE2	<i>Acer negundo</i>	30	2	0.2	15			
	PLRA	<i>Platanus racemosa</i>	30	0.4	1	2			
	SAGO	<i>Salix gooddingii</i>	30	0.4	1	2			
	SALA6	<i>Salix lasiolepis</i>	30	0.2	0.2	1			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	50	3	2	19			
	SAEX	<i>Salix exigua</i>	50	2	2	7			
	CEOC2	<i>Cephalanthus occidentalis</i>	50	0.7	0.2	2			
	VICA5	<i>Vitis californica</i>	30	2	0.2	10			
Herb									
	BRDI3	<i>Bromus diandrus</i>	70	4	0.2	28			
	ARDO3	<i>Artemisia douglasiana</i>	60	2	0.2	10			
	CABA4	<i>Carex barbarae</i>	50	2	0.2	12			
	CYER	<i>Cyperus eragrostis</i>	30	0.3	0.2	3			
	XAST	<i>Xanthium strumarium</i>	30	0.1	0.2	1			

Fraxinus latifolia–Alnus rhombifolia Association

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 0 - 123, average 54 m

Total vegetation cover: range 53 - 75 %, average 63 %

Tree cover: range 34 - 73 %, average 48 %

Shrub cover: range 2 - 26 %, average 12 %

Herb cover: range 1 - 20 %, average 12 %

Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: CDFG-CNPS 2008, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	ALRH2	<i>Alnus rhombifolia</i>	100	27	7	55	X	X	
	FRLA	<i>Fraxinus latifolia</i>	100	17	6	33	X		X
	ACNE2	<i>Acer negundo</i>	50	0.6	0.4	2			
	QULO	<i>Quercus lobata</i>	50	0.6	0.4	2			
	SAGO	<i>Salix gooddingii</i>	25	3	13	13			
	PLRA	<i>Platanus racemosa</i>	25	0.3	1	1			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	75	3	2	7	X		X
	CEOC2	<i>Cephalanthus occidentalis</i>	50	2	1	7			
	RUUR	<i>Rubus ursinus</i>	50	1	1	3			
	SANI4	<i>Sambucus nigra</i>	25	4	16	16			
	SAME2	<i>Salix melanopsis</i>	25	1	4	4			
	COGL3	<i>Cornus glabrata</i>	25	0.8	3	3			
	FICA	<i>Ficus carica</i>	25	0.8	3	3			
	VICA5	<i>Vitis californica</i>	25	0.4	1	1			
	CAOC5	<i>Calycanthus occidentalis</i>	25	0.3	1	1			
	ROCA2	<i>Rosa californica</i>	25	0.3	1	1			
	SAEX	<i>Salix exigua</i>	25	0.3	1	1			
Herb									
	BRDI3	<i>Bromus diandrus</i>	50	2	0.2	9			
	ARDO3	<i>Artemisia douglasiana</i>	50	0.3	0.2	1			
	AMME	<i>Amsinckia menziesii</i>	25	2	8	8			
	ANCA14	<i>Anthriscus caucalis</i>	25	2	7	7			
	CABA4	<i>Carex barbarae</i>	25	0.8	3	3			
	HIIN3	<i>Hirschfeldia incana</i>	25	0.5	2	2			
	CAPR5	<i>Carex praegracilis</i>	25	0.3	1	1			
	CYEC	<i>Cynosurus echinatus</i>	25	0.3	1	1			
	EUOC4	<i>Euthamia occidentalis</i>	25	0.3	1	1			
	LETR5	<i>Leymus triticooides</i>	25	0.3	1	1			
	MURI2	<i>Muhlenbergia rigens</i>	25	0.3	1	1			
	SIMA3	<i>Silybum marianum</i>	25	0.3	1	1			
Non-vasc									
	2MOSS	Unknown Moss	25	0.3	1	1			

***Juglans hindsii* and Hybrids Special Stands and Semi-Natural Stands (Hinds's walnut groves)**

Juglans hindsii is dominant in the tree canopy, often occurring with *Acer negundo*, *Populus fremontii*, *Quercus lobata*, and *Ailanthus altissima*. The shrub and herb layers may contain riparian or upland species. Stands are found along intermittently flooded or saturated riparian corridors, floodplains, stream and river banks, and terraces. Soils are alluvial. Native stands are rare in the study area, and the majority of stands are semi-natural in origin.

Samples used to describe type: 29

Local Environmental Table:

Elevation: range 1 - 147, average 60 m
 Total vegetation cover: range 30 - 85 %, average 48 %
 Tree cover: range 7 - 55 %, average 21 %
 Shrub cover: range 0.2- 75 %, average 8 %
 Herb cover: range 0.2- 72 %, average 19 %
 Percent native cover relative to non-native cover: 63 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	JUHI	<i>Juglans hindsii</i>	100	20	9	40	X	X	
	ACNE2	<i>Acer negundo</i>	52	2	0.2	10			
	POFR2	<i>Populus fremontii</i>	45	1	0.2	12			
	QULO	<i>Quercus lobata</i>	34	0.6	0.2	5			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	62	4	0.2	59			
	VICA5	<i>Vitis californica</i>	62	3	0.2	35			
	SANI4	<i>Sambucus nigra</i>	55	1	0.2	11			
	ARCA10	<i>Aristolochia californica</i>	31	0.3	0.2	4			
Herb									
	BRDI3	<i>Bromus diandrus</i>	83	9	0.2	68	X		X
	TOAR	<i>Torilis arvensis</i>	52	0.5	0.2	3			
	GAAP2	<i>Galium aparine</i>	45	0.8	0.2	7			
	ARDO3	<i>Artemisia douglasiana</i>	38	1	0.2	19			
	CABA4	<i>Carex barbarae</i>	34	2	0.2	35			
	ANCA14	<i>Anthriscus caucalis</i>	31	0.8	0.2	8			
	LASE	<i>Lactuca serriola</i>	28	0.1	0.2	0.2			
	SIMA3	<i>Silybum marianum</i>	24	0.2	0.2	3			

Stand Type(s) defined: *Juglans hindsii* / Herbaceous Provisional

***Juglans hindsii* / Herbaceous Provisional Stand Type**

Since only one stand type was defined for the semi-natural stands in the study area, its description is the same as the semi-natural stand information above.

References: GIC 2011, Hickson and Keeler-Wolf 2007

***Juniperus californica* Alliance (California juniper woodland)**

Juniperus californica is dominant in the tree canopy, often occurring with *Quercus douglasii* and *Q. wislizeni*. The tree canopy is open to intermittent, and the herbaceous layer is sparse or grassy. Stands are found on ridges, slopes, valleys, alluvial fans, and valley bottoms. Soils are porous, rocky, coarse, sandy, or silty and are often very shallow.

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 122- 162, average 142 m
 Total vegetation cover: range 22 - 55 %, average 38 %
 Tree cover: range 0.2 - 1 %, average 0.6%
 Shrub cover: range 8 - 29 %, average 18%
 Herb cover: range 12 - 70 %, average 40%
 Percent native cover relative to non-native cover: 78%

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	JUCA7	<i>Juniperus californica</i>	100	17	8	25	X	X	
	QUDO	<i>Quercus douglasii</i>	50	0.5	1	1			
Shrub	CECU	<i>Ceanothus cuneatus</i>	50	2	4	4			
Herb	SEHA2	<i>Selaginella hansenii</i>	100	6	0.2	12	X		
	TOAR	<i>Torilis arvensis</i>	100	2	0.2	4	X		
	PETR7	<i>Pentagramma triangularis</i>	100	0.6	0.2	1	X		
	GEMO	<i>Geranium molle</i>	100	0.2	0.2	0.2	X		
	TRHI4	<i>Trifolium hirtum</i>	50	4	7	7			
	AVBA	<i>Avena barbata</i>	50	2	4	4			
	BRDI2	<i>Brachypodium distachyon</i>	50	1.5	3	3			
	BRHO2	<i>Bromus hordeaceus</i>	50	1.5	3	3			
	CEMU2	<i>Centaureum muehlenbergii</i>	50	1.5	3	3			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	50	1.5	3	3			
	TACA8	<i>Taeniatherum caput-medusae</i>	50	2	3	3			
	BRDI3	<i>Bromus diandrus</i>	50	1	2	2			
	CESO3	<i>Centaurea solstitialis</i>	50	1	2	2			
	MIGL2	<i>Mimulus glaucescens</i>	50	1	2	2			
	TRDU2	<i>Trifolium dubium</i>	50	1	2	2			
	VUMI	<i>Vulpia microstachys</i>	50	1	2	2			
	AICA	<i>Aira caryophyllea</i>	50	0.5	1	1			
	BRODI	<i>Brodiaea</i> sp.	50	0.5	1	1			
	CLPU2	<i>Clarkia purpurea</i>	50	0.5	1	1			
	CYEC	<i>Cynosurus echinatus</i>	50	0.5	1	1			
JUNCU	<i>Juncus</i> sp.	50	0.5	1	1				

JUBU	<i>Juncus bufonius</i>	50	0.5	1	1
NAPU2	<i>Navarretia pubescens</i>	50	0.5	1	1
PEDU2	<i>Petrorhagia dubia</i>	50	0.5	1	1
PLER3	<i>Plantago erecta</i>	50	0.5	1	1
SHAR2	<i>Sherardia arvensis</i>	50	0.5	1	1
SIGA	<i>Silene gallica</i>	50	0.5	1	1
EPILO	<i>Epilobium</i> sp.	50	0.2	0.4	0.4
Non-vasc					
2MOSS	Unknown Moss	50	1	2	2

Association(s) defined: *Juniperus californica*/Herbaceous Association

***Juniperus californica*/Herbaceous Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Klein et al. 2007, Sawyer et al. 2009

***Pinus ponderosa* Alliance (Ponderosa pine forest)**

Pinus ponderosa is dominant in the tree canopy, often occurring with *Quercus wislizeni* and *Pinus sabiniana*. The canopy and shrub layers are open to continuous. The herbaceous layer is sparse, abundant, or grassy. Stands occupy all upland topography, floodplains, low-gradient deposits along streams, and raised benches.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 110 m

Total vegetation cover: 36 %

Tree cover: 18 %

Shrub cover: 20 %

Herb cover: 5 %

Percent native cover relative to non-native cover: 95 %

Location(s) Sampled: Northeast Great Valley

References: CDFG 2004, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PIPO	<i>Pinus ponderosa</i>	100	15	15	15	X	X	
	QUWI2	<i>Quercus wislizeni</i>	100	3	3	3	X		
	PISA2	<i>Pinus sabiniana</i>	100	0.2	0.2	0.2	X		
Shrub									
	ARVI4	<i>Arctostaphylos viscida</i>	100	20	20	20	X	X	
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	100	2	2	2	X		
	ARMA	<i>Arctostaphylos manzanita</i>	100	1	1	1	X		
	ADFA	<i>Adenostoma fasciculatum</i>	100	0.2	0.2	0.2	X		
Herb									
	POSE	<i>Poa secunda</i>	100	3	3	3	X		X
	AICA	<i>Aira caryophyllea</i>	100	1	1	1	X		
	BRDI3	<i>Bromus diandrus</i>	100	1	1	1	X		
	VUMY	<i>Vulpia myuros</i>	100	1	1	1	X		
	AVENA	<i>Avena</i> sp.	100	0.2	0.2	0.2	X		
Non-vasc									
	CRYPTO	Cryptogamic crust	100	10	10	10	X	X	
	2MOSS	Unknown Moss	100	10	10	10	X	X	

Association(s) defined: *Pinus ponderosa*/*Arctostaphylos viscida* Provisional

***Pinus ponderosa*/*Arctostaphylos viscida* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG 2004, Klein et al. 2007, Sawyer et al. 2009

***Pinus sabiniana* Alliance (Ghost pine woodland)**

Pinus sabiniana is dominant in the canopy or emergent over chaparral species. It may also grow with oaks, including *Quercus douglasii* and *Q. wislizeni*. The herb layer is grassy or sparse. Stands typically occur on streamside terraces, valleys, slopes, and ridges. Soils are shallow, often stony, infertile, and moderately to excessively drained.

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 61 - 122, average 94 m
 Total vegetation cover: range 35 - 66 %, average 46 %
 Tree cover: range 12 - 45 %, average 24 %
 Shrub cover: range 14 - 35 %, average 22 %
 Herb cover: range 14 - 52 %, average 29 %
 Percent native cover relative to non-native cover: 67 %

Location(s) Sampled: Northeast and Northwest Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	PISA2	<i>Pinus sabiniana</i>	100	20	12	33	X	X	
	QUDO	<i>Quercus douglasii</i>	100	3	0.2	4	X		
	QUWI2	<i>Quercus wislizeni</i>	67	4	0.2	11			
Shrub	TODI	<i>Toxicodendron diversilobum</i>	100	7	0.2	21	X		
	ARMA	<i>Arctostaphylos manzanita</i>	67	5	0.2	14			
	RHIL	<i>Rhamnus ilicifolia</i>	67	0.4	0.2	1			
	LUAL4	<i>Lupinus albifrons</i>	33	5	14	14			
	ARCA10	<i>Aristolochia californica</i>	33	3	8	8			
	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	33	1	3	3			
	STRE4	<i>Styrax redivivus</i>	33	0.7	2	2			
	CECU	<i>Ceanothus cuneatus</i>	33	0.7	2	2			
	HEAR5	<i>Heteromeles arbutifolia</i>	33	0.7	2	2			
Herb	BRDI3	<i>Bromus diandrus</i>	100	5	0.2	14	X		
	BRDI2	<i>Brachypodium distachyon</i>	67	9	13	15			
	TRHI4	<i>Trifolium hirtum</i>	67	2	0.2	6			
	PETR7	<i>Pentagramma triangularis</i>	67	0.7	0.2	2			
	AICA	<i>Aira caryophyllea</i>	67	0.1	0.2	0.2			
	GALIU	<i>Galium</i> sp.	67	0.1	0.2	0.2			
	CYEC	<i>Cynosurus echinatus</i>	33	4	12	12			
	TOAR	<i>Torilis arvensis</i>	33	3	9	9			
	BRHO2	<i>Bromus hordeaceus</i>	33	2	5	5			
	BRRU2	<i>Bromus rubens</i>	33	1	3	3			
	DAPU3	<i>Daucus pusillus</i>	33	0.7	2	2			
	TRMI4	<i>Trifolium microcephalum</i>	33	0.7	2	2			

	AVBA	<i>Avena barbata</i>	33	0.3	1	1
	CHPO3	<i>Chlorogalum pomeridianum</i>	33	0.3	1	1
	HYGL2	<i>Hypochaeris glabra</i>	33	0.3	1	1
	VICIA	<i>Vicia</i> sp.	33	0.3	1	1
Non-vasc						
	2LICHN	Unknown Lichen	33	1	3	3
	2MOSS	Unknown Moss	33	0.3	1	1

Association(s) Defined: *Pinus sabiniana/Ceanothus cuneatus–Heteromeles arbutifolia*
Pinus sabiniana/Frangula californica ssp. *tomentella*
Provisional
Pinus sabiniana/grass–herb

***Pinus sabiniana/Ceanothus cuneatus–Heteromeles arbutifolia* Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 99 m

Total vegetation cover: 35 %

Tree cover: 18 %

Shrub cover: 19 %

Herb cover: 14 %

Percent native cover relative to non-native cover: 74 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Evens et al. 2004, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PISA2	<i>Pinus sabiniana</i>	100	15	15	15	X	X	
	QUDO	<i>Quercus douglasii</i>	100	4	4	4	X		
	QUWI2	<i>Quercus wislizeni</i>	100	0.2	0.2	0.2	X		
Shrub									
	ARMA	<i>Arctostaphylos manzanita</i>	100	14	14	14	X	X	
	CECU	<i>Ceanothus cuneatus</i>	100	2	2	2	X		
	HEAR5	<i>Heteromeles arbutifolia</i>	100	2	2	2	X		
	RHIL	<i>Rhamnus ilicifolia</i>	100	1	1	1	X		
	ADFA	<i>Adenostoma fasciculatum</i>	100	0.2	0.2	0.2	X		
	LONIC	<i>Lonicera</i> sp.	100	0.2	0.2	0.2	X		
	TODI	<i>Toxicodendron diversilobum</i>	100	0.2	0.2	0.2	X		
Herb									
	BRDI2	<i>Brachypodium distachyon</i>	100	13	13	13	X	X	
	BRDI3	<i>Bromus diandrus</i>	100	0.2	0.2	0.2	X		
	DIVO	<i>Dichelostemma volubile</i>	100	0.2	0.2	0.2	X		
	GALIU	<i>Galium</i> sp.	100	0.2	0.2	0.2	X		

***Pinus sabiniana*/Frangula californica ssp. tomentella Provisional Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 122 m

Total vegetation cover: 66 %

Tree cover: 44 %

Shrub cover: 35 %

Herb cover: 52 %

Percent native cover relative to non-native cover: 66 %

Location(s) Sampled: Northwest Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PISA2	<i>Pinus sabiniana</i>	100	33	33	33	X	X	
	QUWI2	<i>Quercus wislizeni</i>	100	11	11	11	X		
	QUDO	<i>Quercus douglasii</i>	100	0.2	0.2	0.2	X		
Shrub									
	TODI	<i>Toxicodendron diversilobum</i>	100	21	21	21	X	X	
	ARCA10	<i>Aristolochia californica</i>	100	8	8	8	X		
	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	100	3	3	3	X		
	STRE4	<i>Styrax redivivus</i>	100	2	2	2	X		
	LOHIV	<i>Lonicera hispidula</i> var. <i>vacillans</i>	100	0.4	0.4	0.4	X		
	ARMA	<i>Arctostaphylos manzanita</i>	100	0.2	0.2	0.2	X		
	RHIL	<i>Rhamnus ilicifolia</i>	100	0.2	0.2	0.2	X		
	RHTR	<i>Rhus trilobata</i>	100	0.2	0.2	0.2	X		
Herb									
	BRDI3	<i>Bromus diandrus</i>	100	14	14	14	X		
	CYEC	<i>Cynosurus echinatus</i>	100	12	12	12	X		
	TOAR	<i>Torilis arvensis</i>	100	9	9	9	X		
	TRHI4	<i>Trifolium hirtum</i>	100	6	6	6	X		
	DAPU3	<i>Daucus pusillus</i>	100	2	2	2	X		
	PETR7	<i>Pentagramma triangularis</i>	100	2	2	2	X		
	TRMI4	<i>Trifolium microcephalum</i>	100	2	2	2	X		
	AVBA	<i>Avena barbata</i>	100	1	1	1	X		
	CHPO3	<i>Chlorogalum pomeridianum</i>	100	1	1	1	X		
	HYGL2	<i>Hypochoeris glabra</i>	100	1	1	1	X		
	AICA	<i>Aira caryophyllea</i>	100	0.2	0.2	0.2	X		
	ERLA6	<i>Eriophyllum lanatum</i>	100	0.2	0.2	0.2	X		
	GAPA5	<i>Galium parisiense</i>	100	0.2	0.2	0.2	X		
	GEMO	<i>Geranium molle</i>	100	0.2	0.2	0.2	X		
	LOMI	<i>Lotus micranthus</i>	100	0.2	0.2	0.2	X		
	LUNA3	<i>Lupinus nanus</i>	100	0.2	0.2	0.2	X		

MAGR3	<i>Madia gracilis</i>	100	0.2	0.2	0.2	X	
PEMU	<i>Pellaea mucronata</i>	100	0.2	0.2	0.2	X	
POSE	<i>Poa secunda</i>	100	0.2	0.2	0.2	X	
SCCA3	<i>Scutellaria californica</i>	100	0.2	0.2	0.2	X	
SHAR2	<i>Sherardia arvensis</i>	100	0.2	0.2	0.2	X	
TRCI	<i>Trifolium ciliolatum</i>	100	0.2	0.2	0.2	X	

***Pinus sabiniana*/grass-herb Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 61 m

Total vegetation cover: 37 %

Tree cover: 12 %

Shrub cover: 14 %

Herb cover: 23 %

Percent native cover relative to non-native cover: 59 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Keeler-Wolf et al. 2003b, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PISA2	<i>Pinus sabiniana</i>	100	12	12	12	X	X	
	QUDO	<i>Quercus douglasii</i>	100	4	4	4	X		
Shrub									
	LUAL4	<i>Lupinus albifrons</i>	100	14	14	14	X	X	
	TODI	<i>Toxicodendron diversilobum</i>	100	1	1	1	X		
	LOSC2	<i>Lotus scoparius</i>	100	0.2	0.2	0.2	X		
Herb									
	BRDI2	<i>Brachypodium distachyon</i>	100	15	15	15	X	X	
	BRHO2	<i>Bromus hordeaceus</i>	100	5	5	5	X		
	BRRU2	<i>Bromus rubens</i>	100	3	3	3	X		
	BRDI3	<i>Bromus diandrus</i>	100	1	1	1	X		
	VICIA	<i>Vicia</i> sp.	100	1	1	1	X		
	AICA	<i>Aira caryophyllea</i>	100	0.2	0.2	0.2	X		
	AVENA	<i>Avena</i> sp.	100	0.2	0.2	0.2	X		
	ERBO	<i>Erodium botrys</i>	100	0.2	0.2	0.2	X		
	GALIU	<i>Galium</i> sp.	100	0.2	0.2	0.2	X		
	LUSUS	<i>Lupinus subvexus</i> var. <i>subvexus</i>	100	0.2	0.2	0.2	X		
	PETR7	<i>Pentagramma triangularis</i>	100	0.2	0.2	0.2	X		
	TRHI4	<i>Trifolium hirtum</i>	100	0.2	0.2	0.2	X		
Non-vasc									
	2LICHN	Unknown Lichen	100	3	3	3	X	X	
	2MOSS	Unknown Moss	100	1	1	1	X		

***Platanus racemosa* Alliance (California sycamore woodlands)**

Platanus racemosa is dominant in the tree canopy, often occurring with *Quercus lobata*, *Juglans hindsii*, *Fraxinus latifolia*, *Populus fremontii*, *Salix lasiolepis*, *S. gooddingii*, *Acer negundo*, and *Ailanthus altissima*. The canopy and shrub layers are open to intermittent, and the herbaceous layer is sparse to grassy. Stands form in gullies, intermittent streams, springs, seeps, stream and river banks, and terraces adjacent to floodplains that are subject to high-intensity flooding. Soils are rocky or cobbly alluvium with permanent moisture at depth.

Six stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 39

Local Environmental Table:

Elevation: range 6 - 184, average 99 m
 Total vegetation cover: range 18 - 90 %, average 45 %
 Tree cover: range 5 - 52 %, average 22 %
 Shrub cover: range 0.2 - 70 %, average 13 %
 Herb cover: range 0 - 74 %, average 11 %
 Percent native cover relative to non-native cover: 78 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Buck-Diaz and Evens 2011b, CDFG-CNPS 2008, GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	PLRA	<i>Platanus racemosa</i>	100	17	6	50	X	X	
	QULO	<i>Quercus lobata</i>	72	3	0.2	22			
	JUHI	<i>Juglans hindsii</i>	41	2	0.2	17			
	FRLA	<i>Fraxinus latifolia</i>	38	1	0.2	12			
	POFR2	<i>Populus fremontii</i>	28	0.6	0.2	6			
	SALA6	<i>Salix lasiolepis</i>	23	1	0.2	20			
	SAGO	<i>Salix gooddingii</i>	23	0.9	0.2	22			
	ACNE2	<i>Acer negundo</i>	23	0.8	0.2	11			
	AIAL	<i>Ailanthus altissima</i>	21	0.5	0.2	12			
	Shrub	VICA5	<i>Vitis californica</i>	67	6	0.2	62		
RUAR9		<i>Rubus armeniacus</i>	59	3	0.2	18			
SANI4		<i>Sambucus nigra</i>	59	1	0.2	12			
CEOC2		<i>Cephalanthus occidentalis</i>	23	1	0.2	28			
TODI		<i>Toxicodendron diversilobum</i>	21	0.3	0.2	4			
Herb	BRDI3	<i>Bromus diandrus</i>	82	4	0.2	33	X		
	ARDO3	<i>Artemisia douglasiana</i>	49	0.7	0.2	7			
	TOAR	<i>Torilis arvensis</i>	33	0.3	0.2	4			
	CABA4	<i>Carex barbarae</i>	31	1	0.2	26			
	LASE	<i>Lactuca serriola</i>	26	0.1	0.2	1			

**Association(s) Defined: *Platanus racemosa*(/annual grass)
Platanus racemosa–*Populus fremontii*/*Salix lasiolepis*
Platanus racemosa–*Quercus lobata***

***Platanus racemosa*(/annual grass) Association**

Samples used to describe type: 7

Local Environmental Table:

Elevation: range 84 - 183, average 139 m
 Total vegetation cover: range 22 - 77 %, average 44 %
 Tree cover: range 11 - 50 %, average 31 %
 Shrub cover: range 0.2 - 13 %, average 5 %
 Herb cover: range 0.2 - 73 %, average 20 %
 Percent native cover relative to non-native cover: 82 %

Location(s) Sampled: Southeast and Southwest Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Keeler-Wolf and Evens 2006, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	PLRA	<i>Platanus racemosa</i>	100	28	9	50	X	X	
	SAGO	<i>Salix gooddingii</i>	29	0.4	1	2			
Shrub	SANI4	<i>Sambucus nigra</i>	57	2	2	9			
	RUAR9	<i>Rubus armeniacus</i>	29	0.9	1	5			
	NIGL	<i>Nicotiana glauca</i>	29	0.1	0.2	0.2			
Herb	BRDI3	<i>Bromus diandrus</i>	100	7	0.2	30	X		X
	BRRU2	<i>Bromus rubens</i>	43	0.7	1	3			
	AMME	<i>Amsinckia menziesii</i>	43	0.5	0.2	3			
	BRHO2	<i>Bromus hordeaceus</i>	43	0.2	0.2	1			
	DAWR2	<i>Datura wrightii</i>	43	0.1	0.2	0.2			
	LETR5	<i>Leymus triticoides</i>	29	1	2	5			
	CYDA	<i>Cynodon dactylon</i>	29	0.4	1	2			
	HIIN3	<i>Hirschfeldia incana</i>	29	0.3	0.2	2			
	HOMU	<i>Hordeum murinum</i>	29	0.3	1	1			
	URDI	<i>Urtica dioica</i>	29	0.3	1	1			
	ARDO3	<i>Artemisia douglasiana</i>	29	0.2	0.2	1			
	LASE	<i>Lactuca serriola</i>	29	0.1	0.2	0.2			
	RUCR	<i>Rumex crispus</i>	29	0.1	0.2	0.2			
	SATR12	<i>Salsola tragus</i>	29	0.1	0.2	0.2			
	TOAR	<i>Torilis arvensis</i>	29	0.1	0.2	0.2			

***Platanus racemosa*–*Populus fremontii*/*Salix lasiolepis* Association**

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 6 - 91, average 60 m
 Total vegetation cover: range 52 - 90 %, average 70 %
 Tree cover: range 9 - 33 %, average 20 %
 Shrub cover: range 0.2 - 70 %, average 35 %
 Herb cover: range 0.2 - 8 %, average 2 %
 Percent native cover relative to non-native cover: 93 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: CDFG-CNPS 2008, GIC 2011, Evens and San 2005, Klein and Evens 2005, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PLRA	<i>Platanus racemosa</i>	100	17	7	30	X		X
	POFR2	<i>Populus fremontii</i>	100	4	2	6	X		
	SALA6	<i>Salix lasiolepis</i>	67	7	0.2	20			
	QULO	<i>Quercus lobata</i>	67	0.1	0.2	0.2			
	SALIX	<i>Salix</i> sp.	33	13	39	39			
	SAGO	<i>Salix gooddingii</i>	33	2	5	5			
	AIAL	<i>Ailanthus altissima</i>	33	0.7	2	2			
	JUHI	<i>Juglans hindsii</i>	33	0.7	2	2			
	PRCE2	<i>Prunus cerasifera</i>	33	0.3	1	1			
Shrub									
	VICA5	<i>Vitis californica</i>	67	21	2	62			
	SANI4	<i>Sambucus nigra</i>	67	3	2	8			
	RUAR9	<i>Rubus armeniacus</i>	67	1	0.2	4			
	TODI	<i>Toxicodendron diversilobum</i>	33	1	3	3			
	ARCA10	<i>Aristolochia californica</i>	33	0.7	2	2			
	RUUR	<i>Rubus ursinus</i>	33	0.7	2	2			
	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	33	0.3	1	1			
	CEOC2	<i>Cephalanthus occidentalis</i>	33	0.1	0.2	0.2			
	PHMA18	<i>Phoradendron macrophyllum</i>	33	0.1	0.2	0.2			
Herb									
	BRDI3	<i>Bromus diandrus</i>	67	0.7	0.2	2			
	ANCA14	<i>Anthriscus caucalis</i>	67	0.1	0.2	0.2			
	JUARL	<i>Juncus arcticus</i> ssp. <i>littoralis</i>	33	1	4	4			
	CAPY2	<i>Carduus pycnocephalus</i>	33	0.3	1	1			
	EUOC4	<i>Euthamia occidentalis</i>	33	0.3	1	1			
	BRHO2	<i>Bromus hordeaceus</i>	33	0.1	0.2	0.2			
	CABA4	<i>Carex barbarae</i>	33	0.1	0.2	0.2			
	CYDA	<i>Cynodon dactylon</i>	33	0.1	0.2	0.2			

GAAP2	<i>Galium aparine</i>	33	0.1	0.2	0.2
GNPA	<i>Gnaphalium palustre</i>	33	0.1	0.2	0.2
HYGL2	<i>Hypochoeris glabra</i>	33	0.1	0.2	0.2
LASE	<i>Lactuca serriola</i>	33	0.1	0.2	0.2
VIBE	<i>Vicia benghalensis</i>	33	0.1	0.2	0.2

***Platanus racemosa*–*Quercus lobata* Association**

Samples used to describe type: 23

Local Environmental Table:

Elevation: range 6 - 184, average 91 m
 Total vegetation cover: range 18 - 75 %, average 40 %
 Tree cover: range 5 - 52 %, average 21 %
 Shrub cover: range 0.2- 40 %, average 13 %
 Herb cover: range 0.2- 26 %, average 8 %
 Percent native cover relative to non-native cover: 75 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PLRA	<i>Platanus racemosa</i>	100	14	6	45	X	X	
	QULO	<i>Quercus lobata</i>	100	5	0.2	22	X		
	FRLA	<i>Fraxinus latifolia</i>	52	2	0.2	12			
	JUHI	<i>Juglans hindsii</i>	48	1	0.2	11			
	AIAL	<i>Ailanthus altissima</i>	26	0.8	0.2	12			
	POFR2	<i>Populus fremontii</i>	26	0.4	0.2	3			
	SAGO	<i>Salix gooddingii</i>	22	1	0.2	22			
	ACNE2	<i>Acer negundo</i>	22	0.5	0.2	5			
	ALRH2	<i>Alnus rhombifolia</i>	22	0.3	0.2	4			
Shrub									
	VICA5	<i>Vitis californica</i>	83	6	0.2	25	X		
	RUAR9	<i>Rubus armeniacus</i>	74	4	0.2	18			
	SANI4	<i>Sambucus nigra</i>	61	1	0.2	12			
	CEOC2	<i>Cephalanthus occidentalis</i>	30	1	0.2	28			
	TODI	<i>Toxicodendron diversilobum</i>	30	0.5	0.2	4			
	RUUR	<i>Rubus ursinus</i>	26	1	0.2	15			
Herb									
	BRDI3	<i>Bromus diandrus</i>	78	2	0.2	15	X		
	ARDO3	<i>Artemisia douglasiana</i>	57	1	0.2	7			
	CABA4	<i>Carex barbarae</i>	35	0.7	0.2	5			
	TOAR	<i>Torilis arvensis</i>	35	0.4	0.2	3			
	LASE	<i>Lactuca serriola</i>	30	0.1	0.2	1			
	SOHA	<i>Sorghum halepense</i>	22	0.2	0.2	2			

Populus fremontii Alliance (Fremont cottonwood forest)

Populus fremontii is dominant in the tree canopy, often occurring with *Salix gooddingii*, *S. lasiolepis*, *Acer negundo*, *Quercus lobata*, *Juglans hindsii*, and *Fraxinus latifolia*. The canopy and shrub layers are open to continuous, and the herbaceous layer is variable. Stands form on floodplains, along low-gradient rivers and perennial or seasonally intermittent streams, near springs, on alluvial fans, and in valleys with a dependable sub-surface water supply that may vary considerably during the year.

Eleven stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 143

Local Environmental Table:

Elevation: range 0 - 732, average 60 m
 Total vegetation cover: range 20 - 95 %, average 52 %
 Tree cover: range 0 - 65 %, average 22 %
 Shrub cover: range 0 - 76 %, average 16 %
 Herb cover: range 0 - 80 %, average 11 %
 Percent native cover relative to non-native cover: 80 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Buck-Diaz and Evens 2011a, Buck-Diaz and Evens 2011b, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Keeler-Wolf and Thomas 2000, NatureServe 2011, Vaghti 2003, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	POFR2	<i>Populus fremontii</i>	100	17	4	65	X	X	
	SAGO	<i>Salix gooddingii</i>	66	5	0.2	37			
	ACNE2	<i>Acer negundo</i>	48	2	0.2	20			
	QULO	<i>Quercus lobata</i>	45	1	0.2	19			
	JUHI	<i>Juglans hindsii</i>	42	1	0.2	30			
	SALA6	<i>Salix lasiolepis</i>	37	2	0.2	40			
	FRLA	<i>Fraxinus latifolia</i>	33	0.7	0.2	16			
	Shrub	RUAR9	<i>Rubus armeniacus</i>	52	5	0.2	74		
VICA5		<i>Vitis californica</i>	50	6	0.2	75			
SAEX		<i>Salix exigua</i>	41	1	0.2	20			
RUUR		<i>Rubus ursinus</i>	31	2	0.2	60			
TODI		<i>Toxicodendron diversilobum</i>	25	0.8	0.2	20			
SANI4		<i>Sambucus nigra</i>	22	0.2	0.2	3			
ROCA2		<i>Rosa californica</i>	20	0.5	0.2	16			
Herb	ARDO3	<i>Artemisia douglasiana</i>	51	1	0.2	35			
	BRDI3	<i>Bromus diandrus</i>	50	2	0.2	40			
	CABA4	<i>Carex barbarae</i>	27	0.9	0.2	40			
	CYDA	<i>Cynodon dactylon</i>	21	0.2	0.1	3			

Association(s) Defined: *Populus fremontii* Great Valley
Populus fremontii/Baccharis salicifolia
Populus fremontii/Salix exigua
Populus fremontii/Vitis californica
Populus fremontii–Acer negundo
Populus fremontii–Salix gooddingii
Populus fremontii–Salix laevigata
Populus fremontii–Salix lasiolepis

***Populus fremontii* Great Valley Association**

Samples used to describe type: 34

Local Environmental Table:

Elevation: range 1 - 171, average 61 m
 Total vegetation cover: range 20 - 80 %, average 39 %
 Tree cover: range 0 - 45 %, average 18 %
 Shrub cover: range 0 - 43 %, average 5 %
 Herb cover: range 0 - 70 %, average 13 %
 Percent native cover relative to non-native cover: 78 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009, Vaghti 2003

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	100	18	6	49	X	X	
	SAGO	<i>Salix gooddingii</i>	62	1	0.2	5			
	QULO	<i>Quercus lobata</i>	53	0.9	0.2	7			
	JUHI	<i>Juglans hindsii</i>	38	1	0.2	12			
	ACNE2	<i>Acer negundo</i>	29	0.4	0.2	2			
	SALA6	<i>Salix lasiolepis</i>	24	0.2	0.2	2			
	SALA3	<i>Salix laevigata</i>	21	0.2	0.2	3			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	41	2	0.2	15			
	VICA5	<i>Vitis californica</i>	38	0.4	0.2	3			
	SAEX	<i>Salix exigua</i>	35	0.4	0.2	4			
	PHMA18	<i>Phoradendron macrophyllum</i>	29	0.1	0.2	1			
	SANI4	<i>Sambucus nigra</i>	26	0.2	0.2	2			
	BASA4	<i>Baccharis salicifolia</i>	21	0.6	0.2	13			
	ARCA10	<i>Aristolochia californica</i>	21	0.3	0.2	3			
Herb									
	BRDI3	<i>Bromus diandrus</i>	68	4	0.2	40			
	ARDO3	<i>Artemisia douglasiana</i>	62	2	0.2	35			
	LASE	<i>Lactuca serriola</i>	29	0.1	0.2	1			
	CABA4	<i>Carex barbarae</i>	21	1	0.2	20			
	LETR5	<i>Leymus triticoides</i>	21	1	0.2	30			
	VIVI	<i>Vicia villosa</i>	21	0.4	0.2	8			
	GAAP2	<i>Galium aparine</i>	21	0.3	0.2	3			
	ANCA14	<i>Anthriscus caucalis</i>	21	0.2	0.1	5			
	XAST	<i>Xanthium strumarium</i>	21	0.2	0.2	2			

***Populus fremontii*/Baccharis salicifolia Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 515- 533, average 524 m

Total vegetation cover: range 25 - 26 %, average 25.5 %

Tree cover: range 9 - 13 %, average 11 %

Shrub cover: range 8 - 9 %, average 8 %

Herb cover: range 11 - 12 %, average 12 %

Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011b, CDFG-CNPS 2008, Evens and San 2005, Klein and Evens 2005, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	100	11	8	13	X	X	
	SALA3	<i>Salix laevigata</i>	50	0.5	1	1			
Shrub									
	BASA4	<i>Baccharis salicifolia</i>	100	7	6	8	X	X	
	TARA	<i>Tamarix ramosissima</i>	100	0.2	0.2	0.2	X		
	TODI	<i>Toxicodendron diversilobum</i>	50	1	2	2			
Herb									
	MEOF	<i>Melilotus officinalis</i>	100	3	0.2	5	X		
	BRRU2	<i>Bromus rubens</i>	100	3	2	3	X		
	TYDO	<i>Typha domingensis</i>	100	2	0.2	4	X		
	EQLA	<i>Equisetum laevigatum</i>	100	0.2	0.2	0.2	X		
	POMO5	<i>Polypogon monspeliensis</i>	100	0.2	0.2	0.2	X		

***Populus fremontii*/*Salix exigua* Association**

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 61 - 122, average 96 m
 Total vegetation cover: range 34 - 63 %, average 46 %
 Tree cover: range 0 - 28 %, average 13 %
 Shrub cover: range 7 - 23 %, average 14 %
 Herb cover: range 1 - 63 %, average 26 %
 Percent native cover relative to non-native cover: 86 %

Location(s) Sampled: Northwest and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, GIC 2011, Keeler-Wolf and Thomas 2000, NatureServe 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	100	19	10	27	X	X	
	SAGO	<i>Salix gooddingii</i>	67	2	2	3			
	QULO	<i>Quercus lobata</i>	67	1	1	2			
	SALUL	<i>Salix lucida</i> ssp. <i>lasiandra</i>	33	2	6	6			
	FRLA	<i>Fraxinus latifolia</i>	33	1	3	3			
	ALRH2	<i>Alnus rhombifolia</i>	33	0.7	2	2			
	JUHI	<i>Juglans hindsii</i>	33	0.3	1	1			
	ACNE2	<i>Acer negundo</i>	33	0.1	0.2	0.2			
	SALA6	<i>Salix lasiolepis</i>	33	0.1	0.2	0.2			
Shrub									
	SAEX	<i>Salix exigua</i>	100	10	4	20	X	X	
	RUAR9	<i>Rubus armeniacus</i>	67	3	2	8			
	CEOC2	<i>Cephalanthus occidentalis</i>	33	0.3	1	1			
	BASA4	<i>Baccharis salicifolia</i>	33	0.1	0.2	0.2			
	TAMAR2	<i>Tamarix</i> sp.	33	0.1	0.2	0.2			
Herb									
	ARDO3	<i>Artemisia douglasiana</i>	67	4	0.2	13			
	JUARL	<i>Juncus arcticus</i> ssp. <i>littoralis</i>	33	5	15	15			
	VUMY	<i>Vulpia myuros</i>	33	2	7	7			
	CYDA	<i>Cynodon dactylon</i>	33	1	3	3			
	ANCA14	<i>Anthriscus caucalis</i>	33	0.3	1	1			
	ARDO4	<i>Arundo donax</i>	33	0.3	1	1			
	HIIN3	<i>Hirschfeldia incana</i>	33	0.3	1	1			
	LOUNU	<i>Lotus unifoliolatus</i> var. <i>unifoliolatus</i>	33	0.3	1	1			
	CABA4	<i>Carex barbarae</i>	33	0.1	0.2	0.2			
	COCA5	<i>Conyza canadensis</i>	33	0.1	0.2	0.2			
	EUOC4	<i>Euthamia occidentalis</i>	33	0.1	0.2	0.2			

GAAP2	<i>Galium aparine</i>	33	0.1	0.2	0.2
GNAPH	<i>Gnaphalium</i> sp.	33	0.1	0.2	0.2
JUDU	<i>Juncus dubius</i>	33	0.1	0.2	0.2
MEPU	<i>Mentha pulegium</i>	33	0.1	0.2	0.2
XAST	<i>Xanthium strumarium</i>	33	0.1	0.2	0.2

***Populus fremontii/Vitis californica* Association**

Samples used to describe type: 22

Local Environmental Table:

Elevation: range 1 - 173, average 29 m
 Total vegetation cover: range 30 - 85 %, average 63 %
 Tree cover: range 0.2 - 60 %, average 18 %
 Shrub cover: range 0.2 - 76 %, average 37 %
 Herb cover: range 0 - 11 %, average 3 %
 Percent native cover relative to non-native cover: 85 %

Location(s) Sampled: Northeast, Northwest, and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009, Vaghti 2003

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	100	15	5	45	X	X	
	ACNE2	<i>Acer negundo</i>	59	0.4	0.2	3			
	QULO	<i>Quercus lobata</i>	55	2	0.2	10			
	JUHI	<i>Juglans hindsii</i>	55	1	0.2	9			
	SAGO	<i>Salix gooddingii</i>	50	1	0.2	9			
	FRLA	<i>Fraxinus latifolia</i>	36	0.8	0.2	6			
	PLRA	<i>Platanus racemosa</i>	27	0.2	0.2	2			
	SALA6	<i>Salix lasiolepis</i>	23	0.5	0.2	7			
Shrub									
	VICA5	<i>Vitis californica</i>	100	27	1	75	X	X	
	RUAR9	<i>Rubus armeniacus</i>	64	6	0.2	28			
	TODI	<i>Toxicodendron diversilobum</i>	64	2	0.2	20			
	RUUR	<i>Rubus ursinus</i>	36	1	0.2	10			
	FICA	<i>Ficus carica</i>	27	2	0.2	24			
	CEOC2	<i>Cephalanthus occidentalis</i>	27	1	0.2	25			
	ROCA2	<i>Rosa californica</i>	27	0.5	0.2	4			
	PHMA18	<i>Phoradendron macrophyllum</i>	27	0.2	0.2	2			
	SANI4	<i>Sambucus nigra</i>	23	0.3	0.2	2			
Herb									
	ARDO3	<i>Artemisia douglasiana</i>	36	0.6	0.2	3			
	BRDI3	<i>Bromus diandrus</i>	32	0.4	0.2	4			
	RUCR	<i>Rumex crispus</i>	32	0.1	0.2	1			

***Populus fremontii*–*Acer negundo* Association**

Samples used to describe type: 24

Local Environmental Table:

Elevation: range 1 - 122, average 32 m
 Total vegetation cover: range 23 - 95 %, average 52 %
 Tree cover: range 9 - 45 %, average 22 %
 Shrub cover: range 0.2 - 60 %, average 14 %
 Herb cover: range 0.2 - 40 %, average 10 %
 Percent native cover relative to non-native cover: 81 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009, Vaghti 2003

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	100	15	4	38	X		X
	ACNE2	<i>Acer negundo</i>	100	8	1	20	X		
	JUHI	<i>Juglans hindsii</i>	79	2	0.2	8	X		
	SAGO	<i>Salix gooddingii</i>	75	2	0.2	13	X		
	FRLA	<i>Fraxinus latifolia</i>	46	1	0.2	16			
	SALA6	<i>Salix lasiolepis</i>	25	0.5	0.2	10			
	QULO	<i>Quercus lobata</i>	25	0.3	0.2	4			
	MOAL	<i>Morus alba</i>	21	2	0.2	30			
Shrub									
	VICA5	<i>Vitis californica</i>	83	5	0.2	35	X		
	RUUR	<i>Rubus ursinus</i>	54	7	1	60			
	RUAR9	<i>Rubus armeniacus</i>	54	2	1	10			
	SANI4	<i>Sambucus nigra</i>	33	0.4	0.2	2			
	SAEX	<i>Salix exigua</i>	25	0.3	0.2	2			
	TODI	<i>Toxicodendron diversilobum</i>	21	0.3	0.2	3			
Herb									
	CABA4	<i>Carex barbarae</i>	54	3	0.2	40			
	ARDO3	<i>Artemisia douglasiana</i>	54	0.9	0.2	8			
	GAAP2	<i>Galium aparine</i>	50	1	0.2	12			
	BRDI3	<i>Bromus diandrus</i>	46	2	0.2	15			
	TOAR	<i>Torilis arvensis</i>	38	0.4	0.2	3			
	LASE	<i>Lactuca serriola</i>	25	0.1	0.2	0.2			
	RUCR	<i>Rumex crispus</i>	25	0.1	0.2	0.2			

Populus fremontii–Salix gooddingii Association

Samples used to describe type: 31

Local Environmental Table:

Elevation: range 0 - 183, average 36.4 m
 Total vegetation cover: range 25 - 88 %, average 56 %
 Tree cover: range 8 - 55 %, average 28 %
 Shrub cover: range 0 - 75 %, average 17 %
 Herb cover: range 1 - 60 %, average 12 %
 Percent native cover relative to non-native cover: 76 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SAGO	<i>Salix gooddingii</i>	100	19	2	37	X		X
	POFR2	<i>Populus fremontii</i>	100	14	4	37	X		X
	QULO	<i>Quercus lobata</i>	52	2	0.2	19			
	SALA6	<i>Salix lasiolepis</i>	35	2	1	12			
	ACNE2	<i>Acer negundo</i>	32	0.6	0.2	5			
	FRLA	<i>Fraxinus latifolia</i>	29	0.5	0.2	8			
	SALA3	<i>Salix laevigata</i>	23	0.3	0.2	5			
Shrub									
	SAEX	<i>Salix exigua</i>	61	3	0.2	20			
	RUAR9	<i>Rubus armeniacus</i>	52	11	0.2	74			
	VICA5	<i>Vitis californica</i>	32	1	0.2	10			
	ROCA2	<i>Rosa californica</i>	32	0.4	0.2	2			
	CEOC2	<i>Cephalanthus occidentalis</i>	29	2	0.2	25			
	RUUR	<i>Rubus ursinus</i>	23	0.4	0.2	5			
Herb									
	BRDI3	<i>Bromus diandrus</i>	42	0.9	0.2	10			
	ARDO3	<i>Artemisia douglasiana</i>	35	1	0.2	23			
	CYDA	<i>Cynodon dactylon</i>	29	0.3	0.2	3			
	XAST	<i>Xanthium strumarium</i>	26	0.5	0.2	10			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	23	2	0.2	20			
	CABA4	<i>Carex barbarae</i>	23	0.2	0.2	2			

***Populus fremontii*–*Salix laevigata* Association**

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 6 - 550, average 163 m

Total vegetation cover: range 45 - 80 %, average 61 %

Tree cover: range 15 - 35 %, average 20 %

Shrub cover: range 8 - 35 %, average 18 %

Herb cover: range 6 - 25 %, average 15 %

Percent native cover relative to non-native cover: 88 %

Location(s) Sampled: Northeast and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	100	14	6	18	X		X
	SALA3	<i>Salix laevigata</i>	100	11	3	30	X		X
	FRLA	<i>Fraxinus latifolia</i>	60	3	1	10			
	QULO	<i>Quercus lobata</i>	60	2	1	8			
	SALA6	<i>Salix lasiolepis</i>	40	0.8	2	2			
Shrub									
	SAEX	<i>Salix exigua</i>	80	4	0.2	10	X		
	RUAR9	<i>Rubus armeniacus</i>	60	7	1	25			
	TODI	<i>Toxicodendron diversilobum</i>	40	3	4	12			
	BASA4	<i>Baccharis salicifolia</i>	40	2	1	9			
	VICA5	<i>Vitis californica</i>	40	0.8	1	3			
Herb									
	ARDO3	<i>Artemisia douglasiana</i>	60	1	1	3			
	SOHA	<i>Sorghum halepense</i>	40	0.4	1	1			

Populus fremontii–Salix lasiolepis Association

Samples used to describe type: 11

Local Environmental Table:

Elevation: range 0 - 732, average 109 m
 Total vegetation cover: range 35 - 85 %, average 58 %
 Tree cover: range 9 - 45 %, average 24 %
 Shrub cover: range 0.2 - 60 %, average 20 %
 Herb cover: range 0.2 - 80 %, average 12 %
 Percent native cover relative to non-native cover: 85 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009, Stillwater Sciences and URS 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	100	24	5	38	X	X	
	SALA6	<i>Salix lasiolepis</i>	100	15	5	40	X		X
	SAGO	<i>Salix gooddingii</i>	45	2	1	10			
	QULO	<i>Quercus lobata</i>	36	0.8	1	5			
	JUHI	<i>Juglans hindsii</i>	36	0.4	0.2	3			
	FRLA	<i>Fraxinus latifolia</i>	27	0.3	0.2	3			
	ACNE2	<i>Acer negundo</i>	27	0.1	0.2	1			
Shrub									
	SAEX	<i>Salix exigua</i>	73	2	0.2	5			
	RUAR9	<i>Rubus armeniacus</i>	64	5	0.2	20			
	RUUR	<i>Rubus ursinus</i>	45	3	0.2	15			
	ROCA2	<i>Rosa californica</i>	27	2	0.2	16			
	BASA4	<i>Baccharis salicifolia</i>	27	0.4	0.2	3			
Herb									
	BRDI3	<i>Bromus diandrus</i>	55	0.9	0.2	3			
	ARDO3	<i>Artemisia douglasiana</i>	45	0.4	0.2	3			
	COMA2	<i>Conium maculatum</i>	27	0.2	0.2	2			
	LETR5	<i>Leymus triticoides</i>	27	0.1	0.2	1			

Prosopis pubescens Alliance (Screwbean mesquite bosques)

Prosopis pubescens is dominant in the tree canopy, often occurring with *Salix laevigata*. The tree canopy, shrub layer, and herbaceous layer are open to intermittent. Stands occur in washes, gullies, springs, and floodplains. Soils are slightly to moderately saline with a wide range of soil textures.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 161 m
 Total vegetation cover: 85 %
 Tree cover: 30 %
 Shrub cover: 0 %
 Herb cover: 52 %
 Percent native cover relative to non-native cover: 43 %

Location(s) Sampled: Southwest Great Valley

References: CDFG 2005, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	PRPU	<i>Prosopis pubescens</i>	100	27	27	27	X	X	
	SALA3	<i>Salix laevigata</i>	100	3	3	3	X		
Herb	HOMA2	<i>Hordeum marinum</i>	100	35	35	35	X	X	
	BRDI3	<i>Bromus diandrus</i>	100	5	5	5	X		
	AMME	<i>Amsinckia menziesii</i>	100	1	1	1	X		
	BRMA3	<i>Bromus madritensis</i>	100	1	1	1	X		
	ERC16	<i>Erodium cicutarium</i>	100	1	1	1	X		
	MALAC2	<i>Malacothamnus</i>	100	1	1	1	X		
	LASE	<i>Lactuca serriola</i>	100	0.2	0.2	0.2	X		

Association(s) Defined: None

Quercus agrifolia Alliance (Coast live oak woodland)

Quercus agrifolia is dominant in the tree canopy, often occurring with *Q. lobata*, *Robinia pseudoacacia*, *Fraxinus latifolia*, *Populus fremontii*, and others. The canopy is open to continuous. The shrub layer is sparse to intermittent, and the herbaceous layer is sparse or grassy. Stands occur on alluvial terraces, stream banks, slopes, flats, and in canyon bottoms. Soils are deep, sandy, or loamy with high organic matter.

Samples used to describe type: 2

Local Environmental Table:

Elevation: average 1 m

Total vegetation cover: range 68 - 90 %, average 79 %

Tree cover: range 50 - 60 %, average 55 %

Shrub cover: range 0.2- 17 %, average 8 %

Herb cover: range 22 - 25 %, average 23 %

Percent native cover relative to non-native cover: 90 %

Location(s) Sampled: Northwest Great Valley

References: Buck-Diaz and Evens 2011a, Buck-Diaz and Evens 2011b, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	QUAG	<i>Quercus agrifolia</i>	100	51	48	53	X	X	
	QULO	<i>Quercus lobata</i>	100	5	0.2	10	X		
	ROPS	<i>Robinia pseudoacacia</i>	100	4	0.2	7	X		
	FRLA	<i>Fraxinus latifolia</i>	100	1	0.2	2	X		
	POFR2	<i>Populus fremontii</i>	100	0.3	0.2	0.4	X		
	JUHI	<i>Juglans hindsii</i>	100	0.2	0.2	0.2	X		
	ALRH2	<i>Alnus rhombifolia</i>	50	11	22	22			
	PLRA	<i>Platanus racemosa</i>	50	0.5	1	1			
Shrub	ROCA2	<i>Rosa californica</i>	100	0.6	0.2	1	X		
	RUUR	<i>Rubus ursinus</i>	100	0.6	0.2	1	X		
	VICA5	<i>Vitis californica</i>	100	0.5	0.4	0.6	X		X
	TODI	<i>Toxicodendron diversilobum</i>	50	8	15	15			
Herb	EQHYA	<i>Equisetum hyemale</i> var. <i>affine</i>	100	10	0.2	20	X		X
	CABA4	<i>Carex barbarae</i>	100	6	0.2	12	X		
	BRDI3	<i>Bromus diandrus</i>	100	4	0.2	8	X		
	GAAP2	<i>Galium aparine</i>	100	0.6	0.2	1	X		
	ARDO3	<i>Artemisia douglasiana</i>	100	0.2	0.2	0.2	X		
	HORDE	<i>Hordeum</i> sp.	100	0.2	0.2	0.2	X		
	ANCA14	<i>Anthriscus caucalis</i>	50	0.5	1	1			
	AVFA	<i>Avena fatua</i>	50	0.5	1	1			

Association(s) Defined: None

***Quercus chrysolepis* Forest Alliance (Canyon live oak forest)**

Quercus chrysolepis is dominant in the tree canopy, often occurring with *Pinus monophylla* and *P. jeffreyi*. The canopy is continuous to intermittent. The shrub layer is sparse to intermittent, and the herbaceous layer is sparse. Stands occur on stream benches and terraces, in canyon bottoms, near streams, and on upland slopes on steep, shallow, rocky, infertile soils.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 170 m

Total vegetation cover: 40 %

Tree cover: 46 %

Shrub cover: 0 %

Herb cover: 2 %

Percent native cover relative to non-native cover: 100 %

Location(s) Sampled: Southeast Great Valley

References: CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUCH2	<i>Quercus chrysolepis</i>	100	36	36	36	X	X	
	PIMO	<i>Pinus monophylla</i>	100	7	7	7	X		
	PIJE	<i>Pinus jeffreyi</i>	100	3	3	3	X		
Herb									
	POSE	<i>Poa secunda</i>	100	1	1	1	X	X	
	ELEL5	<i>Elymus elymoides</i>	100	0.2	0.2	0.2	X		
	GAAP2	<i>Galium aparine</i>	100	0.2	0.2	0.2	X		

Association(s) defined: *Quercus chrysolepis*

***Quercus chrysolepis* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, Sawyer et al. 2009

Quercus douglasii Alliance (Blue oak woodland)

Quercus douglasii is dominant in the tree canopy, often occurring with *Pinus sabiniana* and *Q. wislizeni*. The canopy is continuous, intermittent, or savanna-like. The shrub layer is sparse to intermittent. The herbaceous layer is sparse or grassy, and forbs are present seasonally. Stands form on valley bottoms, foothills, and rock outcrops. Stands typically occur on shallow, often rocky, infertile soils with moderate to excessive drainage and extensive rock fragments.

Three stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 40

Local Environmental Table:

Elevation: range 60 - 338, average 103 m

Total vegetation cover: range 23 - 100 %, average 56 %

Tree cover: range 0 - 75 %, average 26 %

Shrub cover: range 0 - 43 %, average 6 %

Herb cover: range 1 - 85 %, average 34 %

Percent native cover relative to non-native cover: 61 %

Location(s) Sampled: Northeast and Northwest Great Valley, Northern California Interior Coast Ranges Ecoregion, Sierra Nevada Foothills Ecoregion

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	QUDO	<i>Quercus douglasii</i>	100	27	5	75	X	X	
	PISA2	<i>Pinus sabiniana</i>	43	2	0.2	20			
	QUWI2	<i>Quercus wislizeni</i>	40	1	0.2	13			
Shrub	TODI	<i>Toxicodendron diversilobum</i>	45	1	0.2	8			
	ARMA	<i>Arctostaphylos manzanita</i>	28	2	0.2	35			
	RHIL	<i>Rhamnus ilicifolia</i>	28	0.4	0.2	4			
Herb	BRHO2	<i>Bromus hordeaceus</i>	80	5	0.2	25	X		
	BRDI3	<i>Bromus diandrus</i>	78	5	0.2	30	X		
	TRHI4	<i>Trifolium hirtum</i>	58	3	0.2	50			
	TOAR	<i>Torilis arvensis</i>	50	1	0.2	10			
	BRRU2	<i>Bromus rubens</i>	45	1	0.2	8			
	CYEC	<i>Cynosurus echinatus</i>	43	5	0.2	25			
	AVBA	<i>Avena barbata</i>	43	2	0.2	15			
	BRDI2	<i>Brachypodium distachyon</i>	40	3	0.2	25			
	AICA	<i>Aira caryophyllea</i>	35	0.2	0.2	3			
	HOMU	<i>Hordeum murinum</i>	33	3	0.2	30			
	VUMY	<i>Vulpia myuros</i>	33	1	0.2	10			
	GEMO	<i>Geranium molle</i>	33	0.1	0.2	1			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	30	0.8	0.2	10			

LETA	<i>Leontodon taraxacoides</i>	30	0.3	0.2	5
CAPY2	<i>Carduus pycnocephalus</i>	30	0.1	0.2	1
SIGA	<i>Silene gallica</i>	30	0.1	0.2	1
GAPA5	<i>Galium parisiense</i>	28	0.1	0.2	1
ERBO	<i>Erodium botrys</i>	25	0.6	0.2	11
HYGL2	<i>Hypochaeris glabra</i>	25	0.1	0.2	1
PETR7	<i>Pentagramma triangularis</i>	25	0.1	0.2	1
TRDU2	<i>Trifolium dubium</i>	25	0.1	0.2	1
BRMI2	<i>Briza minor</i>	25	0.1	0.2	1
TONO	<i>Torilis nodosa</i>	23	0.5	0.2	15
DAPU3	<i>Daucus pusillus</i>	23	0.1	0.2	2
MEPO3	<i>Medicago polymorpha</i>	23	0.1	0.2	2
TRMI4	<i>Trifolium microcephalum</i>	23	0.1	0.2	1
VUBR	<i>Vulpia bromoides</i>	20	1	0.2	20
Non-vasc					
2MOSS	Unknown Moss	48	4	0.2	22
2LICHN	Unknown Lichen	33	1	0.2	18

Association(s) Defined: *Quercus douglasii*/*Arctostaphylos manzanita*/Herbaceous
Quercus douglasii/*Brachypodium distachyon*
Quercus douglasii/grass
Quercus douglasii-*Aesculus californica*/grass
Quercus douglasii-*Pinus sabiniana*
Quercus douglasii-*Quercus wislizeni*

***Quercus douglasii*/Arctostaphylos manzanita/Herbaceous Association**

Samples used to describe type: 7

Local Environmental Table:

Elevation: range 62 - 122, average 91 m
 Total vegetation cover: range 25 - 57 %, average 39 %
 Tree cover: range 0 - 43 %, average 17 %
 Shrub cover: range 3 - 43 %, average 16 %
 Herb cover: range 5 - 49 %, average 19 %
 Percent native cover relative to non-native cover: 71 %

Location(s) Sampled: Northeast Great Valley, Northern California Interior Coast Ranges
 Ecoregion

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUDO	<i>Quercus douglasii</i>	100	19	10	35	X	X	
	PISA2	<i>Pinus sabiniana</i>	71	5	2	12			
	QUWI2	<i>Quercus wislizeni</i>	29	0.6	0.2	4			
Shrub									
	ARMA	<i>Arctostaphylos manzanita</i>	100	12	2	35	X	X	
	TODI	<i>Toxicodendron diversilobum</i>	57	1	1	5			
	RHIL	<i>Rhamnus ilicifolia</i>	57	0.6	1	1			
	HEAR5	<i>Heteromeles arbutifolia</i>	29	1	3	7			
Herb									
	BRDI3	<i>Bromus diandrus</i>	100	3	1	7	X		
	BRHO2	<i>Bromus hordeaceus</i>	71	3	0.2	10			
	BRRU2	<i>Bromus rubens</i>	71	1	0.2	3			
	AVBA	<i>Avena barbata</i>	71	0.7	0.2	4			
	BRDI2	<i>Brachypodium distachyon</i>	57	3	3	10			
	PETR7	<i>Pentagramma triangularis</i>	57	0.3	0.2	1			
	AICA	<i>Aira caryophyllea</i>	43	0.5	0.2	3			
	BRMA	<i>Briza maxima</i>	43	0.3	0.2	2			
	PEDU2	<i>Petrorhagia dubia</i>	43	0.1	0.2	0.2			
	ERBO	<i>Erodium botrys</i>	29	1	1	6			
	VUMY	<i>Vulpia myuros</i>	29	0.7	0.2	5			
	TRHI4	<i>Trifolium hirtum</i>	29	0.2	0.2	1			
	BRMI2	<i>Briza minor</i>	29	0.1	0.2	0.2			
	LETA	<i>Leontodon taraxacoides</i>	29	0.1	0.2	0.2			
	SIGA	<i>Silene gallica</i>	29	0.1	0.2	0.2			
Non-vasc									
	2MOSS	Unknown Moss	57	6	2	22			
	2LICHN	Unknown Lichen	57	3	0.2	16			

***Quercus douglasii*/Brachypodium distachyon Association**

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 60 - 91, average 68 m

Total vegetation cover: range 40 - 100 %, average 63 %

Tree cover: range 25 - 75 %, average 39 %

Shrub cover: range 0 - 2 %, average 0.5 %

Herb cover: range 18 - 45 %, average 37 %

Percent native cover relative to non-native cover: 51 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Evens et al. 2004, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUDO	<i>Quercus douglasii</i>	100	39	25	75	X	X	
	PISA2	<i>Pinus sabiniana</i>	25	0.3	1	1			
	QUWI2	<i>Quercus wislizeni</i>	25	0.1	0.2	0.2			
Shrub									
	ADFA	<i>Adenostoma fasciculatum</i>	25	0.3	1	1			
	CECU	<i>Ceanothus cuneatus</i>	25	0.3	1	1			
	TODI	<i>Toxicodendron diversilobum</i>	25	0.1	0.2	0.2			
Herb									
	BRDI2	<i>Brachypodium distachyon</i>	100	14	8	25	X		X
	BRHO2	<i>Bromus hordeaceus</i>	100	5	0.2	11	X		
	HYGL2	<i>Hypochaeris glabra</i>	100	0.6	0.2	1	X		
	TRHI4	<i>Trifolium hirtum</i>	100	0.4	0.2	1	X		
	ERBO	<i>Erodium botrys</i>	75	4	0.2	11	X		
	BRRU2	<i>Bromus rubens</i>	75	0.4	0.2	1	X		
	DAPU3	<i>Daucus pusillus</i>	75	0.2	0.2	0.2	X		
	SIGA	<i>Silene gallica</i>	75	0.2	0.2	0.2	X		
	CYEC	<i>Cynosurus echinatus</i>	50	9	15	20			
	VUBR	<i>Vulpia bromoides</i>	50	2	0.2	6			
	LETA	<i>Leontodon taraxacoides</i>	50	2	1	5			
	AVFA	<i>Avena fatua</i>	50	0.8	1	2			
	BRDI3	<i>Bromus diandrus</i>	50	0.3	0.2	1			
	NASSE	<i>Nassella</i> sp.	50	0.3	0.2	1			
	TOAR	<i>Torilis arvensis</i>	50	0.3	0.2	1			
	TRDU2	<i>Trifolium dubium</i>	50	0.3	0.2	1			

BRMI2	<i>Briza minor</i>	50	0.1	0.2	0.2
CAPY2	<i>Carduus pycnocephalus</i>	50	0.1	0.2	0.2
GAPA5	<i>Galium parisiense</i>	50	0.1	0.2	0.2
LOGA2	<i>Logfia gallica</i>	50	0.1	0.2	0.2
SABI2	<i>Sanicula bipinnata</i>	50	0.1	0.2	0.2
TONO	<i>Torilis nodosa</i>	50	0.1	0.2	0.2
TRMI4	<i>Trifolium microcephalum</i>	50	0.1	0.2	0.2
TRHY3	<i>Triteleia hyacinthina</i>	50	0.1	0.2	0.2
VISA	<i>Vicia sativa</i>	50	0.1	0.2	0.2
TACA8	<i>Taeniatherum caput-medusae</i>	25	0.8	3	3
HOVI	<i>Holocarpha virgata</i>	25	0.3	1	1

Non-vasc

2MOSS	Unknown Moss	25	0.3	1	1
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Quercus douglasii/grass Association

Samples used to describe type: 16

Local Environmental Table:

Elevation: range 60 - 338, average 117 m
 Total vegetation cover: range 26 - 100 %, average 70 %
 Tree cover: range 6 - 50 %, average 31 %
 Shrub cover: range 0 - 10 %, average 1 %
 Herb cover: range 5 - 85 %, average 51 %
 Percent native cover relative to non-native cover: 45 %

Location(s) Sampled: Northeast and Northwest Great Valley, Sierra Nevada Foothills
 Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUDO	<i>Quercus douglasii</i>	100	32	6	50	X	X	
Shrub									
	TODI	<i>Toxicodendron diversilobum</i>	25	0.3	0.2	3			
Herb									
	BRDI3	<i>Bromus diandrus</i>	94	8	0.2	25	X		
	BRHO2	<i>Bromus hordeaceus</i>	81	8	1	25	X		
	TRHI4	<i>Trifolium hirtum</i>	81	7	0.2	50	X		
	TOAR	<i>Torilis arvensis</i>	69	2	0.2	10			
	CYEC	<i>Cynosurus echinatus</i>	56	8	0.2	25			
	HOMU	<i>Hordeum murinum</i>	56	6	0.2	30			
	AVBA	<i>Avena barbata</i>	50	2	0.2	15			
	GEMO	<i>Geranium molle</i>	50	0.3	0.2	1			
	GAPA5	<i>Galium parisiense</i>	50	0.2	0.2	1			
	GAAP2	<i>Galium aparine</i>	44	0.2	0.2	2			
	TRDU2	<i>Trifolium dubium</i>	44	0.1	0.2	1			
	VUMY	<i>Vulpia myuros</i>	38	2	0.2	10			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	38	1	1	10			
	TONO	<i>Torilis nodosa</i>	38	1	0.2	15			
	LETA	<i>Leontodon taraxacoides</i>	38	0.4	0.2	5			
	CAPY2	<i>Carduus pycnocephalus</i>	38	0.1	0.2	1			
	HYGL2	<i>Hypochaeris glabra</i>	38	0.1	0.2	1			
	TRMI4	<i>Trifolium microcephalum</i>	38	0.1	0.2	1			
	AICA	<i>Aira caryophyllea</i>	38	0.1	0.2	0.2			
	DICA14	<i>Dichelostemma capitatum</i>	38	0.1	0.2	0.2			

SIGA	<i>Silene gallica</i>	38	0.1	0.2	0.2
AVFA	<i>Avena fatua</i>	31	0.6	0.2	5
STME2	<i>Stellaria media</i>	31	0.2	0.2	2
BREL	<i>Brodiaea elegans</i>	31	0.1	0.2	0.2
MEPO3	<i>Medicago polymorpha</i>	31	0.1	0.2	0.2
VUBR	<i>Vulpia bromoides</i>	25	2	0.2	20
CLPE	<i>Claytonia perfoliata</i>	25	1	0.2	15
BRDI2	<i>Brachypodium distachyon</i>	25	0.6	0.2	5
SIOF	<i>Sisymbrium officinale</i>	25	0.2	0.2	1
BRMI2	<i>Briza minor</i>	25	0.1	0.2	1
CLPU2	<i>Clarkia purpurea</i>	25	0.1	0.2	1
AMME	<i>Amsinckia menziesii</i>	25	0.1	0.2	0.2
CEGL2	<i>Cerastium glomeratum</i>	25	0.1	0.2	0.2
ERBO	<i>Erodium botrys</i>	25	0.1	0.2	0.2
SABI2	<i>Sanicula bipinnata</i>	25	0.1	0.2	0.2
TRCI	<i>Trifolium ciliolatum</i>	25	0.1	0.2	0.2
Non-vasc					
2MOSS	Unknown Moss	25	0.1	0.2	0.2

Quercus douglasii–Aesculus californical/grass Association

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 61 - 122, average 89 m
 Total vegetation cover: range 23 - 65 %, average 44 %
 Tree cover: range 6 - 22 %, average 14 %
 Shrub cover: range 0 - 40 %, average 10 %
 Herb cover: range 8 - 30 %, average 17 %
 Percent native cover relative to non-native cover: 83 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	AECA	<i>Aesculus californica</i>	100	17	8	25	X	X	
	QUDO	<i>Quercus douglasii</i>	100	12	5	17	X		X
	PISA2	<i>Pinus sabiniana</i>	50	3	6	7			
	QUWI2	<i>Quercus wislizeni</i>	50	1	1	3			
	QUAG	<i>Quercus agrifolia</i>	25	0.1	0.2	0.2			
Shrub									
	RHIL	<i>Rhamnus ilicifolia</i>	75	1	0.2	4	X		
	TODI	<i>Toxicodendron diversilobum</i>	50	2	2	5			
	STRE4	<i>Styrax redivivus</i>	25	8	30	30			
	HEAR5	<i>Heteromeles arbutifolia</i>	25	1	5	5			
	ADFA	<i>Adenostoma fasciculatum</i>	25	0.3	1	1			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	25	0.3	1	1			
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	4	0.2	10	X		
	BRDI3	<i>Bromus diandrus</i>	100	2	1	4	X		
	BRRU2	<i>Bromus rubens</i>	100	2	0.2	7	X		
	VUMY	<i>Vulpia myuros</i>	75	3	0.2	10	X		
	HOMU	<i>Hordeum murinum</i>	75	0.8	0.2	2	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	75	0.4	0.2	1	X		
	GEMO	<i>Geranium molle</i>	75	0.2	0.2	0.2	X		
	ADIAN	<i>Adiantum</i> sp.	50	5	0.2	20			
	TOAR	<i>Torilis arvensis</i>	50	0.3	0.2	1			
	ANCA14	<i>Anthriscus caucalis</i>	50	0.1	0.2	0.2			

MIFL2	<i>Mimulus floribundus</i>	25	1	5	5		
VUBR	<i>Vulpia bromoides</i>	25	0.8	3	3		
AICA	<i>Aira caryophylla</i>	25	0.3	1	1		
CAPY2	<i>Carduus pycnocephalus</i>	25	0.3	1	1		
MAFA3	<i>Marah fabaceus</i>	25	0.3	1	1		
METO	<i>Melica torreyana</i>	25	0.3	1	1		
PHACE	<i>Phacelia</i> sp.	25	0.3	1	1		
TONO	<i>Torilis nodosa</i>	25	0.3	1	1		
AVENA	<i>Avena</i> sp.	25	0.1	0.2	0.2		
AVBA	<i>Avena barbata</i>	25	0.1	0.2	0.2		
BRMI2	<i>Briza minor</i>	25	0.1	0.2	0.2		
GAAP2	<i>Galium aparine</i>	25	0.1	0.2	0.2		
MEPO3	<i>Medicago polymorpha</i>	25	0.1	0.2	0.2		
PETR7	<i>Pentagramma triangularis</i>	25	0.1	0.2	0.2		
SIOF	<i>Sisymbrium officinale</i>	25	0.1	0.2	0.2		
STME2	<i>Stellaria media</i>	25	0.1	0.2	0.2		
TRHI4	<i>Trifolium hirtum</i>	25	0.1	0.2	0.2		
Non-vasc							
2MOSS	Unknown Moss	100	14	1	22	X	X
2LICHN	Unknown Lichen	75	6	1	18	X	

Quercus douglasii–Pinus sabiniana Association

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 61 - 77 , average 69 m
 Total vegetation cover: range 38 - 60 %, average 49 %
 Tree cover: range 20 - 41 %, average 30 %
 Shrub cover: range 3 - 6 %, average 5 %
 Herb cover: range 12 - 57 %, average 34 %
 Percent native cover relative to non-native cover: 63 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUDO	<i>Quercus douglasii</i>	100	23	9	37	X	X	
	PISA2	<i>Pinus sabiniana</i>	100	13	6	20	X		X
	QUWI2	<i>Quercus wislizeni</i>	100	1	1	1	X		
	AECA	<i>Aesculus californica</i>	50	0.5	1	1			
Shrub									
	ARVI4	<i>Arctostaphylos viscida</i>	50	2	3	3			
	RHIL	<i>Rhamnus ilicifolia</i>	50	2	3	3			
	TODI	<i>Toxicodendron diversilobum</i>	50	1	2	2			
	ARMA	<i>Arctostaphylos manzanita</i>	50	0.5	1	1			
Herb									
	BRDI2	<i>Brachypodium distachyon</i>	100	11	1	20	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	2	1	2	X		
	PETR7	<i>Pentagramma triangularis</i>	100	0.2	0.2	0.2	X		
	BRDI3	<i>Bromus diandrus</i>	50	15	30	30			
	BRRU2	<i>Bromus rubens</i>	50	3	6	6			
	HOMU	<i>Hordeum murinum</i>	50	2	3	3			
	VICIA	<i>Vicia</i> sp.	50	2	3	3			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	50	1	2	2			
	CAPY2	<i>Carduus pycnocephalus</i>	50	0.5	1	1			
	ERBO	<i>Erodium botrys</i>	50	0.5	1	1			
	TRHI4	<i>Trifolium hirtum</i>	50	0.5	1	1			
Non-vasc									
	2LICHN	Unknown Lichen	100	3	2	4	X	X	
	2MOSS	Unknown Moss	100	3	2	3	X		X

Quercus douglasii–Quercus wislizeni Association

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 66 - 249, average 146 m
 Total vegetation cover: range 40 - 70 %, average 54 %
 Tree cover: range 0.2- 41 %, average 25 %
 Shrub cover: range 0 - 13 %, average 6 %
 Herb cover: range 10 - 60 %, average 30 %
 Percent native cover relative to non-native cover: 68 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUDO	<i>Quercus douglasii</i>	100	28	15	40	X	X	
	QUWI2	<i>Quercus wislizeni</i>	100	8	1	13	X		
	PISA2	<i>Pinus sabiniana</i>	75	0.6	0.2	1	X		
	QUKE	<i>Quercus kelloggii</i>	25	0.1	0.2	0.2			
Shrub									
	TODI	<i>Toxicodendron diversilobum</i>	75	5	5	8	X		X
	ARMA	<i>Arctostaphylos manzanita</i>	25	2	6	6			
	HEAR5	<i>Heteromeles arbutifolia</i>	25	2	6	6			
	ARCTO3	<i>Arctostaphylos</i> sp.	25	0.3	1	1			
	RHIL	<i>Rhamnus ilicifolia</i>	25	0.3	1	1			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	25	0.1	0.2	0.2			
Herb									
	CYEC	<i>Cynosurus echinatus</i>	100	4	0.2	10	X		
	TOAR	<i>Torilis arvensis</i>	75	2	1	5	X		
	TRHI4	<i>Trifolium hirtum</i>	50	4	5	12			
	AVBA	<i>Avena barbata</i>	50	4	4	12			
	BRDI2	<i>Brachypodium distachyon</i>	50	1	2	3			
	BRHO2	<i>Bromus hordeaceus</i>	50	0.8	1	2			
	BRDI3	<i>Bromus diandrus</i>	50	0.5	1	1			
	BRRU2	<i>Bromus rubens</i>	25	2	8	8			
	BRMA	<i>Briza maxima</i>	25	2	7	7			
	BRMA3	<i>Bromus madritensis</i>	25	0.5	2	2			
	DAPU3	<i>Daucus pusillus</i>	25	0.5	2	2			
	MEPO3	<i>Medicago polymorpha</i>	25	0.5	2	2			
	CESO3	<i>Centaurea solstitialis</i>	25	0.3	1	1			
	GEDI	<i>Geranium dissectum</i>	25	0.3	1	1			
	SIGA	<i>Silene gallica</i>	25	0.3	1	1			
	AGPA8	<i>Agrostis pallens</i>	25	0.1	0.2	0.2			
	LILIXX	<i>Liliaceae</i>	25	0.1	0.2	0.2			

	PETR7	<i>Pentagramma triangularis</i>	25	0.1	0.2	0.2
	PEDU2	<i>Petrorhagia dubia</i>	25	0.1	0.2	0.2
	TRGL4	<i>Trifolium glomeratum</i>	25	0.1	0.2	0.2
Non-vasc						
	2MOSS	Unknown Moss	50	6	10	15
	2LICHN	Unknown Lichen	25	1	5	5

Quercus kelloggii Alliance (California black oak forest)

Quercus kelloggii or a hybrid such as *Q. xmoreha* is dominant in the tree canopy with *Pinus sabiniana*, *Quercus douglasii* and *Q. wislizeni*. The canopy is savanna-like to continuous. The shrub layer is open to intermittent. The herbaceous layer is sparse or grassy. These stands are found on all aspects and topographic settings. Soils are moderately to excessively well-drained.

One stand was classified to the alliance level in the study area, with *Q. xmoreha* dominant.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 121 m

Total vegetation cover: 58%

Tree cover: 32%

Shrub cover: 30%

Herb cover: 12%

Percent native cover relative to non-native cover: 95 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUMO2	<i>Quercus xmoreha</i>	100	24	24	24	X	X	
	QUWI2	<i>Quercus wislizeni</i>	100	5	5	5	X		
	PISA2	<i>Pinus sabiniana</i>	100	3	3	3	X		
	QUDO	<i>Quercus douglasii</i>	100	2	2	2	X		
Shrub									
	HEAR5	<i>Heteromeles arbutifolia</i>	100	18	18	18	X	X	
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	100	10	10	10	X		X
	TODI	<i>Toxicodendron diversilobum</i>	100	4	4	4	X		
	ARMA	<i>Arctostaphylos manzanita</i>	100	0.2	0.2	0.2	X		
Herb									
	VUMY	<i>Vulpia myuros</i>	100	2	2	2	X		X
	AICA	<i>Aira caryophyllea</i>	100	1	1	1	X		
	LILIXX	<i>Liliaceae</i>	100	1	1	1	X		
	POLYP	<i>Polypodium</i>	100	1	1	1	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	0.2	0.2	0.2	X		
	PEDE	<i>Pedicularis densiflora</i>	100	0.2	0.2	0.2	X		
	PETR7	<i>Pentagramma triangularis</i>	100	0.2	0.2	0.2	X		
	TORIL	<i>Torilis</i>	100	0.2	0.2	0.2	X		
Non-vasc									
	2MOSS	<i>Unknown Moss</i>	100	10	10	10	X	X	

Association(s) Defined: None

Quercus lobata Alliance (Valley oak woodland)

Quercus lobata is dominant in the tree canopy, often occurring with *Fraxinus latifolia*, *Juglans hindsii*, *Acer negundo*, *Populus fremontii*, *Salix lasiolepis*, and *S. gooddingii*. The canopy is open to continuous. Shrubs are common to occasional, including liana *Vitis californica*. The herbaceous layer may be grassy. Stands are found in valley bottoms and lower slopes. Soils are alluvial or residual.

Fifteen stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 233

Local Environmental Table:

Elevation: range 0 - 312, average 41 m
 Total vegetation cover: range 18 - 100 %, average 62 %
 Tree cover: range 2 - 100%, average 33 %
 Shrub cover: range 0 - 100%, average 20 %
 Herb cover: range 0 - 100%, average 15 %
 Percent native cover relative to non-native cover: 77 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion, Sierra Nevada Foothills Ecoregion

References: CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	QULO	<i>Quercus lobata</i>	100	30	5	95	X	X	
	FRLA	<i>Fraxinus latifolia</i>	47	3	0.2	73			
	JUHI	<i>Juglans hindsii</i>	38	0.7	0.2	12			
	ACNE2	<i>Acer negundo</i>	34	2	0.2	77			
	POFR2	<i>Populus fremontii</i>	29	1	0.2	38			
	SALA6	<i>Salix lasiolepis</i>	24	2	0.2	40			
	SAGO	<i>Salix gooddingii</i>	23	0.8	0.2	25			
Shrub	RUAR9	<i>Rubus armeniacus</i>	60	8	0.2	60			
	VICA5	<i>Vitis californica</i>	57	4	0.2	74			
	TODI	<i>Toxicodendron diversilobum</i>	36	1	0.2	19			
	ROCA2	<i>Rosa californica</i>	36	3	0.2	90			
	RUUR	<i>Rubus ursinus</i>	32	3	0.2	80			
	SANI4	<i>Sambucus nigra</i>	30	0.5	0.2	12			
	CEOC2	<i>Cephalanthus occidentalis</i>	28	0.7	0.2	30			
Herb	BRDI3	<i>Bromus diandrus</i>	56	4	0.2	60			
	ARDO3	<i>Artemisia douglasiana</i>	33	0.3	0.2	15			
	CABA4	<i>Carex barbarae</i>	33	4	0.2	100			
	TOAR	<i>Torilis arvensis</i>	20	0.3	0.2	8			

Association(s) Defined: *Quercus lobata/Carex barbarae* Provisional
Quercus lobata/Herbaceous Semi-Riparian
Quercus lobata/Rubus armeniacus
Quercus lobata/Rubus ursinus–Rosa californica
Quercus lobata–Alnus rhombifolia
Quercus lobata–Fraxinus latifolia/Vitis californica
Quercus lobata–Quercus agrifolia/grass
Quercus lobata–Quercus wislizeni
Quercus lobata–Salix lasiolepis

***Quercus lobata/Carex barbarae* Provisional Association**

Samples used to describe type: 15

Local Environmental Table:

Elevation: range 0 - 167, average 54 m
 Total vegetation cover: range 31 - 95 %, average 55%
 Tree cover: range 10 - 71 %, average 29%
 Shrub cover: range 0 - 30 %, average 9 %
 Herb cover: range 6 - 78 %, average 27 %
 Percent native cover relative to non-native cover: 88 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	100	31	8	71	X	X	
	FRLA	<i>Fraxinus latifolia</i>	40	0.4	0.2	2			
	JUHI	<i>Juglans hindsii</i>	33	0.6	0.2	3			
	ACNE2	<i>Acer negundo</i>	27	0.3	0.2	2			
Shrub									
	RUUR	<i>Rubus ursinus</i>	40	2	1	13			
	VICA5	<i>Vitis californica</i>	40	2	0.2	13			
	RUAR9	<i>Rubus armeniacus</i>	33	0.9	0.2	8			
	ROCA2	<i>Rosa californica</i>	33	0.4	0.2	3			
	TODI	<i>Toxicodendron diversilobum</i>	27	2	4	14			
	SANI4	<i>Sambucus nigra</i>	27	0.2	0.2	3			
Herb									
	CABA4	<i>Carex barbarae</i>	73	8	2	55			
	BRDI3	<i>Bromus diandrus</i>	67	2	0.2	8			
	RUCR	<i>Rumex crispus</i>	53	0.2	0.2	1			
	GAAP2	<i>Galium aparine</i>	47	0.3	0.2	2			
	TOAR	<i>Torilis arvensis</i>	47	0.3	0.2	2			
	LETR5	<i>Leymus triticoides</i>	40	8	0.2	65			
	ARDO3	<i>Artemisia douglasiana</i>	33	0.3	0.2	4			
	CYDA	<i>Cynodon dactylon</i>	27	0.7	0.2	9			
	BRHO2	<i>Bromus hordeaceus</i>	27	0.1	0.2	1			
	LASE	<i>Lactuca serriola</i>	27	0.1	0.2	0.2			

Quercus lobata/Herbaceous Semi-Riparian Association

Samples used to describe type: 54

Local Environmental Table:

Elevation: range 1 - 183, average 69 m
 Total vegetation cover: range 18 - 80 %, average 44%
 Tree cover: range 5 - 75 %, average 27 %
 Shrub cover: range 0 - 30 %, average 4 %
 Herb cover: range 0.2- 62 %, average 18 %
 Percent native cover relative to non-native cover: 67 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	100	27	6	75	X	X	
	JUHI	<i>Juglans hindsii</i>	46	0.9	0.2	12			
	FRLA	<i>Fraxinus latifolia</i>	41	1	0.2	30			
	PLRA	<i>Platanus racemosa</i>	20	0.8	0.2	20			
	SAGO	<i>Salix gooddingii</i>	20	0.2	0.2	40			
	POFR2	<i>Populus fremontii</i>	20	0.2	0.2	4			
Shrub									
	SANI4	<i>Sambucus nigra</i>	52	0.6	0.2	7			
	RUAR9	<i>Rubus armeniacus</i>	39	1	0.2	6			
	VICA5	<i>Vitis californica</i>	33	0.9	0.2	21			
	TODI	<i>Toxicodendron diversilobum</i>	30	0.7	0.2	6			
Herb									
	BRDI3	<i>Bromus diandrus</i>	94	11	0.2	60	X	X	
	LASE	<i>Lactuca serriola</i>	41	0.1	0.2	2			
	VIVI	<i>Vicia villosa</i>	35	0.8	0.2	8			
	SIMA3	<i>Silybum marianum</i>	35	0.4	0.2	10			
	ARDO3	<i>Artemisia douglasiana</i>	33	0.1	0.2	1			
	AVFA	<i>Avena fatua</i>	30	0.5	0.2	9			
	TOAR	<i>Torilis arvensis</i>	26	0.5	0.2	7			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	26	0.2	0.2	5			
	CAPY2	<i>Carduus pycnocephalus</i>	22	0.2	0.2	5			
	HOMU	<i>Hordeum murinum</i>	20	0.5	0.2	10			

Quercus lobata/Rubus armeniacus Association

Samples used to describe type: 49

Local Environmental Table:

Elevation: range 0 - 183, average 41 m
 Total vegetation cover: range 24 - 100 %, average 60 %
 Tree cover: range 2 - 80 %, average 29 %
 Shrub cover: range 0 - 77 %, average 20 %
 Herb cover: range 0 - 70 %, average 13 %
 Percent native cover relative to non-native cover: 64 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	100	28	6	70	X	X	
	JUHI	<i>Juglans hindsii</i>	51	1	0.2	6			
	FRLA	<i>Fraxinus latifolia</i>	39	0.7	0.2	4			
	ACNE2	<i>Acer negundo</i>	37	0.4	0.2	5			
	POFR2	<i>Populus fremontii</i>	31	2	0.2	38			
	SAGO	<i>Salix gooddingii</i>	27	1	0.2	25			
	SALA6	<i>Salix lasiolepis</i>	20	0.7	0.2	10			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	100	17	4	53	X	X	
	VICA5	<i>Vitis californica</i>	61	1	0.2	12			
	TODI	<i>Toxicodendron diversilobum</i>	39	0.9	0.2	12			
	ROCA2	<i>Rosa californica</i>	27	0.7	0.2	15			
	SANI4	<i>Sambucus nigra</i>	22	0.3	0.2	3			
	ARCA10	<i>Aristolochia californica</i>	22	0.2	0.2	3			
	CEOC2	<i>Cephalanthus occidentalis</i>	20	0.4	0.2	10			
Herb									
	BRDI3	<i>Bromus diandrus</i>	63	2	0.2	15			
	CABA4	<i>Carex barbarae</i>	35	4	0.2	70			
	TOAR	<i>Torilis arvensis</i>	33	0.5	0.2	8			
	ARDO3	<i>Artemisia douglasiana</i>	33	0.2	0.2	2			
	RUCR	<i>Rumex crispus</i>	31	0.1	0.2	1			
	GAAP2	<i>Galium aparine</i>	27	0.8	0.2	12			
	BRHO2	<i>Bromus hordeaceus</i>	22	0.6	0.2	10			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	20	0.3	0.2	5			

***Quercus lobata*/*Rubus ursinus*–*Rosa californica* Association**

Samples used to describe type: 30

Local Environmental Table:

Elevation: range 0 - 169, average 22 m

Total vegetation cover: range 42 - 100 %, average 74 %

Tree cover: range 12 - 86 %, average 32 %

Shrub cover: range 3 - 100 %, average 39 %

Herb cover: range 0 - 41 %, average 13 %

Percent native cover relative to non-native cover: 92 %

Location(s) Sampled: All Great Valley

References: CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	100	31	15	83	X	X	
	ACNE2	<i>Acer negundo</i>	37	2	0.2	25			
	JUHI	<i>Juglans hindsii</i>	37	0.5	0.2	5			
Shrub									
	RUUR	<i>Rubus ursinus</i>	80	16	0.2	80	X		
	ROCA2	<i>Rosa californica</i>	67	17	3	90			
	VICA5	<i>Vitis californica</i>	60	6	0.2	66			
	SANI4	<i>Sambucus nigra</i>	43	2	0.2	12			
	TODI	<i>Toxicodendron diversilobum</i>	40	3	0.2	19			
	RUAR9	<i>Rubus armeniacus</i>	33	3	1	30			
Herb									
	BRDI3	<i>Bromus diandrus</i>	43	2	0.2	25			
	LETR5	<i>Leymus triticoides</i>	43	1	0.2	13			
	CABA4	<i>Carex barbarae</i>	37	7	0.2	60			
	ARDO3	<i>Artemisia douglasiana</i>	37	0.8	0.2	5			
	ANCA14	<i>Anthriscus caucalis</i>	23	0.5	0.2	5			
	URDI	<i>Urtica dioica</i>	23	0.5	0.2	5			

Quercus lobata–Alnus rhombifolia Association

Samples used to describe type: 28

Local Environmental Table:

Elevation: range 0 - 118, average 8 m
 Total vegetation cover: range 65 - 90 %, average 81%
 Tree cover: range 3 - 70 %, average 46 %
 Shrub cover: range 0.2- 50 %, average 19 %
 Herb cover: range 0.2- 35 %, average 8 %
 Percent native cover relative to non-native cover: 83 %

Location(s) Sampled: All Great Valley

References: CDFG-CNPS 2008, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	100	31	5	64	X		X
	ALRH2	<i>Alnus rhombifolia</i>	100	16	0.2	40	X		
	SALA6	<i>Salix lasiolepis</i>	75	8	0.2	40	X		
	FRLA	<i>Fraxinus latifolia</i>	71	2	0.2	20			
	POFR2	<i>Populus fremontii</i>	61	4	0.2	25			
	SAGO	<i>Salix gooddingii</i>	46	2	0.2	9			
	ACNE2	<i>Acer negundo</i>	39	0.4	0.2	4			
	JUHI	<i>Juglans hindsii</i>	29	0.8	0.2	12			
	PLRA	<i>Platanus racemosa</i>	25	1	0.2	10			
	QUAG	<i>Quercus agrifolia</i>	21	2	0.2	17			
Shrub									
	VICA5	<i>Vitis californica</i>	82	3	0.2	13	X		
	RUAR9	<i>Rubus armeniacus</i>	79	15	0.2	60	X		X
	CEOC2	<i>Cephalanthus occidentalis</i>	68	0.9	0.2	10			
	SAEX	<i>Salix exigua</i>	46	2	0.2	15			
	ROCA2	<i>Rosa californica</i>	43	3	0.2	20			
	RUUR	<i>Rubus ursinus</i>	29	2	1	25			
	FICA	<i>Ficus carica</i>	25	0.4	0.2	6			
	COSE16	<i>Cornus sericea</i>	21	3	2	50			
Herb									
	CABA4	<i>Carex barbarae</i>	36	0.5	0.2	4			
	ARDO3	<i>Artemisia douglasiana</i>	25	0.1	0.2	2			

***Quercus lobata*–*Fraxinus latifolia*/*Vitis californica* Association**

Samples used to describe type: 30

Local Environmental Table:

Elevation: range 0 - 138, average 13 m

Total vegetation cover: range 47 - 100 %, average 79 %

Tree cover: range 12 - 100%, average 52 %

Shrub cover: range 1 - 100%, average 34 %

Herb cover: range 0.2- 100%, average 20 %

Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: All Great Valley

References: CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	100	41	9	95	X	X	
	FRLA	<i>Fraxinus latifolia</i>	97	17	0.2	73	X		
	ACNE2	<i>Acer negundo</i>	70	8	0.2	77			
	SALA6	<i>Salix lasiolepis</i>	37	1	0.2	10			
	POFR2	<i>Populus fremontii</i>	33	2	0.2	20			
	JUHI	<i>Juglans hindsii</i>	23	0.2	0.2	4			
Shrub									
	VICA5	<i>Vitis californica</i>	83	14	0.2	74	X		X
	RUUR	<i>Rubus ursinus</i>	70	7	0.2	45			
	ROCA2	<i>Rosa californica</i>	60	3	0.2	25			
	RUAR9	<i>Rubus armeniacus</i>	57	11	1	55			
	TODI	<i>Toxicodendron diversilobum</i>	53	3	0.2	17			
	CEOC2	<i>Cephalanthus occidentalis</i>	37	0.6	0.2	10			
	SAEX	<i>Salix exigua</i>	23	1	0.2	20			
	SANI4	<i>Sambucus nigra</i>	23	0.3	0.2	4			
Herb									
	CABA4	<i>Carex barbarae</i>	67	12	0.2	100			
	ARDO3	<i>Artemisia douglasiana</i>	37	0.7	0.2	15			
	GAAP2	<i>Galium aparine</i>	30	2	0.2	28			
	CYER	<i>Cyperus eragrostis</i>	30	0.6	0.2	9			

***Quercus lobata*–*Quercus agrifolia*/grass Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 0 m

Total vegetation cover: 60 %

Tree cover: 40 %

Shrub cover: 0 %

Herb cover: 25 %

Percent native cover relative to non-native cover: 86 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUAG	<i>Quercus agrifolia</i>	100	20	20	20	X	X	
	QULO	<i>Quercus lobata</i>	100	20	20	20	X		X
	FRLA	<i>Fraxinus latifolia</i>	100	0.4	0.4	0.4	X		
Herb									
	EQHYA	<i>Equisetum hyemale</i> var. <i>affine</i>	100	16	16	16	X	X	
	CYDA	<i>Cynodon dactylon</i>	100	9	9	9	X		X

Quercus lobata–Quercus wislizeni Association

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 56 - 182, average 115 m
 Total vegetation cover: range 41 - 75 %, average 60 %
 Tree cover: range 18 - 54 %, average 36 %
 Shrub cover: range 0.2- 50 %, average 22 %
 Herb cover: range 1 - 68 %, average 18 %
 Percent native cover relative to non-native cover: 66 %

Location(s) Sampled: Northeast Great Valley, Northern California Interior Coast Ranges
 Ecoregion

References: GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	100	17	5	41	X		X
	QUWI2	<i>Quercus wislizeni</i>	100	11	6	15	X		X
	PISA2	<i>Pinus sabiniana</i>	50	3	4	9			
	POFR2	<i>Populus fremontii</i>	50	1	0.2	6			
	PRCE2	<i>Prunus cerasifera</i>	33	0.1	0.2	0.2			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	67	9	2	24			
	TODI	<i>Toxicodendron diversilobum</i>	67	2	1	7			
	VICA5	<i>Vitis californica</i>	50	4	1	12			
	ARCA10	<i>Aristolochia californica</i>	50	0.8	1	2			
	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	33	3	4	15			
	FICA	<i>Ficus carica</i>	33	0.7	1	3			
	ROCA2	<i>Rosa californica</i>	33	0.2	0.2	1			
Herb									
	BRDI3	<i>Bromus diandrus</i>	67	5	0.2	20			
	CYEC	<i>Cynosurus echinatus</i>	67	4	0.2	20			
	TOAR	<i>Torilis arvensis</i>	50	0.2	0.2	1			
	VIVI	<i>Vicia villosa</i>	50	0.1	0.2	0.2			
	MEPO3	<i>Medicago polymorpha</i>	33	1	0.2	7			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	33	0.5	0.2	3			
	SACR2	<i>Sanicula crassicaulis</i>	33	0.2	0.2	1			
	VISA	<i>Vicia sativa</i>	33	0.2	0.2	1			
	CAPY2	<i>Carduus pycnocephalus</i>	33	0.1	0.2	0.2			
	GEMO	<i>Geranium molle</i>	33	0.1	0.2	0.2			
	RUPU3	<i>Rumex pulcher</i>	33	0.1	0.2	0.2			
	TRHI4	<i>Trifolium hirtum</i>	33	0.1	0.2	0.2			
Non-vasc									
	2MOSS	Unknown Moss	33	0.1	0.2	0.2			

***Quercus lobata*–*Salix lasiolepis* Association**

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 1 - 312, average 105 m
 Total vegetation cover: range 35 - 80 %, average 67 %
 Tree cover: range 5 - 50 %, average 24 %
 Shrub cover: range 0 - 20 %, average 9 %
 Herb cover: range 2 - 60 %, average 28 %
 Percent native cover relative to non-native cover: 85 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley, Sierra Nevada Foothills Ecoregion

References: CDFG-CNPS 2008, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	100	20	7	45	X		X
	SALA6	<i>Salix lasiolepis</i>	100	15	5	40	X		X
	POFR2	<i>Populus fremontii</i>	60	1	0.2	5			
Shrub									
	SAEX	<i>Salix exigua</i>	40	2	0.2	8			
	CEOC2	<i>Cephalanthus occidentalis</i>	40	2	1	7			
Herb									
	POLYG4	<i>Polygonum</i> sp.	40	2	0.2	12			
	CAPR5	<i>Carex praegracilis</i>	40	1	0.2	5			
	RUCR	<i>Rumex crispus</i>	40	0.2	0.2	1			
	LOTUS	<i>Lotus</i> sp.	40	0.1	0.2	0.2			

Quercus wislizeni Forest Alliance (Interior live oak woodland)

Quercus wislizeni is dominant in the tree canopy, often occurring with *Pinus sabiniana* and *Q. douglasii*. The canopy is continuous, intermittent, or savanna-like. The shrub layer is open to intermittent and may contain *Heteromeles arbutifolia*, *Arctostaphylos viscida*, and/or *A. manzanita*. The herbaceous layer is sparse or grassy. Stands are found on upland slopes, valley bottoms, and terraces. Soils are shallow and moderately to excessively drained.

Nine stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 43

Local Environmental Table:

Elevation: range 12 - 268, average 119 m
 Total vegetation cover: range 30 - 75 %, average 49 %
 Tree cover: range 0 - 66 %, average 30 %
 Shrub cover: range 0 - 84 %, average 18 %
 Herb cover: range 0 - 55 %, average 12 %
 Percent native cover relative to non-native cover: 86 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	QUWI2	<i>Quercus wislizeni</i>	100	27	6	51	X	X	
	PISA2	<i>Pinus sabiniana</i>	58	3	0.2	25			
	QUDO	<i>Quercus douglasii</i>	40	2	0.2	17			
Shrub	TODI	<i>Toxicodendron diversilobum</i>	63	4	0.2	40			
	ARVI4	<i>Arctostaphylos viscida</i>	44	3	0.2	30			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	42	1	0.2	19			
	HEAR5	<i>Heteromeles arbutifolia</i>	40	3	0.2	18			
	ADFA	<i>Adenostoma fasciculatum</i>	37	3	0.2	35			
	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	21	0.8	0.2	18			
	RHIL	<i>Rhamnus ilicifolia</i>	21	0.4	0.2	7			
Herb	BRDI3	<i>Bromus diandrus</i>	49	2	0.2	20			
	AICA	<i>Aira caryophylla</i>	47	0.3	0.2	5			
	PETR7	<i>Pentagramma triangularis</i>	37	0.1	0.2	1			
	BRRU2	<i>Bromus rubens</i>	33	0.5	0.2	7			
	CYEC	<i>Cynosurus echinatus</i>	28	1	0.2	15			
	BRHO2	<i>Bromus hordeaceus</i>	26	0.8	0.2	12			
	TOAR	<i>Torilis arvensis</i>	23	1	0.2	15			

VUMY	<i>Vulpia myuros</i>	23	0.4	0.2	15
TRHI4	<i>Trifolium hirtum</i>	23	0.4	0.2	6
AVBA	<i>Avena barbata</i>	23	0.4	0.2	8
Non-vasc					
2MOSS	Unknown Moss	60	4	0.2	30
2LICHN	Unknown Lichen	37	0.4	0.2	2

Association(s) Defined: *Quercus wislizeni/Arctostaphylos viscida*
Quercus wislizeni/Heteromeles arbutifolia
Quercus wislizeni–Aesculus californica
Quercus wislizeni–Pinus sabiniana
Quercus wislizeni–Pinus sabiniana/Arctostaphylos manzanita
Quercus wislizeni–Pinus sabiniana/Arctostaphylos viscida
Quercus wislizeni–Quercus douglasii/Herbaceous
Quercus wislizeni–Quercus douglasii–Aesculus californica
Quercus wislizeni–Salix laevigata/Frangula californica

***Quercus wislizeni*/Arctostaphylos viscida Association**

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 85 - 110, average 98 m

Total vegetation cover: range 35 - 70 %, average 45 %

Tree cover: range 0 - 38 %, average 21 %

Shrub cover: range 9 - 21 %, average 17 %

Herb cover: range 0 - 5 %, average 1 %

Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUWI2	<i>Quercus wislizeni</i>	100	32	22	44	X	X	
Shrub									
	ARVI4	<i>Arctostaphylos viscida</i>	100	10	6	18	X	X	
	ADFA	<i>Adenostoma fasciculatum</i>	100	7	0.2	13	X		X
	BAPI	<i>Baccharis pilularis</i>	50	0.1	0.2	0.2			
	CETO	<i>Ceanothus tomentosus</i>	25	0.8	3	3			
	ARMY	<i>Arctostaphylos myrtifolia</i>	25	0.5	2	2			
Herb									
	AICA	<i>Aira caryophyllea</i>	50	0.1	0.2	0.2			
	HOPA2	<i>Horkelia parryi</i>	25	0.8	3	3			
	POSE	<i>Poa secunda</i>	25	0.3	1	1			
	AGID	<i>Agrostis idahoensis</i>	25	0.1	0.2	0.2			
	BRRU2	<i>Bromus rubens</i>	25	0.1	0.2	0.2			
	VUMY	<i>Vulpia myuros</i>	25	0.1	0.2	0.2			
Non-vasc									
	2MOSS	Unknown Moss	75	3	1	5	X		X
	2LICHN	Unknown Lichen	75	1	1	2	X		
	CRYPTO	Cryptogamic crust	25	0.1	0.2	0.2			

***Quercus wislizeni*/Heteromeles arbutifolia Association**

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 101 - 235, average 158 m
 Total vegetation cover: range 40 - 65 %, average 50 %
 Tree cover: range 0 - 45 %, average 25 %
 Shrub cover: range 9 - 60 %, average 28 %
 Herb cover: range 0.2- 30 %, average 9 %
 Percent native cover relative to non-native cover: 89 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Evens et al. 2004, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUWI2	<i>Quercus wislizeni</i>	100	27	12	43	X	X	
	PISA2	<i>Pinus sabiniana</i>	60	0.8	0.2	3			
	QUDO	<i>Quercus douglasii</i>	40	0.2	0.2	1			
Shrub									
	HEAR5	<i>Heteromeles arbutifolia</i>	100	13	7	18	X	X	
	TODI	<i>Toxicodendron diversilobum</i>	100	12	2	40	X		X
	ARVI4	<i>Arctostaphylos viscida</i>	60	0.8	1	2			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	40	1	2	5			
	ADFA	<i>Adenostoma fasciculatum</i>	40	1	0.2	6			
Herb									
	AICA	<i>Aira caryophyllea</i>	60	0.1	0.2	0.2			
	PETR7	<i>Pentagramma triangularis</i>	60	0.1	0.2	0.2			
	AVBA	<i>Avena barbata</i>	40	2	1	8			
	CYEC	<i>Cynosurus echinatus</i>	40	2	3	5			
	TOAR	<i>Torilis arvensis</i>	40	1	2	3			
	TRHI4	<i>Trifolium hirtum</i>	40	0.8	2	2			
	BRRU2	<i>Bromus rubens</i>	40	0.6	1	2			
	GAPO	<i>Galium porrigens</i>	40	0.4	1	1			
	VUMY	<i>Vulpia myuros</i>	40	0.2	0.2	1			
Non-vasc									
	2MOSS	Unknown Moss	60	5	7	10			
	2LICHN	Unknown Lichen	40	0.6	1	2			

Quercus wislizeni–Aesculus californica Association

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 91 - 183, average 129 m
 Total vegetation cover: range 55 - 75 %, average 63 %
 Tree cover: range 24 - 66 %, average 42 %
 Shrub cover: range 12 - 42 %, average 23 %
 Herb cover: range 10 - 22 %, average 14 %
 Percent native cover relative to non-native cover: 94 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUWI2	<i>Quercus wislizeni</i>	100	34	20	50	X	X	
	AECA	<i>Aesculus californica</i>	100	16	5	25	X		X
	PISA2	<i>Pinus sabiniana</i>	100	5	2	8	X		
	QUDO	<i>Quercus douglasii</i>	67	0.4	0.2	1			
	UMCA	<i>Umbellularia californica</i>	33	0.3	1	1			
	SALA3	<i>Salix laevigata</i>	33	0.1	0.2	0.2			
Shrub									
	TODI	<i>Toxicodendron diversilobum</i>	100	13	2	30	X		X
	HEAR5	<i>Heteromeles arbutifolia</i>	100	4	2	5	X		
	RHIL	<i>Rhamnus ilicifolia</i>	67	2	1	6			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	67	0.7	1	1			
	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	67	0.7	1	1			
	ARVI4	<i>Arctostaphylos viscida</i>	67	0.1	0.2	0.2			
	ARMA	<i>Arctostaphylos manzanita</i>	33	0.3	1	1			
	CLLA3	<i>Clematis lasiantha</i>	33	0.3	1	1			
	SANI4	<i>Sambucus nigra</i>	33	0.1	0.2	0.2			
Herb									
	BRDI2	<i>Brachypodium distachyon</i>	100	1	0.2	2	X		
	ADIAN	<i>Adiantum</i> sp.	67	5	3	12			
	MEIM	<i>Melica imperfecta</i>	67	2	2	3			
	AVBA	<i>Avena barbata</i>	67	0.7	0.2	2			
	CYEC	<i>Cynosurus echinatus</i>	67	0.7	1	1			
	PETR7	<i>Pentagramma triangularis</i>	67	0.4	0.2	1			
	TRHI4	<i>Trifolium hirtum</i>	33	1	3	3			
	BRDI3	<i>Bromus diandrus</i>	33	0.7	2	2			
	BRHO2	<i>Bromus hordeaceus</i>	33	0.7	2	2			
	BRMA3	<i>Bromus madritensis</i>	33	0.3	1	1			
	DRYOP	<i>Dryopteris</i> sp.	33	0.3	1	1			

AICA	<i>Aira caryophylla</i>	33	0.1	0.2	0.2
BRRU2	<i>Bromus rubens</i>	33	0.1	0.2	0.2
DIVO	<i>Dichelostemma volubile</i>	33	0.1	0.2	0.2
GEMO2	<i>Genista monspessulana</i>	33	0.1	0.2	0.2
JUNCU	<i>Juncus</i> sp.	33	0.1	0.2	0.2
LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	33	0.1	0.2	0.2
MIGU	<i>Mimulus guttatus</i>	33	0.1	0.2	0.2
PEDU2	<i>Petrorhagia dubia</i>	33	0.1	0.2	0.2
POLYP	<i>Polypodium</i> sp.	33	0.1	0.2	0.2
TOAR	<i>Torilis arvensis</i>	33	0.1	0.2	0.2
VUMY	<i>Vulpia myuros</i>	33	0.1	0.2	0.2
Non-vasc					
2MOSS	Unknown Moss	67	11	4	30

***Quercus wislizeni*–*Pinus sabiniana*/annual grass-herb Association**

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 87 - 115, average 100 m

Total vegetation cover: range 30 - 48 %, average 41%

Tree cover: range 5 - 42 %, average 28 %

Shrub cover: range 6 - 23 %, average 13 %

Herb cover: range 1 - 12 %, average 7 %

Percent native cover relative to non-native cover: 91 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUWI2	<i>Quercus wislizeni</i>	100	23	14	33	X	X	
	PISA2	<i>Pinus sabiniana</i>	100	8.2	4	12	X		
	QUDO	<i>Quercus douglasii</i>	60	0.8	1	2			
Shrub									
	ADFA	<i>Adenostoma fasciculatum</i>	80	7	1	17	X		X
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	80	2	0.2	7	X		
	ARVI4	<i>Arctostaphylos viscida</i>	80	2	1	4	X		
	TODI	<i>Toxicodendron diversilobum</i>	80	0.6	0.2	1	X		
	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	40	2	1	8			
	HEAR5	<i>Heteromeles arbutifolia</i>	40	0.6	1	2			
	LOSC2	<i>Lotus scoparius</i>	40	0.1	0.2	0.2			
Herb									
	AICA	<i>Aira caryophyllea</i>	100	0.4	0.2	1	X		
	BRRU2	<i>Bromus rubens</i>	80	1	0.2	3	X		
	PETR7	<i>Pentagramma triangularis</i>	80	0.2	0.2	0.2	X		
	BRDI3	<i>Bromus diandrus</i>	60	1	1	5			
	VUBR	<i>Vulpia bromoides</i>	60	0.9	0.2	4			
	HYGL2	<i>Hypochaeris glabra</i>	60	0.1	0.2	0.2			
	BRHO2	<i>Bromus hordeaceus</i>	40	0.8	1	3			
Non-vasc									
	2MOSS	Unknown Moss	100	9	0.2	25	X	X	
	2LICHN	Unknown Lichen	60	1	1	2			

***Quercus wislizeni*–*Pinus sabiniana*/*Arctostaphylos manzanita* Association**

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 75 - 114, average 100 m
 Total vegetation cover: range 40 - 52 %, average 44 %
 Tree cover: range 22 - 30 %, average 25 %
 Shrub cover: range 17 - 26 %, average 21 %
 Herb cover: range 5 - 17 %, average 11 %
 Percent native cover relative to non-native cover: 92 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUWI2	<i>Quercus wislizeni</i>	100	17	12	20	X	X	
	PISA2	<i>Pinus sabiniana</i>	100	11	5	22	X		X
	QUDO	<i>Quercus douglasii</i>	33	2	6	6			
Shrub									
	ARMA	<i>Arctostaphylos manzanita</i>	100	9	4	18	X		X
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	100	3	1	5	X		
	HEAR5	<i>Heteromeles arbutifolia</i>	67	3	3	7			
	TODI	<i>Toxicodendron diversilobum</i>	67	2	3	4			
	ADFA	<i>Adenostoma fasciculatum</i>	67	2	1	4			
	LOSC2	<i>Lotus scoparius</i>	33	0.3	1	1			
	BAPI	<i>Baccharis pilularis</i>	33	0.1	0.2	0.2			
	RHIL	<i>Rhamnus ilicifolia</i>	33	0.1	0.2	0.2			
Herb									
	BRDI3	<i>Bromus diandrus</i>	67	3	4	4			
	AICA	<i>Aira caryophyllea</i>	67	0.4	0.2	1			
	GALIU	<i>Galium</i> sp.	67	0.1	0.2	0.2			
	BRRU2	<i>Bromus rubens</i>	33	1	4	4			
	BRHO2	<i>Bromus hordeaceus</i>	33	1	3	3			
	DICA14	<i>Dichelostemma capitatum</i>	33	0.3	1	1			
	HOVI	<i>Holocarpha virgata</i>	33	0.3	1	1			
	BRMI2	<i>Briza minor</i>	33	0.1	0.2	0.2			
	DAPU3	<i>Daucus pusillus</i>	33	0.1	0.2	0.2			
	HOPA2	<i>Horkelia parryi</i>	33	0.1	0.2	0.2			
	JUARL	<i>Juncus arcticus</i> ssp. <i>littoralis</i>	33	0.1	0.2	0.2			
	LOMI	<i>Lotus micranthus</i>	33	0.1	0.2	0.2			
	PETR7	<i>Pentagramma triangularis</i>	33	0.1	0.2	0.2			
	TRHI4	<i>Trifolium hirtum</i>	33	0.1	0.2	0.2			
Non-vasc									
	2MOSS	Unknown Moss	67	10	4	25			

***Quercus wislizeni*–*Pinus sabiniana*/*Arctostaphylos viscida* Association**

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 120- 121 , average 120.7 m
 Total vegetation cover: range 35 - 73 %, average 48 %
 Tree cover: range 7 - 42 %, average 23 %
 Shrub cover: range 20 - 48 %, average 32 %
 Herb cover: range 0 - 8 %, average 2 %
 Percent native cover relative to non-native cover: 95 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Keeler-Wolf et al. 2003a, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PISA2	<i>Pinus sabiniana</i>	100	14	4	25	X	X	
	QUWI2	<i>Quercus wislizeni</i>	100	11	6	19	X		X
	QUDO	<i>Quercus douglasii</i>	33	0.1	0.2	0.2			
Shrub									
	ARVI4	<i>Arctostaphylos viscida</i>	100	110	14	30	X	X	
	ADFA	<i>Adenostoma fasciculatum</i>	67	8	2	21			
	ARMA	<i>Arctostaphylos manzanita</i>	67	2	1	4			
	HEAR5	<i>Heteromeles arbutifolia</i>	33	2	6	6			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	33	1	3	3			
	TODI	<i>Toxicodendron diversilobum</i>	33	0.7	2	2			
Herb									
	AICA	<i>Aira caryophyllea</i>	33	1	3	3			
	BRMA	<i>Briza maxima</i>	33	0.3	1	1			
	GAPH2	<i>Gastridium phleoides</i>	33	0.3	1	1			
	HYGL2	<i>Hypochaeris glabra</i>	33	0.3	1	1			
	BRDI3	<i>Bromus diandrus</i>	33	0.1	0.2	0.2			
	BRRU2	<i>Bromus rubens</i>	33	0.1	0.2	0.2			
	LOGA2	<i>Logfia gallica</i>	33	0.1	0.2	0.2			
	LUPIN	<i>Lupinus</i> sp.	33	0.1	0.2	0.2			
	PEDE	<i>Pedicularis densiflora</i>	33	0.1	0.2	0.2			
Non-vasc									
	2MOSS	Unknown Moss	100	3	0.2	6	X	X	
	2LICHN	Unknown Lichen	67	0.1	0.2	0.2			
	CRYPTO	Cryptogamic crust	33	0.7	2	2			

***Quercus wislizeni*–*Quercus douglasii* Herbaceous Association**

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 140- 268, average 205 m
 Total vegetation cover: range 55 - 70 %, average 60 %
 Tree cover: range 29 - 56 %, average 39 %
 Shrub cover: range 2 - 13 %, average 6 %
 Herb cover: range 19 - 32 %, average 27 %
 Percent native cover relative to non-native cover: 65 %

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUWI2	<i>Quercus wislizeni</i>	100	32	15	51	X	X	
	QUDO	<i>Quercus douglasii</i>	100	8	4	12	X		
	PISA2	<i>Pinus sabiniana</i>	67	1	1	2			
	AECA	<i>Aesculus californica</i>	33	0.1	0.2	0.2			
Shrub									
	TODI	<i>Toxicodendron diversilobum</i>	100	2	2	2	X	X	
	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	33	2	5	5			
	CECU	<i>Ceanothus cuneatus</i>	33	1	4	4			
	LOIN4	<i>Lonicera interrupta</i>	33	0.3	1	1			
	RHIL	<i>Rhamnus ilicifolia</i>	33	0.3	1	1			
	SYALL	<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	33	0.1	0.4	0.4			
	ARCA10	<i>Aristolochia californica</i>	33	0.1	0.2	0.2			
	CEOR9	<i>Cercis orbiculata</i>	33	0.1	0.2	0.2			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	33	0.1	0.2	0.2			
Herb									
	TOAR	<i>Torilis arvensis</i>	100	3	0.2	6	X		
	AVBA	<i>Avena barbata</i>	100	1	1	1	X		
	BRDI3	<i>Bromus diandrus</i>	67	5	1	15			
	CYEC	<i>Cynosurus echinatus</i>	67	4	5	8			
	BRMA3	<i>Bromus madritensis</i>	67	2	3	4			
	TRHI4	<i>Trifolium hirtum</i>	67	2	1	6			
	SACR2	<i>Sanicula crassicaulis</i>	67	0.4	0.2	1			
	DIVO	<i>Dichelostemma volubile</i>	67	0.1	0.2	0.2			
	BRHO2	<i>Bromus hordeaceus</i>	33	4	12	12			
	BRDI2	<i>Brachypodium distachyon</i>	33	2	5	5			
	CAPY2	<i>Carduus pycnocephalus</i>	33	0.7	2	2			
	GAPO	<i>Galium porrigens</i>	33	0.3	1	1			

MEPO3	<i>Medicago polymorpha</i>	33	0.3	1	1
AICA	<i>Aira caryophyllea</i>	33	0.1	0.2	0.2
BREL	<i>Brodiaea elegans</i>	33	0.1	0.2	0.2
DAPU3	<i>Daucus pusillus</i>	33	0.1	0.2	0.2
GAAP2	<i>Galium aparine</i>	33	0.1	0.2	0.2
GEMO	<i>Geranium molle</i>	33	0.1	0.2	0.2
HOMU	<i>Hordeum murinum</i>	33	0.1	0.2	0.2
MELIC	<i>Melica</i> sp.	33	0.1	0.2	0.2
PETR7	<i>Pentagramma triangularis</i>	33	0.1	0.2	0.2

***Quercus wislizeni*–*Quercus douglasii*–*Aesculus californica* Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 235- 267 , average 251 m
 Total vegetation cover: range 74 - 75 %, average 75 %
 Tree cover: range 40 - 47 %, average 43 %
 Shrub cover: range 30 - 84 %, average 57 %
 Herb cover: range 42 - 55 %, average 48 %
 Percent native cover relative to non-native cover: 65 %

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	AECA	<i>Aesculus californica</i>	100	34	13	54	X		X
	QUWI2	<i>Quercus wislizeni</i>	100	28	25	30	X		X
	QUDO	<i>Quercus douglasii</i>	100	16	15	17	X		
Shrub									
	TODI	<i>Toxicodendron diversilobum</i>	100	19	7	30	X	X	
	RHIL	<i>Rhamnus ilicifolia</i>	100	4	0.2	7	X		
	LOIN4	<i>Lonicera interrupta</i>	50	2	3	3			
Herb									
	TOAR	<i>Torilis arvensis</i>	100	14	13	15	X		
	CYEC	<i>Cynosurus echinatus</i>	100	8	0.2	15	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	3	0.2	5	X		
	TRHI4	<i>Trifolium hirtum</i>	100	2	0.2	3	X		
	DIVO	<i>Dichelostemma volubile</i>	100	0.6	0.2	1	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	50	8	16	16			
	TONO	<i>Torilis nodosa</i>	50	8	15	15			
	CAPY2	<i>Carduus pycnocephalus</i>	50	4	7	7			
	MEPO3	<i>Medicago polymorpha</i>	50	3	5	5			
	TACA8	<i>Taeniatherum caput-medusae</i>	50	3	5	5			
	SHAR2	<i>Sherardia arvensis</i>	50	2	3	3			
	MIGL2	<i>Mimulus glaucescens</i>	50	1	2	2			
	TRDU2	<i>Trifolium dubium</i>	50	1	2	2			
	ADIAN	<i>Adiantum</i> sp.	50	0.5	1	1			
	MESA	<i>Medicago sativa</i>	50	0.5	1	1			
	PETR7	<i>Pentagramma triangularis</i>	50	0.5	1	1			
Non-vasc									
	2MOSS	Unknown Moss	50	3	5	5			

***Quercus wislizeni*–*Salix laevigata*/*Frangula californica* Association**

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 17 - 125, average 99 m
 Total vegetation cover: range 33 - 68 %, average 50 %
 Tree cover: range 15 - 53 %, average 33 %
 Shrub cover: range 1 - 25 %, average 9 %
 Herb cover: range 7 - 35 %, average 19 %
 Percent native cover relative to non-native cover: 75 %

Location(s) Sampled: Northeast and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUWI2	<i>Quercus wislizeni</i>	100	33	19	50	X	X	
	QULO	<i>Quercus lobata</i>	50	1	1	5			
	FRLA	<i>Fraxinus latifolia</i>	50	0.2	0.2	1			
	JUHI	<i>Juglans hindsii</i>	33	0.1	0.2	0.4			
Shrub									
	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	67	3	0.2	18			
	RUAR9	<i>Rubus armeniacus</i>	33	2	0.2	12			
	ARCA10	<i>Aristolochia californica</i>	33	1	1	7			
	TODI	<i>Toxicodendron diversilobum</i>	33	1	3	3			
	VICA5	<i>Vitis californica</i>	33	0.7	2	2			
	HEAR5	<i>Heteromeles arbutifolia</i>	33	0.4	0.2	2			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	33	0.2	0.2	1			
	SANI4	<i>Sambucus nigra</i>	33	0.1	0.2	0.2			
Herb									
	BRDI3	<i>Bromus diandrus</i>	83	8	2	20	X		X
	CAPY2	<i>Carduus pycnocephalus</i>	67	0.7	0.2	2			
	ARDO3	<i>Artemisia douglasiana</i>	50	0.2	0.2	1			
	CABA4	<i>Carex barbarae</i>	33	3	2	13			
	TOAR	<i>Torilis arvensis</i>	33	0.2	0.2	1			
	GAAP2	<i>Galium aparine</i>	33	0.1	0.2	0.2			
	JUNCU	<i>Juncus</i> sp.	33	0.1	0.2	0.2			
	PETR7	<i>Pentagramma triangularis</i>	33	0.1	0.2	0.2			

***Robinia pseudoacacia* Provisional Semi-Natural Stands (Black locust groves)**

Robinia pseudoacacia is strongly dominant (>80% relative cover) in the tree canopy, often occurring with *Quercus* spp. The tree canopy is open to intermittent; the shrub layer is open to intermittent, and the herbaceous layer is sparse to intermittent. Small stands are naturalized adjacent to stream courses, lakes, and levees.

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 0 - 10, average 5 m
 Total vegetation cover: range 50 - 70 %, average 60 %
 Tree cover: range 15 - 30 %, average 22 %
 Shrub cover: range 20 - 35 %, average 27 %
 Herb cover: range 8 - 50 %, average 29 %
 Percent native cover relative to non-native cover: 16 %

Location(s) Sampled: Northeast and Northwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	ROPS	<i>Robinia pseudoacacia</i>	100	24	15	32	X	X	
	QUWI2	<i>Quercus wislizeni</i>	50	4	7	7			
	QULO	<i>Quercus lobata</i>	50	1	2	2			
Shrub	RUAR9	<i>Rubus armeniacus</i>	100	17	13	20	X	X	
	ROCA2	<i>Rosa californica</i>	50	8	15	15			
	VICA5	<i>Vitis californica</i>	50	1	2	2			
Herb	BRDI3	<i>Bromus diandrus</i>	100	5	4	6	X		X
	CAPY2	<i>Carduus pycnocephalus</i>	100	0.6	0.2	1	X		
	CYDA	<i>Cynodon dactylon</i>	50	22	44	44			
	CABA4	<i>Carex barbarae</i>	50	0.5	1	1			
	GAAP2	<i>Galium aparine</i>	50	0.5	1	1			

Association(s) Defined: *Robinia pseudoacacia* Provisional Stand Type

***Robinia pseudoacacia* Provisional Stand Type**

Since only one stand type was defined for the semi-natural stands in the study area, its description is the same as the semi-natural stand information above.

References: GIC 2011, Hickson and Keeler-Wolf 2007

Salix gooddingii Alliance (Black willow thickets)

Salix gooddingii is dominant in the tree canopy, often occurring with *Populus fremontii*, *Quercus lobata*, *S. lasiolepis*, and *Fraxinus latifolia*. The tree canopy and shrub layer are open to continuous, and the herbaceous layer is variable.

Two stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 87

Local Environmental Table:

Elevation: range 0 - 185, average 39 m
 Total vegetation cover: range 12 - 100 %, average 56 %
 Tree cover: range 0 - 86 %, average 30 %
 Shrub cover: range 0 - 100 %, average 12 %
 Herb cover: range 0 - 90 %, average 15 %
 Percent native cover relative to non-native cover: 83 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	SAGO	<i>Salix gooddingii</i>	100	30	3	85	X	X	
	POFR2	<i>Populus fremontii</i>	44	0.4	0.2	3			
	QULO	<i>Quercus lobata</i>	31	1	0.2	34			
	SALA6	<i>Salix lasiolepis</i>	23	2	0.2	49			
	FRLA	<i>Fraxinus latifolia</i>	21	1	0.2	30			
Shrub	SAEX	<i>Salix exigua</i>	47	2	0.2	31			
	RUAR9	<i>Rubus armeniacus</i>	40	5	0.2	95			
	CEOC2	<i>Cephalanthus occidentalis</i>	28	2	0.2	45			
	VICA5	<i>Vitis californica</i>	24	2	0.2	50			
	RUUR	<i>Rubus ursinus</i>	22	0.6	0.2	16			
Herb	XAST	<i>Xanthium strumarium</i>	31	0.6	0.2	22			
	BRDI3	<i>Bromus diandrus</i>	21	0.8	0.2	14			

Association(s) Defined: *Salix gooddingii*
Salix gooddingii/*Salix exigua* Provisional
Salix gooddingii–*Fraxinus latifolia* Provisional
Salix gooddingii–*Quercus lobata*/wetland herb Provisional

***Salix gooddingii* Association**

Samples used to describe type: 59

Local Environmental Table:

Elevation: range 1 - 185, average 44 m
 Total vegetation cover: range 12 - 100 %, average 55 %
 Tree cover: range 2 - 85 %, average 32 %
 Shrub cover: range 0 - 100 %, average 10 %
 Herb cover: range 0 - 90 %, average 15 %
 Percent native cover relative to non-native cover: 84 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SAGO	<i>Salix gooddingii</i>	100	33	7	85	X	X	
	POFR2	<i>Populus fremontii</i>	37	0.4	0.2	3			
	QULO	<i>Quercus lobata</i>	24	0.3	0.2	4			
	FRLA	<i>Fraxinus latifolia</i>	20	0.6	0.2	8			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	34	4	0.2	95			
	SAEX	<i>Salix exigua</i>	34	0.6	0.2	10			
	CEOC2	<i>Cephalanthus occidentalis</i>	27	2	0.2	45			
	VICA5	<i>Vitis californica</i>	22	2	0.2	50			
Herb									
	XAST	<i>Xanthium strumarium</i>	31	0.4	0.2	10			
	BRDI3	<i>Bromus diandrus</i>	22	0.8	0.2	14			
	ARDO3	<i>Artemisia douglasiana</i>	22	0.5	0.2	10			

***Salix gooddingii*/*Salix exigua* Provisional Association**

Samples used to describe type: 11

Local Environmental Table:

Elevation: range 0 - 30 , average 11 m

Total vegetation cover: range 30 - 85 %, average 48 %

Tree cover: range 0 - 52 %, average 20 %

Shrub cover: range 1 - 60 %, average 19 %

Herb cover: range 0.2- 18 %, average 3 %

Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: Northeast and Northwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SAGO	<i>Salix gooddingii</i>	100	25	7	51	X	X	
	POFR2	<i>Populus fremontii</i>	82	1	0.2	3	X		
	ACNE2	<i>Acer negundo</i>	36	0.1	0.2	1			
	SALA6	<i>Salix lasiolepis</i>	27	3	9	15			
Shrub									
	SAEX	<i>Salix exigua</i>	100	11	2	31	X	X	
	RUAR9	<i>Rubus armeniacus</i>	36	10	0.2	55			
	CEOC2	<i>Cephalanthus occidentalis</i>	27	0.3	0.2	3			
Herb									
	POAM8	<i>Polygonum amphibium</i>	36	0.3	0.2	2			
	XAST	<i>Xanthium strumarium</i>	27	0.3	0.2	2			

***Salix gooddingii*–*Fraxinus latifolia* Provisional Association**

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 3 - 119, average 33 m
 Total vegetation cover: range 42 - 52 %, average 49 %
 Tree cover: range 10 - 47 %, average 30 %
 Shrub cover: range 0.2 - 13 %, average 7 %
 Herb cover: range 1 - 35 %, average 13 %
 Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SAGO	<i>Salix gooddingii</i>	100	26	13	35	X	X	
	FRLA	<i>Fraxinus latifolia</i>	100	16	7	30	X		X
	ACNE2	<i>Acer negundo</i>	50	1	0.2	4			
	POFR2	<i>Populus fremontii</i>	50	0.3	0.2	1			
	SALA6	<i>Salix lasiolepis</i>	25	0.8	3	3			
	QULO	<i>Quercus lobata</i>	25	0.1	0.2	0.2			
Shrub									
	SAEX	<i>Salix exigua</i>	100	1	0.2	3	X		X
	CEOC2	<i>Cephalanthus occidentalis</i>	50	0.3	0.2	1			
	RUAR9	<i>Rubus armeniacus</i>	25	3	10	10			
	RUUR	<i>Rubus ursinus</i>	25	1	5	5			
	BAPI	<i>Baccharis pilularis</i>	25	0.1	0.2	0.2			
Herb									
	CYDA	<i>Cynodon dactylon</i>	50	3	1	10			
	XAST	<i>Xanthium strumarium</i>	50	0.8	1	2			
	JUARL	<i>Juncus arcticus</i> ssp. <i>littoralis</i>	50	0.3	0.2	1			
	PADI3	<i>Paspalum dilatatum</i>	50	0.3	0.2	1			
	MALE3	<i>Malvella leprosa</i>	50	0.1	0.2	0.2			
	SYEX	<i>Symphotrichum expansum</i>	50	0.1	0.2	0.2			
	CYER	<i>Cyperus eragrostis</i>	25	4	17	17			
	BRDI3	<i>Bromus diandrus</i>	25	2	8	8			
	ANCA14	<i>Anthriscus caucalis</i>	25	0.5	2	2			
	POA	<i>Poa</i> sp.	25	0.5	2	2			
	CAPY2	<i>Carduus pycnocephalus</i>	25	0.3	1	1			
	HIIN3	<i>Hirschfeldia incana</i>	25	0.3	1	1			
	JUEF	<i>Juncus effusus</i>	25	0.3	1	1			
	POAU3	<i>Polypogon australis</i>	25	0.3	1	1			
	STME2	<i>Stellaria media</i>	25	0.3	1	1			
	ARDO3	<i>Artemisia douglasiana</i>	25	0.1	0.2	0.2			
	BIDEN	<i>Bidens</i> sp.	25	0.1	0.2	0.2			
	BRHO2	<i>Bromus hordeaceus</i>	25	0.1	0.2	0.2			

ELMA5	<i>Eleocharis macrostachya</i>	25	0.1	0.2	0.2
EPCI	<i>Epilobium ciliatum</i>	25	0.1	0.2	0.2
EUOC4	<i>Euthamia occidentalis</i>	25	0.1	0.2	0.2
JUOX	<i>Juncus oxymersis</i>	25	0.1	0.2	0.2
LYAM	<i>Lycopus americanus</i>	25	0.1	0.2	0.2
PHNO2	<i>Phyla nodiflora</i>	25	0.1	0.2	0.2
POPE3	<i>Polygonum persicaria</i>	25	0.1	0.2	0.2
POMO5	<i>Polypogon monspeliensis</i>	25	0.1	0.2	0.2
SIMA3	<i>Silybum marianum</i>	25	0.1	0.2	0.2

***Salix gooddingii*–*Quercus lobata*/wetland herb Provisional Association**

Samples used to describe type: 11

Local Environmental Table:

Elevation: range 0 - 183, average 35 m
 Total vegetation cover: range 37 - 95 %, average 68 %
 Tree cover: range 8 - 70 %, average 28 %
 Shrub cover: range 1 - 25 %, average 10 %
 Herb cover: range 4 - 76 %, average 29 %
 Percent native cover relative to non-native cover: 69 %

Location(s) Sampled: Northwest and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SAGO	<i>Salix gooddingii</i>	100	22	3	40	X	X	
	QULO	<i>Quercus lobata</i>	100	9	3	34	X		
	SALA6	<i>Salix lasiolepis</i>	36	2	1	12			
	POFR2	<i>Populus fremontii</i>	36	0.3	0.2	2			
	JUHI	<i>Juglans hindsii</i>	27	0.3	0.2	2			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	82	6	1	23	X		X
	VICA5	<i>Vitis californica</i>	55	2	0.4	7			
	RUUR	<i>Rubus ursinus</i>	55	2	0.2	12			
	SAEX	<i>Salix exigua</i>	55	1	0.2	7			
	CEOC2	<i>Cephalanthus occidentalis</i>	27	4	1	45			
Herb									
	RUCO2	<i>Rumex conglomeratus</i>	45	0.1	0.2	0.2			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	36	3	0.2	25			
	POLYG4	<i>Polygonum</i> sp.	36	3	1	14			
	XAST	<i>Xanthium strumarium</i>	36	2	0.2	22			
	LETR5	<i>Leymus triticoides</i>	36	1	0.2	7			
	SCAC3	<i>Schoenoplectus acutus</i>	36	0.4	0.2	3			
	BIDEN	<i>Bidens</i> sp.	36	0.2	0.2	10			
	CYDA	<i>Cynodon dactylon</i>	27	2	1	10			
	BRDI3	<i>Bromus diandrus</i>	27	1	4	7			
	AVFA	<i>Avena fatua</i>	27	0.6	0.2	3			
	CYER	<i>Cyperus eragrostis</i>	27	0.1	0.2	1			
	URDI	<i>Urtica dioica</i>	27	0.1	0.2	0.2			

Salix laevigata Alliance (Red willow thickets)

Salix laevigata is dominant in the tree canopy, often occurring with *Populus fremontii*, and *S. lasiolepis*. The canopy is open to continuous. The shrub layer is sparse to intermittent, and the herbaceous layer is variable. Stands form along creeks, ditches, floodplains, lake edges, and low-gradient depositions along streams.

Four stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 18

Local Environmental Table:

Elevation: range 8 - 852, average 34 m
 Total vegetation cover: range 45 - 90 %, average 69 %
 Tree cover: range 0 - 90 %, average 25 %
 Shrub cover: range 1 - 77 %, average 24 %
 Herb cover: range 1 - 58 %, average 17 %
 Percent native cover relative to non-native cover: 78 %

Location(s) Sampled: Northeast, Southeast, and Southwest Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Buck-Diaz and Evens 2011a, CDFG 2005, CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Klein et al. 2007, Klein and Evens 2005, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	SALA3	<i>Salix laevigata</i>	100	33	12	87	X	X	
	POFR2	<i>Populus fremontii</i>	61	0.9	0.2	5			
	SALA6	<i>Salix lasiolepis</i>	44	7	0.2	45			
Shrub	RUAR9	<i>Rubus armeniacus</i>	39	13	0.2	70			
	VICA5	<i>Vitis californica</i>	39	1	1	10			
	SANI4	<i>Sambucus nigra</i>	39	1	0.2	7			
	TODI	<i>Toxicodendron diversilobum</i>	28	0.2	0.2	2			
Herb	URDI	<i>Urtica dioica</i>	33	2	0.2	16			
	BRDI3	<i>Bromus diandrus</i>	33	1	0.2	7			
	DISP	<i>Distichlis spicata</i>	28	0.9	0.2	9			
	LETR5	<i>Leymus triticoides</i>	28	0.6	0.2	5			
	JUNCU	<i>Juncus</i> sp.	22	0.7	1	8			

Association(s) Defined: *Salix laevigata*
Salix laevigata–*Salix lasiolepis*

Salix laevigata Association

Samples used to describe type: 9

Local Environmental Table:

Elevation: range 8 - 852, average 280 m
 Total vegetation cover: range 45 - 90 %, average 64 %
 Tree cover: range 0 - 90 %, average 26 %
 Shrub cover: range 1 - 77 %, average 30 %
 Herb cover: range 1 - 40 %, average 7 %
 Percent native cover relative to non-native cover: 68 %

Location(s) Sampled: Northeast, Southeast, and Southwest Great Valley, Northern California Interior Coast Ranges

References: CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SALA3	<i>Salix laevigata</i>	100	38	12	87	X	X	
	POFR2	<i>Populus fremontii</i>	67	0.6	0.2	3			
	QUWI2	<i>Quercus wislizeni</i>	33	0.2	0.2	1			
	ACNE2	<i>Acer negundo</i>	22	0.4	1	3			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	56	20	8	70			
	SANI4	<i>Sambucus nigra</i>	44	2	0.2	7			
	VICA5	<i>Vitis californica</i>	33	2	1	10			
	TODI	<i>Toxicodendron diversilobum</i>	33	0.3	0.2	2			
Herb									
	BRDI3	<i>Bromus diandrus</i>	33	0.9	0.2	7			
	JUNCU	<i>Juncus</i> sp.	22	1	2	8			
	BRHO2	<i>Bromus hordeaceus</i>	22	0.8	2	5			
	BRRU2	<i>Bromus rubens</i>	22	0.4	0.2	3			
	URDI	<i>Urtica dioica</i>	22	0.4	0.2	3			

***Salix laevigata*–*Salix lasiolepis* Association**

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 72 - 802, average 476 m
 Total vegetation cover: range 64 - 90 %, average 76 %
 Tree cover: range 2 - 50 %, average 27 %
 Shrub cover: range 7 - 46 %, average 18 %
 Herb cover: range 5 - 40 %, average 22 %
 Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: Northeast and Southwest Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Klein and Evens 2005, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SALA3	<i>Salix laevigata</i>	100	30	15	40	X	X	
	SALA6	<i>Salix lasiolepis</i>	100	23	7	45	X		X
	POFR2	<i>Populus fremontii</i>	80	2	1	5	X		
	QULO	<i>Quercus lobata</i>	40	0.4	0.2	2			
Shrub									
	VICA5	<i>Vitis californica</i>	60	1	1	3			
	RUAR9	<i>Rubus armeniacus</i>	40	9	0.2	45			
	BASA4	<i>Baccharis salicifolia</i>	40	2	4	8			
	ROCA2	<i>Rosa californica</i>	40	0.2	0.2	1			
	SANI4	<i>Sambucus nigra</i>	40	0.2	0.2	1			
	TODI	<i>Toxicodendron diversilobum</i>	40	0.2	0.2	1			
Herb									
	URDI	<i>Urtica dioica</i>	60	7	7	16			
	LETR5	<i>Leymus triticoides</i>	60	0.6	0.2	2			
	ARDR4	<i>Artemisia dracunculus</i>	40	1	0.2	6			
	BRDI3	<i>Bromus diandrus</i>	40	1	2	4			
	LELA2	<i>Lepidium latifolium</i>	40	0.8	0.2	4			
	TYPHA	<i>Typha</i> sp.	40	0.6	0.2	3			
	JUARL	<i>Juncus arcticus</i> ssp. <i>littoralis</i>	40	0.6	1	2			
	ARDO3	<i>Artemisia douglasiana</i>	40	0.4	0.2	2			
	JUNCU	<i>Juncus</i> sp.	40	0.4	1	1			
	JUOX	<i>Juncus oxymersis</i>	40	0.2	0.2	1			
	MIGU	<i>Mimulus guttatus</i>	40	0.2	0.2	1			
	SCAM6	<i>Schoenoplectus americanus</i>	40	0.2	0.2	1			
	CIVU	<i>Cirsium vulgare</i>	40	0.1	0.2	0.2			
	DISP	<i>Distichlis spicata</i>	40	0.1	0.2	0.2			
	MAVU	<i>Marrubium vulgare</i>	40	0.1	0.2	0.2			

Salix lucida Alliance (Shining willow groves)

Salix lucida is dominant in the tree canopy, often occurring with *Populus fremontii*, *Acer negundo*, *S. gooddingii*, *S. lasiolepis*, and others. The canopy is intermittent to continuous, the shrub layer is sparse to intermittent, and the herbaceous layers is variable. Stands occur on low-gradient depositions along rivers and streams, and some are tidally influenced.

Samples used to describe type: 8

Local Environmental Table:

Elevation: range 0 - 43 , average 14 m
 Total vegetation cover: range 30 - 85 %, average 71 %
 Tree cover: range 1 - 70 %, average 25 %
 Shrub cover: range 0.2- 45 %, average 20 %
 Herb cover: range 0 - 4 %, average 1 %
 Percent native cover relative to non-native cover: 94 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007, Keeler-Wolf et al. 2003b, Klein and Evens 2005, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SALUL	<i>Salix lucida ssp. lasiandra</i>	100	46	13	79	X	X	
	POFR2	<i>Populus fremontii</i>	63	1	0.2	70			
	ACNE2	<i>Acer negundo</i>	63	0.2	0.2	1			
	SAGO	<i>Salix gooddingii</i>	38	2	1	11			
	SALA6	<i>Salix lasiolepis</i>	38	2	1	10			
	QULO	<i>Quercus lobata</i>	38	1	0.2	9			
	ALRH2	<i>Alnus rhombifolia</i>	38	0.8	1	3			
	FRLA	<i>Fraxinus latifolia</i>	25	0.2	0.2	1			
	JUHI	<i>Juglans hindsii</i>	25	0.1	0.2	0.2			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	75	4	0.2	10	X		
	SAEX	<i>Salix exigua</i>	63	3	0.2	22			
	COSE16	<i>Cornus sericea</i>	50	11	20	25			
	VICA5	<i>Vitis californica</i>	38	3	1	10			
	CEOC2	<i>Cephalanthus occidentalis</i>	38	3	0.2	18			
	ROCA2	<i>Rosa californica</i>	25	0.3	1	1			

Association(s) defined: *Salix lucida ssp. lasiandra*

Salix lucida ssp. lasiandra Association

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, Hickson and Keeler-Wolf 2007, Keeler-Wolf et al. 2003b, Klein and Evens 2005, Sawyer et al. 2009

B. Shrubland Overstory Types

***Adenostoma fasciculatum* Alliance (Chamise chaparral)**

Adenostoma fasciculatum is dominant in the shrub canopy, often occurring with *Ceanothus cuneatus*, *Mimulus aurantiacus* ssp. *aurantiacus*, *Toxicodendron diversilobum*, *Arctostaphylos manzanita*, *A. viscida*, *Keckiella brevifolia*, and *Heteromeles arbutifolia*. Emergent *Quercus douglasii* and *Q. wislizeni* may be present. The shrub canopy is intermittent to continuous, and the herbaceous layer is sparse to intermittent.

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 76 - 115, average 94 m
 Total vegetation cover: range 40 - 60 %, average 46 %
 Tree cover: range 0 - 7 %, average 1 %
 Shrub cover: range 25 - 45 %, average 35 %
 Herb cover: range 6 - 30 %, average 15 %
 Percent native cover relative to non-native cover: 81 %

Location(s) Sampled: Northeast Great Valley

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	QUWI2	<i>Quercus wislizeni</i>	60	0.1	0.2	0.2			
	QUDO	<i>Quercus douglasii</i>	20	1	7	7			
Shrub	ADFA	<i>Adenostoma fasciculatum</i>	100	33	20	43	X	X	
	CECU	<i>Ceanothus cuneatus</i>	60	0.8	0.2	2			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	40	2	1	7			
	TODI	<i>Toxicodendron diversilobum</i>	20	0.6	3	3			
	ARMA	<i>Arctostaphylos manzanita</i>	20	0.2	1	1			
	KEBR	<i>Keckiella breviflora</i>	20	0.2	1	1			
	Herb	AICA	<i>Aira caryophyllea</i>	80	5	3	15	X	
BRRU2		<i>Bromus rubens</i>	80	2	0.2	4	X		
BRHO2		<i>Bromus hordeaceus</i>	80	0.6	0.2	1	X		
BRDI3		<i>Bromus diandrus</i>	60	0.8	1	2			
HYGL2		<i>Hypochaeris glabra</i>	60	0.3	0.2	1			
PETR7		<i>Pentagramma triangularis</i>	60	0.1	0.2	0.2			
BRMI2		<i>Briza minor</i>	40	0.6	1	2			
VUMY		<i>Vulpia myuros</i>	40	0.4	0.2	2			
MICA7		<i>Minuartia californica</i>	40	0.4	1	1			
CAPY2		<i>Carduus pycnocephalus</i>	40	0.1	0.2	0.2			
CEME2		<i>Centaurea melitensis</i>	40	0.1	0.2	0.2			
CLARK		<i>Clarkia</i> sp.	40	0.1	0.2	0.2			

ERBO	<i>Erodium botrys</i>	40	0.1	0.2	0.2		
VUBR	<i>Vulpia bromoides</i>	20	2	10	10		
MIFL2	<i>Mimulus floribundus</i>	20	0.6	3	3		
AVBA	<i>Avena barbata</i>	20	0.4	2	2		
BRDI2	<i>Brachypodium distachyon</i>	20	0.4	2	2		
BROMU	<i>Bromus</i> sp.	20	0.4	2	2		
AVENA	<i>Avena</i> sp.	20	0.2	1	1		
FILAG	<i>Filago</i> sp.	20	0.2	1	1		
Non-vasc							
2MOSS	Unknown Moss	100	15	1	30	X	X
CRYPTO	Cryptogamic crust	20	1	5	5		
2LICHN	Unknown Lichen	20	0.2	1	1		

Association(s) Defined: *Adenostoma fasciculatum*

***Adenostoma fasciculatum* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, Kittel et al. 2009, Klein et al. 2007, Sawyer et al. 2009

Allenrolfea occidentalis Alliance (Iodine bush scrub)

Allenrolfea occidentalis is dominant in the shrub canopy, often occurring with *Suaeda nigra* and *Isocoma acradenia*. The canopy is open to continuous, and the herbaceous layer is variable and may include *Frankenia salina* and *Vulpia myuros*. Stands occur in dry lakebed margins, hummocks, playas perched above current drainages, and seeps.

Samples used to describe type: 70

Local Environmental Table:

Elevation: range 2 - 197, average 59 m
 Total vegetation cover: range 13 - 100 %, average 62 %
 Tree cover: range 0 - 1 %, average 0.03 %
 Shrub cover: range 5 - 35 %, average 14 %
 Herb cover: range 1 - 90 %, average 50 %
 Percent native cover relative to non-native cover: 57 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Barbour et al. 2003, CDFG 2004, CDFG 2005, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ALOC2	<i>Allenrolfea occidentalis</i>	100	12	3	47	X	X	
	SUMO	<i>Suaeda nigra</i>	74	2	0.2	14			
	ISAC2	<i>Isocoma acradenia</i>	29	0.1	0.2	1			
Herb	FRSA	<i>Frankenia salina</i>	74	3	0.2	20			
	VUMY	<i>Vulpia myuros</i>	70	10	0.2	60			
	CEPU14	<i>Centromadia pungens</i>	69	3	0.2	25			
	AMME	<i>Amsinckia menziesii</i>	64	2	0.2	25			
	BRHO2	<i>Bromus hordeaceus</i>	63	7	0.2	35			
	BRMA3	<i>Bromus madritensis</i>	61	7	1	30			
	DISP	<i>Distichlis spicata</i>	56	3	0.2	25			
	LEDI2	<i>Lepidium dictyotum</i>	46	1	0.2	12			
	HODE2	<i>Hordeum depressum</i>	39	5	0.2	55			
	BRDI3	<i>Bromus diandrus</i>	39	3	0.2	40			
	LASE	<i>Lactuca serriola</i>	37	0.1	0.2	2			
	ARSU11	<i>Arthrocnemum subterminale</i>	33	0.9	0.2	12			
	ERBO	<i>Erodium botrys</i>	31	2	0.2	25			
	HOMA2	<i>Hordeum marinum</i>	29	2	0.2	50			
	LACH2	<i>Lasthenia chrysantha</i>	29	0.8	0.2	10			
	CRTR5	<i>Cressa truxillensis</i>	27	0.2	0.2	6			
	MEIN2	<i>Melilotus indicus</i>	23	0.4	0.2	6			
	ERIC6	<i>Erodium cicutarium</i>	21	0.9	0.2	13			
	ERODI	<i>Erodium</i> sp.	21	0.8	1	10			
	BACA21	<i>Bassia californica</i>	21	0.5	0.2	13			
CRASS	<i>Crassula</i> sp.	21	0.4	0.2	5				

SCHIS	<i>Schismus</i> sp.	20	2	0.2	43
SPAI	<i>Sporobolus airoides</i>	20	0.3	0.2	10

Association(s) Defined: *Allenrolfea occidentalis*
Allenrolfea occidentalis*/*Distichlis spicata
Allenrolfea occidentalis*–*Suaeda nigra

***Allenrolfea occidentalis* Association**

Samples used to describe type: 17

Local Environmental Table:

Elevation: range 25 - 197, average 54 m
 Total vegetation cover: range 19 - 95 %, average 41 %
 Tree cover: 0 %
 Shrub cover: range 7 - 35 %, average 16 %
 Herb cover: range 1 - 85 %, average 26 %
 Percent native cover relative to non-native cover: 64 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Barbour et al. 2003, CDFG 2004, CDFG 2005, CDFG-CNPS 2008, Evens and Hartman 2007, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	ALOC2	<i>Allenrolfea occidentalis</i>	100	17	7	35	X	X	
Herb									
	FRSA	<i>Frankenia salina</i>	94	2	0.2	8	X		
	VUMY	<i>Vulpia myuros</i>	65	3	0.2	25			
	BRHO2	<i>Bromus hordeaceus</i>	53	1	0.2	10			
	HOMU	<i>Hordeum murinum</i>	53	0.2	0.2	1			
	BRRU2	<i>Bromus rubens</i>	47	1	0.2	4			
	CEPU14	<i>Centromadia pungens</i>	41	0.2	0.2	2			
	ERCI6	<i>Erodium cicutarium</i>	35	2	1	13			
	HODE2	<i>Hordeum depressum</i>	35	2	0.2	20			
	AMME	<i>Amsinckia menziesii</i>	35	0.1	0.2	1			
	MADI6	<i>Matricaria discoidea</i>	29	0.7	0.2	5			
	CRTR5	<i>Cressa truxillensis</i>	29	0.2	0.2	1			
	DISP	<i>Distichlis spicata</i>	29	0.1	0.2	0.2			
	HOMA2	<i>Hordeum marinum</i>	24	3	0.2	50			
	POMO5	<i>Polypogon monspeliensis</i>	24	3	0.2	52			
	BRDI3	<i>Bromus diandrus</i>	24	3	0.2	40			
	LEDI2	<i>Lepidium dictyotum</i>	24	0.9	0.2	12			
	MEIN2	<i>Melilotus indicus</i>	24	0.5	2	3			
Non-vasc									
	2MOSS	Unknown Moss	35	1	0.2	5			
	CRYPTO	Cryptogamic crust	29	4	1	40			

***Allenrolfea occidentalis*/*Distichlis spicata* Association**

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 2 - 197, average 63 m

Total vegetation cover: range 28 - 90 %, average 64 %

Tree cover: range 0 - 1 %, average 0.2%

Shrub cover: range 5 - 28 %, average 16 %

Herb cover: range 13 - 90 %, average 51 %

Percent native cover relative to non-native cover: 85 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: CDFG 2004, CDFG 2005, CDFG-CNPS 2008, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	ALOC2	<i>Allenrolfea occidentalis</i>	100	15	3	23	X	X	
	SUMO	<i>Suaeda nigra</i>	50	0.5	0.2	2			
Herb									
	DISP	<i>Distichlis spicata</i>	100	18	10	25	X	X	
	FRSA	<i>Frankenia salina</i>	50	3	1	14			
	HODE2	<i>Hordeum depressum</i>	50	1	0.2	6			
	AMME	<i>Amsinckia menziesii</i>	33	5	7	25			
	HOMA2	<i>Hordeum marinum</i>	33	5	5	25			
	HOJU	<i>Hordeum jubatum</i>	33	2	2	7			
	SCMA8	<i>Bolboschoenus maritimus</i>	33	1	3	4			
	ERCI6	<i>Erodium cicutarium</i>	33	1	1	5			
	LEDI2	<i>Lepidium dictyotum</i>	33	0.8	1	4			
	CEPU14	<i>Centromadia pungens</i>	33	0.2	0.2	1			
	CRAQ	<i>Crassula aquatica</i>	33	0.2	0.2	1			
	CRCO34	<i>Crassula connata</i>	33	0.2	0.2	1			
	LACH2	<i>Lasthenia chrysantha</i>	33	0.2	0.2	1			

Allenrolfea occidentalis–Suaeda nigra Association

Samples used to describe type: 47

Local Environmental Table:

Elevation: range 12 - 91 , average 61 m

Total vegetation cover: range 13 - 100 %, average 69 %

Tree cover: range 0 - 1 %, average 0.02 %

Shrub cover: range 5 - 30 %, average 13 %

Herb cover: range 5 - 85 %, average 59 %

Percent native cover relative to non-native cover: 50 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: CDFG 2004, CDFG 2005, CDFG-CNPS 2008, Hickson and Keeler-Wolf 2007, Keeler-Wolf and Thomas 2000, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ALOC2	<i>Allenrolfea occidentalis</i>	100	11	3	47	X	X	
	SUMO	<i>Suaeda nigra</i>	100	3	0.2	14	X		
	ISAC2	<i>Isocoma acradenia</i>	36	0.2	0.2	1			
Herb	BRMA3	<i>Bromus madritensis</i>	83	9	2	30	X		
	CEPU14	<i>Centromadia pungens</i>	83	4	0.2	25	X		
	VUMY	<i>Vulpia myuros</i>	81	14	0.2	60	X		
	AMME	<i>Amsinckia menziesii</i>	79	2	0.2	10	X		
	BRHO2	<i>Bromus hordeaceus</i>	74	9	0.2	35			
	FRSA	<i>Frankenia salina</i>	70	3	0.2	20			
	DISP	<i>Distichlis spicata</i>	60	2	0.2	17			
	LEDI2	<i>Lepidium dictyotum</i>	55	1	0.2	10			
	LASE	<i>Lactuca serriola</i>	51	0.2	0.2	2			
	BRDI3	<i>Bromus diandrus</i>	49	3	0.2	20			
	ERBO	<i>Erodium botrys</i>	43	4	0.2	25			
	ARSU11	<i>Arthrocnemum subterminale</i>	43	1	0.2	12			
	HODE2	<i>Hordeum depressum</i>	38	6	0.2	55			
	LACH2	<i>Lasthenia chrysantha</i>	34	1	0.2	10			
	BACA21	<i>Bassia californica</i>	32	0.8	0.2	13			
	HOMA2	<i>Hordeum marinum</i>	30	1	0.2	15			
	ERODI	<i>Erodium</i> sp.	30	1	1	10			
	CRASS	<i>Crassula</i> sp.	30	0.5	0.2	5			
	SPAI	<i>Sporobolus airoides</i>	30	0.5	0.2	10			
	CRTR5	<i>Cressa truxillensis</i>	30	0.3	0.2	6			
	MEIN2	<i>Melilotus indicus</i>	26	0.5	0.2	6			
	SCHIS	<i>Schismus</i> sp.	21	3	0.2	43			
HOJU	<i>Hordeum jubatum</i>	21	0.3	0.2	5				

***Ambrosia salsola* Alliance (Cheesebush scrub)**

Ambrosia salsola is dominant in the shrub canopy, often occurring with *Gutierrezia californica* and other shrubs in the study area. The canopy is open to intermittent, and the herbaceous layer is sparse or seasonally present. Stands occur in valleys, flats, rarely-flooded low-gradient deposits, arroyos, intermittent channels, and washes. Soils are alluvial, sandy and gravelly, and disturbed desert pavement.

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 123 - 281, average 210 m

Total vegetation cover: range 10 - 22 %, average 15 %

Tree cover: 0 %

Shrub cover: range 2 - 16 %, average 9 %

Herb cover: range 5 - 13 %, average 9 %

Percent native cover relative to non-native cover: 56 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, Keeler-Wolf et al. 2005, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	HYSA	<i>Ambrosia salsola</i>	100	6	2	8	X	X	
	GUCA	<i>Gutierrezia californica</i>	50	0.1	0.2	0.2			
	OPBAT	<i>Opuntia basilaris</i> var. <i>treleasei</i>	25	3	10	10			
	ISAC2	<i>Isocoma acradenia</i>	25	0.1	0.2	0.2			
Herb	BRRU2	<i>Bromus rubens</i>	100	2	0.2	3	X		
	ERCI6	<i>Erodium cicutarium</i>	100	2	0.2	4	X		
	SCHIS	<i>Schismus</i> sp.	75	2	1	3	X		
	AMTE3	<i>Amsinckia tessellata</i>	75	0.6	0.2	2	X		
	BRDI3	<i>Bromus diandrus</i>	50	2	3	5			
	MIRAB	<i>Mirabilis</i> sp.	50	0.5	1	1			
	CRCO34	<i>Crassula connata</i>	50	0.3	0.2	1			
	LACA7	<i>Lasthenia californica</i>	50	0.3	0.2	1			
	AMME	<i>Amsinckia menziesii</i>	50	0.1	0.2	0.2			
	SACO6	<i>Salvia columbariae</i>	50	0.1	0.2	0.2			
	EMPE	<i>Emmenanthe penduliflora</i>	25	0.5	2	2			
	AVENA	<i>Avena</i> sp.	25	0.3	1	1			
	ERGR6	<i>Eriogonum gracillimum</i>	25	0.3	1	1			
	ASLE8	<i>Astragalus lentiginosus</i>	25	0.1	0.2	0.2			
	AVBA	<i>Avena barbata</i>	25	0.1	0.2	0.2			
	BRHO2	<i>Bromus hordeaceus</i>	25	0.1	0.2	0.2			
	CEME2	<i>Centaurea melitensis</i>	25	0.1	0.2	0.2			
	CYDA	<i>Cynodon dactylon</i>	25	0.1	0.2	0.2			

DICHE2	<i>Dichelostemma</i> sp.	25	0.1	0.2	0.2
GILIA	<i>Gilia</i> sp.	25	0.1	0.2	0.2
GUILL2	<i>Guillenia</i> sp.	25	0.1	0.2	0.2
HOHE	<i>Holocarpha heermannii</i>	25	0.1	0.2	0.2
LENI	<i>Lepidium nitidum</i>	25	0.1	0.2	0.2
LEPYP	<i>Leptosiphon pygmaeus</i> ssp. <i>pygmaeus</i>	25	0.1	0.2	0.2
LOCA19	<i>Logfia californica</i>	25	0.1	0.2	0.2
PLAR	<i>Plagiobothrys arizonicus</i>	25	0.1	0.2	0.2
PLER3	<i>Plantago erecta</i>	25	0.1	0.2	0.2
SATR12	<i>Salsola tragus</i>	25	0.1	0.2	0.2
SACA8	<i>Salvia carduacea</i>	25	0.1	0.2	0.2
STMIM	<i>Stephanomeria minor</i> var. <i>minor</i>	25	0.1	0.2	0.2
TRITE	<i>Triteleia</i> sp.	25	0.1	0.2	0.2
VUBR	<i>Vulpia bromoides</i>	25	0.1	0.2	0.2

Association(s) defined: *Ambrosia salsola*

***Ambrosia salsola* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, Keeler-Wolf et al. 2005, Sawyer et al. 2009

Arctostaphylos manzanita Alliance (Common manzanita chaparral)

Arctostaphylos manzanita is dominant in the shrub canopy, often occurring with *A. viscida*, *Adenostoma fasciculatum*, *Eriodictyon californicum*, *Heteromeles arbutifolia*, and others. Emergent *Quercus douglasii*, *Q. wislizeni*, and *Pinus sabiniana* trees may be present. The shrub canopy is intermittent, and the herbaceous layer is sparse. Stands occur on slopes and ridges. Soils are loamy.

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 61 - 87 , average 71 m
 Total vegetation cover: range 25 - 55 %, average 40 %
 Tree cover: range 2 - 6 %, average 4 %
 Shrub cover: range 12 - 49 %, average 28 %
 Herb cover: range 7 - 16 %, average 12 %
 Percent native cover relative to non-native cover: 69 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	QUDO	<i>Quercus douglasii</i>	100	2	0.2	4	X	X	
	PISA2	<i>Pinus sabiniana</i>	67	2	1	6			
	QUWI2	<i>Quercus wislizeni</i>	33	0.7	2	2			
Shrub	ARMA	<i>Arctostaphylos manzanita</i>	100	19	12	23	X	X	
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	33	5	16	16			
	ARVI4	<i>Arctostaphylos viscida</i>	33	3	10	10			
	ADFA	<i>Adenostoma fasciculatum</i>	33	1	4	4			
	ERCA6	<i>Eriodictyon californicum</i>	33	0.1	0.2	0.2			
	HEAR5	<i>Heteromeles arbutifolia</i>	33	0.1	0.2	0.2			
	LOSC2	<i>Lotus scoparius</i>	33	0.1	0.2	0.2			
	TODI	<i>Toxicodendron diversilobum</i>	33	0.1	0.2	0.2			
	Herb	AICA	<i>Aira caryophyllea</i>	100	0.5	0.2	1	X	
BRDI2		<i>Brachypodium distachyon</i>	67	8	10	13			
BRRU2		<i>Bromus rubens</i>	67	2	2	5			
BRHO2		<i>Bromus hordeaceus</i>	67	2	1	5			
BRDI3		<i>Bromus diandrus</i>	67	0.4	0.2	1			
HOVI		<i>Holocarpha virgata</i>	67	0.1	0.2	0.2			
TRHI4		<i>Trifolium hirtum</i>	67	0.1	0.2	0.2			
AVFA		<i>Avena fatua</i>	33	0.3	1	1			
ANAR		<i>Anagallis arvensis</i>	33	0.1	0.2	0.2			
BRMI2		<i>Briza minor</i>	33	0.1	0.2	0.2			

CEME2	<i>Centaurea melitensis</i>	33	0.1	0.2	0.2
CYEC	<i>Cynosurus echinatus</i>	33	0.1	0.2	0.2
ERLA6	<i>Eriophyllum lanatum</i>	33	0.1	0.2	0.2
ERBO	<i>Erodium botrys</i>	33	0.1	0.2	0.2
GALIU	<i>Galium</i> sp.	33	0.1	0.2	0.2
HOHE	<i>Holocarpha heermannii</i>	33	0.1	0.2	0.2
HYPOC	<i>Hypochaeris</i> sp.	33	0.1	0.2	0.2
HYGL2	<i>Hypochaeris glabra</i>	33	0.1	0.2	0.2
LILIXX	<i>Liliaceae</i>	33	0.1	0.2	0.2
VUBR	<i>Vulpia bromoides</i>	33	0.1	0.2	0.2
WYETH	<i>Wyethia</i> sp.	33	0.1	0.2	0.2
Non-vasc					
2MOSS	Unknown Moss	67	1	1	3
2LICHN	Unknown Lichen	67	1	1	2

Association(s) defined: *Arctostaphylos manzanita*

***Arctostaphylos manzanita* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008

***Arctostaphylos myrtifolia* Alliance (lone manzanita chaparral)**

Arctostaphylos myrtifolia is dominant or co-dominant in the shrub canopy, often occurring with *A. viscida*. Emergent *Quercus wislizeni* and *Pinus sabiniana* may be present. The shrub canopy is intermittent to continuous, and the herbaceous layer is sparse. Stands occur on low hills. Soils are coarse, very acidic, and nutrient-poor with cement-like yellow crusts of iron oxide.

Samples used to describe type: 13

Local Environmental Table:

Elevation: range 79 - 130, average 108 m
 Total vegetation cover: range 12 - 54 %, average 36 %
 Tree cover: range 0 - 10 %, average 1 %
 Shrub cover: range 12 - 54 %, average 35 %
 Herb cover: range 0 - 1 %, average 0.2 %
 Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Sawyer et al. 2009, Wood and Parker 1998

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUWI2	<i>Quercus wislizeni</i>	46	0.7	0.2	6			
	PISA2	<i>Pinus sabiniana</i>	38	1	0.2	10			
Shrub									
	ARMY	<i>Arctostaphylos myrtifolia</i>	100	31	9	50	X	X	
	ARVI4	<i>Arctostaphylos viscida</i>	100	7	0.2	21	X		
Herb									
	AICA	<i>Aira caryophyllea</i>	38	0.1	0.2	0.2			
	VUMY	<i>Vulpia myuros</i>	31	0.1	0.2	0.2			
Non-vasc									
	2MOSS	Unknown Moss	62	2	0.2	15			
	CRYPTO	Cryptogamic crust	54	4	0.2	23			
	2LICHN	Unknown Lichen	46	0.7	0.2	5			

Association(s) defined: *Arctostaphylos myrtifolia*

***Arctostaphylos myrtifolia* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, Sawyer et al. 2009, Wood and Parker 1998

***Arctostaphylos viscida* Alliance (White leaf manzanita chaparral)**

Arctostaphylos viscida is dominant or co-dominant in the shrub canopy, often occurring with *A. myrtifolia*, *Adenostoma fasciculatum*, *Lotus scoparius*, and *Heteromeles arbutifolia*. Sometimes *Arctostaphylos viscida* is sub-dominant with *Adenostoma fasciculatum*, in stands with harsh soils such as gabbro or serpentinite. Emergent *Pinus sabiniana* and *Quercus wislizeni* may be present. The shrub canopy is open to continuous, and the herbaceous layer is sparse. Stands occur on ridges and upper slopes that may be steep. Soils are shallow, weathered clay developed from sandstone, granitic, or ultramafic substrates.

Samples used to describe type: 22

Local Environmental Table:

Elevation: range 86 - 435, average 129 m
 Total vegetation cover: range 19 - 75 %, average 48 %
 Tree cover: range 0 - 9 %, average 1 %
 Shrub cover: range 19 - 76 %, average 46 %
 Herb cover: range 0 - 39 %, average 2 %
 Percent native cover relative to non-native cover: 97 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Lee 2004, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	PISA2	<i>Pinus sabiniana</i>	55	1	0.2	9			
	QUWI2	<i>Quercus wislizeni</i>	55	0.8	0.2	5			
Shrub	ARVI4	<i>Arctostaphylos viscida</i>	100	26	3	58	X	X	
	ADFA	<i>Adenostoma fasciculatum</i>	73	19	1	45			
	ARMY	<i>Arctostaphylos myrtifolia</i>	32	1	1	10			
	LOSC2	<i>Lotus scoparius</i>	27	0.1	0.2	10			
	HEAR5	<i>Heteromeles arbutifolia</i>	23	0.2	0.2	4			
Herb	AICA	<i>Aira caryophyllea</i>	68	0.7	0.2	12			
	VUMY	<i>Vulpia myuros</i>	36	0.3	0.2	5			
	VUBR	<i>Vulpia bromoides</i>	23	0.4	0.2	8			
Non-vasc	2MOSS	Unknown Moss	86	9	0.2	20	X	X	
	CRYPTO	Cryptogamic crust	50	7	0.2	90			
	2LICHN	Unknown Lichen	27	0.5	0.2	7			

Association(s) Defined: *Arctostaphylos viscida*–*Adenostoma fasciculatum*
Arctostaphylos viscida

Arctostaphylos viscida–Adenostoma fasciculatum Association

Samples used to describe type: 13

Local Environmental Table:

Elevation: range 86 - 435, average 137 m
 Total vegetation cover: range 19 - 75 %, average 49 %
 Tree cover: range 0 - 9 %, average 1 %
 Shrub cover: range 19 - 76 %, average 47 %
 Herb cover: range 0 - 39 %, average 4 %
 Percent native cover relative to non-native cover: 95 %

Location(s) Sampled: Northeast Great Valley, Sierra Nevada Foothills

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUWI2	<i>Quercus wislizeni</i>	62	0.6	0.2	5			
	PISA2	<i>Pinus sabiniana</i>	54	0.9	0.2	9			
Shrub									
	ADFA	<i>Adenostoma fasciculatum</i>	100	31	17	45	X	X	
	ARVI4	<i>Arctostaphylos viscida</i>	100	16	3	50	X		
	LOSC2	<i>Lotus scoparius</i>	38	0.2	0.2	10			
	HEAR5	<i>Heteromeles arbutifolia</i>	31	0.4	0.2	4			
	TODI	<i>Toxicodendron diversilobum</i>	23	0.3	0.2	3			
Herb									
	AICA	<i>Aira caryophyllea</i>	69	1	0.2	12			
	VUBR	<i>Vulpia bromoides</i>	31	0.7	0.2	8			
	VUMY	<i>Vulpia myuros</i>	31	0.5	0.2	5			
	GAPH2	<i>Gastridium phleoides</i>	31	0.1	0.2	0.2			
Non-vasc									
	2MOSS	Unknown Moss	77	9	0.2	20	X	X	
	CRYPTO	Cryptogamic crust	46	9	0.2	90			

Arctostaphylos viscida Association

Samples used to describe type: 9

Local Environmental Table:

Elevation: range 89 - 122, average 116 m
 Total vegetation cover: range 36 - 63 %, average 46 %
 Tree cover: range 0 - 6 %, average 2 %
 Shrub cover: range 35 - 59 %, average 44 %
 Herb cover: range 0 - 3 %, average 0.6%
 Percent native cover relative to non-native cover: 98 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PISA2	<i>Pinus sabiniana</i>	56	2	1	4			
	QUWI2	<i>Quercus wislizeni</i>	44	1	0.2	3			
Shrub									
	ARVI4	<i>Arctostaphylos viscida</i>	100	42	26	58	X	X	
	ARMY	<i>Arctostaphylos myrtifolia</i>	56	2	1	10			
	ADFA	<i>Adenostoma fasciculatum</i>	33	1	1	7			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	22	0.3	1	2			
Herb									
	AICA	<i>Aira caryophyllea</i>	67	0.1	0.2	0.2			
	VUMY	<i>Vulpia myuros</i>	44	0.1	0.2	0.2			
Non-vasc									
	2MOSS	Unknown Moss	100	8	0.2	20	X	X	
	CRYPTO	Cryptogamic crust	56	5	0.2	30			
	2LICHN	Unknown Lichen	44	1	0.2	7			

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

Atriplex lentiformis is dominant in the shrub canopy, often occurring with *A. polycarpa*, *Suaeda nigra*, *Isocoma acradenia*, and *Allenrolfea occidentalis*. The canopy is open to intermittent, and the herbaceous layer is variable. Stands occur in alkali sinks, flats, washes, wetlands, and gentle to steep slopes. Soils are alkaline or saline clays.

Samples used to describe type: 18

Local Environmental Table:

Elevation: range 48 - 792, average 179 m
 Total vegetation cover: range 11 - 91 %, average 62 %
 Tree cover: range 0 - 9 %, average 0.6%
 Shrub cover: range 9 - 67 %, average 19%
 Herb cover: range 3 - 77 %, average 43%
 Percent native cover relative to non-native cover: 65 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011, Keeler-Wolf and Evens 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ATLE	<i>Atriplex lentiformis</i>	100	16	7	61	X	X	
	SUMO	<i>Suaeda nigra</i>	56	0.9	0.2	3			
	ISAC2	<i>Isocoma acradenia</i>	50	0.4	0.2	4			
	ALOC2	<i>Allenrolfea occidentalis</i>	33	0.4	0.2	4			
	ATPO	<i>Atriplex polycarpa</i>	28	0.7	0.2	5			
Herb	AMME	<i>Amsinckia menziesii</i>	72	0.5	0.2	3			
	BRMA3	<i>Bromus madritensis</i>	67	7	0.2	30			
	BRHO2	<i>Bromus hordeaceus</i>	61	5	0.2	53			
	VUMY	<i>Vulpia myuros</i>	61	4	0.2	26			
	MEIN2	<i>Melilotus indicus</i>	61	2	0.2	11			
	CEPU14	<i>Centromadia pungens</i>	50	5	0.2	35			
	LAGL4	<i>Lasthenia glabrata</i>	50	5	2	32			
	SCHIS	<i>Schismus</i> sp.	39	0.7	0.2	10			
	LASE	<i>Lactuca serriola</i>	39	0.2	0.2	2			
	DISP	<i>Distichlis spicata</i>	33	0.9	0.2	10			
	LEDI2	<i>Lepidium dictyotum</i>	33	0.9	0.2	7			
	FRSA	<i>Frankenia salina</i>	33	0.7	0.2	6			
	HOMA2	<i>Hordeum marinum</i>	33	0.7	0.2	5			
	BACA21	<i>Bassia californica</i>	33	0.6	0.2	3			
	ERCI6	<i>Erodium cicutarium</i>	28	0.1	0.2	1			
	BRDI3	<i>Bromus diandrus</i>	22	0.2	0.2	2			

Association(s) defined: *Atriplex lentiformis*

***Atriplex lentiformis* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011, Keeler-Wolf and Evens 2006, Sawyer et al. 2009

***Atriplex polycarpa* Alliance (Allscale scrub)**

Atriplex polycarpa is dominant in the shrub canopy, often occurring with *Cleome isomeris* and *A. lentiformis*. The canopy is open to continuous, and the herbaceous layer is variable, including seasonal annuals and *Bromus rubens*. Stands occur in washes, playa lake beds and shores, dissected alluvial fans, rolling hills, terraces, and edges of large, low gradient washes. Soils may be carbonate rich, alkaline, sandy, or sandy clay loams.

Samples used to describe type: 19

Local Environmental Table:

Elevation: range 81 - 731, average 224 m
 Total vegetation cover: range 11 - 95 %, average 63 %
 Tree cover: range 0 - 0.2 %, average 0.01 %
 Shrub cover: range 7 - 35 %, average 17 %
 Herb cover: range 0.2- 90 %, average 46 %
 Percent native cover relative to non-native cover: 50 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ATPO	<i>Atriplex polycarpa</i>	100	15	7	35	X	X	
	CLIS	<i>Cleome isomeris</i>	26	0.2	0.2	2			
	ATLE	<i>Atriplex lentiformis</i>	21	0.4	0.2	5			
Herb	VUMY	<i>Vulpia myuros</i>	68	15	1	50			
	BRMA3	<i>Bromus madritensis</i>	63	7	2	35			
	BRDI3	<i>Bromus diandrus</i>	63	4	0.2	35			
	AMME	<i>Amsinckia menziesii</i>	63	2	0.2	10			
	ERCI6	<i>Erodium cicutarium</i>	58	1	0.2	10			
	SCHIS	<i>Schismus</i> sp.	42	2	1	13			
	BRHO2	<i>Bromus hordeaceus</i>	37	1	0.2	11			
	LASE	<i>Lactuca serriola</i>	37	0.1	0.2	1			
	BRRU2	<i>Bromus rubens</i>	26	0.6	0.2	5			
	AVFA	<i>Avena fatua</i>	26	0.5	0.2	4			
	HOMA2	<i>Hordeum marinum</i>	26	0.5	0.2	4			
	CEPU14	<i>Centromadia pungens</i>	21	4	0.2	50			
	LACA7	<i>Lasthenia californica</i>	21	0.7	1	6			
	LAGL4	<i>Lasthenia glabrata</i>	21	0.7	1	6			
	DISP	<i>Distichlis spicata</i>	21	0.7	0.2	9			
	MADIA	<i>Madia</i> sp.	21	0.7	0.2	11			
	CESO3	<i>Centaurea solstitialis</i>	21	0.5	1	7			
	LEDI2	<i>Lepidium dictyotum</i>	21	0.4	0.2	4			
	LOHU2	<i>Lotus humistratus</i>	21	0.3	0.2	3			

Association(s) defined: *Atriplex polycarpa*/Annual Herbaceous

***Atriplex polycarpa*/Annual Herbaceous Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, Keeler-Wolf 2007, Sawyer et al. 2009

***Atriplex spinifera* Alliance (Spinescale scrub)**

Atriplex spinifera is dominant in the shrub canopy, often occurring with *Suaeda nigra* and *Isocoma acradenia*. The canopy is open, and the herbaceous layer is variable, with seasonal annuals reaching high cover. Stands occur on alluvial fans and old lake beds perched above current drainages. Soils are moderately sandy clay loams to fine, silty clays that may be carbonate rich.

Samples used to describe type: 9

Local Environmental Table:

Elevation: range 29 - 400, average 141 m
 Total vegetation cover: range 6 - 90 %, average 42 %
 Tree cover: 0 %
 Shrub cover: range 3 - 60 %, average 16 %
 Herb cover: range 1 - 70 %, average 27 %
 Percent native cover relative to non-native cover: 65 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, Evens et al. 2006, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	ATSP	<i>Atriplex spinifera</i>	100	14	2	60	X	X	
	SUMO	<i>Suaeda nigra</i>	56	0.5	0.2	3			
	ISAC2	<i>Isocoma acradenia</i>	44	0.7	0.2	6			
Herb									
	BRMA3	<i>Bromus madritensis</i>	56	7	0.2	30			
	BRHO2	<i>Bromus hordeaceus</i>	44	3	0.2	10			
	ERCI6	<i>Erodium cicutarium</i>	44	1	0.2	5			
	AMME	<i>Amsinckia menziesii</i>	44	0.9	0.2	5			
	CEPU14	<i>Centromadia pungens</i>	44	0.6	0.2	3			
	VUMY	<i>Vulpia myuros</i>	33	3	3	15			
	LASTH	<i>Lasthenia</i> sp.	33	0.9	0.2	8			
	BRRU2	<i>Bromus rubens</i>	33	0.8	1	5			
	BRDI3	<i>Bromus diandrus</i>	33	0.7	1	3			
	HOMU	<i>Hordeum murinum</i>	33	0.1	0.2	0.2			
	VUMI	<i>Vulpia microstachys</i>	22	2	7	10			
	HEMIZ	<i>Hemizonia</i> sp.	22	1	5	8			
	LEDI2	<i>Lepidium dictyotum</i>	22	0.2	0.2	2			
Non-vasc									
	CRYPTO	Cryptogamic crust	33	4	4	15			
	2MOSS	Unknown Moss	22	0.7	1	5			

Association(s) defined: *Atriplex spinifera*/Herbaceous

***Atriplex spinifera*/Herbaceous Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, Evens et al. 2006, GIC 2011, Sawyer et al. 2009

***Baccharis pilularis* Alliance (Coyote brush scrub)**

Baccharis pilularis is dominant in the shrub canopy with *Rosa californica*, *Salix exigua*, *Toxicodendron diversilobum*, and others. Emergent *Acer negundo* and *Salix lucida* ssp. *lucida* may be present. The shrub canopy and herbaceous layer are variable. Stands occur at river mouths, stream sides, terraces, stabilized dunes of coastal bars, spits along the coastline, coastal bluffs, open slopes, and ridges. Soils are variable, sandy to relatively heavy clay.

Samples used to describe type: 9

Local Environmental Table:

Elevation: range 4 - 120, average 41 m
 Total vegetation cover: range 28 - 88 %, average 47 %
 Tree cover: range 0 - 6 %, average 1 %
 Shrub cover: range 10 - 46 %, average 23 %
 Herb cover: range 0.2 - 80 %, average 25 %
 Percent native cover relative to non-native cover: 61 %

Location(s) Sampled: Northeast, Northwest, and Southwest Great Valley

References: CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Evens and Kentner 2006, Keeler-Wolf and Evens 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	ACNE2	<i>Acer negundo</i>	56	1	0.2	6			
	SALUL	<i>Salix lucida</i> ssp. <i>lasiandra</i>	22	0.6	2	3			
Shrub									
	BAPI	<i>Baccharis pilularis</i>	100	19	7	44	X	X	
	ROCA2	<i>Rosa californica</i>	33	0.3	0.2	2			
	SAEX	<i>Salix exigua</i>	22	2	4	15			
	TODI	<i>Toxicodendron diversilobum</i>	22	0.8	3	4			
	RUAR9	<i>Rubus armeniacus</i>	22	0.6	0.2	5			
	SANI4	<i>Sambucus nigra</i>	22	0.4	0.2	3			
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	67	0.6	0.2	2			
	BRDI3	<i>Bromus diandrus</i>	33	9	2	75			
	BRNI	<i>Brassica nigra</i>	33	0.6	0.2	4			
	VUMY	<i>Vulpia myuros</i>	33	0.3	0.2	2			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	33	0.2	0.2	1			
	TOAR	<i>Torilis arvensis</i>	33	0.1	0.2	0.2			
	BRRU2	<i>Bromus rubens</i>	22	7	1	63			
	SIMA3	<i>Silybum marianum</i>	22	0.8	1	6			
	COAR4	<i>Convolvulus arvensis</i>	22	0.5	0.2	4			
	CAPY2	<i>Carduus pycnocephalus</i>	22	0.3	1	2			
Non-vasc									
	2MOSS	Unknown Moss	33	5	1	25			

Association(s) defined: *Baccharis pilularis*

***Baccharis pilularis* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Evens and Kentner 2006, Keeler-Wolf and Evens 2006, Sawyer et al. 2009

***Baccharis salicifolia* Alliance (Mulefat thickets)**

Baccharis salicifolia is dominant in the shrub canopy, often occurring with *Atriplex polycarpa*. The canopy is continuous, with two tiers at <2 m and at <5 m. The herbaceous layer is sparse. Stands occur at canyon bottoms, floodplains, irrigation ditches, lake margins, and stream channels. Soils are mixed alluvium.

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 91 - 682, average 294 m
 Total vegetation cover: range 29 - 70 %, average 49 %
 Tree cover: range 0 - 13 %, average 2 %
 Shrub cover: range 14 - 60 %, average 28 %
 Herb cover: range 11 - 38 %, average 21 %
 Percent native cover relative to non-native cover: 61 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz and Evens 2011a, CDFG 2005, CDFG-CNPS 2008, Keeler-Wolf and Evens 2006, Kittel et al. 2009, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	BASA4	<i>Baccharis salicifolia</i>	100	27	13	60	X	X	
	ATPO	<i>Atriplex polycarpa</i>	33	0.5	1	2			
Herb	BRDI3	<i>Bromus diandrus</i>	83	5	0.2	22	X		
	POMO5	<i>Polypogon monspeliensis</i>	50	1	0.2	5			
	VUMY	<i>Vulpia myuros</i>	50	1	0.2	5			
	JUARL	<i>Juncus arcticus</i> ssp. <i>littoralis</i>	50	0.9	0.2	3			
	HIIN3	<i>Hirschfeldia incana</i>	50	0.4	0.2	2			
	DAWR2	<i>Datura wrightii</i>	50	0.2	0.2	1			
	ERCI6	<i>Erodium cicutarium</i>	50	0.2	0.2	1			
	BRMA3	<i>Bromus madritensis</i>	33	3	0.2	16			
	HOMA2	<i>Hordeum marinum</i>	33	3	6	10			
	SCHIS	<i>Schismus</i> sp.	33	2	4	8			
	AMME	<i>Amsinckia menziesii</i>	33	1	0.2	7			
	BRHO2	<i>Bromus hordeaceus</i>	33	1	0.2	6			
	BRRU2	<i>Bromus rubens</i>	33	0.7	2	2			
	MEIN2	<i>Melilotus indicus</i>	33	0.5	0.2	3			
	LELA2	<i>Lepidium latifolium</i>	33	0.5	1	2			
	BADO	<i>Baccharis douglasii</i>	33	0.1	0.2	0.2			
	CRSE11	<i>Croton setigerus</i>	33	0.1	0.2	0.2			
	CYDA	<i>Cynodon dactylon</i>	33	0.1	0.2	0.2			
	HECU3	<i>Heliotropium curassavicum</i>	33	0.1	0.2	0.2			
	MAVU	<i>Marrubium vulgare</i>	33	0.1	0.2	0.2			

Association(s) defined: *Baccharis salicifolia*

***Baccharis salicifolia* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, CDFG 2005, CDFG-CNPS 2008, Keeler-Wolf and Evens 2006, Kittel et al. 2009, Sawyer et al. 2009

***Ceanothus cuneatus* Alliance (Wedge leaf ceanothus chaparral)**

Ceanothus cuneatus is dominant or co-dominant in the shrub canopy, often occurring with *Adenostoma fasciculatum*, *Heteromeles arbutifolia* and *Rhamnus ilicifolia*. Emergent *Pinus sabiniana* or *Quercus douglasii* may be present. The shrub canopy is continuous to intermittent, and the herbaceous layer is sparse to grassy. Stands occur on ridges and upper slopes. Soils are shallow, rocky, and well drained.

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 65 - 545, average 234 m
 Total vegetation cover: range 25 - 55 %, average 45 %
 Tree cover: range 0 - 4 %, average 1 %
 Shrub cover: range 7 - 46 %, average 26 %
 Herb cover: range 8 - 48 %, average 25 %
 Percent native cover relative to non-native cover: 80 %

Location(s) Sampled: Northeast Great Valley, Sierra Nevada Foothills Ecoregion

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	PISA2	<i>Pinus sabiniana</i>	50	1	0.2	40			
	QUDO	<i>Quercus douglasii</i>	30	0.2	0.4	1			
Shrub	CECU	<i>Ceanothus cuneatus</i>	100	21	6	35	X	X	
	RHIL	<i>Rhamnus ilicifolia</i>	40	1	0.2	12			
	ADFA	<i>Adenostoma fasciculatum</i>	30	4	1	26			
	HEAR5	<i>Heteromeles arbutifolia</i>	20	0.2	1	10			
Herb	BRHO2	<i>Bromus hordeaceus</i>	80	3	0.2	16	X		
	AICA	<i>Aira caryophyllea</i>	70	0.7	0.2	3			
	PETR7	<i>Pentagramma triangularis</i>	70	0.3	0.2	1			
	PLER3	<i>Plantago erecta</i>	60	1	0.2	5			
	VUMI	<i>Vulpia microstachys</i>	60	1	0.2	5			
	DICA14	<i>Dichelostemma capitatum</i>	60	0.2	0.2	1			
	BRDI2	<i>Brachypodium distachyon</i>	50	0.9	0.2	8			
	AVBA	<i>Avena barbata</i>	50	0.5	0.2	3			
	BRODI	<i>Brodiaea</i> sp.	50	0.3	0.2	2			
	GAPO	<i>Galium porrigens</i>	50	0.3	0.2	1			
	VUMY	<i>Vulpia myuros</i>	40	0.7	0.2	4			
	HYGL2	<i>Hypochaeris glabra</i>	40	0.3	0.2	2			
	MECA2	<i>Melica californica</i>	40	0.2	0.2	1			
	SABI3	<i>Sanicula bipinnatifida</i>	40	0.2	0.2	1			
	BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	40	0.1	0.2	0.2			

CALYC	<i>Calycadenia</i> sp.	30	2	2	12		
BRRU2	<i>Bromus rubens</i>	30	1	1	7		
BRDI3	<i>Bromus diandrus</i>	30	0.8	0.2	7		
GAPH2	<i>Gastridium phleoides</i>	30	0.3	0.2	3		
CALA68	<i>Castilleja lacera</i>	30	0.1	0.2	0.2		
GAAP2	<i>Galium aparine</i>	30	0.1	0.2	0.2		
POSE	<i>Poa secunda</i>	30	0.1	0.2	0.2		
GEMO	<i>Geranium molle</i>	20	0.7	0.2	7		
ERBO	<i>Erodium botrys</i>	20	0.6	0.2	6		
CHGR3	<i>Chlorogalum grandiflorum</i>	20	0.2	0.2	2		
CHPO3	<i>Chlorogalum pomeridianum</i>	20	0.2	0.2	2		
PSHE	<i>Pseudobahia heermannii</i>	20	0.2	0.2	2		
VUBR	<i>Vulpia bromoides</i>	20	0.2	0.2	2		
Non-vasc							
2MOSS	Unknown Moss	80	13	2	30	X	X
2LICHN	Unknown Lichen	30	0.4	0.2	3		

Association(s) Defined: *Ceanothus cuneatus*
Ceanothus cuneatus/Plantago erecta
Ceanothus cuneatus–Adenostoma fasciculatum

***Ceanothus cuneatus* Association**

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 65 - 174, average 114 m
Total vegetation cover: range 33 - 55 %, average 46 %
Tree cover: 0 %
Shrub cover: range 7 - 35 %, average 20 %
Herb cover: range 8 - 48 %, average 30 %
Percent native cover relative to non-native cover: 76 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Kittel et al. 2009, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUDO	<i>Quercus douglasii</i>	50	0.4	0.4	1			
	JUCA7	<i>Juniperus californica</i>	25	0.1	0.2	0.2			
	QUWI2	<i>Quercus wislizeni</i>	25	0.1	0.2	0.2			
Shrub									
	CECU	<i>Ceanothus cuneatus</i>	100	21	6	35	X	X	
	ARMA	<i>Arctostaphylos manzanita</i>	25	0.1	0.2	0.2			
	LOIN4	<i>Lonicera interrupta</i>	25	0.1	0.2	0.2			
Herb									
	AICA	<i>Aira caryophylla</i>	75	2	1	3	X		

BRHO2	<i>Bromus hordeaceus</i>	50	4	4	10		
BRRU2	<i>Bromus rubens</i>	50	3	3	7		
VUMY	<i>Vulpia myuros</i>	50	0.8	0.2	3		
BRMI2	<i>Briza minor</i>	50	0.3	0.2	1		
DICA14	<i>Dichelostemma capitatum</i>	50	0.3	0.2	1		
PETR7	<i>Pentagramma triangularis</i>	50	0.1	0.2	0.2		
NAPU2	<i>Navarretia pubescens</i>	25	3	10	10		
BRDI3	<i>Bromus diandrus</i>	25	2	7	7		
CEMU2	<i>Centaureum muehlenbergii</i>	25	1	5	5		
AVBA	<i>Avena barbata</i>	25	0.8	3	3		
TACA8	<i>Taeniatherum caput-medusae</i>	25	0.8	3	3		
FILAG	<i>Filago</i> sp.	25	0.5	2	2		
PLER3	<i>Plantago erecta</i>	25	0.5	2	2		
SAIN4	<i>Saxifraga integrifolia</i>	25	0.5	2	2		
GAPA5	<i>Galium parisiense</i>	25	0.3	1	1		
NAVAR	<i>Navarretia</i> sp.	25	0.3	1	1		
PEDU2	<i>Petrorhagia dubia</i>	25	0.3	1	1		
VUMI	<i>Vulpia microstachys</i>	25	0.3	1	1		
ANCA14	<i>Anthriscus caucalis</i>	25	0.1	0.2	0.2		
BRDI2	<i>Brachypodium distachyon</i>	25	0.1	0.2	0.2		
BRODI	<i>Brodiaea</i> sp.	25	0.1	0.2	0.2		
BREL	<i>Brodiaea elegans</i>	25	0.1	0.2	0.2		
CENTA	<i>Centaurea</i> sp.	25	0.1	0.2	0.2		
CEME2	<i>Centaurea melitensis</i>	25	0.1	0.2	0.2		
CESO3	<i>Centaurea solstitialis</i>	25	0.1	0.2	0.2		
CLPU2	<i>Clarkia purpurea</i>	25	0.1	0.2	0.2		
ERBO	<i>Erodium botrys</i>	25	0.1	0.2	0.2		
GALIU	<i>Galium</i> sp.	25	0.1	0.2	0.2		
GEMO	<i>Geranium molle</i>	25	0.1	0.2	0.2		
LILIXX	<i>Liliaceae</i>	25	0.1	0.2	0.2		
MADIA	<i>Madia</i> sp.	25	0.1	0.2	0.2		
MICA7	<i>Minuartia californica</i>	25	0.1	0.2	0.2		
PLNO	<i>Plagiobothrys nothofulvus</i>	25	0.1	0.2	0.2		
POA	<i>Poa</i> sp.	25	0.1	0.2	0.2		
SEHA2	<i>Selaginella hansenii</i>	25	0.1	0.2	0.2		
Non-vasc							
2MOSS	Unknown Moss	75	11	2	30	X	X
2LICHN	Unknown Lichen	50	0.8	0.2	3		

***Ceanothus cuneatus/Plantago erecta* Association**

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 175 - 545, average 359 m
 Total vegetation cover: range 25 - 55 %, average 45 %
 Tree cover: range 0.2 - 4%, average 2 %
 Shrub cover: range 12 - 46%, average 28 %
 Herb cover: range 10 - 47%, average 27 %
 Percent native cover relative to non-native cover: 82 %

Location(s) Sampled: Northeast Great Valley, Sierra Nevada Foothills Ecoregion

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PISA2	<i>Pinus sabiniana</i>	75	2	0.2	40	X	X	
	QUDO	<i>Quercus douglasii</i>	25	0.3	1	1			
Shrub									
	CECU	<i>Ceanothus cuneatus</i>	100	24	12	35	X	X	
	RHIL	<i>Rhamnus ilicifolia</i>	50	3	0.2	12			
	HEAR5	<i>Heteromeles arbutifolia</i>	50	0.6	1	10			
	ADFA	<i>Adenostoma fasciculatum</i>	25	0.3	1	1			
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	4	0.2	16	X		
	PLER3	<i>Plantago erecta</i>	100	2	0.2	5	X		
	VUMI	<i>Vulpia microstachys</i>	100	2	0.2	5	X		
	PETR7	<i>Pentagramma triangularis</i>	100	0.6	0.2	1	X		
	GAP0	<i>Galium porrigens</i>	100	0.4	0.2	1	X		
	BRODI	<i>Brodiaea</i> sp.	75	0.6	0.2	2	X		
	HYGL2	<i>Hypochaeris glabra</i>	75	0.6	0.2	2	X		
	AVBA	<i>Avena barbata</i>	75	0.4	0.2	1	X		
	MECA2	<i>Melica californica</i>	75	0.4	0.2	1	X		
	SABI3	<i>Sanicula bipinnatifida</i>	75	0.4	0.2	1	X		
	BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	75	0.2	0.2	0.2	X		
	DICA14	<i>Dichelostemma capitatum</i>	75	0.2	0.2	0.2	X		
	CALYC	<i>Calycadenia</i> sp.	50	4	2	12			
	GAPH2	<i>Gastridium phleoides</i>	50	0.8	0.2	3			
	PSHE	<i>Pseudobahia heermannii</i>	50	0.6	0.2	2			
	VUBR	<i>Vulpia bromoides</i>	50	0.6	0.2	2			
	ERLA6	<i>Eriophyllum lanatum</i>	50	0.3	0.2	1			
	AICA	<i>Aira caryophyllea</i>	50	0.1	0.2	0.2			
	BRDI2	<i>Brachypodium distachyon</i>	50	0.1	0.2	0.2			
	CALA68	<i>Castilleja lacera</i>	50	0.1	0.2	0.2			
	CEGL2	<i>Cerastium glomeratum</i>	50	0.1	0.2	0.2			

GAAP2	<i>Galium aparine</i>	50	0.1	0.2	0.2
LEBI8	<i>Leptosiphon bicolor</i>	50	0.1	0.2	0.2
LEVI8	<i>Lessingia virgata</i>	50	0.1	0.2	0.2
LOCO3	<i>Lomatium congdonii</i>	50	0.1	0.2	0.2
POSE	<i>Poa secunda</i>	50	0.1	0.2	0.2
TRMI4	<i>Trifolium microcephalum</i>	50	0.1	0.2	0.2
GEMO	<i>Geranium molle</i>	25	2	7	7
ERBO	<i>Erodium botrys</i>	25	2	6	6
MOVI2	<i>Monardella villosa</i>	25	0.8	3	3
LACA7	<i>Lasthenia californica</i>	25	0.5	2	2
BRMA3	<i>Bromus madritensis</i>	25	0.3	1	1
CAAF	<i>Castilleja affinis</i>	25	0.3	1	1
PLMA4	<i>Plectritis macrocera</i>	25	0.3	1	1
SIHI2	<i>Sidalcea hirsuta</i>	25	0.3	1	1
TOAR	<i>Torilis arvensis</i>	25	0.3	1	1
TRHI4	<i>Trifolium hirtum</i>	25	0.3	1	1
AGEL4	<i>Agrostis elliottiana</i>	25	0.1	0.2	0.2
ALPEP2	<i>Allium peninsulare</i> var. <i>peninsulare</i>	25	0.1	0.2	0.2
AMLY	<i>Amsinckia lycopsoides</i>	25	0.1	0.2	0.2
ANCA14	<i>Anthriscus caucalis</i>	25	0.1	0.2	0.2
APAR2	<i>Aphanes arvensis</i>	25	0.1	0.2	0.2
ATPU	<i>Athysanus pusillus</i>	25	0.1	0.2	0.2
BRDI3	<i>Bromus diandrus</i>	25	0.1	0.2	0.2
CALOC	<i>Calochortus</i> sp.	25	0.1	0.2	0.2
CAVE3	<i>Calochortus venustus</i>	25	0.1	0.2	0.2
CAOCF	<i>Calystegia occidentalis</i> ssp. <i>fulcrata</i>	25	0.1	0.2	0.2
CASTI2	<i>Castilleja</i> sp.	25	0.1	0.2	0.2
CAAT25	<i>Castilleja attenuata</i>	25	0.1	0.2	0.2
CESO3	<i>Centaurea solstitialis</i>	25	0.1	0.2	0.2
CHLOR3	<i>Chlorogalum</i> sp.	25	0.1	0.2	0.2
CHGR3	<i>Chlorogalum grandiflorum</i>	25	0.1	0.2	0.2
CHPO3	<i>Chlorogalum pomeridianum</i>	25	0.1	0.2	0.2
CLPU2	<i>Clarkia purpurea</i>	25	0.1	0.2	0.2
CLAYT	<i>Claytonia</i> sp.	25	0.1	0.2	0.2
CLPA5	<i>Claytonia parviflora</i>	25	0.1	0.2	0.2
CLPE	<i>Claytonia perfoliata</i>	25	0.1	0.2	0.2
COSPC	<i>Collinsia sparsiflora</i> var. <i>collina</i>	25	0.1	0.2	0.2
CRYPT	<i>Cryptantha</i> sp.	25	0.1	0.2	0.2
CYEC	<i>Cynosurus echinatus</i>	25	0.1	0.2	0.2
DAPU3	<i>Daucus pusillus</i>	25	0.1	0.2	0.2
DIMU5	<i>Dichelostemma multiflorum</i>	25	0.1	0.2	0.2
DODEC	<i>Dodecatheon</i> sp.	25	0.1	0.2	0.2
DRVE2	<i>Draba verna</i>	25	0.1	0.2	0.2
ELEL5	<i>Elymus elymoides</i>	25	0.1	0.2	0.2
ERCI6	<i>Erodium cicutarium</i>	25	0.1	0.2	0.2
GAPA5	<i>Galium parisiense</i>	25	0.1	0.2	0.2
GRIND	<i>Grindelia</i> sp.	25	0.1	0.2	0.2
LETA	<i>Leontodon taraxacoides</i>	25	0.1	0.2	0.2
LEPID	<i>Lepidium</i> sp.	25	0.1	0.2	0.2
LINAN2	<i>Linanthus</i> sp.	25	0.1	0.2	0.2

LIPA5	<i>Lithophragma parviflorum</i>	25	0.1	0.2	0.2		
LOGA2	<i>Logfia gallica</i>	25	0.1	0.2	0.2		
LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	25	0.1	0.2	0.2		
LOMA4	<i>Lomatium marginatum</i>	25	0.1	0.2	0.2		
LOUNU	<i>Lotus unifoliolatus</i> var. <i>unifoliolatus</i>	25	0.1	0.2	0.2		
MAEX	<i>Madia exigua</i>	25	0.1	0.2	0.2		
MAGR3	<i>Madia gracilis</i>	25	0.1	0.2	0.2		
MIAC	<i>Microseris acuminata</i>	25	0.1	0.2	0.2		
MILI5	<i>Microseris lindleyi</i>	25	0.1	0.2	0.2		
NAVAR	<i>Navarretia</i> sp.	25	0.1	0.2	0.2		
NEHE	<i>Nemophila heterophylla</i>	25	0.1	0.2	0.2		
OROBA	<i>Orobanche</i> sp.	25	0.1	0.2	0.2		
PEPE26	<i>Pectocarya penicillata</i>	25	0.1	0.2	0.2		
POAN	<i>Poa annua</i>	25	0.1	0.2	0.2		
SABI2	<i>Sanicula bipinnata</i>	25	0.1	0.2	0.2		
SACA18	<i>Saxifraga californica</i>	25	0.1	0.2	0.2		
SAXIXX	<i>Saxifragaceae</i>	25	0.1	0.2	0.2		
SEHA2	<i>Selaginella hansenii</i>	25	0.1	0.2	0.2		
SEVU	<i>Senecio vulgaris</i>	25	0.1	0.2	0.2		
SHAR2	<i>Sherardia arvensis</i>	25	0.1	0.2	0.2		
SICA	<i>Sidalcea calycosa</i>	25	0.1	0.2	0.2		
SIGA	<i>Silene gallica</i>	25	0.1	0.2	0.2		
THCU	<i>Thysanocarpus curvipes</i>	25	0.1	0.2	0.2		
TRDE	<i>Trifolium depauperatum</i>	25	0.1	0.2	0.2		
TRWI3	<i>Trifolium willdenovii</i>	25	0.1	0.2	0.2		
VUMY	<i>Vulpia myuros</i>	25	0.1	0.2	0.2		
Non-vasc							
2MOSS	Unknown Moss	75	14	5	25	X	X
2LW	Unknown Liverwort	25	0.1	0.2	0.2		

***Ceanothus cuneatus*–*Adenostoma fasciculatum* Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 99 - 354, average 227 m
 Total vegetation cover: range 30 - 54 %, average 42 %
 Tree cover: range 2 - 2%, average 2%
 Shrub cover: range 24 - 43%, average 33%
 Herb cover: range 11 - 16%, average 13%
 Percent native cover relative to non-native cover: 82 %

Location(s) Sampled: Northeast Great Valley, Sierra Nevada Foothills Ecoregion

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, Kittel et al. 2009, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PISA2	<i>Pinus sabiniana</i>	100	2	2	20	X	X	
Shrub									
	ADFA	<i>Adenostoma fasciculatum</i>	100	17	8	26	X		X
	CECU	<i>Ceanothus cuneatus</i>	100	17	16	17	X	X	
	RHIL	<i>Rhamnus ilicifolia</i>	100	0.6	0.2	1	X		
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	50	0.5	1	1			
Herb									
	BRDI2	<i>Brachypodium distachyon</i>	100	4	0.2	8	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	0.6	0.2	1	X		
	AICA	<i>Aira caryophyllea</i>	100	0.2	0.2	0.2	X		
	VUMY	<i>Vulpia myuros</i>	50	2	4	4			
	CALYC	<i>Calycadenia</i> sp.	50	1	2	2			
	CHGR3	<i>Chlorogalum grandiflorum</i>	50	1	2	2			
	CHPO3	<i>Chlorogalum pomeridianum</i>	50	1	2	2			
	AVFA	<i>Avena fatua</i>	50	0.5	1	1			
	BRDI3	<i>Bromus diandrus</i>	50	0.5	1	1			
	BRRU2	<i>Bromus rubens</i>	50	0.5	1	1			
	GAP0	<i>Galium porrigens</i>	50	0.5	1	1			
	PLER3	<i>Plantago erecta</i>	50	0.5	1	1			
Non-vasc									
	2MOSS	Unknown Moss	100	16	2	30	X	X	
	2LICHN	Unknown Lichen	50	0.5	1	1			

***Cephalanthus occidentalis* Alliance (Button willow thickets)**

Cephalanthus occidentalis is dominant in the shrub canopy, often occurring with *Vitis californica* and *Rubus armeniacus*. Emergent trees may include *Fraxinus latifolia*, *Salix gooddingii*, *Quercus lobata*, *Acer negundo*, and *Pinus sabiniana*. The shrub layer is continuous, intermittent, or open, and the herb layer is sparse to open. Stands occur on seasonally flooded basins, sloughs, and oxbow lakes on floodplains with subsurface water at the end of the growing season. Soils are poorly aerated and fine textured.

Samples used to describe type: 12

Local Environmental Table:

Elevation: range 1 - 190, average 68 m
 Total vegetation cover: range 17 - 90 %, average 49 %
 Tree cover: range 0 - 22 %, average 5 %
 Shrub cover: range 12 - 65 %, average 39 %
 Herb cover: range 0 - 38 %, average 9 %
 Percent native cover relative to non-native cover: 89 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SAGO	<i>Salix gooddingii</i>	42	0.5	0.2	3			
	QULO	<i>Quercus lobata</i>	33	1	0.2	8			
	ACNE2	<i>Acer negundo</i>	25	0.7	2	3			
	FRLA	<i>Fraxinus latifolia</i>	25	0.5	0.2	6			
	PISA2	<i>Pinus sabiniana</i>	25	0.4	0.2	3			
Shrub									
	CEOC2	<i>Cephalanthus occidentalis</i>	100	30	8	60	X	X	
	VICA5	<i>Vitis californica</i>	50	3	1	25			
	RUAR9	<i>Rubus armeniacus</i>	42	2	0.2	20			
Herb									
	MIGU	<i>Mimulus guttatus</i>	25	0.1	0.2	1			

Association(s) defined: *Cephalanthus occidentalis*

***Cephalanthus occidentalis* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Cornus sericea Alliance (Red osier thickets)

Cornus sericea is dominant in the shrub canopy, often occurring with *Phragmites australis*, *Cephalanthus occidentalis*, *Rubus armeniacus*, *Salix exigua*, and *Hibiscus lasiocarpus*. *S. lasiolepis* and *Alnus rhombifolia* may be present as emergent trees. The shrub layer is intermittent to continuous, and the herb layer is open to continuous and variable.

Samples used to describe type: 17

Local Environmental Table:

Elevation: average 0 m

Total vegetation cover: range 52 - 99 %, average 82 %

Tree cover: range 0 - 65 %, average 11 %

Shrub cover: range 0.2 - 90 %, average 49 %

Herb cover: range 0.2 - 55 %, average 14 %

Percent native cover relative to non-native cover: 97 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	SALA6	<i>Salix lasiolepis</i>	76	19	1	65	X	X	
	ALRH2	<i>Alnus rhombifolia</i>	35	0.9	0.2	7			
Shrub	COSE16	<i>Cornus sericea</i>	100	47	20	88	X	X	
	PHAU7	<i>Phragmites australis</i>	65	5	0.2	20			
	CEOC2	<i>Cephalanthus occidentalis</i>	65	2	0.2	8			
	RUAR9	<i>Rubus armeniacus</i>	47	1	0.2	15			
	SAEX	<i>Salix exigua</i>	29	5	2	40			
	HILA6	<i>Hibiscus lasiocarpus</i>	29	0.1	0.2	1			
Herb	SCAC3	<i>Schoenoplectus acutus</i>	71	4	0.2	35			
	TYLA	<i>Typha latifolia</i>	41	0.8	0.2	8			
	JUEF	<i>Juncus effusus</i>	35	0.1	0.2	1			
	POPU5	<i>Polygonum punctatum</i>	35	0.1	0.2	1			
	HYVE2	<i>Hydrocotyle verticillata</i>	35	0.1	0.2	0.2			
	LYAM	<i>Lycopus americanus</i>	29	0.1	0.2	1			
	CYER	<i>Cyperus eragrostis</i>	29	0.1	0.2	0.2			

Association(s) Defined: *Cornus sericea*–*Salix exigua*
Cornus sericea–*Salix lasiolepis*

***Cornus sericea*–*Salix exigua* Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: average 0 m

Total vegetation cover: range 85 - 95 %, average 90 %

Tree cover: range 0.2- 2 %, average 1 %

Shrub cover: range 35 - 65 %, average 50 %

Herb cover: range 0.2- 10 %, average 5 %

Percent native cover relative to non-native cover: 98 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	100	0.2	0.2	0.2	X	X	
	ALRH2	<i>Alnus rhombifolia</i>	50	1	2	2			
	SAGO	<i>Salix gooddingii</i>	50	1	2	2			
	SALA6	<i>Salix lasiolepis</i>	50	0.5	1	1			
Shrub									
	COSE16	<i>Cornus sericea</i>	100	50	35	65	X	X	
	SAEX	<i>Salix exigua</i>	100	26	11	40	X		X
	RUAR9	<i>Rubus armeniacus</i>	100	1	1	1	X		
	CEOC2	<i>Cephalanthus occidentalis</i>	50	0.5	1	1			
Herb									
	JUNCU	<i>Juncus</i> sp.	100	0.2	0.2	0.2	X	X	
	TYLA	<i>Typha latifolia</i>	50	4	8	8			

***Cornus sericea*–*Salix lasiolepis* Association**

Samples used to describe type: 15

Local Environmental Table:

Elevation: average 0 m

Total vegetation cover: range 52 - 99 %, average 81 %

Tree cover: range 0 - 65 %, average 12 %

Shrub cover: range 0.2 - 90 %, average 49 %

Herb cover: range 0.2 - 55 %, average 15 %

Percent native cover relative to non-native cover: 97 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SALA6	<i>Salix lasiolepis</i>	80	21	2	65	X	X	
	ALRH2	<i>Alnus rhombifolia</i>	33	0.8	0.2	7			
Shrub									
	COSE16	<i>Cornus sericea</i>	100	46	20	88	X	X	
	PHAU7	<i>Phragmites australis</i>	73	6	0.2	20			
	CEOC2	<i>Cephalanthus occidentalis</i>	67	2	0.2	8			
	RUAR9	<i>Rubus armeniacus</i>	40	1	0.2	15			
	HILA6	<i>Hibiscus lasiocarpus</i>	27	0.1	0.2	1			
Herb									
	SCAC3	<i>Schoenoplectus acutus</i>	73	4	0.2	35			
	TYLA	<i>Typha latifolia</i>	40	0.4	0.2	2			
	JUEF	<i>Juncus effusus</i>	40	0.1	0.2	1			
	POPU5	<i>Polygonum punctatum</i>	40	0.1	0.2	1			
	HYVE2	<i>Hydrocotyle verticillata</i>	40	0.1	0.2	0.2			
	LYAM	<i>Lycopus americanus</i>	33	0.1	0.2	1			
	CYER	<i>Cyperus eragrostis</i>	33	0.1	0.2	0.2			
	HEPU2	<i>Helenium puberulum</i>	27	0.1	0.2	0.2			
	LIMA7	<i>Lilaeopsis masonii</i>	27	0.1	0.2	0.2			
	PADI3	<i>Paspalum dilatatum</i>	27	0.1	0.2	0.2			

***Encelia virginensis* Alliance (Brittle brush scrub)**

Encelia virginensis ssp. *virginensis* or *E. v.* spp. *actoni* is dominant in the shrub canopy, often occurring with *Ambrosia salsola* and others. The canopy is open to intermittent, and the herbaceous layers is open to intermittent with seasonal annuals. Stands occur in intermittently flooded arroyos, canyons, adjacent alluvial fans, road cuts, and other substrates with recent disturbance. Soils are alluvial with gravel and cobble; found particularly on cobbled, calcareous substrates.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 243 m

Total vegetation cover: 33 %

Tree cover: 0 %

Shrub cover: 13 %

Herb cover: 22 %

Percent native cover relative to non-native cover: 48 %

Location(s) Sampled: Southeast Great Valley

References: Buck-Diaz and Evens 2011b, CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ENAC	<i>Encelia virginensis</i> ssp. <i>actoni</i>	100	13	13	13	X	X	
	CACTXX	<i>Cactaceae</i>	100	0.2	0.2	0.2	X		
	HYSA	<i>Ambrosia salsola</i>	100	0.2	0.2	0.2	X		
	OPBAT	<i>Opuntia basilaris</i> var. <i>treleasei</i>	100	0.2	0.2	0.2	X		
	Herb	BRRU2	<i>Bromus rubens</i>	100	7	7	7	X	
BRDI3		<i>Bromus diandrus</i>	100	6	6	6	X		
ERCI6		<i>Erodium cicutarium</i>	100	4	4	4	X		
MIRAB		<i>Mirabilis</i> sp.	100	2	2	2	X		
BRTO		<i>Brassica tournefortii</i>	100	1	1	1	X		
AVBA		<i>Avena barbata</i>	100	0.2	0.2	0.2	X		
CACA33		<i>Camissonia campestris</i>	100	0.2	0.2	0.2	X		
CHGL		<i>Chaenactis glabriuscula</i>	100	0.2	0.2	0.2	X		
LUBE		<i>Lupinus benthamii</i>	100	0.2	0.2	0.2	X		
MACA6		<i>Malacothrix californica</i>	100	0.2	0.2	0.2	X		
Non-vasc		2MOSS	Unknown Moss	100	1	1	1	X	X

Association(s) defined: *Encelia virginensis* ssp. *actoni*

***Encelia virginensis* ssp. *actoni* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011b, CDFG-CNPS 2008

***Ephedra californica* Alliance (California joint fir scrub)**

Ephedra californica is dominant or co-dominant in the shrub canopy, often occurring with *Eriogonum fasciculatum*, *Gutierrezia californica*, *Eastwoodia elegans*, *Ambrosia salsola*, and others. The canopy is open to intermittent, and the herbaceous layer is open to intermittent with seasonal annuals and perennial grasses. Stands occur on intermittently flooded arroyos, washes, and adjacent alluvial fans in transmontane settings, and on residual dunes and xeric, fine-grained sedimentary substrates in cismontane settings. Soils are coarse to medium sands, loamy sands, and sandy clay loams.

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 242- 446, average 378 m
 Total vegetation cover: range 17 - 80 %, average 46 %
 Tree cover: 0 %
 Shrub cover: range 7 - 35 %, average 16 %
 Herb cover: range 5 - 75 %, average 30 %
 Percent native cover relative to non-native cover: 55 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, Evens et al. 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	EPCA2	<i>Ephedra californica</i>	100	8	2	15	X	X	
	ERFA2	<i>Eriogonum fasciculatum</i>	90	0.9	0.2	5	X		
	GUCA	<i>Gutierrezia californica</i>	80	6	0.2	20	X		
	EAEL	<i>Eastwoodia elegans</i>	50	0.2	0.2	1			
	ATSP	<i>Atriplex spinifera</i>	30	0.7	0.2	7			
	OPBAT	<i>Opuntia basilaris</i> var. <i>treleasei</i>	20	0.6	0.2	6			
	HYSA	<i>Ambrosia salsola</i>	20	0.4	1	3			
	Herb	ERPL2	<i>Eriastrum pluriflorum</i>	80	4	0.2	38	X	
BRDI3		<i>Bromus diandrus</i>	70	15	0.2	70			
BRMA3		<i>Bromus madritensis</i>	70	7	2	30			
ERC16		<i>Erodium cicutarium</i>	60	4	1	19			
AMME		<i>Amsinckia menziesii</i>	50	0.2	0.2	1			
PHCI		<i>Phacelia cicutaria</i>	50	0.1	0.2	0.2			
CHME2		<i>Chorizanthe membranacea</i>	40	0.4	0.2	3			
POSE		<i>Poa secunda</i>	40	0.1	0.2	0.2			
BRHO2		<i>Bromus hordeaceus</i>	30	0.6	0.2	5			
POAN		<i>Poa annua</i>	30	0.2	0.2	1			
ACHY		<i>Achnatherum hymenoides</i>	30	0.1	0.2	0.2			
CLUN		<i>Clarkia unguiculata</i>	30	0.1	0.2	0.2			
MAFA3		<i>Marah fabaceus</i>	30	0.1	0.2	0.2			
VUMY		<i>Vulpia myuros</i>	30	0.1	0.2	0.2			

	BRRU2	<i>Bromus rubens</i>	20	0.9	3	6
	CHGL	<i>Chaenactis glabriuscula</i>	20	0.2	1	1
Non-vasc	2MOSS	Unknown Moss	20	0.9	0.2	9

Association(s) Defined: *Ephedra californica*/Annual-Perennial herb
Ephedra californica–*Ambrosia salsola*
Ephedra californica–*Gutierrezia californica*/*Eriastrum pluriflorum*

***Ephedra californica*/Annual-Perennial Herb Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 393- 400 , average 397 m
Total vegetation cover: range 75 - 80 %, average 77 %
Tree cover: 0 %
Shrub cover: range 7 - 7 %, average 7 %
Herb cover: range 70 - 75 %, average 72 %
Percent native cover relative to non-native cover: 11 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, Evens et al. 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	EPCA2	<i>Ephedra californica</i>	100	7	7	7	X	X	
	ATSP	<i>Atriplex spinifera</i>	100	0.2	0.2	0.2	X		
	GUCA	<i>Gutierrezia californica</i>	100	0.2	0.2	0.2	X		
Herb	BRDI3	<i>Bromus diandrus</i>	100	70	70	70	X	X	
	BRHO2	<i>Bromus hordeaceus</i>	100	3	1	5	X		
	AMME	<i>Amsinckia menziesii</i>	100	0.6	0.2	1	X		
	CLUN	<i>Clarkia unguiculata</i>	100	0.2	0.2	0.2	X		
	ERIOG	<i>Eriogonum</i> sp.	100	0.2	0.2	0.2	X		
	MAFA3	<i>Marah fabaceus</i>	100	0.2	0.2	0.2	X		
	POSE	<i>Poa secunda</i>	100	0.2	0.2	0.2	X		
	SATR12	<i>Salsola tragus</i>	100	0.2	0.2	0.2	X		
	TRWI3	<i>Trifolium willdenovii</i>	100	0.2	0.2	0.2	X		
	BRMA3	<i>Bromus madritensis</i>	50	1	2	2			
	LOSC6	<i>Loeseliastrum schottii</i>	50	0.5	1	1			

***Ephedra californica*–*Ambrosia salsola* Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 242 - 243, average 243 m

Total vegetation cover: range 23 - 26 %, average 24 %

Tree cover: 0 %

Shrub cover: range 7 - 14 %, average 10 %

Herb cover: range 9 - 21 %, average 15 %

Percent native cover relative to non-native cover: 62 %

Location(s) Sampled: Southeast Great Valley

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, Thomas et al. 2004, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	EPCA2	<i>Ephedra californica</i>	100	6	5	6	X		X
	OPBAT	<i>Opuntia basilaris</i> var. <i>treleasei</i>	100	3	0.2	6	X		
	HYSA	<i>Ambrosia salsola</i>	100	2	1	3	X		
	ERFA2	<i>Eriogonum fasciculatum</i>	100	1	0.2	2	X		
	ENAC	<i>Encelia virginensis</i> ssp. <i>actoni</i>	100	0.2	0.2	0.2	X		
Herb	BRDI3	<i>Bromus diandrus</i>	100	5	2	8	X		X
	BRRU2	<i>Bromus rubens</i>	100	5	3	6	X		X
	ERCI6	<i>Erodium cicutarium</i>	100	2	1	2	X		
	CHGL	<i>Chaenactis glabriuscula</i>	100	1	1	1	X		
	BRT0	<i>Brassica tournefortii</i>	100	0.6	0.2	1	X		
	MIRAB	<i>Mirabilis</i> sp.	100	0.6	0.2	1	X		
	ERPL2	<i>Eriastrum pluriflorum</i>	100	0.2	0.2	0.2	X		
	LUBE	<i>Lupinus benthamii</i>	100	0.2	0.2	0.2	X		
	PHDI	<i>Phacelia distans</i>	100	0.2	0.2	0.2	X		
	SACA8	<i>Salvia carduacea</i>	100	0.2	0.2	0.2	X		
	ERBO	<i>Erodium botrys</i>	50	0.5	1	1			
Non-vasc	2MOSS	Unknown Moss	50	5	9	9			

***Ephedra californica*–*Gutierrezia californica*/*Eriastrum pluriflorum* Association**

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 386- 446, average 417 m

Total vegetation cover: range 17 - 75 %, average 43 %

Tree cover: 0 %

Shrub cover: range 10 - 35 %, average 22 %

Herb cover: range 5 - 42 %, average 22 %

Percent native cover relative to non-native cover: 67 %

Location(s) Sampled: Southwest Great Valley

References: Evens et al. 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	GUCA	<i>Gutierrezia californica</i>	100	10	1	20	X		X
	EPCA2	<i>Ephedra californica</i>	100	9	2	15	X		X
	ERFA2	<i>Eriogonum fasciculatum</i>	100	1	0.2	5	X		
	EAEL	<i>Eastwoodia elegans</i>	83	0.3	0.2	1	X		
Herb									
	BRMA3	<i>Bromus madritensis</i>	100	11	2	30	X		X
	ERPL2	<i>Eriastrum pluriflorum</i>	100	7	0.2	38	X		
	ERCI6	<i>Erodium cicutarium</i>	67	5	1	19			
	CHME2	<i>Chorizanthe membranacea</i>	67	0.6	0.2	3			
	PHCI	<i>Phacelia cicutaria</i>	67	0.1	0.2	0.2			
	BRDI3	<i>Bromus diandrus</i>	50	0.7	0.2	2			
	POAN	<i>Poa annua</i>	50	0.4	0.2	1			
	ACHY	<i>Achnatherum hymenoides</i>	50	0.1	0.2	0.2			
	AMME	<i>Amsinckia menziesii</i>	50	0.1	0.2	0.2			
	VUMY	<i>Vulpia myuros</i>	50	0.1	0.2	0.2			
	ERIOP2	<i>Eriophyllum</i> sp.	33	0.1	0.2	0.2			
	MILI5	<i>Microseris lindleyi</i>	33	0.1	0.2	0.2			
	MUPE2	<i>Mucronea perfoliata</i>	33	0.1	0.2	0.2			
	OEDE2	<i>Oenothera deltoides</i>	33	0.1	0.2	0.2			
	POSE	<i>Poa secunda</i>	33	0.1	0.2	0.2			
	SACO6	<i>Salvia columbariae</i>	33	0.1	0.2	0.2			
	VUMI	<i>Vulpia microstachys</i>	33	0.1	0.2	0.2			
Non-vasc									
	2LICHN	Unknown Lichen	33	0.2	0.2	1			

***Ephedra viridis* Alliance (Mormon tea scrub)**

Ephedra viridis is dominant in the shrub canopy, which is open to continuous. The herbaceous layer is sparse with perennial grasses. Stands occur on ridges and steep slopes. Soils are shallow and derived from alluvium, bedrock, and colluvium.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 180 m

Total vegetation cover: 19 %

Tree cover: 0 %

Shrub cover: 13 %

Herb cover: 7 %

Percent native cover relative to non-native cover: 59 %

Location(s) Sampled: Southeast Great Valley

References: CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	EPVI	<i>Ephedra viridis</i>	100	9	9	9	X	X	
Herb									
	BRRU2	<i>Bromus rubens</i>	100	4	4	4	X		X
	SATR12	<i>Salsola tragus</i>	100	4	4	4	X		X
	LEGL18	<i>Lessingia glandulifera</i>	100	2	2	2	X		
	AMAC2	<i>Ambrosia acanthicarpa</i>	100	0.2	0.2	0.2	X		
	AMME	<i>Amsinckia menziesii</i>	100	0.2	0.2	0.2	X		
	DAWR2	<i>Datura wrightii</i>	100	0.2	0.2	0.2	X		
	HIIN3	<i>Hirschfeldia incana</i>	100	0.2	0.2	0.2	X		
	STEX	<i>Stephanomeria exigua</i>	100	0.2	0.2	0.2	X		

Association(s) defined: *Ephedra viridis*

***Ephedra viridis* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008

***Ericameria linearifolia*–*Isomeris arborea* Alliance (Narrowleaf goldenbush scrub–Bladderpod scrub)**

Ericameria linearifolia, *Isomeris arborea*, and/or *Eastwoodia elegans* is dominant or co-dominant in the shrub overstory, forming a sparse to intermittent canopy. The herbaceous layer is open to continuous with annual and perennial herbs. Stands occur on hillslopes, and they have often experienced recent disturbance including fire and grazing.

Samples used to describe type: 9

Local Environmental Table:

Elevation: range 142 - 728, average 305 m
 Total vegetation cover: range 14 - 95 %, average 55 %
 Tree cover: range 0 - 6 %, average 1 %
 Shrub cover: range 3 - 20 %, average 11 %
 Herb cover: range 11 - 85 %, average 43 %
 Percent native cover relative to non-native cover: 43 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, CDFG 2005, CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	CLIS	<i>Cleome isomeris</i>	78	9	2	20	X	X	
	ATPO	<i>Atriplex polycarpa</i>	44	0.6	0.2	2			
	EAEL	<i>Eastwoodia elegans</i>	22	1	6	6			
Herb	BRMA3	<i>Bromus madritensis</i>	78	4	2	11	X		
	ERC16	<i>Erodium cicutarium</i>	67	7	0.2	40			
	VUMY	<i>Vulpia myuros</i>	56	10	0.2	42			
	BRDI3	<i>Bromus diandrus</i>	56	2	0.2	16			
	BRHO2	<i>Bromus hordeaceus</i>	56	2	0.2	9			
	AVBA	<i>Avena barbata</i>	44	2	0.2	13			
	AMME	<i>Amsinckia menziesii</i>	44	1	2	4			
	VICIA	<i>Vicia</i> sp.	44	0.4	0.2	2			
	CAEX14	<i>Castilleja exserta</i>	33	2	0.2	20			
	MAVU	<i>Marrubium vulgare</i>	33	0.8	0.2	6			
	TRLA4	<i>Trichostema lanceolatum</i>	33	0.6	0.2	4			
	LEDI2	<i>Lepidium dictyotum</i>	33	0.2	0.2	1			
	LOHU2	<i>Lotus humistratus</i>	33	0.1	0.2	0.2			
	AVFA	<i>Avena fatua</i>	22	1	0.2	12			
	MADIA	<i>Madia</i> sp.	22	0.6	0.2	5			
BRRU2	<i>Bromus rubens</i>	22	0.6	2	3				

Association(s) Defined: *Eastwoodia elegans*
Isomeris arborea

***Eastwoodia elegans* Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 725- 728, average 727 m

Total vegetation cover: range 24 - 31 %, average 27 %

Tree cover: 0 %

Shrub cover: range 9 - 11 %, average 10%

Herb cover: range 13 - 22 %, average 17%

Percent native cover relative to non-native cover: 49%

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	EAEL	<i>Eastwoodia elegans</i>	100	6	6	6	X	X	
	ATPO	<i>Atriplex polycarpa</i>	100	1	0.2	2	X		
	ERIOG	<i>Eriogonum</i> sp.	50	3	5	5			
	ISAC2	<i>Isocoma acradenia</i>	50	0.5	1	1			
Herb	BRDI3	<i>Bromus diandrus</i>	100	9	1	16	X		X
	BRMA3	<i>Bromus madritensis</i>	100	4	2	6	X		
	ERCI6	<i>Erodium cicutarium</i>	100	2	0.2	3	X		
	ASER2	<i>Asclepias erosa</i>	100	0.2	0.2	0.2	X		
	DAWR2	<i>Datura wrightii</i>	100	0.2	0.2	0.2	X		
	DISP	<i>Distichlis spicata</i>	50	1	2	2			
	ARDR4	<i>Artemisia dracunculus</i>	50	0.5	1	1			
	LECI4	<i>Leymus cinereus</i>	50	0.5	1	1			
	POSE	<i>Poa secunda</i>	50	0.5	1	1			

Isomeris arborea Association

Samples used to describe type: 7

Local Environmental Table:

Elevation: range 142- 219, average 184 m
 Total vegetation cover: range 14 - 95 %, average 63 %
 Tree cover: range 0 - 6 %, average 1%
 Shrub cover: range 3 - 20 %, average 12%
 Herb cover: range 11 - 85 %, average 50%
 Percent native cover relative to non-native cover: 41%

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, CDFG 2005, CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	CLIS	<i>Cleome isomeris</i>	100	11	2	20	X	X	
	ATPO	<i>Atriplex polycarpa</i>	29	0.4	1	2			
Herb	VUMY	<i>Vulpia myuros</i>	71	13	0.2	42			
	BRMA3	<i>Bromus madritensis</i>	71	4	3	11			
	ERCI6	<i>Erodium cicutarium</i>	57	9	1	40			
	BRHO2	<i>Bromus hordeaceus</i>	57	2	0.2	9			
	AMME	<i>Amsinckia menziesii</i>	57	2	2	4			
	VICIA	<i>Vicia</i> sp.	57	0.5	0.2	2			
	CAEX14	<i>Castilleja exserta</i>	43	3	0.2	20			
	AVBA	<i>Avena barbata</i>	43	2	0.2	13			
	TRLA4	<i>Trichostema lanceolatum</i>	43	0.7	0.2	4			
	BRDI3	<i>Bromus diandrus</i>	43	0.6	0.2	2			
	LEDI2	<i>Lepidium dictyotum</i>	43	0.2	0.2	1			
	LOHU2	<i>Lotus humistratus</i>	43	0.1	0.2	0.2			
	AVFA	<i>Avena fatua</i>	29	2	0.2	12			
	MAVU	<i>Marrubium vulgare</i>	29	1	1	6			
	MADIA	<i>Madia</i> sp.	29	0.7	0.2	5			
	BRRU2	<i>Bromus rubens</i>	29	0.7	2	3			
	DELPH	<i>Delphinium</i> sp.	29	0.2	0.2	1			
	LACA7	<i>Lasthenia californica</i>	29	0.2	0.2	1			
	CALAM	<i>Calamagrostis</i> sp.	29	0.1	0.2	0.2			
	DICA14	<i>Dichelostemma capitatum</i>	29	0.1	0.2	0.2			
LUSU3	<i>Lupinus succulentus</i>	29	0.1	0.2	0.2				

***Eriodictyon californicum* Alliance (California yerba santa scrub)**

Eriodictyon californicum is dominant in the shrub canopy, often occurring with *Lupinus albifrons*, *Senecio flaccidus*, *Adenostoma fasciculatum*, *Arctostaphylos manzanita*, *Baccharis pilularis*, *Mimulus aurantiacus* ssp. *aurantiacus*, and *Toxicodendron diversilobum*. The shrub canopy is open to intermittent, and the herbaceous layer is open to continuous and grassy. Stands occur on lower to middle slopes of serpentinite, metavolcanic, and plutonic substrates; sites have often experienced recent disturbance such as burning, clearing or grazing. Soils are loamy.

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 67 - 457, average 198 m
 Total vegetation cover: range 25 - 38 %, average 29 %
 Tree cover: 0 %
 Shrub cover: range 7 - 19 %, average 12 %
 Herb cover: range 9 - 45 %, average 25 %
 Percent native cover relative to non-native cover: 53 %

Location(s) Sampled: Northeast and Southeast Great Valley, Sierra Nevada Foothills Ecoregion

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD	
Shrub	ERCA6	<i>Eriodictyon californicum</i>	100	7	0.2	13	X	X		
	LUAL4	<i>Lupinus albifrons</i>	25	0.8	3	3				
	SEFL3	<i>Senecio flaccidus</i>	25	0.5	2	2				
	ADFA	<i>Adenostoma fasciculatum</i>	25	0.1	0.2	0.2				
	ARMA	<i>Arctostaphylos manzanita</i>	25	0.1	0.2	0.2				
	BAPI	<i>Baccharis pilularis</i>	25	0.1	0.2	0.2				
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	25	0.1	0.2	0.2				
	TODI	<i>Toxicodendron diversilobum</i>	25	0.1	0.2	0.2				
	Herb	BRHO2	<i>Bromus hordeaceus</i>	100	3	0.2	10	X		
		ERBO	<i>Erodium botrys</i>	75	3	0.2	13	X		
BRDI3		<i>Bromus diandrus</i>	75	1	0.2	5	X			
HYGL2		<i>Hypochaeris glabra</i>	75	0.4	0.2	1	X			
HOVI		<i>Holocarpha virgata</i>	50	3	0.2	12				
ERCI6		<i>Erodium cicutarium</i>	50	0.3	0.2	1				
AVBA		<i>Avena barbata</i>	50	0.1	0.2	0.2				
DAPU3		<i>Daucus pusillus</i>	50	0.1	0.2	0.2				
DICA14		<i>Dichelostemma capitatum</i>	50	0.1	0.2	0.2				
VUMY		<i>Vulpia myuros</i>	50	0.1	0.2	0.2				
BRDI2		<i>Brachypodium distachyon</i>	25	7	28	28				
BRRU2		<i>Bromus rubens</i>	25	0.5	2	2				

AICA	<i>Aira caryophylla</i>	25	0.3	1	1
ARDR4	<i>Artemisia dracunculus</i>	25	0.3	1	1
AVFA	<i>Avena fatua</i>	25	0.3	1	1
ASGA	<i>Astragalus gambelanus</i>	25	0.1	0.2	0.2
CAOCF	<i>Calystegia occidentalis</i> ssp. <i>fulcrata</i>	25	0.1	0.2	0.2
CESO3	<i>Centaurea solstitialis</i>	25	0.1	0.2	0.2
CHPO3	<i>Chlorogalum pomeridianum</i>	25	0.1	0.2	0.2
ESLO	<i>Eschscholzia lobbii</i>	25	0.1	0.2	0.2
GAAP2	<i>Galium aparine</i>	25	0.1	0.2	0.2
GNPA	<i>Gnaphalium palustre</i>	25	0.1	0.2	0.2
HYCO3	<i>Hypericum concinnum</i>	25	0.1	0.2	0.2
LASE	<i>Lactuca serriola</i>	25	0.1	0.2	0.2
LOST4	<i>Lotus strigosus</i>	25	0.1	0.2	0.2
LOWR2	<i>Lotus wrangelianus</i>	25	0.1	0.2	0.2
LUSP3	<i>Lupinus spectabilis</i>	25	0.1	0.2	0.2
MECA2	<i>Melica californica</i>	25	0.1	0.2	0.2
MILI5	<i>Microseris lindleyi</i>	25	0.1	0.2	0.2
OROB	<i>Orobancha</i> sp.	25	0.1	0.2	0.2
PEMU	<i>Pellaea mucronata</i>	25	0.1	0.2	0.2
PHACE	<i>Phacelia</i> sp.	25	0.1	0.2	0.2
SABI3	<i>Sanicula bipinnatifida</i>	25	0.1	0.2	0.2
SEHA2	<i>Selaginella hansenii</i>	25	0.1	0.2	0.2
SOOL	<i>Sonchus oleraceus</i>	25	0.1	0.2	0.2
TRIFO	<i>Trifolium</i> sp.	25	0.1	0.2	0.2
TRAL5	<i>Trifolium albopurpureum</i>	25	0.1	0.2	0.2
TRCI	<i>Trifolium ciliolatum</i>	25	0.1	0.2	0.2
TRHI4	<i>Trifolium hirtum</i>	25	0.1	0.2	0.2
VUBR	<i>Vulpia bromoides</i>	25	0.1	0.2	0.2
Non-vasc					
2MOSS	Unknown Moss	50	5	0.2	20
CRYPTO	Cryptogamic crust	25	0.8	3	3
2LICHN	Unknown Lichen	25	0.3	1	1

Association(s) defined: *Eriodictyon californicum*/Herbaceous

***Eriodictyon californicum*/Herbaceous Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

***Eriogonum fasciculatum* Alliance (California buckwheat scrub)**

Eriogonum fasciculatum is dominant in the shrub canopy, often occurring with *Atriplex spinifera*, *Ephedra californica*, *Eastwoodia elegans*, and *Gutierrezia californica*. The canopy is continuous or intermittent, and the herbaceous layer is variable and may be grassy. Stands occur on upland moderate to steep slopes, intermittently flooded arroyos, channels, washes, and rarely flooded low-gradient deposits. Soils are coarse, well drained, and moderately acidic to slightly saline.

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 394- 454 , average 412 m

Total vegetation cover: range 20 - 32 %, average 25 %

Tree cover: 0 %

Shrub cover: range 12 - 22 %, average 17 %

Herb cover: range 5 - 15 %, average 10 %

Percent native cover relative to non-native cover: 66 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, Evens et al. 2006, Kittel et al. 2009, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ERFA2	<i>Eriogonum fasciculatum</i>	100	14	7	20	X	X	
	ATSP	<i>Atriplex spinifera</i>	75	2	0.2	5	X		
	EPCA2	<i>Ephedra californica</i>	75	2	1	3	X		
	EAEL	<i>Eastwoodia elegans</i>	75	0.6	0.2	1	X		
	GUCA	<i>Gutierrezia californica</i>	75	0.4	0.2	1	X		
	Herb	BRMA3	<i>Bromus madritensis</i>	100	7	3	10	X	X
ERCI6		<i>Erodium cicutarium</i>	100	3	1	5	X		
BOCAC		<i>Bombycilaena californica</i> var. <i>californica</i>	100	0.2	0.2	0.2	X		
ERPL2		<i>Eriastrum pluriflorum</i>	100	0.2	0.2	0.2	X		
MUPE2		<i>Mucronea perfoliata</i>	75	0.4	0.2	1	X		
CHME2		<i>Chorizanthe membranacea</i>	75	0.2	0.2	0.2	X		
SACO6		<i>Salvia columbariae</i>	75	0.2	0.2	0.2	X		
CAMIS		<i>Camissonia</i> sp.	50	0.1	0.2	0.2			
POAN		<i>Poa annua</i>	50	0.1	0.2	0.2			
ERIOG		<i>Eriogonum</i> sp.	25	0.1	0.2	0.2			
OEDE2		<i>Oenothera deltooides</i>	25	0.1	0.2	0.2			
VUMY		<i>Vulpia myuros</i>	25	0.1	0.2	0.2			

Association defined: *Eriogonum fasciculatum*

***Eriogonum fasciculatum* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, Evens et al. 2006, Kittel et al. 2009, Sawyer et al. 2009

***Eriogonum wrightii* Alliance (Wright's buckwheat patches)**

Eriogonum wrightii is dominant in the shrub canopy, which is intermittent. The herbaceous layer is open. Stands occur on flats, ridgetops, and stony slopes on granitic, sedimentary, or serpentinite substrates. Soils are loams or clays.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 142 m

Total vegetation cover: 20 %

Tree cover: 0 %

Shrub cover: 6 %

Herb cover: 14 %

Percent native cover relative to non-native cover: 34 %

Location(s) Sampled: Northern California Interior Coast Ranges Ecoregion

References: GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	ERWRT2	<i>Eriogonum wrightii</i> var. <i>trachygonum</i>	100	6	6	6	X	X	
Herb									
	BRDI3	<i>Bromus diandrus</i>	100	6	6	6	X		X
	VUMY	<i>Vulpia myuros</i>	100	5	5	5	X		X
	BRHO2	<i>Bromus hordeaceus</i>	100	3	3	3	X		
	LASE	<i>Lactuca serriola</i>	100	1	1	1	X		
	AVBA	<i>Avena barbata</i>	100	0.2	0.2	0.2	X		
	BRNI	<i>Brassica nigra</i>	100	0.2	0.2	0.2	X		
	ELGL	<i>Elymus glaucus</i>	100	0.2	0.2	0.2	X		
	GEDI	<i>Geranium dissectum</i>	100	0.2	0.2	0.2	X		
	RUCR	<i>Rumex crispus</i>	100	0.2	0.2	0.2	X		
	TOAR	<i>Torilis arvensis</i>	100	0.2	0.2	0.2	X		
	TRAL5	<i>Trifolium albopurpureum</i>	100	0.2	0.2	0.2	X		
	TRHI4	<i>Trifolium hirtum</i>	100	0.2	0.2	0.2	X		
Non-vasc									
	2MOSS	Unknown Moss	100	2	2	2	X	X	

Association(s) defined: *Eriogonum wrightii* Provisional

***Eriogonum wrightii* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011

***Forestiera pubescens* Alliance (Desert olive patches)**

Forestiera pubescens is dominant in the shrub canopy, often occurring with *Sambucus nigra* and *Ribes quercetorum*. Emergent *Quercus douglasii* may be present. The shrub canopy is intermittent to continuous, and the herbaceous layer is sparse to intermittent. Stands occur in riparian areas, including canyon and foothill stream courses and ravines.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 933 m

Total vegetation cover: 48 %

Tree cover: 3 %

Shrub cover: 44 %

Herb cover: 7 %

Percent native cover relative to non-native cover: 96 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, Klein and Evens 2005, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUDO	<i>Quercus douglasii</i>	100	3	3	3	X	X	
Shrub									
	FOPU2	<i>Forestiera pubescens</i>	100	40	40	40	X	X	
	SANI4	<i>Sambucus nigra</i>	100	12	12	12	X		
	RIQU	<i>Ribes quercetorum</i>	100	4	4	4	X		
Herb									
	URDI	<i>Urtica dioica</i>	100	3	3	3	X		X
	BRRU2	<i>Bromus rubens</i>	100	1	1	1	X		
	POSE	<i>Poa secunda</i>	100	1	1	1	X		
	SCCA2	<i>Scrophularia californica</i>	100	1	1	1	X		
	VUMY	<i>Vulpia myuros</i>	100	1	1	1	X		
	PHACE	<i>Phacelia</i> sp.	100	0.2	0.2	0.2	X		

Association(s) defined: *Forestiera pubescens*—*Sambucus nigra*

***Forestiera pubescens*—*Sambucus nigra* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, Klein and Evens 2005, Sawyer et al. 2009

Frangula californica Alliance (California coffee berry scrub)

Frangula californica is dominant in the shrub canopy, often occurring with *Cercis orbiculata*, *Sambucus nigra*, *Rubus armeniacus*, and *Fraxinus dipetala*. Emergent *Quercus lobata*, *Fraxinus latifolia*, and *Platanus racemosa* may be present. The shrub layer is open to continuous and can be two-tiered. The herbaceous layer is open with a high amount of exposed soil and rock. Stands occur on concave slopes, lower slopes, and along drainages and undulating moderate to steep slopes of sedimentary or serpentinite substrates. Soils retain moisture much of the year.

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 104 - 104, average 104 m
 Total vegetation cover: range 51 - 64 %, average 57 %
 Tree cover: range 0.2 - 1 %, average 0.6 %
 Shrub cover: range 13 - 15 %, average 14 %
 Herb cover: range 40 - 48 %, average 44 %
 Percent native cover relative to non-native cover: 92 %

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	100	0.7	0.4	1	X	X	
	QULO	<i>Quercus lobata</i>	100	0.2	0.2	0.2	X		
	FRLA	<i>Fraxinus latifolia</i>	50	0.5	1	1			
Shrub									
	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	100	10	7	13	X	X	
	CEOR9	<i>Cercis orbiculata</i>	100	2	2	2	X		
	SANI4	<i>Sambucus nigra</i>	100	0.6	0.2	1	X		
	RUAR9	<i>Rubus armeniacus</i>	50	1	2	2			
	FRDI2	<i>Fraxinus dipetala</i>	50	0.5	1	1			
Herb									
	NAPU4	<i>Nassella pulchra</i>	100	15	10	20	X	X	
	ELGL	<i>Elymus glaucus</i>	50	5	10	10			
	HYPE	<i>Hypericum perforatum</i>	50	1	2	2			
	ASFA	<i>Asclepias fascicularis</i>	50	0.5	1	1			
	BRNI	<i>Brassica nigra</i>	50	0.5	1	1			
	HEGR7	<i>Heterotheca grandiflora</i>	50	0.5	1	1			
	RUCR	<i>Rumex crispus</i>	50	0.5	1	1			

Association(s) defined: *Frangula californica* ssp. *tomentella*

***Frangula californica* ssp. *tomentella* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Evens and San 2005, Klein et al. 2007, Klein and Evens 2005, Sawyer et al. 2009

***Gutierrezia californica* Alliance (California match weed patches)**

Gutierrezia californica is dominant in the shrub canopy. Other shrubs if present are typically low in cover, and herbs are typically prevalent. The canopy is open to intermittent and two-tiered, and the herbaceous layer is open to continuous and grassy. Stands occur on lower to upper slopes that are somewhat steep to steep. Soils are sandy loams.

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 434 - 480, average 450 m
 Total vegetation cover: range 23 - 85 %, average 62 %
 Tree cover: 0 %
 Shrub cover: range 5 - 15 %, average 11 %
 Herb cover: range 10 - 85 %, average 58 %
 Percent native cover relative to non-native cover: 34 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, Evens et al. 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	GUCA	<i>Gutierrezia californica</i>	100	11	5	15	X	X	
	ATSP	<i>Atriplex spinifera</i>	33	0.1	0.2	0.2			
Herb	BRDI3	<i>Bromus diandrus</i>	100	53	0.2	80	X	X	
	BRMA3	<i>Bromus madritensis</i>	100	3	1	6	X		
	POSE	<i>Poa secunda</i>	100	1	0.2	3	X		
	AVBA	<i>Avena barbata</i>	100	0.2	0.2	0.2	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	0.2	0.2	0.2	X		
	ERC16	<i>Erodium cicutarium</i>	67	0.7	0.2	2			
	AMME	<i>Amsinckia menziesii</i>	67	0.1	0.2	0.2			
	TRICH9	<i>Trichostema</i> sp.	67	0.1	0.2	0.2			
	VUMY	<i>Vulpia myuros</i>	67	0.1	0.2	0.2			
	CHME2	<i>Chorizanthe membranacea</i>	33	2	5	5			
	ESCA2	<i>Eschscholzia californica</i>	33	1	3	3			
	PHCI	<i>Phacelia cicutaria</i>	33	0.7	2	2			
	CESO3	<i>Centaurea solstitialis</i>	33	0.1	0.2	0.2			
	CLPE	<i>Claytonia perfoliata</i>	33	0.1	0.2	0.2			
	LEGL18	<i>Lessingia glandulifera</i>	33	0.1	0.2	0.2			
	LOWR2	<i>Lotus wrangelianus</i>	33	0.1	0.2	0.2			
	MAVU	<i>Marrubium vulgare</i>	33	0.1	0.2	0.2			
OEDE2	<i>Oenothera deltooides</i>	33	0.1	0.2	0.2				
STREP2	<i>Streptanthus</i> sp.	33	0.1	0.2	0.2				

Association(s) Defined: *Gutierrezia californica/Poa secunda*

***Gutierrezia californica/Poa secunda* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, Evens et al. 2006

***Heteromeles arbutifolia* Alliance (Toyon chaparral)**

Heteromeles arbutifolia is dominant in the shrub canopy, often occurring with *Ceanothus cuneatus*, *Toxicodendron diversilobum*, *Cercis orbiculata*, *Rhamnus ilicifolia*, and *Eriodictyon californicum*. Emergent *Pinus sabiniana*, *Quercus douglasii*, and *Q. wislizeni* may be present. The shrub canopy is open to continuous and often two-tiered, and the herbaceous layer is open to intermittent. Stands generally occur on steep, north-facing slopes including on serpentinite and volcanic substrates. Soils are loams.

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 263 - 339, average 301 m
 Total vegetation cover: range 45 - 52 %, average 48 %
 Tree cover: range 1 - 8 %, average 4 %
 Shrub cover: range 24 - 31 %, average 27 %
 Herb cover: range 35 - 42 %, average 38 %
 Percent native cover relative to non-native cover: 75 %

Location(s) Sampled: Sierra Nevada Foothills Ecoregion

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	PISA2	<i>Pinus sabiniana</i>	100	4	1	6	X	X	
	QUDO	<i>Quercus douglasii</i>	50	0.5	1	1			
Shrub	HEAR5	<i>Heteromeles arbutifolia</i>	100	22	19	25	X	X	
	CECU	<i>Ceanothus cuneatus</i>	100	4	2	5	X		
	TODI	<i>Toxicodendron diversilobum</i>	100	0.7	0.2	10	X		
	CEOR9	<i>Cercis orbiculata</i>	50	0.5	1	1			
	RHIL	<i>Rhamnus ilicifolia</i>	50	0.5	1	1			
Herb	BRHO2	<i>Bromus hordeaceus</i>	100	8	5	10	X		
	VUMI	<i>Vulpia microstachys</i>	100	3	0.2	6	X		
	MECA2	<i>Melica californica</i>	100	2	0.2	4	X		
	LACA7	<i>Lasthenia californica</i>	100	2	1	2	X		
	AVBA	<i>Avena barbata</i>	100	1	0.2	2	X		
	PLER3	<i>Plantago erecta</i>	100	1	0.2	2	X		
	BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	100	1	1	1	X		
	BRMA3	<i>Bromus madritensis</i>	100	0.6	0.2	1	X		
	CHPO3	<i>Chlorogalum pomeridianum</i>	100	0.6	0.2	1	X		
	PETR7	<i>Pentagramma triangularis</i>	100	0.6	0.2	1	X		
	TRWI3	<i>Trifolium willdenovii</i>	100	0.6	0.2	1	X		
	AGOSE	<i>Agoseris</i> sp.	100	0.2	0.2	0.2	X		
	CAAL2	<i>Calochortus albus</i>	100	0.2	0.2	0.2	X		
	CAOCF	<i>Calystegia occidentalis</i> ssp.	100	0.2	0.2	0.2	X		

	<i>fulcrata</i>						
DAPU3	<i>Daucus pusillus</i>	100	0.2	0.2	0.2	X	
DICA14	<i>Dichelostemma capitatum</i>	100	0.2	0.2	0.2	X	
DUCYC3	<i>Dudleya cymosa</i> ssp. <i>cymosa</i>	100	0.2	0.2	0.2	X	
ERLA6	<i>Eriophyllum lanatum</i>	100	0.2	0.2	0.2	X	
GAPO	<i>Galium porrigens</i>	100	0.2	0.2	0.2	X	
LEBI8	<i>Leptosiphon bicolor</i>	100	0.2	0.2	0.2	X	
MILI5	<i>Microseris lindleyi</i>	100	0.2	0.2	0.2	X	
TRMI4	<i>Trifolium microcephalum</i>	100	0.2	0.2	0.2	X	
TRLA16	<i>Triteleia laxa</i>	100	0.2	0.2	0.2	X	
BRDI2	<i>Brachypodium distachyon</i>	50	10	20	20		
MOVI2	<i>Monardella villosa</i>	50	2	3	3		
CLARK	<i>Clarkia</i> sp.	50	1	2	2		
LOUT	<i>Lomatium utriculatum</i>	50	1	2	2		
Non-vasc							
2MOSS	Unknown Moss	100	3	1	4	X	X

Association(s) Defined: *Heteromeles arbutifolia* Serpentine Provisional

***Heteromeles arbutifolia* Serpentine Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Klein et al. 2007, Sawyer et al. 2009

***Isocoma acradenia* Alliance (Alkali golden bush scrub)**

Isocoma acradenia is dominant in the shrub canopy, or co-dominant with *Suaeda nigra*. The canopy is open to continuous, and the herbaceous layer is open to continuous. Stands occur typically on flats and sometimes on gently sloping hills. Soils are often saline or alkaline. They are often associated with alkali scalds and alkali rain pools on slightly elevated uplands.

Samples used to describe type: 21

Local Environmental Table:

Elevation: range 27 - 200, average 77 m

Total vegetation cover: range 17 - 91 %, average 61 %

Tree cover: 0 %

Shrub cover: range 0 - 35 %, average 13 %

Herb cover: range 12 - 87 %, average 48 %

Percent native cover relative to non-native cover: 48 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz et al. 2011, Buck-Diaz and Evens 2011a, CDFG 2005, CDFG-CNPS 2008, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ISAC2	<i>Isocoma acradenia</i>	100	10	0.2	33	X	X	
	SUMO	<i>Suaeda nigra</i>	62	3	0.2	14			
Herb	BRHO2	<i>Bromus hordeaceus</i>	76	8	0.2	26	X		
	CEPU14	<i>Centromadia pungens</i>	76	7	0.2	28	X		
	VUMY	<i>Vulpia myuros</i>	76	3	0.2	16	X		
	MEIN2	<i>Melilotus indicus</i>	67	4	0.2	20			
	BRMA3	<i>Bromus madritensis</i>	62	7	0.2	26			
	LASE	<i>Lactuca serriola</i>	62	0.7	0.2	11			
	LEDI2	<i>Lepidium dictyotum</i>	57	1	0.2	6			
	BRDI3	<i>Bromus diandrus</i>	52	4	0.2	25			
	AMME	<i>Amsinckia menziesii</i>	52	0.9	0.2	11			
	SCHIS	<i>Schismus</i> sp.	43	2	0.2	18			
	LAGL4	<i>Lasthenia glabrata</i>	43	1	0.2	10			
	HOMU	<i>Hordeum murinum</i>	43	0.8	0.2	7			
	DISP	<i>Distichlis spicata</i>	43	0.4	0.2	6			
	BRRU2	<i>Bromus rubens</i>	33	1	0.2	10			
	FRSA	<i>Frankenia salina</i>	33	0.9	0.2	8			
	ERCI6	<i>Erodium cicutarium</i>	29	1	0.2	9			
	SPAR	<i>Spergula arvensis</i>	29	0.1	0.2	0.2			
MEPO3	<i>Medicago polymorpha</i>	24	0.2	0.2	2				
Non-vasc	2MOSS	Unknown Moss	29	0.8	0.2	14			

Association(s) Defined: *Isocoma acradenia*

Isocoma acradenia–*Suaeda nigra* Provisional

***Isocoma acradenia* Association**

Samples used to describe type: 9

Local Environmental Table:

Elevation: range 27 - 200, average 78 m
 Total vegetation cover: range 17 - 75 %, average 40 %
 Tree cover: 0 %
 Shrub cover: range 0 - 35 %, average 13 %
 Herb cover: range 12 - 61 %, average 28 %
 Percent native cover relative to non-native cover: 54 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz et al. 2011, Buck-Diaz and Evens 2011a, CDFG 2005, CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ISAC2	<i>Isocoma acradenia</i>	100	13	4	33	X	X	
	ATLE	<i>Atriplex lentiformis</i>	22	0.2	0.2	2			
Herb	BRHO2	<i>Bromus hordeaceus</i>	78	4	0.2	12	X		
	FRSA	<i>Frankenia salina</i>	78	2	0.2	8	X		
	BRRU2	<i>Bromus rubens</i>	67	3	2	10			
	ERCI6	<i>Erodium cicutarium</i>	67	2	0.2	9			
	VUMY	<i>Vulpia myuros</i>	56	2	0.2	7			
	AMME	<i>Amsinckia menziesii</i>	56	2	0.2	11			
	DISP	<i>Distichlis spicata</i>	56	0.8	0.2	6			
	HOMU	<i>Hordeum murinum</i>	56	0.5	0.2	2			
	LEDI2	<i>Lepidium dictyotum</i>	56	0.4	0.2	3			
	BRDI3	<i>Bromus diandrus</i>	44	2	0.2	11			
	MEIN2	<i>Melilotus indicus</i>	44	1	0.2	6			
	CEPU14	<i>Centromadia pungens</i>	44	0.5	0.2	2			
	MEPO3	<i>Medicago polymorpha</i>	44	0.5	0.2	2			
	SCHIS	<i>Schismus sp.</i>	33	0.2	0.2	1			
	LASE	<i>Lactuca serriola</i>	33	0.1	0.2	0.2			
	LACA7	<i>Lasthenia californica</i>	33	0.1	0.2	0.2			
	BRMA3	<i>Bromus madritensis</i>	22	3	0.2	26			
	CESO3	<i>Centaurea solstitialis</i>	22	1	0.2	9			
	VUBR	<i>Vulpia bromoides</i>	22	0.6	0.2	5			
	HODE2	<i>Hordeum depressum</i>	22	0.5	0.2	4			
SPERG2	<i>Spergularia sp.</i>	22	0.3	0.2	2				
PUSI	<i>Puccinellia simplex</i>	22	0.2	0.2	2				
Non-vasc									
	2MOSS	Unknown Moss	56	2	0.2	14			

***Isocoma acradenia*–*Suaeda nigra* Provisional Association**

Samples used to describe type: 12

Local Environmental Table:

Elevation: range 48 - 91, average 77 m

Total vegetation cover: range 29 - 91 %, average 76 %

Tree cover: 0 %

Shrub cover: range 4 - 32 %, average 14 %

Herb cover: range 20 - 87 %, average 63 %

Percent native cover relative to non-native cover: 44 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: CDFG 2005, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	ISAC2	<i>Isocoma acradenia</i>	100	8	0.2	19	X	X	
	SUMO	<i>Suaeda nigra</i>	100	5	0.2	14	X		X
Herb									
	CEPU14	<i>Centromadia pungens</i>	100	12	1	28	X		
	BRMA3	<i>Bromus madritensis</i>	92	11	4	20	X		
	VUMY	<i>Vulpia myuros</i>	92	4	0.2	16	X		
	MEIN2	<i>Melilotus indicus</i>	83	5	0.2	20	X		
	LASE	<i>Lactuca serriola</i>	83	1	0.2	11	X		
	BRHO2	<i>Bromus hordeaceus</i>	75	11	3	26	X		
	LAGL4	<i>Lasthenia glabrata</i>	67	2	1	10			
	BRDI3	<i>Bromus diandrus</i>	58	5	0.2	25			
	LEDI2	<i>Lepidium dictyotum</i>	58	1	0.2	6			
	SCHIS	<i>Schismus</i> sp.	50	2	0.2	18			
	AMME	<i>Amsinckia menziesii</i>	50	0.4	0.2	2			
	SPAR	<i>Spergula arvensis</i>	50	0.1	0.2	0.2			
	BACA21	<i>Bassia californica</i>	33	1	0.2	10			
	HOMU	<i>Hordeum murinum</i>	33	1	1	7			
	HOJU	<i>Hordeum jubatum</i>	33	0.4	0.2	2			
	DISP	<i>Distichlis spicata</i>	33	0.1	0.2	1			
	CUSCU	<i>Cuscuta</i> sp.	33	0.1	0.2	0.2			
	RUCR	<i>Rumex crispus</i>	25	0.1	0.2	1			
	HECU3	<i>Heliotropium curassavicum</i>	25	0.1	0.2	0.2			
	SOOL	<i>Sonchus oleraceus</i>	25	0.1	0.2	0.2			

***Lepidospartum squamatum* Alliance (Scale broom scrub)**

Lepidospartum squamatum is characteristically present to dominant in the shrub canopy, often occurring with *Baccharis salicifolia*, *Artemisia californica*, *Nicotiana glauca*, and others. The canopy is open to continuous, and the herbaceous layer is variable and may be grassy. Stands occur on intermittently or rarely flooded, low-gradient alluvial deposits along streams, washes, and fans.

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 162 - 793, average 289 m
 Total vegetation cover: range 16 - 50 %, average 40 %
 Tree cover: range 0 - 0.2 %, average 0.04%
 Shrub cover: range 12 - 27 %, average 20%
 Herb cover: range 5 - 37 %, average 19%
 Percent native cover relative to non-native cover: 61 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz et al. 2011a, Buck-Diaz et al. 2011b, CDFG 2005, CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	LESQ	<i>Lepidospartum squamatum</i>	100	20	9	26	X	X	
	BASA4	<i>Baccharis salicifolia</i>	60	0.6	0.2	2			
	ARCA11	<i>Artemisia californica</i>	60	0.1	0.2	0.2			
	NIGL	<i>Nicotiana glauca</i>	60	0.1	0.2	0.2			
	TAGA	<i>Tamarix gallica</i>	40	0.1	0.2	0.2			
Herb	SCHIS	<i>Schismus</i> sp.	80	8	3	20	X		X
	BRMA3	<i>Bromus madritensis</i>	80	1	1	3	X		
	MEIN2	<i>Melilotus indicus</i>	80	1	1	2	X		
	BRNI	<i>Brassica nigra</i>	60	3	1	13			
	AMBRO	<i>Ambrosia</i> sp.	60	2	2	3			
	HIIN3	<i>Hirschfeldia incana</i>	60	0.4	0.2	1			
	SATR12	<i>Salsola tragus</i>	40	0.6	1	2			
	AMME	<i>Amsinckia menziesii</i>	40	0.4	1	1			
	ERCI6	<i>Erodium cicutarium</i>	40	0.2	0.2	1			
	HECU3	<i>Heliotropium curassavicum</i>	40	0.2	0.2	1			
	POMA10	<i>Polypogon maritimus</i>	40	0.2	0.2	1			
	ASCLE	<i>Asclepias</i> sp.	40	0.1	0.2	0.2			
	BRRU2	<i>Bromus rubens</i>	20	0.4	2	2			
	CESO3	<i>Centaurea solstitialis</i>	20	0.4	2	2			
	VUMY	<i>Vulpia myuros</i>	20	0.4	2	2			
	POLYP2	<i>Polypogon</i> sp.	20	0.2	1	1			

Association(s) Defined: *Lepidospartum squamatum*/Mixed Ephemeral Annuals
Lepidospartum squamatum–*Baccharis salicifolia*

***Lepidospartum squamatum*/Mixed Ephemeral Annuals Association**

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 162- 163, average 163 m

Total vegetation cover: range 38 - 50 %, average 45 %

Tree cover: 0 %

Shrub cover: range 26 - 27 %, average 26.3 %

Herb cover: range 12 - 24 %, average 18 %

Percent native cover relative to non-native cover: 64 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz et al. 2011a, Buck-Diaz et al. 2011b, CDFG 2005, Barbour and Wirka 1997, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	LESQ	<i>Lepidospartum squamatum</i>	100	26	25	26	X	X	
	ARCA11	<i>Artemisia californica</i>	67	0.1	0.2	0.2			
	NIGL	<i>Nicotiana glauca</i>	67	0.1	0.2	0.2			
	TAGA	<i>Tamarix gallica</i>	67	0.1	0.2	0.2			
	BASA4	<i>Baccharis salicifolia</i>	33	0.1	0.2	0.2			
Herb	SCHIS	<i>Schismus</i> sp.	100	11	3	20	X	X	
	BRMA3	<i>Bromus madritensis</i>	100	1	1	2	X		
	AMBRO	<i>Ambrosia</i> sp.	67	2	2	3			
	BRNI	<i>Brassica nigra</i>	67	1	1	2			
	MEIN2	<i>Mellilotus indicus</i>	67	1	1	2			
	HIIN3	<i>Hirschfeldia incana</i>	67	0.4	0.2	1			
	POMA10	<i>Polypogon maritimus</i>	67	0.4	0.2	1			
	VUMY	<i>Vulpia myuros</i>	33	0.7	2	2			
	AMME	<i>Amsinckia menziesii</i>	33	0.3	1	1			
	SATR12	<i>Salsola tragus</i>	33	0.3	1	1			
	ASCLE	<i>Asclepias</i> sp.	33	0.1	0.2	0.2			
	BRDI3	<i>Bromus diandrus</i>	33	0.1	0.2	0.2			
	CHAMA15	<i>Chamaesyce</i> sp.	33	0.1	0.2	0.2			
	CRSE11	<i>Croton setigerus</i>	33	0.1	0.2	0.2			
	ERGR6	<i>Eriogonum gracillimum</i>	33	0.1	0.2	0.2			
	ERCI6	<i>Erodium cicutarium</i>	33	0.1	0.2	0.2			
	GNAPH	<i>Gnaphalium</i> sp.	33	0.1	0.2	0.2			
	HELIA3	<i>Helianthus</i> sp.	33	0.1	0.2	0.2			
	HECU3	<i>Heliotropium curassavicum</i>	33	0.1	0.2	0.2			
	HOMA2	<i>Hordeum marinum</i>	33	0.1	0.2	0.2			
	RUCR	<i>Rumex crispus</i>	33	0.1	0.2	0.2			
	SOOL	<i>Sonchus oleraceus</i>	33	0.1	0.2	0.2			

***Lepidospartum squamatum*–*Baccharis salicifolia* Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 162 - 793, average 478 m
 Total vegetation cover: range 16 - 50 %, average 33 %
 Tree cover: range 0 - 0.2 %, average 0.1%
 Shrub cover: range 12 - 13 %, average 12 %
 Herb cover: range 5 - 37 %, average 21 %
 Percent native cover relative to non-native cover: 55 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011b, CDFG 2005, CDFG-CNPS 2008, Klein and Evens 2005, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	LESQ	<i>Lepidospartum squamatum</i>	100	11	9	12	X	X	
	BASA4	<i>Baccharis salicifolia</i>	100	2	1	2	X		
	ARTR2	<i>Artemisia tridentata</i>	50	0.5	1	1			
Herb	MEIN2	<i>Melilotus indicus</i>	100	1	1	1	X		
	BRNI	<i>Brassica nigra</i>	50	7	13	13			
	SCHIS	<i>Schismus</i> sp.	50	4	8	8			
	AMBRO	<i>Ambrosia</i> sp.	50	2	3	3			
	BRMA3	<i>Bromus madritensis</i>	50	2	3	3			
	BRRU2	<i>Bromus rubens</i>	50	1	2	2			
	CESO3	<i>Centaurea solstitialis</i>	50	1	2	2			
	SATR12	<i>Salsola tragus</i>	50	1	2	2			
	AMME	<i>Amsinckia menziesii</i>	50	0.5	1	1			
	ERCI6	<i>Erodium cicutarium</i>	50	0.5	1	1			
	HECU3	<i>Heliotropium curassavicum</i>	50	0.5	1	1			
	HIIN3	<i>Hirschfeldia incana</i>	50	0.5	1	1			
	POLYP2	<i>Polypogon</i> sp.	50	0.5	1	1			

Lotus scoparius Alliance (Deer weed scrub)

Lotus scoparius is dominant in the shrub canopy, often occurring with *Eriodictyon californicum*, *Adenostoma fasciculatum*, *Lupinus albifrons*, and *Mimulus aurantiacus* ssp. *aurantiacus*. Emergent *Quercus agrifolia* may be present. The shrub canopy is open to intermittent and often two-tiered. The herbaceous layer is sparse. Stands occur in areas with recent disturbance such as clearing, fire, or intermittent flooding.

Samples used to describe type: 8

Local Environmental Table:

Elevation: range 5 - 166, average 68 m
 Total vegetation cover: range 28 - 63 %, average 41 %
 Tree cover: range 0 - 0.2 %, average 0.1%
 Shrub cover: range 10 - 37 %, average 20%
 Herb cover: range 4 - 67 %, average 33%
 Percent native cover relative to non-native cover: 69%

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: Buck-Diaz and Evens 2011b, CDFG-CNPS 2008, CNPS Chapter 1993-2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUAG	<i>Quercus agrifolia</i>	38	0.1	0.2	0.2			
Shrub									
	LOSC2	<i>Lotus scoparius</i>	100	17	10	20	X	X	
	ERCA6	<i>Eriodictyon californicum</i>	63	7	0.2	22			
	ADFA	<i>Adenostoma fasciculatum</i>	50	4	0.2	17			
	LUAL4	<i>Lupinus albifrons</i>	38	0.1	0.2	0.2			
	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	25	0.1	0.2	0.2			
Herb									
	BRRU2	<i>Bromus rubens</i>	63	9	0.2	38			
	VUMY	<i>Vulpia myuros</i>	63	1	1	3			
	HESC2	<i>Helianthemum scoparium</i>	50	1	0.2	7			
	BRDI3	<i>Bromus diandrus</i>	38	6	0.2	38			
	ERBO	<i>Erodium botrys</i>	38	4	0.2	20			
	ERNU3	<i>Eriogonum nudum</i>	38	0.4	0.2	3			
	HEGR7	<i>Heterotheca grandiflora</i>	38	0.4	0.2	3			
	BRHO2	<i>Bromus hordeaceus</i>	38	0.3	0.2	1			
	LOGA2	<i>Logfia gallica</i>	38	0.1	0.2	0.2			
	LUBI	<i>Lupinus bicolor</i>	25	3	3	20			
	VIVI	<i>Vicia villosa</i>	25	1	0.2	10			
	CLUN	<i>Clarkia unguiculata</i>	25	0.1	0.2	0.2			
	GICA5	<i>Gilia capitata</i>	25	0.1	0.2	0.2			
	HYGL2	<i>Hypochaeris glabra</i>	25	0.1	0.2	0.2			

	LOUNU	<i>Lotus unifoliolatus</i> var. <i>unifoliolatus</i>	25	0.1	0.2	0.2
	MICA7	<i>Minuartia californica</i>	25	0.1	0.2	0.2
	OEDE2	<i>Oenothera deltoides</i>	25	0.1	0.2	0.2
	PSLU6	<i>Pseudognaphalium luteoalbum</i>	25	0.1	0.2	0.2
	TRGR2	<i>Trifolium gracilentum</i>	25	0.1	0.2	0.2
	VUBR	<i>Vulpia bromoides</i>	25	0.1	0.2	0.2
Non-vasc						
	2MOSS	Unknown Moss	38	2	2	7

Association(s) defined: *Lotus scoparius*

***Lotus scoparius* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011b, CDFG-CNPS 2008, CNPS Chapter 1993-2007, Keeler-Wolf and Evens 2006, Kittel et al. 2009, Sawyer et al. 2009

Lupinus albifrons Alliance (Silver bush lupine scrub)

Lupinus albifrons is dominant in the shrub canopy, often occurring with *Lotus scoparius* and *Senecio flaccidus*. Emergent *Quercus lobata* may be present. The shrub canopy is open, and the herbaceous layer is open to intermittent with seasonal annuals. Stands occur on steep, dry slopes and rocky alluvial sites.

Samples used to describe type: 9

Local Environmental Table:

Elevation: range 2 - 1012, average 180 m
 Total vegetation cover: range 16 - 88 %, average 46 %
 Tree cover: range 0 - 1 %, average 0.18 %
 Shrub cover: range 8 - 48 %, average 20 %
 Herb cover: range 5 - 92 %, average 38 %
 Percent native cover relative to non-native cover: 54 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Kittel et al. 2009, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	22	0.2	0.4	1			
Shrub									
	LUAL4	<i>Lupinus albifrons</i>	100	15	8	38	X	X	
	LOSC2	<i>Lotus scoparius</i>	56	5	0.2	20			
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	78	3	0.2	13	X		
	BRDI3	<i>Bromus diandrus</i>	67	10	1	38			
	BRRU2	<i>Bromus rubens</i>	56	11	0.2	88			
	VUMY	<i>Vulpia myuros</i>	56	2	0.2	8			
	ERBO	<i>Erodium botrys</i>	44	1	0.2	10			
	BRMA3	<i>Bromus madritensis</i>	33	2	1	12			
	GICA5	<i>Gilia capitata</i>	33	2	0.2	10			
	CRCA5	<i>Croton californicus</i>	33	0.4	0.2	3			
	HEGR7	<i>Heterotheca grandiflora</i>	33	0.4	0.2	3			
	OEDE2	<i>Oenothera deltooides</i>	33	0.4	0.2	3			
	HIIN3	<i>Hirschfeldia incana</i>	33	0.2	0.2	1			
	LASE	<i>Lactuca serriola</i>	33	0.1	0.2	0.2			
	CYDA	<i>Cynodon dactylon</i>	22	2	4	16			
	VIVI	<i>Vicia villosa</i>	22	0.7	3	3			
	CLUN	<i>Clarkia unguiculata</i>	22	0.4	0.2	3			

Association(s) defined: *Lupinus albifrons*

***Lupinus albifrons* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Keeler-Wolf et al. 2003a, Kittel et al. 2009, Sawyer et al. 2009

Mimulus aurantiacus Alliance (Bush monkeyflower scrub)

Mimulus aurantiacus is dominant in the shrub canopy, often occurring with *Toxicodendron diversilobum*, *Eriodictyon californicum*, *Arctostaphylos viscida*, and others. Emergent *Quercus wislizeni* and *Pinus sabiniana* may be present. The shrub canopy is open to intermittent and two tiered at <2 m and <5 m. The herbaceous layer is open to intermittent. Stands occur on somewhat steep, northerly slopes. Soils are typically shallow loams.

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 61 - 107, average 76 m
 Total vegetation cover: range 35 - 55 %, average 42 %
 Tree cover: range 3 - 8 %, average 5 %
 Shrub cover: range 30 - 54 %, average 38 %
 Herb cover: range 1 - 6 %, average 3 %
 Percent native cover relative to non-native cover: 92 %

Location(s) Sampled: Northeast Great Valley

References: CDFG-CNPS 2008, Keeler-Wolf and Evens 2006, Kittel et al. 2009, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	QUWI2	<i>Quercus wislizeni</i>	100	5	2	8	X	X	
	PISA2	<i>Pinus sabiniana</i>	67	0.7	1	1			
Shrub	DIAUA	<i>Mimulus aurantiacus</i> ssp. <i>aurantiacus</i>	100	31	24	40	X	X	
	TODI	<i>Toxicodendron diversilobum</i>	67	6	2	17			
	ERCA6	<i>Eriodictyon californicum</i>	33	1	3	3			
	ARVI4	<i>Arctostaphylos viscida</i>	33	0.3	1	1			
	BACCH	<i>Baccharis</i> sp.	33	0.3	1	1			
	ADFA	<i>Adenostoma fasciculatum</i>	33	0.1	0.2	0.2			
	BAPI	<i>Baccharis pilularis</i>	33	0.1	0.2	0.2			
	HEAR5	<i>Heteromeles arbutifolia</i>	33	0.1	0.2	0.2			
	LOSC2	<i>Lotus scoparius</i>	33	0.1	0.2	0.2			
	Herb	VUMY	<i>Vulpia myuros</i>	100	1	1	2	X	
BRRU2		<i>Bromus rubens</i>	100	0.5	0.2	1	X		
BRDI3		<i>Bromus diandrus</i>	33	1	3	3			
BRHO2		<i>Bromus hordeaceus</i>	33	0.7	2	2			
AICA		<i>Aira caryophylla</i>	33	0.1	0.2	0.2			
ANCA14		<i>Anthriscus caucalis</i>	33	0.1	0.2	0.2			
DICA14		<i>Dichelostemma capitatum</i>	33	0.1	0.2	0.2			
HYGL2		<i>Hypochaeris glabra</i>	33	0.1	0.2	0.2			
LOTUS		<i>Lotus</i> sp.	33	0.1	0.2	0.2			

	MICA7	<i>Minuartia californica</i>	33	0.1	0.2	0.2		
	PETR7	<i>Pentagramma triangularis</i>	33	0.1	0.2	0.2		
Non-vasc								
	2MOSS	Unknown Moss	100	2	0.2	5	X	X
	2LICHN	Unknown Lichen	67	1	0.2	3		

Association(s) defined: *Mimulus aurantiacus*

***Mimulus aurantiacus* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, Keeler-Wolf and Evens 2006, Kittel et al. 2009, Sawyer et al. 2009

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

Pluchea sericea is dominant in the shrub canopy, often occurring with *Sambucus nigra*, *Nicotiana glauca*, *Atriplex lentiformis*, and *Baccharis salicifolia*. Emergent *Populus fremontii* and *Salix gooddingii* may be present. The shrub canopy is intermittent to continuous, and the herbaceous layer is sparse with seasonal annuals. Stands occur in riparian areas with seasonal and intermittent flooding in the study area.

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 169- 169, average 169 m
 Total vegetation cover: range 55 - 57 %, average 56 %
 Tree cover: range 0 - 5 %, average 3 %
 Shrub cover: range 50 - 55 %, average 52 %
 Herb cover: range 1 - 9 %, average 5 %
 Percent native cover relative to non-native cover: 93 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	50	2	3	3			
	SAGO	<i>Salix gooddingii</i>	50	1	2	2			
Shrub									
	PLSE	<i>Pluchea sericea</i>	100	41	35	47	X	X	
	SANI4	<i>Sambucus nigra</i>	100	8	8	8	X		
	NIGL	<i>Nicotiana glauca</i>	100	1	1	1	X		
	ATLE	<i>Atriplex lentiformis</i>	50	6	12	12			
	BASA4	<i>Baccharis salicifolia</i>	50	1	2	2			
Herb									
	BRDI3	<i>Bromus diandrus</i>	50	1	2	2			
	BRRU2	<i>Bromus rubens</i>	50	1	2	2			
	LETR5	<i>Leymus triticooides</i>	50	1	2	2			
	AMME	<i>Amsinckia menziesii</i>	50	0.5	1	1			
	ERCI6	<i>Erodium cicutarium</i>	50	0.5	1	1			
	HECU3	<i>Heliotropium curassavicum</i>	50	0.5	1	1			
	SCHIS	<i>Schismus</i> sp.	50	0.5	1	1			

Association(s) defined: *Pluchea sericea*

***Pluchea sericea* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, Keeler-Wolf and Thomas 2000, Sawyer et al. 2009

***Prunus virginiana* Alliance (Choke cherry thickets)**

Prunus virginiana is dominant in the shrub canopy, occurring with *Sambucus nigra* and *Ribes quercetorum*. The canopy is continuous, and the herbaceous layer is sparse. Stands occur on rock outcrops, draws, and stream terraces.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 970 m

Total vegetation cover: 74 %

Tree cover: 0 %

Shrub cover: 14 %

Herb cover: 5 %

Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Southwest Great Valley

References: CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	PRVI	<i>Prunus virginiana</i>	100	65	65	65	X	X	
	SANI4	<i>Sambucus nigra</i>	100	10	10	10	X		
	RIQU	<i>Ribes quercetorum</i>	100	4	4	4	X		
Herb									
	URDI	<i>Urtica dioica</i>	100	3	3	3	X	X	
	SCCA2	<i>Scrophularia californica</i>	100	1	1	1	X		
	BRDI3	<i>Bromus diandrus</i>	100	0.2	0.2	0.2	X		
	BRRU2	<i>Bromus rubens</i>	100	0.2	0.2	0.2	X		
	VUMY	<i>Vulpia myuros</i>	100	0.2	0.2	0.2	X		

Association defined: *Prunus virginiana* Provisional

***Prunus virginiana* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008

***Ribes quercetorum* Alliance (Oak gooseberry thickets)**

Ribes quercetorum is dominant in the shrub canopy, often occurring with *Sambucus nigra* and *S. racemosa* var. *melanocarpa*. Emergent *Aesculus californica* and *Quercus douglasii* may be present. The shrub canopy is intermittent and two-tiered, and the herbaceous layer is open or grassy. Stands occur in uplands, often on protected northerly slopes and concavities.

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 723- 868, average 796 m
 Total vegetation cover: range 43 - 53 %, average 48 %
 Tree cover: range 0 - 4 %, average 2 %
 Shrub cover: range 20 - 25 %, average 22 %
 Herb cover: range 6 - 18 %, average 12 %
 Percent native cover relative to non-native cover: 90 %

Location(s) Sampled: Southwest Great Valley

References: CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	AECA	<i>Aesculus californica</i>	50	4	8	8			
	QUDO	<i>Quercus douglasii</i>	50	2	4	4			
Shrub									
	RIQU	<i>Ribes quercetorum</i>	100	22	20	24	X	X	
	SANI4	<i>Sambucus nigra</i>	50	8	16	16			
	SARAM4	<i>Sambucus racemosa</i> var. <i>melanocarpa</i>	50	3	6	6			
Herb									
	BRRU2	<i>Bromus rubens</i>	100	4	2	6	X		X
	SCCA2	<i>Scrophularia californica</i>	100	0.2	0.2	0.2	X		
	SELAG	<i>Selaginella</i>	50	4	8	8			
	SOUM	<i>Solanum umbelliferum</i>	50	2	4	4			
	MAVU	<i>Marrubium vulgare</i>	50	2	3	3			
Non-vasc									
	2MOSS	Unknown Moss	50	10	20	20			

Association(s) defined: *Ribes quercetorum*

***Ribes quercetorum* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008

Rosa californica Alliance (California rose briar patches)

Rosa californica is dominant in the shrub canopy, often occurring with *Salix exigua*, *Rubus ursinus*, *Artemisia californica*, and others. Emergent *Quercus lobata* and *Populus fremontii* may be present. The shrub canopy is open to continuous and may be two-tiered, and the herbaceous layer is open. Stands occur at creek bottoms, stream terraces, and bordering sloughs and channels. Soils typically are mixed alluvium.

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 7 - 162, average 79 m
 Total vegetation cover: range 14 - 91 %, average 58 %
 Tree cover: range 0 - 0.2 %, average 5 %
 Shrub cover: range 4 - 91 %, average 43 %
 Herb cover: range 5 - 50 %, average 20 %
 Percent native cover relative to non-native cover: 82 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	50	0.1	0.2	0.2			
	POFR2	<i>Populus fremontii</i>	25	0.1	0.2	0.2			
Shrub									
	ROCA2	<i>Rosa californica</i>	100	42	4	90	X	X	
	SAEX	<i>Salix exigua</i>	50	1	0.2	5			
	RUUR	<i>Rubus ursinus</i>	50	0.3	0.2	1			
	ARCA11	<i>Artemisia californica</i>	25	4	15	15			
	VICA5	<i>Vitis californica</i>	25	2	7	7			
	BAPI	<i>Baccharis pilularis</i>	25	0.1	0.2	0.2			
	SANI4	<i>Sambucus nigra</i>	25	0.1	0.2	0.2			
Herb									
	URDI	<i>Urtica dioica</i>	50	10	0.2	40			
	CABA4	<i>Carex barbarae</i>	50	2	1	5			
	CYPEXX	<i>Cyperaceae</i>	25	2	7	7			
	BRMA3	<i>Bromus madritensis</i>	25	0.8	3	3			
	NIAC	<i>Nicotiana acuminata</i>	25	0.8	3	3			
	HOMU	<i>Hordeum murinum</i>	25	0.5	2	2			
	MAVU	<i>Marrubium vulgare</i>	25	0.5	2	2			
	SATR12	<i>Salsola tragus</i>	25	0.5	2	2			
	ANCA14	<i>Anthriscus caucalis</i>	25	0.3	1	1			
	DAWR2	<i>Datura wrightii</i>	25	0.3	1	1			
	AMME	<i>Amsinckia menziesii</i>	25	0.1	0.2	0.2			
	BRDI3	<i>Bromus diandrus</i>	25	0.1	0.2	0.2			
	SIIR	<i>Sisymbrium irio</i>	25	0.1	0.2	0.2			

URUR *Urtica urens*

25 0.1 0.2 0.2

Association(s) defined: *Rosa californica*

***Rosa californica* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, GIC 2011, Keeler-Wolf and Evens 2006, Kittel et al. 2009, Sawyer et al. 2009

Rubus (parviflorus, spectabilis, ursinus) Alliance (Coastal brambles)

In the one stand sampled in the study area, *Ribes aureum* is dominant in the shrub canopy, often occurring with *Rubus ursinus*, *Salix exigua*, and *Salix nigra*. Emergent *Acer negundo* may be present. The shrub canopy is intermittent to continuous, and the herbaceous layer is sparse. This stand occurred on a flat sub-riparian area as a small patch.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 9 m

Total vegetation cover: 53 %

Tree cover: 11 %

Shrub cover: 48 %

Herb cover: 7 %

Percent native cover relative to non-native cover: 93 %

Location(s) Sampled: Southwest Great Valley

References: CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	ACNE2	<i>Acer negundo</i>	100	3	3	3	X	X	
Shrub									
	RIAU	<i>Ribes aureum</i>	100	40	40	40	X	X	
	RUUR	<i>Rubus ursinus</i>	100	15	15	15	X		
	SAEX	<i>Salix exigua</i>	100	6	6	6	X		
	SANI4	<i>Sambucus nigra</i>	100	2	2	2	X		
Herb									
	BRDI3	<i>Bromus diandrus</i>	100	4	4	4	X	X	
	LETR5	<i>Leymus triticooides</i>	100	2	2	2	X		X
	ANCA14	<i>Anthriscus caucalis</i>	100	0.2	0.2	0.2	X		
	SIMA3	<i>Silybum marianum</i>	100	0.2	0.2	0.2	X		

Association(s) defined: *Ribes aureum*

***Ribes aureum* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008

***Rubus armeniacus* Semi-Natural Stands (Himalayan black berry brambles)**

The non-native, invasive *Rubus armeniacus* is dominant in the shrub canopy, often occurring with *Vitis californica*. Emergent *Quercus lobata* may be present. The canopy is intermittent to continuous, and the herbaceous layer is open to intermittent. Stands occur in wastelands, pastures, forest plantations, and along roadsides, streams, river flats, fence lines, and right-of-way corridors.

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 16 - 183, average 118 m
 Total vegetation cover: range 41 - 90 %, average 68 %
 Tree cover: range 0 - 3 %, average 0.8%
 Shrub cover: range 0 - 90 %, average 54 %
 Herb cover: range 2 - 68 %, average 16 %
 Percent native cover relative to non-native cover: 9 %

Location(s) Sampled: Northeast and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	33	0.7	1	3			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	100	52	10	90	X	X	
	VICA5	<i>Vitis californica</i>	33	3	0.2	20			
Herb									
	PHAM4	<i>Phytolacca americana</i>	50	0.2	0.2	1			
	ARDO3	<i>Artemisia douglasiana</i>	50	0.1	0.2	0.2			
	VUMY	<i>Vulpia myuros</i>	33	0.7	2	2			
	BRDI3	<i>Bromus diandrus</i>	33	0.2	0.2	1			
	BRHO2	<i>Bromus hordeaceus</i>	33	0.2	0.2	1			
	URUR	<i>Urtica urens</i>	33	0.2	0.2	1			
	VETH	<i>Verbascum thapsus</i>	33	0.2	0.2	1			
	HYPE	<i>Hypericum perforatum</i>	33	0.1	0.2	0.2			
	SOHA	<i>Sorghum halepense</i>	33	0.1	0.2	0.2			
	VEBL	<i>Verbascum blattaria</i>	33	0.1	0.2	0.2			
Non-vasc									
	2MOSS	Unknown Moss	33	0.4	0.2	2			

Stand Type(s) defined: *Rubus armeniacus*

***Rubus armeniacus* Stand Type**

Since only one stand type was defined for the semi-natural stands in the study area, its description is the same as the semi-natural stand information above.

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Salix exigua Alliance (Sandbar willow thickets)

Salix exigua is dominant in the shrub canopy, often occurring with *Rubus armeniacus* and *Cephalanthus occidentalis*. Emergent trees may be present, including *Salix gooddingii*, *S. lasiolepis*, *Populus fremontii*, *Alnus rhombifolia*, and *Acer negundo*. The shrub canopy is intermittent to continuous, and the herbaceous layer is variable. Stands occur in temporarily flooded floodplains, depositions along rivers and streams, and at springs.

Two stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 124

Local Environmental Table:

Elevation: range 0 - 183, average 40 m
 Total vegetation cover: range 5 – 100 %, average 53 %
 Tree cover: range 0 - 65 %, average 3 %
 Shrub cover: range 1 - 80 %, average 34 %
 Herb cover: range 0 - 52 %, average 6 %
 Percent native cover relative to non-native cover: 80 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	SAGO	<i>Salix gooddingii</i>	44	1	0.2	10			
	SALA6	<i>Salix lasiolepis</i>	39	6	0.2	77			
	POFR2	<i>Populus fremontii</i>	37	0.5	0.2	8			
	ALRH2	<i>Alnus rhombifolia</i>	24	0.7	0.2	11			
	ACNE2	<i>Acer negundo</i>	24	0.2	0.2	5			
Shrub	SAEX	<i>Salix exigua</i>	97	29	0.2	85	X	X	
	RUAR9	<i>Rubus armeniacus</i>	43	10	0.2	70			
	CEOC2	<i>Cephalanthus occidentalis</i>	27	1	0.2	37			
Herb	ARDO3	<i>Artemisia douglasiana</i>	41	0.9	0.2	15			
	BRDI3	<i>Bromus diandrus</i>	24	0.7	0.2	38			
	HIIN3	<i>Hirschfeldia incana</i>	23	0.2	0.2	10			

Association(s) Defined: *Salix exigua*

Salix exigua(–*Salix lasiolepis*)–*Rubus armeniacus*

Salix exigua–*Salix melanopsis*

Salix exigua Association

Samples used to describe type: 61

Local Environmental Table:

Elevation: range 3 - 183, average 55 m
Total vegetation cover: range 10 - 81 %, average 42 %
Tree cover: range 0 - 29 %, average 1 %
Shrub cover: range 1 - 80 %, average 31 %
Herb cover: range 0 - 52 %, average 9 %
Percent native cover relative to non-native cover: 83 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Kittel et al. 2009, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SAGO	<i>Salix gooddingii</i>	52	0.9	0.2	9			
	POFR2	<i>Populus fremontii</i>	36	0.4	0.2	7			
	ACNE2	<i>Acer negundo</i>	28	0.2	0.2	4			
	SALA6	<i>Salix lasiolepis</i>	23	0.4	0.2	4			
Shrub									
	SAEX	<i>Salix exigua</i>	100	32	5	79	X	X	
	RUAR9	<i>Rubus armeniacus</i>	26	0.4	0.2	4			
Herb									
	ARDO3	<i>Artemisia douglasiana</i>	56	2	0.2	15			
	BRDI3	<i>Bromus diandrus</i>	31	1	0.2	38			
	HIIN3	<i>Hirschfeldia incana</i>	30	0.3	0.2	10			
	CYDA	<i>Cynodon dactylon</i>	26	0.6	0.2	11			
	XAST	<i>Xanthium strumarium</i>	23	0.2	0.2	2			

***Salix exigua*(–*Salix lasiolepis*)–*Rubus armeniacus* Association**

Samples used to describe type: 45

Local Environmental Table:

Elevation: range 0 - 122, average 17 m

Total vegetation cover: range 28 - 100 %, average 76 %

Tree cover: range 0 - 65 %, average 7 %

Shrub cover: range 4 - 80 %, average 44 %

Herb cover: range 0 - 30 %, average 3 %

Percent native cover relative to non-native cover: 71 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SALA6	<i>Salix lasiolepis</i>	62	16	0.2	77			
	ALRH2	<i>Alnus rhombifolia</i>	60	2	0.2	11			
	SAGO	<i>Salix gooddingii</i>	36	1	0.2	10			
	POFR2	<i>Populus fremontii</i>	27	0.5	0.2	8			
	JUHI	<i>Juglans hindsii</i>	24	0.4	0.2	7			
	ACNE2	<i>Acer negundo</i>	24	0.3	0.2	5			
Shrub									
	SAEX	<i>Salix exigua</i>	98	31	2	85	X		X
	RUAR9	<i>Rubus armeniacus</i>	82	26	1	70	X		X
	CEOC2	<i>Cephalanthus occidentalis</i>	47	2	0.2	37			
	VICA5	<i>Vitis californica</i>	36	0.7	0.2	15			
	ROCA2	<i>Rosa californica</i>	33	6	0.2	66			
	RUUR	<i>Rubus ursinus</i>	33	4	1	40			
Herb									
	ARDO3	<i>Artemisia douglasiana</i>	24	0.4	0.2	6			

Salix exigua–Salix melanopsis Association

Samples used to describe type: 16

Local Environmental Table:

Elevation: range 15 - 122, average 54 m
 Total vegetation cover: range 5 - 49 %, average 27 %
 Tree cover: range 0 - 28 %, average 1 %
 Shrub cover: range 5 - 48 %, average 19 %
 Herb cover: range 0 - 10 %, average 3 %
 Percent native cover relative to non-native cover: 88 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: GIC 2011, Sawyer et al. 2009, Vaghti 2003

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	69	0.6	0.2	3			
	SALA6	<i>Salix lasiolepis</i>	38	0.6	0.2	5			
	SAGO	<i>Salix gooddingii</i>	31	0.7	0.2	6			
	SALUL	<i>Salix lucida</i> ssp. <i>lasiandra</i>	25	0.3	0.2	4			
Shrub									
	SAME2	<i>Salix melanopsis</i>	100	11	0.2	30	X	X	
	SAEX	<i>Salix exigua</i>	81	9	0.2	44	X		X
Herb									
	XAST	<i>Xanthium strumarium</i>	50	0.2	0.2	2			
	ARDO3	<i>Artemisia douglasiana</i>	38	0.1	0.2	1			
	SOHA	<i>Sorghum halepense</i>	38	0.1	0.2	0.2			
	HIIN3	<i>Hirschfeldia incana</i>	31	0.3	0.2	4			
	POMO5	<i>Polypogon monspeliensis</i>	25	0.2	0.2	2			
	EPBR3	<i>Epilobium brachycarpum</i>	25	0.1	0.2	1			
	ECCR	<i>Echinochloa crus-galli</i>	25	0.1	0.2	0.2			

***Salix lasiolepis* Alliance (Arroyo willow thickets)**

Salix lasiolepis is dominant in the shrub or low tree canopy alone or occurring with *Rubus armeniacus*, *Salix exigua*, *Populus fremontii*, *Alnus rhombifolia*, and others. The canopy is open to continuous, and the herbaceous layer is variable. Stands occur on stream banks and benches, slope seeps, and stringers along drainages.

Samples used to describe type: 26

Local Environmental Table:

Elevation: range 0 - 197, average 44 m
 Total vegetation cover: range 25 - 100 %, average 64 %
 Tree cover: range 0 - 78 %, average 11 %
 Shrub cover: range 0.2 - 80 %, average 29 %
 Herb cover: range 0 - 32 %, average 6 %
 Percent native cover relative to non-native cover: 81 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Buck-Diaz and Evens 2011a, CDFG 2005, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Keeler-Wolf et al. 2003b, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	SALA6	<i>Salix lasiolepis</i>	100	41	7	80	X	X	
	POFR2	<i>Populus fremontii</i>	38	0.5	0.2	8			
	ALRH2	<i>Alnus rhombifolia</i>	31	0.7	0.2	70			
	SAGO	<i>Salix gooddingii</i>	31	0.3	0.2	3			
	QULO	<i>Quercus lobata</i>	31	0.2	0.2	3			
Shrub	RUAR9	<i>Rubus armeniacus</i>	54	11	1	80			
	SAEX	<i>Salix exigua</i>	54	1	0.2	7			
	CEOC2	<i>Cephalanthus occidentalis</i>	35	2	0.2	29			
	RUUR	<i>Rubus ursinus</i>	27	0.8	0.2	10			
	VICA5	<i>Vitis californica</i>	23	2	0.2	26			
Herb	ARDO3	<i>Artemisia douglasiana</i>	31	0.2	0.2	2			

Association(s) Defined: *Salix lasiolepis*
Salix lasiolepis/Rubus armeniacus

Salix lasiolepis Association

Samples used to describe type: 11

Local Environmental Table:

Elevation: range 0 - 197, average 37 m

Total vegetation cover: range 37 - 100 %, average 72 %

Tree cover: range 0 - 56 %, average 8 %

Shrub cover: range 0.2- 76 %, average 22 %

Herb cover: range 0 - 32 %, average 4 %

Percent native cover relative to non-native cover: 96 %

Location(s) Sampled: Northwest and Southeast Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG 2005, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SALA6	<i>Salix lasiolepis</i>	100	54	20	80	X	X	
	SALUL	<i>Salix lucida</i> ssp. <i>lasiandra</i>	36	3	0.2	25			
	POFR2	<i>Populus fremontii</i>	36	0.9	0.2	8			
	ALRH2	<i>Alnus rhombifolia</i>	36	0.3	0.2	10			
	SAGO	<i>Salix gooddingii</i>	36	0.2	0.2	1			
	ACNE2	<i>Acer negundo</i>	27	0.6	0.2	6			
	QULO	<i>Quercus lobata</i>	27	0.1	0.2	0.2			
Shrub									
	SAEX	<i>Salix exigua</i>	55	0.5	0.2	3			
	RUUR	<i>Rubus ursinus</i>	45	2	0.2	10			
	CEOC2	<i>Cephalanthus occidentalis</i>	36	3	0.2	29			
	ROCA2	<i>Rosa californica</i>	27	2	0.2	25			
	HOMA4	<i>Hoita macrostachya</i>	27	0.5	0.2	5			
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	27	0.2	0.2	2			
	ARDO3	<i>Artemisia douglasiana</i>	27	0.1	0.2	0.2			
	CYER	<i>Cyperus eragrostis</i>	27	0.1	0.2	0.2			
	LASE	<i>Lactuca serriola</i>	27	0.1	0.2	0.2			

Salix lasiolepis/Rubus armeniacus Association

Samples used to describe type: 15

Local Environmental Table:

Elevation: range 0 - 183, average 50 m
 Total vegetation cover: range 25 - 90 %, average 59 %
 Tree cover: range 0 - 78 %, average 13 %
 Shrub cover: range 10 - 80 %, average 35 %
 Herb cover: range 0 - 25 %, average 6 %
 Percent native cover relative to non-native cover: 70 %

Location(s) Sampled: Northeast and Northwest Great Valley, Northern California Interior Coast Ranges Ecoregion

References: GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Keeler-Wolf et al. 2003a, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SALA6	<i>Salix lasiolepis</i>	100	31	7	72	X	X	
	POFR2	<i>Populus fremontii</i>	40	0.3	0.2	2			
	QULO	<i>Quercus lobata</i>	33	0.4	0.2	3			
	PLRA	<i>Platanus racemosa</i>	33	0.2	0.2	2			
	ALRH2	<i>Alnus rhombifolia</i>	27	0.9	10	70			
	FRLA	<i>Fraxinus latifolia</i>	27	0.6	0.2	5			
	SAGO	<i>Salix gooddingii</i>	27	0.3	0.2	3			
	JUHI	<i>Juglans hindsii</i>	27	0.1	0.2	1			
Shrub									
	RUAR9	<i>Rubus armeniacus</i>	93	18	1	80	X	X	
	SAEX	<i>Salix exigua</i>	53	2	0.2	7			
	VICA5	<i>Vitis californica</i>	33	3	0.2	26			
	CEOC2	<i>Cephalanthus occidentalis</i>	33	0.7	0.2	8			
Herb									
	ARDO3	<i>Artemisia douglasiana</i>	33	0.3	0.2	2			
	CYDA	<i>Cynodon dactylon</i>	27	1	1	5			
	CABA4	<i>Carex barbarae</i>	27	0.2	0.2	1			

***Sambucus nigra* Alliance (Blue elderberry stands)**

Sambucus nigra is dominant in the shrub canopy, often occurring with *Rubus armeniacus*, *R. ursinus*, *Rosa californica*, and *Salix exigua*. Emergent *Fraxinus latifolia* may be present. The shrub canopy is open to continuous, and the herbaceous layer is variable and usually grassy. Stands are often found in riparian areas, including banks and terraces along streams.

Two stands showed additional variation and were classified to the alliance level only, found bordering along sloughs.

Samples used to describe type: 11

Local Environmental Table:

Elevation: range 0 - 155, average 76 m
 Total vegetation cover: range 27 - 85 %, average 53 %
 Tree cover: range 0 - 15 %, average 3 %
 Shrub cover: range 10 - 82 %, average 35 %
 Herb cover: range 2 - 55 %, average 17 %
 Percent native cover relative to non-native cover: 68 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	FRLA	<i>Fraxinus latifolia</i>	36	2	1	12			
Shrub									
	SANI4	<i>Sambucus nigra</i>	100	29	5	70	X	X	
	RUAR9	<i>Rubus armeniacus</i>	45	5	2	33			
	ROCA2	<i>Rosa californica</i>	27	3	2	30			
	SAEX	<i>Salix exigua</i>	27	2	0.2	15			
	RUUR	<i>Rubus ursinus</i>	27	0.7	0.2	5			
Herb									
	BRDI3	<i>Bromus diandrus</i>	45	5	0.2	39			
	HIIN3	<i>Hirschfeldia incana</i>	45	1	0.2	8			
	LETR5	<i>Leymus triticoides</i>	27	3	0.2	30			
	CESO3	<i>Centaurea solstitialis</i>	27	1	0.2	10			
	COMA2	<i>Conium maculatum</i>	27	0.7	0.2	7			
	BRHO2	<i>Bromus hordeaceus</i>	27	0.5	0.2	4			
	DAWR2	<i>Datura wrightii</i>	27	0.1	0.2	0.2			

Association(s) Defined: *Sambucus nigra*

***Sambucus nigra* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, Evens and San 2005, GIC 2011, Sawyer et al. 2009

***Suaeda nigra* Alliance (Bush seepweed scrub)**

Suaeda nigra is dominant in the shrub canopy. The canopy is open to continuous, and the herbaceous layer is sparse to intermittent. Stands occur on flat to gently sloping valley bottoms, playas, toe slopes adjacent to alluvial fans, and bajadas. Soils are deep and saline or alkaline, often in alkali sinks and depressions associated with grasslands and vernal pools.

Samples used to describe type: 39

Local Environmental Table:

Elevation: range 13 - 174, average 69 m

Total vegetation cover: range 25 - 95 %, average 69 %

Tree cover: range 0 - 1 %, average 0.03%

Shrub cover: range 0 - 38 %, average 11 %

Herb cover: range 5 - 92 %, average 58 %

Percent native cover relative to non-native cover: 49 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Buck and Evens 2011a, CDFG 2004, CDFG 2005, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	SUMO	<i>Suaeda nigra</i>	100	10	2	37	X	X	
	ISAC2	<i>Isocoma acradenia</i>	38	0.6	0.2	6			
Herb	BRMA3	<i>Bromus madritensis</i>	85	7	0.2	28	X		
	VUMY	<i>Vulpia myuros</i>	79	11	0.2	45	X		
	BRHO2	<i>Bromus hordeaceus</i>	74	13	0.2	50			
	LEDI2	<i>Lepidium dictyotum</i>	69	2	0.2	12			
	FRSA	<i>Frankenia salina</i>	59	1	0.2	17			
	DISP	<i>Distichlis spicata</i>	56	2	0.2	10			
	AMME	<i>Amsinckia menziesii</i>	56	0.7	0.2	5			
	CEPU14	<i>Centromadia pungens</i>	51	5	0.2	28			
	LASE	<i>Lactuca serriola</i>	51	0.2	0.2	2			
	BRDI3	<i>Bromus diandrus</i>	49	5	0.2	35			
	HOMA2	<i>Hordeum marinum</i>	46	3	0.2	28			
	ERCI6	<i>Erodium cicutarium</i>	36	3	0.2	20			
	HOJU	<i>Hordeum jubatum</i>	36	2	0.2	15			
	LAGL4	<i>Lasthenia glabrata</i>	36	1	0.2	24			
	MEIN2	<i>Melilotus indicus</i>	36	0.8	0.2	13			
	HODE2	<i>Hordeum depressum</i>	33	3	0.2	55			
	SCHIS	<i>Schismus</i> sp.	28	2	0.2	20			
	DICA14	<i>Dichelostemma capitatum</i>	26	0.1	0.2	1			
	ERBO	<i>Erodium botrys</i>	23	1	2	10			
	BACA21	<i>Bassia californica</i>	23	0.8	0.2	20			
	JUBU	<i>Juncus bufonius</i>	23	0.4	0.2	9			
	CRASS	<i>Crassula</i> sp.	23	0.3	0.2	2			

Association(s) defined: *Suaeda nigra/Lepidium dictyotum*

***Suaeda nigra/Lepidium dictyotum* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck and Evens 2011a, CDFG 2004, CDFG 2005, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007

Tamarix spp. Semi-Natural Stands (Tamarisk thickets)

Tamarix of one or more species is dominant in the shrub canopy. Co-occurring species include *Atriplex lentiformis*, *Isocoma acradenia*, and *Allenrolfea occidentalis*. The canopy is continuous or open, and the herbaceous layer is sparse. Stands are found on arroyo margins, lake margins, ditches, washes, rivers, and other watercourses.

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 60 - 197, average 115 m
 Total vegetation cover: range 31 - 85 %, average 61 %
 Tree cover: range 0 - 40 %, average 12 %
 Shrub cover: range 2 - 26 %, average 12 %
 Herb cover: range 0 - 63 %, average 36 %
 Percent native cover relative to non-native cover: 43 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	TAGA	<i>Tamarix gallica</i>	70	13	6	38			
	ATLE	<i>Atriplex lentiformis</i>	40	0.4	0.2	3			
	ISAC2	<i>Isocoma acradenia</i>	40	0.2	0.2	1			
	ALOC2	<i>Allenrolfea occidentalis</i>	30	0.7	1	4			
	GRCA	<i>Grindelia camporum</i>	30	0.1	0.2	1			
	TARA	<i>Tamarix ramosissima</i>	20	3	13	19			
	SUMO	<i>Suaeda nigra</i>	20	0.2	1	1			
Herb									
	FRSA	<i>Frankenia salina</i>	70	9	2	26			
	LASE	<i>Lactuca serriola</i>	70	0.1	0.2	0.2			
	AMME	<i>Amsinckia menziesii</i>	60	7	0.2	35			
	BRMA3	<i>Bromus madritensis</i>	60	4	0.2	15			
	MEIN2	<i>Melilotus indicus</i>	60	0.4	0.2	2			
	BAHY	<i>Bassia hyssopifolia</i>	40	3	0.2	31			
	VUMY	<i>Vulpia myuros</i>	40	3	1	23			
	DISP	<i>Distichlis spicata</i>	40	2	1	11			
	CESO3	<i>Centaurea solstitialis</i>	30	1	0.2	6			
	MANE	<i>Malva neglecta</i>	30	0.1	0.2	0.2			
	COCA5	<i>Conyza canadensis</i>	20	0.5	0.2	5			
	POLYP2	<i>Polypogon</i> sp.	20	0.4	2	2			
	HOMU	<i>Hordeum murinum</i>	20	0.3	0.2	3			
	SCHIS	<i>Schismus</i> sp.	20	0.3	0.2	3			
	MALE3	<i>Malvella leprosa</i>	20	0.3	1	2			

Stand Type(s) defined: *Tamarix* spp.

***Tamarix* spp. Stand Type**

Since only one stand type was defined for the semi-natural stands in the study area, its description is the same as the semi-natural stand information above.

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011

***Toxicodendron diversilobum* Alliance (Poison oak scrub)**

Toxicodendron diversilobum is dominant in the shrub canopy. Emergent *Quercus wislizeni* may be present. The shrub canopy is intermittent to continuous and two-tiered. The herbaceous layer is variable. Stands occur on sheltered mesic and disturbed dry slopes (e.g., burned sites).

Samples used to describe type: 1

Local Environmental Table:

Elevation: 183 m

Total vegetation cover: 60 %

Tree cover: 0.2 %

Shrub cover: 20 %

Herb cover: 43 %

Percent native cover relative to non-native cover: 34 %

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QUWI2	<i>Quercus wislizeni</i>	100	0.2	0.2	0.2	X	X	
Shrub									
	TODI	<i>Toxicodendron diversilobum</i>	100	20	20	20	X	X	
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	15	15	15	X		X
	BRDI3	<i>Bromus diandrus</i>	100	13	13	13	X		
	TOAR	<i>Torilis arvensis</i>	100	12	12	12	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	2	2	2	X		
	BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	100	1	1	1	X		
	CLPU2	<i>Clarkia purpurea</i>	100	1	1	1	X		
	GEMO	<i>Geranium molle</i>	100	1	1	1	X		
	PLCI	<i>Plectritis ciliosa</i>	100	1	1	1	X		
	TRHI4	<i>Trifolium hirtum</i>	100	1	1	1	X		
	VUBR	<i>Vulpia bromoides</i>	100	1	1	1	X		
	AICA	<i>Aira caryophyllea</i>	100	0.2	0.2	0.2	X		
	AVBA	<i>Avena barbata</i>	100	0.2	0.2	0.2	X		
	CLPE	<i>Claytonia perfoliata</i>	100	0.2	0.2	0.2	X		
	TRDU2	<i>Trifolium dubium</i>	100	0.2	0.2	0.2	X		
	TRMI4	<i>Trifolium microcephalum</i>	100	0.2	0.2	0.2	X		

Association(s) defined: *Toxicodendron diversilobum*/Herbaceous

***Toxicodendron diversilobum*/Herbaceous Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Klein et al. 2007, Sawyer et al. 2009

***Vitis californica* Provisional Alliance (California grape thickets)**

Vitis californica is dominant in the shrub canopy, often occurring with *Sambucus nigra*, *Rubus armeniacus*, *Ficus carica*, and others. Commonly considered a liana and member of riparian tree alliances, *Vitis californica* may occur independent of taller support trees with the same stature as a shrub. Emergent *Acer negundo*, *Juglans hindsii*, *Populus fremontii*, *Quercus lobata*, and *Salix gooddingii* are often present. The shrub canopy is open to continuous, and the herbaceous layer is sparse to intermittent with riparian herbs such as *Artemisia douglasiana*.

Samples used to describe type: 11

Local Environmental Table:

Elevation: range 12 - 172, average 48 m
 Total vegetation cover: range 38 - 91 %, average 62 %
 Tree cover: range 0 - 18 %, average 3 %
 Shrub cover: range 2 - 92 %, average 51 %
 Herb cover: range 0 - 40 %, average 8 %
 Percent native cover relative to non-native cover: 88 %

Location(s) Sampled: Northeast, Northwest, and Southwest Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	ACNE2	<i>Acer negundo</i>	73	1	0.2	6			
	JUHI	<i>Juglans hindsii</i>	55	0.9	0.2	3			
	POFR2	<i>Populus fremontii</i>	45	0.7	0.2	4			
	QULO	<i>Quercus lobata</i>	36	0.3	0.2	10			
	SAGO	<i>Salix gooddingii</i>	27	0.1	0.2	1			
Shrub									
	VICA5	<i>Vitis californica</i>	100	44	12	81	X	X	
	SANI4	<i>Sambucus nigra</i>	64	5	0.2	25			
	RUAR9	<i>Rubus armeniacus</i>	55	2	0.2	18			
	FICA	<i>Ficus carica</i>	36	2	0.2	17			
	CEOC2	<i>Cephalanthus occidentalis</i>	36	0.7	0.2	5			
	RUUR	<i>Rubus ursinus</i>	27	3	2	22			
Herb									
	ARDO3	<i>Artemisia douglasiana</i>	45	3	0.2	35			

Association(s) defined: *Vitis californica* Provisional

***Vitis californica* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, GIC 2011

C. Herbaceous Types

Achnatherum hymenoides Alliance (Indian rice grass grassland)

In the one stand sampled of this type in the study area, *Achnatherum hymenoides* is characteristic in the herbaceous layer, occurring with *Erodium cicutarium*, *Bromus diandrus*, *Lessingia glandulifera*, and others. Emergent *Atriplex spinifera* is present at low cover. In the state of California, *A. hymenoides* may be dominant or codominant with natives such as *Elymus elymoides* and *Hesperostipa comata* or non-natives such as *Bromus* spp. Herbs are <1.5 m, and cover is open to intermittent. Stands are found on all topographic locations. Soils are sandy and mainly derived from aeolian deposits. This type is rare in the study area, and more information is necessary to define association(s) from this region.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 407 m

Total vegetation cover: 68 %

Tree cover: 0 %

Shrub cover: 0.2 %

Herb cover: 68 %

Percent native cover relative to non-native cover: 25 %

Location(s) Sampled: Southwest Great Valley

References: Evens et al. 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ATSP	<i>Atriplex spinifera</i>	100	0.2	0.2	0.2	X	X	
Herb	ERCI6	<i>Erodium cicutarium</i>	100	40	40	40	X	X	
	ACHY	<i>Achnatherum hymenoides</i>	100	12	12	12	X		
	BRDI3	<i>Bromus diandrus</i>	100	5	5	5	X		
	LEGL18	<i>Lessingia glandulifera</i>	100	2	2	2	X		
	BRMA3	<i>Bromus madritensis</i>	100	1	1	1	X		
	AMME	<i>Amsinckia menziesii</i>	100	0.2	0.2	0.2	X		
	ERAN3	<i>Eriogonum angulosum</i>	100	0.2	0.2	0.2	X		
	LOWR2	<i>Lotus wrangelianus</i>	100	0.2	0.2	0.2	X		
	MAEX	<i>Madia exigua</i>	100	0.2	0.2	0.2	X		
	MILI5	<i>Microseris lindleyi</i>	100	0.2	0.2	0.2	X		
	OEDE2	<i>Oenothera deltooides</i>	100	0.2	0.2	0.2	X		
	RUHY	<i>Rumex hymenosepalus</i>	100	0.2	0.2	0.2	X		
	VUMY	<i>Vulpia myuros</i>	100	0.2	0.2	0.2	X		

Association(s) Defined: None

***Amsinckia (menziesii, tessellata)* Alliance (Fiddleneck fields)**

An *Amsinckia* spp. or *Phacelia* spp. is dominant or co-dominant in the herb layer with *Erodium cicutarium*, *Hordeum murinum*, *Bromus diandrus*, and others. Herbs are <1 m, and cover is intermittent to continuous. Stands occur on upland slopes and foothills, broad valleys, grazed or recently burned hills, and fallow fields. Soils are well drained and loamy, and they are often subject to high levels of bioturbation.

Samples used to describe type: 21

Local Environmental Table:

Elevation: range 27 - 441, average 113m

Total vegetation cover: range 20 - 100%, average 61%

Tree cover: 0%

Shrub cover: range 0 - 3%, average 0.2%

Herb cover: range 20 - 100%, average 62%

Percent native cover relative to non-native cover: 42%

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, Gennet 2008, GIC 2011, Klein and Evens 2005, Sawyer et al. 2009, Solomeshch 2004

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	AMME	<i>Amsinckia menziesii</i>	86	20	3	65	X		
	ERC16	<i>Erodium cicutarium</i>	67	3	0.2	35			
	HOMU	<i>Hordeum murinum</i>	67	3	0.2	20			
	BRDI3	<i>Bromus diandrus</i>	62	5	0.2	35			
	VUMY	<i>Vulpia myuros</i>	48	8	0.2	69			
	BRHO2	<i>Bromus hordeaceus</i>	48	3	1	20			
	LASE	<i>Lactuca serriola</i>	38	0.2	0.2	2			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	29	2	0.2	40			
	BRMA3	<i>Bromus madritensis</i>	29	2	0.2	20			
	AVFA	<i>Avena fatua</i>	24	4	0.2	80			
	ERBO	<i>Erodium botrys</i>	24	2	0.2	25			
	BRRU2	<i>Bromus rubens</i>	24	0.3	0.2	4			

Association(s) Defined: *Amsinckia menziesii*
Phacelia tanacetifolia Provisional

***Amsinckia menziesii* Association**

Samples used to describe type: 19

Local Environmental Table:

Elevation: range 27 - 441, average 107 m

Total vegetation cover: range 20 - 100 %, average 63 %

Tree cover: 0 %

Shrub cover: range 0 - 3 %, average 0.2%

Herb cover: range 20 - 100 %, average 63 %

Percent native cover relative to non-native cover: 39 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, Gennet 2008, GIC 2011, Klein and Evens 2005, Sawyer et al. 2009, Solomeshch 2004

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	AMME	<i>Amsinckia menziesii</i>	89	22	3	65	X		X
	HOMU	<i>Hordeum murinum</i>	74	3	0.2	20			
	ERIC6	<i>Erodium cicutarium</i>	68	4	0.2	35			
	BRDI3	<i>Bromus diandrus</i>	63	5	0.2	35			
	VUMY	<i>Vulpia myuros</i>	53	9	0.2	69			
	BRHO2	<i>Bromus hordeaceus</i>	53	3	1	20			
	LASE	<i>Lactuca serriola</i>	37	0.2	0.2	2			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	32	2	0.2	40			
	BRMA3	<i>Bromus madritensis</i>	32	2	0.2	20			
	AVFA	<i>Avena fatua</i>	26	4	0.2	80			
	ERBO	<i>Erodium botrys</i>	26	2	0.2	25			

***Phacelia tanacetifolia* Provisional Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 107 - 244, average 180 m

Total vegetation cover: range 30 - 60%, average 45%

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 30 - 60%, average 45 %

Percent native cover relative to non-native cover: 80%

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	PHTA	<i>Phacelia tanacetifolia</i>	50	25	50	50			
	PHDI	<i>Phacelia distans</i>	50	8	16	16			
	BRDI3	<i>Bromus diandrus</i>	50	6	13	13			
	AMME	<i>Amsinckia menziesii</i>	50	3	5	5			
	LAPE	<i>Layia pentachaeta</i>	50	2	3	3			
	BRBE6	<i>Bromus berterioanus</i>	50	0.5	1	1			

Anemopsis californica Alliance (Yerba mansa meadows)

For the three occurrences of this type sampled in the study area, *Anemopsis californica* is dominant in the herbaceous layer, often occurring with *Carex* spp., *Leymus triticoides*, and *Urtica dioica*. In the state of California, *A. californica* is dominant or codominant in the herbaceous layer with *Ambrosia psilostachya*, *Bromus hordeaceus*, *Carex praegracilis*, and others. Herbs are <1 m tall, and the cover is intermittent to continuous. Stands occur in alkaline or saline meadows, marshes, seeps, floodplains, and stream terraces.

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 106-558, average 258 m
Total vegetation cover: range 49 - 65 %, average 59%
Tree cover: 0 %
Shrub cover: 0 %
Herb cover: range 49 - 70 %, average 61 %
Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: CDFG-CNPS 2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	ANCA10	<i>Anemopsis californica</i>	100	47	30	55	X	X	
	CAREX	<i>Carex</i> sp.	33	5	15	15			
	CAPR5	<i>Carex praegracilis</i>	33	5	15	15			
	LETR5	<i>Leymus triticoides</i>	33	3	10	10			
	URDI	<i>Urtica dioica</i>	33	1	3	3			

Association(s) Defined: *Anemopsis californica* Provisional

Anemopsis californica Provisional Association

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008

***Artemisia douglasiana* Provisional Alliance (Douglas's mugwort patches)**

Artemisia douglasiana is dominant in the herbaceous layer, occurring with *Hirschfeldia incana*, *Urtica dioica*, *Euthamia occidentalis*, and others. This species is common in riparian areas and forms patches in floodplains, active and inactive river channels, levees, and similar areas; some sites have decadent shrubs and trees while the herbs are still persisting. Herbs are <1.5 m tall, and the cover is open to continuous.

Samples used to describe type: 8

Local Environmental Table:

Elevation: range 6 - 140, average 50. m
Total vegetation cover: range 16 - 63 %, average 34 %
Tree cover: range 0 - 6 %, average 0.8 %
Shrub cover: range 0 - 1 %, average 0.2 %
Herb cover: range 16 - 60 %, average 33 %
Percent native cover relative to non-native cover: 82 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	SANI4	<i>Sambucus nigra</i>	38	0.2	0.2	1			
Herb	ARDO3	<i>Artemisia douglasiana</i>	100	27	6	56	X	X	
	HIIN3	<i>Hirschfeldia incana</i>	50	1	0.2	4			
	URDI	<i>Urtica dioica</i>	38	1	0.2	6			
	ANCA14	<i>Anthriscus caucalis</i>	38	0.7	0.2	5			
	VUMY	<i>Vulpia myuros</i>	38	0.5	0.2	3			
	GRIND	<i>Grindelia</i> sp.	25	0.6	1	4			
	EUOC4	<i>Euthamia occidentalis</i>	25	0.4	0.2	3			
	CESO3	<i>Centaurea solstitialis</i>	25	0.3	0.2	2			
	EPILO	<i>Epilobium</i> sp.	25	0.3	0.2	2			
	LASE	<i>Lactuca serriola</i>	25	0.3	0.2	2			
	XAST	<i>Xanthium strumarium</i>	25	0.3	0.2	2			
	POLYG4	<i>Polygonum</i> sp.	25	0.2	0.2	1			

Association(s) Defined: *Artemisia douglasiana* Provisional

***Artemisia douglasiana* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, GIC 2011

***Arthrocnemum subterminale* Alliance (Parish's glasswort patches)**

In the one occurrence sampled of this type in the study area, *Arthrocnemum subterminale* is dominant in the herbaceous layer, occurring with *Distichlis spicata*, *Bromus hordeaceus*, *Hordeum marinum*, and others. Emergent *Suaeda nigra* is present at low cover. In the state of California, *A. subterminale* is dominant or codominant in the subshrub and herbaceous layers, often occurring with *Atriplex patula*, *Atriplex prostrata*, *Batis maritima*, and other plants. Shrubs and herbs are <50 cm, and cover is open to intermittent. Stands occur in coastal and inland salt marshes.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 28 m
 Total vegetation cover: 32 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: 32 %
 Percent native cover relative to non-native cover: 84 %

Location(s) Sampled: Southwest Great Valley

References: Evens and San 2005, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	SUMO	<i>Suaeda nigra</i>	100	0.2	0.2	0.2	X	X	
Herb	ARSU11	<i>Arthrocnemum subterminale</i>	100	22	22	22	X	X	
	DISP	<i>Distichlis spicata</i>	100	6	6	6	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	3	3	3	X		
	HOMA2	<i>Hordeum marinum</i>	100	1	1	1	X		
	ATRO	<i>Atriplex rosea</i>	100	0.2	0.2	0.2	X		
	BAHY	<i>Bassia hyssopifolia</i>	100	0.2	0.2	0.2	X		
	BRDI3	<i>Bromus diandrus</i>	100	0.2	0.2	0.2	X		
	CEPU14	<i>Centromadia pungens</i>	100	0.2	0.2	0.2	X		
	FRSA	<i>Frankenia salina</i>	100	0.2	0.2	0.2	X		
	LASE	<i>Lactuca serriola</i>	100	0.2	0.2	0.2	X		
	SOOL	<i>Sonchus oleraceus</i>	100	0.2	0.2	0.2	X		
	SPMA10	<i>Spergularia maritima</i>	100	0.2	0.2	0.2	X		

Association(s) Defined: *Arthrocnemum subterminale* Provisional

***Arthrocnemum subterminale* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Evens and San 2005, GIC 2011, Sawyer et al. 2009

Arundo donax Semi-Natural Stands (Giant reed breaks)

Arundo donax is strongly dominant (>80% relative cover) in the herbaceous layer, often occurring with *Bromus diandrus*, *Artemisia douglasiana*, and others. Emergent *Salix exigua*, *S. gooddingii*, *Populus fremontii*, and *Acer negundo*, may be present. Herbs are <8 m, and cover is continuous. Stands occur in riparian areas, along low-gradient streams, ditches, and coastal or valley marshes.

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 3 - 91 , average 39 m
 Total vegetation cover: range 12 - 92 %, average 50 %
 Tree cover: range 0 - 4 %, average 0.8 %
 Shrub cover: range 0 - 38 %, average 8 %
 Herb cover: range 0.2- 92 %, average 36 %
 Percent native cover relative to non-native cover: 12 %

Location(s) Sampled: All Great Valley

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Keeler-Wolf and Evens 2006, Sawyer et al. 2009, Vaghti 2003

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	SAGO	<i>Salix gooddingii</i>	30	0.1	0.2	1			
	POFR2	<i>Populus fremontii</i>	20	0.6	0.2	6			
	ACNE2	<i>Acer negundo</i>	20	0.3	1	2			
Shrub	SAEX	<i>Salix exigua</i>	50	2	0.4	10			
	RUUR	<i>Rubus ursinus</i>	20	0.5	0.2	5			
Herb	ARDO4	<i>Arundo donax</i>	100	43	8	92	X	X	
	BRDI3	<i>Bromus diandrus</i>	40	0.4	0.2	2			
	ARDO3	<i>Artemisia douglasiana</i>	30	3	0.2	25			
	VUMY	<i>Vulpia myuros</i>	30	0.1	0.2	1			
	XAST	<i>Xanthium strumarium</i>	30	0.1	0.2	1			

Stand Types(s) Defined: *Arundo donax*
Arundo donax–Salix exigua

Arundo donax Stand Type

Samples used to describe type: 8

Local Environmental Table:

Elevation: range 12 - 91 , average 46 m

Total vegetation cover: range 12 - 92 %, average 46 %

Tree cover: range 0 - 4 %, average 0.6 %

Shrub cover: range 0 - 38 %, average 9 %

Herb cover: range 0.2- 92 %, average 36 %

Percent native cover relative to non-native cover: 7 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: CDFG-CNPS 2008, GIC 2011, Keeler-Wolf and Evens 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	25	0.8	0.2	6			
Shrub									
	SAEX	<i>Salix exigua</i>	38	0.3	0.4	1			
Herb									
	ARDO4	<i>Arundo donax</i>	100	43	8	92	X	X	
	BRDI3	<i>Bromus diandrus</i>	50	0.6	0.2	2			
	VUMY	<i>Vulpia myuros</i>	38	0.2	0.2	1			
	XAST	<i>Xanthium strumarium</i>	38	0.2	0.2	1			

Arundo donax–Salix exigua Stand Type

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 3 - 17 , average 10 m
 Total vegetation cover: range 58 - 77 %, average 67 %
 Tree cover: range 0 - 3 %, average 2 %
 Shrub cover: range 2 - 5 %, average 4 %
 Herb cover: range 25 - 51 %, average 38 %
 Percent native cover relative to non-native cover: 32 %

Location(s) Sampled: Northeast and Southwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009, Vaghti 2003

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	JUHI	<i>Juglans hindsii</i>	50	1	2	2			
	ACNE2	<i>Acer negundo</i>	50	1	2	2			
	FRLA	<i>Fraxinus latifolia</i>	50	1	2	2			
	SAGO	<i>Salix gooddingii</i>	50	0.5	1	1			
Shrub									
	SAEX	<i>Salix exigua</i>	100	8	5	10	X	X	
	RUUR	<i>Rubus ursinus</i>	100	3	0.2	5	X		
	VICA5	<i>Vitis californica</i>	50	0.5	1	1			
Herb									
	ARDO4	<i>Arundo donax</i>	100	45	40	50	X	X	
	ARDO3	<i>Artemisia douglasiana</i>	100	13	0.2	25	X		
	LELA2	<i>Lepidium latifolium</i>	50	2	3	3			
	BRNI	<i>Brassica nigra</i>	50	0.5	1	1			

***Avena (barbata, fatua)* Semi-Natural Stands (Wild oats grasslands)**

Avena barbata and/or *Avena fatua* is dominant or co-dominant in the herbaceous layer, often occurring with *Bromus hordeaceus*, *Lolium perenne* ssp. *multiflorum*, *Erodium cicutarium*, and others. Herbs are <1.2m, and cover is open to continuous. Stands occur in rangelands, openings in woodlands, and disturbed areas. It potentially occurs across cismontane California on sedimentary and igneous parent materials at elevations below 5000 ft, especially where agriculture, hay, and cattle grazing have been introduced (Evens and San 2004). This semi-natural type is closely related to the *Bromus (diandrus, hordeaceus)* Semi-Natural Stands. Further research and analysis may show them to be better described as a single alliance characterized by a combination of both *Avena* and *B. hordeaceus*. The distinguishing features of both are that they contain little cover of any diagnostic native herbaceous annual species and are thus distinguished by the overwhelming presence of these non-native taxa.

Samples used to describe type: 20

Local Environmental Table:

Elevation: range 18 - 191 , average 106m
 Total vegetation cover: range 13 - 97 %, average 64 %
 Tree cover: 0 %
 Shrub cover: range 0 - 0.2 %, average 0.01%
 Herb cover: range 13 - 98 %, average 66 %
 Percent native cover relative to non-native cover: 8 %

Location(s) Sampled: All Great Valley

References: Barbour et al. 2003, CDFG 2005, CNPS Chapter 1993-2007, Evens and San 2004, Gennet 2008, GIC 2011, Klein et al. 2007, Parsons and Stohlgren 1989, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	BRHO2	<i>Bromus hordeaceus</i>	90	5	0.2	14	X		
	AVBA	<i>Avena barbata</i>	70	20	3	73			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	45	2	0.2	20			
	ERCI6	<i>Erodium cicutarium</i>	45	0.7	0.2	10			
	ACMO2	<i>Achyrachaena mollis</i>	40	0.2	0.2	2			
	LASE	<i>Lactuca serriola</i>	35	0.3	0.2	4			
	AVFA	<i>Avena fatua</i>	30	20	56	86			
	ERBO	<i>Erodium botrys</i>	30	7	0.2	90			
	TACA8	<i>Taeniatherum caput-medusae</i>	30	3	0.2	25			
	BRDI3	<i>Bromus diandrus</i>	30	2	0.2	24			
	MEPO3	<i>Medicago polymorpha</i>	30	1	0.2	20			
	HOMA2	<i>Hordeum marinum</i>	30	0.5	0.2	7			
	BRMA3	<i>Bromus madritensis</i>	30	0.5	0.2	5			
	CLPU2	<i>Clarkia purpurea</i>	30	0.4	0.2	5			
	HYGL2	<i>Hypochaeris glabra</i>	30	0.2	0.2	3			
	TRLA16	<i>Triteleia laxa</i>	25	0.8	0.2	10			
	TRHI4	<i>Trifolium hirtum</i>	25	0.5	0.2	3			

	AMME	<i>Amsinckia menziesii</i>	25	0.3	0.2	5
	AICA	<i>Aira caryophylla</i>	25	0.1	0.2	1
	DIMU5	<i>Dichelostemma multiflorum</i>	25	0.1	0.2	1
	LOGA2	<i>Logfia gallica</i>	25	0.1	0.2	1
	VUMY	<i>Vulpia myuros</i>	20	0.5	0.2	5
	CESO3	<i>Centaurea solstitialis</i>	20	0.4	0.2	5
	GAPA5	<i>Galium parisiense</i>	20	0.2	0.2	3
Non-vasc						
	2MOSS	Unknown Moss	20	0.8	0.2	10

Stand Types(s) Defined: *Avena barbata*
Avena fatua

***Avena barbata* Stand Type**

Samples used to describe type: 15

Local Environmental Table:

Elevation: range 42 - 191 , average 102 m

Total vegetation cover: range 13 - 97 %, average 56 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 13 - 98 %, average 59 %

Percent native cover relative to non-native cover: 8 %

Location(s) Sampled: All Great Valley

References: Barbour et al. 2003, CDFG 2005, CNPS Chapter 1993-2007, Gennet 2008, GIC 2011, Klein et al. 2007, Parsons and Stohlgren 1989, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	AVBA	<i>Avena barbata</i>	93	27	3	73	X		X
	BRHO2	<i>Bromus hordeaceus</i>	93	6	0.2	14	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	47	2	0.2	20			
	TACA8	<i>Taeniatherum caput-medusae</i>	40	4	0.2	25			
	LASE	<i>Lactuca serriola</i>	40	0.4	0.2	4			
	HYGL2	<i>Hypochaeris glabra</i>	40	0.3	0.2	3			
	ACMO2	<i>Achyrachaena mollis</i>	40	0.3	0.2	2			
	ERCI6	<i>Erodium cicutarium</i>	40	0.3	0.2	2			
	ERBO	<i>Erodium botrys</i>	33	10	2	90			
	TRHI4	<i>Trifolium hirtum</i>	33	0.6	0.2	3			
	CLPU2	<i>Clarkia purpurea</i>	33	0.5	0.2	5			
	HOMA2	<i>Hordeum marinum</i>	33	0.3	0.2	3			
	AICA	<i>Aira caryophylla</i>	33	0.2	0.2	1			
	DIMU5	<i>Dichelostemma multiflorum</i>	33	0.2	0.2	1			
	LOGA2	<i>Logfia gallica</i>	33	0.2	0.2	1			
	BRDI3	<i>Bromus diandrus</i>	27	0.7	0.2	8			
	GAPA5	<i>Galium parisiense</i>	27	0.2	0.2	3			
Non-vasc									
	2MOSS	Unknown Moss	27	1	0.2	10			

***Avena fatua* Stand Type**

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 18 - 179, average 118 m

Total vegetation cover: range 75 - 92 %, average 87 %

Tree cover: 0 %

Shrub cover: range 0 - 0.2 %, average 0.04%

Herb cover: range 75 - 93 %, average 88 %

Percent native cover relative to non-native cover: 7 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: CDFG 2005, Evens and San 2004, Gennet 2008, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	AVFA	<i>Avena fatua</i>	100	69	56	86	X	X	
	BRHO2	<i>Bromus hordeaceus</i>	80	1	0.2	3	X		
	ERCI6	<i>Erodium cicutarium</i>	60	2	0.2	10			
	BRMA3	<i>Bromus madritensis</i>	60	0.5	0.2	2			
	MEPO3	<i>Medicago polymorpha</i>	60	0.5	0.2	2			
	BRDI3	<i>Bromus diandrus</i>	40	5	0.2	24			
	TRLA16	<i>Triteleia laxa</i>	40	3	5	10			
	HOHE	<i>Holocarpha heermannii</i>	40	0.4	0.2	2			

***Azolla (filiculoides, mexicana)* Provisional Alliance (Mosquito fern mats)**

Azolla filiculoides or *A. mexicana* is characteristic and often dominant on the water surface (and the herbaceous layer), occurring with *Ludwigia peploides*, *Brasenia* sp., and algae. Herbs are 0.3—8 mm, and cover is open to continuous. Stands occur in seasonal and perennial freshwater habitats with still water or on ground surfaces after water levels have dropped.

Samples used to describe type: 9

Local Environmental Table:

Elevation: range 0 - 134, average 37 m
Total vegetation cover: range 30 - 95 %, average 78 %
Tree cover: range 0 - 0.2 %, average 0.02 %
Shrub cover: range 0 - 0.2 %, average 0.02 %
Herb cover: range 30 - 95 %, average 78 %
Percent native cover relative to non-native cover: 89 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: GIC 2011, Hickson and Keeler-Wolf 2007, Nature Serve et al. 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	AZFI	<i>Azolla filiculoides</i>	67	40	23	90			
	AZOLL	<i>Azolla</i> sp.	33	21	12	90			
	LUPE5	<i>Ludwigia peploides</i>	33	0.4	0.2	3			
	BRASE	<i>Brasenia</i> sp.	22	1	0.2	10			
Non-vasc									
	2ALGA	Unknown Algae	33	3	2	12			

Association(s) Defined: *Azolla (filiculoides, mexicana)* Provisional

***Azolla (filiculoides, mexicana)* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, Hickson and Keeler-Wolf 2007, Nature Serve et al. 2011

***Brasenia schreberi* Provisional Alliance (Schreber's watershield wetlands)**

Brasenia schreberi is the dominant plant species, while other floating and submerged aquatics may be present. Stands occur in a range of natural settings including ponds, delta riparian inlets, and riparian or lacustrine impoundments. In the two occurrences of this type sampled in the study area, *Brasenia schreberi* is dominant as an aquatic herb, occurring with *Azolla filiculoides*, *Eichhornia crassipes*, *Myriophyllum* sp., and other aquatic plants. Herbs are < 60 cm in size, and cover is open to continuous.

Samples used to describe type: 2

Local Environmental Table:

Elevation: average 0 m

Total vegetation cover: range 70 - 90 %, average 80 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 70 - 90 %, average 80 %

Percent native cover relative to non-native cover: 89 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, NatureServe 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRASE	<i>Brasenia</i> sp.	100	45	30	60	X	X	
	AZFI	<i>Azolla filiculoides</i>	100	8	3	12	X		
	EICR	<i>Eichhornia crassipes</i>	100	3	0.2	5	X		
	MYRIO	<i>Myriophyllum</i> sp.	100	0.2	0.2	0.2	X		
	CEDE4	<i>Ceratophyllum demersum</i>	50	15	30	30			
	EGDE	<i>Egeria densa</i>	50	15	30	30			
Non-vasc									
	2ALGA	Unknown Algae	50	36	72	72			

Association(s) Defined: *Brasenia schreberi* Western Herbaceous Provisional

***Brasenia schreberi* Western Herbaceous Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Hickson and Keeler-Wolf 2007, NatureServe 2011

***Brassica nigra* and Other Mustards Semi-Natural Stands (Upland mustards)**

In the three occurrences of this type sampled in the study area, a *Brassica* spp. (including *B. nigra*) or *Hirschfeldia incana* is dominant to co-dominant in the herbaceous layer, often occurring with *Amsinckia menziesii*, *Erodium cicutarium*, *Schismus* sp., and others. Emergent *Artemisia californica* may be present at sparse cover. In the state of California, *B. nigra* and other mustards are dominant in the herbaceous layer, and emergent shrubs and trees may be present at low cover. Herbs are <3 m, and cover is open to continuous. Stands occur in fallow fields, grasslands, disturbed scrublands, riparian areas, waste places, roadsides, and on levee slopes.

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 54 - 176, average 130 m

Total vegetation cover: range 45 - 68 %, average 54 %

Tree cover: 0 %

Shrub cover: range 0 - 2 %, average 0.7 %

Herb cover: range 43 - 68 %, average 54 %

Percent native cover relative to non-native cover: 7 %

Location(s) Sampled: Southwest Great Valley

References: CDFG 2005, GIC 2011, Keeler-Wolf and Evens 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ARCA11	<i>Artemisia californica</i>	33	0.3	1	1			
Herb	AMME	<i>Amsinckia menziesii</i>	100	0.5	0.2	1	X		
	HIIN3	<i>Hirschfeldia incana</i>	67	26	31	46			
	ERCI6	<i>Erodium cicutarium</i>	67	3	3	6			
	SCHIS	<i>Schismus</i> sp.	67	2	0.2	6			
	BRMA3	<i>Bromus madritensis</i>	67	1	1	2			
	VUMY	<i>Vulpia myuros</i>	67	0.1	0.2	0.2			
	BRNI	<i>Brassica nigra</i>	33	6	17	17			
	BRASS2	<i>Brassica</i> sp.	33	5	16	16			
	COMA2	<i>Conium maculatum</i>	33	2	5	5			
	AMBRO	<i>Ambrosia</i> sp.	33	1	3	3			
	HOMU	<i>Hordeum murinum</i>	33	1	3	3			
	SATR12	<i>Salsola tragus</i>	33	1	3	3			
	CESO3	<i>Centaurea solstitialis</i>	33	0.7	2	2			
	POLYP2	<i>Polypogon</i> sp.	33	0.7	2	2			
	TOAR	<i>Torilis arvensis</i>	33	0.7	2	2			
	AVFA	<i>Avena fatua</i>	33	0.3	1	1			
	SOLAN	<i>Solanum</i> sp.	33	0.3	1	1			

Stand Type(s) Defined: *Brassica nigra*
Hirschfeldia incana Provisional

***Brassica nigra* Stand Type**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 162 m

Total vegetation cover: 45 %

Tree cover: 0 %

Shrub cover: 2 %

Herb cover: 43 %

Percent native cover relative to non-native cover: 17 %

Location(s) Sampled: Southwest Great Valley

References: CDFG 2005, Keeler-Wolf and Evens 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	ARCA11	<i>Artemisia californica</i>	100	1	1	1	X	X	
	BASA4	<i>Baccharis salicifolia</i>	100	0.2	0.2	0.2	X		
	LESQ	<i>Lepidospartum squamatum</i>	100	0.2	0.2	0.2	X		
Herb									
	BRNI	<i>Brassica nigra</i>	100	17	17	17	X		X
	SCHIS	<i>Schismus</i> sp.	100	6	6	6	X		
	AMBRO	<i>Ambrosia</i> sp.	100	3	3	3	X		
	ERCI6	<i>Erodium cicutarium</i>	100	3	3	3	X		
	SATR12	<i>Salsola tragus</i>	100	3	3	3	X		
	BRMA3	<i>Bromus madritensis</i>	100	2	2	2	X		
	CESO3	<i>Centaurea solstitialis</i>	100	2	2	2	X		
	POLYP2	<i>Polypogon</i> sp.	100	2	2	2	X		
	AMME	<i>Amsinckia menziesii</i>	100	1	1	1	X		
	SOLAN	<i>Solanum</i> sp.	100	1	1	1	X		
	CRSE11	<i>Croton setigerus</i>	100	0.2	0.2	0.2	X		
	ERGR6	<i>Eriogonum gracillimum</i>	100	0.2	0.2	0.2	X		
	HECU3	<i>Heliotropium curassavicum</i>	100	0.2	0.2	0.2	X		
	MADIA	<i>Madia</i> sp.	100	0.2	0.2	0.2	X		
	TRLA4	<i>Trichostema lanceolatum</i>	100	0.2	0.2	0.2	X		
	VERBE	<i>Verbena</i> sp.	100	0.2	0.2	0.2	X		
	VUMY	<i>Vulpia myuros</i>	100	0.2	0.2	0.2	X		

***Hirschfeldia incana* Provisional Stand Type**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 54 - 176, average 115 m

Total vegetation cover: range 51 - 68 %, average 59 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 51 - 68 %, average 59 %

Percent native cover relative to non-native cover: 0.9 %

Location(s) Sampled: Southwest Great Valley

References: CDFG 2005, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	HIIN3	<i>Hirschfeldia incana</i>	100	39	31	46	X	X	
	AMME	<i>Amsinckia menziesii</i>	100	0.2	0.2	0.2	X		
	BRASS2	<i>Brassica</i> sp.	50	8	16	16			
	ERCI6	<i>Erodium cicutarium</i>	50	3	6	6			
	COMA2	<i>Conium maculatum</i>	50	3	5	5			
	HOMU	<i>Hordeum murinum</i>	50	2	3	3			
	TOAR	<i>Torilis arvensis</i>	50	1	2	2			
	AVFA	<i>Avena fatua</i>	50	0.5	1	1			
	BRMA3	<i>Bromus madritensis</i>	50	0.5	1	1			

***Bromus (diandrus, hordeaceus)*–*Brachypodium distachyon* Semi-Natural Stands (Annual brome grasslands)**

Bromus hordeaceus, *B. diandrus*, and *Erodium* spp. are dominant in the herbaceous layer, often occurring with *Hypochaeris glabra*, *Vulpia bromoides*, and others. Herbs are <75 cm, and cover is intermittent to continuous. Stands occur in all topographic settings in grassland foothills, waste places, rangelands, and openings in woodlands. Annual bromes are now considered “resident annuals” and permanent members of the broader category of “California Annual Grassland.” The associations in this type are coarser-level than others in this report. This underscores the shifting composition of relatively non-diagnostic alien and native species in associations of this semi-natural stands type. Further analysis with full species lists from field surveys, over a period of several seasons and years in permanent plots, are needed to understand the relationships between the component vegetation associations of this type and other similar associations in the *Avena (barbata, fatua)* Semi-Natural Stands type.

Three stands showed additional variation and were classified to the alliance level only, instead of a specific association.

Samples used to describe type: 254

Local Environmental Table:

Elevation: range 0 - 244, average 66 m
 Total vegetation cover: range 12 - 100 %, average 68 %
 Tree cover: range 0 - 5 %, average 0.05 %
 Shrub cover: range 0 - 5 %, average 0.06 %
 Herb cover: range 6 - 100%, average 68 %
 Percent native cover relative to non-native cover: 8 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Hickson and Keeler-Wolf 2007, Jimerson et al. 2000, Klein et al. 2007, Olson and Anacker 2009, Sawyer et al. 2009, Solomeshch 2004, Solomeshch and Barbour 2006

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	BRHO2	<i>Bromus hordeaceus</i>	95	16	0.2	100	X		
	ERBO	<i>Erodium botrys</i>	74	9	0.1	65			
	HYGL2	<i>Hypochaeris glabra</i>	65	3	0.1	35			
	BRDI3	<i>Bromus diandrus</i>	61	9	0.1	99			
	VUBR	<i>Vulpia bromoides</i>	61	6	0.2	70			
	TRHI4	<i>Trifolium hirtum</i>	41	2	0.1	35			
	TACA8	<i>Taeniatherum caput-medusae</i>	40	3	0.1	55			
	BRMI2	<i>Briza minor</i>	39	0.2	0.1	4			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	37	0.6	0.1	20			
	CRSE11	<i>Croton setigerus</i>	35	0.2	0.1	10			
	AVFA	<i>Avena fatua</i>	35	1	0.1	20			
	VUMY	<i>Vulpia myuros</i>	33	2	0.1	45			
	LETA	<i>Leontodon taraxacoides</i>	32	3	0.1	40			

JUBU	<i>Juncus bufonius</i>	31	0.2	0.1	3
TRMI4	<i>Trifolium microcephalum</i>	30	0.2	0.1	4
LUBI	<i>Lupinus bicolor</i>	29	0.3	0.1	7
CAAT25	<i>Castilleja attenuata</i>	29	0.1	0.1	5
AICA	<i>Aira caryophylla</i>	28	0.3	0.1	18
HOMA2	<i>Hordeum marinum</i>	27	1	0.1	35
BRODI	<i>Brodiaea</i> sp.	26	0.1	0.1	2
HOMU	<i>Hordeum murinum</i>	24	2	0.2	70
AVBA	<i>Avena barbata</i>	21	0.6	0.2	25

Stand Type(s) Defined:

Bromus diandrus

Bromus hordeaceus*(–*Vicia villosa*–*Lolium multiflorum*)–*Trifolium hirtum

Bromus hordeaceus*–*Erodium (botrys)*–*Plagiobothrys fulvus

Bromus hordeaceus*–*Hordeum* spp.–*Medicago polymorpha

Bromus hordeaceus*–*Leontodon taraxacoides

***Bromus hordeaceus*–*Lupinus nanus*–*Trifolium* spp.**

Bromus hordeaceus*–*Taeniatherum caput-medusae

Hypochaeris glabra*–*Vulpia bromoides

***Bromus diandrus* Stand Type**

Samples used to describe type: 29

Local Environmental Table:

Elevation: range 2 - 244, average 66 m
Total vegetation cover: range 13 - 100 %, average 73 %
Tree cover: range 0 - 0.2 %, average 0.01%
Shrub cover: range 0 - 3 %, average 0.1%
Herb cover: range 13 - 100 %, average 73 %
Percent native cover relative to non-native cover: 4 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009, Solomeshch 2004, Solomeshch and Barbour 2006, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRDI3	<i>Bromus diandrus</i>	100	59	7	99	X	X	
	BRHO2	<i>Bromus hordeaceus</i>	76	4	0.2	20	X		
	LASE	<i>Lactuca serriola</i>	52	0.3	0.2	2			
	HOMU	<i>Hordeum murinum</i>	45	1	0.2	10			
	AMME	<i>Amsinckia menziesii</i>	45	0.4	0.2	5			
	VUMY	<i>Vulpia myuros</i>	31	0.6	0.2	10			
	DISP	<i>Distichlis spicata</i>	31	0.2	0.2	2			

***Bromus hordeaceus*(–*Vicia villosa*–*Lolium multiflorum*)–*Trifolium hirtum* Stand Type**

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 0 - 120, average 35 m
 Total vegetation cover: range 20 - 80 %, average 56 %
 Tree cover: range 0 - 5 %, average 1 %
 Shrub cover: 0 %
 Herb cover: range 20 - 80 %, average 56 %
 Percent native cover relative to non-native cover: 10 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: CNPS Chapter 1993-2007, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	22	3	60	X		X
	BRDI3	<i>Bromus diandrus</i>	80	13	3	30	X		
	LASE	<i>Lactuca serriola</i>	80	0.3	0.2	1	X		
	TRHI4	<i>Trifolium hirtum</i>	60	7	0.2	35			
	AVFA	<i>Avena fatua</i>	60	6	3	20			
	LOPU3	<i>Lotus purshianus</i>	40	1	2	5			
	DISP	<i>Distichlis spicata</i>	40	0.6	0.2	3			
	CYDA	<i>Cynodon dactylon</i>	40	0.4	0.2	2			
	VISA	<i>Vicia sativa</i>	40	0.4	1	1			
	COAR4	<i>Convolvulus arvensis</i>	40	0.2	0.2	1			
	CRSE11	<i>Croton setigerus</i>	40	0.2	0.2	1			
	HIIN3	<i>Hirschfeldia incana</i>	40	0.2	0.2	1			

***Bromus hordeaceus*–*Erodium (botrys)*–*Plagiobothrys fulvus* Stand Type**

Samples used to describe type: 47

Local Environmental Table:

Elevation: range 24 - 157, average 92 m
 Total vegetation cover: range 12 - 100%, average 53%
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 12 - 100%, average 55%
 Percent native cover relative to non-native cover: 16%

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG-CNPS 2008, CNPS Chapter 1993-2007, GIC 2011, Klein et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	98	23	0.2	79	X		X
	PLFU	<i>Plagiobothrys fulvus</i>	83	0.6	0.1	5	X		
	ERBO	<i>Erodium botrys</i>	79	7	0.2	35	X		
	HYGL2	<i>Hypochaeris glabra</i>	72	3	0.2	17			
	VUBR	<i>Vulpia bromoides</i>	62	4	0.2	60			
	TRHI4	<i>Trifolium hirtum</i>	49	2	0.1	25			
	TRMI4	<i>Trifolium microcephalum</i>	49	0.4	0.1	4			
	AVBA	<i>Avena barbata</i>	47	1	0.2	13			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	47	0.4	0.2	8			
	CRSE11	<i>Croton setigerus</i>	47	0.2	0.2	1			
	BRDI3	<i>Bromus diandrus</i>	43	3	0.1	40			
	HOMA2	<i>Hordeum marinum</i>	43	2	0.1	25			
	VUMY	<i>Vulpia myuros</i>	38	2	0.2	20			
	TRDE	<i>Trifolium depauperatum</i>	38	0.3	0.1	6			
	LOGA2	<i>Logfia gallica</i>	38	0.2	0.2	2			
	TACA8	<i>Taeniatherum caput-medusae</i>	34	2	0.2	40			
	BRMI2	<i>Briza minor</i>	32	0.2	0.2	4			
	AICA	<i>Aira caryophyllea</i>	32	0.1	0.2	1			
	BRODI	<i>Brodiaea</i> sp.	30	0.1	0.1	2			
	CEGL2	<i>Cerastium glomeratum</i>	28	0.2	0.1	5			
	AVFA	<i>Avena fatua</i>	26	0.2	0.1	3			
	HOVI	<i>Holocarpha virgata</i>	26	0.2	0.1	3			
	DIMU5	<i>Dichelostemma multiflorum</i>	26	0.1	0.1	2			
Non-vasc									
	2MOSS	Unknown Moss	36	4	1	30			

***Bromus hordeaceus*–*Hordeum* spp.–*Medicago polymorpha* Stand Type**

Samples used to describe type: 12

Local Environmental Table:

Elevation: range 1 - 151, average 88 m
 Total vegetation cover: range 40 - 98 %, average 73 %
 Tree cover: range 0 - 4 %, average 0.4 %
 Shrub cover: range 0 - 0.2 %, average 0.02 %
 Herb cover: range 40 - 98 %, average 73 %
 Percent native cover relative to non-native cover: 7 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2005, CNPS Chapter 1993-2007, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	26	1	60	X		X
	HOMU	<i>Hordeum murinum</i>	75	15	0.2	70	X		
	HOMA2	<i>Hordeum marinum</i>	58	5	0.2	30			
	MEPO3	<i>Medicago polymorpha</i>	58	4	0.2	40			
	VUMY	<i>Vulpia myuros</i>	58	2	0.2	20			
	CRSE11	<i>Croton setigerus</i>	58	1	0.2	8			
	HYGL2	<i>Hypochaeris glabra</i>	58	0.5	0.2	3			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	58	0.1	0.2	0.4			
	CEGL2	<i>Cerastium glomeratum</i>	50	1	0.1	10			
	VUBR	<i>Vulpia bromoides</i>	42	2	0.2	15			
	ERCI6	<i>Erodium cicutarium</i>	42	0.6	0.2	3			
	AVBA	<i>Avena barbata</i>	33	3	0.2	25			
	TRGR2	<i>Trifolium gracilentum</i>	33	0.6	0.2	5			
	TRMI4	<i>Trifolium microcephalum</i>	33	0.4	0.2	2			
	TRDE	<i>Trifolium depauperatum</i>	33	0.3	0.2	2			
	ERMO7	<i>Erodium moschatum</i>	33	0.2	0.2	2			
	LENI	<i>Lepidium nitidum</i>	33	0.1	0.1	1			
	AMME	<i>Amsinckia menziesii</i>	33	0.1	0.2	1			
	BRDI3	<i>Bromus diandrus</i>	25	3	0.1	35			
	TRHI4	<i>Trifolium hirtum</i>	25	2	0.2	15			
	ERBR14	<i>Erodium brachycarpum</i>	25	1	1	10			
	ERODI	<i>Erodium</i> sp.	25	0.6	0.2	5			
	LASE	<i>Lactuca serriola</i>	25	0.3	0.2	3			
	LOGA2	<i>Logfia gallica</i>	25	0.3	0.2	3			
	JUBU	<i>Juncus bufonius</i>	25	0.2	0.2	2			

***Bromus hordeaceus*–*Leontodon taraxacoides* Stand Type**

Samples used to describe type: 49

Local Environmental Table:

Elevation: range 14 - 138, average 57 m
 Total vegetation cover: range 17 - 95 %, average 69 %
 Tree cover: range 0 - 1 %, average 0.02 %
 Shrub cover: 0 %
 Herb cover: range 17 - 95 %, average 69 %
 Percent native cover relative to non-native cover: 7 %

Location(s) Sampled: Northeast Great Valley

References: Barbour et al. 2003, GIC 2011, Klein et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	98	16	1	35	X		
	LETA	<i>Leontodon taraxacoides</i>	98	12	0.1	40	X		
	ERBO	<i>Erodium botrys</i>	96	11	0.1	40	X		
	VUBR	<i>Vulpia bromoides</i>	88	9	0.2	40	X		
	TACA8	<i>Taeniatherum caput-medusae</i>	84	7	0.2	35	X		
	AVFA	<i>Avena fatua</i>	78	3	0.1	18	X		
	HYGL2	<i>Hypochaeris glabra</i>	78	2	0.1	20	X		
	BRMI2	<i>Briza minor</i>	78	0.5	0.1	3	X		
	AICA	<i>Aira caryophyllea</i>	71	0.5	0.1	5			
	LUBI	<i>Lupinus bicolor</i>	65	0.6	0.1	7			
	TRHI4	<i>Trifolium hirtum</i>	61	0.9	0.1	6			
	BRDI3	<i>Bromus diandrus</i>	55	1	0.1	25			
	HOVI	<i>Holocarpha virgata</i>	55	0.2	0.1	1			
	CRSE11	<i>Croton setigerus</i>	51	0.3	0.1	3			
	JUBU	<i>Juncus bufonius</i>	47	0.2	0.1	3			
	CAAT25	<i>Castilleja attenuata</i>	47	0.2	0.1	5			
	TRHY3	<i>Triteleia hyacinthina</i>	45	0.2	0.1	4			
	TRMI4	<i>Trifolium microcephalum</i>	41	0.2	0.1	2			
	TRDU2	<i>Trifolium dubium</i>	37	1	0.1	20			
	GAPA5	<i>Galium parisiense</i>	35	0.3	0.1	4			
	ESLO	<i>Eschscholzia lobbii</i>	31	0.2	0.1	3			
	AETR	<i>Aegilops triuncialis</i>	29	2	0.1	45			

***Bromus hordeaceus*–*Lupinus nanus*–*Trifolium* spp. Provisional Stand Type**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 70 m

Total vegetation cover: 85 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 85 %

Percent native cover relative to non-native cover: 28 %

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	HYGL2	<i>Hypochaeris glabra</i>	100	30	30	30	X		
	TRDU2	<i>Trifolium dubium</i>	100	30	30	30	X		
	LUNA3	<i>Lupinus nanus</i>	100	25	25	25	X		
	VUBR	<i>Vulpia bromoides</i>	100	7	7	7	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	5	5	5	X		
	ERBO	<i>Erodium botrys</i>	100	3	3	3	X		
	LETA	<i>Leontodon taraxacoides</i>	100	2	2	2	X		
	TRCI	<i>Trifolium ciliolatum</i>	100	2	2	2	X		
	TRHI4	<i>Trifolium hirtum</i>	100	2	2	2	X		
	CAAT25	<i>Castilleja attenuata</i>	100	1	1	1	X		
	LOPU3	<i>Lotus purshianus</i>	100	1	1	1	X		
	TRMI4	<i>Trifolium microcephalum</i>	100	1	1	1	X		
	AICA	<i>Aira caryophyllea</i>	100	0.2	0.2	0.2	X		
	BRMI2	<i>Briza minor</i>	100	0.2	0.2	0.2	X		
	BRODI	<i>Brodiaea</i> sp.	100	0.2	0.2	0.2	X		
	DICA14	<i>Dichelostemma capitatum</i>	100	0.2	0.2	0.2	X		
	LOGA2	<i>Logfia gallica</i>	100	0.2	0.2	0.2	X		
	LOMI	<i>Lotus micranthus</i>	100	0.2	0.2	0.2	X		
	LUBI	<i>Lupinus bicolor</i>	100	0.2	0.2	0.2	X		
	PLFU	<i>Plagiobothrys fulvus</i>	100	0.2	0.2	0.2	X		
	TRDE	<i>Trifolium depauperatum</i>	100	0.2	0.2	0.2	X		
	TRVA	<i>Trifolium variegatum</i>	100	0.2	0.2	0.2	X		
	TRER6	<i>Triphysaria eriantha</i>	100	0.2	0.2	0.2	X		
	VUMI	<i>Vulpia microstachys</i>	100	0.2	0.2	0.2	X		

***Bromus hordeaceus*–*Taeniatherum caput-medusae* Stand Type**

Samples used to describe type: 17

Local Environmental Table:

Elevation: range 8 - 134, average 58 m

Total vegetation cover: range 13 - 85 %, average 37 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 13 - 91 %, average 39 %

Percent native cover relative to non-native cover: 8 %

Location(s) Sampled: Northeast and Northwest Great Valley

References: Barbour et al. 2003, GIC 2011, Jimerson et al. 2000, Klein et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	TACA8	<i>Taeniatherum caput-medusae</i>	100	12	3	55	X		X
	BRHO2	<i>Bromus hordeaceus</i>	100	9	0.2	30	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	65	0.6	0.1	5			
	ERBO	<i>Erodium botrys</i>	59	3	0.2	25			
	BRDI3	<i>Bromus diandrus</i>	53	2	0.1	12			
	TRHI4	<i>Trifolium hirtum</i>	53	1	1	5			
	VUMY	<i>Vulpia myuros</i>	47	0.9	0.2	5			
	VUBR	<i>Vulpia bromoides</i>	41	2	0.2	14			
	HYGL2	<i>Hypochaeris glabra</i>	41	0.3	0.2	3			
	CESO3	<i>Centaurea solstitialis</i>	29	0.3	0.2	3			
	TRHY3	<i>Triteleia hyacinthina</i>	29	0.3	0.1	3			
	LUBI	<i>Lupinus bicolor</i>	29	0.2	0.1	1			

***Hypochaeris glabra*–*Vulpia bromoides* Stand Type**

Samples used to describe type: 91

Local Environmental Table:

Elevation: range 0 - 215, average 58 m
 Total vegetation cover: range 20 - 100 %, average 79 %
 Tree cover: range 0 - 1 %, average 0.01%
 Shrub cover: range 0 - 2 %, average 0.1%
 Herb cover: range 20 - 100%, average 80%
 Percent native cover relative to non-native cover: 6 %

Location(s) Sampled: All Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2005, CNPS Chapter 1993-2007, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Olson and Anacker 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	97	17	0.2	100	X		
	ERBO	<i>Erodium botrys</i>	89	15	0.2	65	X		
	HYGL2	<i>Hypochaeris glabra</i>	81	7	0.1	35	X		
	VUBR	<i>Vulpia bromoides</i>	73	10	0.2	70			
	BRDI3	<i>Bromus diandrus</i>	67	4	0.1	50			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	46	0.9	0.1	15			
	BRMI2	<i>Briza minor</i>	42	0.2	0.1	3			
	TRHI4	<i>Trifolium hirtum</i>	37	2	0.2	25			
	VUMY	<i>Vulpia myuros</i>	36	4	0.1	45			
	JUBU	<i>Juncus bufonius</i>	36	0.2	0.1	3			
	BRODI	<i>Brodiaea</i> sp.	36	0.1	0.1	1			
	HOMU	<i>Hordeum murinum</i>	32	0.7	0.2	10			
	TACA8	<i>Taeniatherum caput-medusae</i>	30	1	0.1	25			
	CAAT25	<i>Castilleja attenuata</i>	30	0.2	0.1	3			
	TRDE	<i>Trifolium depauperatum</i>	30	0.1	0.1	20			
	LUBI	<i>Lupinus bicolor</i>	27	0.3	0.1	5			
	HOMA2	<i>Hordeum marinum</i>	26	2	0.2	35			
	TRMI4	<i>Trifolium microcephalum</i>	26	0.3	0.1	4			

***Bromus rubens*–*Schismus (arabicus, barbatus)* Semi-Natural Stands (Red brome or Mediterranean grass grasslands)**

Bromus rubens and/or *Schismus* sp. is characteristic and typically dominant or co-dominant in the herbaceous layer, often occurring with *Erodium cicutarium*, *Lepidium nitidum*, and others. Emergent *Isocoma menziesii* may be present at low cover. Herbs are <75 cm, and cover is intermittent to continuous. Stands occur in all topography settings and soil textures.

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 116- 522, average 300 m
 Total vegetation cover: range 2 - 95 %, average 26 %
 Tree cover: 0 %
 Shrub cover: range 0 - 1 %, average 0.2 %
 Herb cover: range 2 - 95 %, average 26 %
 Percent native cover relative to non-native cover: 16 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG-CNPS 2008, Evens et al. 2006, Keeler-Wolf et al. 1998b, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	ISME5	<i>Isocoma menziesii</i>	20	0.2	1	1			
Herb	BRRU2	<i>Bromus rubens</i>	100	22	0.2	95	X		
	ERCI6	<i>Erodium cicutarium</i>	80	2	0.2	6	X		
	LENI	<i>Lepidium nitidum</i>	60	1	0.2	3			
	SCHIS	<i>Schismus</i> sp.	60	0.8	1	2			
	VUMY	<i>Vulpia myuros</i>	40	0.6	1	2			
	HOMU	<i>Hordeum murinum</i>	40	0.4	0.2	2			
	AMME	<i>Amsinckia menziesii</i>	40	0.2	0.2	1			
	BRHO2	<i>Bromus hordeaceus</i>	20	0.2	1	1			

Stand Type(s) Defined: *Bromus rubens*
Schismus barbatus

***Bromus rubens* Stand Type**

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 305- 522, average 410 m

Total vegetation cover: range 10 -95 %, average 42 %

Tree cover: 0 %

Shrub cover: range 0 - 1 %, average 0.4%

Herb cover: range 10 - 95 %, average 42 %

Percent native cover relative to non-native cover: 10 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz et al. 2011, Evens et al. 2006, Keeler-Wolf et al. 1998b, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	ATSP	<i>Atriplex spinifera</i>	67	0.1	0.2	0.2			
	ISME5	<i>Isocoma menziesii</i>	33	0.3	1	1			
Herb									
	BRRU2	<i>Bromus rubens</i>	100	38	10	95			
	ERCI6	<i>Erodium cicutarium</i>	67	3	4	6			
	LENI	<i>Lepidium nitidum</i>	67	2	2	3			
	VUMY	<i>Vulpia myuros</i>	67	1	1	2			
	AVBA	<i>Avena barbata</i>	67	0.1	0.2	0.2			
	BRDI3	<i>Bromus diandrus</i>	67	0.1	0.2	0.2			
	HOMU	<i>Hordeum murinum</i>	33	0.7	2	2			
	BRHO2	<i>Bromus hordeaceus</i>	33	0.3	1	1			
	SCHIS	<i>Schismus</i> sp.	33	0.3	1	1			

***Schismus barbatus* Stand Type**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 116- 156, average 136 m

Total vegetation cover: range 2 -3 %, average 3 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 2 - 4 %, average 3 %

Percent native cover relative to non-native cover: 25 %

Location(s) Sampled: Southwest Great Valley

References: CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	SCHIS	<i>Schismus</i> sp.	100	2	1	2	X	X	
	BRRU2	<i>Bromus rubens</i>	100	0.2	0.2	0.2	X		
	ERCI6	<i>Erodium cicutarium</i>	100	0.2	0.2	0.2	X		
	AMME	<i>Amsinckia menziesii</i>	50	0.5	1	1			

Carex barbarae Alliance (White-root beds)

Carex barbarae dominates the herbaceous layer, often occurring with *Hirschfeldia incana*, *Artemisia douglasiana*, and others. Emergent *Salix melanopsis*, *Rosa californica*, and *Rubus ursinus* may be present at low cover. Herbs are <1 m, and cover is intermittent to continuous. Stands occur in stream beds and on river terraces and levees. Soils are silts to sands and are seasonally or intermittently saturated.

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 0 - 13 , average 7 m
 Total vegetation cover: range 25 - 97 %, average 54 %
 Tree cover: 0 %
 Shrub cover: range 0 - 5 %, average 1 %
 Herb cover: range 25 - 97 %, average 53 %
 Percent native cover relative to non-native cover: 88 %

Location(s) Sampled: Northeast and Southwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	SAME2	<i>Salix melanopsis</i>	20	0.8	4	4			
	ROCA2	<i>Rosa californica</i>	20	0.2	1	1			
	RUUR	<i>Rubus ursinus</i>	20	0.2	1	1			
Herb	CABA4	<i>Carex barbarae</i>	100	46	19	94	X	X	
	HIIN3	<i>Hirschfeldia incana</i>	40	0.4	1	1			
	ARDO3	<i>Artemisia douglasiana</i>	40	0.2	0.2	1			
	BRHO2	<i>Bromus hordeaceus</i>	20	4	22	22			
	VUMY	<i>Vulpia myuros</i>	20	1	5	5			
	ASCLE	<i>Asclepias</i> sp.	20	0.6	3	3			
	GAPO	<i>Galium porrigens</i>	20	0.6	3	3			
	BRDI3	<i>Bromus diandrus</i>	20	0.4	2	2			
	CHENO	<i>Chenopodium</i> sp.	20	0.2	1	1			
	GEMO	<i>Geranium molle</i>	20	0.2	1	1			
Non-vasc	2MOSS	Unknown Moss	40	4	5	15			

Association(s) Defined: *Carex barbarae*

***Carex barbarae* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

***Centaurea (solstitialis, melitensis)* Semi-Natural Stands (Yellow star-thistle fields)**

Centaurea solstitialis is dominant in the herbaceous layer, often occurring with *Bromus diandrus*, *B. hordeaceus*, and *Vulpia myuros*. Herbs are <2 m tall, and cover is intermittent to continuous. Stands occur in open disturbed sites, upland grasslands, rangeland, open hillsides, and on roadsides. Soils are clays to sandy loams.

Samples used to describe type: 20

Local Environmental Table:

Elevation: range 4 - 234, average 56 m
 Total vegetation cover: range 15 - 100 %, average 34 %
 Tree cover: range 0 - 4 %, average 0.2 %
 Shrub cover: range 0 - 0.2 %, average 0.02 %
 Herb cover: range 15 - 100%, average 35 %
 Percent native cover relative to non-native cover: 4 %

Location(s) Sampled: All Great Valley

References: CDFG-CNPS 2008, GIC 2011, Klein et al. 2007, Olson and Anacker 2009, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	CESO3	<i>Centaurea solstitialis</i>	100	20	3	70	X	X	
	BRDI3	<i>Bromus diandrus</i>	90	3	0.2	40	X		
	BRHO2	<i>Bromus hordeaceus</i>	85	4	0.2	25	X		
	VUMY	<i>Vulpia myuros</i>	55	2	0.2	8			
	TRHI4	<i>Trifolium hirtum</i>	35	0.8	0.2	5			
	HYGL2	<i>Hypochaeris glabra</i>	30	0.4	0.2	4			
	VIVI	<i>Vicia villosa</i>	30	0.2	0.2	2			
	ERBO	<i>Erodium botrys</i>	25	0.4	0.2	7			
	HIIN3	<i>Hirschfeldia incana</i>	25	0.4	0.2	4			
	AVBA	<i>Avena barbata</i>	20	0.7	1	6			
	HOMU	<i>Hordeum murinum</i>	20	0.3	1	2			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	20	0.3	0.2	4			

Stand Type(s) Defined: *Centaurea solstitialis*

***Centaurea solstitialis* Stand Type**

Since only one stand type was defined for the semi-natural stands in the study area, its description is the same as the semi-natural stand information above.

References: CDFG-CNPS 2008, GIC 2011, Klein et al. 2007, Olson and Anacker 2009, Sawyer et al. 2009

Centromadia (pungens) Alliance (Tar plant fields)

Centromadia pungens is characteristic in the herbaceous layer, often occurring with *Vulpia myuros*, *Lepidium dictyotum*, *Bromus hordeaceus*, and others. Herbs are <1 m, and cover is intermittent. Stands occur in vernal wet habitats, including edges of alkaline vernal pools, bottoms of shallow pools, and alkaline flats subjected to periodic or intermittent water inundation. Soils are fine-textured alluvium, sometimes underlain by claypan or another impervious layer, poorly drained, and derived from sedimentary or volcanic substrates.

Samples used to describe type: 42

Local Environmental Table:

Elevation: range 12 - 116, average 64 m
 Total vegetation cover: range 10 - 92 %, average 44 %
 Tree cover: 0 %
 Shrub cover: range 0 - 2 %, average 0.1%
 Herb cover: range 10 - 92 %, average 45 %
 Percent native cover relative to non-native cover: 64 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	CEPU14	<i>Centromadia pungens</i>	93	10	0.2	61	X		
	VUMY	<i>Vulpia myuros</i>	81	4	0.1	38	X		
	LEDI2	<i>Lepidium dictyotum</i>	74	5	0.2	65			
	BRHO2	<i>Bromus hordeaceus</i>	67	4	0.2	40			
	HOMU	<i>Hordeum murinum</i>	48	2	0.1	23			
	ERCI6	<i>Erodium cicutarium</i>	48	1	0.2	12			
	CRCO34	<i>Crassula connata</i>	48	1	0.1	10			
	HOMA2	<i>Hordeum marinum</i>	45	4	0.2	36			
	DISP	<i>Distichlis spicata</i>	43	0.4	0.2	4			
	HODE2	<i>Hordeum depressum</i>	36	0.8	0.1	5			
	LACA7	<i>Lasthenia californica</i>	33	1	0.2	10			
	PLEL	<i>Plantago elongata</i>	33	0.4	0.1	3			
	BRRU2	<i>Bromus rubens</i>	33	0.2	0.1	4			
	LENI	<i>Lepidium nitidum</i>	31	1	0.1	20			
	VUMI	<i>Vulpia microstachys</i>	31	0.2	0.2	2			
	LASE	<i>Lactuca serriola</i>	31	0.1	0.1	1			
	MEPO3	<i>Medicago polymorpha</i>	24	0.3	0.1	7			
	AMME	<i>Amsinckia menziesii</i>	24	0.2	0.2	3			
	DEDA	<i>Deschampsia danthonioides</i>	24	0.2	0.1	6			
Non-vasc	2MOSS	Unknown Moss	29	1	0.2	21			
	CRYPTO	Cryptogamic crust	24	0.7	0.2	10			

Association(s) Defined: *Centromadia pungens*–*Lepidium dictyotum*

***Centromadia pungens–Lepidium dictyotum* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, GIC 2011

***Conium maculatum*–*Foeniculum vulgare* Semi-Natural Stands (Poison hemlock or fennel patches)**

In the one occurrence of this type sampled in the study area, *Conium maculatum* is dominant in the herb layer, occurring with trace cover of *Frankenia salina* and *Hirschfeldia incana*. In the state of California, *C. maculatum*, *Foeniculum vulgare*, or other non-native plants of the *Apiaceae* are dominant (or co-dominant with other non-native plants) in the herbaceous layer. Emergent trees such as *Quercus* spp. and shrubs such as *Baccharis pilularis* may be present. Herbs are <2 m tall, and cover is open to continuous.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 28 m
 Total vegetation 40 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: 40 %
 Percent native cover relative to non-native cover: 0.5 %

Location(s) Sampled: Southwest Great Valley

References: GIC 2011, Keeler-Wolf and Vaghti 2000, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	COMA2	<i>Conium maculatum</i>	100	40	40	40	X	X	
	FRSA	<i>Frankenia salina</i>	100	0.2	0.2	0.2	X		
	HIIN3	<i>Hirschfeldia incana</i>	100	0.2	0.2	0.2	X		

Stand Type(s) Defined: *Conium maculatum*

***Conium maculatum* Stand Type**

Since only one stand type was defined for the semi-natural stands in the study area, its description is the same as the semi-natural stand information above.

References: GIC 2011, Keeler-Wolf and Vaghti 2000, Sawyer et al. 2009

***Cortaderia (jubata, selloana)* Semi-Natural Stands (Pampas grass patches)**

In the one occurrence of this type sampled in the study area, *Cortaderia selloana* is dominant in the herbaceous layer, occurring with *Phragmites australis*, *Euthamia occidentalis*, *Lotus corniculatus*, and others. *Rubus armeniacus* and *Calystegia sepium* are present in the shrub layer at low cover. In the state of California, *C. jubata* or *C. selloana* is dominant in the herbaceous and shrub layers. Emergent shrubs and trees may be present at low cover. Herbs are <4 m, and cover is open to continuous. Stands occur in coastal land, disturbed areas, estuaries, grasslands, urban areas, and wetlands.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 0 m

Total vegetation cover: 65 %

Tree cover: 0 %

Shrub cover: 5

Herb cover: 63 %

Percent native cover relative to non-native cover: 39 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	RUAR9	<i>Rubus armeniacus</i>	100	5	5	5	X	X	
	CASE13	<i>Calystegia sepium</i>	100	0.2	0.2	0.2	X		
Herb	COSE4	<i>Cortaderia selloana</i>	100	35	35	35	X	X	
	PHAU7	<i>Phragmites australis</i>	100	20	20	20	X		X
	EUOC4	<i>Euthamia occidentalis</i>	100	3	3	3	X		
	LOCO6	<i>Lotus corniculatus</i>	100	2	2	2	X		
	AMPS	<i>Ambrosia psilostachya</i>	100	1	10	10	X		
	COCA5	<i>Conyza canadensis</i>	100	0.2	0.2	0.2	X		
	LELA2	<i>Lepidium latifolium</i>	100	0.2	0.2	0.2	X		

Stand Type(s) Defined: *Cortaderia (jubata, selloana)*

***Cortaderia (jubata, selloana)* Stand Type**

Since only one stand type was defined for the semi-natural stands in the study area, its description is the same as the semi-natural stand information above.

References: Hickson and Keeler-Wolf 2007

***Cressa truxillensis*–*Distichlis spicata* Alliance (Alkali weed–Salt grass playas and sinks)**

Cressa truxillensis and *Distichlis spicata* are dominant in the herbaceous layer, often occurring with *Bromus hordeaceus*, *Vulpia myuros*, *Bromus diandrus*, and others. Herbs and subshrubs are <50 cm, and cover is open to continuous. Stands appear to have low species diversity, and they occur in alkaline or saline vernal playas and alkaline sinks. Soils are saline alluvium and seasonally inundated. They lose water mostly through evaporation.

Pienado et al. (1995) suggests that *Cressa truxillensis* is a differential species in coastal salt marshes from southern California to Baja California, and they define a *Cressa truxillensis*–*Atriplex watsonii* alliance as a mixed alliance with *Cressa*. Further analysis of alkaline and salt-tolerant vegetation is necessary to fully confirm the types within this *Cressa*-*Distichlis* alliance as compared to other similar alliances.

Samples used to describe type: 7

Local Environmental Table:

Elevation: range 0 - 56 , average 28 m
 Total vegetation cover: range 42 - 85 %, average 59 %
 Tree cover: 0 %
 Shrub cover: range 0 - 7 %, average 1 %
 Herb cover: range 42 - 86 %, average 59 %
 Percent native cover relative to non-native cover: 40 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Buck-Diaz et al. 2011, GIC 2011, Hickson and Keeler-Wolf 2007, Pienado et al. 1995, Sawyer et al. 2009, Solomeshch 2004

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	DISP	<i>Distichlis spicata</i>	100	14	1	40	X		
	CRTR5	<i>Cressa truxillensis</i>	100	9	5	12	X		
	BRHO2	<i>Bromus hordeaceus</i>	71	8	5	17			
	VUMY	<i>Vulpia myuros</i>	71	4	0.2	20			
	BRDI3	<i>Bromus diandrus</i>	71	0.7	0.2	2			
	VUBR	<i>Vulpia bromoides</i>	57	10	2	30			
	HOMA2	<i>Hordeum marinum</i>	57	6	1	25			
	FRSA	<i>Frankenia salina</i>	57	2	0.2	10			
	LELA2	<i>Lepidium latifolium</i>	43	3	0.2	11			
	POMO5	<i>Polypogon monspeliensis</i>	43	2	0.2	10			
	TRGR2	<i>Trifolium gracilentum</i>	29	1	2	5			
	TRDE	<i>Trifolium depauperatum</i>	29	0.6	1	30			
	BRRU2	<i>Bromus rubens</i>	29	0.4	1	2			
	LEDI2	<i>Lepidium dictyotum</i>	29	0.3	0.2	2			
	CEPU14	<i>Centromadia pungens</i>	29	0.2	0.2	1			
	ERCI6	<i>Erodium cicutarium</i>	29	0.2	0.2	1			

Association(s) Defined: *Cressa truxillensis*–*Distichlis spicata* Provisional

***Cressa truxillensis–Distichlis spicata* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz et al. 2011, GIC 2011, Hickson and Keeler-Wolf 2007, Solomeshch 2004

***Croton setigerus* Provisional Alliance (Dove weed patches)**

Croton setigerus is dominant in the herbaceous layer, often occurring with *Bromus* spp. and other grasses and forbs. Cover is open to intermittent. Stands occur on flats and gentle slopes, including areas recently disturbed by clearing and grazing.

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 90 - 91 , average 90.5 m
Total vegetation cover: range 20 - 36 %, average 28 %
Tree cover: 0 %
Shrub cover: 0 %
Herb cover: range 20 - 36 %, average 28 %
Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: Southeast Great Valley

References: GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	CRSE11	<i>Croton setigerus</i>	100	25	20	29	X	X	
	BRDI3	<i>Bromus diandrus</i>	50	5	10	10			
	DAWR2	<i>Datura wrightii</i>	50	1	2	2			

Association(s) Defined: *Croton setigerus* Provisional

***Croton setigerus* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011

***Cynodon dactylon*–*Crypsis* spp.–*Paspalum* spp. Moist Ruderal Semi-Natural Stands (Bermuda grass–swamp pricklegass–paspalum patches)**

Cynodon dactylon, *Crypsis schoenoides*, *Paspalum distichum*, *Bolboschoenus glaucus*, *Cyperus eragrostis*, *Panicum capillare*, *Polypogon monspeliensis*, and/or other ruderal plants are dominant in the herbaceous layer. Herbs and subshrubs are <1 m, and cover is open to continuous. Stands are typically disturbed by fluctuating water levels and/or grazing. Stands occur in a variety of settings including managed wetlands, seasonally irrigated and/or grazed areas across flats, depressions, canals, sloughs, and swales.

Twelve stands were classified to the alliance level only with a variety of ruderal species dominant, and other stands were classified into two associations with dominant species denoted in the stand names.

Samples used to describe type: 22

Local Environmental Table:

Elevation: range 0 - 119, average 24 m
 Total vegetation cover: range 13 - 85 %, average 50 %
 Tree cover: range 0 - 10 %, average 0.5 %
 Shrub cover: range 0 - 8 %, average 0.4 %
 Herb cover: range 13 - 85 %, average 50 %
 Percent native cover relative to non-native cover: 50 %

Location(s) Sampled: Northeast, Northwest and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	XAST	<i>Xanthium strumarium</i>	41	1	0.2	18			
	CYDA	<i>Cynodon dactylon</i>	36	8.6	0.2	65			
	POMO5	<i>Polypogon monspeliensis</i>	27	0.4	0.2	5			
	RUCR	<i>Rumex crispus</i>	27	0.3	0.2	2			
	CYER	<i>Cyperus eragrostis</i>	23	2.1	0.2	26			

Stand Type(s) Defined: *Crypsis (schoenoides, vaginiflora)* Provisional,
Cynodon dactylon Provisional

***Crypsis (schoenoides, vaginiflora)* Provisional Stand Type**

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 3 - 49 , average 34 m

Total vegetation cover: range 30 - 85 %, average 50 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 30 - 85 %, average 50 %

Percent native cover relative to non-native cover: 40 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	CRSC	<i>Crypsis schoenoides</i>	67	19	4	55			
	XAST	<i>Xanthium strumarium</i>	67	0.1	0.2	0.2			
	MEOF	<i>Melilotus officinalis</i>	33	17	40	64			
	RUMEX	<i>Rumex</i> sp.	33	0.2	0.2	1			

***Cynodon dactylon* Provisional Stand Type**

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 0 - 119, average 33 m

Total vegetation cover: range 47 - 75 %, average 70%

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 50 - 80 %, average 70%

Percent native cover relative to non-native cover: 30 %

Location(s) Sampled: Northeast, Northwest, and Southwest Great Valley

References: CDFG-CNPS 2008, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	CYDA	<i>Cynodon dactylon</i>	100	42	23	65	X	X	
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	75	0.6	0.2	2	X		
	JUNCU	<i>Juncus</i> sp.	50	6	0.2	23			
	TRRE3	<i>Trifolium repens</i>	50	6	0.2	22			
	LOCO6	<i>Lotus corniculatus</i>	25	7	27	27			
	VUMY	<i>Vulpia myuros</i>	25	4	15	15			
	FESTU	<i>Festuca</i> sp.	25	2	6	6			
	RANUN	<i>Ranunculus</i> sp.	25	2	6	6			
	BRDI3	<i>Bromus diandrus</i>	25	1	5	5			
	POAN	<i>Poa annua</i>	25	1	5	5			
	HYGL2	<i>Hypochaeris glabra</i>	25	0.5	2	2			
	LETR5	<i>Leymus triticoides</i>	25	0.3	1	1			
	RUCR	<i>Rumex crispus</i>	25	0.3	1	1			

***Deschampsia caespitosa* Alliance (Tufted hair grass meadows)**

Deschampsia caespitosa is dominant in the herbaceous layer, often occurring with *Lilaeopsis masonii*, *Schoenoplectus acutus*, *Hydrocotyle verticillata*, and others. Emergent *Alnus rhombifolia*, *Calystegia sepium*, and *Senecio hydrophiloides* may be present at low cover. Herbs are < 1 m, and cover is intermittent to continuous. Stands occur on coastal bluffs, terraces, sand dunes, and seasonally flooded areas of moderate salinity as well as montane to alpine wet meadows.

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 0 - 3 , average 0.8 m
 Total vegetation cover: range 50 - 75 %, average 60 %
 Tree cover: range 0 - 1 %, average 0.2%
 Shrub cover: range 0.2 - 6 %, average 2%
 Herb cover: range 50 - 75 %, average 60 %
 Percent native cover relative to non-native cover: 95 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	ALRH2	<i>Alnus rhombifolia</i>	20	0.6	3	3			
Shrub									
	CASE13	<i>Calystegia sepium</i>	60	0.3	0.2	1			
	SEHY	<i>Senecio hydrophiloides</i>	40	0.8	1	3			
Herb									
	DECE	<i>Deschampsia caespitosa</i>	100	24	10	55	X		X
	LIMA7	<i>Lilaeopsis masonii</i>	100	7	0.2	22	X		
	SCAC3	<i>Schoenoplectus acutus</i>	80	7	4	15	X		
	HYVE2	<i>Hydrocotyle verticillata</i>	80	6	5	16	X		
	HEPU2	<i>Helenium puberulum</i>	80	0.5	0.2	2	X		
	LYCA4	<i>Lythrum californicum</i>	80	0.2	0.2	0.2	X		
	SYLE2	<i>Symphotrichum lentum</i>	80	0.2	0.2	0.2	X		
	SCCA11	<i>Schoenoplectus californicus</i>	60	2	0.2	10			
	EUOC4	<i>Euthamia occidentalis</i>	60	0.6	0.2	2			
	JUEF	<i>Juncus effusus</i>	60	0.4	0.2	1			
	PADI3	<i>Paspalum dilatatum</i>	40	2	4	6			
	JUXI	<i>Juncus xiphioides</i>	40	2	2	6			
	GRCA	<i>Grindelia camporum</i>	40	0.4	0.2	2			

Association(s) Defined: *Deschampsia caespitosa*–*Lilaeopsis masonii* Provisional

***Deschampsia caespitosa*–*Lilaeopsis masonii* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

***Distichlis spicata* Alliance (Salt grass flats)**

Distichlis spicata is dominant in the herbaceous layers, often occurring with *Bromus hordeaceus*, *Hordeum marinum*, *Lactuca serriola*, and others. Herbs are <1 m, and cover is open to continuous. Stands occur in coastal salt marshes, inland habitats including playas, swales, and terraces along washes that are typically intermittently flooded. Soils are often deep, alkaline, or saline and often have an impermeable layer making them poorly drained. When the soil is dry, the surface usually has salt accumulations.

One stands showed additional variation and was classified to the alliance level only.

Samples used to describe type: 52

Local Environmental Table:

Elevation: range 0 - 540, average 40 m
 Total vegetation cover: range 12 - 100 %, average 65 %
 Tree cover: 0 %
 Shrub cover: range 0 - 30 %, average 1 %
 Herb cover: range 15 - 100 %, average 66 %
 Percent native cover relative to non-native cover: 59 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2004, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Kittel et al. 2009, Olson and Anacker 2009, Pickart 2006, Sawyer et al. 2009, Solomeshch 2004, Solomeshch and Barbour 2006

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	DISP	<i>Distichlis spicata</i>	100	33	1	90	X	X	
	BRHO2	<i>Bromus hordeaceus</i>	62	5	0.2	45			
	HOMA2	<i>Hordeum marinum</i>	48	5	0.2	80			
	LASE	<i>Lactuca serriola</i>	46	0.2	0.2	2			
	BRDI3	<i>Bromus diandrus</i>	42	2	0.1	65			
	FRSA	<i>Frankenia salina</i>	33	1	0.2	15			
	HOMU	<i>Hordeum murinum</i>	31	0.5	0.1	7			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	27	0.4	0.2	7			
	ERBO	<i>Erodium botrys</i>	23	3	0.2	25			
	VUBR	<i>Vulpia bromoides</i>	21	3	0.4	45			
	VUMY	<i>Vulpia myuros</i>	21	2	0.1	35			
	ERCI6	<i>Erodium cicutarium</i>	21	0.7	0.1	20			

Association(s) Defined:

Distichlis spicata

***Distichlis spicata*–annual grasses**

***Distichlis spicata*–*Juncus arcticus* var. *balticus* (*J. arcticus* var. *mexicanus*)**

***Distichlis spicata* Association**

Samples used to describe type: 29

Local Environmental Table:

Elevation: range 0 - 540, average 51 m

Total vegetation cover: range 12 - 100 %, average 56 %

Tree cover: 0 %

Shrub cover: range 0 - 3 %, average 0.2 %

Herb cover: range 15 - 100 %, average 56 %

Percent native cover relative to non-native cover: 80 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Kittel et al. 2009, Pickart 2006, Sawyer et al. 2009, Solomeshch 2004, Solomeshch and Barbour 2006

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	DISP	<i>Distichlis spicata</i>	100	45	7	90	X	X	
	LASE	<i>Lactuca serriola</i>	52	0.2	0.2	2			
	BRHO2	<i>Bromus hordeaceus</i>	41	0.9	0.2	10			
	BRDI3	<i>Bromus diandrus</i>	34	0.5	0.2	10			
	HOMU	<i>Hordeum murinum</i>	31	0.4	0.2	4			
	HOMA2	<i>Hordeum marinum</i>	31	0.3	0.2	5			

***Distichlis spicata*–annual grasses Association**

Samples used to describe type: 19

Local Environmental Table:

Elevation: range 5 - 64 , average 26 m

Total vegetation cover: range 30 - 100 %, average 77 %

Tree cover: 0 %

Shrub cover: range 0 - 7 %, average 0.7 %

Herb cover: range 30 - 100 %, average 78 %

Percent native cover relative to non-native cover: 24 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2004, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Olson and Anacker 2009, Sawyer et al. 2009, Solomeshch 2004

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	DISP	<i>Distichlis spicata</i>	100	14	1	35	X		
	BRHO2	<i>Bromus hordeaceus</i>	89	10	0.2	45	X		
	HOMA2	<i>Hordeum marinum</i>	79	13	0.2	80	X		
	ERBO	<i>Erodium botrys</i>	63	8	0.2	25			
	VUBR	<i>Vulpia bromoides</i>	58	9	0.4	45			
	BRDI3	<i>Bromus diandrus</i>	58	5	0.1	65			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	53	1	0.4	7			
	FRSA	<i>Frankenia salina</i>	42	1	0.4	6			
	JUBU	<i>Juncus bufonius</i>	42	0.3	0.2	2			
	HYGL2	<i>Hypochaeris glabra</i>	37	6	1	30			
	VUMY	<i>Vulpia myuros</i>	37	4	0.1	35			
	LASE	<i>Lactuca serriola</i>	37	0.2	0.2	2			
	HOMU	<i>Hordeum murinum</i>	32	0.7	0.1	7			
	TRER6	<i>Triphysaria eriantha</i>	32	0.3	0.1	2			
	DICA14	<i>Dichelostemma capitatum</i>	32	0.2	0.1	1			
	ERCI6	<i>Erodium cicutarium</i>	26	1	0.1	20			
	BRODI	<i>Brodiaea</i> sp.	26	0.2	0.4	2			

***Distichlis spicata*–*Juncus arcticus* var. *balticus* (*J. arcticus* var. *mexicanus*)
Association**

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 8 - 56 , average 40 m
 Total vegetation cover: range 75 - 75 %, average 75 %
 Tree cover: 0 %
 Shrub cover: range 0 - 3 %, average 1 %
 Herb cover: range 70 - 79 %, average 74 %
 Percent native cover relative to non-native cover: 73 %

Location(s) Sampled: Southwest Great Valley

References: CDFG 2004, CDFG-CNPS 2008, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	ISAC2	<i>Isocoma acradenia</i>	67	1	0.2	3			
Herb									
	DISP	<i>Distichlis spicata</i>	100	46	30	68	X		X
	JUARL	<i>Juncus arcticus</i> var. <i>balticus</i>	100	18	8	30	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	15	1	25	X		
	FRSA	<i>Frankenia salina</i>	67	7	6	15			
	BRMA3	<i>Bromus madritensis</i>	67	7	5	15			
	HECU3	<i>Heliotropium curassavicum</i>	67	3	0.2	10			
	HODE2	<i>Hordeum depressum</i>	67	3	0.2	10			
	LASE	<i>Lactuca serriola</i>	67	0.1	0.2	0.2			
	HOMA2	<i>Hordeum marinum</i>	33	8	25	25			
	VUMY	<i>Vulpia myuros</i>	33	3	10	10			
	HOJU	<i>Hordeum jubatum</i>	33	2	5	5			
	RUCR	<i>Rumex crispus</i>	33	2	5	5			
	CALYS	<i>Calystegia</i> sp.	33	0.3	1	1			

***Eichhornia crassipes* Provisional Semi-Natural Stands (Water hyacinth wetlands)**

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 0 - 22 , average 8 m

Total vegetation cover: range 35 - 100 %, average 77 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 35 - 100%, average 77 %

Percent native cover relative to non-native cover: 1 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	EICR	<i>Eichhornia crassipes</i>	100	77	35	98	X	X	
	SCAC3	<i>Schoenoplectus acutus</i>	67	0.1	0.2	0.2			
	LUPE5	<i>Ludwigia peploides</i>	33	0.3	1	1			
	TYPHA	<i>Typha</i> sp.	33	0.3	1	1			

Stand Type(s) Defined: *Eichhornia crassipes*

***Eichhornia crassipes* Provisional Stand Type**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, Hickson and Keeler-Wolf 2007

***Eleocharis macrostachya* Alliance (Pale spike rush marshes)**

Eleocharis macrostachya is characteristic in the herbaceous layer, often occurring with *Lolium perenne* ssp. *multiflorum*, *Lythrum hyssopifolium*, *Hordeum marinum*, and others. Herbs are <50 cm, and cover is open to intermittent. Stands occur in seasonally flooded channel scours, floodplains, seeps on flats, and vernal pools. Soils are usually volcanic and rocky or clayey.

Samples used to describe type: 13

Local Environmental Table:

Elevation: range 28 - 512, average 150 m
Total vegetation cover: range 20 - 81 %, average 47 %
Tree cover: 0 %
Shrub cover: 0 %
Herb cover: range 20 - 93 %, average 50 %
Percent native cover relative to non-native cover: 72 %

Location(s) Sampled: Northeast, Southeast, and Southwest Great Valley, Northern California Interior Coast Ranges Ecoregion, Sierra Nevada Foothills Ecoregion

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011, Kittel et al. 2009, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	ELMA5	<i>Eleocharis macrostachya</i>	69	11	3	22			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	62	4	0.2	17			
	LYHY3	<i>Lythrum hyssopifolium</i>	54	2	0.2	17			
	HOMA2	<i>Hordeum marinum</i>	38	4	0.2	25			
	ELEOC	<i>Eleocharis</i> sp.	31	10	12	47			
	VERON	<i>Veronica</i> sp.	31	0.7	0.2	8			
	HEFI	<i>Hemizonia fitchii</i>	31	0.4	0.2	4			
	PLCA6	<i>Pleuropogon californicus</i>	23	2	0.2	22			
	POMO5	<i>Polypogon monspeliensis</i>	23	0.3	0.2	4			

Association(s) Defined: *Eleocharis macrostachya*
Eleocharis macrostachya(–*Pleuropogon californicus*)
Provisional

***Eleocharis macrostachya* Association**

Samples used to describe type: 9

Local Environmental Table:

Elevation: range 28 - 512, average 170 m

Total vegetation cover: range 20 - 73 %, average 36 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 20 - 73 %, average 37 %

Percent native cover relative to non-native cover: 75 %

Location(s) Sampled: Northeast, Southeast, and Southwest Great Valley, Northern California Interior Coast Ranges Ecoregion, Sierra Nevada Foothills Ecoregion

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011, Kittel et al. 2009, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	ELMA5	<i>Eleocharis macrostachya</i>	67	11	3	22			
	LYHY3	<i>Lythrum hyssopifolium</i>	67	3	0.2	17			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	44	1	0.2	9			
	ELEOC	<i>Eleocharis</i> sp.	33	9	12	47			
	HOMA2	<i>Hordeum marinum</i>	33	2	0.2	20			
	POMO5	<i>Polypogon monspeliensis</i>	33	0.5	0.2	4			
	PLST	<i>Plagiobothrys stipitatus</i>	33	0.2	0.2	1			

***Eleocharis macrostachya*(–*Pleuropogon californicus*) Provisional Association**

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 66 - 123, average 108 m

Total vegetation cover: range 64 - 81 %, average 73 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 64 - 93 %, average 79 %

Percent native cover relative to non-native cover: 65 %

Location(s) Sampled: Northeast and Southeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	10	2	17	X		
	BRMI2	<i>Briza minor</i>	100	0.2	0.2	0.2	X		
	ELMA5	<i>Eleocharis macrostachya</i>	75	13	7	22	X		
	PLCA6	<i>Pleuropogon californicus</i>	75	7	0.2	22	X		
	VERON	<i>Veronica</i> sp.	75	2	0.2	8	X		
	HEFI	<i>Hemizonia fitchii</i>	75	1	0.2	4	X		
	RAMU2	<i>Ranunculus muricatus</i>	75	0.4	0.2	1	X		
	HOMA2	<i>Hordeum marinum</i>	50	6	0.2	25			
	LOPU3	<i>Lotus purshianus</i>	50	4	0.2	15			
	MIGU	<i>Mimulus guttatus</i>	50	2	1	6			
	RUPU3	<i>Rumex pulcher</i>	50	0.8	1	2			
	JUTE	<i>Juncus tenuis</i>	50	0.6	0.2	2			
	TRVA	<i>Trifolium variegatum</i>	50	0.5	1	1			
	JUBU	<i>Juncus bufonius</i>	50	0.3	0.2	1			
	NAOF	<i>Nasturtium officinale</i>	50	0.3	0.2	1			
	BRHO2	<i>Bromus hordeaceus</i>	50	0.1	0.2	0.2			
	GEDI	<i>Geranium dissectum</i>	50	0.1	0.2	0.2			
	HYGL2	<i>Hypochaeris glabra</i>	50	0.1	0.2	0.2			
	VUBR	<i>Vulpia bromoides</i>	50	0.1	0.2	0.2			
	MEPU	<i>Mentha pulegium</i>	25	13	50	50			
	ELEOC	<i>Eleocharis</i> sp.	25	11	42	42			
	CADE8	<i>Carex densa</i>	25	6	24	24			
	RACA3	<i>Ranunculus canus</i>	25	3	12	12			

	HOFI	<i>Holozonia filipes</i>	25	2	7	7
	TRIFO	<i>Trifolium</i> sp.	25	2	6	6
	ELAC	<i>Eleocharis acicularis</i>	25	0.8	3	3
	CEMU2	<i>Centaureum muehlenbergii</i>	25	0.5	2	2
	GLDE	<i>Glyceria declinata</i>	25	0.5	2	2
	XAST	<i>Xanthium strumarium</i>	25	0.5	2	2
	EPDE4	<i>Epilobium densiflorum</i>	25	0.3	1	1
	JUARL	<i>Juncus arcticus</i> var. <i>balticus</i>	25	0.3	1	1
	JUOX	<i>Juncus oxymers</i>	25	0.3	1	1
	LETA	<i>Leontodon taraxacoides</i>	25	0.3	1	1
	SOAS	<i>Sonchus asper</i>	25	0.3	1	1
Non-vasc						
	2MOSS	Unknown Moss	25	0.5	2	2

***Elymus glaucus* Alliance (Blue wild rye meadows)**

In the two occurrences of this type sampled in the study area, *Elymus glaucus* and *Bromus hordeaceus* are co-dominant in the herbaceous layer, occurring with *Lactuca serriola*, *Lolium perenne* ssp. *multiflorum*, *Centaurea solstitialis*, and others. Emergent *Quercus lobata* and *Baccharis pilularis* may be present at low cover. In the state of California, *E. glaucus* is dominant or co-dominant in the herbaceous layer with *Agrostis scabra*, *Bromus diandrus*, *Calamagrostis canadensis*, and others. Herbs are <1 m, and cover is intermittent to continuous. Stands occur in foothill and montane meadow edges, forest openings, and elevated flats. Soils may be intermittently flooded and have water tables that drop well below the surface during the growing season.

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 24 - 39 , average 32 m
 Total vegetation cover: range 44 - 60 %, average 52 %
 Tree cover: range 0 - 1 %, average 0.5%
 Shrub cover: range 0 - 0.2 %, average 0.1%
 Herb cover: range 43 - 60 %, average 51 %
 Percent native cover relative to non-native cover: 40 %

Location(s) Sampled: Northeast and Northwest Great Valley

References: GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	QULO	<i>Quercus lobata</i>	50	0.5	1	1			
Shrub									
	BAPI	<i>Baccharis pilularis</i>	50	0.1	0.2	0.2			
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	25	15	35	X		X
	ELGL	<i>Elymus glaucus</i>	100	18	15	20	X		X
	LASE	<i>Lactuca serriola</i>	100	0.6	0.2	1	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	50	3	5	5			
	CESO3	<i>Centaurea solstitialis</i>	50	2	3	3			
	MAEL	<i>Madia elegans</i>	50	2	3	3			
	VIVI	<i>Vicia villosa</i>	50	2	3	3			

Association(s) Defined: *Elymus glaucus* Provisional

***Elymus glaucus* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011

Equisetum (arvense, variegatum, hyemale) Provisional Alliance (Horsetail and scouring-rush marshes)

In the one stand sampled of this type in the study area, *Equisetum hyemale* var. *affine* is dominant, and other herbs were low in cover including *Avena barbata*, *Bromus diandrus*, *Vulpia myuros*, and *Cynodon dactylon*. Emergent trees and shrubs, such as *Populus fremontii*, *Quercus lobata* and *Salix* spp., may be present at low cover. In the state, *Equisetum arvense*, *E. variegatum*, or *E. hymele* is dominant or co-dominant in the herbaceous layer, and non-native grasses may co-dominate some stands. Herbs are <1.5 m, and cover is intermittent to continuous. Stands occur in riparian areas within the valley, including streambanks, floodplains, edges of levees, seeps, ponds, and riparian forest openings. Soils may be seasonally and/or intermittently flooded. This alliance occurs broadly in the western United States to Canada (NatureServe 2011).

Samples used to describe type: 1

Local Environmental Table:

Elevation: 8 m
 Total vegetation cover: 31 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: 31 %
 Percent native cover relative to non-native cover: 76 %

Location(s) Sampled: Northeast Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	EQHYA	<i>Equisetum hyemale</i> var. <i>affine</i>	100	24	24	24	X	X	
	AVBA	<i>Avena barbata</i>	100	2	2	2	X		
	BRDI3	<i>Bromus diandrus</i>	100	2	2	2	X		
	VUMY	<i>Vulpia myuros</i>	100	2	2	2	X		
	CYDA	<i>Cynodon dactylon</i>	100	1	1	1	X		
	BRNI	<i>Brassica nigra</i>	100	0.2	0.2	0.2	X		
	LASE	<i>Lactuca serriola</i>	100	0.2	0.2	0.2	X		
	LUPIN	<i>Lupinus</i> sp.	100	0.2	0.2	0.2	X		

Association(s) Defined: *Equisetum hyemale* Provisional

***Equisetum hyemale* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, Hickson and Keeler-Wolf 2007

Eriogonum (elongatum, nudum) Alliance (Wild buckwheat patches)

In the four stands sampled of this type in the study area, *Eriogonum nudum* is co-dominant, and other herbs present include *Bromus rubens*, *Erodium cicutarium*, and *Eriogonum vestitum*. In the state of California, stands have *E. elongatum* and/or *E. nudum* present as dominant or co-dominant, and some stands have both buckwheat species present. Herbs are <1 m, and cover is open to continuous. Stands occur on upland grassy flats, toeslopes, hills and steep slopes intermixed with other grassland types. Soils are often exposed and/or rocky, and sites may be disturbed by small mammals, grazing animals, or erosion.

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 3 - 546, average 361 m
Total vegetation cover: range 17 - 88 %, average 41 %
Tree cover: 0 %
Shrub cover: range 0 - 20 %, average 9 %
Herb cover: range 5 - 810%, average 34 %
Percent native cover relative to non-native cover: 50 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011, CNPS Chapter 1993-2007, Evens et al. 2006

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	GUCA	<i>Gutierrezia californica</i>	50	0.3	0.2	1			
	LOSC2	<i>Lotus scoparius</i>	25	0.8	3	3			
Herb	ERNU3	<i>Eriogonum nudum</i>	100	15	10	20	X		X
	BRRU2	<i>Bromus rubens</i>	100	22	4	63			
	ERCI6	<i>Erodium cicutarium</i>	50	2	0.2	8			
	ERVE4	<i>Eriogonum vestitum</i>	50	0.3	0.2	1			
	AVBA	<i>Avena barbata</i>	50	0.1	0.2	0.2			
	BRDI3	<i>Bromus diandrus</i>	50	0.1	0.2	0.2			
	ERBO	<i>Erodium botrys</i>	25	3	10	10			
	VIVI	<i>Vicia villosa</i>	25	0.8	3	3			

Association(s) Defined: *Eriogonum nudum* Provisional

***Eriogonum nudum* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011, CNPS Chapter 1993-2007, Evens et al. 2006

***Eryngium aristulatum* Alliance (California button-celery patches)**

Eryngium aristulatum, *Hemizonia congesta* ssp. *luzulifolia*, *Hesperervax caulescens*, *Lolium perenne* ssp. *multiflorum*, *Lupinus bicolor*, *Medicago polymorpha*, and/or *Trifolium willdenovii* are/is present and abundant in part or collectively. *Hemizonia congesta* was characteristically present in the stands sampled in the study area, as a sub-dominant to co-dominant with other native and non-native herbs such as *Trifolium* spp., *Lolium perenne*, *Lupinus bicolor*, and various vernal pool species. Herbs are <90 cm, and cover is intermittent to continuous. Stands occur in shallow, claypan vernal pools on vertisols that are short-inundated, particularly within the Solano-Colusa region.

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 3 - 5 , average 3 m
 Total vegetation cover: range 70 - 95 %, average 87 %
 Tree cover: 0 %
 Shrub cover: range 0 - 0.4 %, average 0.1%
 Herb cover: range 70 - 95 %, average 87 %
 Percent native cover relative to non-native cover: 47 %

Location(s) Sampled: Northwest Great Valley

References: Barbour et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	42	15	70	X		X
	MEPO3	<i>Medicago polymorpha</i>	100	18	0.4	40	X		
	TRWI3	<i>Trifolium willdenovii</i>	100	11	0.4	25	X		
	LUBI	<i>Lupinus bicolor</i>	100	4	0.4	15	X		
	CAAT25	<i>Castilleja attenuata</i>	100	1	0.4	5	X		
	HECO7	<i>Hemizonia congesta</i>	90	20	4	45	X		
	TRBI	<i>Trifolium bifidum</i>	90	2	0.4	12	X		
	PLSTS	<i>Plagiobothrys stipitatus</i> var. <i>stipitatus</i>	90	2	0.4	5	X		
	POZI	<i>Pogogyne zizyphoroides</i>	90	2	0.4	7	X		
	LAGL4	<i>Lasthenia glabrata</i>	90	2	0.4	7	X		
	BRHO2	<i>Bromus hordeaceus</i>	80	4	0.4	25	X		
	TRDE	<i>Trifolium depauperatum</i>	80	2	0.4	8	X		
	ERVA5	<i>Eryngium vaseyi</i>	80	0.4	0.4	1	X		
	CEGL2	<i>Cerastium glomeratum</i>	80	0.4	0.4	1	X		
	VEPEX2	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	80	0.3	0.4	0.4	X		
	HOMA2	<i>Hordeum marinum</i>	70	1	0.4	4			
	LACH	<i>Layia chrysanthemoides</i>	70	0.6	0.4	4			
	SEVU	<i>Senecio vulgaris</i>	70	0.3	0.1	1			

HYGL2	<i>Hypochaeris glabra</i>	60	0.3	0.4	1
ANCO2	<i>Anthemis cotula</i>	60	0.2	0.4	0.4
PSOR	<i>Psilocarphus oregonus</i>	60	0.2	0.4	0.4
SOOL	<i>Sonchus oleraceus</i>	60	0.2	0.1	0.4
TRFU	<i>Trifolium fucatum</i>	50	0.5	0.4	3
LOWR2	<i>Lotus wrangelianus</i>	50	0.3	0.4	1
PLSTM	<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	50	0.3	0.4	1
AVFA	<i>Avena fatua</i>	50	0.2	0.4	0.4
TRER6	<i>Triphysaria eriantha</i>	40	5	2	35
HECA30	<i>Hesperervax caulescens</i>	40	0.4	0.4	3
BRMI2	<i>Briza minor</i>	40	0.2	0.4	0.4
LASE	<i>Lactuca serriola</i>	40	0.2	0.4	0.4
NALE	<i>Navarretia leucocephala</i>	40	0.2	0.4	0.4
RUCR	<i>Rumex crispus</i>	40	0.2	0.4	0.4
HEFI	<i>Hemizonia fitchii</i>	30	0.6	0.4	5
ACMO2	<i>Achyrrachaena mollis</i>	30	0.1	0.4	0.4
BRODI	<i>Brodiaea</i> sp.	30	0.1	0.4	0.4
DOOR	<i>Downingia ornatissima</i>	30	0.1	0.4	0.4
ERBO	<i>Erodium botrys</i>	30	0.1	0.4	0.4
GRCA	<i>Grindelia camporum</i>	30	0.1	0.4	0.4
LELAL3	<i>Lepidium latipes</i> var. <i>latipes</i>	30	0.1	0.4	0.4
PODO2	<i>Pogogyne douglasii</i>	30	0.1	0.4	0.4
PSBR	<i>Psilocarphus brevissimus</i>	30	0.1	0.4	0.4
LAFR4	<i>Lasthenia fremontii</i>	20	2	0.4	20

Association(s) Defined: *Hemizonia congesta* Provisional

***Hemizonia congesta* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Barbour et al. 2007, Witham 2003-2008

***Eschscholzia californica* Alliance (California poppy fields)**

Eschscholzia californica is dominant or co-dominant in the herbaceous layer, often occurring with *Erodium cicutarium*, *Bromus diandrus*, *B. hordeaceus*, and others. Herbs are <0.5 m tall, and cover is intermittent to continuous. Stands occur on upland slopes or flats. Soils are well drained, sandy to loamy, derived from many substrates, including sandy alluvium, serpentinite, and sandstone, and sites often have high levels of bioturbation.

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 12 -1229, average 541 m
 Total vegetation cover: range 15 - 65 %, average 32 %
 Tree cover: 0 %
 Shrub cover: range 0 - 0.2 %, average 0.03 %
 Herb cover: range 14 - 65 %, average 35 %
 Percent native cover relative to non-native cover: 47 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG-CNPS 2008, Kittel et al. 2009, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	ESCA2	<i>Eschscholzia californica</i>	100	9	4	15	X		X
	ERCI6	<i>Erodium cicutarium</i>	83	2	0.2	3	X		
	BRDI3	<i>Bromus diandrus</i>	67	7	0.2	27			
	BRHO2	<i>Bromus hordeaceus</i>	67	2	0.2	4			
	BRRU2	<i>Bromus rubens</i>	50	3	0.2	12			
	AVBA	<i>Avena barbata</i>	50	0.1	0.2	0.2			
	VUMY	<i>Vulpia myuros</i>	33	7	4	37			
	PLAG1	<i>Plagiobothrys</i> sp.	33	0.7	0.2	4			
	AMME	<i>Amsinckia menziesii</i>	33	0.2	0.2	1			
	ERIOG	<i>Eriogonum</i> sp.	33	0.2	0.2	1			
	HIIN3	<i>Hirschfeldia incana</i>	33	0.2	0.2	1			
	LUBI	<i>Lupinus bicolor</i>	33	0.2	0.2	1			

Association(s) Defined: *Eschscholzia californica*

***Eschscholzia californica* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz et al. 2011, CDFG-CNPS 2008, Kittel et al. 2009, Sawyer et al. 2009

Frankenia salina Alliance (Alkali heath marsh)

Frankenia salina is characteristic to co-dominant in the herbaceous layer, often occurring with *Bromus hordeaceus*, *Distichlis spicata*, *Hordeum marinum*, and others. Herbs are <60 cm, and cover is open to continuous. Stands occur in coastal salt marshes, brackish marshes, alkali meadows, and alkali playas. Soils are saline, sandy to clayey alluvium.

Two stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 35

Local Environmental Table:

Elevation: range 0 - 205, average 46 m
Total vegetation cover: range 12 - 100 %, average 64 %
Tree cover: range 0 - 1 %, average 0.03 %
Shrub cover: range 0 - 50 %, average 3 %
Herb cover: range 14 - 100%, average 62 %
Percent native cover relative to non-native cover: 46 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Keeler-Wolf and Vaghti 2000, Olson and Anacker 2009, Sawyer et al. 2009, Solomeshch 2004

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	FRSA	<i>Frankenia salina</i>	100	16	0.2	84	X		
	BRHO2	<i>Bromus hordeaceus</i>	69	7	0.2	40			
	DISP	<i>Distichlis spicata</i>	69	5	0.2	25			
	HOMA2	<i>Hordeum marinum</i>	51	9	0.2	35			
	BRDI3	<i>Bromus diandrus</i>	46	2	0.2	20			
	LASE	<i>Lactuca serriola</i>	46	0.3	0.2	3			
	CRTR5	<i>Cressa truxillensis</i>	37	2	0.2	15			
	VUMY	<i>Vulpia myuros</i>	37	2	0.2	36			
	HOMU	<i>Hordeum murinum</i>	34	2	0.2	40			
	VUBR	<i>Vulpia bromoides</i>	31	6	1	30			
	CEPU14	<i>Centromadia pungens</i>	29	0.2	0.1	5			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	26	3	0.2	70			
	ERCI6	<i>Erodium cicutarium</i>	20	1	0.2	13			
	AMME	<i>Amsinckia menziesii</i>	20	0.6	0.2	6			
	CESO3	<i>Centaurea solstitialis</i>	20	0.3	0.2	5			

Association(s) Defined: *Frankenia salina*
Frankenia salina–Distichlis spicata

Frankenia salina Association

Samples used to describe type: 17

Local Environmental Table:

Elevation: range 0 - 83 , average 45 m
Total vegetation cover: range 14 - 100 %, average 50 %
Tree cover: range 0 - 1 %, average 0.1 %
Shrub cover: range 0 - 50 %, average 5 %
Herb cover: range 14 - 100 %, average 46 %
Percent native cover relative to non-native cover: 58 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Keeler-Wolf and Vaghti 2000, Olson and Anacker 2009, Sawyer et al. 2009, Solomeshch 2004

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	FRSA	<i>Frankenia salina</i>	100	22	0.2	84	X		X
	HOMU	<i>Hordeum murinum</i>	47	3	0.2	40			
	VUMY	<i>Vulpia myuros</i>	47	2	0.2	36			
	DISP	<i>Distichlis spicata</i>	47	0.8	0.2	3			
	BRHO2	<i>Bromus hordeaceus</i>	41	2	0.2	21			
	AMME	<i>Amsinckia menziesii</i>	35	1	0.2	6			
	ERCI6	<i>Erodium cicutarium</i>	29	2	0.2	13			
	CEPU14	<i>Centromadia pungens</i>	29	0.1	0.2	1			

***Frankenia salina*–*Distichlis spicata* Association**

Samples used to describe type: 16

Local Environmental Table:

Elevation: range 19 - 205, average 39 m

Total vegetation cover: range 12 - 100 %, average 80 %

Tree cover: 0 %

Shrub cover: range 0 - 10 %, average 0.9 %

Herb cover: range 14 - 100 %, average 79 %

Percent native cover relative to non-native cover: 38 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2005, CDFG-CNPS 2008, Keeler-Wolf and Vaghti 2000, Olson and Anacker 2009, Sawyer et al. 2009, Solomeshch 2004

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	FRSA	<i>Frankenia salina</i>	100	11	3	40	X		
	DISP	<i>Distichlis spicata</i>	100	11	2	25	X		
	BRHO2	<i>Bromus hordeaceus</i>	94	11	0.2	25	X		
	HOMA2	<i>Hordeum marinum</i>	75	16	0.2	35	X		
	BRDI3	<i>Bromus diandrus</i>	63	2	0.2	20			
	LASE	<i>Lactuca serriola</i>	63	0.5	0.2	3			
	VUBR	<i>Vulpia bromoides</i>	56	10	1	25			
	CRTR5	<i>Cressa truxillensis</i>	50	3	0.2	10			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	38	5	0.2	70			
	CEPU14	<i>Centromadia pungens</i>	31	0.4	0.1	5			
	CESO3	<i>Centaurea solstitialis</i>	25	0.4	0.4	5			

Grindelia (camporum, stricta) Alliance (Gum plant patches)

Grindelia camporum, *G. stricta* or other *Grindelia* species is characteristic to co-dominant in the herbaceous layer, often occurring with *Medicago polymorpha*, *Hordeum marinum*, *Bromus hordeaceus*, *Lolium perenne* spp. *multiflorum*, *Lactuca serriola*, and others. Herbs are <1.5 m, and cover is open to continuous. Stands occur adjacent to sloughs, along shallow depressions, flood plain bottomlands, alkaline grassland flats, and other similar habitats. Sites typically have intermittent flooding, grazing, burning, and/or other disturbance. Soils are often alkaline/saline, sandy to clayey alluvium.

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 3 - 31 , average 22 m

Total vegetation cover: range 25 - 100 %, average 59 %

Tree cover: 0 %

Shrub cover: range 0 - 27 %, average 7 %

Herb cover: range 7 - 95 %, average 55 %

Percent native cover relative to non-native cover: 37 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: Buck-Diaz et al. 2011, Barbour et al. 2003, CDFG-CNPS 2008, Witham 2003-2008, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum Herb	Code	Species Name	Con	Avg	Min	Max	C	D	cD
	MEPO3	<i>Medicago polymorpha</i>	80	20	0.2	80	X		
	GRCA	<i>Grindelia camporum</i>	80	7	0.2	27	X		
	HOMA2	<i>Hordeum marinum</i>	80	6	1	30	X		
	BRHO2	<i>Bromus hordeaceus</i>	80	5	0.2	35	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	70	21	0.2	95			
	LASE	<i>Lactuca serriola</i>	70	1	0.2	3			
	DISP	<i>Distichlis spicata</i>	60	1	0.2	5			
	VUMY	<i>Vulpia myuros</i>	50	2	0.2	20			
	CEPU14	<i>Centromadia pungens</i>	50	0.4	0.2	3			
	RUCR	<i>Rumex crispus</i>	50	0.2	0.2	1			
	CEGL2	<i>Cerastium glomeratum</i>	50	0.1	0.2	0.4			
	ERCI6	<i>Erodium cicutarium</i>	40	3	2	12			
	ANCO2	<i>Anthemis cotula</i>	40	2	0.2	18			
	CESO3	<i>Centaurea solstitialis</i>	40	1	1	5			
	PHNO2	<i>Phyla nodiflora</i>	40	1	0.2	9			
	MEIN2	<i>Melilotus indicus</i>	40	0.4	0.2	3			
	ERVA5	<i>Eryngium vaseyi</i>	30	2	1	10			
	TRDE	<i>Trifolium depauperatum</i>	30	0.1	0.2	0.4			
	AMME	<i>Amsinckia menziesii</i>	20	2	0.2	15			
	LELA2	<i>Lepidium latifolium</i>	20	2	5	10			
	LOPU3	<i>Lotus purshianus</i>	20	0.5	0.2	5			
	GRIND	<i>Grindelia</i> sp.	20	0.3	0.2	3			

ACMO2	<i>Achyrachaena mollis</i>	20	0.3	1	2
HYGL2	<i>Hypochaeris glabra</i>	20	0.2	0.4	2

Association(s) Defined: *Grindelia camporum*

***Grindelia camporum* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz et al. 2011, Barbour et al. 2003, CDFG-CNPS 2008, Witham 2003-2008

***Helianthus annuus* Provisional Alliance (Annual sunflower patches)**

Helianthus annuus dominant in the herbaceous layer, often occurring with *Malvella leprosa*, *Xanthium strumarium*, and others. Herbs are < 2 m, and cover is open to intermittent. Stands occur adjacent to levees, along floodplains, and flats that usually receive intermittent flooding and/or other disturbance. Soils are clayey alluvium.

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 1 - 53 , average 25 m
Total vegetation cover: range 39 - 50 %, average 45 %
Tree cover: 0 %
Shrub cover: 0 %
Herb cover: range 39 - 50 %, average 45 %
Percent native cover relative to non-native cover: 86 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	HEAN3	<i>Helianthus annuus</i>	100	30	13	40	X	X	
	MALE3	<i>Malvella leprosa</i>	67	5	0.2	15			
	XAST	<i>Xanthium strumarium</i>	67	0.7	0.2	2			
	AMME	<i>Amsinckia menziesii</i>	67	0.4	0.2	1			
	RUCR	<i>Rumex crispus</i>	67	0.1	0.2	0.2			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	33	4	12	12			
	JUNCU	<i>Juncus</i> sp.	33	3	10	10			
	HOMU	<i>Hordeum murinum</i>	33	2	5	5			
	PACA6	<i>Panicum capillare</i>	33	1	4	4			
	FRSA	<i>Frankenia salina</i>	33	0.3	1	1			

Association(s) Defined: *Helianthus annuus* Provisional

***Helianthus annuus* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, Hickson and Keeler-Wolf 2007

Heterotheca (oregona, sessiliflora) Alliance (Goldenaster patches)

Heterotheca oregona or *H. sessiliflora* is co-dominant to dominant in the herb layer, occurring with other natives such as *Clarkia purpurea*, *Lotus unifoliolatus* var. *unifoliatus*, and non-natives such as *Bromus* spp., *Erodium* spp., *Hypochaeris glabra*, *Logfia gallica*, *Petrorhagia dubia*, and *Vulpia* spp. Stands identified within the northern Great Valley and North Coast Ranges include *H. oregona* as the dominant, while stands in the Central Coast Ranges include *H. sessiliflora* as the dominant (Kittel et al. 2009). The herbaceous layer is open to intermittent and emergent trees or shrubs may be present. Stands generally occur on flat to moderately steep slopes in upland and riparian settings. Soils are alluvial sands and sandy loams.

Samples used to describe type: 23

Local Environmental Table:

Elevation: range 14 - 183, average 63 m
 Total vegetation cover: range 3 - 20 %, average 10 %
 Tree cover: range 0 - 1 %, average 9 %
 Shrub cover: range 0 - 14 %, average 5 %
 Herb cover: range 0.2- 18 %, average 5 %
 Percent native cover relative to non-native cover: 78 %

Location(s) Sampled: Northeast and Northwest Great Valley, Northern California Interior Coast Ranges Ecoregion

References: GIC 2011, cf. Kittel et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	POFR2	<i>Populus fremontii</i>	22	0.2	0.2	2			
Herb									
	HEOR2	<i>Heterotheca oregona</i>	100	7	0.2	14	X	X	
	BRDI3	<i>Bromus diandrus</i>	61	0.3	0.2	2			
	VUMY	<i>Vulpia myuros</i>	57	0.8	0.2	7			
	PEDU2	<i>Petrorhagia dubia</i>	57	0.2	0.2	1			
	XAST	<i>Xanthium strumarium</i>	39	0.2	0.2	3			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	35	0.2	0.2	2			
	BRNI	<i>Brassica nigra</i>	35	0.2	0.2	1			
	BRTE	<i>Bromus tectorum</i>	35	0.1	0.2	0.2			
	HIIN3	<i>Hirschfeldia incana</i>	30	0.1	0.2	0.2			
	LOUNU	<i>Lotus unifoliolatus</i> var. <i>unifoliolatus</i>	26	0.1	0.2	1			
	SOHA	<i>Sorghum halepense</i>	26	0.1	0.2	1			
	TRHI4	<i>Trifolium hirtum</i>	26	0.1	0.2	1			
	HYGL2	<i>Hypochaeris glabra</i>	26	0.1	0.2	0.2			
Non-vasc									
	2MOSS	Unknown Moss	22	2	0.2	30			

Association(s) defined: *Heterotheca oregona*

***Heterotheca oregona* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011

***Holocarpha virgata* Provisional Alliance (Virgate tarplant flower fields)**

Holocarpha virgata is characteristically present to co-dominant in the herbaceous layer with *Erodium botrys*, *Bromus hordeaceus*, *Vulpia bromoides*, *Taeniatherum caput-medusae*, *Leontodon taraxacoides*, and others. Herbs are <75 cm, and cover is intermittent to continuous. Stands occur across grassland foothills and valleys, rangelands, and openings in woodlands. Stands of this alliance are similar to and were previously described under the *Bromus (diandrus, hordeaceus) – Brachypodium distachyon* Alliance because the annual bromes and other non-natives typical of that broad semi-natural type are also found in this provisional alliance. However, we are recognizing *Holocarpha virgata* as a native diagnostic species of valley and foothill grasslands that often dominant stands in late spring and summer.

Other native *Holocarpha* species, including *H. heermannii* and *H. obconica*, may be diagnostic and co-dominant in grasslands of the central and southern foothills and valleys, whereby broadening the definition of this provisional alliance to include these *Holocarpha* stands should be considered. Further analysis with full species lists from field surveys, over a period of several seasons and years in permanent plots, are needed to understand the relationships between the component vegetation associations of this type, other *Holocarpha* spp. stands, and similar semi-natural stand types.

Samples used to describe type: 45

Local Environmental Table:

Elevation: range 24 - 114, average 44 m
 Total vegetation cover: range 30 - 90 %, average 74 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 36 - 93 %, average 74 %
 Percent native cover relative to non-native cover: 12 %

Location(s) Sampled: Northeast and Southeast Great Valley

References: Barbour et al. 2003, CNPS Chapter 1993-2007, Klein et al. 2007, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	ERBO	<i>Erodium botrys</i>	100	17	0.1	40	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	16	0.1	65	X		
	VUBR	<i>Vulpia bromoides</i>	100	8	1	40	X		
	HOVI	<i>Holocarpha virgata</i>	98	4	0.1	23	X		
	TACA8	<i>Taeniatherum caput-medusae</i>	96	7	0.1	28	X		
	LETA	<i>Leontodon taraxacoides</i>	93	8	0.1	22	X		
	AVFA	<i>Avena fatua</i>	87	2	0.1	10	X		
	TRHI4	<i>Trifolium hirtum</i>	78	2	0.1	10	X		
	BRMI2	<i>Briza minor</i>	64	0.6	0.1	15			
	TRDU2	<i>Trifolium dubium</i>	62	1	0.1	18			
	JUBU	<i>Juncus bufonius</i>	62	1	0.1	6			
	CRSE11	<i>Croton setigerus</i>	60	0.2	0.1	2			
	BRDI3	<i>Bromus diandrus</i>	53	1	0.1	25			

LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	53	1	0.1	12
AETR	<i>Aegilops triuncialis</i>	51	1	0.1	22
HYGL2	<i>Hypochaeris glabra</i>	47	2	0.1	35
TRMI4	<i>Trifolium microcephalum</i>	42	0.5	0.1	7
TRHY3	<i>Triteleia hyacinthina</i>	40	0.2	0.1	2
CAAT25	<i>Castilleja attenuata</i>	40	0.1	0.1	1
LUBI	<i>Lupinus bicolor</i>	36	2	0.1	20
BREL	<i>Brodiaea elegans</i>	36	0.2	0.1	5
AICA	<i>Aira caryophyllea</i>	31	0.2	0.1	4
PLFU	<i>Plagiobothrys fulvus</i>	27	0.1	0.1	1
LOPU3	<i>Lotus purshianus</i>	22	0.3	0.1	4
HOMA2	<i>Hordeum marinum</i>	22	0.3	0.1	5

Association(s) Defined: *Holocarpha virgata* Provisional

***Holocarpha virgata* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Barbour et al. 2003, CNPS Chapter 1993-2007, Klein et al. 2007, Witham 2003-2008

***Hordeum brachyantherum* Alliance (Meadow barley patches)**

Hordeum brachyantherum is characteristic to co-dominant in the herbaceous layer, often occurring with *Medicago polymorpha*, *Trifolium repens*, *Plantago lanceolata*, and others. Herbs are <1 m, and cover is continuous. Stands occur in moist to wet meadows, stream terraces, and sites adjacent to springs and seeps. Soils can be derived from serpentinite and other substrates.

Samples used to describe type: 7

Local Environmental Table:

Elevation: range 3 - 934, average 136 m
Total vegetation cover: range 45 - 100 %, average 89 %
Tree cover: 0 %
Shrub cover: range 0 - 0.4 %, average 0.06%
Herb cover: range 45 - 100%, average 89 %
Percent native cover relative to non-native cover: 32 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: Buck-Diaz et al. 2011, Evens and Kentner (2006), Manning and Padgett 1995, Sawyer et al. 2009, Smith 1998, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	HOB2	<i>Hordeum brachyantherum</i>	100	37	6	50	X		
	MEPO3	<i>Medicago polymorpha</i>	100	16	0.2	60	X		
	TRRE3	<i>Trifolium repens</i>	86	56	30	90	X		
	PLLA	<i>Plantago lanceolata</i>	86	22	1	50	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	86	10	5	25	X		
	LOCO6	<i>Lotus corniculatus</i>	86	8	0.4	15	X		
	RUCR	<i>Rumex crispus</i>	86	2	0.4	5	X		
	HOMA2	<i>Hordeum marinum</i>	71	5	0.4	20			
	SCPH	<i>Schedonorus phoenix</i>	71	4	1	15			
	ELMA5	<i>Eleocharis macrostachya</i>	43	7	0.4	45			
	LELA2	<i>Lepidium latifolium</i>	43	0.5	0.4	3			
	CYER	<i>Cyperus eragrostis</i>	29	0.5	0.4	3			
	POAN	<i>Poa annua</i>	29	0.3	0.4	2			

Association(s) Defined: *Hordeum brachyantherum*

***Hordeum brachyantherum* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz et al. 2011, Manning and Padgett 1995, Sawyer et al. 2009, Smith 1998, Witham 2003-2008

***Juncus arcticus* (var. *balticus*, *mexicanus*) Alliance (Baltic and Mexican rush marshes)**

Juncus arcticus var. *balticus* (= *J. arcticus* var. *littoralis*) or *J. mexicanus* is characteristic in the herbaceous layer, often occurring with *Distichlis spicata*, *Leymus triticoides*, *Lepidium latifolium*, and others. In some stands, *Carex praegracilis* may be dominant while *J. a. var. balticus* is low in cover. Herbs are <1 m tall, and cover is open to continuous. Stands occur in wet and mesic meadows; along stream banks, rivers, lakes, ponds, fens and sloughs; and freshwater, brackish, and alkaline marshes. Soils are typically poorly drained, often with a thick, organic layer.

Samples used to describe type: 18

Local Environmental Table:

Elevation: range 6 - 770, average 80 m
 Total vegetation cover: range 17 - 95 %, average 46 %
 Tree cover: 0 %
 Shrub cover: range 0 - 0.2 %, average 0.01%
 Herb cover: range 17 - 95 %, average 46 %
 Percent native cover relative to non-native cover: 85 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: CDFG-CNPS 2008, Evens et al. 2006, GIC 2011, Keeler-Wolf and Vaghti 2000, Klein et al. 2007, Sawyer et al. 2009, Solomeshch 2004, Weixelman et al. 1999

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	JUARL	<i>Juncus arcticus</i> var. <i>balticus</i>	72	23	0.2	90			
	DISP	<i>Distichlis spicata</i>	56	0.6	0.2	5			
	LETR5	<i>Leymus triticoides</i>	39	0.5	0.2	5			
	JUME4	<i>Juncus mexicanus</i>	28	9	6	75			
	LELA2	<i>Lepidium latifolium</i>	28	4	0.2	42			
	RUCR	<i>Rumex crispus</i>	28	0.3	0.2	5			
	POMO5	<i>Polypogon monspeliensis</i>	28	0.2	0.2	2			

Association(s) Defined: *Juncus arcticus* var. *balticus*
Juncus arcticus var. *balticus*–*Carex praegracilis*
Juncus arcticus var. *balticus*–*Lepidium latifolium* Provisional
Juncus arcticus var. *mexicanus*

***Juncus arcticus* var. *balticus* Association**

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 6 - 770, average 102 m

Total vegetation cover: range 17 - 95 %, average 45 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 17 - 95 %, average 44 %

Percent native cover relative to non-native cover: 95 %

Location(s) Sampled: Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011, Sawyer et al. 2009, Solomeshch 2004, Weixelman et al. 1999

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	JUARL	<i>Juncus arcticus</i> var. <i>balticus</i>	100	38	11	90	X	X	
	DISP	<i>Distichlis spicata</i>	50	0.6	0.2	5			
	LASE	<i>Lactuca serriola</i>	40	0.3	0.2	2			
	RUCR	<i>Rumex crispus</i>	40	0.1	0.2	0.4			
	LETR5	<i>Leymus triticoides</i>	30	0.8	0.2	5			
	POMO5	<i>Polypogon monspeliensis</i>	30	0.3	0.2	2			

***Juncus arcticus* var. *balticus*–*Carex praegracilis* Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 106- 110, average 108 m
 Total vegetation cover: range 57 -78 %, average 67 %
 Tree cover: 0 %
 Shrub cover: range 0 - 0.2 %, average 0.1%
 Herb cover: range 58 - 81 %, average 69 %
 Percent native cover relative to non-native cover: 97 %

Location(s) Sampled: Southeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	SUMO	<i>Suaeda nigra</i>	50	0.1	0.2	0.2			
Herb									
	CAPR5	<i>Carex praegracilis</i>	100	66	55	76	X	X	
	ANCA10	<i>Anemopsis californica</i>	50	2	3	3			
	DISP	<i>Distichlis spicata</i>	50	1	2	2			
	URUR	<i>Urtica urens</i>	50	1	2	2			
	LETR5	<i>Leymus triticoides</i>	50	0.5	1	1			
	BRHO2	<i>Bromus hordeaceus</i>	50	0.1	0.2	0.2			
	CIVU	<i>Cirsium vulgare</i>	50	0.1	0.2	0.2			
	JUARL	<i>Juncus arcticus</i> var. <i>balticus</i>	50	0.1	0.2	0.2			

***Juncus arcticus* var. *balticus*–*Lepidium latifolium* Provisional Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 28 - 28 , average 28 m

Total vegetation cover: range 27 - 48 %, average 37 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 27 - 48 %, average 37 %

Percent native cover relative to non-native cover: 36 %

Location(s) Sampled: Southwest Great Valley

References: GIC 2011, Keeler-Wolf and Vaghti 2000, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LELA2	<i>Lepidium latifolium</i>	100	34	25	42	X	X	
	JUARL	<i>Juncus arcticus</i> var. <i>balticus</i>	100	18	11	25	X		X
	DISP	<i>Distichlis spicata</i>	50	1	2	2			

***Juncus arcticus* var. *mexicanus* Association**

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 27 - 48 , average 33 m

Total vegetation cover: range 30 - 75 %, average 42 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 30 - 75 %, average 42 %

Percent native cover relative to non-native cover: 80 %

Location(s) Sampled: Southwest Great Valley

References: Evens et al. 2006, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	JUME4	<i>Juncus mexicanus</i>	100	35	6	75	X	X	
	DISP	<i>Distichlis spicata</i>	75	0.2	0.2	0.2	X		
	LETR5	<i>Leymus triticoides</i>	50	0.1	0.2	0.2			
	POMO5	<i>Polypogon monspeliensis</i>	50	0.1	0.2	0.2			
	RUDE3	<i>Rumex dentatus</i>	50	0.1	0.2	0.2			
	CYDA	<i>Cynodon dactylon</i>	25	4	16	16			
	RUCR	<i>Rumex crispus</i>	25	1	5	5			
	ELMA5	<i>Eleocharis macrostachya</i>	25	1	4	4			
	POPE2	<i>Polygonum pensylvanicum</i>	25	0.8	3	3			
	XAST	<i>Xanthium strumarium</i>	25	0.3	1	1			

***Juncus effusus* Alliance (Soft rush marshes)**

In the two occurrences of this type sampled in the study area, *Juncus effusus* ssp. *pacificus* or *J. e.* ssp. *effusus* is dominant in the herbaceous layer, occurring with *J. acuminatus*, *Vulpia myuros*, and/or *Elymus trachycaulus*. Emergent *Pinus sabiniana* may be present at low cover. In the state of California, *J. effusus* is dominant in the herbaceous layer with *Bromus tectorum*, *Carex* spp., and others. Herbs are <1.3 m, and cover is intermittent. Stands occur in stock ponds, minor depressions, wet meadows, pasturelands, and seeps.

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 64 - 101, average 83 m
Total vegetation cover: range 35 - 55 %, average 45 %
Tree cover: range 0 - 20 %, average 10 %
Shrub cover: 0 %
Herb cover: range 35 - 47 %, average 41 %
Percent native cover relative to non-native cover: 95 %

Location(s) Sampled: Northeast and Southeast Great Valley

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	PISA2	<i>Pinus sabiniana</i>	50	10	20	20			
Herb									
	JUEF	<i>Juncus effusus</i>	100	34	25	43	X	X	
	JUAC	<i>Juncus acuminatus</i>	50	5	10	10			
	VUMY	<i>Vulpia myuros</i>	50	3	5	5			
	ELTR7	<i>Elymus trachycaulus</i>	50	2	4	4			

Association(s) Defined: *Juncus effusus*

***Juncus effusus* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, Klein et al. 2007, Sawyer et al. 2009

Juncus (oxymeris, xiphioides) Provisional Alliance (Iris-leaf rush seeps)

In the one occurrence of this type sampled in the study area, *Juncus xiphioides* is dominant in the herbaceous layer, occurring with *Eleocharis macrostachya*, *Eryngium vaseyi*, *Malvella leprosa*, and others. In the state of California, *J. oxymeris* or *J. xiphioides* is dominant in the herbaceous layer with *Carex serratodens*, *Cirsium fontinale* var. *campylon*, *Eleocharis macrostachya*, and others. Herbs are <1 m, and cover is intermittent to continuous. Stands occur in seeps, in which soils are alluvium and mainly derived from metamorphic, serpentinite, and volcanic substrates.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 5 m

Total vegetation cover: 41 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 41 %

Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Northeast Great Valley

References: GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	JUXI	<i>Juncus xiphioides</i>	100	30	30	30	X	X	
	ELMA5	<i>Eleocharis macrostachya</i>	100	9	9	9	X		
	ERVA5	<i>Eryngium vaseyi</i>	100	2	2	2	X		
	MALE3	<i>Malvella leprosa</i>	100	2	2	2	X		
	CHAL7	<i>Chenopodium album</i>	100	0.2	0.2	0.2	X		
	RUCR	<i>Rumex crispus</i>	100	0.2	0.2	0.2	X		

Association(s) Defined: *Juncus xiphioides* Provisional

***Juncus xiphioides* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011

***Lasthenia californica*–*Plantago erecta*–*Vulpia microstachys* Alliance (California goldfields–Dwarf plantain–Six-weeks fescue flower fields)**

Lasthenia californica, *L. gracilis*, *L. minor*, *Plantago erecta*, and/or *Vulpia microstachys* are typically characteristic in the herbaceous layer, often occurring with *Bromus hordeaceus*, *Trifolium depauperatum*, *Hypochaeris glabra*, and others. Stands are often rich in species composition with a variety of native herbs, and sometimes they may be dominated with Herbs are <60 cm, and cover is open to continuous. Stands occur on all topographic settings from flats to slopes of all aspects and ridges. Soils are shallow, loams and clays, especially on mixed alluvium, volcanic and serpentinite substrates.

Samples used to describe type: 103

Local Environmental Table:

Elevation: range 12 -1051, average 140 m
 Total vegetation cover: range 8 - 90 %, average 41 %
 Tree cover: range 0 - 5 %, average 0.06%
 Shrub cover: range 0 - 4 %, average 0.06%
 Herb cover: range 8 - 93 %, average 43 %
 Percent native cover relative to non-native cover: 59 %

Location(s) Sampled: All Great Valley, Sierra Nevada Foothills Ecoregion

References: Barbour et al. 2003, Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011, CDFG-CNPS 2008, Evens and San 2004, Evens et al. 2006, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009, Taylor et al. 1992

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	BRHO2	<i>Bromus hordeaceus</i>	83	5	0.2	40	X		
	LACA7	<i>Lasthenia californica</i>	66	4	0.1	40			
	VUMI	<i>Vulpia microstachys</i>	66	2	0.2	30			
	TRDE	<i>Trifolium depauperatum</i>	60	0.6	0.1	13			
	PLER3	<i>Plantago erecta</i>	59	0.7	0.2	6			
	HYGL2	<i>Hypochaeris glabra</i>	56	2	0.1	17			
	ERBO	<i>Erodium botrys</i>	50	3	0.2	20			
	TRER6	<i>Triphysaria eriantha</i>	49	0.6	0.2	12			
	LENI	<i>Lepidium nitidum</i>	44	1	0.2	30			
	VUBR	<i>Vulpia bromoides</i>	42	2	0.2	30			
	AICA	<i>Aira caryophyllea</i>	40	1	0.2	40			
	VUMY	<i>Vulpia myuros</i>	38	0.8	0.2	30			
	TRHI4	<i>Trifolium hirtum</i>	38	0.5	0.2	16			
	TRMI4	<i>Trifolium microcephalum</i>	38	0.1	0.1	2			
	HEFI	<i>Hemizonia fitchii</i>	36	0.2	0.2	3			
	NATA3	<i>Navarretia tagetina</i>	35	0.8	0.2	10			
	CRCO34	<i>Crassula connata</i>	34	0.8	0.1	15			
	LAFR2	<i>Layia fremontii</i>	34	0.4	0.1	10			
	JUBU	<i>Juncus bufonius</i>	34	0.4	0.1	15			
	ERC16	<i>Erodium cicutarium</i>	33	0.5	0.2	20			

LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	33	0.3	0.2	13
AVBA	<i>Avena barbata</i>	32	1	0.1	25
BRODI	<i>Brodiaea</i> sp.	30	0.3	0.1	10
TACA8	<i>Taeniatherum caput-medusae</i>	29	0.6	0.2	10
CHAN2	<i>Chlorogalum angustifolium</i>	29	0.2	0.2	4
HOMA2	<i>Hordeum marinum</i>	27	0.6	0.2	10
BRRU2	<i>Bromus rubens</i>	27	0.3	0.1	10
MEPO3	<i>Medicago polymorpha</i>	26	0.5	0.1	12

Association(s) defined: *Lasthenia (californica, gracilis)*
Lasthenia californica–Plagiobothrys acanthocarpa–Medicago polymorpha Provisional
Lasthenia minor Provisional
Layia pentachaeta–Plagiobothrys (canescens) Provisional
Lepidium nitidum–Trifolium gracilentum–Vulpia microstachys
Selaginella hansenii–Vulpia microstachys
Vulpia microstachys Provisional
Vulpia microstachys–Lasthenia californica–Agrostis elliotiana
Vulpia microstachys–Lasthenia californica–Sedella pumila
Vulpia microstachys–Navarretia tagetina
Vulpia microstachys–Plantago erecta

***Lasthenia (californica, gracilis)* Association**

Samples used to describe type: 13

Local Environmental Table:

Elevation: range 12 - 976, average 188 m

Total vegetation cover: range 30 - 90 %, average 47 %

Tree cover: 0 %

Shrub cover: range 0 - 4 %, average 0.3 %

Herb cover: range 30 - 93 %, average 48 %

Percent native cover relative to non-native cover: 67 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009, Taylor et al. 1992

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	LACA7	<i>Lasthenia (californica, gracilis)</i>	92	19	2	40	X		X
	LEDI2	<i>Lepidium dictyotum</i>	77	1	0.2	5	X		
	BRHO2	<i>Bromus hordeaceus</i>	69	5	0.2	30			
	VUMY	<i>Vulpia myuros</i>	69	3	0.2	15			
	CRCO34	<i>Crassula connata</i>	69	1	0.2	7			
	CEPU14	<i>Centromadia pungens</i>	62	3	0.2	20			
	TRDE	<i>Trifolium depauperatum</i>	62	0.8	0.2	50			
	VUMI	<i>Vulpia microstachys</i>	54	1	0.2	9			
	LENI	<i>Lepidium nitidum</i>	54	0.5	0.2	5			
	HOMA2	<i>Hordeum marinum</i>	46	2	0.2	10			
	HODE2	<i>Hordeum depressum</i>	46	1	0.2	8			
	BRRU2	<i>Bromus rubens</i>	46	0.5	0.1	5			
	JUBU	<i>Juncus bufonius</i>	38	1	0.2	15			
	ERCI6	<i>Erodium cicutarium</i>	38	1	0.2	12			
	HOMU	<i>Hordeum murinum</i>	38	0.3	0.1	2			
	VUBR	<i>Vulpia bromoides</i>	31	3	2	30			
	AMME	<i>Amsinckia menziesii</i>	31	1	0.1	13			
	DISP	<i>Distichlis spicata</i>	31	0.6	0.2	4			
	TRER6	<i>Triphysaria eriantha</i>	31	0.4	0.2	4			
	PLEL	<i>Plantago elongata</i>	31	0.2	0.2	2			

***Lasthenia californica*–*Plagiobothrys acanthocarpa*–*Medicago polymorpha*
Provisional Association**

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 91 - 139, average 121 m
 Total vegetation cover: range 25 - 65 %, average 44 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 25 - 65 %, average 44 %
 Percent native cover relative to non-native cover: 44 %

Location(s) Sampled: Southeast Great Valley

References: Buck-Diaz et al. 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	PLAC	<i>Plagiobothrys acanthocarpus</i>	100	6	0.2	15	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	5	0.2	12	X		
	MEPO3	<i>Medicago polymorpha</i>	100	4	0.2	12	X		
	HYGL2	<i>Hypochaeris glabra</i>	100	2	0.2	5	X		
	JUBU	<i>Juncus bufonius</i>	100	0.4	0.2	1	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	0.4	0.2	1	X		
	HECR2	<i>Hedypnois cretica</i>	90	6	1	10	X		
	SOSE2	<i>Soliva sessilis</i>	90	4	0.2	10	X		
	VUBR	<i>Vulpia bromoides</i>	90	0.9	0.2	5	X		
	PLER3	<i>Plantago erecta</i>	80	1	0.2	5	X		
	HOVI	<i>Holocarpha virgata</i>	80	0.4	0.2	2	X		
	SADEO	<i>Sagina decumbens</i> ssp. <i>occidentalis</i>	80	0.2	0.2	0.2	X		
	LACA7	<i>Lasthenia californica</i>	70	3	0.2	10			
	HOMA2	<i>Hordeum marinum</i>	70	1	0.2	5			
	LEBI8	<i>Leptosiphon bicolor</i>	70	0.5	0.2	1			
	CRSE11	<i>Croton setigerus</i>	70	0.4	0.2	2			
	PSTE	<i>Psilocarphus tenellus</i>	70	0.1	0.2	0.2			
	LOGA2	<i>Logfia gallica</i>	60	0.8	0.2	3			
	HOMU	<i>Hordeum murinum</i>	60	0.8	0.2	3			
	TRDE	<i>Trifolium depauperatum</i>	60	0.3	0.2	10			
	HEFI	<i>Hemizonia fitchii</i>	60	0.2	0.2	1			
	GAPH2	<i>Gastridium phleoides</i>	50	1	0.2	5			
	VUMY	<i>Vulpia myuros</i>	50	0.3	0.2	1			
	CRTI	<i>Crassula tillaea</i>	50	0.2	0.2	1			
	TRHI4	<i>Trifolium hirtum</i>	50	0.2	0.2	1			
	ERBO	<i>Erodium botrys</i>	40	2	0.2	15			
	HECA30	<i>Hesperervax caulescens</i>	40	2	0.2	15			

	HEAC8	<i>Hesperevax acaulis</i>	40	1	0.2	10		
	CRCO34	<i>Crassula connata</i>	40	0.2	0.2	1		
	TRMI4	<i>Trifolium microcephalum</i>	40	0.2	0.2	1		
	ERBR14	<i>Erodium brachycarpum</i>	30	0.8	0.2	5		
	MIDO	<i>Microseris douglasii</i>	30	0.5	0.2	3		
Non-vasc								
	2MOSS	Unknown Moss	80	13	5	25	X	X
	2LICHN	Unknown Lichen	70	0.2	0.2	1		

***Lasthenia minor* Provisional Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 69 m

Total vegetation cover: 30 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 31 - 31 %, average 30 %

Percent native cover relative to non-native cover: 24 %

Location(s) Sampled: Southeast Great Valley

References: Buck-Diaz and Evens 2011a, CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRDI3	<i>Bromus diandrus</i>	100	17	17	17	X	X	
	LAMI5	<i>Lasthenia minor</i>	100	7	7	7	X		
	ERCI6	<i>Erodium cicutarium</i>	100	2	2	2	X		
	HOMU	<i>Hordeum murinum</i>	100	2	2	2	X		
	VUMY	<i>Vulpia myuros</i>	100	2	2	2	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	0.2	0.2	0.2	X		
	CRCO34	<i>Crassula connata</i>	100	0.2	0.2	0.2	X		
	ERPA14	<i>Eremalche parryi</i>	100	0.2	0.2	0.2	X		
	LEGL18	<i>Lessingia glandulifera</i>	100	0.2	0.2	0.2	X		

***Layia pentachaeta*–*Plagiobothrys (canescens)* Provisional Association**

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 61 - 124, average 106 m

Total vegetation cover: range 15 - 50 %, average 38 %

Tree cover: 0 %

Shrub cover: range 0 - 0.2 %, average 0.03%

Herb cover: range 16 - 50 %, average 39 %

Percent native cover relative to non-native cover: 66 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz et al. 2011, Buck-Diaz et al. 2011, CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	SCHIS	<i>Schismus</i> sp.	100	9	0.2	25	X		
	ERCI6	<i>Erodium cicutarium</i>	100	2	0.2	5	X		
	BRRU2	<i>Bromus rubens</i>	100	0.9	0.2	2	X		
	HOMU	<i>Hordeum murinum</i>	100	0.8	0.1	2	X		
	AMME	<i>Amsinckia menziesii</i>	83	3	1	10	X		
	VUMY	<i>Vulpia myuros</i>	83	0.3	0.2	1	X		
	PLCA2	<i>Plagiobothrys canescens</i>	67	7	0.2	28			
	LAPE	<i>Layia pentachaeta</i>	67	3	0.2	10			
	PEPE26	<i>Pectocarya penicillata</i>	67	1	1	3			
	LENI	<i>Lepidium nitidum</i>	67	0.7	0.2	3			
	MACO3	<i>Malacothrix coulteri</i>	67	0.3	0.1	1			
	SEVU	<i>Senecio vulgaris</i>	67	0.1	0.1	0.2			
	CRCO34	<i>Crassula connata</i>	50	4	4	10			
	LAMI5	<i>Lasthenia minor</i>	50	0.4	0.2	1			
	LACA7	<i>Lasthenia californica</i>	50	0.1	0.2	0.2			
	GULA4	<i>Guillenia lasiophylla</i>	33	4	10	15			

***Lepidium nitidum*–*Trifolium gracilentum*–*Vulpia microstachys* Association**

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 66 - 182, average 112 m

Total vegetation cover: range 35 - 40 %, average 38 %

Tree cover: 0 %

Shrub cover: range 0 - 0.2 %, average 0.1%

Herb cover: range 35 - 41 %, average 38 %

Percent native cover relative to non-native cover: 81 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LENI	<i>Lepidium nitidum</i>	100	17	8	30	X		X
	CRCO34	<i>Crassula connata</i>	100	7	3	15	X		
	LACA7	<i>Lasthenia californica</i>	100	6	0.2	15	X		
	ERCI6	<i>Erodium cicutarium</i>	100	6	0.2	20	X		
	BRRU2	<i>Bromus rubens</i>	100	2	0.2	5	X		
	VUMY	<i>Vulpia myuros</i>	100	0.4	0.2	1	X		
	SCHIS	<i>Schismus</i> sp.	75	0.2	0.2	0.2	X		
	LAPE	<i>Layia pentachaeta</i>	75	0.1	0.1	0.2	X		
	VUMI	<i>Vulpia microstachys</i>	50	1	2	3			
	HOMU	<i>Hordeum murinum</i>	50	0.3	0.2	1			
	ASDI3	<i>Astragalus didymocarpus</i>	50	0.1	0.2	0.2			
	TRDE	<i>Trifolium depauperatum</i>	25	3	13	13			
	TRGR2	<i>Trifolium gracilentum</i>	25	0.8	3	3			
	PLAGI	<i>Plagiobothrys</i> sp.	25	0.3	1	1			
	PLCA2	<i>Plagiobothrys canescens</i>	25	0.3	1	1			
Non-vasc									
	CRYPTO	Cryptogamic crust	50	9	4	30			
	2MOSS	Unknown Moss	25	0.3	1	1			

***Selaginella hansenii*–*Vulpia microstachys* Provisional Association**

Samples used to describe type: 8

Local Environmental Table:

Elevation: range 91 - 500, average 236 m
 Total vegetation cover: range 9 - 80 %, average 45 %
 Tree cover: range 0 - 5 %, average 0.6%
 Shrub cover: range 0 - 1 %, average 0.1%
 Herb cover: range 13 - 80 %, average 49 %
 Percent native cover relative to non-native cover: 79 %

Location(s) Sampled: Northeast Great Valley, Sierra Nevada Foothills Ecoregion

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	SEHA2	<i>Selaginella hansenii</i>	100	33	2	76	X	X	
	VUMI	<i>Vulpia microstachys</i>	100	2	0.2	5	X		
	PLER3	<i>Plantago erecta</i>	88	1	0.2	3	X		
	GITR2	<i>Gilia tricolor</i>	75	1	0.2	6	X		
	AVBA	<i>Avena barbata</i>	75	0.5	0.2	3	X		
	HYGL2	<i>Hypochaeris glabra</i>	63	3	1	11			
	BRHO2	<i>Bromus hordeaceus</i>	63	2	1	6			
	BRMA3	<i>Bromus madritensis</i>	63	0.5	0.2	2			
	ERCI6	<i>Erodium cicutarium</i>	63	0.1	0.2	0.2			
	BRODI	<i>Brodiaea</i> sp.	50	0.2	0.2	1			
	DICA14	<i>Dichelostemma capitatum</i>	50	0.1	0.2	0.2			
	LENI	<i>Lepidium nitidum</i>	50	0.1	0.2	0.2			
	TRMI4	<i>Trifolium microcephalum</i>	50	0.1	0.2	0.2			
	TRHI4	<i>Trifolium hirtum</i>	38	0.7	0.2	4			
	PEDU2	<i>Petrorhagia dubia</i>	38	0.5	0.2	2			
	AICA	<i>Aira caryophyllea</i>	38	0.4	0.2	2			
	ERBO	<i>Erodium botrys</i>	38	0.2	0.2	1			
	LEVI8	<i>Lessingia virgata</i>	38	0.2	0.2	1			
	LUSP3	<i>Lupinus spectabilis</i>	25	0.9	0.2	7			
	ERBR14	<i>Erodium brachycarpum</i>	25	0.9	1	6			
	LAFR2	<i>Layia fremontii</i>	25	0.9	1	6			
	CLPU2	<i>Clarkia purpurea</i>	25	0.8	2	4			
	HEFI	<i>Hemizonia fitchii</i>	25	0.4	0.2	3			
	ESLO	<i>Eschscholzia lobbii</i>	25	0.3	0.2	2			
	CRFL4	<i>Cryptantha flaccida</i>	25	0.2	0.2	1			
Non-vasc									
	2MOSS	Unknown Moss	63	6	1	26			
	2LW	Unknown Liverwort	25	0.4	0.2	3			

***Vulpia microstachys* Provisional Association**

Samples used to describe type: 11

Local Environmental Table:

Elevation: range 37 -1051, average 262 m
 Total vegetation cover: range 18 -90 %, average 64 %
 Tree cover: range 0 - 1 %, average 0.1%
 Shrub cover: range 0 - 0.4 %, average 0.01%
 Herb cover: range 18 - 92 %, average 64%
 Percent native cover relative to non-native cover: 30 %

Location(s) Sampled: All Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG-CNPS 2008, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	12	2	35	X		
	VUMI	<i>Vulpia microstachys</i>	100	10	1	30	X		
	ERBO	<i>Erodium botrys</i>	73	11	3	20			
	BRDI3	<i>Bromus diandrus</i>	73	1	0.2	5			
	HYGL2	<i>Hypochaeris glabra</i>	64	3	0.2	13			
	AVBA	<i>Avena barbata</i>	55	5	0.2	25			
	LASE	<i>Lactuca serriola</i>	45	0.3	0.1	2			
	ERCI6	<i>Erodium cicutarium</i>	45	0.3	0.2	1			
	TRMI4	<i>Trifolium microcephalum</i>	45	0.2	0.4	0.4			
	AICA	<i>Aira caryophyllea</i>	36	6	0.4	40			
	GITR2	<i>Gilia tricolor</i>	36	0.9	0.2	6			
	BRODI	<i>Brodiaea</i> sp.	36	0.3	0.2	2			
	LUBI	<i>Lupinus bicolor</i>	36	0.2	0.1	2			
	JUBU	<i>Juncus bufonius</i>	36	0.1	0.2	0.4			
	BRRU2	<i>Bromus rubens</i>	27	1	0.2	10			
	DICA14	<i>Dichelostemma capitatum</i>	27	0.3	0.4	2			
	HOVI	<i>Holocarpha virgata</i>	27	0.2	0.2	1			
	LENI	<i>Lepidium nitidum</i>	27	0.1	0.4	0.4			
	TRDE	<i>Trifolium depauperatum</i>	27	0.1	0.4	0.4			

***Vulpia microstachys*–*Lasthenia californica*–*Agrostis elliotiana* Association**

Samples used to describe type: 7

Local Environmental Table:

Elevation: range 65 - 85 , average 73 m
 Total vegetation cover: range 35 - 60 %, average 45 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 35 - 60 %, average 45 %
 Percent native cover relative to non-native cover: 56 %

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LETA	<i>Leontodon taraxacoides</i>	100	9	0.2	30	X		
	TRER6	<i>Triphysaria eriantha</i>	100	4	0.2	12	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	4	0.2	7	X		
	AICA	<i>Aira caryophyllea</i>	100	4	1	10	X		
	ERBO	<i>Erodium botrys</i>	100	4	0.2	10	X		
	TRDU2	<i>Trifolium dubium</i>	100	3	0.2	13	X		
	TRDE	<i>Trifolium depauperatum</i>	100	1	0.2	3	X		
	BRODI	<i>Brodiaea</i> sp.	100	0.4	0.2	1	X		
	CAAT25	<i>Castilleja attenuata</i>	100	0.3	0.2	1	X		
	BRMI2	<i>Briza minor</i>	100	0.2	0.2	0.2	X		
	TRMI4	<i>Trifolium microcephalum</i>	100	0.2	0.2	0.2	X		
	LACA7	<i>Lasthenia californica</i>	86	6	0.2	12	X		
	NATA3	<i>Navarretia tagetina</i>	86	3	0.2	8	X		
	HYGL2	<i>Hypochaeris glabra</i>	86	3	1	5	X		
	CHAN2	<i>Chlorogalum angustifolium</i>	86	1	0.2	3	X		
	TRVA	<i>Trifolium variegatum</i>	86	0.7	0.2	4	X		
	JUBU	<i>Juncus bufonius</i>	86	0.5	0.2	2	X		
	LEBI8	<i>Leptosiphon bicolor</i>	86	0.5	0.2	1	X		
	PLER3	<i>Plantago erecta</i>	86	0.3	0.2	1	X		
	TRHI4	<i>Trifolium hirtum</i>	86	0.3	0.2	1	X		
	CIQU3	<i>Cicendia quadrangularis</i>	86	0.2	0.2	0.2	X		
	VUBR	<i>Vulpia bromoides</i>	71	2	1	5			
	CAMU3	<i>Calycadenia multiglandulosa</i>	71	0.7	0.2	3			
	TRHY3	<i>Triteleia hyacinthina</i>	71	0.5	0.2	3			
	SIGA	<i>Silene gallica</i>	71	0.1	0.2	0.2			
	LAFR2	<i>Layia fremontii</i>	57	2	0.2	10			
	ANMI4	<i>Anagallis minima</i>	57	0.7	0.2	4			
	AGEL4	<i>Agrostis elliotiana</i>	57	0.1	0.2	0.2			
	LOGA2	<i>Logfia gallica</i>	57	0.1	0.2	0.2			

	VUMI	<i>Vulpia microstachys</i>	57	0.1	0.2	0.2		
	GADI	<i>Galium divaricatum</i>	43	0.2	0.2	1		
	HEFI	<i>Hemizonia fitchii</i>	29	0.2	0.2	1		
	LOMI	<i>Lotus micranthus</i>	29	0.2	0.2	1		
Non-vasc								
	2MOSS	Unknown Moss	86	17	0.2	40	X	X

***Vulpia microstachys*–*Lasthenia californica*–*Sedella pumila* Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 101 m

Total vegetation cover: 23 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 23 %

Percent native cover relative to non-native cover: 64 %

Location(s) Sampled: Southeast Great Valley

References: Buck-Diaz et al. 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	CRCO34	<i>Crassula connata</i>	100	9	9	9	X		X
	SEPU4	<i>Sedella pumila</i>	100	6	6	6	X		
	ERBR14	<i>Erodium brachycarpum</i>	100	3	3	3	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	2	2	2	X		
	HOMA2	<i>Hordeum marinum</i>	100	2	2	2	X		
	HYGL2	<i>Hypochaeris glabra</i>	100	1	1	1	X		
	JUBU	<i>Juncus bufonius</i>	100	1	1	1	X		
	BRRU2	<i>Bromus rubens</i>	100	0.2	0.2	0.2	X		
	CEGL2	<i>Cerastium glomeratum</i>	100	0.2	0.2	0.2	X		
	JUCA5	<i>Juncus capitatus</i>	100	0.2	0.2	0.2	X		
	LETA	<i>Leontodon taraxacoides</i>	100	0.2	0.2	0.2	X		
	LENI	<i>Lepidium nitidum</i>	100	0.2	0.2	0.2	X		
	LILIXX	<i>Liliaceae</i>	100	0.2	0.2	0.2	X		
	PLER3	<i>Plantago erecta</i>	100	0.2	0.2	0.2	X		
	POAN	<i>Poa annua</i>	100	0.2	0.2	0.2	X		
	SIGA	<i>Silene gallica</i>	100	0.2	0.2	0.2	X		
	TRDE	<i>Trifolium depauperatum</i>	100	0.2	0.2	0.2	X		
	TRER6	<i>Triphysaria eriantha</i>	100	0.2	0.2	0.2	X		
	VUMI	<i>Vulpia microstachys</i>	100	0.2	0.2	0.2	X		
	VUMY	<i>Vulpia myuros</i>	100	0.2	0.2	0.2	X		
	CABU2	<i>Capsella bursa-pastoris</i>	100	0.1	0.1	0.1	X		
	HOVI	<i>Holocarpha virgata</i>	100	0.1	0.1	0.1	X		

Vulpia microstachys–Navarretia tagetina Association

Samples used to describe type: 32

Local Environmental Table:

Elevation: range 45 - 226, average 101 m
 Total vegetation cover: range 8 – 85 %, average 33 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 8 - 92 %, average 38 %
 Percent native cover relative to non-native cover: 63 %

Location(s) Sampled: Northeast and Northwest Great Valley

References: Barbour et al. 2003, GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	97	7	0.2	40	X		
	NATA3	<i>Navarretia tagetina</i>	88	2	0.2	10	X		
	PLER3	<i>Plantago erecta</i>	88	1	0.2	6	X		
	LACA7	<i>Lasthenia californica</i>	84	3	0.2	20	X		
	TRER6	<i>Triphysaria eriantha</i>	84	0.7	0.2	5	X		
	TRDE	<i>Trifolium depauperatum</i>	81	0.7	0.2	5	X		
	TACA8	<i>Taeniatherum caput-medusae</i>	75	2	0.2	10	X		
	LAFR2	<i>Layia fremontii</i>	75	0.7	0.2	5	X		
	VUMI	<i>Vulpia microstachys</i>	72	2	0.2	12			
	ERBO	<i>Erodium botrys</i>	72	2	0.2	12			
	AICA	<i>Aira caryophyllea</i>	69	1	0.2	7			
	CHAN2	<i>Chlorogalum angustifolium</i>	66	0.5	0.2	4			
	HEFI	<i>Hemizonia fitchii</i>	66	0.3	0.2	2			
	VUBR	<i>Vulpia bromoides</i>	59	3	0.2	30			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	59	0.8	0.2	13			
	TRHI4	<i>Trifolium hirtum</i>	56	0.2	0.2	2			
	HYGL2	<i>Hypochaeris glabra</i>	53	0.3	0.1	2			
	ACMO2	<i>Achyraea mollis</i>	53	0.3	0.2	2			
	PEDU2	<i>Petrorhagia dubia</i>	53	0.2	0.2	1			
	MICA7	<i>Minuartia californica</i>	50	0.3	0.1	2			
	BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	47	0.2	0.2	1			
	TRMI4	<i>Trifolium microcephalum</i>	44	0.2	0.1	2			
	BRODI	<i>Brodiaea</i> sp.	41	0.8	0.2	10			
	GAPH2	<i>Gastroidium phleoides</i>	41	0.3	0.1	4			
	HOMA2	<i>Hordeum marinum</i>	34	0.6	0.2	10			
	AVBA	<i>Avena barbata</i>	34	0.3	0.2	3			
	NAPU2	<i>Navarretia pubescens</i>	31	1	0.2	20			
	MEPO3	<i>Medicago polymorpha</i>	31	0.2	0.2	5			
	SEPU4	<i>Sedella pumila</i>	31	0.2	0.2	1			
	LEVI8	<i>Lessingia virgata</i>	28	0.4	0.2	5			

	CLPU2	<i>Clarkia purpurea</i>	25	0.3	0.2	5			
Non-vasc	2MOSS	Unknown Moss	59	7	0.2	30			

***Vulpia microstachys*–*Plantago erecta* Association**

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 40 - 244, average 1010 m
 Total vegetation cover: range 14 - 60%, average 32%
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 14 - 57 %, average 34 %
 Percent native cover relative to non-native cover: 56 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley, Sierra Nevada Foothills Ecoregion

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG-CNPS 2008, Evens and San 2004, Evens et al. 2006, GIC 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	4	0.2	15	X		
	VUMI	<i>Vulpia microstachys</i>	100	4	0.2	10	X		
	HYGL2	<i>Hypochaeris glabra</i>	100	3	0.2	10	X		
	PLER3	<i>Plantago erecta</i>	100	1	0.2	5	X		
	TRDE	<i>Trifolium depauperatum</i>	80	0.5	0.1	30	X		
	TRER6	<i>Triphysaria eriantha</i>	70	0.3	0.2	1			
	AVBA	<i>Avena barbata</i>	60	2	0.1	15			
	TRHI4	<i>Trifolium hirtum</i>	50	3	0.2	16			
	ERBO	<i>Erodium botrys</i>	50	2	0.2	8			
	CRCO34	<i>Crassula connata</i>	50	0.8	0.2	7			
	LACA7	<i>Lasthenia californica</i>	50	0.4	0.2	2			
	LAFR2	<i>Layia fremontii</i>	50	0.3	0.1	2			
	AICA	<i>Aira caryophyllea</i>	50	0.3	0.2	1			
	VUBR	<i>Vulpia bromoides</i>	40	2	0.2	15			
	TACA8	<i>Taeniatherum caput-medusae</i>	40	1	0.2	9			
	LEBI8	<i>Leptosiphon bicolor</i>	40	0.7	0.2	6			
	PLFU	<i>Plagiobothrys fulvus</i>	40	0.4	0.1	3			
	TRMI4	<i>Trifolium microcephalum</i>	40	0.3	0.1	2			
	CAAT25	<i>Castilleja attenuata</i>	40	0.2	0.2	1			
	ERBR14	<i>Erodium brachycarpum</i>	30	3	6	10			
	BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	30	1	0.2	9			
Non-vasc									
	2MOSS	Unknown Moss	80	14	0.2	50	X	X	
	CRYPTO	Cryptogamic crust	50	5	0.2	30			

***Lasthenia fremontii*–*Distichlis spicata* Alliance (Fremont's goldfields–Saltgrass alkaline vernal pools)**

Lasthenia fremontii and *Distichlis spicata* are characteristic of the herbaceous layer, often occurring with halophytes, such as *Frankenia salina*, and diagnostic vernal pool species, such as *Psilocarphus brevissimus*. Herbs are <50 cm, and cover is intermittent to continuous. Stands occur in alkaline or saline claypan vernal pools, on recent alluvial deposits of <20,000 years old. Soils are alkaline (pH > 9) with sodium-rich clay and low permeability. They are short-inundated and lose water mostly through evaporation. One stand in the study area showed additional variation and was classified to the alliance level only.

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 1 - 29 , average 20 m
 Total vegetation cover: range 14 - 95 %, average 51 %
 Tree cover: 0 %
 Shrub cover: range 0 - 1 %, average 0.1%
 Herb cover: range 14 - 95 %, average 54 %
 Percent native cover relative to non-native cover: 62 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: Barbour et al. 2003, Barbour et al. 2007, Buck-Diaz and Evens 2011a, CDFG-CNPS 2008, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	70	11	0.2	45			
	DISP	<i>Distichlis spicata</i>	70	2	0.2	10			
	FRSA	<i>Frankenia salina</i>	60	3	1	18			
	ANCO2	<i>Anthemis cotula</i>	60	0.8	0.2	5			
	PSBR	<i>Psilocarphus brevissimus</i>	60	0.7	0.1	3			
	HOMA2	<i>Hordeum marinum</i>	50	10	0.2	75			
	CEPU14	<i>Centromadia pungens</i>	50	0.8	0.2	3			
	VUBR	<i>Vulpia bromoides</i>	40	4	2	30			
	LASTH	<i>Lasthenia</i> sp.	40	2	0.2	16			
	BRHO2	<i>Bromus hordeaceus</i>	40	2	1	10			
	PLAGI	<i>Plagiobothrys</i> sp.	40	1	0.2	10			
	LACA7	<i>Lasthenia californica</i>	40	0.6	0.1	5			
	ACMO2	<i>Achyrachaena mollis</i>	40	0.2	0.1	1			
	GRIND	<i>Grindelia</i> sp.	40	0.2	0.2	1			
	LAGL3	<i>Lasthenia glaberrima</i>	30	1	0.4	12			
	TRER6	<i>Triphysaria eriantha</i>	30	1	0.4	10			
	EPILO	<i>Epilobium</i> sp.	30	0.3	0.2	2			
	DEDA	<i>Deschampsia danthonioides</i>	30	0.2	0.2	2			

Association(s) Defined: *Downingia pulchella*–*Cressa truxillensis*
Frankenia salina–*Psilocarphus brevissimus* Provisional
Limnanthes douglasii ssp. *rosea*–*Pleuropogon californicus*

***Downingia pulchella*–*Cressa truxillensis* Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 25 %
 Total vegetation cover: 21 %
 Tree cover: 0 %
 Shrub cover: 1 %
 Herb cover: 21 %
 Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Southwest Great Valley

References: Barbour et al. 2007, Sawyer et al. 2009, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	ALOC2	<i>Allenrolfea occidentalis</i>	100	1	1	1	X	X	
Herb									
	DOPU2	<i>Downingia pulchella</i>	100	20	20	20	X	X	
	COCO7	<i>Cotula coronopifolia</i>	100	0.2	0.2	0.2	X		
	CRTR5	<i>Cressa truxillensis</i>	100	0.2	0.2	0.2	X		
	LASTH	<i>Lasthenia</i> sp.	100	0.2	0.2	0.2	X		
	PLAGI	<i>Plagiobothrys</i> sp.	100	0.2	0.2	0.2	X		

***Frankenia salina*–*Psilocarphus brevissimus* Provisional Association**

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 1 - 27 , average 22 m
 Total vegetation cover: range 26 - 95 %, average 58 %
 Tree cover: 0 %
 Shrub cover: range 0 - 0.2 %, average 0.04 %
 Herb cover: range 26 - 95 %, average 58 %
 Percent native cover relative to non-native cover: 66 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: Buck-Diaz and Evens 2011a, Barbour et al. 2003, CDFG-CNPS 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	FRSA	<i>Frankenia salina</i>	100	6	1	18	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	83	8	0.2	45	X		
	ANCO2	<i>Anthemis cotula</i>	83	1	0.2	5	X		
	DISP	<i>Distichlis spicata</i>	83	0.7	0.2	3	X		
	CEPU14	<i>Centromadia pungens</i>	67	1	1	3			
	HOMA2	<i>Hordeum marinum</i>	50	13	0.2	75			
	LASTH	<i>Lasthenia</i> sp.	50	4	0.2	16			
	PLAGI	<i>Plagiobothrys</i> sp.	50	2	0.2	10			
	PSBR	<i>Psilocarphus brevissimus</i>	50	0.7	0.2	3			
	DEDA	<i>Deschampsia danthonioides</i>	50	0.4	0.2	2			
	GRIND	<i>Grindelia</i> sp.	50	0.2	0.2	1			
	HODE2	<i>Hordeum depressum</i>	50	0.2	0.2	1			
	BRHO2	<i>Bromus hordeaceus</i>	33	2	2	10			
	ERYNG	<i>Eryngium</i> sp.	33	1	1	7			
	VUBR	<i>Vulpia bromoides</i>	33	1	2	5			
	EPILO	<i>Epilobium</i> sp.	33	0.5	1	2			
	NALE	<i>Navarretia leucocephala</i>	33	0.3	1	1			
	POZI	<i>Pogogyne ziziphoroides</i>	33	0.2	0.4	1			
	LACA7	<i>Lasthenia californica</i>	33	0.1	0.4	0.4			

***Limnanthes douglasii* ssp. *rosea*–*Pleuropogon californicus* Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 3 - 8, average 6 m

Total vegetation cover: range 70 - 90 %, average 80 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 90 - 90 %, average 90%

Percent native cover relative to non-native cover: 25 %

Location(s) Sampled: Northwest Great Valley

References: Barbour et al. 2003, Barbour et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	30	25	35	X		X
	VUBR	<i>Vulpia bromoides</i>	100	17	3	30	X		
	DISP	<i>Distichlis spicata</i>	100	6	1	10	X		
	TRER6	<i>Triphysaria eriantha</i>	100	5	0.4	10	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	4	1	7	X		
	LACA7	<i>Lasthenia californica</i>	100	3	0.1	5	X		
	ACMO2	<i>Achyrachaena mollis</i>	100	0.7	0.4	1	X		
	ERBO	<i>Erodium botrys</i>	100	0.6	0.1	1	X		
	CEGL2	<i>Cerastium glomeratum</i>	100	0.4	0.4	0.4	X		
	LASE	<i>Lactuca serriola</i>	100	0.4	0.4	0.4	X		
	PLCA6	<i>Pleuropogon californicus</i>	100	0.4	0.4	0.4	X		
	ERCA33	<i>Eryngium castrense</i>	100	0.3	0.1	0.4	X		
	PSBR	<i>Psilocarphus brevissimus</i>	100	0.3	0.1	0.4	X		
	HOMA2	<i>Hordeum marinum</i>	50	10	20	20			
	CECA2	<i>Centaurea calcitrapa</i>	50	3	5	5			
	LIDOR2	<i>Limnanthes douglasii</i> ssp. <i>rosea</i>	50	3	5	5			
	MEPO3	<i>Medicago polymorpha</i>	50	2	3	3			
	POBU	<i>Poa bulbosa</i>	50	2	3	3			
	TRBA	<i>Trifolium barbigerum</i>	50	2	3	3			
	BLNAN	<i>Blennosperma nanum</i> var. <i>nanum</i>	50	1	2	2			
	ERMO7	<i>Erodium moschatum</i>	50	1	2	2			
	TRDE	<i>Trifolium depauperatum</i>	50	1	2	2			
	HYGL2	<i>Hypochaeris glabra</i>	50	0.5	1	1			
	LACH	<i>Layia chrysanthemoides</i>	50	0.5	1	1			
	LENI	<i>Lepidium nitidum</i>	50	0.5	1	1			
	MUMA2	<i>Muilla maritima</i>	50	0.5	1	1			
	BRMI2	<i>Briza minor</i>	50	0.2	0.4	0.4			
	CABU2	<i>Capsella bursa-pastoris</i>	50	0.2	0.4	0.4			
	ELMA5	<i>Eleocharis macrostachya</i>	50	0.2	0.4	0.4			
	GEDI	<i>Geranium dissectum</i>	50	0.2	0.4	0.4			
	LAGL3	<i>Lasthenia glaberrima</i>	50	0.2	0.4	0.4			

LYHY3	<i>Lythrum hyssopifolium</i>	50	0.2	0.4	0.4
PLER3	<i>Plantago erecta</i>	50	0.2	0.4	0.4
POAN	<i>Poa annua</i>	50	0.2	0.4	0.4
RUCR	<i>Rumex crispus</i>	50	0.2	0.4	0.4
SOOL	<i>Sonchus oleraceus</i>	50	0.2	0.4	0.4

***Lasthenia fremontii*–*Downingia (bicornuta)* Alliance (Fremont's goldfields–*Downingia* vernal pools)**

Lasthenia fremontii and *Downingia* spp. are characteristic in the herbaceous layer, occurring with diagnostic species, such as *Plagiobothrys stipitatus* var. *micranthus* and/or *Eryngium castrense*. Herbs are <60 cm, and cover is intermittent to continuous. Stands occur in shallow vernal pool bottoms and edges, mostly hardpan pools on older geomorphic surfaces but also on volcanic substrates. Soils have short periods of inundation.

Three stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 47

Local Environmental Table:

Elevation: range 3 - 122, average 39 m
 Total vegetation cover: range 5 - 99 %, average 60 %
 Tree cover: 0 %
 Shrub cover: range 0 - 6 %, average 0.3 %
 Herb cover: range 5 - 99 %, average 60 %
 Percent native cover relative to non-native cover: 85 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Barbour et al. 2007, Buck-Diaz et al. 2011, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	79	13	0.2	65	X		
	NALE	<i>Navarretia leucocephala</i>	74	12	0.2	90			
	PLSTM	<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	68	10	0.2	70			
	PSBR	<i>Psilocarphus brevissimus</i>	68	4	0.2	50			
	LAFR4	<i>Lasthenia fremontii</i>	60	13	0.2	75			
	ERVA5	<i>Eryngium vaseyi</i>	55	5	0.4	30			
	DOOR	<i>Downingia ornatissima</i>	51	5	0.2	25			
	POZI	<i>Pogogyne zizyphoroides</i>	49	4	0.2	30			
	LAGL4	<i>Lasthenia glabrata</i>	47	13	0.1	80			
	TRWI3	<i>Trifolium willdenovii</i>	45	2	0.2	45			
	VEPEX2	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	43	0.4	0.2	4			
	PLSTS	<i>Plagiobothrys stipitatus</i> var. <i>stipitatus</i>	40	5	0.4	40			
	LUBI	<i>Lupinus bicolor</i>	40	2	0.4	23			
	DEDA	<i>Deschampsia danthonioides</i>	38	3	0.1	60			
	MEPO3	<i>Medicago polymorpha</i>	36	3	0.2	60			
	TRER6	<i>Triphysaria eriantha</i>	36	0.5	0.2	5			
	JUBU	<i>Juncus bufonius</i>	36	0.2	0.2	2			

ACMO2	<i>Achyrrachaena mollis</i>	34	2	0.2	30
DOIN	<i>Downingia insignis</i>	34	0.5	0.4	10
ALSA3	<i>Alopecurus saccatus</i>	34	0.4	0.1	6
MITR3	<i>Mimulus tricolor</i>	34	0.2	0.4	2
RUCR	<i>Rumex crispus</i>	34	0.1	0.1	1
LAGL3	<i>Lasthenia glaberrima</i>	32	3	0.1	60
ELMA5	<i>Eleocharis macrostachya</i>	32	0.4	0.2	6
HOMA2	<i>Hordeum marinum</i>	30	1	0.2	35
EPCL3	<i>Epilobium cleistogamum</i>	30	0.2	0.2	2
PODO2	<i>Pogogyne douglasii</i>	28	5	0.4	50
DOBI	<i>Downingia bicornuta</i>	28	0.6	0.2	9
ERCA33	<i>Eryngium castrense</i>	26	0.5	0.2	5
HECA30	<i>Hesperervax caulescens</i>	23	0.7	0.1	20
PIAM	<i>Pilularia americana</i>	23	0.3	0.2	5

Association(s) Defined: *Downingia (bicornuta, cuspidata)*
Downingia insignis–Psilocarphus brevissimus
Eryngium (vaseyi, castrense)
Lasthenia fremontii Provisional
Lasthenia fremontii–Downingia bicornuta
Lasthenia fremontii–Downingia ornatissima

***Downingia (bicornuta, cuspidata)* Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 122 - 122, average 122 m
Total vegetation cover: range 66 - 72 %, average 69 %
Tree cover: 0 %
Shrub cover: 0 %
Herb cover: range 65 - 73 %, average 69 %
Percent native cover relative to non-native cover: 100 %

Location(s) Sampled: Northern California Interior Coast Ranges Ecoregion

References: Barbour et al. 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	PSBR	<i>Psilocarphus brevissimus</i>	100	16	7	24	X		
	DOCU	<i>Downingia cuspidata</i>	100	9	2	16	X		
	ELMA5	<i>Eleocharis macrostachya</i>	100	4	1	6	X		
	NALE	<i>Navarretia leucocephala</i>	50	23	45	45			
	DEDA	<i>Deschampsia danthonioides</i>	50	14	27	27			
	LACA7	<i>Lasthenia californica</i>	50	2	4	4			
	PLST	<i>Plagiobothrys stipitatus</i>	50	2	4	4			
	PLSTS	<i>Plagiobothrys stipitatus</i> var. <i>stipitatus</i>	50	1	2	2			

Downingia insignis–Psilocarphus brevissimus Association

Samples used to describe type: 1

Local Environmental Table:

Elevation: 4 m

Total vegetation cover: 85 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 85 %

Percent native cover relative to non-native cover: 43%

Location(s) Sampled: Northwest Great Valley

References: Barbour et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	65	65	65	X	X	
	LAFR4	<i>Lasthenia fremontii</i>	100	30	30	30	X		
	FRSA	<i>Frankenia salina</i>	100	10	10	10	X		
	LUBI	<i>Lupinus bicolor</i>	100	2	2	2	X		
	DEDA	<i>Deschampsia danthonioides</i>	100	1	1	1	X		
	TRER6	<i>Triphysaria eriantha</i>	100	1	1	1	X		
	ALSA3	<i>Alopecurus saccatus</i>	100	0.4	0.4	0.4	X		
	CAMA3	<i>Callitriche marginata</i>	100	0.4	0.4	0.4	X		
	CAAT25	<i>Castilleja attenuata</i>	100	0.4	0.4	0.4	X		
	CEGL2	<i>Cerastium glomeratum</i>	100	0.4	0.4	0.4	X		
	DOIN	<i>Downingia insignis</i>	100	0.4	0.4	0.4	X		
	ELMA5	<i>Eleocharis macrostachya</i>	100	0.4	0.4	0.4	X		
	ERBO	<i>Erodium botrys</i>	100	0.4	0.4	0.4	X		
	ERVA5	<i>Eryngium vaseyi</i>	100	0.4	0.4	0.4	X		
	HEFI	<i>Hemizonia fitchii</i>	100	0.4	0.4	0.4	X		
	HOMA2	<i>Hordeum marinum</i>	100	0.4	0.4	0.4	X		
	JUBU	<i>Juncus bufonius</i>	100	0.4	0.4	0.4	X		
	LASE	<i>Lactuca serriola</i>	100	0.4	0.4	0.4	X		
	LAGL3	<i>Lasthenia glaberrima</i>	100	0.4	0.4	0.4	X		
	LELAH2	<i>Lepidium latipes</i> var.	100	0.4	0.4	0.4	X		
	LENI	<i>Lepidium nitidum</i>	100	0.4	0.4	0.4	X		
	LEOX	<i>Lepidium oxycarpum</i>	100	0.4	0.4	0.4	X		
	MEPO3	<i>Medicago polymorpha</i>	100	0.4	0.4	0.4	X		
	MYMI2	<i>Myosurus minimus</i>	100	0.4	0.4	0.4	X		
	PIAM	<i>Pilularia americana</i>	100	0.4	0.4	0.4	X		
	PLSTM	<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	100	0.4	0.4	0.4	X		
	PLSTS	<i>Plagiobothrys stipitatus</i> var. <i>stipitatus</i>	100	0.4	0.4	0.4	X		

PLEL	<i>Plantago elongata</i>	100	0.4	0.4	0.4	X
POZI	<i>Pogogyne ziziphoroides</i>	100	0.4	0.4	0.4	X
PSBR	<i>Psilocarphus brevissimus</i>	100	0.4	0.4	0.4	X
RUCR	<i>Rumex crispus</i>	100	0.4	0.4	0.4	X
SPRU	<i>Spergularia rubra</i>	100	0.4	0.4	0.4	X
TRBI	<i>Trifolium bifidum</i>	100	0.4	0.4	0.4	X
TRDE	<i>Trifolium depauperatum</i>	100	0.4	0.4	0.4	X
TRWI3	<i>Trifolium willdenovii</i>	100	0.4	0.4	0.4	X
VEPEX2	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	100	0.4	0.4	0.4	X

***Eryngium* (*vaseyi*, *castrense*) Association**

Samples used to describe type: 13

Local Environmental Table:

Elevation: range 5 - 122, average 66 m
 Total vegetation cover: range 5 - 63 %, average 22 %
 Tree cover: 0 %
 Shrub cover: range 0 - 6 %, average 0.5 %
 Herb cover: range 5 - 72 %, average 23 %
 Percent native cover relative to non-native cover: 83 %

Location(s) Sampled: All Great Valley

References: Barbour et al. 2007, Buck-Diaz et al. 2011, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	PSBR	<i>Psilocarphus brevissimus</i>	62	2	0.2	10			
	ERCA33	<i>Eryngium castrense</i>	62	2	0.2	5			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	62	0.3	0.2	3			
	HOMA2	<i>Hordeum marinum</i>	46	0.6	0.2	2			
	NALE	<i>Navarretia leucocephala</i>	38	7	0.2	45			
	BRHO2	<i>Bromus hordeaceus</i>	38	0.1	0.2	1			
	PLAGI	<i>Plagiobothrys</i> sp.	31	1	0.2	7			
	ELMA5	<i>Eleocharis macrostachya</i>	31	0.3	0.2	3			
	LACA7	<i>Lasthenia californica</i>	31	0.3	0.2	2			
	CRSE11	<i>Croton setigerus</i>	31	0.1	0.2	1			
	DOBI	<i>Downingia bicornuta</i>	31	0.1	0.2	1			

***Lasthenia fremontii* Provisional Association**

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 73 - 90 , average 83 m
 Total vegetation cover: range 27 - 51 %, average 41 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 27 - 51 %, average 41 %
 Percent native cover relative to non-native cover: 88 %

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	LAFR4	<i>Lasthenia fremontii</i>	100	17	7	30	X		X
	DEDA	<i>Deschampsia danthonioides</i>	100	2	0.2	4	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	1	0.2	2	X		
	ALSA3	<i>Alopecurus saccatus</i>	100	0.7	0.2	1	X		
	PLSTM	<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	67	2	2	4			
	BRODI	<i>Brodiaea</i> sp.	67	0.4	0.2	1			
	ACMO2	<i>Achyrachaena mollis</i>	67	0.1	0.2	0.2			
	LENI	<i>Lepidium nitidum</i>	67	0.1	0.2	0.2			
	NAIN2	<i>Navarretia intertexta</i>	33	8	25	25			
	ISHO	<i>Isoetes howellii</i>	33	8	24	24			
	NALE	<i>Navarretia leucocephala</i>	33	4	13	13			
	LIDOR2	<i>Limnanthes douglasii</i> ssp. <i>rosea</i>	33	4	12	12			
	HOMA2	<i>Hordeum marinum</i>	33	3	8	8			
	ERYNG	<i>Eryngium</i> sp.	33	1	3	3			
	ERCA33	<i>Eryngium castrense</i>	33	0.7	2	2			
	BLNAN	<i>Blennosperma nanum</i> var. <i>nanum</i>	33	0.3	1	1			
	HORDE	<i>Hordeum</i> sp.	33	0.3	1	1			
	MOVE	<i>Mollugo verticillata</i>	33	0.3	1	1			
	TACA8	<i>Taeniatherum caput-medusae</i>	33	0.3	1	1			

***Lasthenia fremontii*–*Downingia bicornuta* Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 78 m

Total vegetation cover: 65 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 65 %

Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Northeast Great Valley

References: Barbour et al. 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	RABOT	<i>Ranunculus bonariensis</i> var. <i>trisepalus</i>	100	38	38	38	X		X
	LAFR4	<i>Lasthenia fremontii</i>	100	30	30	30	X		
	ELAC	<i>Eleocharis acicularis</i>	100	10	10	10	X		
	DOBI	<i>Downingia bicornuta</i>	100	9	9	9	X		
	ERVA5	<i>Eryngium vaseyi</i>	100	6	6	6	X		
	DEDA	<i>Deschampsia danthonioides</i>	100	5	5	5	X		
	PIAM	<i>Pilularia americana</i>	100	5	5	5	X		
	PLSTM	<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	100	5	5	5	X		
	NALE	<i>Navarretia leucocephala</i>	100	2	2	2	X		
	CAMA3	<i>Callitriche marginata</i>	100	1	1	1	X		
	CACA79	<i>Castilleja campestris</i>	100	1	1	1	X		
	ALSA3	<i>Alopecurus saccatus</i>	100	0.2	0.2	0.2	X		
	CRAQ	<i>Crassula aquatica</i>	100	0.2	0.2	0.2	X		
	ELMA5	<i>Eleocharis macrostachya</i>	100	0.2	0.2	0.2	X		
	GREB	<i>Gratiola ebracteata</i>	100	0.2	0.2	0.2	X		
	HYGL2	<i>Hypochaeris glabra</i>	100	0.2	0.2	0.2	X		
	JUBU	<i>Juncus bufonius</i>	100	0.2	0.2	0.2	X		
	LETA	<i>Leontodon taraxacoides</i>	100	0.2	0.2	0.2	X		
	LYHY3	<i>Lythrum hyssopifolium</i>	100	0.2	0.2	0.2	X		
	POAN	<i>Poa annua</i>	100	0.2	0.2	0.2	X		

***Lasthenia fremontii*–*Downingia ornatissima* Association**

Samples used to describe type: 24

Local Environmental Table:

Elevation: range 3 - 68 , average 16 m
 Total vegetation cover: range 22 - 99 %, average 76 %
 Tree cover: 0 %
 Shrub cover: range 0 - 5 %, average 0.2 %
 Herb cover: range 22 - 99 %, average 77 %
 Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: Northeast and Northwest Great Valley

References: Barbour et al. 2007, Klein et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	PLSTM	<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	100	19	0.2	70	X		
	NALE	<i>Navarretia leucocephala</i>	100	13	0.4	60	X		
	DOOR	<i>Downingia ornatissima</i>	100	9	0.2	25	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	92	20	0.2	50	X		
	LAFR4	<i>Lasthenia fremontii</i>	88	20	0.4	75	X		
	LAGL4	<i>Lasthenia glabrata</i>	79	17	0.1	50	X		
	ERVA5	<i>Eryngium vaseyi</i>	79	7	0.4	30	X		
	PSBR	<i>Psilocarphus brevissimus</i>	79	6	0.4	50	X		
	PLSTS	<i>Plagiobothrys stipitatus</i> var. <i>stipitatus</i>	67	10	0.4	40			
	POZI	<i>Pogogyne ziziphoroides</i>	63	6	0.4	30			
	TRWI3	<i>Trifolium willdenovii</i>	63	4	0.4	45			
	LUBI	<i>Lupinus bicolor</i>	63	2	0.4	23			
	DOIN	<i>Downingia insignis</i>	63	1	0.4	10			
	VEPEX2	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	63	0.7	0.2	4			
	MITR3	<i>Mimulus tricolor</i>	63	0.4	0.4	2			
	LAGL3	<i>Lasthenia glaberrima</i>	58	5	0.1	60			
	EPCL3	<i>Epilobium cleistogamum</i>	54	0.3	0.4	2			
	PODO2	<i>Pogogyne douglasii</i>	50	9	0.4	50			
	MEPO3	<i>Medicago polymorpha</i>	50	3	0.4	40			
	ACMO2	<i>Achyraea mollis</i>	50	3	0.2	30			
	JUBU	<i>Juncus bufonius</i>	50	0.4	0.4	2			
	TRER6	<i>Triphysaria eriantha</i>	46	0.4	0.2	3			
	RUCR	<i>Rumex crispus</i>	46	0.2	0.1	1			
	DEDA	<i>Deschampsia danthonioides</i>	38	5	0.1	60			
	CUHO	<i>Cuscuta howelliana</i>	38	3	0.4	40			
	HECA30	<i>Hesperivax caulescens</i>	38	1	0.1	20			

ALSA3	<i>Alopecurus saccatus</i>	38	0.6	0.1	6
HECO7	<i>Hemizonia congesta</i>	33	1	0.4	15
PIAM	<i>Pilularia americana</i>	33	0.4	0.4	5
DOBI	<i>Downingia bicornuta</i>	29	0.7	0.4	8
ELMA5	<i>Eleocharis macrostachya</i>	29	0.3	0.4	3
PSOR	<i>Psilocarphus oregonus</i>	29	0.1	0.4	0.4
MYMI2	<i>Myosurus minimus</i>	25	0.4	0.2	7
LACH	<i>Layia chrysanthemoides</i>	25	0.4	0.4	3
TRDE	<i>Trifolium depauperatum</i>	25	0.2	0.2	3

***Lasthenia glaberrima* Alliance (Smooth goldfields vernal pool bottoms)**

In two occurrences of this type sampled in the study area, *Lasthenia glaberrima* is co-dominant in the herbaceous layer, occurring with *Eleocharis macrostachya*, *Plagiobothrys stipitatus* var. *micranthus*, *Eryngium vaseyi*, and others. In the state of California, *L. glaberrima* is co-dominant with *Alopecurus saccatus*, *Eleocharis macrostachya*, *Callitriche marginata*, *Castilleja campestris*, and others. Herbs are <40(100) cm; cover is intermittent to continuous. Stands occur in deep vernal pool bottoms and vernal marshes in central California. Soils have long periods of inundation.

Samples used to describe type: 2

Local Environmental Table:

Elevation: average 3 m
 Total vegetation cover: range 85 - 98 %, average 91%
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 85 - 98 %, average 91 %
 Percent native cover relative to non-native cover: 97 %

Location(s) Sampled: Northwest Great Valley

References: Barbour et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	LAGL3	<i>Lasthenia glaberrima</i>	100	60	60	60	X		X
	PLSTM	<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	100	28	15	40	X		
	ELMA5	<i>Eleocharis macrostachya</i>	100	25	15	35	X		
	ERVA5	<i>Eryngium vaseyi</i>	100	13	10	15	X		
	NALE	<i>Navarretia leucocephala</i>	100	11	2	20	X		
	PSBR	<i>Psilocarphus brevissimus</i>	100	10	5	15	X		
	POZI	<i>Pogogyne ziziphoroides</i>	100	8	5	10	X		
	LAFR4	<i>Lasthenia fremontii</i>	100	4	1	7	X		
	CUHO	<i>Cuscuta howelliana</i>	100	0.7	0.4	1	X		
	CRAQ	<i>Crassula aquatica</i>	100	0.4	0.4	0.4	X		
	LAGL4	<i>Lasthenia glabrata</i>	100	0.4	0.4	0.4	X		
	LYHY3	<i>Lythrum hyssopifolium</i>	100	0.4	0.4	0.4	X		
	VEPEX2	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	100	0.4	0.4	0.4	X		
	DOOR	<i>Downingia ornatissima</i>	50	3	5	5			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	50	3	5	5			
	POMO5	<i>Polypogon monspeliensis</i>	50	0.5	1	1			
	RUCR	<i>Rumex crispus</i>	50	0.5	1	1			
	BRODI	<i>Brodiaea</i> sp.	50	0.2	0.4	0.4			
	CAMA3	<i>Callitriche marginata</i>	50	0.2	0.4	0.4			
	DOIN	<i>Downingia insignis</i>	50	0.2	0.4	0.4			
	EPBR3	<i>Epilobium brachycarpum</i>	50	0.2	0.4	0.4			
	HEFI	<i>Hemizonia fitchii</i>	50	0.2	0.4	0.4			
	JUBU	<i>Juncus bufonius</i>	50	0.2	0.4	0.4			
	LUBI	<i>Lupinus bicolor</i>	50	0.2	0.4	0.4			

MEPO3	<i>Medicago polymorpha</i>	50	0.2	0.4	0.4
MITR3	<i>Mimulus tricolor</i>	50	0.2	0.4	0.4
MYMI2	<i>Myosurus minimus</i>	50	0.2	0.4	0.4
PIAM	<i>Pilularia americana</i>	50	0.2	0.4	0.4
PODO2	<i>Pogogyne douglasii</i>	50	0.2	0.4	0.4
TRER6	<i>Triphysaria eriantha</i>	50	0.2	0.4	0.4

Association(s) Defined: *Lasthenia glaberrima–Downingia insignis*
Lasthenia glaberrima–Lupinus bicolor

***Lasthenia glaberrima–Downingia insignis* Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 3 m

Total vegetation cover: 98 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 98 %

Percent native cover relative to non-native cover: 98 %

Location(s) Sampled: Northwest Great Valley

References: Barbour et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LAGL3	<i>Lasthenia glaberrima</i>	100	60	60	60	X		X
	ELMA5	<i>Eleocharis macrostachya</i>	100	35	35	35	X		
	ERVA5	<i>Eryngium vaseyi</i>	100	15	15	15	X		
	PLSTM	<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	100	15	15	15	X		
	PSBR	<i>Psilocarphus brevissimus</i>	100	15	15	15	X		
	LAFR4	<i>Lasthenia fremontii</i>	100	7	7	7	X		
	DOOR	<i>Downingia ornatissima</i>	100	5	5	5	X		
	POZI	<i>Pogogyne zizyphoroides</i>	100	5	5	5	X		
	NALE	<i>Navarretia leucocephala</i>	100	2	2	2	X		
	POMO5	<i>Polypogon monspeliensis</i>	100	1	1	1	X		
	RUCR	<i>Rumex crispus</i>	100	1	1	1	X		
	BRODI	<i>Brodiaea</i> sp.	100	0.4	0.4	0.4	X		
	CAMA3	<i>Callitriche marginata</i>	100	0.4	0.4	0.4	X		
	CRAQ	<i>Crassula aquatica</i>	100	0.4	0.4	0.4	X		
	CUHO	<i>Cuscuta howelliana</i>	100	0.4	0.4	0.4	X		
	DOIN	<i>Downingia insignis</i>	100	0.4	0.4	0.4	X		
	HEFI	<i>Hemizonia fitchii</i>	100	0.4	0.4	0.4	X		
	JUBU	<i>Juncus bufonius</i>	100	0.4	0.4	0.4	X		
	LAGL4	<i>Lasthenia glabrata</i>	100	0.4	0.4	0.4	X		
	LYHY3	<i>Lythrum hyssopifolium</i>	100	0.4	0.4	0.4	X		

MITR3	<i>Mimulus tricolor</i>	100	0.4	0.4	0.4	X
MYMI2	<i>Myosurus minimus</i>	100	0.4	0.4	0.4	X
PIAM	<i>Pilularia americana</i>	100	0.4	0.4	0.4	X
PODO2	<i>Pogogyne douglasii</i>	100	0.4	0.4	0.4	X
VEPEX2	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	100	0.4	0.4	0.4	X

***Lasthenia glaberrima*–*Lupinus bicolor* Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 3 m

Total vegetation cover: 85 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 85 %

Percent native cover relative to non-native cover: 96 %

Location(s) Sampled: Northwest Great Valley

References: Barbour et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LAGL3	<i>Lasthenia glaberrima</i>	100	60	60	60	X		X
	PLSTM	<i>Plagiobothrys stipitatus</i> var. <i>micranthus</i>	100	40	40	40	X		
	NALE	<i>Navarretia leucocephala</i>	100	20	20	20	X		
	ELMA5	<i>Eleocharis macrostachya</i>	100	15	15	15	X		
	ERVA5	<i>Eryngium vaseyi</i>	100	10	10	10	X		
	POZI	<i>Pogogyne ziziphoroides</i>	100	10	10	10	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	5	5	5	X		
	PSBR	<i>Psilocarphus brevissimus</i>	100	5	5	5	X		
	CUHO	<i>Cuscuta howelliana</i>	100	1	1	1	X		
	LAFR4	<i>Lasthenia fremontii</i>	100	1	1	1	X		
	CRAQ	<i>Crassula aquatica</i>	100	0.4	0.4	0.4	X		
	EPBR3	<i>Epilobium brachycarpum</i>	100	0.4	0.4	0.4	X		
	LAGL4	<i>Lasthenia glabrata</i>	100	0.4	0.4	0.4	X		
	LUBI	<i>Lupinus bicolor</i>	100	0.4	0.4	0.4	X		
	LYHY3	<i>Lythrum hyssopifolium</i>	100	0.4	0.4	0.4	X		
	MEPO3	<i>Medicago polymorpha</i>	100	0.4	0.4	0.4	X		
	TRER6	<i>Triphysaria eriantha</i>	100	0.4	0.4	0.4	X		
	VEPEX2	<i>Veronica peregrina</i> ssp. <i>xalapensis</i>	100	0.4	0.4	0.4	X		

***Layia fremontii*–*Achyrrachaena mollis* Alliance (Fremont's tidy-tips–Blow wives vernal pools)**

Layia fremontii and *Achyrrachaena mollis* are characteristic in the herbaceous layer, often occurring with *Bromus hordeaceus*, *Lolium perenne* ssp. *multiflorum*, *Triphysaria eriantha*, and others. Herbs are <50 cm, and cover is intermittent to continuous. Stands occur in short-inundated, shallow, flashy vernal hardpan pools and moist meadows with subsurface waterflow in winter and early spring. Soils are shallow and rocky.

Samples used to describe type: 38

Local Environmental Table:

Elevation: range 3 - 144, average 65 m
 Total vegetation cover: range 8 - 100 %, average 53 %
 Tree cover: 0 %
 Shrub cover: range 0 - 3 %, average 0.08 %
 Herb cover: range 8 - 95 %, average 55 %
 Percent native cover relative to non-native cover: 58 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: Barbour et al. 2003, Barbour et al. 2007, CNPS Chapter 1993-2007, GIC 2011, Klein et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	BRHO2	<i>Bromus hordeaceus</i>	89	10	0.2	80	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	87	15	0.2	75	X		
	TRER6	<i>Triphysaria eriantha</i>	87	6	0.1	75	X		
	ACMO2	<i>Achyrrachaena mollis</i>	84	4	0.2	25	X		
	TRDE	<i>Trifolium depauperatum</i>	74	0.7	0.2	5			
	LAFR2	<i>Layia fremontii</i>	63	3	0.2	35			
	TACA8	<i>Taeniatherum caput-medusae</i>	58	4	0.2	40			
	POZI	<i>Pogogyne ziziphoroides</i>	58	1	0.2	5			
	HYGL2	<i>Hypochaeris glabra</i>	55	2	0.2	26			
	ERBO	<i>Erodium botrys</i>	53	2	0.2	25			
	JUBU	<i>Juncus bufonius</i>	53	0.5	0.2	3			
	BRODI	<i>Brodiaea</i> sp.	50	0.6	0.2	6			
	PLER3	<i>Plantago erecta</i>	47	1	0.2	20			
	LACA7	<i>Lasthenia californica</i>	45	2	0.2	20			
	NATA3	<i>Navarretia tagetina</i>	45	1	0.2	10			
	LUBI	<i>Lupinus bicolor</i>	42	1	0.2	10			
	LENI	<i>Lepidium nitidum</i>	42	1	0.2	26			
	CLPU2	<i>Clarkia purpurea</i>	42	0.4	0.2	4			
	MIAC	<i>Microseris acuminata</i>	42	0.2	0.1	2			
	AICA	<i>Aira caryophyllea</i>	42	0.1	0.1	1			
	BLNAN	<i>Blennosperma nanum</i> var. <i>nanum</i>	39	1	0.2	30			
	HEFI	<i>Hemizonia fitchii</i>	39	0.2	0.2	2			
	CIQU3	<i>Cicendia quadrangularis</i>	39	0.2	0.2	1			
	MEPO3	<i>Medicago polymorpha</i>	34	4	0.2	70			

TRWI3	<i>Trifolium willdenovii</i>	34	1	0.2	30
VUMI	<i>Vulpia microstachys</i>	34	0.4	0.2	5
LEBI8	<i>Leptosiphon bicolor</i>	34	0.3	0.2	4
LAFR4	<i>Lasthenia fremontii</i>	32	1	0.2	11
TRMI4	<i>Trifolium microcephalum</i>	32	0.4	0.2	4
CEGL2	<i>Cerastium glomeratum</i>	32	0.2	0.2	3
HOMA2	<i>Hordeum marinum</i>	29	0.6	0.2	10
CAAT25	<i>Castilleja attenuata</i>	29	0.3	0.2	5
CHAN2	<i>Chlorogalum angustifolium</i>	29	0.1	0.2	1
BRMI2	<i>Briza minor</i>	26	0.1	0.2	2
LETA	<i>Leontodon taraxacoides</i>	24	1	0.2	17
VUMY	<i>Vulpia myuros</i>	24	0.4	0.2	10
DEDA	<i>Deschampsia danthonioides</i>	24	0.3	0.2	3
ERVA5	<i>Eryngium vaseyi</i>	24	0.1	0.2	2
LOWR2	<i>Lotus wrangelianus</i>	21	2	0.4	40
VUBR	<i>Vulpia bromoides</i>	21	0.8	0.2	15
NALE	<i>Navarretia leucocephala</i>	21	0.7	0.2	11
AVFA	<i>Avena fatua</i>	21	0.4	0.2	12
AVBA	<i>Avena barbata</i>	21	0.2	0.1	5
LUNA3	<i>Lupinus nanus</i>	21	0.2	0.1	6
BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	21	0.2	0.2	2
Non-vasc					
2MOSS	Unknown Moss	53	3	0.2	28

**Association(s) Defined: *Layia fremontii*–*Achyrrachaena mollis*
Plagiobothrys austiniae–*Achyrrachaena mollis***

***Layia fremontii*–*Achyrachaena mollis* Association**

Samples used to describe type: 32

Local Environmental Table:

Elevation: range 3 - 144, average 62 m

Total vegetation cover: range 14 - 100 %, average 57 %

Tree cover: 0 %

Shrub cover: range 0 - 3 %, average 0.1%

Herb cover: range 14 - 95 %, average 57 %

Percent native cover relative to non-native cover: 57 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: Barbour et al. 2003, Barbour et al. 2007, CNPS Chapter 1993-2007, GIC 2011, Klein et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	88	11	0.2	80	X		
	TRER6	<i>Triphysaria eriantha</i>	88	7	0.1	75	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	84	17	0.2	75	X		
	ACMO2	<i>Achyrachaena mollis</i>	81	3	0.2	16	X		
	TRDE	<i>Trifolium depauperatum</i>	72	0.7	0.2	5			
	LAFR2	<i>Layia fremontii</i>	63	4	0.2	35			
	ERBO	<i>Erodium botrys</i>	59	2	0.2	25			
	HYGL2	<i>Hypochaeris glabra</i>	56	2	0.2	26			
	POZI	<i>Pogogyne ziziphoroides</i>	56	0.9	0.2	5			
	LACA7	<i>Lasthenia californica</i>	53	3	0.2	20			
	BRODI	<i>Brodiaea</i> sp.	53	0.7	0.2	6			
	TACA8	<i>Taeniatherum caput-medusae</i>	50	3	0.2	24			
	PLER3	<i>Plantago erecta</i>	50	1	0.2	20			
	LUBI	<i>Lupinus bicolor</i>	50	1	0.2	10			
	LENI	<i>Lepidium nitidum</i>	50	1	0.2	26			
	JUBU	<i>Juncus bufonius</i>	47	0.3	0.2	2			
	MEPO3	<i>Medicago polymorpha</i>	41	4	0.2	70			
	TRWI3	<i>Trifolium willdenovii</i>	38	2	0.2	30			
	BLNAN	<i>Blennosperma nanum</i> var. <i>nanum</i>	38	1	0.2	30			
	CLPU2	<i>Clarkia purpurea</i>	38	0.4	0.2	4			
	MIAC	<i>Microseris acuminata</i>	38	0.2	0.1	2			
	AICA	<i>Aira caryophyllea</i>	38	0.1	0.1	1			
	NATA3	<i>Navarretia tagetina</i>	34	0.9	0.2	10			
	CAAT25	<i>Castilleja attenuata</i>	34	0.3	0.2	5			
	LEBI8	<i>Leptosiphon bicolor</i>	34	0.3	0.2	3			
	CEGL2	<i>Cerastium glomeratum</i>	34	0.2	0.2	3			
	HEFI	<i>Hemizonia fitchii</i>	34	0.2	0.2	2			
	CIQU3	<i>Cicendia quadrangularis</i>	34	0.2	0.2	1			
	VUMI	<i>Vulpia microstachys</i>	31	0.4	0.2	5			

LETA	<i>Leontodon taraxacoides</i>	28	1	0.2	17
HOMA2	<i>Hordeum marinum</i>	28	0.6	0.2	10
TRMI4	<i>Trifolium microcephalum</i>	28	0.4	0.2	4
BRMI2	<i>Briza minor</i>	28	0.1	0.2	2
LOWR2	<i>Lotus wrangelianus</i>	25	2	0.4	40
LAFR4	<i>Lasthenia fremontii</i>	25	0.8	0.2	11
DEDA	<i>Deschampsia danthonioides</i>	25	0.3	0.2	3
ERVA5	<i>Eryngium vaseyi</i>	25	0.1	0.2	2
CHAN2	<i>Chlorogalum angustifolium</i>	25	0.1	0.2	1
Non-vasc					
2MOSS	Unknown Moss	50	2	0.2	28

***Plagiobothrys austiniiae*–*Achyrachaena mollis* Association**

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 69 - 88 , average 83 m

Total vegetation cover: range 8 - 85 %, average 34 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 8 - 89 %, average 40 %

Percent native cover relative to non-native cover: 65 %

Location(s) Sampled: Northeast Great Valley

References: Barbour et al. 2007, Sawyer et al. 2009, Barbour et al. 2003, GIC 2011, Klein et al. 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	TACA8	<i>Taeniatherum caput-medusae</i>	100	8	0.2	40	X		
	ACMO2	<i>Achyrachaena mollis</i>	100	6	0.2	25	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	3	1	8	X		
	NATA3	<i>Navarretia tagetina</i>	100	3	0.2	7	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	2	0.2	3	X		
	JUBU	<i>Juncus bufonius</i>	83	1	0.2	3	X		
	TRER6	<i>Triphysaria eriantha</i>	83	1	0.2	3	X		
	TRDE	<i>Trifolium depauperatum</i>	83	0.6	0.2	2	X		
	POZI	<i>Pogogyne ziziphoroides</i>	67	2	1	3			
	LAFR4	<i>Lasthenia fremontii</i>	67	1	0.2	4			
	LAFR2	<i>Layia fremontii</i>	67	1	1	2			
	CLPU2	<i>Clarkia purpurea</i>	67	0.6	0.2	3			
	HEFI	<i>Hemizonia fitchii</i>	67	0.5	0.2	1			
	MIAC	<i>Microseris acuminata</i>	67	0.3	0.2	1			
	CIQU3	<i>Cicendia quadrangularis</i>	67	0.3	0.2	1			
	AICA	<i>Aira caryophyllea</i>	67	0.1	0.2	0.2			
	PLAU	<i>Plagiobothrys austiniiae</i>	67	0.1	0.2	0.2			

	HYGL2	<i>Hypochaeris glabra</i>	50	1	0.2	7
	TRMI4	<i>Trifolium microcephalum</i>	50	0.6	0.2	3
	LASE	<i>Lactuca serriola</i>	50	0.4	0.2	1
	BLNAN	<i>Blennosperma nanum</i> var. <i>nanum</i>	50	0.2	0.2	1
	CHAN2	<i>Chlorogalum angustifolium</i>	50	0.2	0.2	1
	VUMI	<i>Vulpia microstachys</i>	50	0.2	0.2	1
	CRSE11	<i>Croton setigerus</i>	50	0.1	0.2	0.4
	LIFLC2	<i>Limnanthes floccosa</i> ssp. <i>californica</i>	33	2	4	7
	EPTO4	<i>Epilobium torreyi</i>	33	1	1	7
	VUBR	<i>Vulpia bromoides</i>	33	1	1	7
	BRMI3	<i>Brodiaea minor</i>	33	0.9	0.2	5
	LEBI8	<i>Leptosiphon bicolor</i>	33	0.7	0.2	4
	NALE	<i>Navarretia leucocephala</i>	33	0.5	1	2
	PLER3	<i>Plantago erecta</i>	33	0.4	0.2	2
	GAPH2	<i>Gastridium phleoides</i>	33	0.2	0.2	1
	HOMA2	<i>Hordeum marinum</i>	33	0.2	0.2	1
	HYRA3	<i>Hypochaeris radicata</i>	33	0.2	0.2	1
	LUNA3	<i>Lupinus nanus</i>	33	0.2	0.2	1
	PLFU	<i>Plagiobothrys fulvus</i>	33	0.1	0.2	0.4
Non-vasc						
	2MOSS	Unknown Moss	67	7	0.2	20

***Lemna (minor)* and Relatives Provisional Alliance (Duckweed blooms)**

In one occurrence of this type sampled in the study area, *Lemna* sp. is dominant in the herbaceous layer, occurring with *Utricularia gibba*, *Ludwigia* sp., *Polygonum* sp., and algae. In the state of California, *Lemna* spp., *Spirodela* spp., *Wolffia* spp., or *Wolffiella* spp. are dominant herbs on the water surface or characteristically present in the herbaceous layer with *Azolla filiculoides*, *A. mexicana*, and *Egeria densa*. Emergent plants such as *Myriophyllum aquaticum* and *Scirpus* spp. may be present. Herbs are 0.3-8 mm in size, and cover is intermittent to continuous.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 56 m

Total vegetation cover: 90 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 90 %

Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Northeast Great Valley

References: GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LEMNA	<i>Lemna</i> sp.	100	40	40	40	X	X	
	UTGI	<i>Utricularia gibba</i>	100	5	5	5	X		
	LUDWI	<i>Ludwigia</i> sp.	100	0.2	0.2	0.2	X		
	POLYG4	<i>Polygonum</i> sp.	100	0.2	0.2	0.2	X		
Non-vasc									
	2ALGA	Unknown Algae	100	10	10	10	X	X	

Association(s) Defined: *Lemna (minor)* Provisional

***Lemna (minor)* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011

***Lepidium latifolium* Semi-Natural Stands (Perennial pepper weed patches)**

Lepidium latifolium is strongly dominant in the herbaceous layer, often occurring with *Bromus diandrus*, *Frankenia salina*, *Malvella leprosa*, and others. Herbs are less than <2 m, and canopy is intermittent to continuous. Stands occur in intermittently and seasonally flooded, fresh and saltwater marshes and riparian corridors.

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 8 - 55 , average 26 m
 Total vegetation cover: range 30 - 61 % , average 38 %
 Tree cover: 0 %
 Shrub cover: range 0 - 0.2 % , average 0.04 %
 Herb cover: range 32 - 71 % , average 41 %
 Percent native cover relative to non-native cover: 5 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011, Keeler-Wolf and Evens 2006, Klein and Evens 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree	QULO	<i>Quercus lobata</i>	20	0.2	1	1			
Herb	LELA2	<i>Lepidium latifolium</i>	100	35	20	59	X	X	
	BRDI3	<i>Bromus diandrus</i>	40	3	2	13			
	FRSA	<i>Frankenia salina</i>	40	2	1	7			
	MALE3	<i>Malvella leprosa</i>	40	0.4	0.2	2			
	DISP	<i>Distichlis spicata</i>	40	0.2	0.2	1			
	HOMU	<i>Hordeum murinum</i>	20	0.8	4	4			
	TOAR	<i>Torilis arvensis</i>	20	0.8	4	4			

Stand Type(s) Defined: *Lepidium latifolium*

***Lepidium latifolium* Stand Type**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG-CNPS 2008, GIC 2011, Keeler-Wolf and Evens 2006, Klein and Evens 2006, Sawyer et al. 2009

Leymus cinereus Alliance (Ashy rye grass meadows)

In one occurrence of this type sampled in the study area, *Leymus cinereus* is dominant in the herbaceous layer, occurring with *Bromus diandrus*, *B. hordeaceus*, *Centaurea melitensis*, and others. In the state of California, *L. cinereus* is a dominant in the herbaceous layer, occurring with *Achnatherum hymenoides*, *A. thurberianum*, *Balsamorhiza deltoidea*, and others. Emergent shrubs, including *Ericameria parryi*, *Symphoricarpos* spp., and *Tetradymia canescens*, may be present. Herbs are <1.5 m, and cover is open to intermittent. Stands occur in intermittent washes, terraces, playas, seepage sites, valley bottoms, low slopes, mesic patches, and recent burns in shrublands. Soils are deep, fine-textured, alkaline, or saline.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 764 m

Total vegetation cover: 40 %

Tree cover: 0 %

Shrub cover: 0.2 %

Herb cover: 40 %

Percent native cover relative to non-native cover: 93 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz et al. 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	CLIS	<i>Cleome isomeris</i>	100	0.2	0.2	0.2	X	X	
Herb	LECI4	<i>Leymus cinereus</i>	100	39	39	39	X	X	
	BRDI3	<i>Bromus diandrus</i>	100	1	1	1	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	0.2	0.2	0.2	X		
	CEME2	<i>Centaurea melitensis</i>	100	0.2	0.2	0.2	X		
	CLPE	<i>Claytonia perfoliata</i>	100	0.2	0.2	0.2	X		
	HOMU	<i>Hordeum murinum</i>	100	0.2	0.2	0.2	X		
	LASE	<i>Lactuca serriola</i>	100	0.2	0.2	0.2	X		
	MEPO3	<i>Medicago polymorpha</i>	100	0.2	0.2	0.2	X		
	MEIN2	<i>Melilotus indicus</i>	100	0.2	0.2	0.2	X		
	SOOL	<i>Sonchus oleraceus</i>	100	0.2	0.2	0.2	X		
	STME2	<i>Stellaria media</i>	100	0.2	0.2	0.2	X		
	URDI	<i>Urtica dioica</i>	100	0.2	0.2	0.2	X		

Association(s) Defined: *Leymus cinereus* Provisional

Leymus cinereus Provisional Association

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz et al. 2011

***Leymus triticoides* Alliance (Creeping rye grass turfs)**

Leymus triticoides is dominant in the herbaceous layer, often occurring with *Lactuca serriola*, *Bromus hordeaceus*, *Frankenia salina*, and others. Herbs are <1 m, and cover is open to continuous. Stands occur in poorly drained floodplains, drainage and valley bottoms, mesic flat to sloping topography, and marsh margins. Soils are clays and loams.

Samples used to describe type: 45

Local Environmental Table:

Elevation: range 6 - 972, average 127 m
 Total vegetation cover: range 10 - 100 %, average 60 %
 Tree cover: 0 %
 Shrub cover: range 0 - 5 %, average 0.6 %
 Herb cover: range 10 - 100 %, average 61 %
 Percent native cover relative to non-native cover: 78 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG-CNPS 2008, GIC 2011, Hopkinson et al. 2009, Junak et al. 2007, Keeler-Wolf and Evens 2006, Kittel et al. 2009, Olson and Anacker 2009, Sawyer et al. 2009, Solomeshch 2004, Solomeshch and Barbour 2006

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	LETR5	<i>Leymus triticoides</i>	96	45	3	95	X	X	
	LASE	<i>Lactuca serriola</i>	49	0.6	0.2	12			
	BRHO2	<i>Bromus hordeaceus</i>	47	1	0.2	17			
	FRSA	<i>Frankenia salina</i>	44	1	0.2	20			
	DISP	<i>Distichlis spicata</i>	38	1	0.2	17			
	BRDI3	<i>Bromus diandrus</i>	33	5	0.1	55			
	MALE3	<i>Malvella leprosa</i>	31	0.3	0.2	4			
	CESO3	<i>Centaurea solstitialis</i>	29	1	0.2	45			
	GRCA	<i>Grindelia camporum</i>	27	0.5	1	5			
	EPBR3	<i>Epilobium brachycarpum</i>	27	0.1	0.2	1			
	ERCI6	<i>Erodium cicutarium</i>	24	0.2	0.2	3			
	HOMU	<i>Hordeum murinum</i>	22	0.6	0.2	15			
	RUCR	<i>Rumex crispus</i>	22	0.2	0.2	3			

Association(s) Defined: *Leymus triticoides*
Leymus triticoides–*Bromus* spp.–*Avena* spp.

***Leymus triticoides* Association**

Samples used to describe type: 38

Local Environmental Table:

Elevation: range 6 - 972, average 101 m

Total vegetation cover: range 10 - 100 %, average 59 %

Tree cover: 0 %

Shrub cover: range 0 - 5 %, average 0.7%

Herb cover: range 10 - 100 %, average 60 %

Percent native cover relative to non-native cover: 85 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG-CNPS 2008, GIC 2011, Hopkinson et al. 2009, Keeler-Wolf and Evens 2006, NatureServe 2011, Olson and Anacker 2009, Sawyer et al. 2009, Solomeshch 2004, Solomeshch and Barbour 2006

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LETR5	<i>Leymus triticoides</i>	95	51	8	95	X	X	
	LASE	<i>Lactuca serriola</i>	50	0.7	0.2	12			
	BRHO2	<i>Bromus hordeaceus</i>	47	2	0.2	17			
	FRSA	<i>Frankenia salina</i>	45	0.7	0.2	5			
	DISP	<i>Distichlis spicata</i>	39	1	0.2	17			
	MALE3	<i>Malvella leprosa</i>	34	0.3	0.2	4			
	GRCA	<i>Grindelia camporum</i>	32	0.6	1	5			
	EPBR3	<i>Epilobium brachycarpum</i>	32	0.2	0.2	1			
	AMME	<i>Amsinckia menziesii</i>	32	0.1	0.2	1			
	ERCI6	<i>Erodium cicutarium</i>	26	0.2	0.2	3			
	CESO3	<i>Centaurea solstitialis</i>	26	0.2	0.2	5			

***Leymus triticoides*–*Bromus* spp.–*Avena* spp. Association**

Samples used to describe type: 7

Local Environmental Table:

Elevation: range 7 - 928, average 268 m

Total vegetation cover: range 21 - 100 %, average 67 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 21 - 100 %, average 67 %

Percent native cover relative to non-native cover: 40 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG-CNPS 2008, Junak et al. 2007, Olson and Anacker 2009, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LETR5	<i>Leymus triticoides</i>	100	12	3	25	X		
	BRDI3	<i>Bromus diandrus</i>	86	24	13	55	X		X
	HOMU	<i>Hordeum murinum</i>	57	0.2	0.2	1			
	CESO3	<i>Centaurea solstitialis</i>	43	7	0.2	45			
	FRSA	<i>Frankenia salina</i>	43	5	0.2	20			
	CRTR5	<i>Cressa truxillensis</i>	43	4	5	15			
	POSE	<i>Poa secunda</i>	43	4	5	10			
	BRHO2	<i>Bromus hordeaceus</i>	43	0.9	1	3			
	LASE	<i>Lactuca serriola</i>	43	0.5	0.2	3			
	CRSE11	<i>Croton setigerus</i>	43	0.3	0.2	1			
	ERBO	<i>Erodium botrys</i>	29	3	1	18			
	SAPA30	<i>Sarcocornia pacifica</i>	29	0.9	1	5			
	LOCO6	<i>Lotus corniculatus</i>	29	0.5	0.2	3			
	DISP	<i>Distichlis spicata</i>	29	0.4	1	2			
	LELA2	<i>Lepidium latifolium</i>	29	0.2	0.2	1			

***Lolium perenne* Semi-Natural Stands (Perennial rye grass fields)**

Lolium perenne ssp. *multiflorum* is dominant in the herbaceous layer, often occurring with *Convolvulus arvensis*, *Bromus hordeaceus*, *Lactuca serriola*, and others. Herbs are <1 m, and cover is intermittent to continuous. Stands occur in lowlands with periodic flooding, disked fields, and uplands including serpentinite substrates.

One stand showed additional variation and was classified to the semi-natural stand level only.

Samples used to describe type: 22

Local Environmental Table:

Elevation: range 0 - 122, average 32 m

Total vegetation cover: range 12 - 100 %, average 59 %

Tree cover: range 0 - 5 %, average 0.3 %

Shrub cover: range 0 - 0.2 %, average 0.02 %

Herb cover: range 12 - 100%, average 59 %

Percent native cover relative to non-native cover: 6 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Barbour et al. 2003, CDFG 2005, GIC 2011, Hickson and Keeler-Wolf 2007, Keeler-Wolf and Evens 2006, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	37	8	95	X	X	
	COAR4	<i>Convolvulus arvensis</i>	55	1	0.2	15			
	BRHO2	<i>Bromus hordeaceus</i>	50	4	0.2	48			
	LASE	<i>Lactuca serriola</i>	45	0.5	0.2	4			
	RUCR	<i>Rumex crispus</i>	45	0.4	0.2	3			
	BRDI3	<i>Bromus diandrus</i>	41	3	0.2	25			
	HOMA2	<i>Hordeum marinum</i>	32	0.4	0.2	4			
	CESO3	<i>Centaurea solstitialis</i>	32	0.3	0.1	5			
	HOMU	<i>Hordeum murinum</i>	27	6	0.1	62			

Stand Type(s) Defined: *Lolium perenne*

***Lolium perenne* Stand Type**

Samples used to describe type: 21

Local Environmental Table:

Elevation: range 0 - 122, average 29 m

Total vegetation cover: range 12 - 100 %, average 58 %

Tree cover: range 0 - 5 %, average 0.4%

Shrub cover: range 0 - 0.2 %, average 0.02%

Herb cover: range 12 - 100 %, average 58 %

Percent native cover relative to non-native cover: 6 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: Barbour et al. 2003, CDFG 2005, GIC 2011, Hickson and Keeler-Wolf 2007, Keeler-Wolf and Evens 2006, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	39	8	95	X	X	
	COAR4	<i>Convolvulus arvensis</i>	57	1	0.2	15			
	BRHO2	<i>Bromus hordeaceus</i>	48	4	0.2	48			
	RUCR	<i>Rumex crispus</i>	48	0.4	0.2	3			
	LASE	<i>Lactuca serriola</i>	43	0.4	0.2	4			
	BRDI3	<i>Bromus diandrus</i>	38	3	0.2	25			
	CESO3	<i>Centaurea solstitialis</i>	33	0.3	0.1	5			
	HOMA2	<i>Hordeum marinum</i>	29	0.3	0.2	4			

Lotus purshianus Alliance (Spanish clover fields)

Lotus purshianus is dominant in the herbaceous layer, often occurring with *Bromus hordeaceus*, *Vulpia myuros*, *Croton setigerus*, and others. Herbs are <75 cm, and cover is intermittent to continuous. Stands occur in seasonally to intermittently flooded alluvial flats and stream terraces. Soils are deep loams and alluvial silts.

Samples used to describe type: 8

Local Environmental Table:

Elevation: range 37 - 102, average 71 m

Total vegetation cover: range 16 - 70 %, average 32 %

Tree cover: range 0 - 0.2 %, average 0.03 %

Shrub cover: 0 %

Herb cover: range 19 - 70 %, average 33 %

Percent native cover relative to non-native cover: 57 %

Location(s) Sampled: Northeast, Southeast, and Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG-CNPS 2008, GIC 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	2	0.2	6	X		
	LOPU3	<i>Lotus purshianus</i>	88	16	4	56	X		X
	VUMY	<i>Vulpia myuros</i>	75	4	0.2	10	X		
	CRSE11	<i>Croton setigerus</i>	63	0.2	0.2	1			
	ERBO	<i>Erodium botrys</i>	50	2	0.2	8			
	HYGL2	<i>Hypochaeris glabra</i>	50	0.6	0.2	4			
	BRDI3	<i>Bromus diandrus</i>	50	0.2	0.2	1			
	VUBR	<i>Vulpia bromoides</i>	38	6	2	40			
	PLAG1	<i>Plagiobothrys</i> sp.	38	0.3	0.2	1			
	BRRU2	<i>Bromus rubens</i>	25	0.3	0.2	2			
	CRCO34	<i>Crassula connata</i>	25	0.2	0.2	1			
	HEAN3	<i>Helianthus annuus</i>	25	0.2	0.2	1			

Association(s) Defined: *Lotus purshianus*

Lotus purshianus Association

Samples used to describe type: 8

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz et al. 2011, CDFG-CNPS 2008, GIC 2011

***Ludwigia (hexapetala, peploides)* Semi-Natural Stands (Water primrose wetlands)**

Ludwigia hexapetala, *L. peploides*, or hybrid *Ludwigia* is dominant in the herbaceous layer, often occurring with *Schoenoplectus acutus*, *Typha latifolia*, and *Azolla filiculoides*. Herbs are <3 m, and cover is open to continuous. Stands occur in permanently and seasonally flooded freshwater habitats with still water or on mud flats after water levels have dropped.

Samples used to describe type: 32

Local Environmental Table:

Elevation: range 0 - 136, average 35 m
Total vegetation cover: range 11 - 99 %, average 60 %
Tree cover: range 0 - 0.2 %, average 0.02 %
Shrub cover: range 0 - 1 %, average 0.06 %
Herb cover: range 11 - 99 %, average 60 %
Percent native cover relative to non-native cover: 10 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LUPE5	<i>Ludwigia peploides</i>	84	45	5	82	X	X	
	SCAC3	<i>Schoenoplectus acutus</i>	31	1	0.2	20			
	TYLA	<i>Typha latifolia</i>	28	0.3	0.2	5			
	AZFI	<i>Azolla filiculoides</i>	22	3	0.2	40			

Stand Type(s) Defined: *Ludwigia (hexapetala, peploides)*

***Ludwigia (hexapetala, peploides)* Stand Type**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Mimulus (guttatus) Alliance (Common monkey flower seeps)

In one occurrence of this type sampled in the study area, *Mimulus guttatus* and *M. moschatus* are characteristic in the herbaceous layer, occurring with *Carex serratodens*, *Selaginella hansenii*, *Trifolium microcephalum*, and others. Emergent *Frangula californica* ssp. *tomentella* and *Ceanothus cuneatus* are present at low cover. In the state of California, *M. guttatus*, *M. lewisii*, *M. moschatus*, *M. pilosus*, or other wetland *Mimulus* species is/are dominant or characteristically present in the herbaceous layer, occurring with *Bromus diandrus*, *B. hordeaceus*, *Carex* spp., and others. Emergent shrubs, such as *Baccharis salicifolia* and *Ceanothus cuneatus*, may be present at low cover. Herbs are <0.5 m, and cover is continuous. Stands occur in vernal moist or saturated edges of small, steep-gradient streams, ephemeral cascades, ditches, fens, seeps, and springs. Soils are sandy or little-developed lithosols usually derived from metamorphic, serpentinite, or volcanic substrates.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 352 m

Total vegetation cover: 13 %

Tree cover: 0 %

Shrub cover: 2 %

Herb cover: 16 %

Percent native cover relative to non-native cover: 97 %

Location(s) Sampled: Sierra Nevada Foothills Ecoregion

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	FRCAT2	<i>Frangula californica</i> ssp. <i>tomentella</i>	100	2	2	2	X	X	
	CECU	<i>Ceanothus cuneatus</i>	100	0.4	0.4	0.4	X		
Herb	MIMO3	<i>Mimulus moschatus</i>	100	4	4	4	X		
	CASE2	<i>Carex serratodens</i>	100	3	3	3	X		
	MIGU	<i>Mimulus guttatus</i>	100	1	1	1	X		
	SEHA2	<i>Selaginella hansenii</i>	100	1	1	1	X		
	TRMI4	<i>Trifolium microcephalum</i>	100	1	1	1	X		
	AGOSE	<i>Agoseris</i> sp.	100	0.2	0.2	0.2	X		
	AGMI3	<i>Agrostis microphylla</i>	100	0.2	0.2	0.2	X		
	ALTU	<i>Allium tuolumnense</i>	100	0.2	0.2	0.2	X		
	AVBA	<i>Avena barbata</i>	100	0.2	0.2	0.2	X		
	BRDI2	<i>Brachypodium distachyon</i>	100	0.2	0.2	0.2	X		
	CACI2	<i>Calandrinia ciliata</i>	100	0.2	0.2	0.2	X		
	CAAL2	<i>Calochortus albus</i>	100	0.2	0.2	0.2	X		
	CHGR3	<i>Chlorogalum grandiflorum</i>	100	0.2	0.2	0.2	X		
	CHPO3	<i>Chlorogalum pomeridianum</i>	100	0.2	0.2	0.2	X		
	CLPA5	<i>Claytonia parviflora</i>	100	0.2	0.2	0.2	X		
	CRYPT	<i>Cryptantha</i> sp.	100	0.2	0.2	0.2	X		

DIACA	<i>Dichanthelium acuminatum</i> var. <i>acuminatum</i>	100	0.2	0.2	0.2	X	
DICA14	<i>Dichelostemma capitatum</i>	100	0.2	0.2	0.2	X	
DIVO	<i>Dichelostemma volubile</i>	100	0.2	0.2	0.2	X	
DUCYC3	<i>Dudleya cymosa</i> ssp. <i>cymosa</i>	100	0.2	0.2	0.2	X	
GAAP2	<i>Galium aparine</i>	100	0.2	0.2	0.2	X	
GAPO	<i>Galium porrigens</i>	100	0.2	0.2	0.2	X	
HOF1	<i>Holozonia filipes</i>	100	0.2	0.2	0.2	X	
LOPU3	<i>Lotus purshianus</i>	100	0.2	0.2	0.2	X	
MECA2	<i>Melica californica</i>	100	0.2	0.2	0.2	X	
ODHA	<i>Odontostomum hartwegii</i>	100	0.2	0.2	0.2	X	
PETR7	<i>Pentagramma triangularis</i>	100	0.2	0.2	0.2	X	
PLER3	<i>Plantago erecta</i>	100	0.2	0.2	0.2	X	
PSHE	<i>Pseudobahia heermannii</i>	100	0.2	0.2	0.2	X	
SABI3	<i>Sanicula bipinnatifida</i>	100	0.2	0.2	0.2	X	
SIGA	<i>Silene gallica</i>	100	0.2	0.2	0.2	X	
STST	<i>Stachys stricta</i>	100	0.2	0.2	0.2	X	
THCU	<i>Thysanocarpus curvipes</i>	100	0.2	0.2	0.2	X	
TRWI3	<i>Trifolium willdenovii</i>	100	0.2	0.2	0.2	X	
TRHY3	<i>Triteleia hyacinthina</i>	100	0.2	0.2	0.2	X	
VUMI	<i>Vulpia microstachys</i>	100	0.2	0.2	0.2	X	
Non-vasc							
2ALGA	Unknown Algae	100	1	1	1	X	X
2MOSS	Unknown Moss	100	1	1	1	X	X

Association(s) Defined: *Mimulus guttatus*–*Vulpia microstachys* Serpentine

***Mimulus guttatus*–*Vulpia microstachys* Serpentine Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Klein et al. 2007, Sawyer et al. 2009

Montia fontana–Sidalcea calycosa Alliance (Water blinks–Annual checkerbloom vernal pools)

In two occurrences of this type sampled in the study area, *Sidalcea calycosa* is characteristic in the herbaceous layer, occurring with *Bromus hordeaceus*, *Vulpia bromoides*, *Erodium botrys*, and others. In the state of California, *Montia fontana* and/or *S. calycosa* are co-dominant or characteristically present with *Blennosperma nanum*, *Callitriche marginata*, *Castilleja campestris* ssp. *succulenta*, and others. Herbs are <90 cm, and cover is intermittent to continuous. Stands occur in volcanic rock pools atop island-like mesas, especially in the Sierra Nevada foothills. Soils are shallow and rocky with short inundation periods.

Samples used to describe type: 2

Local Environmental Table:

Elevation: average 36 m
 Total vegetation cover: range 85 - 90 %, average 87 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: average 90 %
 Percent native cover relative to non-native cover: 17 %

Location(s) Sampled: Northeast Great Valley

References: Barbour et al. 2003, Barbour et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	BRHO2	<i>Bromus hordeaceus</i>	100	20	20	20	X		
	VUBR	<i>Vulpia bromoides</i>	100	17	15	18	X		
	ERBO	<i>Erodium botrys</i>	100	9	5	12	X		
	TRHI4	<i>Trifolium hirtum</i>	100	9	7	10	X		
	LETA	<i>Leontodon taraxacoides</i>	100	5	0.4	10	X		
	TRDU2	<i>Trifolium dubium</i>	100	5	1	8	X		
	SICA	<i>Sidalcea calycosa</i>	100	4	1	7	X		
	HYGL2	<i>Hypochaeris glabra</i>	100	4	0.4	7	X		
	TRMI4	<i>Trifolium microcephalum</i>	100	3	2	3	X		
	AICA	<i>Aira caryophyllea</i>	100	2	1	3	X		
	LIAL3	<i>Limnanthes alba</i>	100	2	0.4	3	X		
	NATA3	<i>Navarretia tagetina</i>	100	2	0.4	3	X		
	AVBA	<i>Avena barbata</i>	100	1	0.4	2	X		
	HOVI	<i>Holocarpha virgata</i>	100	1	0.4	2	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	1	0.4	2	X		
	TACA8	<i>Taeniatherum caput-medusae</i>	100	1	1	1	X		
	BRMI2	<i>Briza minor</i>	100	0.7	0.4	1	X		
	JUBU	<i>Juncus bufonius</i>	100	0.7	0.4	1	X		
	CAAT25	<i>Castilleja attenuata</i>	100	0.4	0.4	0.4	X		
	JUCA5	<i>Juncus capitatus</i>	100	0.4	0.4	0.4	X		
	TRER6	<i>Triphysaria eriantha</i>	100	0.4	0.4	0.4	X		
	TRHY3	<i>Triteleia hyacinthina</i>	100	0.4	0.4	0.4	X		

DICO19	<i>Dichelostemma congestum</i>	100	0.3	0.1	0.4	X
THRA	<i>Thysanocarpus radians</i>	50	0.5	1	1	
BRODI	<i>Brodiaea</i> sp.	50	0.2	0.4	0.4	
BRAP	<i>Brodiaea appendiculata</i>	50	0.2	0.4	0.4	
BRMI3	<i>Brodiaea minor</i>	50	0.2	0.4	0.4	
BRDI3	<i>Bromus diandrus</i>	50	0.2	0.4	0.4	
EPTO4	<i>Epilobium torreyi</i>	50	0.2	0.4	0.4	
ESLO	<i>Eschscholzia lobbii</i>	50	0.2	0.4	0.4	
HOMA2	<i>Hordeum marinum</i>	50	0.2	0.4	0.4	
LOGA2	<i>Logfia gallica</i>	50	0.2	0.4	0.4	
LUBI	<i>Lupinus bicolor</i>	50	0.2	0.4	0.4	
PLFU	<i>Plagiobothrys fulvus</i>	50	0.2	0.4	0.4	
SABI3	<i>Sanicula bipinnatifida</i>	50	0.2	0.4	0.4	
TRDE	<i>Trifolium depauperatum</i>	50	0.2	0.4	0.4	

Association(s) Defined: *Montia fontana*–*Sidalcea calycosa*

***Montia fontana*–*Sidalcea calycosa* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Barbour et al. 2003, Barbour et al. 2007, Sawyer et al. 2009

Muhlenbergia rigens Alliance (Deer grass beds)

In one occurrence of this type sampled in the study area, *Muhlenbergia rigens* is characteristic in the herbaceous layer, occurring with *Taeniatherum caput-medusae*, *Trifolium hirtum*, *Lolium perenne* ssp. *multiflorum*, and others. In the state of California, *M. rigens* is dominant or co-dominant in the herbaceous layer with *Aira caryophylla*, *Artemisia dracuncululus*, *Bromus diandrus*, and others. Emergent shrubs of *Eriogonum fasciculatum*, *Rubus armeniacus*, or *Toxicodendron diversilobum* may be present at low cover. Herbs are <2 m, and cover is intermittent to continuous. Stands occur on benches, lower slopes, moist slopes, moist meadow margins, river and stream terraces, and in seeps and swales. Soils are well drained sands to sandy loams, and they may be seasonally flooded or saturated.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 122 m

Total vegetation cover: 80 %

Tree cover: 0 %

Shrub cover: 2 %

Herb cover: 80 %

Percent native cover relative to non-native cover: 15 %

Location(s) Sampled: Northwest Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	TACA8	<i>Taeniatherum caput-medusae</i>	100	26	26	26	X		
	TRHI4	<i>Trifolium hirtum</i>	100	24	24	24	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	16	16	16	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	15	15	15	X		
	MURI2	<i>Muhlenbergia rigens</i>	100	14	14	14	X		
	HYGL2	<i>Hypochaeris glabra</i>	100	6	6	6	X		
	MESA	<i>Medicago sativa</i>	100	4	4	4	X		
	AVBA	<i>Avena barbata</i>	100	2	2	2	X		
	GRCA	<i>Grindelia camporum</i>	100	2	2	2	X		
	VISA	<i>Vicia sativa</i>	100	2	2	2	X		
	HYPE	<i>Hypericum perforatum</i>	100	1	1	1	X		
	TRIFO	<i>Trifolium</i> sp.	100	1	1	1	X		
	BRCA4	<i>Brodiaea californica</i>	100	0.2	0.2	0.2	X		
	BRDI3	<i>Bromus diandrus</i>	100	0.2	0.2	0.2	X		
	CEMU2	<i>Centaurium muehlenbergii</i>	100	0.2	0.2	0.2	X		
	CRSE11	<i>Croton setigerus</i>	100	0.2	0.2	0.2	X		
	DIMU5	<i>Dichelostemma multiflorum</i>	100	0.2	0.2	0.2	X		
	ELEL5	<i>Elymus elymoides</i>	100	0.2	0.2	0.2	X		
	GAPA5	<i>Galium parisiense</i>	100	0.2	0.2	0.2	X		
	LETA	<i>Leontodon taraxacoides</i>	100	0.2	0.2	0.2	X		
	LOGA2	<i>Logfia gallica</i>	100	0.2	0.2	0.2	X		

PEDU2	<i>Petrorhagia dubia</i>	100	0.2	0.2	0.2	X
TRER6	<i>Triphysaria eriantha</i>	100	0.2	0.2	0.2	X
VUBR	<i>Vulpia bromoides</i>	100	0.2	0.2	0.2	X
VUMI	<i>Vulpia microstachys</i>	100	0.2	0.2	0.2	X

Association(s) Defined: *Muhlenbergia rigens*

***Muhlenbergia rigens* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Klein et al. 2007, Sawyer et al. 2009

Myriophyllum spp. Provisional Herbaceous Semi-Natural Stands (Water milfoil wetlands)

In four occurrences of this type sampled in the study area, *Myriophyllum* sp. and/or *Egeria densa* is strongly dominant, often occurring with *Ceratophyllum demersum*, *Azolla filiculoides*, *Ludwigia peploides*, *Egeria densa*, algae, and others. Stands occur as freshwater aquatic beds, inundated portions of streams, and ponded waters that support submerged plants in the Central Valley, including the non-native *M. aquaticum* which has invaded wetland/riparian areas.

Samples used to describe type: 4

Local Environmental Table:

Elevation: range 0 - 54 , average 21 m
 Total vegetation cover: range 60 - 90 %, average 73 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 60 - 90 %, average 73 %
 Percent native cover relative to non-native cover: 18 %

Location(s) Sampled: Northeast and Northwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	MYRIO	<i>Myriophyllum</i> sp.	75	32	22	79	X	X	
	CEDE4	<i>Ceratophyllum demersum</i>	50	2	0.2	8			
	AZFI	<i>Azolla filiculoides</i>	50	0.3	0.2	1			
	LUPE5	<i>Ludwigia peploides</i>	50	0.3	0.2	1			
	EGDE	<i>Egeria densa</i>	25	21	85	85			
	EICR	<i>Eichhornia crassipes</i>	25	0.8	3	3			
	POFO3	<i>Potamogeton foliosus</i>	25	0.3	1	1			
Non-vasc	2ALGA	Unknown Algae	75	8	2	25	X	X	

Stand Type(s) Defined: *Myriophyllum* spp.–*Egeria densa* Provisional

Myriophyllum spp.–Egeria densa Provisional Stand Type

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, Hickson and Keeler-Wolf 2007

***Nassella cernua* Provisional Alliance (Nodding needle grass grassland)**

In two occurrences of this type sampled in the study area, *Nassella cernua* is characteristic and co-dominant in the herbaceous layer, occurring with *Bromus rubens*, *B. hordeaceus*, *Eschscholzia californica*, and others. In the state of California, *N. cernua* is dominant or co-dominant in the herbaceous layer with *Aristida ternipes*, *Bromus* spp., *Elymus glaucus*, *Poa secunda*, and others. Emergent shrubs and trees may be present at low cover. Herbs are <1 m, and cover is open to intermittent. Stands occur at all topographic locations, often found in transitional drier areas between coastal/valley grasslands and inland/desert steppes. Soils are well-drained, usually loamy and deep, and may have high clay content.

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 792-1123, average 957 m
 Total vegetation cover: range 35 - 80 %, average 57 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 35 - 80 %, average 57 %
 Percent native cover relative to non-native cover: 39 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	BRRU2	<i>Bromus rubens</i>	100	21	11	30	X		X
	NACE	<i>Nassella cernua</i>	100	12	12	12	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	9	1	17	X		
	ESCA2	<i>Eschscholzia californica</i>	50	5	9	9			
	AVBA	<i>Avena barbata</i>	50	3	5	5			
	BRDI3	<i>Bromus diandrus</i>	50	3	5	5			
	VUMY	<i>Vulpia myuros</i>	50	3	5	5			
	DISP	<i>Distichlis spicata</i>	50	2	4	4			
	ERCI6	<i>Erodium cicutarium</i>	50	2	3	3			
	HOMU	<i>Hordeum murinum</i>	50	0.5	1	1			

Association(s) Defined: *Nassella cernua* Provisional

***Nassella cernua* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011

***Nassella pulchra* Alliance (Purple needle grass grassland)**

Nassella pulchra is characteristic to co-dominant in the herbaceous layer, often occurring with *Vulpia bromoides*, *Bromus hordeaceus*, *Erodium botrys*, and others. Herbs are <1m, and cover is open to continuous. Stands occur within valleys and foothills on all topographic locations. Inland soils are often deeper with high clay content, and soils near the coast are shallower and rocky. *N. pulchra* is tolerant of grazing and fire, and these disturbances appear important in maintaining some stands that have become invaded by non-native annuals.

Samples used to describe type: 16

Local Environmental Table:

Elevation: range 3 - 232, average 55 m
 Total vegetation cover: range 30 - 94 %, average 66 %
 Tree cover: range 0 - 0.2 %, average 0.01%
 Shrub cover: range 0 - 37 %, average 0.2 %
 Herb cover: range 29 - 94 %, average 67 %
 Percent native cover relative to non-native cover: 23 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, Hopkinson et al. 2009, Klein et al. 2007, Sawyer et al. 2009, Stuart et al. 1996

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	VUBR	<i>Vulpia bromoides</i>	100	11	0.1	30	X		
	NAPU4	<i>Nassella pulchra</i>	100	6	1	15	X		
	BRHO2	<i>Bromus hordeaceus</i>	94	13	0.1	25	X		
	ERBO	<i>Erodium botrys</i>	94	6	0.1	20	X		
	HYGL2	<i>Hypochaeris glabra</i>	88	3	0.2	10	X		
	TACA8	<i>Taeniatherum caput-medusae</i>	69	7	0.2	40			
	TRER6	<i>Triphysaria eriantha</i>	63	1	0.1	8			
	AICA	<i>Aira caryophyllea</i>	63	0.5	0.1	3			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	63	0.4	0.1	4			
	JUBU	<i>Juncus bufonius</i>	56	0.3	0.1	2			
	TRDE	<i>Trifolium depauperatum</i>	56	0.3	0.1	2			
	BRODI	<i>Brodiaea</i> sp.	56	0.3	0.1	2			
	CEGL2	<i>Cerastium glomeratum</i>	56	0.2	0.2	1			
	BRMI2	<i>Briza minor</i>	56	0.1	0.2	0.4			
	LETA	<i>Leontodon taraxacoides</i>	50	8	5	22			
	TRDU2	<i>Trifolium dubium</i>	44	3	0.2	18			
	BRDI3	<i>Bromus diandrus</i>	44	2	0.1	15			
	DISP	<i>Distichlis spicata</i>	44	0.7	0.2	5			
	LEBI8	<i>Leptosiphon bicolor</i>	44	0.5	0.2	6			
	TRHI4	<i>Trifolium hirtum</i>	44	0.4	0.2	2			
	TRMI4	<i>Trifolium microcephalum</i>	44	0.3	0.1	3			
	DICA14	<i>Dichelostemma capitatum</i>	44	0.1	0.1	0.4			
	AVFA	<i>Avena fatua</i>	38	0.5	0.1	5			

CRSE11	<i>Croton setigerus</i>	38	0.3	0.1	4
SOSE2	<i>Soliva sessilis</i>	38	0.2	0.2	1
VUMY	<i>Vulpia myuros</i>	31	2	0.1	25
TRVA	<i>Trifolium variegatum</i>	31	0.3	0.2	2
HOMU	<i>Hordeum murinum</i>	31	0.2	0.1	2
BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	31	0.2	0.2	1
ANAR	<i>Anagallis arvensis</i>	25	0.2	0.2	3
HOVI	<i>Holocarpha virgata</i>	25	0.2	0.2	3
VIPE3	<i>Viola pedunculata</i>	25	0.2	0.4	1
TRMI5	<i>Trifolium microdon</i>	25	0.2	0.1	1
TONO	<i>Torilis nodosa</i>	25	0.1	0.1	1
Non-vasc					
2MOSS	Unknown Moss	38	0.4	0.2	3

Association(s) Defined: *Nassella pulchra*
***Nassella pulchra*–*Leontodon taraxacoides* Provisional**
Nassella pulchra*–*Sanicula bipinnatifida

***Nassella pulchra* Association**

Samples used to describe type: 8

Local Environmental Table:

Elevation: range 3 - 59 , average 14 m

Total vegetation cover: range 55 - 94 %, average 73 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 55. - 94 %, average 74 %

Percent native cover relative to non-native cover: 15 %

Location(s) Sampled: Northeast, Northwest, and Southeast Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	VUBR	<i>Vulpia bromoides</i>	100	17	3	30	X		
	NAPU4	<i>Nassella pulchra</i>	100	6	2	15	X		
	TACA8	<i>Taeniatherum caput-medusae</i>	88	14	0.4	40	X		
	BRHO2	<i>Bromus hordeaceus</i>	88	11	4	20	X		
	ERBO	<i>Erodium botrys</i>	88	8	3	20	X		
	HYGL2	<i>Hypochaeris glabra</i>	88	4	0.4	10	X		
	DISP	<i>Distichlis spicata</i>	88	1	0.2	5	X		
	CEGL2	<i>Cerastium glomeratum</i>	75	0.4	0.4	1	X		
	DICA14	<i>Dichelostemma capitatum</i>	75	0.3	0.1	0.4	X		
	BRDI3	<i>Bromus diandrus</i>	63	5	1	15			
	CRSE11	<i>Croton setigerus</i>	63	0.6	0.1	4			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	63	0.6	0.1	4			
	BRODI	<i>Brodiaea</i> sp.	63	0.4	0.1	2			
	LASE	<i>Lactuca serriola</i>	63	0.2	0.1	0.4			
	VUMY	<i>Vulpia myuros</i>	50	3	0.1	25			
	AVFA	<i>Avena fatua</i>	50	0.7	0.1	5			
	HOMU	<i>Hordeum murinum</i>	50	0.5	0.4	2			
	VIPE3	<i>Viola pedunculata</i>	50	0.4	0.4	1			
	TRMI5	<i>Trifolium microdon</i>	50	0.3	0.1	1			
	TRER6	<i>Triphysaria eriantha</i>	50	0.2	0.1	0.4			
	ACMI2	<i>Achillea millefolium</i>	38	0.4	0.4	2			
	TONO	<i>Torilis nodosa</i>	38	0.2	0.1	1			
	MECA2	<i>Melica californica</i>	25	0.6	1	4			
	AICA	<i>Aira caryophyllea</i>	25	0.4	0.4	3			
	ERCI6	<i>Erodium cicutarium</i>	25	0.1	0.1	1			
	BRMI2	<i>Briza minor</i>	25	0.1	0.4	0.4			

***Nassella pulchra*–*Leontodon taraxacoides* Provisional Association**

Samples used to describe type: 7

Local Environmental Table:

Elevation: range 60 - 90 , average 77 m
 Total vegetation cover: range 40 - 85 %, average 65 %
 Tree cover: range 0 - 0.2 %, average 0.03 %
 Shrub cover: 0 %
 Herb cover: range 40 - 85 %, average 65 %
 Percent native cover relative to non-native cover: 24 %

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	16	2	25	X		
	LETA	<i>Leontodon taraxacoides</i>	100	16	5	22	X		
	VUBR	<i>Vulpia bromoides</i>	100	7	1	25	X		
	TRDU2	<i>Trifolium dubium</i>	100	6	0.2	18	X		
	NAPU4	<i>Nassella pulchra</i>	100	6	1	12	X		
	ERBO	<i>Erodium botrys</i>	100	4	1	10	X		
	HYGL2	<i>Hypochaeris glabra</i>	100	2	0.2	10	X		
	LEBI8	<i>Leptosiphon bicolor</i>	100	1	0.2	6	X		
	TRHI4	<i>Trifolium hirtum</i>	100	0.8	0.2	2	X		
	AICA	<i>Aira caryophyllea</i>	100	0.7	0.2	2	X		
	BRMI2	<i>Briza minor</i>	100	0.2	0.2	0.2	X		
	TRER6	<i>Triphysaria eriantha</i>	86	3	0.2	8	X		
	JUBU	<i>Juncus bufonius</i>	86	0.7	0.2	2	X		
	TRMI4	<i>Trifolium microcephalum</i>	86	0.6	0.2	3	X		
	TRDE	<i>Trifolium depauperatum</i>	86	0.5	0.2	2	X		
	SOSE2	<i>Soliva sessilis</i>	86	0.5	0.2	1	X		
	CAAT25	<i>Castilleja attenuata</i>	86	0.2	0.2	0.2	X		
	TRVA	<i>Trifolium variegatum</i>	71	0.6	0.2	2			
	BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	71	0.4	0.2	1			
	ANAR	<i>Anagallis arvensis</i>	57	0.5	0.2	3			
	HOVI	<i>Holocarpha virgata</i>	57	0.5	0.2	3			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	57	0.2	0.2	1			
	CALU9	<i>Calochortus luteus</i>	43	2	0.2	12			
	TACA8	<i>Taeniatherum caput-medusae</i>	43	0.2	0.2	1			
	ERCA33	<i>Eryngium castrense</i>	29	0.2	0.2	1			
	HEFI	<i>Hemizonia fitchii</i>	29	0.2	0.2	1			
	MEPO3	<i>Medicago polymorpha</i>	29	0.2	0.2	1			
Non-vasc									
	2MOSS	Unknown Moss	86	0.8	0.2	3	X	X	

***Nassella pulchra*–*Sanicula bipinnatifida* Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 232 m

Total vegetation cover: 30 %

Tree cover: 0 %

Shrub cover: range 3 - 3 %, average 3 %

Herb cover: range 29 - 29 %, average 29 %

Percent native cover relative to non-native cover: 77 %

Location(s) Sampled: Northwest Great Valley

References: Hopkinson et al. 2009, Sawyer et al. 2009, Stuart et al. 1996

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	NAPU4	<i>Nassella pulchra</i>	100	8	82	82	X		X
	CESO3	<i>Centaurea solstitialis</i>	100	4	46	46	X		
	GRCA	<i>Grindelia camporum</i>	100	3	37	37	X		
	NAPU2	<i>Navarretia pubescens</i>	100	3	37	37	X		
	TACA8	<i>Taeniatherum caput-medusae</i>	100	2	28	28	X		
	WYETH	<i>Wyethia</i> sp.	100	2	28	28	X		
	TRHY3	<i>Triteleia hyacinthina</i>	100	0.2	0.2	0.2	X		
	TRLA16	<i>Triteleia laxa</i>	100	0.2	0.2	0.2	X		
	AICA	<i>Aira caryophyllea</i>	100	0.1	0.1	0.1	X		
	ASCLE	<i>Asclepias</i> sp.	100	0.1	0.1	0.1	X		
	AVFA	<i>Avena fatua</i>	100	0.1	0.1	0.1	X		
	BRDI3	<i>Bromus diandrus</i>	100	0.1	0.1	0.1	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	0.1	0.1	0.1	X		
	BRMA3	<i>Bromus madritensis</i>	100	0.1	0.1	0.1	X		
	CLPU2	<i>Clarkia purpurea</i>	100	0.1	0.1	0.1	X		
	CRSE11	<i>Croton setigerus</i>	100	0.1	0.1	0.1	X		
	ERSE	<i>Eragrostis secundiflora</i>	100	0.1	0.1	0.1	X		
	ERBO	<i>Erodium botrys</i>	100	0.1	0.1	0.1	X		
	ERCI6	<i>Erodium cicutarium</i>	100	0.1	0.1	0.1	X		
	HOMU	<i>Hordeum murinum</i>	100	0.1	0.1	0.1	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	0.1	0.1	0.1	X		
	NAIN2	<i>Navarretia intertexta</i>	100	0.1	0.1	0.1	X		
	SABI3	<i>Sanicula bipinnatifida</i>	100	0.1	0.1	0.1	X		
	SACR2	<i>Sanicula crassicaulis</i>	100	0.1	0.1	0.1	X		
	TRLA4	<i>Trichostema lanceolatum</i>	100	0.1	0.1	0.1	X		
	VUBR	<i>Vulpia bromoides</i>	100	0.1	0.1	0.1	X		
	VUMY	<i>Vulpia myuros</i>	100	0.1	0.1	0.1	X		

***Persicaria (lapathifolia)*–*Xanthium strumarium* Alliance (Smartweed–cocklebur patches)**

Xanthium strumarium, *Persicaria* and/or *Polygonum* spp. is/are dominant in the herbaceous layer, often occurring with *Echinochloa crus-galli*, *Lolium perenne* ssp. *multiflorum*, and others. Herbs are <1.5 m, and cover is open to continuous. Stands occur in marshes, regularly disturbed, vernal wet ponds, fields, and seasonally or intermittently flooded stream terraces. Soils are clay-rich or silty. Four stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 28

Local Environmental Table:

Elevation: range 0 - 60 , average 19 m
 Total vegetation cover: range 10 - 90 %, average 47 %
 Tree cover: range 0 - 0.2 %, average 0.01 %
 Shrub cover: range 0 - 0.8 %, average 0.06 %
 Herb cover: range 10 - 90 %, average 47 %
 Percent native cover relative to non-native cover: 73 %

Location(s) Sampled: Northeast, Northwest, and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	XAST	<i>Xanthium strumarium</i>	79	16	0.2	72	X		X
	POLYG4	<i>Polygonum</i> sp.	36	6	0.2	50			
	POLA4	<i>Polygonum lapathifolium</i>	29	2	0.2	24			
	ECCR	<i>Echinochloa crus-galli</i>	25	1	0.2	20			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	25	0.6	0.2	11			
	POAM8	<i>Polygonum amphibium</i>	21	8	0.2	79			
	LYHY3	<i>Lythrum hyssopifolium</i>	21	1	0.2	25			
	CHAL7	<i>Chenopodium album</i>	21	0.3	0.2	5			

Association(s) Defined: *Persicaria (amphibia, lapathifolia)*
Xanthium strumarium

Persicaria (amphibia, lapathifolia) Association

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 0 - 58 , average 12 m

Total vegetation cover: range 11 - 90 %, average 55 %

Tree cover: 0 %

Shrub cover: range 0 - 0.8 %, average 0.1%

Herb cover: range 11 - 90 %, average 55 %

Percent native cover relative to non-native cover: 84 %

Location(s) Sampled: Northeast and Northwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	POAM8	<i>Polygonum amphibium</i>	50	23	3	79			
	POLYG4	<i>Polygonum sp.</i>	50	15	17	50			
	XAST	<i>Xanthium strumarium</i>	50	1	0.2	5			

***Xanthium strumarium* Association**

Samples used to describe type: 14

Local Environmental Table:

Elevation: range 2 - 60 , average 26 m
Total vegetation cover: range 10 - 90%, average 45%
Tree cover: range 0 - 0.2 %, average 0.01%
Shrub cover: range 0 - 0.2 %, average 0.04%
Herb cover: range 10 - 90 %, average 46%
Percent native cover relative to non-native cover: 76%

Location(s) Sampled: Northeast, Northwest, and Southwest Great Valley

References: CDFG-CNPS 2008, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	XAST	<i>Xanthium strumarium</i>	100	30	6	72	X	X	
	LYHY3	<i>Lythrum hyssopifolium</i>	43	2	0.2	25			
	POLA4	<i>Polygonum lapathifolium</i>	36	1	0.2	12			
	ECCR	<i>Echinochloa crus-galli</i>	29	1	1	10			
	POLYG4	<i>Polygonum</i> sp.	29	0.9	0.2	7			
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	29	0.4	0.2	5			

***Phalaris aquatica* Provisional Semi-Natural Stands (Harding grass swards)**

Phalaris aquatica is dominant in the herbaceous layer or codominant with other non-natives, often occurring with *Bromus diandrus*, *Convolvulus arvensis*, *Distichlis spicata*, and others. Herbs are <1.5 m, and cover is intermittent to continuous. Stands occur in many topographic settings, including seasonally wet grasslands and alkaline flats, where *P. aquatica* has escaped and invaded areas after being planted as erosion control and forage.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 1 m

Total vegetation cover: 100 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 100 %

Percent native cover relative to non-native cover: 7 %

Location(s) Sampled: Northwest Great Valley

References: Keeler-Wolf and Vaghti 2000, Olson and Anacker 2009, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	PHAQ	<i>Phalaris aquatica</i>	100	7	7	7	X		X
	BRDI3	<i>Bromus diandrus</i>	100	3	3	3	X		
	COAR4	<i>Convolvulus arvensis</i>	100	1	1	1	X		
	DISP	<i>Distichlis spicata</i>	100	1	1	1	X		
	ERBO	<i>Erodium botrys</i>	100	1	1	1	X		
	VUBR	<i>Vulpia bromoides</i>	100	1	1	1	X		
	HYRA3	<i>Hypochaeris radicata</i>	100	0.2	0.2	0.2	X		
	LACTU	<i>Lactuca</i> sp.	100	0.2	0.2	0.2	X		
	STME2	<i>Stellaria media</i>	100	0.2	0.2	0.2	X		
	TRHI4	<i>Trifolium hirtum</i>	100	0.2	0.2	0.2	X		
	TRSU3	<i>Trifolium subterraneum</i>	100	0.2	0.2	0.2	X		
	VISA	<i>Vicia sativa</i>	100	0.2	0.2	0.2	X		

Stand Type(s) Defined: *Phalaris aquatica* Provisional

***Phalaris aquatica* Provisional Stand Types**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Keeler-Wolf and Vaghti 2000, Olson and Anacker 2009

***Phalaris arundinacea* Provisional Semi-Natural Stands (Reed canary grass grassland)**

Phalaris arundinacea is dominant in the herbaceous layer, or codominant with other non-natives, and natives occur at low cover including *Carex* spp. and *Schoenoplectus* spp. Herbs are <1.5 m, and cover is intermittent to continuous. Stands are established in irrigated pastures, wet meadows, pond and lake margins, intermittent drainages and other riparian areas, where *P. arundinacea* often has displaced the local flora upon being cultivated and/or escaped.

Samples used to describe type: 3

Local Environmental Table:

Elevation: range 57 - 86 , average 68 m
 Total vegetation cover: range 18 - 25 %, average 21 %
 Tree cover: 0 %
 Shrub cover: range 0 - 0.2 %, average 0.1%
 Herb cover: range 18 - 25 %, average 21%
 Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Northwest Great Valley

References: GIC 2011, NatureServe 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	SAME2	<i>Salix melanopsis</i>	67	0.1	0.2	0.2			
	SAEX	<i>Salix exigua</i>	33	0.3	1	1			
Herb	PHAR3	<i>Phalaris arundinacea</i>	100	20	15	25	X	X	
	CANU5	<i>Carex nudata</i>	33	1	3	3			

Stand Type(s) Defined: *Phalaris arundinacea* Western Herbaceous Provisional

***Phalaris arundinacea* Western Herbaceous Provisional Stand Type**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, NatureServe 2011

***Plagiobothrys nothofulvus* Alliance (Popcorn flower fields)**

Plagiobothrys nothofulvus is characteristic in the herbaceous layer, often occurring with *Hypochaeris glabra*, *Amsinckia menziesii*, *Bromus hordeaceus*, and others. Herbs are <1 m, and cover is intermittent to continuous. Stands occur on upland slopes. Soils are loamy, derived from many substrates, and often subject to high levels of bioturbation. One stand showed additional variation and was classified to the alliance level only.

Samples used to describe type: 15

Local Environmental Table:

Elevation: range 64 - 581 , average 275 m
 Total vegetation cover: range 35 - 85 %, average 62 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 35 - 87 %, average 63 %
 Percent native cover relative to non-native cover: 32 %

Location(s) Sampled: Northeast, Southeast, and Southwest Great Valley

References: Buck-Diaz et al. 2011, Gennet 2008, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	PLNO	<i>Plagiobothrys nothofulvus</i>	93	8	0.2	40	X		
	HYGL2	<i>Hypochaeris glabra</i>	93	3	0.2	12	X		
	AMME	<i>Amsinckia menziesii</i>	87	0.2	0.1	0.2	X		
	BRHO2	<i>Bromus hordeaceus</i>	80	13	0.2	50	X		
	AVBA	<i>Avena barbata</i>	80	4	0.2	20	X		
	TRMI4	<i>Trifolium microcephalum</i>	67	4	0.2	35			
	BRDI3	<i>Bromus diandrus</i>	67	2	0.2	13			
	CRCO34	<i>Crassula connata</i>	67	0.3	0.2	1			
	ERBO	<i>Erodium botrys</i>	60	5	0.2	20			
	ERIC16	<i>Erodium cicutarium</i>	53	3	0.2	25			
	BRRU2	<i>Bromus rubens</i>	53	2	0.2	10			
	VUMY	<i>Vulpia myuros</i>	53	0.7	0.2	5			
	CAEX14	<i>Castilleja exserta</i>	47	2	0.1	12			
	LOWR2	<i>Lotus wrangelianus</i>	47	0.3	0.2	2			
	VUBR	<i>Vulpia bromoides</i>	40	4	0.2	25			
	LUNA3	<i>Lupinus nanus</i>	40	4	0.2	30			
	CAAT25	<i>Castilleja attenuata</i>	40	0.2	0.2	1			
	DICA14	<i>Dichelostemma capitatum</i>	40	0.1	0.1	1			
	ERBR14	<i>Erodium brachycarpum</i>	33	4	1	30			
	PLAR	<i>Plagiobothrys arizonicus</i>	33	0.6	0.1	5			
	TRDE	<i>Trifolium depauperatum</i>	33	0.1	0.2	1			
	LEBI8	<i>Leptosiphon bicolor</i>	33	0.1	0.2	1			
	TRCI	<i>Trifolium ciliolatum</i>	33	0.1	0.2	1			
	LUBI	<i>Lupinus bicolor</i>	33	0.1	0.1	1			
	TRHI4	<i>Trifolium hirtum</i>	27	4	4	35			
	AICA	<i>Aira caryophyllea</i>	27	1	0.2	15			
	MEPO3	<i>Medicago polymorpha</i>	27	0.6	0.2	6			

TRLA16	<i>Triteleia laxa</i>	27	0.5	0.2	7
DAPU3	<i>Daucus pusillus</i>	27	0.5	0.2	5
TACA8	<i>Taeniatherum caput-medusae</i>	20	0.3	1	2
BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	20	0.2	0.2	2
HYPE	<i>Hypericum perforatum</i>	20	0.2	0.2	2
GITR2	<i>Gilia tricolor</i>	20	0.2	0.1	2
Non-vasc					
2MOSS	Unknown Moss	47	1	0.2	10

Association(s) Defined:

***Plagiobothrys nothofulvus*–*Castilleja exserta*–*Lupinus nanus* Provisional**
Plagiobothrys nothofulvus*–*Daucus pusillus*–*Trifolium microcephalum

***Plagiobothrys nothofulvus*–*Castilleja exserta*–*Lupinus nanus* Provisional Association**

Samples used to describe type: 6

Local Environmental Table:

Elevation: range 120 - 581 , average 462 m

Total vegetation cover: range 40 - 80 %, average 60%

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 40 - 80 %, average 60%

Percent native cover relative to non-native cover: 41 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz et al. 2011, Buck-Diaz et al. 2011, Gennet 2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	ERIC6	<i>Erodium cicutarium</i>	100	6	0.2	25	X		
	AVBA	<i>Avena barbata</i>	100	5	0.2	20	X		
	CAEX14	<i>Castilleja exserta</i>	100	4	0.1	12	X		
	HYGL2	<i>Hypochaeris glabra</i>	100	2	0.2	7	X		
	CRCO34	<i>Crassula connata</i>	100	0.5	0.2	1	X		
	ERBR14	<i>Erodium brachycarpum</i>	83	11	1	30	X		
	PLNO	<i>Plagiobothrys nothofulvus</i>	83	7	0.2	15	X		
	BRRU2	<i>Bromus rubens</i>	83	3	0.2	10	X		
	PLAR	<i>Plagiobothrys arizonicus</i>	83	1	0.1	5	X		
	LOWR2	<i>Lotus wrangelianus</i>	83	0.5	0.2	2	X		
	AMME	<i>Amsinckia menziesii</i>	83	0.2	0.1	0.2	X		
	LUNA3	<i>Lupinus nanus</i>	67	9	0.2	30			
	BRDI3	<i>Bromus diandrus</i>	67	3	0.2	13			
	BRHO2	<i>Bromus hordeaceus</i>	67	2	0.2	10			
	VUMY	<i>Vulpia myuros</i>	67	0.6	0.2	2			

TRMI4	<i>Trifolium microcephalum</i>	67	0.3	0.2	1
MEPO3	<i>Medicago polymorpha</i>	50	2	1	6
DICA14	<i>Dichelostemma capitatum</i>	50	0.2	0.1	1
GITR2	<i>Gilia tricolor</i>	33	0.4	0.1	2
CAAT25	<i>Castilleja attenuata</i>	33	0.2	0.2	1

***Plagiobothrys nothofulvus*–*Daucus pusillus*–*Trifolium microcephalum* Association**

Samples used to describe type: 8

Local Environmental Table:

Elevation: range 64 - 566, average 155 m

Total vegetation cover: range 35 - 80 %, average 61 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 35 - 80 %, average 63 %

Percent native cover relative to non-native cover: 24 %

Location(s) Sampled: Northeast, Southeast, and Southwest Great Valley

References: Buck-Diaz et al. 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	BRHO2	<i>Bromus hordeaceus</i>	100	23	5	50	X		
	ERBO	<i>Erodium botrys</i>	100	7	0.2	20	X		
	PLNO	<i>Plagiobothrys nothofulvus</i>	100	5	1	12	X		
	HYGL2	<i>Hypochaeris glabra</i>	100	3	0.2	12	X		
	AMME	<i>Amsinckia menziesii</i>	100	0.2	0.2	0.2	X		
	VUBR	<i>Vulpia bromoides</i>	75	8	0.2	25	X		
	TRMI4	<i>Trifolium microcephalum</i>	75	7	0.2	35	X		
	BRDI3	<i>Bromus diandrus</i>	75	2	0.2	12	X		
	AVBA	<i>Avena barbata</i>	63	2	0.2	9			
	TRDE	<i>Trifolium depauperatum</i>	63	0.3	0.2	1			
	LEBI8	<i>Leptosiphon bicolor</i>	63	0.2	0.2	1			
	TRCI	<i>Trifolium ciliolatum</i>	63	0.2	0.2	1			
	CRTI	<i>Crassula tillaea</i>	63	0.1	0.2	0.2			
	CEGL2	<i>Cerastium glomeratum</i>	63	0.1	0.1	0.2			
	TRHI4	<i>Trifolium hirtum</i>	50	8	4	35			
	AICA	<i>Aira caryophyllea</i>	50	2	0.2	15			
	TRLA16	<i>Triteleia laxa</i>	50	1	0.2	7			
	DAPU3	<i>Daucus pusillus</i>	50	0.9	0.2	5			
	CAAT25	<i>Castilleja attenuata</i>	50	0.2	0.2	1			
	CRCO34	<i>Crassula connata</i>	50	0.2	0.2	1			
	GEMO	<i>Geranium molle</i>	50	0.2	0.2	1			
	LOGA2	<i>Logfia gallica</i>	50	0.1	0.2	0.2			
	TACA8	<i>Taeniatherum caput-medusae</i>	38	0.5	1	2			

BRRU2	<i>Bromus rubens</i>	38	0.4	0.2	3		
BOCAC	<i>Bombycilaena californica</i> var. <i>californica</i>	38	0.3	0.2	2		
HYPE	<i>Hypericum perforatum</i>	38	0.3	0.2	2		
TRDU2	<i>Trifolium dubium</i>	38	0.3	0.2	1		
LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	38	0.2	0.2	1		
VUMY	<i>Vulpia myuros</i>	38	0.2	0.2	1		
SIGA	<i>Silene gallica</i>	25	2	0.2	18		
TRWI3	<i>Trifolium willdenovii</i>	25	0.6	2	3		
LUNA3	<i>Lupinus nanus</i>	25	0.4	0.2	3		
LETA	<i>Leontodon taraxacoides</i>	25	0.3	0.2	2		
HOVI	<i>Holocarpha virgata</i>	25	0.2	0.2	1		
LOHU2	<i>Lotus humistratus</i>	25	0.2	0.2	1		
LOWR2	<i>Lotus wrangelianus</i>	25	0.2	0.2	1		
LUBI	<i>Lupinus bicolor</i>	25	0.2	0.2	1		
PLFU	<i>Plagiobothrys fulvus</i>	25	0.2	0.2	1		
Non-vasc							
2MOSS	Unknown Moss	88	2	0.2	10	X	X

***Poa secunda* Alliance (Curly blue grass grassland)**

In one occurrence of this type sampled in the study area, *Poa secunda* is characteristic in the herbaceous layer, occurring with *Amsinckia* sp., *Bromus diandrus*, *Claytonia perfoliata*, and others. In the state of California, *P. secunda* is dominant to co-dominant in the herbaceous layer with *Aristida purpurea*, *Blepharipappus scaber*, *Bromus japonicus*, and others. Emergent trees such as *Juniperus* spp., and shrubs such as *Artemisia arbuscula* and *A. tridentata*, may be present at low cover. Herbs are <1 m, and cover is open to intermittent. Stands occur in valley bottoms with shallow water tables, on lower portions of alluvial slopes, and on all upland locations.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 1031 m

Total vegetation cover: 76 %

Tree cover: 0 %

Shrub cover: 0.2 %

Herb cover: 76 %

Percent native cover relative to non-native cover: 83 %

Location(s) Sampled: Southwest Great Valley

References: Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	AMSIN	<i>Amsinckia</i> sp.	100	31	31	31	X		X
	BRDI3	<i>Bromus diandrus</i>	100	12	12	12	X		
	POSE	<i>Poa secunda</i>	100	10	10	10	X		
	CLPE	<i>Claytonia perfoliata</i>	100	9	9	9	X		
	ACMI2	<i>Achillea millefolium</i>	100	8	8	8	X		
	CLARK	<i>Clarkia</i> sp.	100	4	4	4	X		
	MIGRG4	<i>Microsteris gracilis</i> var. <i>gracilis</i>	100	1	1	1	X		
	SHAR2	<i>Sherardia arvensis</i>	100	1	1	1	X		
	ERCA14	<i>Erysimum capitatum</i>	100	0.2	0.2	0.2	X		
	LASE	<i>Lactuca serriola</i>	100	0.2	0.2	0.2	X		
	LIPA5	<i>Lithophragma parviflorum</i>	100	0.2	0.2	0.2	X		
	MARAH	<i>Marah</i> sp.	100	0.2	0.2	0.2	X		
	NEMOP	<i>Nemophila</i> sp.	100	0.2	0.2	0.2	X		
	STNI	<i>Stellaria nitens</i>	100	0.2	0.2	0.2	X		
	TRWI3	<i>Trifolium willdenovii</i>	100	0.2	0.2	0.2	X		
Non-vasc	2MOSS	Unknown Moss	100	0.2	0.2	0.2	X	X	

Association(s) Defined: *Poa secunda*–*Bromus rubens*

***Poa secunda*–*Bromus rubens* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Buck-Diaz and Evens 2011a, Buck-Diaz et al. 2011

**Potamogeton spp.–Ceratophyllum spp.–Elodea spp. Provisional Alliance
(Pondweed–hornwort–waterweed wetlands)**

In one occurrence of this type sampled in the study area, *Ceratophyllum demersum* is co-dominant as an aquatic plant in the herbaceous layer, occurring with *Eichhornia crassipes*, *Lemna* sp., and others. Herbs are 1+ m, and cover is open to intermittent. Stands occur in fresh to brackish waters in inundated sites, such as slow-moving streamcourses, ponded areas, and ditches. Stands have not been well-defined in the state, so the one noted association has been placed in a generalized aquatic alliance per NatureServe (2011).

Samples used to describe type: 1

Local Environmental Table:

Elevation: 27 m
 Total vegetation cover: 43 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: 43 %
 Percent native cover relative to non-native cover: 83 %

Location(s) Sampled: Southwest Great Valley

References: GIC 2011, NatureServe 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	CEDE4	<i>Ceratophyllum demersum</i>	100	23	23	23	X		X
	EICR	<i>Eichhornia crassipes</i>	100	15	15	15	X		X
	LEMNA	<i>Lemna</i> sp.	100	8	8	8	X		
	SCAC3	<i>Schoenoplectus acutus</i>	100	0.2	0.2	0.2	X		
	TYPHA	<i>Typha</i> sp.	100	0.2	0.2	0.2	X		
Non-vasc	2ALGA	Unknown Algae	100	45	45	45	X	X	

Association(s) Defined: *Ceratophyllum demersum* (Provisional)

***Ceratophyllum demersum* Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, NatureServe 2011

***Sarcocornia pacifica* (*Salicornia depressa*) Alliance (Pickleweed mats)**

Sarcocornia pacifica (= *Salicornia pacifica*) is dominant or co-dominant in the herbaceous layer, often occurring with *Distichlis spicata*, *Lepidium latifolium*, *Atriplex prostrata*, *Frankenia salina*, and others. Herbs are <1.5 m, and cover is intermittent to continuous. Stands occur in coastal salt marshes and inland alkaline flats and depressions. Stands in managed wetland sites are often invaded by non-natives including *Cotula coronopifolia*, *Lepidium latifolium*, and various non-native grasses.

Samples used to describe type: 8

Local Environmental Table:

Elevation: 0 m

Total vegetation cover: range 53 - 95 %, average 83 %

Tree cover: 0 %

Shrub cover: range 0 - 10 %, average 1 %

Herb cover: range 53 - 95 %, average 83 %

Percent native cover relative to non-native cover: 78 %

Location(s) Sampled: Northwest Great Valley

References: Duke et al. 1999, Grewell et al. 2007, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	SAPA	<i>Sarcocornia pacifica</i>	100	41	15	85	X		X
	DISP	<i>Distichlis spicata</i>	88	16	0.2	50	X		
	LELA2	<i>Lepidium latifolium</i>	63	15	1	58			
	ATPR	<i>Atriplex prostrata</i>	63	2	0.2	7			
	FRSA	<i>Frankenia salina</i>	50	8	0.2	65			
	POMO5	<i>Polypogon monspeliensis</i>	50	0.3	0.2	2			
	SOOL	<i>Sonchus oleraceus</i>	50	0.2	0.2	1			
	GRST3	<i>Grindelia stricta</i>	25	5	0.2	40			
	COCO7	<i>Cotula coronopifolia</i>	25	2	0.2	15			
	PHAU7	<i>Phragmites australis</i>	25	1	0.2	10			
	AMPS	<i>Ambrosia psilostachya</i>	25	0.7	0.2	5			
	SYEX	<i>Symphotrichum expansum</i>	25	0.3	0.2	2			

Association(s) Defined: *Sarcocornia pacifica*–Moist Annual Provisional Association
Sarcocornia pacifica–*Distichlis spicata*
Sarcocornia pacifica–*Frankenia salina*

***Sarcocornia pacifica*–Moist Annual Provisional Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 0 m

Total vegetation cover: 53 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 53 %

Percent native cover relative to non-native cover: 73 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	SAPA	<i>Sarcocornia pacifica</i>	100	42	42	42	X	X	
	COCO7	<i>Cotula coronopifolia</i>	100	15	15	15	X		
	POMO5	<i>Polypogon monspeliensis</i>	100	0.2	0.2	0.2	X		

***Sarcocornia pacifica*–*Distichlis spicata* Association**

Samples used to describe type: 6

Local Environmental Table:

Elevation: 0 m

Total vegetation cover: 86 %

Tree cover: 0 %

Shrub cover: range 0 - 10 %, average 2 %

Herb cover: range 65 - 95 %, average 86 %

Percent native cover relative to non-native cover: 77 %

Location(s) Sampled: Northwest Great Valley

References: Grewell et al. 2007, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	SAPA	<i>Sarcocornia pacifica</i>	100	43	15	85	X		X
	DISP	<i>Distichlis spicata</i>	100	22	5	50	X		
	ATPR	<i>Atriplex prostrata</i>	83	2	0.2	7	X		
	LELA2	<i>Lepidium latifolium</i>	67	19	1	58			
	SOOL	<i>Sonchus oleraceus</i>	67	0.3	0.2	1			
	POMO5	<i>Polypogon monspeliensis</i>	50	0.4	0.2	2			
	FRSA	<i>Frankenia salina</i>	50	0.2	0.2	1			
	GRST3	<i>Grindelia stricta</i>	33	7	0.2	40			
	PHAU7	<i>Phragmites australis</i>	33	2	0.2	10			
	AMPS	<i>Ambrosia psilostachya</i>	33	0.9	0.2	5			
	SYEX	<i>Symphyotrichum expansum</i>	33	0.4	0.2	2			

***Sarcocornia pacifica*–*Frankenia salina* Association**

Samples used to describe type: 1

Local Environmental Table:

Elevation: 0 m

Total vegetation cover: 95 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 95 %

Percent native cover relative to non-native cover: 95 %

Location(s) Sampled: Northwest Great Valley

References: Duke et al. 1999, Hickson and Keeler-Wolf 2007, Pienado et al. 1995, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	FRSA	<i>Frankenia salina</i>	100	65	65	65	X	X	
	SAPA	<i>Sarcocornia pacifica</i>	100	30	30	30	X		
	LELA2	<i>Lepidium latifolium</i>	100	5	5	5	X		
	DISP	<i>Distichlis spicata</i>	100	0.2	0.2	0.2	X		

***Schoenoplectus acutus* Alliance (Hardstem bulrush marsh)**

Schoenoplectus acutus is dominant or co-dominant in the herbaceous layer, often occurring with *Typha latifolia*, *Phragmites australis*, *Schoenoplectus californicus*, and *Ludwigia peploides*. Herbs are <4 m, and cover is intermittent to continuous. Stands occur along streams, around ponds and lakes, and in sloughs, swamps, freshwater and brackish marshes, and roadside ditches. Soils have a high organic content and are poorly aerated.

One stand showed additional variation and was classified to the alliance level only.

Samples used to describe type: 46

Local Environmental Table:

Elevation: range 0 - 186, average 18 m

Total vegetation cover: range 18 - 100 %, average 55 %

Tree cover: range 0 - 4 %, average 0.3 %

Shrub cover: range 0 - 14 %, average 2 %

Herb cover: range 18 - 100%, average 54 %

Percent native cover relative to non-native cover: 93 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	SCAC3	<i>Schoenoplectus acutus</i>	100	39	2	98	X	X	
	TYLA	<i>Typha latifolia</i>	39	2	0.2	20			
	PHAU7	<i>Phragmites australis</i>	28	2	0.2	15			
	SCCA11	<i>Schoenoplectus californicus</i>	26	1	0.2	15			
	LUPE5	<i>Ludwigia peploides</i>	24	0.5	0.2	6			

Association(s) Defined: *Schoenoplectus acutus*
Schoenoplectus acutus–*Phragmites australis*

***Schoenoplectus acutus* Association**

Samples used to describe type: 35

Local Environmental Table:

Elevation: range 0 - 186, average 23 m

Total vegetation cover: range 18 - 100 %, average 52 %

Tree cover: range 0 - 4 %, average 0.4 %

Shrub cover: range 0 - 10 %, average 1 %

Herb cover: range 18 - 100 %, average 52 %

Percent native cover relative to non-native cover: 96 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	SCAC3	<i>Schoenoplectus acutus</i>	100	43	15	98	X	X	
	TYLA	<i>Typha latifolia</i>	40	2	0.2	15			

***Schoenoplectus acutus*–*Phragmites australis* Association**

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 0 - 3 , average 0.3 m
 Total vegetation cover: range 52 - 85 %, average 67 %
 Tree cover: range 0 - 0.2 %, average 0.04 %
 Shrub cover: range 0.2- 14 %, average 5 %
 Herb cover: range 52 - 83 %, average 66 %
 Percent native cover relative to non-native cover: 89 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	CASE13	<i>Calystegia sepium</i>	60	0.2	0.2	1			
	HILA6	<i>Hibiscus lasiocarpus</i>	50	0.1	0.2	0.2			
Herb									
	SCAC3	<i>Schoenoplectus acutus</i>	100	31	10	54	X		X
	PHAU7	<i>Phragmites australis</i>	100	7	1	15	X		
	SCCA11	<i>Schoenoplectus californicus</i>	80	2	0.2	6	X		
	EICR	<i>Eichhornia crassipes</i>	60	6	0.2	40			
	HYRA	<i>Hydrocotyle ranunculoides</i>	60	0.6	0.2	2			
	TYPHA	<i>Typha</i> sp.	50	3	1	11			
	TYLA	<i>Typha latifolia</i>	40	5	3	20			
	LEOR	<i>Leersia oryzoides</i>	40	4	0.2	35			
	LYAM	<i>Lycopus americanus</i>	40	0.5	0.2	2			
	IRPS	<i>Iris pseudacorus</i>	40	0.5	0.2	4			
	PADI3	<i>Paspalum dilatatum</i>	40	0.5	0.2	4			
	POPU5	<i>Polygonum punctatum</i>	30	0.7	0.2	7			
	POLYG4	<i>Polygonum</i> sp.	30	0.2	0.2	2			
	EPILO	<i>Epilobium</i> sp.	30	0.1	0.2	1			
	JUEF	<i>Juncus effusus</i>	30	0.1	0.2	1			

***Schoenoplectus americanus* Alliance (American bulrush marsh)**

In one occurrence of this type sampled in the study area, *Schoenoplectus americanus* is dominant in the herbaceous layer, occurring with *Distichlis spicata*, *Typha angustifolia*, and *Sarcocornia pacifica*. In the state of California, *Schoenoplectus americanus* is dominant or co-dominant in the herbaceous layer, occurring with *Anemopsis californica*, *Argentina egedii*, *Distichlis spicata*, and/or others. Herbs are <4 m, and cover is intermittent to continuous. Stands occur along streams; around ponds and lakes; and in sloughs, swamps, fresh and brackish marshes, and roadside ditches. Soils have a high organic content and are poorly aerated.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 0 m

Total vegetation cover: 59 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 59 %

Percent native cover relative to non-native cover: 100 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Keeler-Wolf and Vaghti 2000, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	SCAM6	<i>Schoenoplectus americanus</i>	100	55	55	55	X	X	
	DISP	<i>Distichlis spicata</i>	100	3	3	3	X		
	TYAN	<i>Typha angustifolia</i>	100	1	1	1	X		
	SAPA	<i>Sarcocornia pacifica</i>	100	0.2	0.2	0.2	X		

Association(s) Defined: *Schoenoplectus americanus*

***Schoenoplectus americanus* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Hickson and Keeler-Wolf 2007, Keeler-Wolf and Vaghti 2000, Sawyer et al. 2009

***Schoenoplectus californicus* Alliance (California bulrush marsh)**

Schoenoplectus californicus is typically dominant in the herbaceous layer, often occurring with *Schoenoplectus acutus*, *Eichhornia crassipes*, *Ludwigia peploides*, and others. Emergent *Cephalanthus occidentalis* and *Rubus armeniacus* may be present at low cover in the shrub layer. Herbs are <4 m, and cover is intermittent to continuous. Stands occur in brackish to freshwater marshes, shores, bars, and channels of river mouth estuaries. Soils have a high organic content and are poorly aerated.

One stand showed additional variation and were classified to the alliance level only.

Samples used to describe type: 19

Local Environmental Table:

Elevation: range 0 - 91 , average 5 m
 Total vegetation cover: range 20 - 99 %, average 75 %
 Tree cover: range 0 - 10 %, average 0.6 %
 Shrub cover: range 0 - 25 %, average 3 %
 Herb cover: range 20 - 99 %, average 74 %
 Percent native cover relative to non-native cover: 89 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007, Keeler-Wolf and Evens 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	CEOC2	<i>Cephalanthus occidentalis</i>	26	0.2	0.2	3			
	RUAR9	<i>Rubus armeniacus</i>	21	0.1	0.2	2			
Herb	SCCA11	<i>Schoenoplectus californicus</i>	100	43	5	85	X	X	
	SCAC3	<i>Schoenoplectus acutus</i>	63	8	1	45			
	EICR	<i>Eichhornia crassipes</i>	58	7	0.2	35			
	LUPE5	<i>Ludwigia peploides</i>	37	0.4	0.2	6			
	PHAU7	<i>Phragmites australis</i>	32	3	0.2	50			
	TYAN	<i>Typha angustifolia</i>	26	2	1	35			
	JUXI	<i>Juncus xiphioides</i>	26	0.2	0.2	2			
	TYLA	<i>Typha latifolia</i>	21	2	0.2	38			

Association(s) Defined: *Schoenoplectus californicus*
Schoenoplectus californicus–*Schoenoplectus acutus*

***Schoenoplectus californicus* Association**

Samples used to describe type: 8

Local Environmental Table:

Elevation: range 0 - 91 , average 11.8m
 Total vegetation cover: range 20 - 99 %, average 73 %
 Tree cover: range 0 - 0.2 %, average 0. %
 Shrub cover: range 0 - 11 %, average 1. %
 Herb cover: range 20 - 99 %, average 73 %
 Percent native cover relative to non-native cover: 82 %

Location(s) Sampled: Northwest, Southeast, and Southwest Great Valley

References: GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	SCCA11	<i>Schoenoplectus californicus</i>	100	46.9	10	85	X	X	
	LUPE5	<i>Ludwigia peploides</i>	75	0.2	0.20	0.20	X		
	EICR	<i>Eichhornia crassipes</i>	63	12.5	5	35			
	TYLA	<i>Typha latifolia</i>	25	5.5	6	38			
	AZFI	<i>Azolla filiculoides</i>	25	2.0	1	15			
	HYRA	<i>Hydrocotyle ranunculoides</i>	25	0.5	2	2			
Non-vasc									
	2ALGA	<i>Unknown Algae</i>	25	0.7	0.20	5			

***Schoenoplectus californicus*–*Schoenoplectus acutus* Association**

Samples used to describe type: 10

Local Environmental Table:

Elevation: range 0 - 1 , average 0.2 m
 Total vegetation cover: range 50 - 99 %, average 76 %
 Tree cover: range 0 - 10 %, average 1 %
 Shrub cover: range 0 - 25 %, average 4 %
 Herb cover: range 50 - 99 %, average 74 %
 Percent native cover relative to non-native cover: 94 %

Location(s) Sampled: Northwest and Southwest Great Valley

References: Hickson and Keeler-Wolf 2007, Keeler-Wolf and Evens 2006, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SALA6	<i>Salix lasiolepis</i>	30	1	0.2	10			
Shrub									
	CEOC2	<i>Cephalanthus occidentalis</i>	40	0.4	0.2	3			
	RUAR9	<i>Rubus armeniacus</i>	30	0.2	0.2	2			
Herb									
	SCCA11	<i>Schoenoplectus californicus</i>	100	40	5	85	X	X	
	SCAC3	<i>Schoenoplectus acutus</i>	100	14	4	45	X		
	PHAU7	<i>Phragmites australis</i>	50	6	0.2	50			
	EICR	<i>Eichhornia crassipes</i>	50	2	0.2	20			
	PLOD	<i>Pluchea odorata</i>	50	0.1	0.2	0.2			
	TYAN	<i>Typha angustifolia</i>	40	1	1	5			
	JUXI	<i>Juncus xiphioides</i>	40	0.3	0.2	2			
	POPU5	<i>Polygonum punctatum</i>	30	5	0.2	35			
	POPE3	<i>Polygonum persicaria</i>	30	2	1	15			
	TYPHA	<i>Typha</i> sp.	30	0.2	0.2	2			

Sesuvium verrucosum Alliance (Western sea-purslane marshes)

In one occurrence of this type sampled in the study area, *Sesuvium verrucosum* is characteristic in the herbaceous layer, occurring with *Juncus bufonius*, *Distichlis spicata*, *Hordeum depressum*, and others. *Suaeda nigra* is present at low cover in the shrub layer. In the state of California, *Sesuvium verrucosum* is dominant or co-dominant in the herbaceous layer, occurring with *Chenopodium chenopodioides*, *Distichlis spicata*, and/or others. Herbs are <1 m, and cover is open to intermittent. Stands occur in moist or seasonally dry alkaline flats and on margins of usually alkaline or saline habitats, including coastal wetlands vernal pools and desert playas. Soils are usually clay. NatureServe (2011) has defined this type as a Sparsely Vegetated Alliance while Sawyer et al. (2009) has defined it as an Herbaceous Alliance, though both of these are considered synonymous.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 55 m
 Total vegetation cover: 25 %
 Tree cover: 0 %
 Shrub cover: 5 %
 Herb cover: 20 %
 Percent native cover relative to non-native cover: 91 %

Location(s) Sampled: Southwest Great Valley

References: CDFG 2004, Keeler-Wolf and Vaghti 2000, NatureServe 2011, Sawyer et al. 2009, Ungar 1968

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub	SUMO	<i>Suaeda nigra</i>	100	5	5	5	X	X	
Herb	SEVE2	<i>Sesuvium verrucosum</i>	100	10	10	10	X		
	JUBU	<i>Juncus bufonius</i>	100	7	7	7	X		
	DISP	<i>Distichlis spicata</i>	100	3	3	3	X		
	HODE2	<i>Hordeum depressum</i>	100	3	3	3	X		
	VUMY	<i>Vulpia myuros</i>	100	3	3	3	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	2	2	2	X		
	CRASS	<i>Crassula</i> sp.	100	2	2	2	X		
	ERCI6	<i>Erodium cicutarium</i>	100	2	2	2	X		
	LEDI2	<i>Lepidium dictyotum</i>	100	2	2	2	X		
	BACA21	<i>Bassia californica</i>	100	1	1	1	X		
	BRMA3	<i>Bromus madritensis</i>	100	0.2	0.2	0.2	X		
	HECU3	<i>Heliotropium curassavicum</i>	100	0.2	0.2	0.2	X		
Non-vasc	CRYPTO	Cryptogamic crust	100	45	45	45	X	X	

Association(s) Defined: *Sesuvium verrucosum*–*Distichlis spicata*

***Sesuvium verrucosum–Distichlis spicata* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: CDFG 2004, Keeler-Wolf and Vaghti 2000, Sawyer et al. 2009, Ungar 1968

***Sporobolus airoides* Alliance (Alkali sacaton grassland)**

Sporobolus airoides is dominant in the herbaceous layer, often occurring with *Bromus hordeaceus*, *Bromus diandrus*, *Vulpia myuros*, and others. Herbs are <1 m tall, and cover is open. Stands occur in alluvial flats, basins, stream terraces, swales, valley bottoms, and lower portions of alluvial slopes. Soils are non-saline to moderately saline, but usually alkaline.

Samples used to describe type: 35

Local Environmental Table:

Elevation: range 9 - 74 , average 30 m
 Total vegetation cover: range 16 - 100 %, average 74 %
 Tree cover: 0 %
 Shrub cover: range 0 - 20 %, average 0.9 %
 Herb cover: range 20 - 100%, average 76 %
 Percent native cover relative to non-native cover: 42 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG 2004, CDFG-CNPS 2008, GIC 2011, Hopkinson et al. 2009, Odion et al. 1992a, Sawyer et al. 2009, Solomeshch 2004, Solomeshch and Barbour 2006

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	SPAI	<i>Sporobolus airoides</i>	100	22	3	42	X		X
	BRHO2	<i>Bromus hordeaceus</i>	94	12	0.2	45	X		
	BRDI3	<i>Bromus diandrus</i>	89	9	0.2	60	X		
	VUMY	<i>Vulpia myuros</i>	83	6	0.2	45	X		
	HOMA2	<i>Hordeum marinum</i>	80	9	0.2	30	X		
	FRSA	<i>Frankenia salina</i>	77	2	0.2	10	X		
	LASE	<i>Lactuca serriola</i>	74	0.4	0.1	2			
	DISP	<i>Distichlis spicata</i>	71	1	0.2	5			
	VUBR	<i>Vulpia bromoides</i>	66	5	0.2	20			
	ERBO	<i>Erodium botrys</i>	60	2	0.4	22			
	CRTR5	<i>Cressa truxillensis</i>	57	1	0.2	10			
	BRMA3	<i>Bromus madritensis</i>	54	1	0.4	10			
	CEPU14	<i>Centromadia pungens</i>	54	0.3	0.1	3			
	CESO3	<i>Centaurea solstitialis</i>	46	0.2	0.1	2			
	DICA14	<i>Dichelostemma capitatum</i>	46	0.2	0.1	1			
	SEVU	<i>Senecio vulgaris</i>	43	0.2	0.2	1			
	HODE2	<i>Hordeum depressum</i>	37	2	0.4	15			
	LACA7	<i>Lasthenia californica</i>	26	0.3	0.2	3			
	ERCI6	<i>Erodium cicutarium</i>	20	0.5	0.2	12			
	HOMU	<i>Hordeum murinum</i>	20	0.5	0.2	12			
	VUMI	<i>Vulpia microstachys</i>	20	0.3	0.6	5			

Association(s) Defined: *Sporobolus airoides*
Sporobolus airoides/Allenrolfea occidentalis

***Sporobolus airoides* Association**

Samples used to describe type: 33

Local Environmental Table:

Elevation: range 9 - 74 , average 29 m

Total vegetation cover: range 16 - 100 %, average 74 %

Tree cover: 0 %

Shrub cover: range 0 - 4%, average 0.4 %

Herb cover: range 110 - 100%, average 76 %

Percent native cover relative to non-native cover: 44 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, CDFG-CNPS 2008, GIC 2011, Hopkinson et al. 2009, Sawyer et al. 2009, Solomeshch 2004, Solomeshch and Barbour 2006

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	SPAI	<i>Sporobolus airoides</i>	100	23	7	42	X		X
	BRHO2	<i>Bromus hordeaceus</i>	97	11	0.2	40	X		
	BRDI3	<i>Bromus diandrus</i>	91	10	0.2	60	X		
	HOMA2	<i>Hordeum marinum</i>	85	9	0.2	30	X		
	VUMY	<i>Vulpia myuros</i>	82	5	0.2	22	X		
	FRSA	<i>Frankenia salina</i>	76	2	0.4	10	X		
	LASE	<i>Lactuca serriola</i>	76	0.4	0.1	2	X		
	VUBR	<i>Vulpia bromoides</i>	70	6	0.2	20			
	DISP	<i>Distichlis spicata</i>	70	1	0.2	5			
	ERBO	<i>Erodium botrys</i>	61	2	0.4	22			
	CRTR5	<i>Cressa truxillensis</i>	58	1	0.2	10			
	BRMA3	<i>Bromus madritensis</i>	55	1	0.4	10			
	CEPU14	<i>Centromadia pungens</i>	52	0.2	0.1	1			
	DICA14	<i>Dichelostemma capitatum</i>	48	0.2	0.1	1			
	CESO3	<i>Centaurea solstitialis</i>	45	0.3	0.1	2			
	SEVU	<i>Senecio vulgaris</i>	45	0.2	0.2	1			
	HODE2	<i>Hordeum depressum</i>	36	2	0.4	15			
	LACA7	<i>Lasthenia californica</i>	27	0.3	0.2	3			

***Sporobolus airoides*/Allenrolfea occidentalis Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 49 - 55 , average 52 m

Total vegetation cover: range 75 - 85 %, average 80 %

Tree cover: 0 %

Shrub cover: range 0 - 20 %, average 10 %

Herb cover: range 75 - 85 %, average 80 %

Percent native cover relative to non-native cover: 17 %

Location(s) Sampled: Southeast and Southwest Great Valley

References: Buck-Diaz et al. 2011, CDFG 2004, Odion et al. 1992a, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	ALOC2	<i>Allenrolfea occidentalis</i>	100	0.6	0.2	1	X	X	
	ISAC2	<i>Isocoma acradenia</i>	50	1	2	2			
	SUMO	<i>Suaeda nigra</i>	50	0.1	0.2	0.2			
Herb									
	VUMY	<i>Vulpia myuros</i>	100	33	20	45	X		X
	SPAI	<i>Sporobolus airoides</i>	100	3	3	3	X		
	CEPU14	<i>Centromadia pungens</i>	100	2	0.2	3	X		
	DISP	<i>Distichlis spicata</i>	100	1	0.2	2	X		
	FRSA	<i>Frankenia salina</i>	100	0.6	0.2	1	X		
	LEDI2	<i>Lepidium dictyotum</i>	100	0.2	0.2	0.2	X		
	BRHO2	<i>Bromus hordeaceus</i>	50	23	45	45			
	HOMU	<i>Hordeum murinum</i>	50	6	12	12			
	TRGR2	<i>Trifolium gracilentum</i>	50	2	4	4			
	ERBO	<i>Erodium botrys</i>	50	2	3	3			
	BRMA3	<i>Bromus madritensis</i>	50	1	2	2			
	HODE2	<i>Hordeum depressum</i>	50	1	2	2			
	AMME	<i>Amsinckia menziesii</i>	50	0.5	1	1			
	BRDI3	<i>Bromus diandrus</i>	50	0.5	1	1			
	JUBU	<i>Juncus bufonius</i>	50	0.5	1	1			
	MEPO3	<i>Medicago polymorpha</i>	50	0.5	1	1			
	TRDE	<i>Trifolium depauperatum</i>	50	0.2	0.4	0.4			

Stuckenia (pectinata)–Potamogeton spp. Alliance (Pondweed mats)

In one occurrence of this type sampled in the study area, *Stuckenia pectinata* is dominant in the herbaceous layer, occurring with *Eichhornia crassipes*. In the state of California, *S. pectinata*, other *Stuckenia* species, or *Potamogeton* spp. is/are dominant at or below the water surface, occurring with *Agrostis stolonifera*, *Bolboschoenus maritimus*, *Ceratophyllum demersum*, and others. Herbs are <1 m, and canopy is open to continuous. Stands occur in slightly brackish pools, channels, or sloughs at intermediate tidal elevations and in freshwater lakes.

Samples used to describe type: 1

Local Environmental Table:

Elevation: 0 m

Total vegetation cover: 15 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: 15 %

Percent native cover relative to non-native cover: 98 %

Location(s) Sampled: Northwest Great Valley

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	STPE15	<i>Stuckenia pectinata</i>	100	15	15	15	X	X	
	EICR	<i>Eichhornia crassipes</i>	100	0.2	0.2	0.2	X		

Association(s) Defined: *Stuckenia pectinata*

***Stuckenia pectinata* Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

***Trifolium variegatum* Alliance (White-tip clover swales)**

Trifolium variegatum is characteristic to co-dominant in the herbaceous layer, occurring with *Bromus hordeaceus*, *Lolium perenne* ssp. *multiflorum*, *Juncus bufonius*, and others. Herbs are <75 cm, and cover is intermittent to continuous. Stands occur in vernal moist edges of pools, swales, and seeps. Soils are sandy to clay or clay loam and generally fine-grained.

Samples used to describe type: 32

Local Environmental Table:

Elevation: range 24 - 264, average 96 m
 Total vegetation cover: range 9 - 95 %, average 49 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 9 - 95 %, average 52 %
 Percent native cover relative to non-native cover: 41 %

Location(s) Sampled: Northeast and Southeast Great Valley, Sierra Nevada Foothills Ecoregion

References: Barbour et al. 2003, Barbour et al. 2007, Buck-Diaz et al. 2011, GIC 2011, Klein et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	BRHO2	<i>Bromus hordeaceus</i>	91	3	0.2	12	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	88	6	0.1	50	X		
	TRVA	<i>Trifolium variegatum</i>	84	9	0.1	60	X		
	JUBU	<i>Juncus bufonius</i>	78	5	0.2	20	X		
	BRMI2	<i>Briza minor</i>	69	0.5	0.1	4			
	LETA	<i>Leontodon taraxacoides</i>	63	5	0.2	40			
	HYGL2	<i>Hypochaeris glabra</i>	63	3	0.1	36			
	HOMA2	<i>Hordeum marinum</i>	59	3	0.1	23			
	VUBR	<i>Vulpia bromoides</i>	59	2	0.1	12			
	ERBO	<i>Erodium botrys</i>	56	2	0.2	15			
	TRER6	<i>Triphysaria eriantha</i>	53	0.7	0.1	8			
	CAAT25	<i>Castilleja attenuata</i>	50	0.7	0.1	18			
	TRDE	<i>Trifolium depauperatum</i>	47	0.5	0.1	3			
	MEPO3	<i>Medicago polymorpha</i>	44	0.4	0.1	4			
	TRMI4	<i>Trifolium microcephalum</i>	41	1	0.1	18			
	TRHI4	<i>Trifolium hirtum</i>	41	1	0.1	8			
	AICA	<i>Aira caryophyllea</i>	41	0.5	0.1	6			
	CEGL2	<i>Cerastium glomeratum</i>	41	0.2	0.1	2			
	POAN	<i>Poa annua</i>	38	0.8	0.1	12			
	TACA8	<i>Taeniatherum caput-medusae</i>	38	0.5	0.1	7			
	HOV1	<i>Holocarpha virgata</i>	38	0.4	0.1	6			
	HEFI	<i>Hemizonia fitchii</i>	38	0.3	0.2	4			
	ERCA33	<i>Eryngium castrense</i>	38	0.3	0.2	3			
	RAMU2	<i>Ranunculus muricatus</i>	34	1	0.1	40			
	TRDU2	<i>Trifolium dubium</i>	31	1	0.2	8			
	LYHY3	<i>Lythrum hyssopifolium</i>	31	0.6	0.1	10			
	LENI	<i>Lepidium nitidum</i>	28	0.1	0.2	2			

	SOSE2	<i>Soliva sessilis</i>	25	1	0.1	15
	AVFA	<i>Avena fatua</i>	22	0.2	0.1	3
	DEDA	<i>Deschampsia danthonioides</i>	22	0.2	0.1	2
Non-vasc						
	2MOSS	Unknown Moss	31	3	0.2	40

Association(s) Defined: *Trifolium gracilentum*–*Hesperevax caulescens*
Trifolium variegatum
Trifolium variegatum–*Juncus bufonius*
(*Trifolium variegatum*–*Vulpia bromoides*)–*Hypochaeris glabra*–
Leontodon taraxacoides

***Trifolium gracilentum*–*Hesperevax caulescens* Association**

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 49 - 61 , average 56 m
Total vegetation cover: range 9 - 18 %, average 13 %
Tree cover: 0 %
Shrub cover: 0 %
Herb cover: range 9 - 18 %, average 13 %
Percent native cover relative to non-native cover: 41 %

Location(s) Sampled: Northeast Great Valley

References: Barbour et al. 2007, Sawyer et al. 2009, GIC 2011

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	TACA8	<i>Taeniatherum caput-medusae</i>	100	2	0.2	7	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	100	2	0.2	3	X		
	TRGR2	<i>Trifolium gracilentum</i>	100	0.5	0.2	1	X		
	LETA	<i>Leontodon taraxacoides</i>	80	3	2	4	X		
	HECA30	<i>Hesperevax caulescens</i>	80	1	0.2	3	X		
	MIDO	<i>Microseris douglasii</i>	80	1	0.2	2	X		
	TRER6	<i>Triphysaria eriantha</i>	80	0.7	0.2	3	X		
	ERCA33	<i>Eryngium castrense</i>	80	0.5	0.2	2	X		
	ACMO2	<i>Achyrachaena mollis</i>	80	0.3	0.2	1	X		
	BRHO2	<i>Bromus hordeaceus</i>	80	0.3	0.2	1	X		
	TRHI4	<i>Trifolium hirtum</i>	80	0.3	0.2	1	X		
	AVBA	<i>Avena barbata</i>	80	0.2	0.2	0.2	X		
	MEPO3	<i>Medicago polymorpha</i>	60	1	0.2	4			
	HOMA2	<i>Hordeum marinum</i>	60	0.1	0.2	0.2			
	NAHE	<i>Navarretia heterandra</i>	40	0.6	1	2			
	ERBO	<i>Erodium botrys</i>	40	0.2	0.2	1			
	HECO7	<i>Hemizonia congesta</i>	40	0.2	0.2	1			
	TRDE	<i>Trifolium depauperatum</i>	40	0.2	0.2	1			
	TRWI3	<i>Trifolium willdenovii</i>	40	0.2	0.2	1			
	TRHY3	<i>Triteleia hyacinthina</i>	40	0.2	0.2	1			

Trifolium variegatum Association

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 94 - 264, average 163 m

Total vegetation cover: range 38 - 76 %, average 57 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 45 - 76 %, average 63 %

Percent native cover relative to non-native cover: 67 %

Location(s) Sampled: Northeast and Southeast Great Valley, Sierra Nevada Foothills Ecoregion

References: Buck-Diaz et al. 2011, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	TRVA	<i>Trifolium variegatum</i>	100	29	13	38	X		X
	HYGL2	<i>Hypochaeris glabra</i>	100	5	1	16	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	4	0.2	8	X		
	JUBU	<i>Juncus bufonius</i>	100	2	0.2	7	X		
	BRMI2	<i>Briza minor</i>	100	1	0.2	4	X		
	CEGL2	<i>Cerastium glomeratum</i>	100	0.4	0.2	1	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	80	4	0.2	16	X		
	TRER6	<i>Triphysaria eriantha</i>	80	2	0.2	8	X		
	AICA	<i>Aira caryophylla</i>	80	2	0.2	6	X		
	ERBO	<i>Erodium botrys</i>	80	2	0.2	4	X		
	POAN	<i>Poa annua</i>	80	0.8	0.2	2	X		
	CIQU3	<i>Cicendia quadrangularis</i>	80	0.5	0.2	2	X		
	LENI	<i>Lepidium nitidum</i>	80	0.5	0.2	2	X		
	HEFI	<i>Hemizonia fitchii</i>	80	0.3	0.2	1	X		
	MEPO3	<i>Medicago polymorpha</i>	80	0.3	0.1	1	X		
	TRMI4	<i>Trifolium microcephalum</i>	60	4	0.1	18			
	TRDE	<i>Trifolium depauperatum</i>	60	1	0.2	3			
	CRTI	<i>Crassula tillaea</i>	60	0.5	0.2	2			
	LEBI8	<i>Leptosiphon bicolor</i>	60	0.4	0.2	1			
	VUMI	<i>Vulpia microstachys</i>	60	0.4	0.2	1			
	MOFO	<i>Montia fontana</i>	60	0.1	0.2	0.2			
	PEDU2	<i>Petrorhagia dubia</i>	60	0.1	0.2	0.2			
	PLAU	<i>Plagiobothrys austiniiae</i>	60	0.1	0.2	0.2			
	HOMA2	<i>Hordeum marinum</i>	40	1	0.2	7			
	LACA7	<i>Lasthenia californica</i>	40	0.4	0.2	2			
	DEDA	<i>Deschampsia danthonioides</i>	40	0.4	0.1	2			
	PLER3	<i>Plantago erecta</i>	40	0.2	0.2	1			
	POZI	<i>Pogogyne ziziphoroides</i>	40	0.2	0.2	1			
	SCAN2	<i>Scleranthus annuus</i>	40	0.2	0.2	1			
Non-vasc									
	2MOSS	Unknown Moss	80	8	2	20	X	X	

***Trifolium variegatum*–*Juncus bufonius* Association**

Samples used to describe type: 17

Local Environmental Table:

Elevation: range 24 - 183, average 91 m

Total vegetation cover: range 18 - 95 %, average 60 %

Tree cover: 0 %

Shrub cover: 0 %

Herb cover: range 18 - 95 %, average 62 %

Percent native cover relative to non-native cover: 38 %

Location(s) Sampled: Northeast and Southeast Great Valley

References: Barbour et al. 2003, Buck-Diaz et al. 2011, GIC 2011, Klein et al. 2007, Sawyer et al. 2009, Witham 2003-2008

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	JUBU	<i>Juncus bufonius</i>	94	9	1	20	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	94	7	0.1	50	X		
	TRVA	<i>Trifolium variegatum</i>	88	9	0.1	60	X		
	BRHO2	<i>Bromus hordeaceus</i>	88	4	0.2	12	X		
	VUBR	<i>Vulpia bromoides</i>	82	2	0.1	8	X		
	BRMI2	<i>Briza minor</i>	76	0.6	0.1	4	X		
	HOMA2	<i>Hordeum marinum</i>	71	5	0.1	23			
	HYGL2	<i>Hypochaeris glabra</i>	71	2	0.1	15			
	CAAT25	<i>Castilleja attenuata</i>	65	0.2	0.1	1			
	LETA	<i>Leontodon taraxacoides</i>	53	4	0.2	18			
	ERBO	<i>Erodium botrys</i>	53	2	0.2	15			
	HOVI	<i>Holocarpha virgata</i>	53	0.7	0.1	6			
	TRDE	<i>Trifolium depauperatum</i>	53	0.5	0.1	2			
	LYHY3	<i>Lythrum hyssopifolium</i>	53	0.5	0.1	5			
	TRDU2	<i>Trifolium dubium</i>	47	2	0.2	8			
	TRMI4	<i>Trifolium microcephalum</i>	47	1	0.1	8			
	RAMU2	<i>Ranunculus muricatus</i>	41	3	0.1	40			
	POAN	<i>Poa annua</i>	41	1	0.1	12			
	SOSE2	<i>Soliva sessilis</i>	41	0.9	0.1	8			
	TRHI4	<i>Trifolium hirtum</i>	35	2	0.1	8			
	MEPO3	<i>Medicago polymorpha</i>	35	0.2	0.1	2			
	CRSE11	<i>Croton setigerus</i>	35	0.1	0.1	1			
	TACA8	<i>Taeniatherum caput-medusae</i>	29	0.4	0.1	3			
	AVFA	<i>Avena fatua</i>	29	0.4	0.1	3			
	ERCA33	<i>Eryngium castrense</i>	29	0.3	0.2	3			
	VIVI	<i>Vicia villosa</i>	29	0.3	0.1	2			
	TRCI	<i>Trifolium ciliolatum</i>	29	0.1	0.1	1			
	MOFO	<i>Montia fontana</i>	29	0.1	0.2	1			

(*Trifolium variegatum*–*Vulpia bromoides*)–*Hypochaeris glabra*–*Leontodon taraxacoides* Association

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 62 - 115, average 89 m
 Total vegetation cover: range 28 - 67 %, average 43%
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 33 - 67 %, average 45%
 Percent native cover relative to non-native cover: 24%

Location(s) Sampled: Northeast Great Valley

References: Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	LETA	<i>Leontodon taraxacoides</i>	100	16	0.2	40	X		X
	TRER6	<i>Triphysaria eriantha</i>	100	2	0.2	7	X		
	BRHO2	<i>Bromus hordeaceus</i>	100	2	0.2	4	X		
	AICA	<i>Aira caryophylla</i>	100	0.4	0.2	1	X		
	TRVA	<i>Trifolium variegatum</i>	100	0.4	0.2	1	X		
	VUBR	<i>Vulpia bromoides</i>	80	4	0.2	12	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	60	10	3	23			
	HYGL2	<i>Hypochaeris glabra</i>	60	7	0.2	36			
	CAAT25	<i>Castilleja attenuata</i>	60	4	0.2	18			
	HEFI	<i>Hemizonia fitchii</i>	60	0.9	0.2	4			
	DEDA	<i>Deschampsia danthonioides</i>	60	0.5	0.2	2			
	JUBU	<i>Juncus bufonius</i>	60	0.5	0.2	2			
	TRHI4	<i>Trifolium hirtum</i>	60	0.5	0.2	2			
	ERBO	<i>Erodium botrys</i>	60	0.4	0.2	1			
	ERCA33	<i>Eryngium castrense</i>	60	0.3	0.2	1			
	BRMI2	<i>Briza minor</i>	60	0.1	0.2	0.2			
	TRHY3	<i>Triteleia hyacinthina</i>	60	0.1	0.2	0.2			
	HOMA2	<i>Hordeum marinum</i>	40	2	0.2	8			
	CESO3	<i>Centaurea solstitialis</i>	40	0.4	0.2	2			
	AVBA	<i>Avena barbata</i>	40	0.2	0.2	1			
	TRDU2	<i>Trifolium dubium</i>	40	0.2	0.2	1			
Non-vasc									
	2MOSS	Unknown Moss	60	8	0.2	40			

Typha (angustifolia, domingensis, latifolia) Alliance (Cattail marshes)

Typha angustifolia, *Typha domingensis*, or *Typha latifolia* is dominant in the herbaceous layer, occurring sometimes with *Schoenoplectus acutus* and *Polygonum* sp. Herbs are <1.5 m, and cover is intermittent to continuous. Stands occur in semi-permanently flooded freshwater or brackish marshes. Soils are clayey or silty.

Two stands showed additional variation and were classified to the alliance level only.

Samples used to describe type: 31

Local Environmental Table:

Elevation: range 0 - 201, average 44 m

Total vegetation cover: range 17 - 97 %, average 50 %

Tree cover: range 0 - 5 %, average 0.4 %

Shrub cover: range 0 - 8 %, average 0.6 %

Herb cover: range 8 - 97 %, average 49 %

Percent native cover relative to non-native cover: 90 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Junak et al. 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	TYLA	<i>Typha latifolia</i>	71	25	1	74			
	SCAC3	<i>Schoenoplectus acutus</i>	35	2	0.2	20			
	POLYG4	<i>Polygonum</i> sp.	23	0.1	0.2	2			

Association(s) Defined: *Typha angustifolia*
Typha domingensis
Typha latifolia

***Typha angustifolia* Association**

Samples used to describe type: 5

Local Environmental Table:

Elevation: range 0 - 122, average 59 m
Total vegetation cover: range 27 - 55 %, average 42 %
Tree cover: range 0 - 2 %, average 0.4%
Shrub cover: range 0 - 0.2 %, average 0.1%
Herb cover: range 27 - 55 %, average 42 %
Percent native cover relative to non-native cover: 98 %

Location(s) Sampled: Northeast and Northwest Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Tree									
	SAGO	<i>Salix gooddingii</i>	40	0.5	0.2	2			
Herb									
	TYAN	<i>Typha angustifolia</i>	100	37	20	53	X	X	
	AZFI	<i>Azolla filiculoides</i>	40	2	2	10			

***Typha domingensis* Association**

Samples used to describe type: 2

Local Environmental Table:

Elevation: range 34 - 40 , average 37 m

Total vegetation cover: range 38 - 48 %, average 43 %

Tree cover: 0 %

Shrub cover: range 0 - 0.2 %, average 0.1%

Herb cover: range 37 - 48 %, average 42 %

Percent native cover relative to non-native cover: 99 %

Location(s) Sampled: Northeast and Northwest Great Valley

References: GIC 2011, Junak et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Shrub									
	CEOC2	<i>Cephalanthus occidentalis</i>	100	0.2	0.2	0.2	X	X	
Herb									
	TYDO	<i>Typha domingensis</i>	100	21	14	28	X		X
	AZOLL	<i>Azolla</i> sp.	50	10	20	20			
	SCAC3	<i>Schoenoplectus acutus</i>	50	10	20	20			
	LEMNA	<i>Lemna</i> sp.	50	2	3	3			
	TYLA	<i>Typha latifolia</i>	50	0.5	1	1			

***Typha latifolia* Association**

Samples used to describe type: 22

Local Environmental Table:

Elevation: range 0 - 164, average 37 m

Total vegetation cover: range 17 - 97 %, average 51 %

Tree cover: range 0 - 5 %, average 0.5%

Shrub cover: range 0 - 8 %, average 0.9%

Herb cover: range 8 - 97 %, average 50%

Percent native cover relative to non-native cover: 87 %

Location(s) Sampled: All Great Valley, Northern California Interior Coast Ranges Ecoregion

References: CDFG 2005, CDFG-CNPS 2008, GIC 2011, Hickson and Keeler-Wolf 2007, Klein et al. 2007, Sawyer et al. 2009

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb									
	TYLA	<i>Typha latifolia</i>	95	35	8	74	X	X	
	SCAC3	<i>Schoenoplectus acutus</i>	45	1	0.2	10			
	CYER	<i>Cyperus eragrostis</i>	27	0.3	0.2	3			
	POLYG4	<i>Polygonum</i> sp.	27	0.2	0.2	2			

***Toxicoscordion fremontii* Provisional Alliance (Fremont's death camas patches)**

Toxicoscordion fremontii is characteristic to co-dominant in the herbaceous layer with non-native species such as *Lolium perenne*, *Taeniatherum caput-medusae*, *Achyrrachaena mollis*, and others. Herbs are <90 cm, and cover is open to intermittent. Stands occur in moist meadows that may be wet in winter and early spring. These stands may be maintained by grazing (with reduction of non-native grass cover). Soils are clayey, and often derived from volcanic substrates. This type is related to the *Layia fremontii* – *Achyrrachaena mollis* Alliance and *Lolium perenne* Semi-Natural Stands; Further research and analysis with full species lists and across the valley and surrounding foothills are needed to understand the relationships of this and related types.

Samples used to describe type: 7

Local Environmental Table:

Elevation: range 59 - 128, average 94 m
 Total vegetation cover: range 10 - 40 %, average 24 %
 Tree cover: 0 %
 Shrub cover: 0 %
 Herb cover: range 10 - 52 %, average 29 %
 Percent native cover relative to non-native cover: 31 %

Location(s) Sampled: Northeast Great Valley

References: GIC 2011, Klein et al. 2007

Plant Constancy/Cover Summary Table:

Stratum	Code	Species Name	Con	Avg	Min	Max	C	D	cD
Herb	ZIFR	<i>Toxicoscordion fremontii</i>	100	3	1	10	X		
	LOPEM2	<i>Lolium perenne</i> ssp. <i>multiflorum</i>	86	6	0.2	16	X		
	MEPO3	<i>Medicago polymorpha</i>	86	4	0.2	20	X		
	TACA8	<i>Taeniatherum caput-medusae</i>	86	3	0.2	16	X		
	ACMO2	<i>Achyrrachaena mollis</i>	71	0.5	0.2	3			
	HYGL2	<i>Hypochaeris glabra</i>	71	0.1	0.2	0.2			
	TRDE	<i>Trifolium depauperatum</i>	71	0.1	0.2	0.2			
	TRER6	<i>Triphysaria eriantha</i>	71	0.1	0.2	0.2			
	AVBA	<i>Avena barbata</i>	57	2	0.2	6			
	BRHO2	<i>Bromus hordeaceus</i>	57	1	0.2	5			
	TRWI3	<i>Trifolium willdenovii</i>	57	0.4	0.2	2			
	TRGR2	<i>Trifolium gracilentum</i>	57	0.2	0.2	1			
	TRHI4	<i>Trifolium hirtum</i>	57	0.2	0.2	1			
	ERBO	<i>Erodium botrys</i>	57	0.1	0.2	0.2			
	LENI	<i>Lepidium nitidum</i>	57	0.1	0.2	0.2			
	CESO3	<i>Centaurea solstitialis</i>	43	2	0.2	15			
	GED1	<i>Geranium dissectum</i>	43	1	0.2	7			
	AICA	<i>Aira caryophylla</i>	43	0.8	0.2	5			
	LETA	<i>Leontodon taraxacoides</i>	43	0.8	0.2	5			
	ERCA33	<i>Eryngium castrense</i>	43	0.3	0.2	2			
	CAAT25	<i>Castilleja attenuata</i>	43	0.2	0.2	1			
	HOMA2	<i>Hordeum marinum</i>	29	1	1	8			
	BRODI	<i>Brodiaea</i> sp.	29	0.7	0.2	5			

FRPL	<i>Fritillaria pluriflora</i>	29	0.6	1	3
NATA3	<i>Navarretia tagetina</i>	29	0.2	0.2	1

Association(s) Defined: *Toxicoscordion fremontii* (–*Lolium perenne*) Provisional

***Toxicoscordion fremontii* (–*Lolium perenne*) Provisional Association**

Since only one association was defined for this alliance in the study area, its description is the same as the alliance information above.

References: GIC 2011, Klein et al. 2007, Sawyer et al. 2009