

1 AN UPDATED DATABASE OF SERPENTINE ENDEMISM IN THE CALIFORNIA FLORA

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10 ABSTRACT

11 We update and revise the serpentine affinity database of Safford et al. (2005), which
12 documents levels of plant taxon association with ultramafic ("serpentine")
13 substrates in the California flora. The revised database reflects recent taxonomic
14 changes consistent with the second edition of the Jepson Manual (TJM2) and more
15 recent updates to the Jepson eFlora, and includes additional species that were not
16 previously documented as serpentine associates. We also include serpentine-
17 associated species that have been described since the publication of TJM2 and are
18 not yet incorporated in the eFlora. A number of taxa were removed from the Safford
19 et al. (2005) database due to new ecological information or taxonomic changes. As
20 before, the new database presents information on rarity, geographic distribution,
21 taxonomy, and lifeform. Based on our new database numbers and TJM2's list of
22 California endemic species, the percentage of California endemic full species that are
23 +/- restricted to ultramafic substrates has risen to 14.7%. Of 255 total endemic taxa

24 in our database (including strict and “broad” endemics), 148 (c. 60%) come from
25 only ten plant families, concentrated mostly in one or two genera per family. The
26 North Coast and Klamath Ranges continue to support more serpentine endemics
27 than the rest of the State combined. The previous version of the database has been
28 widely used in biodiversity research and conservation management, and we hope
29 that this improved and updated version will prove as valuable.

30

31 INTRODUCTION

32 Soils derived from ultramafic parent materials – often referred to as “serpentine” –
33 support a great diversity of plant life in California. Serpentine soils are generally
34 ecologically stressful environments because they are poor in plant macronutrients,
35 have high magnesium:calcium ratios, and contain toxic heavy metals (Alexander et
36 al. 2007). Serpentine environments support high levels of native plant diversity
37 partly because they are less likely to support the (often non-native) dominant
38 species that competitively exclude other plants on more fertile substrates (Brooks
39 1987). In addition, the stressful environment of serpentine leads to high levels of
40 endemism. While serpentine soils occupy less than 1.5% of California’s geographic
41 area (Harrison et al. 2000), a high number of California’s endemic plant species are
42 partially or entirely restricted to serpentine soils (see below; Safford et al. 2005,
43 Safford 2011). Understanding the plant diversity associated with serpentine
44 environments is important for facilitating research into basic ecological and
45 evolutionary questions (of which there is a long history in California serpentine;
46 Harrison and Rajakaruna 2011), as well as for informing management decisions

47 involving landscapes, natural disturbances, and conservation (Safford and Harrison
48 2004, 2008).

49 To this point, the serpentine endemism database of Safford et al. (2005) has
50 provided the most comprehensive documentation of plant species affinities for
51 serpentine substrates in California. This database assigns plant taxa a ranking
52 representing their degree of specialization to serpentine soils based on herbarium
53 records, botanical descriptions, field data, expert opinion, and published literature.
54 The database has been widely used for a variety of purposes since its publication.
55 The rankings have been cited by numerous ecological and evolutionary studies, such
56 as research on the evolutionary origins of serpentine adaptation (Anacker et al.
57 2010), biogeographic considerations of plant diversity and endemism in the
58 California flora (Harrison et al. 2006, Burge et al. 2011), autoecological studies of
59 serpentine species (Eckert 2006), and studies of mycorrhizae on serpentine soils
60 (Southworth et al. 2014). The serpentine affinity rankings have been integrated into
61 the CalFlora (<http://www.calflora.org>) web interface—a database on California
62 plants—where the rankings are displayed on the pages of serpentine-associated
63 species. The serpentine database has also been used by land managers in
64 conservation planning, environmental assessments and impact statements, and
65 resource management plans.

66

67 METHODS

68 Our understanding of the systematics and ecology of the California flora has
69 expanded substantially since the earlier version of this database was published.

70 Here, we provide a revised version of the database (Appendix Table S1), with
71 nomenclature updated to reflect The Jepson Manual, 2nd edition ("TJM2"; Baldwin et
72 al. 2012) and then again using the most recent Jepson eFlora (most recent version
73 accessed November 18, 2019; Jepson Flora Project 2019). This contribution follows
74 on Safford (2011), which provided a lay person's summary of the status of the
75 endemism database just as TJM2 was being prepared for press. The general patterns
76 discussed in Safford (2011) are still valid, but it was important to incorporate the
77 published results from Baldwin et al. (2012) and the most recent Jepson eFlora
78 (Jepson Flora Project 2019), and to provide a completely revised version of the
79 database itself, which was not part of Safford (2011).

80 In the current database (Appendix Table S1), we have added numerous
81 additional species that were not included on the original 2005 list, many of which
82 are recently described serpentine-associated species. We also removed seven taxa
83 from the list that we constructed after TJM2 (Table 1) because recent taxonomic
84 changes and/or further study has indicated they are not strongly associated with
85 serpentine substrates. To revise the original list, we first updated nomenclature to
86 current Jepson eFlora names (as of November 18, 2019; Jepson Flora Project 2019).
87 We then solicited feedback on the list from numerous expert California botanists
88 and requested suggestions for additional species that should be included. We also
89 conducted a literature review for recently described species that have affinities for
90 serpentine. We then conducted further research on all species that were identified
91 by experts or through the literature review as possibilities for adding or removing
92 to the list, as described below.

93 We have ranked new additions to the list using the same semi-quantitative
94 scale as the original database (see Safford et al. 2005 for details), with the difference
95 that we have reduced all rankings >6 to 6, as those resulted from the addition of
96 CalFlora information which at the time could be considered independent of our
97 other sources. Today CalFlora directly references the serpentine affinity database in
98 its species descriptions. Rankings of new additions to the list presented here are
99 based primarily on herbarium records (mostly accessed via the Consortium of
100 California Herbaria [CCH1 and CCH2] websites,
101 <http://ucjeps.berkeley.edu/consortium/>; <http://www.cch2.org/portal/collections>),
102 habitat descriptions by Baldwin et al. (2012) and the Jepson eFlora (Jepson Flora
103 Project 2019; <http://ucjeps.berkeley.edu/eflora>), CalFlora observation records
104 (<https://www.calflora.org/>), the primary literature, and in some cases, direct input
105 from botanical experts. In the CCH herbarium records, we accessed at least 150
106 collection records for each taxon (except where records totaled <150, in which case
107 we accessed all records), using random selection where necessary to ensure no bias
108 in regional coverage. Where CCH or CalFlora records were <5, we combined the two
109 and treated them as a single information source. We used the Berkeley Mapper
110 (linked to the CCH website), Google Earth, our field experience, and various geologic
111 and jurisdictional (e.g., US Forest Service) maps to visualize the locations of
112 herbarium records and to determine when possible whether botanical records
113 lacking geological information were found on or off of ultramafic substrates. Taxa
114 with >50% of usable records (“usable” = the records identified the substrate, or we
115 were able to determine the substrate by another fashion) from serpentine made

116 their way onto the final list. Rankings of new list additions (e.g., recently described
117 species) should be used cautiously since many of them are based on limited data,
118 and we suggest that all species ranked based on three or fewer sources are in need
119 of further study. All species in the updated list follow the nomenclature of the
120 current (November 2019) Jepson eFlora except for 13 taxa (Table 2), most of which
121 are recently described.

122 We emphasize that we did not carry out a complete search of new collection
123 records for every taxon since 2005. This was only carried out for taxa where recent
124 publications, taxonomic changes, or personal communications from California
125 botanists led us to believe that such a search might change the status of the species.
126 For new additions to the list, we no longer required three separate sources of
127 information supporting their affinity for serpentine if evidence for their affinity to
128 serpentine appeared strong (for example, in the herbarium records).

129 Finally, it is important to note that for species for which *all* described
130 infraspecific taxa (subspecies, varieties) exhibit the same level of serpentine affinity,
131 we only include the full species name in our database.

132

133 RESULTS AND DISCUSSION

134 As in Safford et al. (2005) and Safford (2011), we define serpentine endemic taxa as
135 those that scored at least 4.5 in our ranking process. Put another way, our class of
136 “serpentine endemics” includes strict endemics (more than c. 95% of recorded
137 occurrences on ultramafics) and broad endemics (c. 85-94%). The updated
138 serpentine affinity database (Appendix Table S1) contains 255 endemic taxa (strict

139 plus broad endemics), 193 of which are full species (this includes five species for
140 which all of the subspecies are listed in the database due to differing levels of
141 serpentine affinity: *Arctostaphylos bakeri*, *A. montana*, *Calystegia collina*, *Cirsium*
142 *fontinale*, and *Lessingia micradenia*). Thus, serpentine endemic species account for
143 about 14.7% – more than 1/7 – of the endemic species in California (based on 1315
144 endemic species in Baldwin 2012). This is a notable increase from the 12.5%
145 reported in Safford et al. (2005), and is due to additions of newly described species
146 and a decrease in the number of California endemic species according to Baldwin et
147 al. (2012).

148 Taxonomic revisions have led to some changes from Safford et al. (2005) in
149 the ordering of family and genera with the most serpentine endemic taxa.
150 Asteraceae remains the family with the most serpentine endemics, with 25 strict
151 endemics, 13 broad endemics, and 106 total serpentine-associated taxa (Table 3).
152 Liliaceae, which historically contained the second most serpentine endemics of any
153 family (considering both strict and broad endemics), has been split into several
154 smaller families, many of which are further down the current list, including
155 Alliaceae – also in the top ten families – Agavaceae, Themidaceae, and so on. As a
156 result, Brassicaceae is now the second most endemic-rich family (Table 3).
157 Scrophulariaceae was also split in Baldwin et al. (2012) into numerous plant
158 families, and it has dropped from a fifth place ranking in the Safford et al. (2005)
159 rankings to a complete absence from the list now. Families derived from
160 Scrophulariaceae are still important components of serpentine endemism in
161 California however: for example, Orobanchaceae currently occupies tenth place on

162 the list, and Phrymaceae and Plantaginaceae are further down the list. *Eriogonum* is
163 now the most endemic-rich genus, followed by *Streptanthus* (Table 4).

164 As discussed by Safford et al. (2005; see their Figs 1 and 2), the distribution
165 of taxa among plant families and genera is very different when comparing
166 serpentine endemics and California endemics. Families which support many more
167 serpentine endemic taxa than expected include Linaceae, Polygonaceae,
168 Brassicaceae, Apiaceae, Caryophyllaceae, and Liliaceae. Genera that follow the same
169 pattern of notable enrichment in serpentine endemics include *Streptanthus*,
170 *Minuartia*, *Cordylanthus*, *Packera*, and *Hesperolinon*.

171 Of the five geographic regions identified by Safford et al. (2005), the North
172 Coast region remains the geographic leader in number of serpentine endemic taxa
173 (127), and the Klamath region supports the most serpentine endemics that are
174 restricted to a single region (60; Fig. 1). Together, the North Coast and Klamath
175 regions support 146 serpentine endemic taxa that are found nowhere else in the
176 state. See Safford (2011) for a figure and short discussion regarding the elevational
177 distribution of serpentine endemic taxa in California. In short, most taxa grow in
178 habitats below 1000 m elevation and few are found above 1500 m, primarily due to
179 the relative rarity of ultramafic outcrops above that elevation.

180 Among the endemic taxa, 216 are dicots, 35 are monocots, two are
181 gymnosperms, and two are pteridophytes (Appendix Table S1). The distribution of
182 life forms is shown in Fig. 2. Serpentine endemic taxa in California are primarily
183 perennial forbs (153 of 255 taxa, including three that can also be annuals), most of

184 the rest are annual forbs (74 taxa, including the same three taxa); less than 10% of
185 the endemic taxa in our database are woody species (Fig. 2).

186 192 (77%) of the endemic taxa in our database are listed in the *CNPS*
187 *Inventory of Rare and Endangered Plants* (<http://www.rareplants.cnps.org/>). 108
188 serpentine endemic taxa are assigned California Rare Plant Rank 1B, which includes
189 Federal and State threatened and endangered taxa as well as those taxa that the
190 California Native Plant Society believes warrant listing (Appendix Table S1).

191 The richness of serpentine endemic taxa in California is astonishing, given
192 the limited area of the state that supports ultramafic rocks and soils. Yet, amazingly,
193 new species continue to be described from ultramafic soils in California. Only 15
194 years after embarking on this exercise for the first time, we expanded the list of
195 California serpentine endemics by 3.7%. Given the outsized contribution made to
196 California's natural riches by ultramafic substrates and their biota, we hope and
197 expect that botanical and geocological exploration will continue to expand the
198 California serpentine flora as well as our understanding of the factors that make it
199 so diverse.

200

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202 We are grateful to the California botanists and land managers who have shared their
203 observations and expertise on serpentine taxa over the years, and helped us to
204 recognize the need to update the serpentine endemism database. We thank them
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210 assistance in database management and conducting background research on newly
211 described species. Finally, we thank the Jepson Herbarium staff for assistance with
212 nomenclature.

213

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276 TABLES AND FIGURES

277

278 TABLE 1. TAXA DROPPED FROM SERPENTINE AFFINITY DATABASE AFTER 2012¹.

Species	Family	Reason and source
<i>Chlorogalum purpureum</i> var. <i>reductum</i>	Agavaceae	Taxon does not grow on serpentine soils; Kofron et al. 2013
<i>Cardamine pachystigma</i> var. <i>pachystigma</i>	Brassicaceae	Taxon is not a serpentine indicator; reanalysis of herbarium and collection records
<i>Sedum obtusatum</i> ssp. <i>obtusatum</i>	Crassulaceae	Taxon is not a serpentine indicator; reanalysis of herbarium and collection records
<i>Carex amplexens</i>	Cyperaceae	Moved to <i>Carex fracta</i> by Baldwin et. al 2012, which not a serpentine indicator
<i>Swertia fastigiata</i>	Gentianaceae	Moved to <i>Frasera umquaensis</i> by Baldwin et. al 2012, which is not a serpentine indicator
<i>Calochortus greenei</i>	Liliaceae	Taxon does not grow on serpentine soils; government agency (BLM, USFWS) reports on species ecology
<i>Ceanothus papillosus</i> var. <i>roweanus</i>	Rhamnaceae	Taxon not recognized by TJM2 or Jepson eFlora, herbarium collections and CalFlora observations do not support taxon as serpentine indicator
<i>Brodiaea pallida</i>	Themidaceae	New collections show that only 1 of 5 population groups occurs on serpentine; R. Preston, pers. comm.
<i>Brodiaea purdyi</i>	Themidaceae	Taxon subsumed within <i>B. minor</i> , which is not a serpentine indicator; Preston 2006, Baldwin et al. 2012

279 ¹TJM2 (Baldwin et al. 2012) included many taxonomic changes and new taxa. These
 280 changes were incorporated into the database at the time of TJM2. This Table includes
 281 taxa dropped from the list since that time.

TABLE 2. Taxa included in the serpentine affinity list that are not in the current Jepson eFlora (as of November 18, 2019). These include recently described taxa as well as taxa that are widely recognized by botanists in California but are not included in the current eFlora because of taxonomic uncertainty.

Taxon	Source
<i>Brodiaea rosea</i> ssp. <i>rosea</i>	Preston 2013
<i>Calystegia vanzuukiae</i>	Brummitt and Namoff 2013
<i>Cardamine pachystigma</i> var. <i>dissectifolia</i>	R. Preston and L. Janeway, pers comm and CCH and CalFlora records
<i>Claytonia serpenticola</i>	Stoughton 2017
<i>Dicentra formosa</i> ssp. <i>oregana</i>	Baldwin et al. 2012 and L. Hoover, pers comm.
<i>Erythranthe willisii</i>	Nesom 2017
<i>Hesperolinon sharsmithiae</i>	O'Donnell 2006
<i>Sedum eastwoodiae</i>	Zika et al. 2018
<i>Sedum flavidum</i>	Zika et al. 2018
<i>Sedum kiersteadiae</i>	Wilson et al. 2014
<i>Sedum patens</i>	Zika et al. 2018
<i>Sedum rubiginosum</i>	Zika et al. 2018
<i>Vaccinium coccineum</i>	L. Hoover and J. Nelson, pers comm.

TABLE 3. NUMBERS OF SERPENTINE ENDEMIC AND NEAR ENDEMIC TAXA, BY FAMILY. ¹Strict endemics. ²Strict endemics plus broad endemics ("endemic taxa" in this paper). ³Strict and broad endemics plus "near endemic" taxa (taxa transitional from strong indicators to broad endemics). ⁴Total taxa in our database, including weak indicators and taxa transitional from indifferent to weak indicators. Families ranked by numbers of endemics (strict + broad).

Family	Serpentine affinity score			Total ⁴
	$\geq 5.5^1$	$\geq 4.5^2$	$\geq 3.5^3$	
Asteraceae	25	38	46	106
Brassicaceae	19	24	28	38
Polygonaceae	11	19	22	41
Polemoniaceae	9	10	11	21
Liliaceae	5	13	16	38
Crassulaceae	8	9	9	16
Linaceae	8	9	9	14
Orobanchaceae	7	10	10	19
Apiaceae	7	9	12	33
Lamiaceae	6	7	9	17
Ericaceae	5	8	10	15
Boraginaceae	6	6	11	24
Caryophyllaceae	5	6	8	18
Fabaceae	4	7	11	25
Alliaceae	4	7	11	24
Rhamnaceae	4	5	7	14
Phrymaceae	4	4	6	8
Onagraceae	3	5	7	13
Campanulaceae	3	5	8	13
Cyperaceae	3	5	7	12
Rubiaceae	3	4	4	8
Convolvulaceae	1	5	6	7
Iridaceae	2	3	3	5
Malvaceae	2	2	2	7
Agavaceae	2	2	2	5
Salicaceae	2	2	2	3
Gentianaceae	2	2	2	2
Poaceae	1	3	3	18
Plantaginaceae	1	3	5	15
Rosaceae	1	3	6	11
Garryaceae	1	2	2	2

Montiaceae	0	3	6	17
Ranunculaceae	1	1	3	7
Berberidaceae	1	1	1	4
Fagaceae	1	1	1	3
Dryopteridaceae	1	1	1	2
Lentibulariaceae	1	1	1	1
Apocynaceae	1	1	1	1
Violaceae	0	2	3	7
Cupressaceae	0	2	3	6
Themidaceae	0	1	5	8
Papaveraceae	0	1	1	5
Pteridaceae	0	1	1	4
Orchidaceae	0	1	1	3
Verbenaceae	0	1	1	1
Pinaceae	0	0	1	6
Melanthiaceae	0	0	2	4
Parnassiaceae	0	0	1	2
Tecophilaeaceae	0	0	0	1
Saxifragaceae	0	0	1	1
Sarraceniaceae	0	0	1	1
Primulaceae	0	0	0	1
Polygalaceae	0	0	0	1
Cistaceae	0	0	0	1

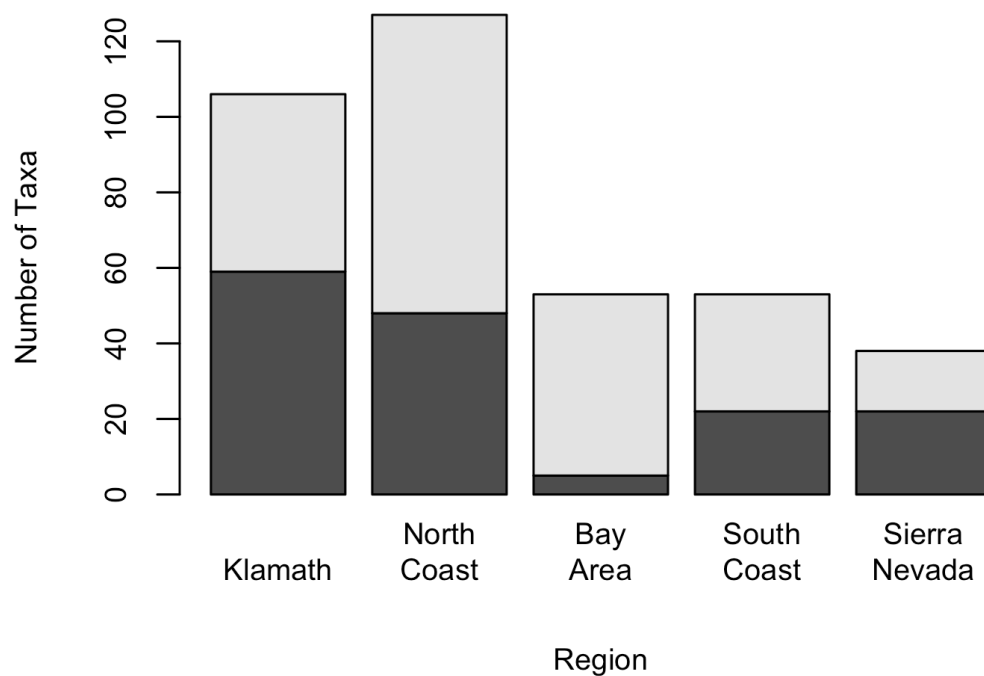
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284 TABLE 4. GENERA WITH MORE THAN THREE TAXA ENDEMIC TO SERPENTINE
 285 (MEAN AFFINITY SCORE ≥ 4.5)

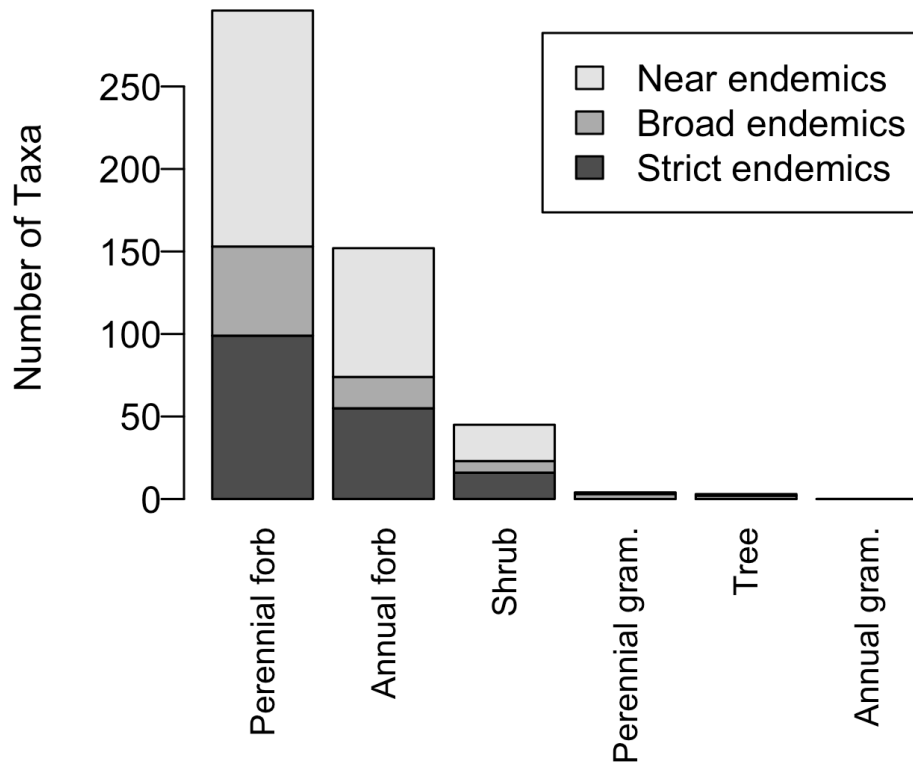
Genus	Family	Number of taxa
<i>Eriogonum</i>	Polygonaceae	19
<i>Streptanthus</i>	Brassicaceae	18
<i>Allium</i>	Alliaceae	11
<i>Arctostaphylos</i>	Ericaceae	9
<i>Hesperolinon</i>	Linaceae	9
<i>Carex</i>	Cyperaceae	7
<i>Lomatium</i>	Apiaceae	7
<i>Erythranthe</i>	Phrymaceae	6
<i>Navarretia</i>	Polemoniaceae	6
<i>Packera</i>	Asteraceae	6
<i>Phacelia</i>	Boraginaceae	6
<i>Sedum</i>	Crassulaceae	6
<i>Calystegia</i>	Convolvulaceae	5
<i>Campanula</i>	Campanulaceae	5
<i>Cordylanthus</i>	Orobanchaceae	5
<i>Erigeron</i>	Asteraceae	5
<i>Fritillaria</i>	Liliaceae	5
<i>Monardella</i>	Lamiaceae	5
<i>Boechara</i>	Brassicaceae	4
<i>Calochortus</i>	Liliaceae	4
<i>Castilleja</i>	Orobanchaceae	4
<i>Ceanothus</i>	Rhamnaceae	4
<i>Cirsium</i>	Asteraceae	4
<i>Galium</i>	Rubiaceae	4
<i>Harmonia</i>	Asteraceae	4
<i>Horkelia</i>	Rosaceae	4
<i>Lessingia</i>	Asteraceae	4

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293 Fig. 1. Geographic distribution of serpentine endemic taxa (mean score ≥ 4.5) in
294 California. Dark areas of bars represent taxa restricted to a single geographic region,
295 and light areas represents taxa that also occur in other regions. Geographic regions
296 are from Baldwin et al. 2012.
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Fig. 2. Lifeforms of serpentine endemic and near endemic taxa (mean score ≥ 3.5) in California.

302 Table S1. Updated list of taxa associated with serpentine ordered by family and
 303 taxon; 1 Names as in the Jepson eFlora (except for species listed in Table 2); 2
 304 Affinity: SE= strict endemic, BE=broad endemic, BE/SI=broad endemic/strong
 305 indicator, SI=strong indicator, WI=weak indicator, WI/IN=weak
 306 indicator/indifferent. 3 Mean affinity score. 4 Sum of all affinity scores. 5 Median of
 307 affinity scores. 6 Standard deviation of affinity scores. 7 Standard error of affinity
 308 scores. 8 California Native Plant Society rarity codes, from
 309 <https://www.cnps.org/rare-plants>. 9 Geographic distribution: KL=Klamath Ranges,
 310 NC=North Coast Ranges, BA=San Francisco Bay Area, SC=South Coast Ranges,
 311 SN=Sierra Nevada. 10 Taxonomic category. 11 carn =carnivorous, cesp=cespitose,
 312 hemipar=hemiparasitic, paras=parasitic, rhiz=rhizomatous.

Taxon ¹	Family	Affinity ²	Mean ³	Sum ⁴	Sources	Median ⁵	SD ⁶	SE ⁷	Rarity ⁸	KL	NC	BA	SC	SN	Catgory ¹⁰	Lifefor ^m ¹¹	
Chlorogalum angustifolium	Agavaceae	WI	2.4	9.50	4.0	1.8	2.8	1.4			1				1	Monocot	Perennial forb (bulb)
Chlorogalum grandiflorum	Agavaceae	WI/IN	1.0	2.00	2.0	1	-	-	1B.2						1	Monocot	Perennial forb (bulb)
Chlorogalum pomeridianum var. minus	Agavaceae	SE	6.0	30.00	5.0	6	0	0	1B.2		1	1	1		1	Monocot	Perennial forb (bulb)
Hastingsia alba	Agavaceae	SI	3.4	17.00	5.0	3	1.5	0.7		1	1				1	Monocot	Perennial forb (bulb)
Hastingsia serpentinicola	Agavaceae	SE	6.0	18.00	3.0	6	0	0		1	1					Monocot	Perennial forb (bulb)
Allium acuminatum	Alliaceae	WI	1.5	4.50	3.0	2	0.9	0.5		1	1	1				Monocot	Perennial forb (bulb)
Allium amplexans	Alliaceae	WI	2.3	11.30	5.0	2	2.2	1		1	1	1	1	1		Monocot	Perennial forb (bulb)
Allium bolanderi var. bolanderi	Alliaceae	WI/IN	1.1	4.50	4.0	1	0.6	0.3		1	1	1				Monocot	Perennial forb (bulb)
Allium bolanderi var. mirabile	Alliaceae	WI	2.0	4.00	2.0	2	-	-		1	1					Monocot	Perennial forb (bulb)
Allium cratericola	Alliaceae	SI	2.6	15.80	6.0	2.5	1.9	0.8	CBR	1	1				1	Monocot	Perennial forb (bulb)
Allium crispum	Alliaceae	WI/IN	1.3	3.75	3.0	1	0.7	0.4				1	1			Monocot	Perennial forb (bulb)
Allium diabolense	Alliaceae	SE	6.0	18.00	3.0	6	0	0					1			Monocot	Perennial forb (bulb)
Allium falcifolium	Alliaceae	BE/SI	4.2	38.00	9.0	4	1.6	0.5		1	1	1				Monocot	Perennial forb (bulb)
Allium fimbriatum var. purdyi	Alliaceae	BE	5.4	21.50	4.0	6	1.5	0.8	4.3		1					Monocot	Perennial forb (bulb)
Allium hoffmanii	Alliaceae	SE	6.0	30.00	5.0	6	0	0	4.3	1	1					Monocot	Perennial forb (bulb)
Allium howellii var. sanbenitense	Alliaceae	BE/SI	4.0	12.00	3.0	4	1	0.6	1B.3				1			Monocot	Perennial forb (bulb)
Allium jepsonii	Alliaceae	BE	5.4	37.50	7.0	6	1	0.4	1B.2						1	Monocot	Perennial forb (bulb)

Allium lacunosum var. lacunosum	Alliaceae	BE/SI	3.8	15.30	4.0	4.5	2.8	1.4			1	1		Monocot	Perennial forb (bulb)	
Allium lacunosum var. micranthum	Alliaceae	BE/SI	4.3	13.00	3.0	6	2.9	1.7	CBR			1		Monocot	Perennial forb (bulb)	
Allium membranaceum	Alliaceae	WI/IN	1.3	4.00	3.0	1	1.5	0.9	CBR	1			1	Monocot	Perennial forb (bulb)	
Allium obtusum var. conspicuum	Alliaceae	WI/IN	1.0	2.00	2.0	1	-	-					1	Monocot	Perennial forb (bulb)	
Allium peninsulare var. franciscanum	Alliaceae	WI	1.8	3.50	2.0	1.8	-	-	1B.2		1	1		Monocot	Perennial forb (bulb)	
Allium sanbornii var. congdonii	Alliaceae	SE	5.6	22.50	4.0	6	1	0.5	4.3				1	Monocot	Perennial forb (bulb)	
Allium sanbornii var. sanbornii	Alliaceae	SI	3.4	27.00	8.0	3.5	2.2	0.8	4.2				1	Monocot	Perennial forb (bulb)	
Allium serra	Alliaceae	SI	2.6	10.00	4.0	3	1.5	0.7			1	1	1	Monocot	Perennial forb (bulb)	
Allium sharsmithiae	Alliaceae	BE	5.1	20.50	4.0	6	2	1	1B.3				1	1	Monocot	Perennial forb (bulb)
Allium siskiyouense	Alliaceae	SI	2.8	14.00	5.0	2	1.8	0.8	4.3	1	1			Monocot	Perennial forb (bulb)	
Allium tuolumnense	Alliaceae	SE	6.0	18.00	3.0	6	0	0	1B.2				1	Monocot	Perennial forb (bulb)	
Allium unifolium	Alliaceae	WI/IN	1.0	3.00	3.0	1	1	0.6			1	1	1	Monocot	Perennial forb (bulb)	
Angelica tomentosa	Apiaceae	SI	2.7	8.00	3.0	3	1.5	0.9		1	1		1	Dicot	Perennial forb	
Apiastrum angustifolium	Apiaceae	WI	1.5	7.60	5.0	0.1	2.5	1.1		1	1	1	1	Dicot	Annual forb	
Ligusticum californicum	Apiaceae	WI/IN	1.4	5.75	4.0	1.4	1.3	0.7		1	1		1	Dicot	Perennial forb	
Lomatium ciliolatum	Apiaceae	SE	6.0	18.00	3.0	6	0	0			1	1	1	Dicot	Perennial forb	
Lomatium congdonii	Apiaceae	SE	6.0	18.00	3.0	6	0	0	1B.2				1	Dicot	Perennial forb	
Lomatium dasycarpum ssp. dasycarpum	Apiaceae	BE/SI	3.6	21.50	6.0	3.5	1.9	0.8			1	1	1	Dicot	Perennial forb	
Lomatium engelmannii	Apiaceae	SE	5.8	34.50	6.0	6	0.8	0.3	4.3	1	1			Dicot	Perennial forb	
Lomatium hooveri	Apiaceae	SE	5.9	29.50	5.0	6	0.4	0.2	4.3			1		Dicot	Perennial forb	
Lomatium howellii	Apiaceae	SE	6.0	24.00	4.0	6	0	0	4.3	1				Dicot	Perennial forb	
Lomatium macrocarpum	Apiaceae	SI	2.7	8.00	3.0	3	0.6	0.3		1	1	1	1	Dicot	Perennial forb	
Lomatium marginatum var. marginatum	Apiaceae	WI	2.3	9.00	4.0	2.5	2.1	1		1	1		1	Dicot	Perennial forb	
Lomatium marginatum	Apiaceae	SI	3.3	13.00	4.0	3	2.2	1.1	CBR		1		1	Dicot	Perennial forb	

var. purpureum																	
Lomatium observatoriu m	Apiaceae	WI/I N	1.4	2.75	2.0	1.4	-	-	1B.2		1	1		Dicot	Perenn ial forb		
Lomatium parvifolium	Apiaceae	SI	3.3	13.0 0	4.0	3	2. 3	1. 1	4.2			1		Dicot	Perenn ial forb		
Lomatium repostum	Apiaceae	SI	3.2	12.6 0	4.0	3	2. 4	1. 2	4.3		1			Dicot	Perenn ial forb		
Lomatium tracyi	Apiaceae	SE	6.0	42.0 0	7.0	6	0	0	4.3	1	1			Dicot	Perenn ial forb		
Lomatium triternatum var. triternatum	Apiaceae	SI	2.8	11.0 0	4.0	2	2. 4	1. 2		1	1			Dicot	Perenn ial forb		
Lomatium utriculatum	Apiaceae	WI	1.7	8.50	5.0	1	1. 4	0. 6		1	1	1	1	1	Dicot	Perenn ial forb	
Perideridia bacigalupii	Apiaceae	BE	4.6	23.0 0	5.0	6	2. 4	1. 1	4.2				1	Dicot	Perenn ial forb		
Perideridia kelloggii	Apiaceae	WI	2.1	10.6 0	5.0	2	2	0. 9			1	1	1	1	Dicot	Perenn ial forb	
Perideridia leptocarpa	Apiaceae	SE	5.6	22.5 0	4.0	6	1	0. 5	4.3	1				Dicot	Perenn ial forb		
Perideridia oregana	Apiaceae	WI	1.7	5.00	3.0	1	1. 2	0. 7		1	1	1	1	Dicot	Perenn ial forb		
Perideridia pringlei	Apiaceae	BE/SI	3.7	18.5 0	5.0	3	2. 3	1	4.3				1	Dicot	Perenn ial forb		
Sanicula bipinnatifida	Apiaceae	WI	1.8	7.10	4.0	2	1. 5	0. 7		1	1	1	1	1	Dicot	Perenn ial forb	
Sanicula hoffmannii	Apiaceae	WI	1.8	3.50	2.0	1.5	-	-	4.3				1	Dicot	Perenn ial forb		
Sanicula maritima	Apiaceae	WI	2.3	4.50	2.0	2	-	-	1B.1		1	1		Dicot	Perenn ial forb		
Sanicula peckiana	Apiaceae	BE	5.3	26.5 0	5.0	6	1. 3	0. 6	4.3	1				Dicot	Perenn ial forb		
Sanicula tracyi	Apiaceae	WI	2.1	8.50	4.0	1	2. 6	1. 3	4.2		1			Dicot	Perenn ial forb		
Sanicula tuberosa	Apiaceae	WI/I N	1.3	3.75	3.0	1	0. 7	0. 4			1		1	1	Dicot	Perenn ial forb	
Tauschia glauca	Apiaceae	BE/SI	3.5	10.5 0	3.0	3	0. 6	0. 3	4.3		1			Dicot	Perenn ial forb		
Tauschia hartwegii	Apiaceae	WI/I N	1.3	4.00	3.0	1	1. 5	0. 9			1	1	1	Dicot	Perenn ial forb		
Tauschia howellii	Apiaceae	WI	2.3	7.00	3.0	1	3. 2	1. 9	1B.3	1				Dicot	Perenn ial forb		
Tauschia kelloggii	Apiaceae	SI	2.6	12.7 5	5.0	2	2. 2	1			1		1	1	Dicot	Perenn ial forb	
Asclepias solanoana	Apocynace ae	SE	6.0	42.0 0	7.0	6	0	0	4.2		1			Dicot	Perenn ial forb		
Agoseris heterophylla	Asteraceae	WI/I N	1.4	4.10	3.0	1	1. 5	0. 9		1	1	1	1	1	Dicot	Annual forb	
Ancistrocarp us filagineus	Asteraceae	SI	3.3	13.0 0	4.0	3	0. 5	0. 3		1	1	1	1	1	Dicot	Annual forb	
Antennaria argentea	Asteraceae	WI	1.9	7.75	4.0	0.8	2. 7	1. 4		1	1			Dicot	Perenn ial forb		
Antennaria sawyeri	Asteraceae	SE	6.0	18.0 0	3.0	6	0	0	1B.2	1				Dicot	Perenn ial forb		
Antennaria suffrutescen s	Asteraceae	SE	5.6	22.5 0	4.0	6	1	0. 5	4.3	1	1			Dicot	Perenn ial forb		
Arnica cernua	Asteraceae	SE	6.0	24.0 0	4.0	6	0	0	4.3	1				Dicot	Perenn ial forb (rhiz.)		
Arnica spathulata	Asteraceae	SE	5.5	16.5 0	3.0	6	1. 2	0. 7	4.3	1				Dicot	Perenn ial forb (rhiz.)		
Balsamorhiz a macrolepis	Asteraceae	SI	2.5	15.0 0	6.0	2	1. 1	0. 5	1B.2		1		1	Dicot	Perenn ial forb		

Balsamorhiza sericea	Asteraceae	SE	6.0	18.0 0	3.0	6	0	0	1B.3	1					Dicot	Perennial forb	
Benitoa occidentalis	Asteraceae	BE/SI	4.1	16.5 0	4.0	4	1.8	0.9	4.3			1			Dicot	Annual forb	
Brickellia greenei	Asteraceae	BE/SI	3.7	11.0 0	3.0	4	0.6	0.3			1	1		1	Dicot	Perennial forb	
Cacaliopsis nardosmia	Asteraceae	WI/IN	1.3	4.00	3.0	2	1.2	0.7			1	1			Dicot	Perennial forb	
Calycadenia multiglandulosa	Asteraceae	SI	3.1	15.5 0	5.0	3	1.2	0.6				1	1	1	1	Dicot	Annual forb
Calycadenia oppositifolia	Asteraceae	SI	2.6	18.0 0	7.0	2	1.6	0.6	4.2					1	Dicot	Annual forb	
Calycadenia pauciflora	Asteraceae	BE	5.3	21.0 0	4.0	5.5	1	0.5				1			Dicot	Annual forb	
Calycadenia truncata	Asteraceae	WI	2.1	12.5 0	6.0	2.5	1.1	0.5			1	1	1	1	1	Dicot	Annual forb
Chaenactis glabriuscula var. glabriuscula	Asteraceae	WI	1.7	5.10	3.0	2	1.5	0.9					1	1	1	Dicot	Perennial forb
Chaenactis glabriuscula var. heterocarpha	Asteraceae	SI	2.5	10.0 0	4.0	2.5	0.6	0.3				1	1	1	1	Dicot	Annual forb
Chaenactis suffrutescens	Asteraceae	SE	6.0	30.0 0	5.0	6	0	0	1B.3	1					Dicot	Perennial forb	
Cirsium andrewsii	Asteraceae	WI	1.7	5.00	3.0	2	0.9	0.5	1B.2			1			Dicot	Perennial forb	
Cirsium cymosum	Asteraceae	SI	3.0	12.0 0	4.0	2	2	1			1	1	1	1	1	Dicot	Perennial forb
Cirsium douglasii var. breweri	Asteraceae	SI	3.0	12.0 0	4.0	3	1.6	0.8			1	1			1	Dicot	Perennial forb
Cirsium fontinale var. campylon	Asteraceae	SE	5.9	29.5 0	5.0	6	0.4	0.2	1B.2			1	1			Dicot	Perennial forb
Cirsium fontinale var. fontinale	Asteraceae	SE	6.0	30.0 0	5.0	6	0	0	1B.1			1	1			Dicot	Perennial forb
Cirsium fontinale var. obispoense	Asteraceae	SE	6.0	24.0 0	4.0	6	0	0	1B.2				1			Dicot	Perennial forb
Cirsium hydrophilum var. vaseyi	Asteraceae	SE	6.0	24.0 0	4.0	6	0	0	1B.2			1	1			Dicot	Perennial forb
Cirsium remotifolium	Asteraceae	WI/IN	1.0	3.10	3.0	1	1	0.5			1	1	1			Dicot	Perennial forb
Corethrogyne filaginifolia	Asteraceae	WI/IN	1.3	4.00	3.0	1	1.5	0.9			1	1	1	1	1	Dicot	Perennial forb, Shrub
Crepis pleurocarpa	Asteraceae	WI	2.0	10.0 0	5.0	2	0.7	0.3			1	1			1	Dicot	Perennial forb
Deinandra halliana	Asteraceae	SI	3.0	12.0 0	4.0	3	2.4	1.2	1B.2					1		Dicot	Annual forb
Ericameria arborescens	Asteraceae	WI/IN	1.3	4.00	3.0	1	1.5	0.9			1	1		1	1	Dicot	Shrub
Ericameria greenei	Asteraceae	WI	2.0	8.10	4.0	1.5	2.1	1.1			1	1			1	Dicot	Shrub
Ericameria nauseosa var. oreophila	Asteraceae	WI	1.8	8.85	5.0	2	1.5	0.7			1	1			1	Dicot	Shrub
Ericameria ophitidis	Asteraceae	SE	5.5	38.5 0	7.0	6	1	0.4	4.3	1	1				Dicot	Shrub	
Erigeron bloomeri var. nudatus	Asteraceae	SE	6.0	18.0 0	3.0	6	0	0	2B.3	1					Dicot	Perennial forb	

Erigeron cervinus	Asteraceae	SI	3.3	10.0 0	3.0	4	3.1	1.8	4.3	1					Dicot	Perennial forb (rhiz.)
Erigeron foliosus var. confinis	Asteraceae	BE/SI	3.7	11.0 0	3.0	3	1.2	0.7		1					Dicot	Perennial forb
Erigeron greenei	Asteraceae	BE	4.8	24.0 0	5.0	4	1.1	0.5	1B.2	1					Dicot	Perennial forb
Erigeron lassenianus var. deficiens	Asteraceae	WI	1.7	5.00	3.0	2	1.5	0.9	1B.3		1				Dicot	Perennial forb
Erigeron petrophilus var. sierrensis	Asteraceae	BE	4.8	28.5 0	6.0	6	2.1	0.8	4.3		1				Dicot	Perennial forb (rhiz.)
Erigeron petrophilus var. viscidulus	Asteraceae	WI	2.4	9.50	4.0	2	0.5	0.3	4.3	1					Dicot	Perennial forb (rhiz.)
Erigeron reductus	Asteraceae	WI	2.0	8.00	4.0	2	1.6	0.8		1	1			1	Dicot	Perennial forb
Erigeron robustior	Asteraceae	WI	1.5	4.50	3.0	2	1.2	0.7	4.3		1				Dicot	Perennial forb
Erigeron serpentinus	Asteraceae	SE	6.0	18.0 0	3.0	6	0	0	1B.3		1				Dicot	Perennial forb
Eriophyllum confertiflorum var. tanacetiflorum	Asteraceae	WI	1.9	3.75	2.0	1.9	-	-	4.3					1	Dicot	Shrub
Eriophyllum jepsonii	Asteraceae	BE/SI	3.5	17.5 0	5.0	3	1.5	0.7	4.3		1	1			Dicot	Shrub
Eriophyllum lanatum var. achilleoides	Asteraceae	WI	2.3	7.00	3.0	2	0.6	0.3		1	1	1	1	1	Dicot	Shrub
Eriophyllum lanatum var. lanceolatum	Asteraceae	WI	1.7	5.00	3.0	2	1.5	0.9		1	1				Dicot	Shrub
Eriophyllum latilobum	Asteraceae	SE	5.5	16.5 0	3.0	6	1.2	0.7	1B.1		1	1			Dicot	Shrub
Grindelia camporum	Asteraceae	WI	1.8	5.25	3.0	2	1.4	0.8		1				1	Dicot	Perennial forb
Grindelia hirsutula	Asteraceae	WI/IN	1.4	8.30	6.0	1	1	0.5			1	1			Dicot	Perennial forb
Gutierrezia californica	Asteraceae	WI	1.8	5.25	3.0	2	1.4	0.8	CBR	1	1	1			Dicot	Perennial forb, Shrub
Harmonia doris-nilesiae	Asteraceae	BE	5.4	32.5 0	6.0	5.5	0.8	0.3	1B.1	1					Dicot	Annual forb
Harmonia guggolziorum	Asteraceae	SE	6.0	18.0 0	3.0	6	0	0	1B.1		1				Dicot	Annual forb
Harmonia hallii	Asteraceae	SE	6.0	24.0 0	4.0	6	0	0	1B.2		1				Dicot	Annual forb
Harmonia stebbinsii	Asteraceae	SE	6.0	42.0 0	7.0	6	0	0	1B.2		1				Dicot	Annual forb
Hazardia stenolepis	Asteraceae	WI	2.0	6.10	3.0	3	1.7	1	CBR				1		Dicot	Shrub (stem succulent)
Hazardia whitneyi var. discoidea	Asteraceae	WI	1.9	5.75	3.0	2	1.1	0.7		1					Dicot	Perennial forb, Shrub
Hazardia whitneyi var. whitneyi	Asteraceae	WI/IN	1.0	2.00	2.0	1	-	-					1		Dicot	Perennial forb, shrub
Helenium bigelovii	Asteraceae	SI	2.9	11.5 0	4.0	2.5	2.3	1.2		1	1		1	1	Dicot	Perennial forb
Helianthus exilis	Asteraceae	SE	5.7	45.5 0	8.0	6	1.1	0.4	4.2	1	1		1	1	Dicot	Annual, Perennial forb

Hemizonia congesta ssp. calyculata	Asteraceae	WI	1.5	4.50	3.0	2	1.2	0.7	4.3	1				Dicot	Annual forb
Hemizonia congesta ssp. congesta	Asteraceae	WI/IN	1.3	4.00	3.0	2	1.2	0.7	1B.2	1	1	1		Dicot	Annual forb
Hemizonia congesta ssp. tracyi	Asteraceae	WI	1.8	5.25	3.0	2	0.7	0.4	4.3	1				Dicot	Annual forb
Hesperevax sparsiflora var. sparsiflora	Asteraceae	WI	1.8	7.25	4.0	1.5	1.6	0.8		1	1	1		Dicot	Annual forb
Heterotheca oregona var. oregona	Asteraceae	WI	2.0	6.00	3.0	3	1.7	1		1	1	1		Dicot	Perennial forb
Hieracium bolanderi	Asteraceae	BE/SI	3.8	15.00	4.0	4.5	2.6	1.3		1	1			Dicot	Perennial forb
Hieracium greenei	Asteraceae	WI	2.2	6.50	3.0	3	1.4	0.8		1	1			Dicot	Perennial forb
Lagophylla glandulosa	Asteraceae	WI	2.0	6.10	3.0	3	1.7	1		1		1		Dicot	Annual forb
Lagophylla minor	Asteraceae	BE	4.7	23.50	5.0	5	1.7	0.7	CBR	1		1		Dicot	Annual forb
Layia discoidea	Asteraceae	SE	5.7	28.50	5.0	6	0.8	0.4	1B.1			1		Dicot	Annual forb
Layia jonesii	Asteraceae	BE/SI	3.5	10.50	3.0	3	0.6	0.3	1B.2			1		Dicot	Annual forb
Layia septentrionalis	Asteraceae	SI	3.2	19.00	6.0	3.5	1.4	0.6	1B.2	1				Dicot	Annual forb
Leptosyne stillmanii	Asteraceae	SI	2.7	8.00	3.0	3	0.6	0.3		1		1	1	Dicot	Annual forb
Lessingia arachnoidea	Asteraceae	SE	6.0	18.00	3.0	6	0	0	1B.2			1		Dicot	Annual forb
Lessingia hololeuca	Asteraceae	SI	2.5	7.50	3.0	3	1.2	0.7	3	1	1			Dicot	Annual forb
Lessingia micradenia var. glabrata	Asteraceae	BE	5.1	30.50	6.0	5.5	1.3	0.5	1B.2			1		Dicot	Annual forb
Lessingia micradenia var. micradenia	Asteraceae	BE	5.3	31.50	6.0	5.5	1	0.4	1B.2			1		Dicot	Annual forb
Lessingia nemaclada	Asteraceae	WI	2.0	6.00	3.0	2	1	0.6		1	1	1	1	Dicot	Annual forb
Lessingia ramulosa	Asteraceae	BE	5.4	27.00	5.0	6	1.3	0.6		1		1		Dicot	Annual forb
Luina hypoleuca	Asteraceae	WI/IN	1.4	4.25	3.0	2	1	0.6		1	1	1		Dicot	Perennial forb
Madia exigua	Asteraceae	WI	1.8	7.25	4.0	2	1.4	0.7		1	1	1	1	Dicot	Annual forb
Malacothrix clevelandii	Asteraceae	SI	3.0	9.10	3.0	3	3	1.7		1	1	1	1	Dicot	Annual forb
Malacothrix floccifera	Asteraceae	WI	2.1	6.25	3.0	3	1.6	0.9		1	1	1	1	Dicot	Annual forb
Micropus amphibolus	Asteraceae	WI	2.4	7.25	3.0	1	3.1	1.8	3.2	1	1	1		Dicot	Annual forb
Microseris douglasii	Asteraceae	WI/IN	1.3	4.00	3.0	1	0.6	0.3		1	1	1	1	Dicot	Annual forb
Monolopia gracilens	Asteraceae	WI	2.4	4.75	2.0	2.4	-	-	1B.2			1	1	Dicot	Annual forb
Packera clevelandii	Asteraceae	SE	5.8	46.50	8.0	6	0.7	0.3		1				Dicot	Perennial forb
Packera eurycephala var. eurycephala	Asteraceae	BE/SI	3.8	15.00	4.0	3	1.5	0.8		1	1			Dicot	Perennial forb
Packera eurycephala	Asteraceae	SE	5.8	40.50	7.0	6	0.8	0.3	1B.2			1		Dicot	Perennial forb

Erysimum franciscanum	Brassicaceae	SI	3.0	9.00	3.0	3	0	0	4.2	1	1	1	Dicot	Perennial forb	
Nocca fendleri ssp. californica	Brassicaceae	SE	6.0	30.00	5.0	6	0	0	1B.1	1			Dicot	Perennial forb	
Nocca fendleri ssp. glauca	Brassicaceae	BE/SI	4.4	22.00	5.0	4	1.5	0.7		1	1		Dicot	Perennial forb	
Streptanthus barbatus	Brassicaceae	SE	5.6	28.00	5.0	6	0.5	0.2	CBR	1			Dicot	Perennial forb	
Streptanthus barbiger	Brassicaceae	SE	6.0	24.00	4.0	6	0	0	4.2		1		Dicot	Annual forb	
Streptanthus batrachopus	Brassicaceae	SE	6.0	24.00	4.0	6	0	0	1B.3		1	1	Dicot	Annual forb	
Streptanthus brachiatus	Brassicaceae	SE	5.9	23.50	8.0	6	0.5	0.3			1		Dicot	Annual, Perennial forb	
Streptanthus breweri	Brassicaceae	SE	5.7	40.00	7.0	6	0.8	0.3		1	1	1	1	Dicot	Annual forb
Streptanthus drepanoides	Brassicaceae	SE	6.0	36.00	6.0	6	0	0	4.3	1	1		1	Dicot	Annual forb
Streptanthus glandulosus ssp. albidus	Brassicaceae	BE	5.3	31.50	6.0	6	1.3	0.5				1	1	Dicot	Annual forb
Streptanthus glandulosus ssp. glandulosus	Brassicaceae	BE/SI	3.7	40.30	11.0	3	1.7	0.7			1	1	1	Dicot	Annual forb
Streptanthus glandulosus ssp. hoffmanii	Brassicaceae	SI	3.0	3.00	1.0	3	-	-	1B.3		1			Dicot	Annual forb
Streptanthus glandulosus ssp. niger	Brassicaceae	SE	6.0	30.00	5.0	6	0	0	1B.1		1	1		Dicot	Annual forb
Streptanthus glandulosus ssp. pulchellus	Brassicaceae	BE	4.9	24.50	5.0	6	1.8	0.8			1	1		Dicot	Annual forb
Streptanthus glandulosus ssp. secundus	Brassicaceae	SI	3.3	20.00	6.0	3	1.5	0.6			1	1		Dicot	Annual forb
Streptanthus glandulosus ssp. sonomensis	Brassicaceae	SE	6.0	12.00	2.0	6	-	-			1			Dicot	Annual forb
Streptanthus hesperidis	Brassicaceae	SE	6.0	24.00	4.0	6	0	0	1B.2		1			Dicot	Annual forb
Streptanthus howellii	Brassicaceae	SE	6.0	30.00	5.0	6	0	0	1B.2	1				Dicot	Perennial forb
Streptanthus insignis ssp. insignis	Brassicaceae	BE/SI	4.0	20.00	5.0	4	2.4	1.1				1		Dicot	Annual forb
Streptanthus insignis ssp. lyonii	Brassicaceae	SI	3.3	16.50	5.0	2	2.7	1.2	1B.2			1		Dicot	Annual forb
Streptanthus morrisonii	Brassicaceae	SE	6.0	110.00	18.0	6	0	0	CBR		1			Dicot	Annual, Perennial forb
Streptanthus polygaloides	Brassicaceae	SE	5.7	28.50	5.0	6	0.9	0.4				1		Dicot	Annual forb
Streptanthus vernalis	Brassicaceae	SE	6.0	12.00	2.0	6	-	-	1B.2		1			Dicot	Annual forb
Streptanthus vimineus	Brassicaceae	SE	6.0	12.00	2.0	6	-	-			1			Dicot	Annual forb
Thelypodium brachycarpum	Brassicaceae	SI	3.3	10.00	3.0	3	0.6	0.3	4.2	1	1			Dicot	Annual, Perennial forb

Campanula angustiflora	Campanulaceae	BE/SI	3.9	19.30	5.0	4	2.4	1.1		1	1		Dicot	Annual forb	
Campanula exigua	Campanulaceae	BE/SI	3.9	19.50	5.0	4	1.5	0.7	1B.2		1	1	Dicot	Annual forb	
Campanula griffinii	Campanulaceae	SE	6.0	18.00	3.0	6	0	0	CBR	1	1	1	Dicot	Annual forb	
Campanula rotundifolia	Campanulaceae	BE	5.0	15.00	3.0	6	1.7	1		1			Dicot	Perennial forb	
Campanula scabrella	Campanulaceae	SI	2.5	10.00	4.0	2.5	1.3	0.6	4.3	1			Dicot	Perennial forb (rhiz.)	
Campanula sharsmithiae	Campanulaceae	SE	6.0	18.00	3.0	6	0	0	1B.2		1	1	Dicot	Annual forb	
Campanula wilkinsiana	Campanulaceae	WI/IN	1.0	5.00	5.0	0	1.7	0.8	1B.2	1			Dicot	Perennial forb (rhiz.)	
Githopsis diffusa ssp. candida	Campanulaceae	WI/IN	1.0	2.00	2.0	1	-	-	CBR			1	Dicot	Annual forb	
Githopsis pulchella ssp. campestris	Campanulaceae	WI	1.6	3.25	2.0	1.6	-	-				1	Dicot	Annual forb	
Githopsis pulchella ssp. serpentinicola	Campanulaceae	BE	5.3	21.00	4.0	5.5	1	0.5	4.3			1	Dicot	Annual forb	
Githopsis pulchella var. glabra	Campanulaceae	BE/SI	3.8	19.00	5.0	3	2	0.9				1	Dicot	Annual forb	
Githopsis pulchella var. pulchella	Campanulaceae	WI/IN	1.0	1.00	1.0	1	-	-				1	Dicot	Annual forb	
Nemacladus montanus	Campanulaceae	SE	6.0	18.00	3.0	6	0	0	CBR	1	1	1	Dicot	Annual forb	
Cerastium arvense ssp. strictum	Caryophyllaceae	WI	2.1	8.50	4.0	0.9	2.6	1.3		1	1	1	1	Dicot	Perennial forb
Eremogone kingii var. glabrescens	Caryophyllaceae	WI/IN	1.4	4.10	3.0	2	1.1	0.6				1	Dicot	Perennial forb	
Minuartia californica	Caryophyllaceae	WI	1.7	5.00	3.0	2	1.5	0.9		1	1	1	1	Dicot	Annual forb
Minuartia cismontana	Caryophyllaceae	WI	1.8	3.50	2.0	1.8	-	-		1	1	1	1	Dicot	Annual, Perennial forb
Minuartia decumbens	Caryophyllaceae	SE	6.0	24.00	4.0	6	0	0		1	1		Dicot	Perennial forb	
Minuartia douglasii	Caryophyllaceae	SI	3.0	15.00	5.0	3	0.7	0.3		1	1	1	1	Dicot	Annual forb
Minuartia howellii	Caryophyllaceae	SE	5.7	28.50	5.0	6	0.9	0.4		1			Dicot	Perennial forb	
Minuartia nuttallii var. gregaria	Caryophyllaceae	SI	3.2	16.00	5.0	3	1.9	0.9		1	1		Dicot	Perennial forb	
Minuartia rosei	Caryophyllaceae	SE	6.0	30.00	5.0	6	0	0		1	1		Dicot	Perennial forb	
Minuartia stolonifera	Caryophyllaceae	SE	6.0	30.00	5.0	6	0	0		1			Dicot	Perennial forb	
Moehringia macrophylla	Caryophyllaceae	SI	2.7	8.00	3.0	3	0.6	0.3		1	1	1	1	Dicot	Perennial forb
Silene antirrhina	Caryophyllaceae	WI/IN	1.1	3.25	3.0	1	0.9	0.5		1	1	1	1	Dicot	Annual forb
Silene campanulata ssp. campanulata	Caryophyllaceae	BE	5.3	31.50	6.0	5.5	1	0.4	4.2	1	1		Dicot	Perennial forb	
Silene campanulata	Caryophyllaceae	BE/SI	3.8	19.00	5.0	3	1.3	0.6		1	1		Dicot	Perennial forb	

<i>Sedum rubiginosum</i>	Crassulaceae	SE	6.0	6.00	1.0	6	-	-		1					Dicot	Perennial forb
<i>Calocedrus decurrens</i>	Cupressaceae	SI	3.0	9.00	3.0	3	0	0		1	1	1	1	1	Gymnosperm	Tree
<i>Chamaecyparis lawsoniana</i>	Cupressaceae	SI	3.0	15.00	5.0	3	0.7	0.3	CBR	1	1				Gymnosperm	Tree
<i>Hesperocyparis bakeri</i>	Cupressaceae	SI	2.6	13.00	5.0	3	0.5	0.2	4.2	1				1	Gymnosperm	Tree
<i>Hesperocyparis macnabiana</i>	Cupressaceae	BE	4.7	28.00	6.0	4.5	1.2	0.5			1			1	Gymnosperm	Tree
<i>Hesperocyparis sargentii</i>	Cupressaceae	BE	4.9	34.00	7.0	5	1.2	0.5			1	1	1		Gymnosperm	Tree
<i>Juniperus communis</i> var. <i>jackii</i>	Cupressaceae	BE/SI	4.0	8.00	2.0	4	-	-	CBR	1					Gymnosperm	Shrub
<i>Calliscirpus criniger</i>	Cyperaceae	WI	1.7	5.00	3.0	1	2.1	1.2		1	1			1	Monocot	Perennial gram.
<i>Carex brainerdii</i>	Cyperaceae	WI/IN	1.4	4.25	3.0	2	1	0.6		1	1		1	1	Monocot	Perennial gram. (rhiz.)
<i>Carex concinnooides</i>	Cyperaceae	BE/SI	4.0	8.00	2.0	4	-	-		1	1				Monocot	Perennial gram. (rhiz.)
<i>Carex hirtissima</i>	Cyperaceae	WI	1.8	3.50	2.0	1.8	-	-			1			1	Monocot	Perennial gram. (cesp.)
<i>Carex klamathensis</i>	Cyperaceae	SE	6.0	12.00	2.0	6	-	-	1B.2	1	1				Monocot	Perennial gram. (rhiz.)
<i>Carex mendocinensis</i>	Cyperaceae	BE/SI	3.8	23.00	6.0	3.5	1.2	0.5		1	1			1	Monocot	Perennial gram. (cesp.)
<i>Carex obispoensis</i>	Cyperaceae	BE	4.9	24.50	5.0	6	1.6	0.7	1B.2				1		Monocot	Perennial gram. (cesp.)
<i>Carex scabriuscula</i>	Cyperaceae	SE	6.0	12.00	2.0	6	-	-	4.3	1				1	Monocot	Perennial gram. (rhiz.)
<i>Carex serpenticola</i>	Cyperaceae	SE	5.5	11.00	2.0	5.5	-	-		1					Monocot	Perennial gram. (rhiz.)
<i>Carex serratodens</i>	Cyperaceae	BE	4.9	39.00	8.0	5	1.1	0.4			1	1	1	1	Monocot	Perennial gram. (cesp.)
<i>Carex spissa</i>	Cyperaceae	SI	2.8	8.25	3.0	2	2.9	1.7					1		Monocot	Perennial gram. (rhiz.)
<i>Carex xerophila</i>	Cyperaceae	WI	1.7	5.00	3.0	2	0.6	0.3						1	Monocot	Perennial gram. (cesp.)
<i>Polystichum lemmonii</i>	Dryopteridaceae	SE	6.0	24.00	4.0	6	0	0		1	1			1	Pteridophyte	Perennial forb (rhiz.)
<i>Polystichum scopulinum</i>	Dryopteridaceae	WI	1.7	5.10	3.0	2	1.5	0.9		1	1			1	Pteridophyte	Perennial forb (rhiz.)
<i>Arctostaphylos bakeri</i> ssp. <i>bakeri</i>	Ericaceae	SE	5.5	27.50	5.0	6	1.3	0.6	1B.1		1				Dicot	Shrub

Arctostaphylos bakeri ssp. sublaevis	Ericaceae	SE	6.0	12.0 0	2.0	6	-	-	1B.2	1			Dicot	Shrub	
Arctostaphylos canescens ssp. sonomensis	Ericaceae	SI	2.5	12.5 0	5.0	3	1.5	0.7	CBR	1	1		Dicot	Shrub	
Arctostaphylos franciscana	Ericaceae	SE	6.0	18.0 0	3.0	6	0	0	1B.1		1	1	Dicot	Shrub	
Arctostaphylos hispidula	Ericaceae	BE	4.5	22.5 0	5.0	4	1.1	0.5	4.2	1	1		Dicot	Shrub	
Arctostaphylos klamathensis	Ericaceae	BE/SI	3.9	19.5 0	5.0	4	1.8	0.8	1B.2	1			Dicot	Shrub	
Arctostaphylos montana ssp. montana	Ericaceae	BE	4.9	19.5 0	4.0	4.5	1	0.5	1B.3		1	1	Dicot	Shrub	
Arctostaphylos montana ssp. ravenii	Ericaceae	SE	6.0	18.0 0	3.0	6	0	0	1B.1		1	1	Dicot	Shrub	
Arctostaphylos nortensis	Ericaceae	SI	2.8	5.50	2.0	2.5	-	-	4.3	1			Dicot	Shrub	
Arctostaphylos obispoensis	Ericaceae	SE	5.7	28.5 0	5.0	6	0.9	0.4	4.3			1	Dicot	Shrub	
Arctostaphylos stanfordiana ssp. raichei	Ericaceae	SI	2.6	10.5 0	4.0	3	1.7	0.9	1B.1		1		Dicot	Shrub	
Arctostaphylos viscida ssp. pulchella	Ericaceae	BE	5.0	25.0 0	5.0	5	1	0.4		1	1		Dicot	Shrub	
Arctostaphylos viscida ssp. viscida	Ericaceae	WI	2.2	10.8 0	5.0	3	1.2	0.5		1		1	Dicot	Shrub	
Pyrola dentata	Ericaceae	WI	2.0	6.00	3.0	3	1.7	1		1	1		Dicot	Perennial forb (rhiz.)	
Vaccinium coccineum	Ericaceae	BE/SI	3.5	3.50	1.0	3	-	-	3.3	1			Dicot	Shrub	
Acemispone juncea var. juncea	Fabaceae	WI	1.5	3.00	2.0	1.5	-	-				1	Dicot	Perennial forb	
Astragalus breweri	Fabaceae	SI	3.2	15.8 0	5.0	3	2	0.9	4.2		1	1	Dicot	Annual forb	
Astragalus claranus	Fabaceae	SI	3.0	6.00	2.0	3	-	-				1	Dicot	Annual forb	
Astragalus clevelandii	Fabaceae	SE	6.0	24.0 0	4.0	6	0	0	4.3		1	1	Dicot	Perennial forb	
Astragalus curtipes	Fabaceae	WI	1.8	3.50	2.0	1.8	-	-	CBR			1	Dicot	Perennial forb	
Astragalus macrodon	Fabaceae	WI/IN	1.3	3.75	3.0	1	0.7	0.4	4.3			1	Dicot	Perennial forb	
Astragalus rattanii var. jepsonianus	Fabaceae	BE/SI	4.3	25.5 0	6.0	4	1.2	0.5	1B.2		1		Dicot	Annual forb	
Astragalus whitneyi var. siskiyouensis	Fabaceae	BE	4.6	23.0 0	5.0	5	1.1	0.5		1	1		Dicot	Perennial forb	
Hoita strobilina	Fabaceae	SI	2.5	5.00	2.0	2.5	-	-	1B.1			1	Dicot	Perennial forb	
Lathyrus biflorus	Fabaceae	SE	6.0	24.0 0	4.0	6	0	0	1B.1			1	Dicot	Perennial forb	
Lathyrus delnorticus	Fabaceae	BE	5.3	10.5 0	2.0	5	-	-	4.3	1			Dicot	Perennial forb	
Lathyrus vestitus var. vestitus	Fabaceae	WI	1.8	7.20	4.0	0.6	2.8	1.4			1	1	1	Dicot	Perennial forb

Lupinus constancei	Fabaceae	SE	6.0	24.0 0	4.0	6	0	0	1B.1	1					Dicot	Perennial forb
Lupinus croceus	Fabaceae	BE/SI	4.0	12.0 0	3.0	4	0	0		1					Dicot	Perennial forb
Lupinus lapidicola	Fabaceae	SI	3.0	15.0 0	5.0	3	3	1.3		1	1				Dicot	Perennial forb
Lupinus onustus	Fabaceae	SI	3.1	15.3 0	5.0	3	2.9	1.3		1			1		Dicot	Perennial forb
Lupinus spectabilis	Fabaceae	SE	6.0	24.0 0	4.0	6	0	0	1B.2				1		Dicot	Annual forb
Pediomelum californicum	Fabaceae	BE/SI	4.4	21.8 0	5.0	6	2.4	1.1		1	1	1			Dicot	Perennial forb
Trifolium amoenum	Fabaceae	WI/IN	1.3	2.50	2.0	1	-	-	1B.1	1	1				Dicot	Annual forb
Trifolium fucatum	Fabaceae	WI/IN	1.3	4.00	3.0	1	0.6	0.3		1		1			Dicot	Annual forb
Trifolium gracilentum	Fabaceae	WI/IN	1.0	3.10	3.0	1	1.0	0.5		1	1	1	1	1	Dicot	Annual forb
Trifolium longipes ssp. elmeri	Fabaceae	BE	5.3	21.0 0	4.0	6	1.5	0.8		1	1				Dicot	Perennial forb
Trifolium longipes ssp. oreganum	Fabaceae	BE/SI	4.0	12.0 0	3.0	4	2	1.2		1	1				Dicot	Perennial forb
Trifolium microcephalum	Fabaceae	WI/IN	1.4	7.00	5.0	1	1.1	0.5		1	1			1	Dicot	Annual forb
Trifolium willdenovii	Fabaceae	WI/IN	1.3	4.00	3.0	1	0.6	0.3		1	1	1	1	1	Dicot	Annual forb
Notholithocarpus densiflorus var. echinoides	Fagaceae	SI	2.5	12.3 0	5.0	1	2.5	1.1		1				1	Dicot	Shrub
Quercus durata var. durata	Fagaceae	SE	5.8	40.5 0	7.0	6	0.8	0.3			1	1	1	1	Dicot	Shrub
Quercus vaccinifolia	Fagaceae	SI	2.5	12.3 0	5.0	2	2.2	1		1	1			1	Dicot	Shrub
Garrya buxifolia	Garryaceae	SE	5.8	29.0 0	5.0	6	0.4	0.2		1	1				Dicot	Shrub
Garrya congdonii	Garryaceae	BE	5.0	30.0 0	6.0	5.5	1.3	0.5		1	1	1		1	Dicot	Shrub
Gentiana setigera	Gentianaceae	SE	5.8	17.5 0	3.0	6	0.3	0.2	1B.2	1	1				Dicot	Perennial forb
Zeltnera trichantha	Gentianaceae	SE	5.5	11.0 0	2.0	5.5	-	-			1	1			Dicot	Annual forb
Iris bracteata	Iridaceae	SE	5.8	11.5 0	2.0	5.5	-	-	3.3	1					Monocot	Perennial forb (rhiz.)
Iris innominata	Iridaceae	SE	5.7	17.0 0	3.0	6	0.6	0.4	4.3	1					Monocot	Perennial forb (rhiz.)
Iris macrosiphon	Iridaceae	WI/IN	1.1	3.25	3.0	1	0.9	0.5			1	1		1	Monocot	Perennial forb (rhiz.)
Iris tenuissima ssp. purdyiformis	Iridaceae	WI	1.5	3.00	2.0	1.5	-	-		1				1	Monocot	Perennial forb (rhiz.)
Iris thompsonii	Iridaceae	BE	4.5	9.00	2.0	4.5	-	-	4.3	1	1				Monocot	Perennial forb
Acanthomint ha duttonii	Lamiaceae	SE	6.0	30.0 0	5.0	6	0	0	1B.1		1	1			Dicot	Annual forb
Acanthomint ha ilicifolia	Lamiaceae	WI/IN	1.3	3.00	3.0	0	1.7	1	1B.1				1		Dicot	Annual forb
Acanthomint ha lanceolata	Lamiaceae	SI	3.4	16.8 0	5.0	3	2.1	0.9	4.2		1	1			Dicot	Annual forb
Acanthomint ha obovata ssp. obovata	Lamiaceae	BE/SI	3.5	10.5 0	3.0	3	2.5	1.5	4.2				1		Dicot	Annual forb

Monardella douglasii	Lamiaceae	WI/IN	1.0	2.00	2.0	1	-	-		1	1	1		Dicot	Annual forb	
Monardella follettii	Lamiaceae	SE	5.8	34.50	6.0	6	0.8	0.3	1B.2				1	Dicot	Shrub	
Monardella palmeri	Lamiaceae	BE	4.8	28.50	6.0	6	2.2	0.9	1B.2			1		Dicot	Perennial forb (rhiz.)	
Monardella purpurea	Lamiaceae	SE	6.0	24.00	4.0	6	0	0		1	1			Dicot	Perennial forb	
Monardella sheltonii	Lamiaceae	SI	3.0	18.00	6.0	3	1.7	0.7		1	1		1	Dicot	Perennial forb	
Monardella stebbinsii	Lamiaceae	SE	6.0	30.00	5.0	6	0	0	1B.2				1	Dicot	Perennial forb (rhiz.)	
Monardella villosa ssp. villosa	Lamiaceae	SE	6.0	24.00	4.0	6	0	0				1		Dicot	Perennial forb (rhiz.)	
Monardella viridis	Lamiaceae	WI/IN	1.0	2.00	2.0	1	-	-	4.3		1			Dicot	Perennial forb	
Salvia sonomensis	Lamiaceae	WI	1.6	9.50	6.0	1.5	1.3	0.5		1	1	1	1	1	Dicot	Shrub
Scutellaria antirrhinoides	Lamiaceae	WI	2.3	11.50	5.0	3	1.5	0.7		1	1		1	Dicot	Perennial forb	
Stachys pycnantha	Lamiaceae	WI	2.2	11.00	5.0	1	2.4	1.1	CBR	1	1	1	1	1	Dicot	Perennial forb
Trichostema laxum	Lamiaceae	BE/SI	4.0	16.00	4.0	4.5	2.4	1.2		1	1			Dicot	Annual forb	
Trichostema rubisepalum	Lamiaceae	SE	5.6	28.00	5.0	6	0.9	0.4	4.3				1	1	Dicot	Annual forb
Pinguicula macroceras	Lentibulariaceae	SE	6.0	18.00	3.0	6	0	0	2B.2	1				Dicot	Perennial forb (carn.)	
Calochortus clavatus var. clavatus	Liliaceae	BE	4.5	13.50	3.0	4	0.6	0.3	4.3				1	Monocot	Perennial forb (bulb)	
Calochortus clavatus var. pallidus	Liliaceae	WI	1.6	3.10	2.0		-	-				1	1	Monocot	Perennial forb (bulb)	
Calochortus elegans	Liliaceae	WI	2.0	4.00	2.0	2	-	-		1				Monocot	Perennial forb (bulb)	
Calochortus fimbriatus	Liliaceae	WI	1.5	4.50	3.0	1	1.3	0.8	1B.3	1	1		1	Monocot	Perennial forb (bulb)	
Calochortus fimbriatus	Liliaceae	WI/IN	1.0	3.00	3.0	0	1.7	1	1B.3				1	Monocot	Perennial forb (bulb)	
Calochortus nudus	Liliaceae	WI	2.1	8.50	4.0	2.5	1.2	0.6		1			1	Monocot	Perennial forb (bulb)	
Calochortus obispoensis	Liliaceae	BE	5.4	21.50	4.0	6	1.5	0.8	1B.2				1	Monocot	Perennial forb (bulb)	
Calochortus raichei	Liliaceae	SE	6.0	18.00	3.0	6	0	0	1B.2		1			Monocot	Perennial forb (bulb)	
Calochortus tiburonensis	Liliaceae	SE	6.0	24.00	4.0	6	0	0	1B.1		1	1		Monocot	Perennial forb (bulb)	
Calochortus umbellatus	Liliaceae	SI	2.9	14.50	5.0	3	1.1	0.5	4.2		1	1		Monocot	Perennial forb (bulb)	
Calochortus uniflorus	Liliaceae	WI	1.7	5.00	3.0	1	1.2	0.7	4.2	1	1	1	1	Monocot	Perennial forb (bulb)	
Calochortus vestae	Liliaceae	WI	2.0	6.00	3.0	2	1	0.6		1	1			Monocot	Perennial forb (bulb)	
Erythronium californicum	Liliaceae	SI	2.7	8.00	3.0	2	2.1	1.2		1	1			Monocot	Perennial forb (bulb)	

Erythronium citrinum var. citrinum	Liliaceae	BE/SI	4.3	21.5 0	5.0	4	0.4	0.2	4.3	1					Monocot	Perennial forb (bulb)
Erythronium citrinum var. roderickii	Liliaceae	BE	4.7	37.5 0	8.0	4.5	1.4	0.5	1B.3	1					Monocot	Perennial forb (bulb)
Erythronium helenae	Liliaceae	BE	4.5	18.0 0	4.0	4.5	1.7	0.9	4.2		1				Monocot	Perennial forb (bulb)
Erythronium hendersonii	Liliaceae	SI	2.5	5.00	2.0	2.5	-	-	2B.3	1					Monocot	Perennial forb (bulb)
Erythronium multiscapidum	Liliaceae	SI	3.0	15.0 0	5.0	2	1.7	0.8				1			Monocot	Perennial forb (bulb)
Erythronium purpurascens	Liliaceae	WI/IN	1.0	2.00	2.0	1	-	-				1			Monocot	Perennial forb (bulb)
Erythronium tuolumnense	Liliaceae	SI	2.5	5.00	2.0	2.5	-	-	1B.2			1			Monocot	Perennial forb (bulb)
Fritillaria affinis	Liliaceae	WI	2.0	6.00	3.0	2	0	0		1	1	1	1		Monocot	Perennial forb (bulb)
Fritillaria agrestis	Liliaceae	SI	2.7	13.3 0	5.0	2	1.6	0.7	4.2		1	1	1	1	Monocot	Perennial forb (bulb)
Fritillaria biflora var. biflora	Liliaceae	WI	2.3	9.00	4.0	2.5	1.7	0.9	CBR		1	1	1		Monocot	Perennial forb
Fritillaria biflora var. ineziana	Liliaceae	BE	5.4	21.5 0	4.0	6	1.5	0.8	1B.1				1		Monocot	Perennial forb (bulb)
Fritillaria eastwoodiae	Liliaceae	WI	2.3	13.5 0	6.0	2	0.4	0.2	3.2				1		Monocot	Perennial forb (bulb)
Fritillaria falcata	Liliaceae	SE	6.0	24.0 0	4.0	6	0	0	1B.2			1	1		Monocot	Perennial forb (bulb)
Fritillaria glauca	Liliaceae	BE/SI	4.3	17.3 0	4.0	5.5	2.7	1.4	4.2	1	1				Monocot	Perennial forb
Fritillaria liliacea	Liliaceae	WI	1.8	7.00	4.0	1.5	1.1	0.6	1B.2			1	1		Monocot	Perennial forb (bulb)
Fritillaria pluriflora	Liliaceae	WI	2.4	9.50	4.0	2.5	1.5	0.7	1B.2		1			1	Monocot	Perennial forb (bulb)
Fritillaria purdyi	Liliaceae	BE	4.5	31.5 0	7.0	4	1.8	0.7	4.3	1	1				Monocot	Perennial forb (bulb)
Fritillaria recurva	Liliaceae	SI	2.7	8.00	3.0	2.5	1.9	1.1		1	1			1	Monocot	Perennial forb (bulb)
Fritillaria viridea	Liliaceae	SE	6.0	18.0 0	3.0	6	0	0	1B.2				1		Monocot	Perennial forb (bulb)
Lilium bolanderi	Liliaceae	SE	6.0	18.0 0	3.0	6	0	0	4.2	1					Monocot	Perennial forb (bulb)
Lilium kelloggii	Liliaceae	SI	2.5	10.0 0	4.0	2	1.9	1	4.3	1	1				Monocot	Perennial forb (bulb)
Lilium pardalinum ssp. vollmeri	Liliaceae	BE	5.0	15.0 0	3.0	5	1	0.6	4.3	1					Monocot	Perennial forb (bulb)
Lilium rubescens	Liliaceae	WI	2.0	9.75	5.0	2	1.4	0.6	4.2	1	1	1			Monocot	Perennial forb (bulb)
Lilium washingtonianum ssp. purpurascens	Liliaceae	BE/SI	3.5	10.5 0	3.0	3	2.5	1.5	4.3	1					Monocot	Perennial forb (bulb)

Prosartes parvifolia	Liliaceae	BE	5.0	5.00	1.0	5	-	-	1B.2	1					Monocot	Perennial forb
Hesperolobon adenophyllum	Linaceae	SE	5.7	28.50	5.0	6	0.9	0.4	1B.2		1				Dicot	Annual forb
Hesperolobon bicarpellatum	Linaceae	SE	6.0	18.00	3.0	6	0	0	1B.2		1				Dicot	Annual forb
Hesperolobon breweri	Linaceae	SI	2.5	10.00	4.0	2.5	1.5	0.7	1B.2		1	1			Dicot	Annual forb
Hesperolobon californicum	Linaceae	SI	2.8	8.50	3.0	3	0.6	0.3			1	1	1	1	Dicot	Annual forb
Hesperolobon clevelandii	Linaceae	WI	2.0	8.00	4.0	2	1.8	0.9			1	1			Dicot	Annual forb
Hesperolobon congestum	Linaceae	SE	6.0	24.00	4.0	6	0	0	1B.1		1	1			Dicot	Annual forb
Hesperolobon didymocarpum	Linaceae	SE	6.0	18.00	3.0	6	0	0	1B.2		1				Dicot	Annual forb
Hesperolobon disjunctum	Linaceae	SE	6.0	18.00	3.0	6	0	0			1	1	1		Dicot	Annual forb
Hesperolobon drymarioides	Linaceae	SE	6.0	24.00	4.0	6	0	0	1B.2		1				Dicot	Annual forb
Hesperolobon micranthum	Linaceae	WI	2.4	11.80	5.0	3	1.4	0.4		1	1	1	1	1	Dicot	Annual forb
Hesperolobon sharsmithiae	Linaceae	SE	5.7	17.00	3.0	6	0.6	0.4			1	1			Dicot	Annual forb
Hesperolobon spergulinum	Linaceae	BE	4.7	14.00	3.0	6	2.3	1.3	CBR		1	1			Dicot	Annual forb
Hesperolobon tehamense	Linaceae	SE	5.8	34.50	6.0	6	0.8	0.3	1B.3		1				Dicot	Annual forb
Linum lewisii var. lewisii	Linaceae	WI/IN	1.3	4.00	3.0	1	1.5	0.9		1	1	1	1	1	Dicot	Perennial forb
Fremontodendron decumbens	Malvaceae	WI	2.0	8.00	4.0	1.5	2.4	1.2	1B.2					1	Dicot	Shrub
Sidalcea asprella ssp. nana	Malvaceae	SI	2.5	5.00	2.5	2.5	-	-		1	1			1	Dicot	Perennial forb
Sidalcea diploscypha	Malvaceae	SI	2.6	13.00	5.0	3	2.3	1			1	1	1	1	Dicot	Annual forb
Sidalcea hartwegii	Malvaceae	WI	1.6	4.75	3.0	2	0.7	0.4			1			1	Dicot	Annual forb
Sidalcea hickmanii ssp. anomala	Malvaceae	SE	5.6	22.50	4.0	6	1	0.5	1B.2				1		Dicot	Perennial forb
Sidalcea hickmanii ssp. viridis	Malvaceae	SE	6.0	12.00	2.0	6	-	-	1B.1		1	1			Dicot	Perennial forb
Sidalcea keckii	Malvaceae	SI	3.0	6.00	2.0	3	-	-	1B.1					1	Dicot	Annual forb
Pseudotrillium rivale	Melanthiaceae	BE/SI	4.0	12.00	3.0	4	1	0.6		1					Monocot	Perennial forb
Toxicoscordion fontanum	Melanthiaceae	BE/SI	3.8	23.00	6.0	4	0.8	0.3	4.2		1	1	1		Monocot	Perennial forb (bulb)
Toxicoscordion paniculatum	Melanthiaceae	WI	1.6	4.75	3.0	2	0.7	0.4		1	1			1	Monocot	Perennial forb (bulb)
Xerophyllum tenax	Melanthiaceae	WI	1.6	8.00	5.0	1	0.9	0.4		1	1	1	1	1	Monocot	Perennial forb (rhiz.)

<i>Calyptridium quadripetalum</i>	Montiaceae	BE	4.6	27.50	6.0	4	1.2	0.5	4.3	1				Dicot	Annual forb
<i>Calyptridium umbellatum</i>	Montiaceae	WI/IN	1.3	4.00	3.0	1	1.5	0.9		1	1	1	1	Dicot	Perennial forb
<i>Claytonia exigua</i> ssp. <i>exigua</i>	Montiaceae	SI	3.4	24.00	7.0	3	1.1	0.4		1	1	1	1	Dicot	Annual forb
<i>Claytonia exigua</i> ssp. <i>glauca</i>	Montiaceae	BE/SI	3.6	18.00	5.0	3	1.3	0.6		1	1	1	1	Dicot	Annual forb
<i>Claytonia gypsophiloides</i>	Montiaceae	SI	3.1	15.50	5.0	3	0.2	0.1			1	1	1	Dicot	Annual forb
<i>Claytonia saxosa</i>	Montiaceae	BE/SI	4.4	21.80	5.0	5	2.2	1	CBR	1	1			Dicot	Annual forb
<i>Claytonia serpenticola</i>	Montiaceae	BE/SI	4.0	4.00	1.0	4	-	-		1				Dicot	Perennial forb
<i>Lewisia cantelovii</i>	Montiaceae	WI/IN	1.0	6.00	6.0	1	1.1	0.4	1B.2	1			1	Dicot	Perennial forb
<i>Lewisia cotyledon</i> var. <i>cotyledon</i>	Montiaceae	WI	2.0	6.00	3.0	3	1.7	1	CBR	1				Dicot	Perennial forb
<i>Lewisia cotyledon</i> var. <i>heckneri</i>	Montiaceae	WI/IN	1.0	4.00	4.0	0.5	1.4	0.7	1B.2	1				Dicot	Perennial forb
<i>Lewisia cotyledon</i> var. <i>howellii</i>	Montiaceae	WI/IN	1.3	4.00	3.0	1	1.5	0.9	3.2	1				Dicot	Perennial forb
<i>Lewisia leeana</i>	Montiaceae	SI	3.0	6.00	2.0	3	-	-		1	1		1	Dicot	Perennial forb
<i>Lewisia nevadensis</i>	Montiaceae	WI	1.7	5.00	3.0	2	1.5	0.9		1	1		1	Dicot	Perennial forb
<i>Lewisia oppositifolia</i>	Montiaceae	BE	5.3	21.00	4.0	6	1.5	0.8	2B.2	1				Dicot	Perennial forb
<i>Lewisia rediviva</i>	Montiaceae	WI/IN	1.4	7.00	5.0	1	1.1	0.5		1	1	1	1	Dicot	Perennial forb
<i>Lewisia stebbinsii</i>	Montiaceae	BE	4.7	14.00	3.0	6	2.3	1.3			1			Dicot	Perennial forb
<i>Lewisia triphylla</i>	Montiaceae	WI	1.7	5.00	3.0	2	1.5	0.9		1	1		1	Dicot	Perennial forb
<i>Camissonia benitensis</i>	Onagraceae	SE	5.9	29.50	5.0	6	0.4	0.2	1B.1				1	Dicot	Annual forb
<i>Camissonia lacustris</i>	Onagraceae	SI	3.0	9.00	3.0	3	3	1.7			1		1	Dicot	Annual forb
<i>Clarkia arcuata</i>	Onagraceae	WI	2.3	7.00	3.0	2	0.6	0.3					1	Dicot	Annual forb
<i>Clarkia biloba</i> ssp. <i>biloba</i>	Onagraceae	WI/IN	1.4	2.75	2.0	1.4	-	-			1		1	Dicot	Annual forb
<i>Clarkia breweri</i>	Onagraceae	BE/SI	3.8	11.50	3.0	3	2.1	1.2	4.2		1	1		Dicot	Annual forb
<i>Clarkia franciscana</i>	Onagraceae	SE	6.0	24.00	4.0	6	0	0	1B.1		1	1		Dicot	Annual forb
<i>Clarkia gracilis</i> ssp. <i>albicaulis</i>	Onagraceae	WI	2.2	6.50	3.0	2	1	0.6	1B.2				1	Dicot	Annual forb
<i>Clarkia gracilis</i> ssp. <i>tracyi</i>	Onagraceae	BE	5.0	25.00	5.0	5	1	0.4	4.2		1			Dicot	Annual forb
<i>Epilobium minutum</i>	Onagraceae	WI	2.0	6.00	3.0	2	1	0.6		1	1	1	1	Dicot	Annual forb
<i>Epilobium oreganum</i>	Onagraceae	BE/SI	3.8	23.00	6.0	4	2.2	0.9	1B.2	1	1			Dicot	Perennial forb
<i>Epilobium rigidum</i>	Onagraceae	BE	5.1	20.50	4.0	6	2	1	4.3	1				Dicot	Perennial forb
<i>Epilobium septentrionale</i>	Onagraceae	WI	2.0	4.00	2.0		-	-	4.3		1			Dicot	Perennial forb

Epilobium siskiyouense	Onagraceae	SE	5.5	38.5 0	7.0	6	1	0.4	1B.3	1					Dicot	Perennial forb
Cypripedium californicum	Orchidaceae	BE	4.5	40.5 0	9.0	4	1.3	0.4	4.2	1	1	1	1	1	Monocot	Perennial forb (bulb)
Cypripedium fasciculatum	Orchidaceae	SI	2.5	12.3 0	5.0	2	1.6	0.7	4.2	1	1	1	1	1	Monocot	Perennial forb (bulb)
Piperia candida	Orchidaceae	WI/IN	1.2	3.50	3.0	1	1	0.6	1B.2	1	1	1			Monocot	Perennial forb (bulb)
Aphyllon validum ssp. howellii	Orobanchaceae	SI	3.4	13.5 0	4.0	3	1.3	0.6	4.3		1				Dicot	Perennial forb (paras.)
Castilleja affinis ssp. neglecta	Orobanchaceae	SE	6.0	30.0 0	5.0	6	0	0			1	1			Dicot	Perennial forb (hemipar.)
Castilleja brevilibata	Orobanchaceae	SE	6.0	18.0 0	3.0	6	0	0	4.2	1					Dicot	Perennial forb (hemipar.)
Castilleja foliolosa	Orobanchaceae	WI	2.3	9.00	4.0	2.5	1	0.5			1	1	1	1	Dicot	Perennial forb, Shrub
Castilleja miniata ssp. elata	Orobanchaceae	BE	4.6	27.5 0	6.0	4.5	1.4	0.6		1					Dicot	Perennial forb (hemipar.)
Castilleja minor ssp. spiralis	Orobanchaceae	SI	3.3	16.5 0	5.0	3	2.6	1.2			1	1	1	1	Dicot	Annual forb (hemipar.)
Castilleja pruinosa	Orobanchaceae	SI	3.2	15.8 0	5.0	3	1.9	0.8		1	1			1	Dicot	Perennial forb (hemipar.)
Castilleja rubicundula ssp. lithospermoides	Orobanchaceae	WI	2.4	9.75	4.0	2	1.8	0.9			1				Dicot	Annual forb (hemipar.)
Castilleja rubicundula ssp. rubicundula	Orobanchaceae	SE	5.6	28.0 0	5.0	6	0.9	0.4			1				Dicot	Annual forb (hemipar.)
Cordylanthus nidularius	Orobanchaceae	SE	6.0	18.0 0	3.0	6	0	0	1B.1			1	1		Dicot	Annual forb (hemipar.)
Cordylanthus pilosus ssp. pilosus	Orobanchaceae	SI	2.5	10.0 0	4.0	2.5	0.6	0.3			1	1			Dicot	Annual forb (hemipar.)
Cordylanthus pringlei	Orobanchaceae	SE	5.6	28.0 0	5.0	6	0.9	0.4	CBR		1				Dicot	Annual forb (hemipar.)
Cordylanthus tenuis ssp. brunneus	Orobanchaceae	BE	5.1	25.5 0	5.0	5	1	0.4	4.3		1				Dicot	Annual forb (hemipar.)
Cordylanthus tenuis ssp. capillaris	Orobanchaceae	SE	6.0	24.0 0	4.0	6	0	0	1B.2		1				Dicot	Annual forb (hemipar.)
Cordylanthus tenuis ssp. tenuis	Orobanchaceae	WI	2.3	9.00	4.0	2	0.5	0.3					1		Dicot	Annual forb (hemipar.)
Cordylanthus tenuis ssp. viscidus	Orobanchaceae	BE	4.5	27.0 0	6.0	4.5	1.4	0.6		1	1		1		Dicot	Annual forb (hemipar.)

Orthocarpus pachystachyus	Orobanchaceae	SE	6.0	18.00	3.0	6	0	0	1B.1	1						Dicot	Annual forb (hemipar.)
Pedicularis howellii	Orobanchaceae	SI	2.5	7.50	3.0	3	1.2	0.7	4.3	1						Dicot	Perennial forb (hemipar.)
Triphysaria floribunda	Orobanchaceae	WI	2.3	6.75	3.0	2	1.9	1.1	1B.2		1	1	1			Dicot	Annual forb
Dicentra formosa ssp. oregana	Papaveraceae	BE	5.2	31.00	6.0	6	1.3	0.5	4.2	1						Dicot	Perennial forb
Dicentra pauciflora	Papaveraceae	WI	2.2	6.50	3.0	3	1.4	0.8	CBR	1				1		Dicot	Perennial forb
Ehrendorferia chrysantha	Papaveraceae	WI/IN	1.1	3.25	3.0	1	0.9	0.5			1	1	1	1	1	Dicot	Perennial forb
Eschscholzia hypocoides	Papaveraceae	SI	2.6	7.75	3.0	1	3.1	1.8	4.3					1		Dicot	Annual forb
Platystemon californicus	Papaveraceae	WI	1.7	5.00	3.0	2	0.6	0.3			1	1	1	1	1	Dicot	Annual forb
Parnassia cirrata var. intermedia	Parnassiaceae	BE/SI	3.5	7.00	2.0	3.5	-	-			1					Dicot	Perennial forb
Parnassia palustris	Parnassiaceae	WI	2.0	6.00	3.0	2	0	0			1	1		1	1	Dicot	Perennial forb
Diplacus douglasii	Phrymaceae	SI	2.7	13.50	5.0	3	0.5	0.2			1	1	1	1	1	Dicot	Annual forb
Diplacus layneae	Phrymaceae	SI	2.9	14.30	5.0	3	1.2	0.5			1	1				Dicot	Annual forb
Erythranthe glaucescens	Phrymaceae	BE/SI	3.8	18.80	5.0	4	2.1	0.9						1		Dicot	Annual forb
Erythranthe linearifolia	Phrymaceae	BE/SI	4.0	16.00	4.0	4.5	2.4	1.2			1					Dicot	Perennial forb (rhiz.)
Erythranthe nudata	Phrymaceae	SE	5.6	33.50	6.0	6	1.2	0.5				1				Dicot	Annual forb
Erythranthe percaulis	Phrymaceae	SE	6.0	18.00	3.0	6	0	0	1B.1						1	Dicot	Annual forb
Erythranthe trinitiensis	Phrymaceae	SE	6.0	18.00	3.0	6	0	0	1B.3	1	1					Dicot	Annual forb
Erythranthe willisii	Phrymaceae	SE	5.5	11.00	2.0	5.5	-	-						1		Dicot	Perennial forb
Picea breweriana	Pinaceae	WI	2.2	6.50	3.0	3	1.4	0.8	CBR	1						Gymnosperm	Tree
Pinus attenuata	Pinaceae	SI	2.5	12.60	5.0	3	2.4	1.1			1	1	1	1	1	Gymnosperm	Tree
Pinus balfouriana ssp. balfouriana	Pinaceae	BE/SI	4.3	26.00	6.0	4	1.5	0.6			1					Gymnosperm	Tree
Pinus coulteri	Pinaceae	WI/IN	1.3	4.00	3.0	1	1.5	0.9				1	1			Gymnosperm	Tree
Pinus jeffreyi	Pinaceae	SI	2.7	8.00	3.0	3	0.6	0.3			1	1		1	1	Gymnosperm	Tree
Pinus sabiniana	Pinaceae	WI/IN	1.4	4.25	3.0	1	1.4	0.8			1	1	1	1	1	Gymnosperm	Tree
Antirrhinum cornutum	Plantaginaceae	WI	2.2	11.00	5.0	2	0.8	0.4	CBR		1					Dicot	Annual forb
Antirrhinum leptaleum	Plantaginaceae	WI	1.6	3.10	2.0	1.6	-	-						1		Dicot	Annual forb
Antirrhinum subcordatum	Plantaginaceae	BE/SI	4.3	21.50	5.0	4	1.8	0.8	4.3		1					Dicot	Annual forb
Antirrhinum vexillocalyculatum	Plantaginaceae	SI	2.5	20.00	8.0	2.5	1.3	0.5			1	1	1	1	1	Dicot	Annual forb
Antirrhinum virga	Plantaginaceae	SI	2.8	8.50	3.0	3	0.6	0.3	4.3		1					Dicot	Perennial forb
Collinsia greenei	Plantaginaceae	BE	5.2	31.00	6.0	6	1.3	0.5	CBR	1	1					Dicot	Annual forb

<i>Collinsia multicolor</i>	Plantaginaceae	WI/IN	1.1	2.25	2.0	1.1	-	-	1B.2	1	1				Dicot	Annual forb
<i>Collinsia sparsiflora</i>	Plantaginaceae	WI	1.7	5.00	3.0	1	1.2	0.7		1	1	1	1	1	Dicot	Annual forb
<i>Keckiella lemmonii</i>	Plantaginaceae	WI/IN	1.1	3.25	3.0	1	0.9	0.5		1	1			1	Dicot	Shrub
<i>Penstemon azureus</i> var. <i>azureus</i>	Plantaginaceae	SI	2.7	8.00	3.0	3	0.6	0.3		1	1			1	Dicot	Perennial forb
<i>Penstemon filiformis</i>	Plantaginaceae	BE	5.0	30.00	6.0	5.5	1.3	0.5	1B.3	1					Dicot	Perennial forb
<i>Penstemon parvulus</i>	Plantaginaceae	BE/SI	3.7	11.00	3.0	4	0.6	0.3		1				1	Dicot	Perennial forb
<i>Penstemon purpusii</i>	Plantaginaceae	SI	2.8	11.00	4.0	2	2.4	1.2	CBR	1	1				Dicot	Perennial forb
<i>Plantago erecta</i>	Plantaginaceae	WI/IN	1.0	3.00	3.0	1	1	0.6		1	1	1	1	1	Dicot	Annual forb
<i>Veronica copelandii</i>	Plantaginaceae	SE	6.0	34.00	4.0	6	0	0	4.3	1					Dicot	Perennial forb
<i>Agrostis microphylla</i>	Poaceae	WI/IN	1.1	4.25	4.0	1.1	1.1	0.5			1	1	1		Monocot	Annual gram.
<i>Bromus laevipes</i>	Poaceae	WI	1.7	5.00	3.0	2	0.6	0.3		1	1	1	1	1	Monocot	Perennial gram. (cesp.)
<i>Calamagrostis foliosa</i>	Poaceae	WI	1.7	5.00	3.0	2	1.5	0.9	4.2		1				Monocot	Perennial gram. (rhiz.)
<i>Calamagrostis ophitidis</i>	Poaceae	SE	6.0	24.00	4.0	6	0	0	4.3		1	1			Monocot	Perennial gram. (rhiz.)
<i>Calamagrostis stricta</i> ssp. <i>inexpansa</i>	Poaceae	WI	1.5	3.00	2.0	1.5	-	-		1	1	1	1	1	Monocot	Perennial gram. (cesp.)
<i>Danthonia californica</i>	Poaceae	SI	3.3	13.00	4.0	3	2.2	1.1		1	1	1	1	1	Monocot	Perennial gram. (cesp.)
<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>	Poaceae	WI	1.6	3.10	2.0	1.6	-	-		1	1	1	1	1	Monocot	Perennial gram. (cesp.)
<i>Festuca californica</i>	Poaceae	WI	2.4	11.80	5.0	2	1.6	0.7		1	1	1	1	1	Monocot	Perennial gram. (cesp.)
<i>Festuca idahoensis</i>	Poaceae	WI/IN	1.3	5.25	4.0	1	1.2	0.6		1	1	1	1	1	Monocot	Perennial gram. (cesp.)
<i>Hordeum brachyantherum</i> ssp. <i>californicum</i>	Poaceae	SI	3.1	9.25	3.0	3	2.9	1.7		1	1	1	1	1	Monocot	Perennial gram. (cesp.)
<i>Melica geyeri</i>	Poaceae	WI/IN	1.2	6.00	5.0	1	0.4	0.2		1	1			1	Monocot	Perennial gram. (cesp.)
<i>Poa piperi</i>	Poaceae	BE	5.4	21.50	4.0	5.5	1	0.5	4.3	1					Monocot	Perennial gram. (rhiz.)
<i>Poa rhizomata</i>	Poaceae	WI	1.8	3.50	2.0	1.5	-	-	4.3	1					Monocot	Perennial gram. (rhiz.)
<i>Poa tenerrima</i>	Poaceae	SI	3.3	13.00	4.0	3	1.3	0.6	CBR			1	1	1	Monocot	Perennial gram. (cesp.)

Scribneria bolanderi	Poaceae	WI	1.7	5.10	3.0	1	2	1.2		1	1	1	1	1	Monocot	Annual gram.
Stipa lemmonii var. pubescens	Poaceae	BE	4.8	14.50	3.0	6	2.3	1.3	3.2	1	1				Monocot	Perennial gram. (cesp.)
Stipa nelsonii var. dorei	Poaceae	WI/IN	1.0	2.00	2.0	1	-	-						1	Monocot	Perennial gram. (cesp.)
Stipa stillmanii	Poaceae	WI/IN	1.1	2.10	2.0	1.1	-	-	CBR					1	Monocot	Perennial gram. (cesp.)
Collomia diversifolia	Polemoniaceae	SE	5.6	33.50	6.0	6	1.2	0.5	4.3		1	1			Dicot	Annual forb
Collomia tinctoria	Polemoniaceae	WI	1.8	7.10	4.0	2	1.5	0.7		1	1			1	Dicot	Annual forb
Gilia capitata ssp. capitata	Polemoniaceae	WI	1.6	4.75	3.0	1	1.2	0.7		1	1				Dicot	Annual, Perennial forb
Leptosiphon ambiguus	Polemoniaceae	SE	5.8	17.50	3.0	6	0.6	0.3				1	1		Dicot	Annual forb
Leptosiphon bolanderi	Polemoniaceae	WI/IN	1.3	2.50	2.0	1.3	-	-			1	1		1	Dicot	Annual forb
Leptosiphon latisectus	Polemoniaceae	WI	2.0	6.00	3.0	2	0	0			1				Dicot	Annual forb
Leptosiphon liniflorus	Polemoniaceae	WI	1.6	6.25	4.0	1.5	1.2	0.6		1	1	1	1	1	Dicot	Annual forb
Leptosiphon nuttallii ssp. howellii	Polemoniaceae	BE	5.3	31.50	6.0	6	1.3	0.5			1				Dicot	Perennial forb
Linanthus dichotomus	Polemoniaceae	SI	2.5	12.40	5.0	3	2.4	1.1		1	1	1	1	1	Dicot	Annual forb
Navarretia heterodoxa	Polemoniaceae	SI	2.8	14.00	5.0	3	2.4	1.1				1			Dicot	Annual forb
Navarretia jepsonii	Polemoniaceae	SE	5.6	22.50	4.0	5.5	0.6	0.3	4.3		1				Dicot	Annual forb
Navarretia linearifolia ssp. pinnatisecta	Polemoniaceae	BE/SI	3.8	19.00	5.0	3	2.2	1			1				Dicot	Annual, Perennial forb
Navarretia mitracarpa	Polemoniaceae	SE	5.9	23.50	4.0	6	0.5	0.3					1		Dicot	Annual forb
Navarretia paradoxicala	Polemoniaceae	SE	6.0	18.00	3.0	6	0	0	1B.3					1	Dicot	Annual forb
Navarretia paradoxinota	Polemoniaceae	SE	6.0	18.00	3.0	6	0	0	1B.3		1				Dicot	Annual forb
Navarretia pubescens	Polemoniaceae	WI	2.0	6.00	3.0	2	1	0.6			1	1	1	1	Dicot	Annual forb
Navarretia rosulata	Polemoniaceae	SE	6.0	18.00	3.0	6	0	0	1B.2		1	1			Dicot	Annual forb
Navarretia sinistra	Polemoniaceae	SI	2.5	7.50	3.0	3	1.8	1		1	1			1	Dicot	Annual forb
Phlox hirsuta	Polemoniaceae	SE	6.0	18.00	3.0	6	0	0	1B.2	1					Dicot	Perennial forb
Polemonium chartaceum	Polemoniaceae	WI	1.6	8.10	5.0	2	1.5	0.7	1B.3	1				1	Dicot	Perennial forb
Polemonium eddyense	Polemoniaceae	SE	6.0	18.00	3.0	6	0	0	1B.2	1					Dicot	Perennial forb
Polygala cornuta var. cornuta	Polygalaceae	WI	2.3	9.00	4.0	2	1.3	0.6		1				1	Dicot	Perennial forb, shrub
Chorizanthe breweri	Polygonaceae	BE	5.4	21.50	4.0	5.5	1	0.5	1B.3					1	Dicot	Annual forb
Chorizanthe palmeri	Polygonaceae	BE	4.9	24.50	5.0	6	1.6	0.7	4.2					1	Dicot	Annual forb

Chorizanthe uniaristata	Polygonaceae	SI	2.7	10.80	4.0	2.5	2	1				1	1	Dicot	Annual, Perennial forb		
Chorizanthe ventricosa	Polygonaceae	BE	5.3	16.00	3.0	6	1.	0.	4.3			1		Dicot	Annual forb		
Eriogonum alpinum	Polygonaceae	SE	6.0	30.00	5.0	6	0	0	1B.2	1				Dicot	Perennial forb		
Eriogonum argillosum	Polygonaceae	SI	3.1	12.50	4.0	3	2.	1.	4.3			1	1	Dicot	Annual forb		
Eriogonum cedrorum	Polygonaceae	SE	6.0	12.00	2.0	6	-	-	1B.3			1		Dicot	Perennial forb		
Eriogonum clavatum	Polygonaceae	SI	3.3	10.00	3.0	3	2.	1.					1	Dicot	Annual forb		
Eriogonum compositum var. compositum	Polygonaceae	WI	1.7	5.10	3.0	2	1.	0.	CBR	1	1			Dicot	Perennial forb		
Eriogonum congdonii	Polygonaceae	BE	5.1	35.50	7.0	6	1.	0.	4.3	1				Dicot	Shrub		
Eriogonum covilleanum	Polygonaceae	SI	3.0	12.00	4.0	3	1.	0.	CBR				1	Dicot	Annual forb		
Eriogonum dasyanthemum	Polygonaceae	SI	3.0	6.00	2.0	3	-	-	CBR			1		Dicot	Annual forb		
Eriogonum diclinum	Polygonaceae	SI	3.2	9.50	3.0	3	3	1.	2B.3	1				Dicot	Perennial forb		
Eriogonum elatum var. villosum	Polygonaceae	SI	3.3	13.00	4.0	3.5	3.	1.				1		Dicot	Perennial forb		
Eriogonum hirtellum	Polygonaceae	SE	6.0	18.00	3.0	6	0	0	1B.3	1				Dicot	Perennial forb (rhiz.)		
Eriogonum hirtiflorum	Polygonaceae	SI	3.3	13.00	4.0	3.5	3.	1.	CBR	1	1	1	1	1	Dicot	Annual forb	
Eriogonum kelloggii	Polygonaceae	SE	6.0	24.00	4.0	6	0	0	1B.2			1		Dicot	Perennial forb		
Eriogonum libertini	Polygonaceae	SE	6.0	36.00	6.0	6	0	0	4.2	1	1			Dicot	Perennial forb		
Eriogonum luteolum var. caninum	Polygonaceae	SE	5.5	27.50	5.0	6	0.	0.	1B.2			1	1	Dicot	Annual forb		
Eriogonum luteolum var. luteolum	Polygonaceae	BE/SI	3.8	15.00	4.0	3	1.	0.				1	1	1	1	Dicot	Annual forb
Eriogonum luteolum var. pedunculatum	Polygonaceae	BE	5.0	10.00	2.0	5	-	-	CBR				1	Dicot	Annual forb		
Eriogonum nervulosum	Polygonaceae	SE	6.0	18.00	3.0	6	0	0	1B.2			1		Dicot	Perennial forb (rhiz.)		
Eriogonum nudum var. indictum	Polygonaceae	WI	1.5	4.50	3.0	1	0.	0.	4.2				1	Dicot	Perennial forb		
Eriogonum nudum var. oblongifolium	Polygonaceae	WI	2.0	6.00	3.0	2	0	0				1	1	Dicot	Perennial forb		
Eriogonum pendulum	Polygonaceae	SE	6.0	18.00	3.0	6	0	0	2B.2	1				Dicot	Perennial forb		
Eriogonum pyrolifolium	Polygonaceae	WI/IN	1.0	3.00	3.0	0	1.	1				1		Dicot	Perennial forb		
Eriogonum siskiyouense	Polygonaceae	BE	5.4	32.50	6.0	6	1.	0.	4.3	1				Dicot	Perennial forb		
Eriogonum strictum var. greenei	Polygonaceae	SE	5.9	29.50	5.0	6	0.	0.	4.3	1	1			Dicot	Perennial forb		
Eriogonum ternatum	Polygonaceae	SE	6.0	18.00	3.0	6	0	0	4.3	1	1			Dicot	Perennial forb		
Eriogonum tripodum	Polygonaceae	BE	5.3	26.50	5.0	6	1.	0.	4.2			1		Dicot	Shrub		

Eriogonum umbellatum var. argus	Polygonaceae	SI	3.0	12.0 0	4.0	3.5	1.4	0.7	CBR	1	1				Dicot	Perennial forb	
Eriogonum umbellatum var. bahiiiforme	Polygonaceae	BE/SI	3.5	21.0 0	6.0	3	1.2	0.5	4.2		1	1	1		Dicot	Perennial forb	
Eriogonum umbellatum var. goodmanii	Polygonaceae	SI	3.3	10.0 0	3.0	3	2.5	1.5	CBR	1					Dicot	Perennial forb	
Eriogonum umbellatum var. humistratum	Polygonaceae	BE	4.5	27.3 0	6.0	5	2.1	0.8	4.3	1	1				Dicot	Perennial forb	
Eriogonum umbellatum var. nelsoniorum	Polygonaceae	SE	5.5	11.0 0	2.0	5.5	-	-		1	1				Dicot	Perennial forb	
Eriogonum umbellatum var. speciosum	Polygonaceae	BE/SI	4.2	21.0 0	5.0	4	1.3	0.6	CBR	1			1		Dicot	Perennial forb	
Eriogonum ursinum	Polygonaceae	WI/IN	1.1	2.25	2.0	1.1	-	-		1			1		Dicot	Perennial forb	
Eriogonum vimineum	Polygonaceae	WI/IN	1.0	3.00	3.0	1	0	0		1			1		Dicot	Annual forb	
Polygonum majus	Polygonaceae	WI	1.5	4.50	3.0	2	0.9	0.5		1			1		Dicot	Annual forb	
Polygonum spergulariiforme	Polygonaceae	SI	3.0	18.3 0	6.0	2.5	2.1	0.9		1	1	1	1		Dicot	Annual forb	
Systemotheca vortriedei	Polygonaceae	SI	3.1	12.3 0	4.0	2.5	2.2	1.1	4.3				1		Dicot	Annual forb	
Primula clevelandii var. patula	Primulaceae	SI	3.0	9.00	3.0	3	0	0					1	1	1	Dicot	Perennial forb
Adiantum aleuticum	Pteridaceae	WI	2.4	11.8 0	5.0	2	1.2	0.5		1	1	1	1	1	Pteridoph.	Perennial forb	
Aspidotis carlottahalliae	Pteridaceae	BE	5.3	26.5 0	5.0	6	1.1	0.5	4.2				1	1	Pteridoph.	Perennial forb (rhiz.)	
Aspidotis densa	Pteridaceae	SI	3.4	31.0 0	9.0	3	1.2	0.4		1	1	1	1	1	Pteridoph.	Perennial forb	
Pellaea brachyptera	Pteridaceae	WI	1.5	4.50	3.0	2	0.9	0.5		1	1			1	Pteridoph.	Perennial forb	
Anemone drummondii var. drummondii	Ranunculaceae	WI	2.3	6.75	3.0	2	1.6	0.9		1				1	Dicot	Perennial forb	
Anemone oregana var. oregana	Ranunculaceae	SI	3.0	6.00	2.0	3	-	-		1					Dicot	Perennial forb	
Aquilegia eximia	Ranunculaceae	BE/SI	4.2	25.0 0	6.0	3.5	1.5	0.6			1	1	1		Dicot	Perennial forb	
Delphinium hesperium ssp. hesperium	Ranunculaceae	SI	2.7	8.00	3.0	3	0.6	0.3		1	1	1			Dicot	Perennial forb	
Delphinium nuttallianum	Ranunculaceae	WI/IN	1.4	4.10	3.0	1	1.5	0.9		1				1	Dicot	Perennial forb	
Delphinium parryi ssp. eastwoodiae	Ranunculaceae	BE/SI	3.7	11.0 0	3.0	4	2.5	1.5	1B.2				1		Dicot	Perennial forb	
Delphinium uliginosum	Ranunculaceae	SE	5.7	28.5 0	5.0	6	0.9	0.4	4.2		1				Dicot	Perennial forb	
Ceanothus arcuatus	Rhamnaceae	BE/SI	3.5	7.00	2.0	3.5	-	-		1	1			1	Dicot	Shrub	
Ceanothus confusus	Rhamnaceae	WI/IN	1.3	2.50	2.0	1.3	-	-	1B.1		1				Dicot	Shrub	

Ceanothus cuneatus var. cuneatus	Rhamnaceae	WI	1.5	6.10	4.0	1.5	1.3	0.6		1	1	1	1	1	Dicot	Shrub
Ceanothus divergens	Rhamnaceae	WI	2.0	4.00	2.0	2	-	-	1B.2		1				Dicot	Shrub
Ceanothus ferrisiae	Rhamnaceae	SE	6.0	24.00	4.0	6	0	0	1B.1			1			Dicot	Shrub
Ceanothus foliosus var. medius	Rhamnaceae	BE/SI	4.0	12.00	3.0	3	1.7	1				1	1		Dicot	Shrub
Ceanothus jepsonii	Rhamnaceae	SE	6.0	18.00	3.0	6	0	0			1	1			Dicot	Shrub
Ceanothus masonii	Rhamnaceae	SI	3.3	6.50	2.0	3	-	-	1B.2			1			Dicot	Shrub
Ceanothus pumilus	Rhamnaceae	SE	5.7	28.50	5.0	6	0.9	0.4		1	1				Dicot	Shrub
Ceanothus roderickii	Rhamnaceae	WI	1.7	5.00	3.0	2	1.5	0.9	1B.1					1	Dicot	Shrub
Ceanothus sonomensis	Rhamnaceae	WI/IN	1.3	4.00	3.0	2	1.2	0.7	1B.2			1			Dicot	Shrub
Frangula californica ssp. crassifolia	Rhamnaceae	BE	4.8	19.00	4.0	6	2.5	1.3		1	1				Dicot	Shrub
Frangula californica ssp. occidentalis	Rhamnaceae	SE	6.0	24.00	4.0	6	0	0		1	1			1	Dicot	Shrub
Frangula californica ssp. tomentella	Rhamnaceae	WI	1.5	6.00	4.0	0.8	1.7	0.8		1	1	1	1	1	Dicot	Shrub
Adenostoma fasciculatum	Rosaceae	WI/IN	1.3	5.20	4.0	1.1	1.4	0.7			1	1	1	1	Dicot	Shrub
Holodiscus discolor	Rosaceae	WI/IN	1.0	3.00	3.0	1	1	0.6		1	1	1	1	1	Dicot	Shrub
Horkelia congesta var. nemorosa	Rosaceae	BE/SI	3.8	7.50	2.0	3.5	-	-	2B.1	1					Dicot	Perennial forb
Horkelia daucifolia	Rosaceae	BE/SI	3.8	15.00	4.0	3	1.5	0.8		1	1				Dicot	Perennial forb
Horkelia daucifolia var. daucifolia	Rosaceae	BE	4.5	9.00	2.0	4.5	-	-		1					Dicot	Perennial forb
Horkelia sericata	Rosaceae	SE	5.6	22.50	4.0	6	1	0.5	4.3	1					Dicot	Perennial forb
Horkelia tridentata var. flavescens	Rosaceae	SI	3.0	9.00	3.0	2	1.7	1		1	1			1	Dicot	Perennial forb
Ivesia gordonii	Rosaceae	WI	1.6	3.25	2.0	1.6	-	-		1	1			1	Dicot	Perennial forb
Ivesia pickeringii	Rosaceae	BE	5.4	32.50	6.0	6	1	0.4	1B.2	1					Dicot	Perennial forb
Potentilla cristae	Rosaceae	SI	3.1	12.50	4.0	3	0	0	1B.3	1					Dicot	Perennial forb
Sanguisorba officinalis	Rosaceae	BE/SI	4.2	12.50	3.0	3	1.7	1	2B.2	1	1				Dicot	Perennial forb (rhiz.)
Galium ambiguum ssp. ambiguum	Rubiaceae	SI	3.3	10.00	3.0	3	2.5	1.5			1			1	Dicot	Perennial forb
Galium ambiguum ssp. siskiyouense	Rubiaceae	SE	5.5	27.50	5.0	6	0.9	0.4		1	1				Dicot	Perennial forb
Galium andrewsii ssp. andrewsii	Rubiaceae	SI	3.2	16.00	5.0	3	1.9	0.9			1	1	1		Dicot	Perennial forb

Galium andrewsii ssp. gatense	Rubiaceae	BE	5.1	20.50	4.0	5	0.8	0.4	4.2		1	1		Dicot	Perennial forb	
Galium andrewsii ssp. intermedium	Rubiaceae	WI/IN	1.4	2.75	2.0	1.4	-	-				1		Dicot	Perennial forb	
Galium clementis	Rubiaceae	WI/IN	1.0	2.00	2.0	1	-	-	1B.3			1		Dicot	Perennial forb	
Galium hardhamiae	Rubiaceae	SE	6.0	24.00	4.0	6	0	0	1B.3			1		Dicot	Perennial forb	
Galium serpenticum ssp. scotticum	Rubiaceae	SE	5.9	29.50	5.0	6	0.4	0.2	1B.2	1				Dicot	Perennial forb	
Salix breweri	Salicaceae	SE	6.0	30.00	5.0	6	0	0			1	1	1	Dicot	Shrub	
Salix delnortensis	Salicaceae	SE	6.0	18.00	3.0	6	0	0	4.3	1				Dicot	Shrub	
Salix sitchensis	Salicaceae	WI	1.6	4.75	3.0	1	1.2	0.7		1	1	1	1	Dicot	Tree, shrub	
Darlingtonia californica	Sarraceniacae	BE/SI	4.1	32.50	8.0	4	1.4	0.5	4.2	1			1	Dicot	Perennial forb (carn.)	
Micranthes howellii	Saxifragaceae	BE/SI	3.8	7.50	2.0	3.5	-	-	4.3	1				Dicot	Perennial forb	
Odontostomum hartwegii	Tecophilaceae	SI	2.7	8.00	3.0	3	0.6	0.3			1		1	Monocot	Perennial forb	
Brodiaea rosea ssp. rosea	Themidaceae	BE/SI	4.0	12.00	3.0	4	2	1.2	3.1	1	1			Monocot	Perennial forb	
Brodiaea sierrae	Themidaceae	WI	1.7	5.00	3.0	1	1.7	1	4.3				1	Monocot	Perennial forb	
Brodiaea stellaris	Themidaceae	BE/SI	3.7	11.00	3.0	4	2.5	1.5			1			Monocot	Perennial forb	
Muilla maritima	Themidaceae	WI	2.0	6.00	3.0	2	1	0.6			1	1	1	1	Monocot	Perennial forb
Triteleia bridgesii	Themidaceae	SI	3.3	13.00	4.0	3.5	1.7	0.9		1	1			Monocot	Perennial forb	
Triteleia crocea	Themidaceae	BE/SI	4.1	32.50	8.0	3.7	1.8	1.3		1				Monocot	Perennial forb	
Triteleia ixioides ssp. cookii	Themidaceae	BE	4.5	13.50	3.0	6	2.9	1.7	1B.3				1	Monocot	Perennial forb	
Triteleia peduncularis	Themidaceae	BE/SI	3.8	19.00	5.0	3	2.2	1		1	1	1	1	Monocot	Perennial forb	
Verbena californica	Verbenaceae	BE	4.8	14.50	3.0	4	1.2	0.7	1B.1				1	Dicot	Perennial forb	
Viola cuneata	Violaceae	BE	5.2	31.00	6.0	6	1.3	0.5	CBR	1	1			Dicot	Perennial forb	
Viola douglasii	Violaceae	SI	2.8	13.80	5.0	2	2.9	0.9		1	1	1	1	Dicot	Perennial forb	
Viola hallii	Violaceae	BE/SI	4.0	16.00	4.0	4	2.3	1.2	CBR	1	1			Dicot	Perennial forb	
Viola lobata ssp. lobata	Violaceae	WI	2.3	11.40	5.0	2	2.4	1.1		1	1		1	Dicot	Perennial forb (rhiz.)	
Viola ocellata	Violaceae	SI	2.5	12.50	5.0	3	0.9	0.4		1	1	1	1	Dicot	Perennial forb	
Viola primulifolia ssp. occidentalis	Violaceae	BE	5.1	25.50	5.0	6	1.4	0.6	1B.2	1				Dicot	Perennial forb (rhiz.)	
Viola purpurea ssp. integrifolia	Violaceae	WI/IN	1.3	4.00	3.0	2	1.2	0.7		1	1		1	Dicot	Perennial forb	