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# AN UPDATED DATABASE OF SERPENTINE ENDEMISM IN THE CALIFORNIA FLORA

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ABSTRACT

We update and revise the serpentine affinity database of Safford et al. (2005), which documents levels of plant taxon association with ultramafic ("serpentine") substrates in the California flora. The revised database reflects recent taxonomic changes consistent with the second edition of the Jepson Manual (TJM2) and more recent updates to the Jepson eFlora, and includes additional species that were not previously documented as serpentine associates. We also include serpentine-associated species that have been described since the publication of TJM2 and are not yet incorporated in the eFlora. A number of taxa were removed from the Safford et al. (2005) database due to new ecological information or taxonomic changes. As before, the new database presents information on rarity, geographic distribution, taxonomy, and lifeform. Based on our new database numbers and TJM2's list of California endemic species, the percentage of California endemic full species that are +/− restricted to ultramafic substrates has risen to 14.7%. Of 255 total endemic taxa in our database (including strict and "broad" endemics), 148 (c. 60%) come from only ten plant families, concentrated mostly in one or two genera per family. The North Coast and Klamath Ranges continue to support more serpentine endemics than the rest of the State combined. The previous version of the database has been widely used in biodiversity research and conservation management, and we hope that this improved and updated version will prove as valuable.

Key Words: California flora, edaphic, endemics, serpentine, ultramafic.

Soils derived from ultramafic parent materials–often referred to as "serpentine"–support a great diversity of plant life in California. Serpentine soils are generally ecologically stressful environments because they are poor in plant macronutrients, have high magnesium : calcium ratios, and contain toxic heavy metals (Alexander et al. 2007). Serpentine environments support high levels of native plant diversity partly because they are less likely to support the (often non-native) dominant species that competitively exclude other plants on more fertile substrates (Brooks 1987). In addition, the stressful environment of serpentine leads to high levels of endemism. While serpentine soils occupy less than 1.5% of California's geographic area (Harrison et al. 2000), a high number of California's endemic plant species are partially or entirely restricted to serpentine soils (described below, also see Safford et al. 2005; Safford 2011). Understanding the plant diversity associated with serpentine environments is important for facilitating research into basic ecological and evolutionary questions (of which there is a long history in California serpentine; Harrison and Rajakaruna 2011), as well as for informing management decisions involving landscapes, natural disturbances, and conservation (Safford and Harrison 2004, 2008).

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

## METHODS

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

TABLE 1. TAXA DROPPED FROM SERPENTINE AFFINITY DATABASE AFTER 2012. TJM2 (Baldwin et al. 2012) included many taxonomic changes and new taxa. These changes were incorporated into the database at the time of TJM2. This table includes taxa dropped from the list since that time.

| Species | Family | Reason and source |
|---|---|---|
| *Chlorogalum purpureum* var. *reductum* Hoover | Agavaceae | Taxon does not grow on serpentine soils (Kofron et al. 2013) |
| *Cardamine pachystigma* var. *pachystigma* (S. Watson) Rollins | Brassicaceae | Taxon is not a serpentine indicator; reanalysis of herbarium and collection records |
| *Sedum obtusatum* ssp. *obtusatum* A. gray. | Crassulaceae | Taxon is not a serpentine indicator; reanalysis of herbarium and collection records |
| *Carex amplectens* Steud. | Cyperaceae | Moved to *Carex fracta* Mack. by Baldwin et al. (2012), which is not a serpentine indicator |
| *Swertia fastigiata* Pursh | Gentianaceae | Moved to *Frasera umquaensis* M. Peck & Applegate by Baldwin et. al (2012), which is not a serpentine indicator |
| *Calochortus greenei* S. Watson | Liliaceae | Taxon does not grow on serpentine soils; government agency (BLM, USFWS) reports on species ecology |
| *Ceanothus papillosus* Torr. & A. Gray var. *roweanus* McMinn | Rhamnaceae | Taxon not recognized by TJM2 or Jepson eFlora, herbarium collections and CalFlora observations do not support taxon as serpentine indicator |
| *Brodiaea pallida* Hoover | Themidaceae | New collections show that only 1 of 5 population groups occurs on serpentine; R. Preston, UC Davis, pers. comm. |
| *Brodiaea purdyi* Eastw. | Themidaceae | Taxon subsumed within *B. minor* (Benth.) S. Watson, which is not a serpentine indicator (Preston 2006; Baldwin et al. 2012) |

published. Here, we provide a revised version of the database (Appendix 1; Supplemental Table 1), with nomenclature updated to reflect The Jepson Manual, 2nd edition (TJM2; Baldwin et al. 2012) and then again using the most recent Jepson eFlora (most recent version accessed November 18, 2019; Jepson Flora Project 2019). This contribution follows on Safford (2011), which provided a lay person's summary of the status of the endemism database just as TJM2 was being prepared for press. The general patterns discussed in Safford (2011) are still valid, but it was important to incorporate the published results from Baldwin et al. (2012) and the most recent Jepson eFlora (Jepson Flora Project 2019), and to provide a completely revised version of the database itself, which was not part of Safford (2011).

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

We have ranked new additions to the list using the same semi-quantitative scale as the original database (see Safford et al. 2005 for details), with the difference that we have reduced all rankings >6 to 6, as those resulted from the addition of CalFlora information (which at the time could be considered independent of our other sources). Today CalFlora directly references the serpentine affinity database in its species descriptions. Rankings of new additions to the list presented here are based primarily on herbarium records (mostly accessed via the Consortium of California Herbaria (CCH1 2019; CCH2 2019), habitat descriptions by Baldwin et al. (2012) and the Jepson eFlora (Jepson Flora Project 2019), CalFlora observation records (CalFlora 2019), the primary literature, and in some cases, direct input from botanical experts. In the CCH herbarium records, we accessed at least 150 collection records for each taxon (except where records totaled <150, in which case we accessed all records), using random selection where necessary to ensure no bias in regional coverage. Where CCH or CalFlora records were <5, we combined the two and treated them as a single information source. We used the Berkeley Mapper (linked to the CCH website), Google Earth, our field experience, and various geologic and jurisdictional (e.g., US Forest Service) maps to visualize the locations of herbarium records and to determine, when possible, whether botanical records lacking geological information were found on or off of ultramafic substrates. Taxa with >50% of usable records ("usable" = the records identified the substrate, or we were able to determine the substrate by another fashion) from serpentine made their way

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 |
|---|---|
| *Brodiaea rosea* ssp. *rosea* (Greene) Baker | Preston 2013 |
| *Calystegia vanzuukiae* Brummitt & Namoff | Brummitt and Namoff 2013 |
| *Cardamine pachystigma* var. *dissectifolia* (S. Watson) Rollins | R. Preston and L. Janeway, pers comm and CCH and CalFlora records |
| *Claytonia serpenticola* T.R. Stoughton | Stoughton 2017 |
| *Dicentra formosa* ssp. *oregana* (Haw.) Walp. | Baldwin et al. 2012; L. Hoover, U.S. Forest Service, pers. comm. |
| *Erythranthe willisii* G.L. Nesom | Nesom 2017 |
| *Hesperolinon sharsmithiae* R. O'Donnell | O'Donnell 2006 |
| *Sedum eastwoodiae* (Britton) A. Berger | Zika et al. 2018 |
| *Sedum flavidum* B.L. Wilson & Zika | Zika et al. 2018 |
| *Sedum kiersteadiae* B.L. Wilson & R.E. Brainerd | Wilson et al. 2014 |
| *Sedum patens* Zika | Zika et al. 2018 |
| *Sedum rubiginosum* Zika & B.L. Wilson | Zika et al. 2018 |
| *Vaccinium coccineum* Piper | L. Hoover and J. Nelson, U.S. Forest Service, pers comm. |

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

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

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

## RESULTS AND DISCUSSION

As in Safford et al. (2005) and Safford (2011), we define serpentine endemic taxa as those that scored at least 4.5 in our ranking process. Put another way, our class of "serpentine endemics" includes strict endemics (more than c. 95% of recorded occurrences on ultramafics) and broad endemics (c. 85–94%). The updated serpentine affinity database (Appendix 1) contains 255 endemic taxa (strict plus broad endemics), 193 of which are full species (this includes five species for which all of the subspecies are listed in the database due to differing levels of serpentine affinity: *Arctostaphylos bakeri* Eastw., *A. montana* Eastw., *Calystegia collina* (Greene) Brummitt, *Cirsium fontinale* (Greene) Jeps., and *Lessingia micradenia* Greene). Thus, serpentine endemic species account for about 14.7% – more than 1/7 – of the endemic species in California (based on 1315 endemic species in Baldwin 2012). This is a notable increase from the 12.5% reported by Safford et al. (2005), and is due to additions of newly described species and a decrease in the number of California endemic species according to Baldwin et al. (2012).

Taxonomic revisions have led to some changes from Safford et al. (2005) in the ordering of family and genera with the most serpentine endemic taxa. Asteraceae remains the family with the most serpentine endemics, with 25 strict endemics, 13 broad endemics, and 106 total serpentine-associated taxa (Table 3). Liliaceae, which historically contained the second most serpentine endemics of any family (considering both strict and broad endemics), has been split into several smaller families, many of which are further down the current list, including Alliaceae – also in the top ten families, Agavaceae, Themidaceae, and so on. As a result, Brassicaceae is now the second most endemic-rich family (Table 3). Scrophulariaceae was also split in Baldwin et al. (2012) into numerous plant families, and it has dropped from a fifth place ranking in the Safford et al. (2005) rankings to a complete absence from the list now. Families derived from Scrophulariaceae are still important components of serpentine endemism in California however: for example, Orobanchaceae currently occupies sixth place on the list, and Phrymaceae and Plantaginaceae are further down the list. *Eriogonum* is now the most endemic-rich genus, followed by *Streptanthus* (Table 4).

As discussed by Safford et al. (2005; see their Figs 1 and 2), the distribution of taxa among plant families and genera is very different when comparing serpentine endemics and California endemics. Families which support many more serpentine endemic taxa than expected include Linaceae, Polygonaceae,

TABLE 3. NUMBERS OF SERPENTINE ENDEMIC AND NEAR ENDEMIC TAXA BY FAMILY. [1] Strict endemics. [2] Strict endemics plus broad endemics ("endemic taxa" in this paper). [3] Strict and broad endemics plus "near endemic" taxa (taxa transitional from strong indicators to broad endemics). [4] Total 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 | | | |
|---|---|---|---|---|
| | ≥5.5[1] | ≥4.5[2] | ≥3.5[3] | Total[4] |
| Asteraceae | 25 | 38 | 46 | 106 |
| Brassicaceae | 19 | 24 | 28 | 38 |
| Polygonaceae | 11 | 19 | 22 | 41 |
| Liliaceae | 5 | 13 | 16 | 38 |
| Polemoniaceae | 9 | 10 | 11 | 21 |
| Orobanchaceae | 7 | 10 | 10 | 19 |
| Apiaceae | 7 | 9 | 12 | 33 |
| Crassulaceae | 8 | 9 | 9 | 16 |
| Linaceae | 8 | 9 | 9 | 14 |
| Ericaceae | 5 | 8 | 10 | 15 |
| Fabaceae | 4 | 7 | 11 | 25 |
| Alliaceae | 4 | 7 | 11 | 24 |
| Lamiaceae | 6 | 7 | 9 | 17 |
| Boraginaceae | 6 | 6 | 11 | 24 |
| Caryophyllaceae | 5 | 6 | 8 | 18 |
| Campanulaceae | 3 | 5 | 8 | 13 |
| Rhamnaceae | 4 | 5 | 7 | 14 |
| Onagraceae | 3 | 5 | 7 | 13 |
| Cyperaceae | 3 | 5 | 7 | 12 |
| Convolvulaceae | 1 | 5 | 6 | 7 |
| Phrymaceae | 4 | 4 | 6 | 8 |
| Rubiaceae | 3 | 4 | 4 | 8 |
| Montiaceae | 0 | 3 | 6 | 17 |
| Rosaceae | 1 | 3 | 6 | 11 |
| Plantaginaceae | 1 | 3 | 5 | 15 |
| Poaceae | 1 | 3 | 3 | 18 |
| Iridaceae | 2 | 3 | 3 | 5 |
| Violaceae | 0 | 2 | 3 | 7 |
| Cupressaceae | 0 | 2 | 3 | 6 |
| Malvaceae | 2 | 2 | 2 | 7 |
| Agavaceae | 2 | 2 | 2 | 5 |
| Salicaceae | 2 | 2 | 2 | 3 |
| Gentianaceae | 2 | 2 | 2 | 2 |
| Garryaceae | 1 | 2 | 2 | 2 |
| Themidaceae | 0 | 1 | 5 | 8 |
| Ranunculaceae | 1 | 1 | 3 | 7 |
| Papaveraceae | 0 | 1 | 1 | 5 |
| Berberidaceae | 1 | 1 | 1 | 4 |
| Pteridaceae | 0 | 1 | 1 | 4 |
| Fagaceae | 1 | 1 | 1 | 3 |
| Orchidaceae | 0 | 1 | 1 | 3 |
| Dryopteridaceae | 1 | 1 | 1 | 2 |
| Lentibulariaceae | 1 | 1 | 1 | 1 |
| Apocynaceae | 1 | 1 | 1 | 1 |
| Verbenaceae | 0 | 1 | 1 | 1 |
| Melanthiaceae | 0 | 0 | 2 | 4 |
| Pinaceae | 0 | 0 | 1 | 6 |
| Parnassiaceae | 0 | 0 | 1 | 2 |
| Saxifragaceae | 0 | 0 | 1 | 1 |
| Sarraceniaceae | 0 | 0 | 1 | 1 |
| Tecophilaeaceae | 0 | 0 | 0 | 1 |
| Primulaceae | 0 | 0 | 0 | 1 |
| Polygalaceae | 0 | 0 | 0 | 1 |
| Cistaceae | 0 | 0 | 0 | 1 |

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

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

Brassicaceae, Apiaceae, Caryophyllaceae, and Liliaceae. Genera that follow the same pattern of notable enrichment in serpentine endemics include *Streptanthus*, *Minuartia*, *Cordylanthus*, *Packera*, and *Hesperolinon*.

Of the five geographic regions identified by Safford et al. (2005), the North Coast region remains the geographic leader in number of serpentine endemic taxa (127), and the Klamath region supports the most serpentine endemics that are restricted to a

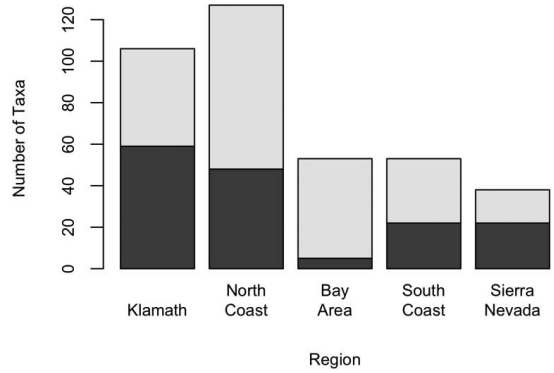


FIG. 1. Geographic distribution of serpentine endemic taxa (mean score ≥ 4.5) in California. Dark areas of bars represent taxa restricted to a single geographic region, and light areas represents taxa that also occur in other regions. Geographic regions are from Baldwin et al. (2012).

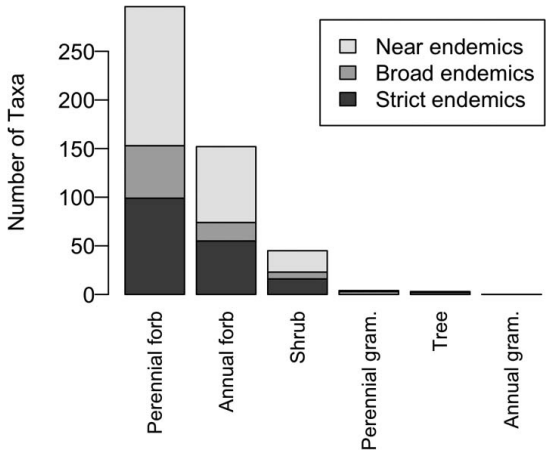


FIG. 2. Lifeforms of serpentine endemic and near endemic taxa (mean score >= 3.5) in California.

single region (60; Fig. 1). Together, the North Coast and Klamath regions support 146 serpentine endemic taxa that are found nowhere else in the state. See Safford (2011) for a figure and short discussion regarding the elevational distribution of serpentine endemic taxa in California. In short, most taxa grow in habitats below 1000 m elevation and few are found above 1500 m, primarily due to the relative rarity of ultramafic outcrops above that elevation.

Among the endemic taxa, 216 are dicots, 35 are monocots, two are gymnosperms, and two are pteridophytes (Appendix 1). The distribution of life forms is shown in Fig. 2. Serpentine endemic taxa in California are primarily perennial forbs (153 of 255 taxa, including three that can also be annuals), most of the rest are annual forbs (74 taxa, including the same three taxa); less than 10% of the endemic taxa in our database are woody species (Fig. 2).

192 (77%) of the endemic taxa in our database are listed in the CNPS Inventory of Rare and Endangered Plants (CNPS 2019). 108 serpentine endemic taxa are assigned California Rare Plant Rank 1B, which includes Federal and State threatened and endangered taxa as well as those taxa that the California Native Plant Society believes warrant listing (Appendix 1).

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

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We are grateful to the California botanists and land managers who have shared their observations and expertise on serpentine taxa over the years, and helped us to recognize the need to update the serpentine endemism database. We thank them also for suggesting corrections and reviewing them as they were made. Many botanists contributed to this endemics database update; we would especially like to thank Lisa Hoover, Mike Kauffman, Lawrence Janeway, Julie Kierstead, Ryan O'Dell, and Rob Preston. Ellen Dean and Barbara Ertter provided advice on newer taxa that had not yet been listed in the Jepson eFlora. We thank Maaike Wielenga for her assistance in database management and conducting background research on newly described species. Finally, we thank the Jepson Herbarium staff for assistance with nomenclature.

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APPENDIX 1. Updated list of taxa associated with serpentine ordered by family and taxon.[1] Names as in the Jepson eFlora (except for species listed in Table 2); [2] Aff = Affinity: SE = strict endemic, BE = broad endemic, BE/SI = broad endemic/strong indicator, SI = strong indicator, WI = weak indicator, WI/IN = weak indicator/indifferent. [3] Mean affinity score. [4] Sum of all affinity scores. [5] Median of affinity scores. [6] Standard deviation of affinity scores. [7] California Native Plant Society rarity codes (CNPS 2019). [8] Geographic distribution: KL = Klamath Ranges, NC = North Coast Ranges, BA = San Francisco Bay Area, SC = South Coast Ranges, SN = Sierra Nevada. [9] Life forms are abbreviated as follows: carn = carnivorous, cesp = cespitose, hemipar = hemiparasitic, paras = parasitic, rhiz = rhizomatous.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Chlorogalum angustifolium* | Kellogg | Agavaceae | WI | 2.4 | 9.5 | 4 | 1.8 | 2.8 | | | 1 | | | 1 | Perennial forb (bulb) |
| *Chlorogalum grandiflorum* | Hoover | Agavaceae | WI/IN | 1 | 2 | 2 | 1 | - | 1B.2 | | | | | 1 | Perennial forb (bulb) |
| *Chlorogalum pomeridianum* var. *minus* | (DC.) Kunth | Agavaceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.2 | | 1 | 1 | 1 | | Perennial forb (bulb) |
| *Hastingsia alba* | (Durand) S. Watson | Agavaceae | SI | 3.4 | 17 | 5 | 3 | 1.5 | | 1 | 1 | | | 1 | Perennial forb (bulb) |
| *Hastingsia serpentinicola* | R. Becking | Agavaceae | SE | 6 | 18 | 3 | 6 | 0 | | 1 | 1 | | | | Perennial forb (bulb) |
| *Allium acuminatum* | Hook. | Alliaceae | WI | 1.5 | 4.5 | 3 | 2 | 0.9 | | 1 | 1 | 1 | | | Perennial forb (bulb) |
| *Allium amplectens* | Torr. | Alliaceae | WI | 2.3 | 11.3 | 5 | 2 | 2.2 | | 1 | 1 | 1 | 1 | 1 | Perennial forb (bulb) |
| *Allium bolanderi* var. *bolanderi* | S. Watson | Alliaceae | WI/IN | 1.1 | 4.5 | 4 | 1 | 0.6 | | 1 | 1 | 1 | | | Perennial forb (bulb) |
| *Allium bolanderi* var. *mirabile* | S. Watson | Alliaceae | WI | 2 | 4 | 2 | 2 | - | | 1 | 1 | | | | Perennial forb (bulb) |
| *Allium cratericola* | Eastw. | Alliaceae | SI | 2.6 | 15.8 | 6 | 2.5 | 1.9 | CBR | 1 | 1 | | | 1 | Perennial forb (bulb) |
| *Allium crispum* | Greene | Alliaceae | WI/IN | 1.3 | 3.75 | 3 | 1 | 0.7 | | | | 1 | 1 | | Perennial forb (bulb) |
| *Allium diabolense* | (Ownbey & Aase ex Traub) McNeal | Alliaceae | SE | 6 | 18 | 3 | 6 | 0 | | | | | 1 | | Perennial forb (bulb) |
| *Allium falcifolium* | Hook. & Arn. | Alliaceae | BE/SI | 4.2 | 38 | 9 | 4 | 1.6 | | 1 | 1 | 1 | | | Perennial forb (bulb) |
| *Allium fimbriatum* var. *purdyi* | S. Watson | Alliaceae | BE | 5.4 | 21.5 | 4 | 6 | 1.5 | 4.3 | | 1 | | | | Perennial forb (bulb) |
| *Allium hoffmanii* | Ownbey ex Traub | Alliaceae | SE | 6 | 30 | 5 | 6 | 0 | 4.3 | 1 | 1 | | | | Perennial forb (bulb) |
| *Allium howellii* var. *sanbenitense* | Eastw. | Alliaceae | BE/SI | 4 | 12 | 3 | 4 | 1 | 1B.3 | | | | 1 | | Perennial forb (bulb) |
| *Allium jepsonii* | (Ownbey & Aase ex Traub) S.S. Denison & McNeal | Alliaceae | BE | 5.4 | 37.5 | 7 | 6 | 1 | 1B.2 | | | | | 1 | Perennial forb (bulb) |
| *Allium lacunosum* var. *lacunosum* | S. Watson | Alliaceae | BE/SI | 3.8 | 15.3 | 4 | 4.5 | 2.8 | | | | 1 | 1 | | Perennial forb (bulb) |
| *Allium lacunosum* var. *micranthum* | S. Watson | Alliaceae | BE/SI | 4.3 | 13 | 3 | 6 | 2.9 | CBR | | | | 1 | | Perennial forb (bulb) |
| *Allium membranaceum* | Ownbey ex Traub | Alliaceae | WI/IN | 1.3 | 4 | 3 | 1 | 1.5 | CBR | 1 | | | | 1 | Perennial forb (bulb) |
| *Allium obtusum* var. *conspicuum* | Lemmon | Alliaceae | WI/IN | 1 | 2 | 2 | 1 | - | | | | | | 1 | Perennial forb (bulb) |
| *Allium peninsulare* var. *franciscanum* | Lemmon ex Greene | Alliaceae | WI | 1.8 | 3.5 | 2 | 1.8 | - | 1B.2 | | | 1 | 1 | | Perennial forb (bulb) |
| *Allium sanbornii* var. *congdonii* | Alph. Wood | Alliaceae | SE | 5.6 | 22.5 | 4 | 6 | 1 | 4.3 | | | | | 1 | Perennial forb (bulb) |
| *Allium sanbornii* var. *sanbornii* | Alph. Wood | Alliaceae | SI | 3.4 | 27 | 8 | 3.5 | 2.2 | 4.2 | | | | | 1 | Perennial forb (bulb) |
| *Allium serra* | McNeal & Ownbey | Alliaceae | SI | 2.6 | 10 | 4 | 3 | 1.5 | | | 1 | 1 | 1 | | Perennial forb (bulb) |
| *Allium sharsmithiae* | (Ownbey & Aase ex Traub) McNeal | Alliaceae | BE | 5.1 | 20.5 | 4 | 6 | 2 | 1B.3 | | | 1 | 1 | | Perennial forb (bulb) |
| *Allium siskiyouense* | Ownbey ex Traub | Alliaceae | SI | 2.8 | 14 | 5 | 2 | 1.8 | 4.3 | 1 | 1 | | | | Perennial forb (bulb) |
| *Allium tuolumnense* | (Ownbey & Aase ex Traub) S.S. Denison & McNeal | Alliaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | | | | 1 | Perennial forb (bulb) |
| *Allium unifolium* | Kellogg | Alliaceae | WI/IN | 1 | 3 | 3 | 1 | 1 | | | 1 | 1 | 1 | | Perennial forb (bulb) |
| *Angelica tomentosa* | S. Watson | Apiaceae | SI | 2.7 | 8 | 3 | 3 | 1.5 | | 1 | 1 | | 1 | | Perennial forb |
| *Apiastrum angustifolium* | Nutt. | Apiaceae | WI | 1.5 | 7.6 | 5 | 0.1 | 2.5 | | 1 | 1 | 1 | 1 | | Annual forb |
| *Ligusticum californicum* | J. M. Coult. & Rose | Apiaceae | WI/IN | 1.4 | 5.75 | 4 | 1.4 | 1.3 | | 1 | 1 | | | 1 | Perennial forb |
| *Lomatium ciliolatum* | Jeps. | Apiaceae | SE | 6 | 18 | 3 | 6 | 0 | | | 1 | 1 | 1 | | Perennial forb |
| *Lomatium congdonii* | J. M. Coult. & Rose | Apiaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | | | | 1 | Perennial forb |
| *Lomatium dasycarpum* ssp. *dasycarpum* | (Torr. & A. Gray) J. M. Coult. & Rose | Apiaceae | BE/SI | 3.6 | 21.5 | 6 | 3.5 | 1.9 | | | 1 | 1 | 1 | | Perennial forb |
| *Lomatium engelmannii* | Mathias | Apiaceae | SE | 5.8 | 34.5 | 6 | 6 | 0.8 | 4.3 | 1 | 1 | | | | Perennial forb |
| *Lomatium hooveri* | (Mathias & Constance) Constance & Ertter | Apiaceae | SE | 5.9 | 29.5 | 5 | 6 | 0.4 | 4.3 | | 1 | | | | Perennial forb |
| *Lomatium howellii* | (S. Watson) Jeps. | Apiaceae | SE | 6 | 24 | 4 | 6 | 0 | 4.3 | 1 | | | | | Perennial forb |
| *Lomatium macrocarpum* | (Torr. & A. Gray) J. M. Coult. & Rose | Apiaceae | SI | 2.7 | 8 | 3 | 3 | 0.6 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Lomatium marginatum* var. *marginatum* | (Benth.) J. M. Coult. & Rose | Apiaceae | WI | 2.3 | 9 | 4 | 2.5 | 2.1 | | 1 | 1 | | | 1 | Perennial forb |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Lomatium marginatum* var. *purpureum* | (Benth.) J. M. Coult. & Rose | Apiaceae | SI | 3.3 | 13 | 4 | 3 | 2.2 | CBR | | 1 | | | 1 | Perennial forb |
| *Lomatium observatorium* | Constance & Ertter | Apiaceae | WI/IN | 1.4 | 2.75 | 2 | 1.4 | - | 1B.2 | | | 1 | 1 | | Perennial forb |
| *Lomatium parvifolium* | (Hook. & Arn.) Jeps. | Apiaceae | SI | 3.3 | 13 | 4 | 3 | 2.3 | 4.2 | | | | 1 | | Perennial forb |
| *Lomatium repostum* | (Jeps.) Mathias | Apiaceae | SI | 3.2 | 12.6 | 4 | 3 | 2.4 | 4.3 | | 1 | | | | Perennial forb |
| *Lomatium tracyi* | Mathias & Constance | Apiaceae | SE | 6 | 42 | 7 | 6 | 0 | 4.3 | 1 | 1 | | | | Perennial forb |
| *Lomatium triternatum* var. *triternatum* | (Pursh) J. M. Coult. & Rose | Apiaceae | SI | 2.8 | 11 | 4 | 2 | 2.4 | | 1 | 1 | | | | Perennial forb |
| *Lomatium utriculatum* | (Nutt. ex Torr. & A. Gray) J. M. Coult. & Rose | Apiaceae | WI | 1.7 | 8.5 | 5 | 1 | 1.4 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Perideridia bacigalupii* | Chuang & Constance | Apiaceae | BE | 4.6 | 23 | 5 | 6 | 2.4 | 4.2 | | | | | 1 | Perennial forb |
| *Perideridia kelloggii* | (A. Gray) Mathias | Apiaceae | WI | 2.1 | 10.6 | 5 | 2 | 2 | | | 1 | 1 | 1 | 1 | Perennial forb |
| *Perideridia leptocarpa* | T. I. Chuang & Constance | Apiaceae | SE | 5.6 | 22.5 | 4 | 6 | 1 | 4.3 | 1 | | | | | Perennial forb |
| *Perideridia oregana* | (S. Watson) Mathias | Apiaceae | WI | 1.7 | 5 | 3 | 1 | 1.2 | | 1 | 1 | 1 | 1 | | Perennial forb |
| *Perideridia pringlei* | (J. M. Coult. & Rose) A. Nelson & J. F. Macbr. | Apiaceae | BE/SI | 3.7 | 18.5 | 5 | 3 | 2.3 | 4.3 | | | | 1 | | Perennial forb |
| *Sanicula bipinnatifida* | Hook. | Apiaceae | WI | 1.8 | 7.1 | 4 | 2 | 1.5 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Sanicula hoffmannii* | (Munz) R. H. Shan & Constance | Apiaceae | WI | 1.8 | 3.5 | 2 | 1.5 | - | 4.3 | | | | 1 | | Perennial forb |
| *Sanicula maritima* | S. Watson | Apiaceae | WI | 2.3 | 4.5 | 2 | 2 | - | 1B.1 | | | 1 | 1 | | Perennial forb |
| *Sanicula peckiana* | J. F. Macbr. | Apiaceae | BE | 5.3 | 26.5 | 5 | 6 | 1.3 | 4.3 | 1 | | | | | Perennial forb |
| *Sanicula tracyi* | R. H. Shan & Constance | Apiaceae | WI | 2.1 | 8.5 | 4 | 1 | 2.6 | 4.2 | | 1 | | | | Perennial forb |
| *Sanicula tuberosa* | Torr. | Apiaceae | WI/IN | 1.3 | 3.75 | 3 | 1 | 0.7 | | | 1 | | 1 | 1 | Perennial forb |
| *Tauschia glauca* | (J. M. Coult. & Rose) Mathias & Constance | Apiaceae | BE/SI | 3.5 | 10.5 | 3 | 3 | 0.6 | 4.3 | | 1 | | | | Perennial forb |
| *Tauschia hartwegii* | (A. Gray) J. F. Macbr. | Apiaceae | WI/IN | 1.3 | 4 | 3 | 1 | 1.5 | | | | 1 | 1 | 1 | Perennial forb |
| *Tauschia howellii* | (J. M. Coult. & Rose) J. F. Macbr. | Apiaceae | WI | 2.3 | 7 | 3 | 1 | 3.2 | 1B.3 | 1 | | | | | Perennial forb |
| *Tauschia kelloggii* | (A. Gray) J. F. Macbr. | Apiaceae | SI | 2.6 | 12.8 | 5 | 2 | 2.2 | | | 1 | | 1 | 1 | Perennial forb |
| *Asclepias solanoana* | Woodson | Apocynaceae | SE | 6 | 42 | 7 | 6 | 0 | 4.2 | | 1 | | | | Perennial forb |
| *Agoseris heterophylla* | (Nutt.) Greene | Asteraceae | WI/IN | 1.4 | 4.1 | 3 | 1 | 1.5 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Ancistrocarphus filagineus* | A. Gray | Asteraceae | SI | 3.3 | 13 | 4 | 3 | 0.5 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Antennaria argentea* | Benth. | Asteraceae | WI | 1.9 | 7.75 | 4 | 0.8 | 2.7 | | 1 | 1 | | | | Perennial forb |
| *Antennaria sawyeri* | R.J. Bayer & Figura | Asteraceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | 1 | | | | | Perennial forb |
| *Antennaria suffrutescens* | Greene | Asteraceae | SE | 5.6 | 22.5 | 4 | 6 | 1 | 4.3 | 1 | 1 | | | | Perennial forb |
| *Arnica cernua* | Howell | Asteraceae | SE | 6 | 24 | 4 | 6 | 0 | 4.3 | 1 | | | | | Perennial forb (rhiz.) |
| *Arnica spathulata* | Greene | Asteraceae | SE | 5.5 | 16.5 | 3 | 6 | 1.2 | 4.3 | 1 | | | | | Perennial forb (rhiz.) |
| *Balsamorhiza macrolepis* | W. M. Sharp | Asteraceae | SI | 2.5 | 15 | 6 | 2 | 1.1 | 1B.2 | | | 1 | | 1 | Perennial forb |
| *Balsamorhiza sericea* | W.A. Weber | Asteraceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.3 | 1 | | | | | Perennial forb |
| *Benitoa occidentalis* | (H. M. Hall) D. D. Keck | Asteraceae | BE/SI | 4.1 | 16.5 | 4 | 4 | 1.8 | 4.3 | | | | 1 | | Annual forb |
| *Brickellia greenei* | A. Gray | Asteraceae | BE/SI | 3.7 | 11 | 3 | 4 | 0.6 | | 1 | 1 | | | 1 | Perennial forb |
| *Cacaliopsis nardosmia* | (A. Gray) A. Gray | Asteraceae | WI/IN | 1.3 | 4 | 3 | 2 | 1.2 | | 1 | 1 | | | | Perennial forb |
| *Calycadenia multiglandulosa* | DC. | Asteraceae | SI | 3.1 | 15.5 | 5 | 3 | 1.2 | | | 1 | 1 | 1 | 1 | Annual forb |
| *Calycadenia oppositifolia* | (Greene) Greene | Asteraceae | SI | 2.6 | 18 | 7 | 2 | 1.6 | 4.2 | | | | | 1 | Annual forb |
| *Calycadenia pauciflora* | A. Gray | Asteraceae | BE | 5.3 | 21 | 4 | 5.5 | 1 | | | 1 | | | | Annual forb |
| *Calycadenia truncata* | DC. | Asteraceae | WI | 2.1 | 12.5 | 6 | 2.5 | 1.1 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Chaenactis glabriuscula* var. *glabriuscula* | DC. | Asteraceae | WI | 1.7 | 5.1 | 3 | 2 | 1.5 | | | | 1 | 1 | 1 | Perennial forb |
| *Chaenactis glabriuscula* var. *heterocarpha* | DC. | Asteraceae | SI | 2.5 | 10 | 4 | 2.5 | 0.6 | | | 1 | 1 | 1 | 1 | Annual forb |
| *Chaenactis suffrutescens* | A. Gray | Asteraceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.3 | 1 | | | | | Perennial forb |
| *Cirsium andrewsii* | (A. Gray) Jeps. | Asteraceae | WI | 1.7 | 5 | 3 | 2 | 0.9 | 1B.2 | | | 1 | | | Perennial forb |
| *Cirsium cymosum* | (Greene) J. T. Howell | Asteraceae | SI | 3 | 12 | 4 | 2 | 2 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Cirsium douglasii* var. *breweri* | DC. | Asteraceae | SI | 3 | 12 | 4 | 3 | 1.6 | | 1 | 1 | | | 1 | Perennial forb |
| *Cirsium fontinale* var. *campylon* | (Greene) Jeps. | Asteraceae | SE | 5.9 | 29.5 | 5 | 6 | 0.4 | 1B.2 | | | 1 | 1 | | Perennial forb |
| *Cirsium fontinale* var. *fontinale* | (Greene) Jeps. | Asteraceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.1 | | | 1 | 1 | | Perennial forb |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Cirsium fontinale* var. *obispoense* | (Greene) Jeps. | Asteraceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.2 | | | | 1 | | Perennial forb |
| *Cirsium hydrophilum* var. *vaseyi* | (Greene) Jeps. | Asteraceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.2 | | 1 | 1 | | | Perennial forb |
| *Cirsium remotifolium* | (Hook.) DC. | Asteraceae | WI/IN | 1 | 3.1 | 3 | 1 | 1 | | 1 | 1 | 1 | | | Perennial forb |
| *Corethrogyne filaginifolia* | (Hook. & Arn.) Nutt. | Asteraceae | WI/IN | 1.3 | 4 | 3 | 1 | 1.5 | | 1 | 1 | 1 | 1 | 1 | Perennial forb, Shrub |
| *Crepis pleurocarpa* | A. Gray | Asteraceae | WI | 2 | 10 | 5 | 2 | 0.7 | | 1 | 1 | | | 1 | Perennial forb |
| *Deinandra halliana* | (D. D. Keck) B. G. Baldwin | Asteraceae | SI | 3 | 12 | 4 | 3 | 2.4 | 1B.2 | | | | 1 | | Annual forb |
| *Ericameria arborescens* | (A. Gray) Greene | Asteraceae | WI/IN | 1.3 | 4 | 3 | 1 | 1.5 | | 1 | 1 | | 1 | 1 | Shrub |
| *Ericameria greenei* | (A. Gray) G. L. Nesom | Asteraceae | WI | 2 | 8.1 | 4 | 1.5 | 2.1 | | 1 | 1 | | | 1 | Shrub |
| *Ericameria nauseosa* var. *oreophila* | (Pall. ex Pursh) G. L. Nesom & G. I. Baird | Asteraceae | WI | 1.8 | 8.85 | 5 | 2 | 1.5 | | 1 | 1 | | | 1 | Shrub |
| *Ericameria ophitidis* | (J. T. Howell) G. L. Nesom | Asteraceae | SE | 5.5 | 38.5 | 7 | 6 | 1 | 4.3 | 1 | 1 | | | | Shrub |
| *Erigeron bloomeri* var. *nudatus* | A. Gray | Asteraceae | SE | 6 | 18 | 3 | 6 | 0 | 2B.3 | 1 | | | | | Perennial forb |
| *Erigeron cervinus* | Greene | Asteraceae | SI | 3.3 | 10 | 3 | 4 | 3.1 | 4.3 | 1 | | | | | Perennial forb (rhiz.) |
| *Erigeron foliosus* var. *confinis* | Nutt. | Asteraceae | BE/SI | 3.7 | 11 | 3 | 3 | 1.2 | | 1 | | | | | Perennial forb |
| *Erigeron greenei* | G. L. Nesom | Asteraceae | BE | 4.8 | 24 | 5 | 4 | 1.1 | 1B.2 | | 1 | | | | Perennial forb |
| *Erigeron lassenianus* var. *deficiens* | Greene | Asteraceae | WI | 1.7 | 5 | 3 | 2 | 1.5 | 1B.3 | | | | | 1 | Perennial forb |
| *Erigeron petrophilus* var. *sierrensis* | Greene | Asteraceae | BE | 4.8 | 28.5 | 6 | 6 | 2.1 | 4.3 | | | | | 1 | Perennial forb (rhiz.) |
| *Erigeron petrophilus* var. *viscidulus* | Greene | Asteraceae | WI | 2.4 | 9.5 | 4 | 2 | 0.5 | 4.3 | 1 | | | | | Perennial forb (rhiz.) |
| *Erigeron reductus* | (Cronquist) G. L. Nesom | Asteraceae | WI | 2 | 8 | 4 | 2 | 1.6 | | 1 | 1 | | | 1 | Perennial forb |
| *Erigeron robustior* | (Cronquist) G. L. Nesom | Asteraceae | WI | 1.5 | 4.5 | 3 | 2 | 1.2 | 4.3 | | 1 | | | | Perennial forb |
| *Erigeron serpentinus* | G. L. Nesom | Asteraceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.3 | | 1 | | | | Perennial forb |
| *Eriophyllum confertiflorum* var. *tanacetiflorum* | (DC.) A. Gray | Asteraceae | WI | 1.9 | 3.75 | 2 | 1.9 | - | 4.3 | | | | | 1 | Shrub |
| *Eriophyllum jepsonii* | Greene | Asteraceae | BE/SI | 3.5 | 17.5 | 5 | 3 | 1.5 | 4.3 | | | 1 | 1 | | Shrub |
| *Eriophyllum lanatum* var. *achilleoides* | (Pursh) J. Forbes | Asteraceae | WI | 2.3 | 7 | 3 | 2 | 0.6 | | 1 | 1 | 1 | 1 | 1 | Shrub |
| *Eriophyllum lanatum* var. *lanceolatum* | (Pursh) J. Forbes | Asteraceae | WI | 1.7 | 5 | 3 | 2 | 1.5 | | 1 | 1 | | | | Shrub |
| *Eriophyllum latilobum* | Rydb. | Asteraceae | SE | 5.5 | 16.5 | 3 | 6 | 1.2 | 1B.1 | | | 1 | 1 | | Shrub |
| *Grindelia camporum* | Greene | Asteraceae | WI | 1.8 | 5.25 | 3 | 2 | 1.4 | | | 1 | | | 1 | Perennial forb |
| *Grindelia hirsutula* | Hook. & Arn. | Asteraceae | WI/IN | 1.4 | 8.3 | 6 | 1 | 1 | | | | 1 | 1 | | Perennial forb |
| *Gutierrezia californica* | (DC.) Torr. & A. Gray | Asteraceae | WI | 1.8 | 5.25 | 3 | 2 | 1.4 | CBR | | 1 | 1 | 1 | | Perennial forb, Shrub |
| *Harmonia doris-nilesiae* | (T. W. Nelson & J. P. Nelson) B. G. Baldwin | Asteraceae | BE | 5.4 | 32.5 | 6 | 5.5 | 0.8 | 1B.1 | 1 | | | | | Annual forb |
| *Harmonia guggolziorum* | B. G. Baldwin | Asteraceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.1 | | 1 | | | | Annual forb |
| *Harmonia hallii* | (D. D. Keck) B. G. Baldwin | Asteraceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.2 | | 1 | | | | Annual forb |
| *Harmonia stebbinsii* | (T. W. Nelson & J. P. Nelson) B. G. Baldwin | Asteraceae | SE | 6 | 42 | 7 | 6 | 0 | 1B.2 | | 1 | | | | Annual forb |
| *Hazardia stenolepis* | (H. M. Hall) Hoover | Asteraceae | WI | 2 | 6.1 | 3 | 3 | 1.7 | CBR | | | | 1 | | Shrub (stem succulent) |
| *Hazardia whitneyi* var. *discoidea* | (A. Gray) Greene | Asteraceae | WI | 1.9 | 5.75 | 3 | 2 | 1.1 | | 1 | | | | | Perennial forb, Shrub |
| *Hazardia whitneyi* var. *whitneyi* | (A. Gray) Greene | Asteraceae | WI/IN | 1 | 2 | 2 | 1 | - | | | | | | 1 | Perennial forb, shrub |
| *Helenium bigelovii* | A. Gray | Asteraceae | SI | 2.9 | 11.5 | 4 | 2.5 | 2.3 | | 1 | 1 | | 1 | 1 | Perennial forb |
| *Helianthus exilis* | A. Gray | Asteraceae | SE | 5.7 | 45.5 | 8 | 6 | 1.1 | 4.2 | 1 | 1 | | 1 | 1 | Annual, Perennial forb |
| *Hemizonia congesta* ssp. *calyculata* | DC. | Asteraceae | WI | 1.5 | 4.5 | 3 | 2 | 1.2 | 4.3 | | 1 | | | | Annual forb |
| *Hemizonia congesta* ssp. *congesta* | DC. | Asteraceae | WI/IN | 1.3 | 4 | 3 | 2 | 1.2 | 1B.2 | | 1 | 1 | 1 | | Annual forb |
| *Hemizonia congesta* ssp. *tracyi* | DC. | Asteraceae | WI | 1.8 | 5.25 | 3 | 2 | 0.7 | 4.3 | | 1 | | | | Annual forb |
| *Hesperevax sparsiflora* var. *sparsiflora* | (A. Gray) Greene | Asteraceae | WI | 1.8 | 7.25 | 4 | 1.5 | 1.6 | | | 1 | 1 | 1 | | Annual forb |
| *Heterotheca oregona* var. *oregona* | (Nutt.) Shinners | Asteraceae | WI | 2 | 6 | 3 | 3 | 1.7 | | 1 | 1 | | 1 | | Perennial forb |
| *Hieracium bolanderi* | A. Gray | Asteraceae | BE/SI | 3.8 | 15 | 4 | 4.5 | 2.6 | | 1 | 1 | | | | Perennial forb |
| *Hieracium greenei* | A. Gray | Asteraceae | WI | 2.2 | 6.5 | 3 | 3 | 1.4 | | 1 | 1 | | | | Perennial forb |
| *Lagophylla glandulosa* | A. Gray | Asteraceae | WI | 2 | 6.1 | 3 | 3 | 1.7 | | | 1 | | | 1 | Annual forb |
| *Lagophylla minor* | (D. D. Keck) D. D. Keck | Asteraceae | BE | 4.7 | 23.5 | 5 | 5 | 1.7 | CBR | | 1 | | | 1 | Annual forb |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Layia discoidea* | D. D. Keck | Asteraceae | SE | 5.7 | 28.5 | 5 | 6 | 0.8 | 1B.1 | | | | 1 | | Annual forb |
| *Layia jonesii* | A. Gray | Asteraceae | BE/SI | 3.5 | 10.5 | 3 | 3 | 0.6 | 1B.2 | | | | 1 | | Annual forb |
| *Layia septentrionalis* | D. D. Keck | Asteraceae | SI | 3.2 | 19 | 6 | 3.5 | 1.4 | 1B.2 | | 1 | | | | Annual forb |
| *Leptosyne stillmanii* | A. Gray | Asteraceae | SI | 2.7 | 8 | 3 | 3 | 0.6 | | | 1 | | 1 | 1 | Annual forb |
| *Lessingia arachnoidea* | Greene | Asteraceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | | 1 | | | Annual forb |
| *Lessingia hololeuca* | Greene | Asteraceae | SI | 2.5 | 7.5 | 3 | 3 | 1.2 | 3 | | 1 | 1 | | | Annual forb |
| *Lessingia micradenia* var. *glabrata* | Greene | Asteraceae | BE | 5.1 | 30.5 | 6 | 5.5 | 1.3 | 1B.2 | | | 1 | | | Annual forb |
| *Lessingia micradenia* var. *micradenia* | Greene | Asteraceae | BE | 5.3 | 31.5 | 6 | 5.5 | 1 | 1B.2 | | | 1 | | | Annual forb |
| *Lessingia nemaclada* | Greene | Asteraceae | WI | 2 | 6 | 3 | 2 | 1 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Lessingia ramulosa* | A. Gray | Asteraceae | BE | 5.4 | 27 | 5 | 6 | 1.3 | | | 1 | | | 1 | Annual forb |
| *Luina hypoleuca* | Benth. | Asteraceae | WI/IN | 1.4 | 4.25 | 3 | 2 | 1 | | 1 | 1 | 1 | | | Perennial forb |
| *Madia exigua* | (Sm.) A. Gray | Asteraceae | WI | 1.8 | 7.25 | 4 | 2 | 1.4 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Malacothrix clevelandii* | A. Gray | Asteraceae | SI | 3 | 9.1 | 3 | 3 | 3 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Malacothrix floccifera* | (DC.) S. F. Blake | Asteraceae | WI | 2.1 | 6.25 | 3 | 3 | 1.6 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Micropus amphibolus* | A. Gray | Asteraceae | WI | 2.4 | 7.25 | 3 | 1 | 3.1 | 3.2 | | 1 | 1 | 1 | | Annual forb |
| *Microseris douglasii* | (DC.) Sch. Bip. | Asteraceae | WI/IN | 1.3 | 4 | 3 | 1 | 0.6 | | | 1 | 1 | 1 | 1 | Annual forb |
| *Monolopia gracilens* | A. Gray | Asteraceae | WI | 2.4 | 4.75 | 2 | 2.4 | - | 1B.2 | | | 1 | 1 | | Annual forb |
| *Packera clevelandii* | (Greene) W. A. Weber & Á. Löve | Asteraceae | SE | 5.8 | 46.5 | 8 | 6 | 0.7 | | | 1 | | | | Perennial forb |
| *Packera eurycephala* var. *eurycephala* | (Torr. & A. Gray) W.A. Weber & Á. Löve | Asteraceae | BE/SI | 3.8 | 15 | 4 | 3 | 1.5 | | 1 | 1 | | | | Perennial forb |
| *Packera eurycephala* var. *lewisrosei* | (Torr. & A. Gray) W.A. Weber & Á. Löve | Asteraceae | SE | 5.8 | 40.5 | 7 | 6 | 0.8 | 1B.2 | | | | | 1 | Perennial forb |
| *Packera greenei* | (A. Gray) W. A. Weber & Á. Löve | Asteraceae | BE | 5.3 | 32 | 6 | 6 | 1.6 | | 1 | 1 | | | | Perennial forb |
| *Packera layneae* | (Greene) W. A. Weber & Á. Löve | Asteraceae | BE | 4.9 | 29.5 | 6 | 5 | 1.3 | | | | | | 1 | Perennial forb |
| *Packera macounii* | (Greene) W. A. Weber & Á. Löve | Asteraceae | BE | 5.1 | 20.5 | 4 | 6 | 2 | 4.3 | 1 | | | | | Perennial forb |
| *Pentachaeta bellidiflora* | Greene | Asteraceae | WI | 2.4 | 7.25 | 3 | 3 | 1.3 | 1B.1 | | | 1 | | | Annual forb |
| *Pyrrocoma racemosa* var. *congesta* | (Nutt.) Torr. & A. Gray | Asteraceae | SE | 6 | 18 | 3 | 6 | 0 | 2B.3 | 1 | | | | | Perennial forb |
| *Pyrrocoma racemosa* var. *pinetorum* | (Nutt.) Torr. & A. Gray | Asteraceae | BE/SI | 4 | 16 | 4 | 4.5 | 2.4 | 4.2 | 1 | | | | | Perennial forb |
| *Pyrrocoma racemosa* var. *racemosa* | (Nutt.) Torr. & A. Gray | Asteraceae | WI | 1.7 | 5 | 3 | 1 | 2.1 | | | 1 | 1 | 1 | | Perennial forb |
| *Raillardella pringlei* | Greene | Asteraceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.2 | 1 | | | | | Perennial forb |
| *Rigiopappus leptocladus* | A. Gray | Asteraceae | WI | 1.9 | 7.5 | 4 | 2 | 1.3 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Rudbeckia glaucescens* | Eastw. | Asteraceae | BE | 5.3 | 21 | 4 | 6 | 1.5 | | 1 | 1 | | | | Perennial forb |
| *Rudbeckia klamathensis* | P. B. Cox & Urbatsch | Asteraceae | BE | 5 | 10 | 2 | 5 | - | | 1 | | | | | Perennial forb |
| *Sericocarpus oregonensis* | Nutt. | Asteraceae | WI/IN | 1.1 | 3.25 | 3 | 1 | 0.9 | | 1 | 1 | | | 1 | Perennial forb |
| *Solidago guiradonis* | A. Gray | Asteraceae | SE | 6 | 18 | 3 | 6 | 0 | 4.3 | | | | 1 | | Perennial forb |
| *Solidago multiradiata* | Aiton | Asteraceae | WI/IN | 1.1 | 2.1 | 2 | 1.1 | - | | 1 | | | | 1 | Perennial forb |
| *Stebbinsoseris decipiens* | (K. L. Chambers) K. L. Chambers | Asteraceae | WI | 1.8 | 5.5 | 3 | 2 | 0.6 | 1B.2 | | | 1 | 1 | | Annual forb |
| *Wyethia bolanderi* | (A. Gray) W. A. Weber | Asteraceae | WI | 1.5 | 3 | 2 | 1.5 | - | | | | | | 1 | Perennial forb |
| *Berberis aquifolium* var. *aquifolium* | Pursh | Berberidaceae | WI | 1.6 | 4.75 | 3 | 1 | 1.2 | | 1 | 1 | | | 1 | Shrub |
| *Berberis aquifolium* var. *repens* | Pursh | Berberidaceae | WI | 1.7 | 5 | 3 | 1 | 1.2 | | 1 | 1 | | | 1 | Shrub |
| *Vancouveria chrysantha* | Greene | Berberidaceae | SE | 6 | 18 | 3 | 6 | 0 | 4.3 | 1 | 1 | | | | Perennial forb (rhiz.) |
| *Vancouveria planipetala* | Calloni | Berberidaceae | WI | 1.7 | 5 | 3 | 1 | 1.2 | | 1 | 1 | 1 | 1 | | Perennial forb (rhiz.) |
| *Cryptantha dissita* | I. M. Johnst. | Boraginaceae | BE/SI | 4.4 | 17.5 | 4 | 4.5 | 2.1 | 1B.2 | | 1 | | | | Annual forb |
| *Cryptantha excavata* | Brandegee | Boraginaceae | WI | 1.5 | 3 | 2 | 1.5 | - | 1B.1 | | 1 | | | | Annual forb |
| *Cryptantha flaccida* | (Lehm.) Greene | Boraginaceae | WI | 1.6 | 4.75 | 3 | 2 | 0.7 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Cryptantha hispidula* | Brand | Boraginaceae | SE | 6 | 24 | 4 | 6 | 0 | CBR | 1 | 1 | | | | Annual forb |
| *Cryptantha intermedia* var. *intermedia* | (A. Gray) Greene | Boraginaceae | WI/IN | 1.4 | 4.1 | 3 | 1 | 1.5 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Cryptantha mariposae* | I. M. Johnst. | Boraginaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.3 | | | | | 1 | Annual forb |
| *Cryptantha milobakeri* | I.M. Johnston | Boraginaceae | SI | 3.3 | 9.75 | 3 | 3 | 2.6 | | 1 | 1 | | | 1 | Annual forb |
| *Emmenanthe penduliflora* var. *penduliflora* | Benth. | Boraginaceae | WI | 1.8 | 7 | 4 | 2 | 0.5 | | | 1 | 1 | 1 | 1 | Annual forb |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Emmenanthe penduliflora* var. *rosea* | Benth. | Boraginaceae | BE/SI | 4.3 | 17 | 4 | 4.5 | 1.7 | | | | 1 | 1 | | Annual forb |
| *Hackelia bella* | (J. F. Macbr.) I. M. Johnst. | Boraginaceae | WI/IN | 1.3 | 4 | 3 | 1 | 1.5 | CBR | 1 | 1 | | | | Perennial forb |
| *Howellanthus dalesianus* | (J.T.Howell) Walden & R.Patt. | Boraginaceae | SE | 6 | 30 | 5 | 6 | 0 | 4.3 | 1 | | | | | Perennial forb |
| *Pectocarya pusilla* | (A. DC.) A. Gray | Boraginaceae | WI/IN | 1.3 | 2.5 | 2 | 1.3 | - | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Phacelia breweri* | A. Gray | Boraginaceae | SE | 5.5 | 11 | 2 | 5.5 | - | | | | 1 | 1 | | Annual forb |
| *Phacelia californica* | Cham. | Boraginaceae | WI/IN | 1.4 | 4.25 | 3 | 1 | 1.4 | | | 1 | 1 | 1 | | Perennial forb |
| *Phacelia corymbosa* | Jeps. | Boraginaceae | SE | 5.5 | 33 | 6 | 6 | 0.8 | | 1 | 1 | | | | Perennial forb |
| *Phacelia distans* | Benth. | Boraginaceae | WI/IN | 1.1 | 2.1 | 2 | 1.1 | - | | | 1 | 1 | 1 | | Annual forb |
| *Phacelia divaricata* | (Benth.) A. Gray | Boraginaceae | WI | 2.3 | 7 | 3 | 3 | 1.2 | | | 1 | 1 | 1 | | Annual forb |
| *Phacelia egena* | (Brand) J. T. Howell | Boraginaceae | WI | 2.1 | 6.25 | 3 | 3 | 1.6 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Phacelia greenei* | J. T. Howell | Boraginaceae | SE | 6 | 36 | 6 | 6 | 0 | 1B.2 | 1 | | | | | Annual forb |
| *Phacelia imbricata* var. *imbricata* | Greene | Boraginaceae | WI | 1.7 | 5 | 3 | 1 | 1.2 | | | 1 | 1 | 1 | 1 | Perennial forb |
| *Phacelia leonis* | J. T. Howell | Boraginaceae | BE/SI | 3.9 | 27.5 | 7 | 4 | 1.1 | 1B.3 | 1 | | | | | Annual forb |
| *Phacelia phacelioides* | (Benth.) Brand | Boraginaceae | BE/SI | 4.2 | 12.5 | 3 | 6 | 3.2 | 1B.2 | | | 1 | 1 | | Annual forb |
| *Phacelia pringlei* | A. Gray | Boraginaceae | BE/SI | 4 | 12 | 3 | 4 | 1 | CBR | 1 | | | | | Annual forb |
| *Phacelia purpusii* | Brandegee | Boraginaceae | WI/IN | 1.1 | 2.1 | 2 | 1.1 | - | | | | | | 1 | Annual forb |
| *Arabis mcdonaldiana* | Eastw. | Brassicaceae | BE | 5.4 | 32.5 | 6 | 6 | 1 | 1B.1 | 1 | 1 | | | | Perennial forb |
| *Arabis oregana* | Rollins | Brassicaceae | BE/SI | 3.8 | 11.5 | 3 | 3 | 2.1 | 4.3 | 1 | 1 | | | | Perennial forb |
| *Boechera constancei* | (Rollins) Al-Shehbaz | Brassicaceae | SE | 5.9 | 41.5 | 7 | 6 | 0.4 | 1B.1 | | | | | 1 | Perennial forb |
| *Boechera koehleri* | (Howell) Al-Shehbaz | Brassicaceae | BE | 5.3 | 21 | 4 | 5.5 | 1 | 1B.3 | 1 | | | | | Perennial forb |
| *Boechera rollei* | (Rollins) Al-Shehbaz | Brassicaceae | SE | 6 | 12 | 2 | 6 | - | 1B.1 | 1 | | | | | Perennial forb |
| *Boechera serpenticola* | Windham & Al-Shehbaz | Brassicaceae | BE | 5.3 | 16 | 3 | 6 | 1.2 | 1B.2 | 1 | 1 | | | | Perennial forb |
| *Boechera subpinnatifida* | (S. Watson) Al-Shehbaz | Brassicaceae | WI | 2.3 | 9 | 4 | 2.5 | 1 | | 1 | 1 | | | | Perennial forb |
| *Cardamine nuttallii* | Greene | Brassicaceae | WI | 2 | 2 | 1 | | | | 1 | 1 | | | 1 | Perennial forb (rhiz.) |
| *Cardamine pachystigma* var. *dissectifolia* | (S. Watson) Rollins | Brassicaceae | SE | 5.5 | 60 | 11 | 6 | 0.9 | 1B.2 | | 1 | | | 1 | Perennial forb (rhiz.) |
| *Caulanthus flavescens* | (Hook.) Payson | Brassicaceae | WI | 2.3 | 9.25 | 4 | 2.5 | 1.6 | | | 1 | 1 | 1 | | Annual forb |
| *Draba aureola* | S. Watson | Brassicaceae | SI | 2.7 | 8 | 3 | 3 | 0.6 | 1B.3 | 1 | | | | | Perennial forb |
| *Draba carnosula* | O. E. Schulz | Brassicaceae | SE | 6 | 14 | 4 | 6 | 0 | 1B.3 | 1 | | | | | Perennial forb |
| *Draba howellii* | S. Watson | Brassicaceae | WI/IN | 1.4 | 4.25 | 3 | 1 | 1.4 | 4.3 | 1 | | | | | Perennial forb |
| *Erysimum franciscanum* | Rossbach | Brassicaceae | SI | 3 | 9 | 3 | 3 | 0 | 4.2 | | 1 | 1 | 1 | | Perennial forb |
| *Noccaea fendleri* ssp. *californica* | (A. Gray) Holub | Brassicaceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.1 | | 1 | | | | Perennial forb |
| *Noccaea fendleri* ssp. *glauca* | (A. Gray) Holub | Brassicaceae | BE/SI | 4.4 | 22 | 5 | 4 | 1.5 | | 1 | 1 | | | | Perennial forb |
| *Streptanthus barbatus* | S. Watson | Brassicaceae | SE | 5.6 | 28 | 5 | 6 | 0.5 | CBR | 1 | | | | | Perennial forb |
| *Streptanthus barbiger* | Greene | Brassicaceae | SE | 6 | 24 | 4 | 6 | 0 | 4.2 | | 1 | | | | Annual forb |
| *Streptanthus batrachopus* | J. L. Morrison | Brassicaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.3 | | 1 | 1 | | | Annual forb |
| *Streptanthus brachiatus* | F. W. Hoffm. | Brassicaceae | SE | 5.9 | 23.5 | 8 | 6 | 0.5 | | | 1 | | | | Annual, Perennial forb |
| *Streptanthus breweri* | A. Gray | Brassicaceae | SE | 5.7 | 40 | 7 | 6 | 0.8 | | 1 | 1 | 1 | 1 | | Annual forb |
| *Streptanthus drepanoides* | Kruckeb. & J. L. Morrison | Brassicaceae | SE | 6 | 36 | 6 | 6 | 0 | 4.3 | 1 | 1 | | | 1 | Annual forb |
| *Streptanthus glandulosus* ssp. *albidus* | Hook. | Brassicaceae | BE | 5.3 | 31.5 | 6 | 6 | 1.3 | | | | 1 | 1 | | Annual forb |
| *Streptanthus glandulosus* ssp. *glandulosus* | Hook. | Brassicaceae | BE/SI | 3.7 | 40.3 | 11 | 3 | 1.7 | | | 1 | 1 | 1 | | Annual forb |
| *Streptanthus glandulosus* ssp. *hoffmanii* | Hook. | Brassicaceae | SI | 3 | 3 | 1 | 3 | - | 1B.3 | | 1 | | | | Annual forb |
| *Streptanthus glandulosus* ssp. *niger* | Hook. | Brassicaceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.1 | | 1 | 1 | | | Annual forb |
| *Streptanthus glandulosus* ssp. *pulchellus* | Hook. | Brassicaceae | BE | 4.9 | 24.5 | 5 | 6 | 1.8 | | | 1 | 1 | | | Annual forb |
| *Streptanthus glandulosus* ssp. *secundus* | Hook. | Brassicaceae | SI | 3.3 | 20 | 6 | 3 | 1.5 | | | 1 | 1 | | | Annual forb |
| *Streptanthus glandulosus* ssp. *sonomensis* | Hook. | Brassicaceae | SE | 6 | 12 | 2 | 6 | - | | | 1 | | | | Annual forb |
| *Streptanthus hesperidis* | Jeps. | Brassicaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.2 | | 1 | | | | Annual forb |
| *Streptanthus howellii* | S. Watson | Brassicaceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.2 | 1 | | | | | Perennial forb |
| *Streptanthus insignis* ssp. *insignis* | Jeps. | Brassicaceae | BE/SI | 4 | 20 | 5 | 4 | 2.4 | | | | | 1 | | Annual forb |
| *Streptanthus insignis* ssp. *lyonii* | Jeps. | Brassicaceae | SI | 3.3 | 16.5 | 5 | 2 | 2.7 | 1B.2 | | | | 1 | | Annual forb |
| *Streptanthus morrisonii* | F. W. Hoffm. | Brassicaceae | SE | 6 | 110 | 18 | 6 | 0 | CBR | | 1 | | | | Annual, Perennial forb |
| *Streptanthus polygaloides* | A. Gray | Brassicaceae | SE | 5.7 | 28.5 | 5 | 6 | 0.9 | | | | | | 1 | Annual forb |
| *Streptanthus vernalis* | R. O'Donnell & R. W. Dolan | Brassicaceae | SE | 6 | 12 | 2 | 6 | - | 1B.2 | | 1 | | | | Annual forb |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Streptanthus vimineus* | (Greene) Al-Shehbaz & D.W. Taylor | Brassicaceae | SE | 6 | 12 | 2 | 6 | - | | | 1 | | | | Annual forb |
| *Thelypodium brachycarpum* | Torr. | Brassicaceae | SI | 3.3 | 10 | 3 | 3 | 0.6 | 4.2 | 1 | 1 | | | | Annual, Perennial forb |
| *Campanula angustiflora* | Eastw. | Campanulaceae | BE/SI | 3.9 | 19.3 | 5 | 4 | 2.4 | | | 1 | 1 | | | Annual forb |
| *Campanula exigua* | Rattan | Campanulaceae | BE/SI | 3.9 | 19.5 | 5 | 4 | 1.5 | 1B.2 | | | 1 | 1 | | Annual forb |
| *Campanula griffinii* | Morin | Campanulaceae | SE | 6 | 18 | 3 | 6 | 0 | CBR | | 1 | 1 | 1 | | Annual forb |
| *Campanula rotundifolia* | L. | Campanulaceae | BE | 5 | 15 | 3 | 6 | 1.7 | | 1 | | | | | Perennial forb |
| *Campanula scabrella* | Engelm. | Campanulaceae | SI | 2.5 | 10 | 4 | 2.5 | 1.3 | 4.3 | 1 | | | | | Perennial forb (rhiz.) |
| *Campanula sharsmithiae* | Morin | Campanulaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | | 1 | 1 | | Annual forb |
| *Campanula wilkinsiana* | Greene | Campanulaceae | WI/IN | 1 | 5 | 5 | 0 | 1.7 | 1B.2 | 1 | | | | | Perennial forb (rhiz.) |
| *Githopsis diffusa* ssp. *candida* | A. Gray | Campanulaceae | WI/IN | 1 | 2 | 2 | 1 | - | CBR | | | | 1 | | Annual forb |
| *Githopsis pulchella* ssp. *campestris* | Vatke | Campanulaceae | WI | 1.6 | 3.25 | 2 | 1.6 | - | | | | | | 1 | Annual forb |
| *Githopsis pulchella* ssp. *serpentinicola* | Vatke | Campanulaceae | BE | 5.3 | 21 | 4 | 5.5 | 1 | 4.3 | | | | | 1 | Annual forb |
| *Githopsis pulchella* var. *glabra* | Vatke | Campanulaceae | BE/SI | 3.8 | 19 | 5 | 3 | 2 | | | | | | 1 | Annual forb |
| *Githopsis pulchella* var. *pulchella* | Vatke | Campanulaceae | WI/IN | 1 | 1 | 1 | 1 | - | | | | | | 1 | Annual forb |
| *Nemacladus montanus* | Greene | Campanulaceae | SE | 6 | 18 | 3 | 6 | 0 | CBR | | 1 | 1 | 1 | | Annual forb |
| *Cerastium arvense* ssp. *strictum* | L. | Caryophyllaceae | WI | 2.1 | 8.5 | 4 | 0.9 | 2.6 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Eremogone kingii* var. *glabrescens* | (S. Watson) Ikonn. | Caryophyllaceae | WI/IN | 1.4 | 4.1 | 3 | 2 | 1.1 | | | | | | 1 | Perennial forb |
| *Minuartia californica* | (A. Gray) Mattf. | Caryophyllaceae | WI | 1.7 | 5 | 3 | 2 | 1.5 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Minuartia cismontana* | Meinke & Zika | Caryophyllaceae | WI | 1.8 | 3.5 | 2 | 1.8 | - | | 1 | 1 | 1 | 1 | 1 | Annual, Perennial forb |
| *Minuartia decumbens* | T. W. Nelson & J. P. Nelson | Caryophyllaceae | SE | 6 | 24 | 4 | 6 | 0 | | 1 | 1 | | | | Perennial forb |
| *Minuartia douglasii* | (Fenzl ex Torr. & A. Gray) Mattf. | Caryophyllaceae | SI | 3 | 15 | 5 | 3 | 0.7 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Minuartia howellii* | (S. Watson) Mattf. | Caryophyllaceae | SE | 5.7 | 28.5 | 5 | 6 | 0.9 | | 1 | | | | | Perennial forb |
| *Minuartia nuttallii* var. *gregaria* | (Pax) Briq. | Caryophyllaceae | SI | 3.2 | 16 | 5 | 3 | 1.9 | | 1 | 1 | | | | Perennial forb |
| *Minuartia rosei* | (Maguire & Barneby) McNeill | Caryophyllaceae | SE | 6 | 30 | 5 | 6 | 0 | | 1 | 1 | | | | Perennial forb |
| *Minuartia stolonifera* | T. W. Nelson & J. P. Nelson | Caryophyllaceae | SE | 6 | 30 | 5 | 6 | 0 | | 1 | | | | | Perennial forb |
| *Moehringia macrophylla* | (Hook.) Fenzl | Caryophyllaceae | SI | 2.7 | 8 | 3 | 3 | 0.6 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Silene antirrhina* | L. | Caryophyllaceae | WI/IN | 1.1 | 3.25 | 3 | 1 | 0.9 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Silene campanulata* ssp. *campanulata* | S. Watson | Caryophyllaceae | BE | 5.3 | 31.5 | 6 | 5.5 | 1 | 4.2 | 1 | 1 | | | | Perennial forb |
| *Silene campanulata* ssp. *glandulosa* | S. Watson | Caryophyllaceae | BE/SI | 3.8 | 19 | 5 | 3 | 1.3 | | 1 | 1 | | | | Perennial forb |
| *Silene grayi* | S. Watson | Caryophyllaceae | WI | 1.8 | 5.5 | 3 | 2 | 1.3 | | 1 | | | | | Perennial forb |
| *Silene hookeri* | Nutt. | Caryophyllaceae | BE/SI | 3.5 | 7 | 2 | 3.5 | - | | 1 | 1 | | | | Perennial forb |
| *Silene salmonacea* | T. W. Nelson, J. P. Nelson, & S. A. Erwin | Caryophyllaceae | SI | 3 | 6 | 2 | 3 | - | 1B.2 | 1 | | | | | Perennial forb |
| *Silene serpentinicola* | T. W. Nelson & J. P. Nelson | Caryophyllaceae | SE | 6 | 6 | 1 | 6 | - | | 1 | | | | | Perennial forb (rhiz.) |
| *Crocanthemum scoparium* | (Nutt.) Millsp. | Cistaceae | WI/IN | 1 | 2 | 2 | 1 | - | | | | | | 1 | Shrub |
| *Calystegia collina* ssp. *collina* | (Greene) Brummitt | Convolvulaceae | BE | 4.7 | 33 | 7 | 6 | 1.6 | | | 1 | 1 | | | Perennial forb |
| *Calystegia collina* ssp. *oxyphylla* | (Greene) Brummitt | Convolvulaceae | SE | 5.6 | 33.5 | 6 | 6 | 1.2 | 4.2 | | 1 | | | | Perennial forb |
| *Calystegia collina* ssp. *tridactylosa* | (Greene) Brummitt | Convolvulaceae | BE | 4.5 | 18 | 4 | 4.5 | 1.7 | 1B.2 | | 1 | | | | Perennial forb |
| *Calystegia collina* ssp. *venusta* | (Greene) Brummitt | Convolvulaceae | BE | 4.9 | 24.5 | 5 | 5 | 1.3 | 4.3 | | | | 1 | | Perennial forb |
| *Calystegia malacophylla* | (Greene) Munz | Convolvulaceae | WI | 1.5 | 4.5 | 3 | 1 | 1.3 | | | | 1 | 1 | 1 | Perennial forb |
| *Calystegia vanzuukiae* | Brummitt & Namoff | Convolvulaceae | BE | 5 | 15 | 3 | 5 | 0 | 1B.3 | | | | | 1 | Perennial forb |
| *Convolvulus simulans* | L. M. Perry | Convolvulaceae | BE/SI | 3.7 | 14.8 | 4 | 4 | 2.4 | 4.2 | | | 1 | 1 | | Annual forb |
| *Dudleya abramsii* ssp. *bettinae* | Rose | Crassulaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | | | 1 | | Perennial forb |
| *Dudleya abramsii* ssp. *murina* | Rose | Crassulaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.3 | | | | 1 | | Perennial forb |
| *Dudleya abramsii* ssp. *setchellii* | Rose | Crassulaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.1 | | | 1 | 1 | | Perennial forb |
| *Dudleya blochmaniae* ssp. *blochmaniae* | (Eastw.) Moran | Crassulaceae | SI | 3.2 | 9.5 | 3 | 3 | 0 | 1B.1 | | | | 1 | | Perennial forb |
| *Sedella pentandra* | H. Sharsm. | Crassulaceae | WI | 2 | 8.1 | 4 | 1.5 | 2.1 | | | 1 | 1 | 1 | | Annual forb |
| *Sedella pumila* | (Benth.) Britton & Rose | Crassulaceae | WI | 1.7 | 5.1 | 3 | 2 | 1.5 | | | 1 | | | 1 | Annual forb |
| *Sedum albomarginatum* | R. T. Clausen | Crassulaceae | SE | 5.9 | 47 | 8 | 6 | 0.4 | 1B.2 | | | | | 1 | Perennial forb |
| *Sedum citrinum* | Zika | Crassulaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | 1 | | | | | Perennial forb |
| *Sedum eastwoodiae* | (Britton) A. Berger | Crassulaceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.2 | | 1 | | | | Perennial forb |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Sedum flavidum* | B.L. Wilson & Zika | Crassulaceae | SI | 3 | 18 | 6 | 3 | 0.6 | 4.3 | 1 | 1 | | | | Perennial forb |
| *Sedum kiersteadiae* | B.L. Wilson & R.E. Brainerd | Crassulaceae | SI | 3.3 | 10 | 3 | 3 | 0.6 | 1B.2 | 1 | | | | | Perennial forb |
| *Sedum laxum* ssp. *heckneri* | (Britton) A. Berger | Crassulaceae | SI | 3.3 | 10 | 3 | 3 | 0.6 | 4.3 | 1 | 1 | | | | Perennial forb |
| *Sedum laxum* ssp. *laxum* | (Britton) A. Berger | Crassulaceae | BE | 4.8 | 23 | 5 | 5 | 0.8 | | 1 | 1 | | | | Perennial forb |
| *Sedum patens* | Zika | Crassulaceae | SE | 6 | 6 | 1 | 6 | - | | 1 | | | | | Perennial forb |
| *Sedum radiatum* | S. Watson | Crassulaceae | WI | 2 | 6 | 3 | 2 | 2 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Sedum rubiginosum* | Zika & B.L. Wilson | Crassulaceae | SE | 6 | 6 | 1 | 6 | - | | | 1 | | | | Perennial forb |
| *Calocedrus decurrens* | (Torr.) Florin | Cupressaceae | SI | 3 | 9 | 3 | 3 | 0 | | 1 | 1 | 1 | 1 | 1 | Tree |
| *Chamaecyparis lawsoniana* | (A. Murray bis) Parl. | Cupressaceae | SI | 3 | 15 | 5 | 3 | 0.7 | CBR | 1 | 1 | | | | Tree |
| *Hesperocyparis bakeri* | (Jeps.) Bartel | Cupressaceae | SI | 2.6 | 13 | 5 | 3 | 0.5 | 4.2 | 1 | | | | 1 | Tree |
| *Hesperocyparis macnabiana* | (A. Murray bis) Bartel | Cupressaceae | BE | 4.7 | 28 | 6 | 4.5 | 1.2 | | | 1 | | | 1 | Tree |
| *Hesperocyparis sargentii* | (Jeps.) Bartel | Cupressaceae | BE | 4.9 | 34 | 7 | 5 | 1.2 | | | 1 | 1 | 1 | | Tree |
| *Juniperus communis* var. *jackii* | L. | Cupressaceae | BE/SI | 4 | 8 | 2 | 4 | - | CBR | 1 | | | | | Shrub |
| *Calliscirpus criniger* | (A. Gray) C.N. Gilmour, J.R. Starr, & Naczi | Cyperaceae | WI | 1.7 | 5 | 3 | 1 | 2.1 | | 1 | 1 | | | 1 | Perennial gram. |
| *Carex brainerdii* | Mack. | Cyperaceae | WI/IN | 1.4 | 4.25 | 3 | 2 | 1 | | 1 | 1 | | 1 | 1 | Perennial gram. (rhiz.) |
| *Carex concinnoides* | Mack. | Cyperaceae | BE/SI | 4 | 8 | 2 | 4 | - | | 1 | 1 | | | | Perennial gram. (rhiz.) |
| *Carex hirtissima* | W. Boott | Cyperaceae | WI | 1.8 | 3.5 | 2 | 1.8 | - | | | 1 | | | 1 | Perennial gram. (cesp.) |
| *Carex klamathensis* | B.L. Wilson & Janeway | Cyperaceae | SE | 6 | 12 | 2 | 6 | - | 1B.2 | 1 | 1 | | | | Perennial gram. (rhiz.) |
| *Carex mendocinensis* | Olney ex W. Boott | Cyperaceae | BE/SI | 3.8 | 23 | 6 | 3.5 | 1.2 | | 1 | 1 | | | 1 | Perennial gram. (cesp.) |
| *Carex obispoensis* | Stacey | Cyperaceae | BE | 4.9 | 24.5 | 5 | 6 | 1.6 | 1B.2 | | | | 1 | | Perennial gram. (cesp.) |
| *Carex scabriuscula* | Mack. | Cyperaceae | SE | 6 | 12 | 2 | 6 | - | 4.3 | 1 | | | | 1 | Perennial gram. (rhiz.) |
| *Carex serpenticola* | Zika | Cyperaceae | SE | 5.5 | 11 | 2 | 5.5 | - | | 1 | | | | | Perennial gram. (rhiz.) |
| *Carex serratodens* | W. Boott | Cyperaceae | BE | 4.9 | 39 | 8 | 5 | 1.1 | | | 1 | 1 | 1 | 1 | Perennial gram. (cesp.) |
| *Carex spissa* | L. H. Bailey | Cyperaceae | SI | 2.8 | 8.25 | 3 | 2 | 2.9 | | | | | 1 | | Perennial gram. (rhiz.) |
| *Carex xerophila* | Janeway & Zika | Cyperaceae | WI | 1.7 | 5 | 3 | 2 | 0.6 | | | | | | 1 | Perennial gram. (cesp.) |
| *Polystichum lemmonii* | Underw. | Dryopteridaceae | SE | 6 | 24 | 4 | 6 | 0 | | 1 | 1 | | | 1 | Perennial forb (rhiz.) |
| *Polystichum scopulinum* | (D. C. Eaton) Maxon | Dryopteridaceae | WI | 1.7 | 5.1 | 3 | 2 | 1.5 | | 1 | 1 | | | 1 | Perennial forb (rhiz.) |
| *Arctostaphylos bakeri* ssp. *bakeri* | Eastw. | Ericaceae | SE | 5.5 | 27.5 | 5 | 6 | 1.3 | 1B.1 | | 1 | | | | Shrub |
| *Arctostaphylos bakeri* ssp. *sublaevis* | Eastw. | Ericaceae | SE | 6 | 12 | 2 | 6 | - | 1B.2 | | 1 | | | | Shrub |
| *Arctostaphylos canescens* ssp. *sonomensis* | Eastw. | Ericaceae | SI | 2.5 | 12.5 | 5 | 3 | 1.5 | CBR | 1 | 1 | | | | Shrub |
| *Arctostaphylos franciscana* | Eastw. | Ericaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.1 | | | 1 | 1 | | Shrub |
| *Arctostaphylos hispidula* | Howell | Ericaceae | BE | 4.5 | 22.5 | 5 | 4 | 1.1 | 4.2 | 1 | 1 | | | | Shrub |
| *Arctostaphylos klamathensis* | S. W. Edwards, Keeler-Wolf & W. Knight | Ericaceae | BE/SI | 3.9 | 19.5 | 5 | 4 | 1.8 | 1B.2 | 1 | | | | | Shrub |
| *Arctostaphylos montana* ssp. *montana* | Eastw. | Ericaceae | BE | 4.9 | 19.5 | 4 | 4.5 | 1 | 1B.3 | | | 1 | 1 | | Shrub |
| *Arctostaphylos montana* ssp. *ravenii* | Eastw. | Ericaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.1 | | | 1 | 1 | | Shrub |
| *Arctostaphylos nortensis* | (P. V. Wells) P. V. Wells | Ericaceae | SI | 2.8 | 5.5 | 2 | 2.5 | - | 4.3 | 1 | | | | | Shrub |
| *Arctostaphylos obispoensis* | Eastw. | Ericaceae | SE | 5.7 | 28.5 | 5 | 6 | 0.9 | 4.3 | | | | 1 | | Shrub |
| *Arctostaphylos stanfordiana* ssp. *raichei* | Parry | Ericaceae | SI | 2.6 | 10.5 | 4 | 3 | 1.7 | 1B.1 | | 1 | | | | Shrub |
| *Arctostaphylos viscida* ssp. *pulchella* | Parry | Ericaceae | BE | 5 | 25 | 5 | 5 | 1 | | 1 | 1 | | | | Shrub |
| *Arctostaphylos viscida* ssp. *viscida* | Parry | Ericaceae | WI | 2.2 | 10.8 | 5 | 3 | 1.2 | | 1 | | | | 1 | Shrub |
| *Pyrola dentata* | Sm. | Ericaceae | WI | 2 | 6 | 3 | 3 | 1.7 | | 1 | 1 | | | | Perennial forb (rhiz.) |
| *Vaccinium coccineum* | Piper | Ericaceae | BE/SI | 3.5 | 3.5 | 1 | 3 | - | 3.3 | 1 | | | | | Shrub |
| *Acmispon junceus* var. *junceus* | (Benth.) Brouillet | Fabaceae | WI | 1.5 | 3 | 2 | 1.5 | - | | | | | 1 | | Perennial forb |
| *Astragalus breweri* | A. Gray | Fabaceae | SI | 3.2 | 15.8 | 5 | 3 | 2 | 4.2 | | 1 | 1 | | | Annual forb |
| *Astragalus claranus* | Jeps. | Fabaceae | SI | 3 | 6 | 2 | 3 | - | | | 1 | | | | Annual forb |
| *Astragalus clevelandii* | Greene | Fabaceae | SE | 6 | 24 | 4 | 6 | 0 | 4.3 | | 1 | | 1 | | Perennial forb |
| *Astragalus curtipes* | A. Gray | Fabaceae | WI | 1.8 | 3.5 | 2 | 1.8 | - | CBR | | | | 1 | | Perennial forb |
| *Astragalus macrodon* | (Hook. & Arn.) A. Gray | Fabaceae | WI/IN | 1.3 | 3.75 | 3 | 1 | 0.7 | 4.3 | | | | 1 | | Perennial forb |
| *Astragalus rattanii* var. *jepsonianus* | A. Gray | Fabaceae | BE/SI | 4.3 | 25.5 | 6 | 4 | 1.2 | 1B.2 | | 1 | | | | Annual forb |
| *Astragalus whitneyi* var. *siskiyouensis* | A. Gray | Fabaceae | BE | 4.6 | 23 | 5 | 5 | 1.1 | | 1 | 1 | | | | Perennial forb |
| *Hoita strobilina* | (Hook. & Arn.) Rydb. | Fabaceae | SI | 2.5 | 5 | 2 | 2.5 | - | 1B.1 | | | 1 | | | Perennial forb |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Lathyrus biflorus* | T. W. Nelson & J. P. Nelson | Fabaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.1 | | 1 | | | | Perennial forb |
| *Lathyrus delnorticus* | C. L. Hitchc. | Fabaceae | BE | 5.3 | 10.5 | 2 | 5 | - | 4.3 | 1 | | | | | Perennial forb |
| *Lathyrus vestitus* var. *vestitus* | Nutt. | Fabaceae | WI | 1.8 | 7.2 | 4 | 0.6 | 2.8 | | | 1 | 1 | 1 | | Perennial forb |
| *Lupinus constancei* | T. W. Nelson & J. P. Nelson | Fabaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.1 | | 1 | | | | Perennial forb |
| *Lupinus croceus* | Eastw. | Fabaceae | BE/SI | 4 | 12 | 3 | 4 | 0 | | 1 | | | | | Perennial forb |
| *Lupinus lapidicola* | A. Heller | Fabaceae | SI | 3 | 15 | 5 | 3 | 3 | | 1 | 1 | | | | Perennial forb |
| *Lupinus onustus* | S. Watson | Fabaceae | SI | 3.1 | 15.3 | 5 | 3 | 2.9 | | 1 | | | | 1 | Perennial forb |
| *Lupinus spectabilis* | Hoover | Fabaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.2 | | | | | 1 | Annual forb |
| *Pediomelum californicum* | (S. Watson) Rydb. | Fabaceae | BE/SI | 4.4 | 21.8 | 5 | 6 | 2.4 | | | 1 | 1 | 1 | | Perennial forb |
| *Trifolium amoenum* | Greene | Fabaceae | WI/IN | 1.3 | 2.5 | 2 | 1 | - | 1B.1 | | 1 | 1 | | | Annual forb |
| *Trifolium fucatum* | Lindl. | Fabaceae | WI/IN | 1.3 | 4 | 3 | 1 | 0.6 | | | 1 | | 1 | | Annual forb |
| *Trifolium gracilentum* | Torr. & A. Gray | Fabaceae | WI/IN | 1 | 3.1 | 3 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Trifolium longipes* ssp. *elmeri* | Nutt. | Fabaceae | BE | 5.3 | 21 | 4 | 6 | 1.5 | | 1 | 1 | | | | Perennial forb |
| *Trifolium longipes* ssp. *oreganum* | Nutt. | Fabaceae | BE/SI | 4 | 12 | 3 | 4 | 2 | | 1 | 1 | | | | Perennial forb |
| *Trifolium microcephalum* | Pursh | Fabaceae | WI/IN | 1.4 | 7 | 5 | 1 | 1.1 | | 1 | 1 | | | 1 | Annual forb |
| *Trifolium willdenovii* | Spreng. | Fabaceae | WI/IN | 1.3 | 4 | 3 | 1 | 0.6 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Notholithocarpus densiflorus* var. *echinoides* | (Hook. & Arn.) Manos, C.H. Cannon, & S. Oh | Fagaceae | SI | 2.5 | 12.3 | 5 | 1 | 2.5 | | 1 | | | | 1 | Shrub |
| *Quercus durata* var. *durata* | Jeps. | Fagaceae | SE | 5.8 | 40.5 | 7 | 6 | 0.8 | | | 1 | 1 | 1 | 1 | Shrub |
| *Quercus vacciniifolia* | Kellogg | Fagaceae | SI | 2.5 | 12.3 | 5 | 2 | 2.2 | | 1 | 1 | | | 1 | Shrub |
| *Garrya buxifolia* | A. Gray | Garryaceae | SE | 5.8 | 29 | 5 | 6 | 0.4 | | 1 | 1 | | | | Shrub |
| *Garrya congdonii* | Eastw. | Garryaceae | BE | 5 | 30 | 6 | 5.5 | 1.3 | | 1 | 1 | 1 | | 1 | Shrub |
| *Gentiana setigera* | A. Gray | Gentianaceae | SE | 5.8 | 17.5 | 3 | 6 | 0.3 | 1B.2 | 1 | 1 | | | | Perennial forb |
| *Zeltnera trichantha* | (Griseb.) G. Mans. | Gentianaceae | SE | 5.5 | 11 | 2 | 5.5 | - | | | 1 | 1 | | | Annual forb |
| *Iris bracteata* | S. Watson | Iridaceae | SE | 5.8 | 11.5 | 2 | 5.5 | - | 3.3 | 1 | | | | | Perennial forb (rhiz.) |
| *Iris innominata* | L. F. Hend. | Iridaceae | SE | 5.7 | 17 | 3 | 6 | 0.6 | 4.3 | 1 | | | | | Perennial forb (rhiz.) |
| *Iris macrosiphon* | Torr. | Iridaceae | WI/IN | 1.1 | 3.25 | 3 | 1 | 0.9 | | | 1 | 1 | | 1 | Perennial forb (rhiz.) |
| *Iris tenuissima* ssp. *purdyiformis* | Dykes | Iridaceae | WI | 1.5 | 3 | 2 | 1.5 | - | | 1 | | | | 1 | Perennial forb (rhiz.) |
| *Iris thompsonii* | R. C. Foster | Iridaceae | BE | 4.5 | 9 | 2 | 4.5 | - | 4.3 | 1 | 1 | | | | Perennial forb |
| *Acanthomintha duttonii* | (Abrams) Jokerst | Lamiaceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.1 | | | 1 | 1 | | Annual forb |
| *Acanthomintha ilicifolia* | (A. Gray) A. Gray | Lamiaceae | WI/IN | 1.3 | 3 | 3 | 0 | 1.7 | 1B.1 | | | | 1 | | Annual forb |
| *Acanthomintha lanceolata* | Curran | Lamiaceae | SI | 3.4 | 16.8 | 5 | 3 | 2.1 | 4.2 | | | 1 | 1 | | Annual forb |
| *Acanthomintha obovata* ssp. *obovata* | Jeps. | Lamiaceae | BE/SI | 3.5 | 10.5 | 3 | 3 | 2.5 | 4.2 | | | | 1 | | Annual forb |
| *Monardella douglasii* | Benth. | Lamiaceae | WI/IN | 1 | 2 | 2 | 1 | - | | | 1 | 1 | 1 | | Annual forb |
| *Monardella follettii* | (Jeps.) Jokerst | Lamiaceae | SE | 5.8 | 34.5 | 6 | 6 | 0.8 | 1B.2 | | | | | 1 | Shrub |
| *Monardella palmeri* | A. Gray | Lamiaceae | BE | 4.8 | 28.5 | 6 | 6 | 2.2 | 1B.2 | | | | 1 | | Perennial forb (rhiz.) |
| *Monardella purpurea* | Howell | Lamiaceae | SE | 6 | 24 | 4 | 6 | 0 | | | 1 | 1 | | | Perennial forb |
| *Monardella sheltonii* | Torr. | Lamiaceae | SI | 3 | 18 | 6 | 3 | 1.7 | | 1 | 1 | | | 1 | Perennial forb |
| *Monardella stebbinsii* | Hardham & Bartel | Lamiaceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.2 | | | | | 1 | Perennial forb (rhiz.) |
| *Monardella villosa* ssp. *villosa* | Benth. | Lamiaceae | SE | 6 | 24 | 4 | 6 | 0 | | | | | 1 | | Perennial forb (rhiz.) |
| *Monardella viridis* | Jeps. | Lamiaceae | WI/IN | 1 | 2 | 2 | 1 | - | 4.3 | | 1 | | | | Perennial forb |
| *Salvia sonomensis* | Greene | Lamiaceae | WI | 1.6 | 9.5 | 6 | 1.5 | 1.3 | | 1 | 1 | 1 | 1 | 1 | Shrub |
| *Scutellaria antirrhinoides* | Benth. | Lamiaceae | WI | 2.3 | 11.5 | 5 | 3 | 1.5 | | 1 | 1 | | | 1 | Perennial forb |
| *Stachys pycnantha* | Benth. | Lamiaceae | WI | 2.2 | 11 | 5 | 1 | 2.4 | CBR | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Trichostema laxum* | A. Gray | Lamiaceae | BE/SI | 4 | 16 | 4 | 4.5 | 2.4 | | 1 | 1 | | | | Annual forb |
| *Trichostema rubisepalum* | Elmer | Lamiaceae | SE | 5.6 | 28 | 5 | 6 | 0.9 | 4.3 | | | | 1 | 1 | Annual forb |
| *Pinguicula macroceras* | Link | Lentibulariaceae | SE | 6 | 18 | 3 | 6 | 0 | 2B.2 | 1 | | | | | Perennial forb (carn.) |
| *Calochortus clavatus* var. *clavatus* | S. Watson | Liliaceae | BE | 4.5 | 13.5 | 3 | 4 | 0.6 | 4.3 | | | | 1 | | Perennial forb (bulb) |
| *Calochortus clavatus* var. *pallidus* | S. Watson | Liliaceae | WI | 1.6 | 3.1 | 2 | | - | | | | 1 | 1 | | Perennial forb (bulb) |
| *Calochortus elegans* | Pursh | Liliaceae | WI | 2 | 4 | 2 | 2 | - | | 1 | | | | | Perennial forb (bulb) |
| *Calochortus fimbriatus* | H. P. McDonald | Liliaceae | WI | 1.5 | 4.5 | 3 | 1 | 1.3 | 1B.3 | 1 | 1 | | | 1 | Perennial forb (bulb) |
| *Calochortus fimbriatus* | H. P. McDonald | Liliaceae | WI/IN | 1 | 3 | 3 | 0 | 1.7 | 1B.3 | | | | 1 | | Perennial forb (bulb) |
| *Calochortus nudus* | S. Watson | Liliaceae | WI | 2.1 | 8.5 | 4 | 2.5 | 1.2 | | 1 | | | | 1 | Perennial forb (bulb) |
| *Calochortus obispoensis* | Lemmon | Liliaceae | BE | 5.4 | 21.5 | 4 | 6 | 1.5 | 1B.2 | | | | 1 | | Perennial forb (bulb) |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Calochortus raichei* | Farwig & V. Girard | Liliaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | 1 | | | | Perennial forb (bulb) |
| *Calochortus tiburonensis* | A. J. Hill | Liliaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.1 | | 1 | 1 | | | Perennial forb (bulb) |
| *Calochortus umbellatus* | Alph. Wood | Liliaceae | SI | 2.9 | 14.5 | 5 | 3 | 1.1 | 4.2 | | 1 | 1 | | | Perennial forb (bulb) |
| *Calochortus uniflorus* | Hook. & Arn. | Liliaceae | WI | 1.7 | 5 | 3 | 1 | 1.2 | 4.2 | 1 | 1 | 1 | 1 | | Perennial forb (bulb) |
| *Calochortus vestae* | Purdy | Liliaceae | WI | 2 | 6 | 3 | 2 | 1 | | 1 | 1 | | | | Perennial forb (bulb) |
| *Erythronium californicum* | Purdy | Liliaceae | SI | 2.7 | 8 | 3 | 2 | 2.1 | | 1 | 1 | | | | Perennial forb (bulb) |
| *Erythronium citrinum* var. *citrinum* | S. Watson | Liliaceae | BE/SI | 4.3 | 21.5 | 5 | 4 | 0.4 | 4.3 | 1 | | | | | Perennial forb (bulb) |
| *Erythronium citrinum* var. *roderickii* | S. Watson | Liliaceae | BE | 4.7 | 37.5 | 8 | 4.5 | 1.4 | 1B.3 | 1 | | | | | Perennial forb (bulb) |
| *Erythronium helenae* | Applegate | Liliaceae | BE | 4.5 | 18 | 4 | 4.5 | 1.7 | 4.2 | | 1 | | | | Perennial forb (bulb) |
| *Erythronium hendersonii* | S. Watson | Liliaceae | SI | 2.5 | 5 | 2 | 2.5 | - | 2B.3 | 1 | | | | | Perennial forb (bulb) |
| *Erythronium multiscapideum* | (Kellogg) A. Nelson & P. B. Kenn. | Liliaceae | SI | 3 | 15 | 5 | 2 | 1.7 | | | | | | 1 | Perennial forb (bulb) |
| *Erythronium purpurascens* | S. Watson | Liliaceae | WI/IN | 1 | 2 | 2 | 1 | - | | | | | | 1 | Perennial forb (bulb) |
| *Erythronium tuolumnense* | Applegate | Liliaceae | SI | 2.5 | 5 | 2 | 2.5 | - | 1B.2 | | | | | 1 | Perennial forb (bulb) |
| *Fritillaria affinis* | (Schult. & Schult. f.) Sealy | Liliaceae | WI | 2 | 6 | 3 | 2 | 0 | | 1 | 1 | 1 | | 1 | Perennial forb (bulb) |
| *Fritillaria agrestis* | Greene | Liliaceae | SI | 2.7 | 13.3 | 5 | 2 | 1.6 | 4.2 | | 1 | 1 | 1 | 1 | Perennial forb (bulb) |
| *Fritillaria biflora* var. *biflora* | Lindl. | Liliaceae | WI | 2.3 | 9 | 4 | 2.5 | 1.7 | CBR | | 1 | 1 | 1 | | Perennial forb |
| *Fritillaria biflora* var. *ineziana* | Lindl. | Liliaceae | BE | 5.4 | 21.5 | 4 | 6 | 1.5 | 1B.1 | | | 1 | | | Perennial forb (bulb) |
| *Fritillaria eastwoodiae* | R. M. MacFarl. | Liliaceae | WI | 2.3 | 13.5 | 6 | 2 | 0.4 | 3.2 | | | | | 1 | Perennial forb (bulb) |
| *Fritillaria falcata* | (Jeps.) D. E. Beetle | Liliaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.2 | | | 1 | 1 | | Perennial forb (bulb) |
| *Fritillaria glauca* | Greene | Liliaceae | BE/SI | 4.3 | 17.3 | 4 | 5.5 | 2.7 | 4.2 | 1 | 1 | | | | Perennial forb |
| *Fritillaria liliacea* | Lindl. | Liliaceae | WI | 1.8 | 7 | 4 | 1.5 | 1.1 | 1B.2 | | | 1 | 1 | | Perennial forb (bulb) |
| *Fritillaria pluriflora* | Torr. ex Benth. | Liliaceae | WI | 2.4 | 9.5 | 4 | 2.5 | 1.5 | 1B.2 | | 1 | | | 1 | Perennial forb (bulb) |
| *Fritillaria purdyi* | Eastw. | Liliaceae | BE | 4.5 | 31.5 | 7 | 4 | 1.8 | 4.3 | 1 | 1 | | | | Perennial forb (bulb) |
| *Fritillaria recurva* | Benth. | Liliaceae | SI | 2.7 | 8 | 3 | 2.5 | 1.9 | | 1 | 1 | | | 1 | Perennial forb (bulb) |
| *Fritillaria viridea* | Kellogg | Liliaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | | | 1 | | Perennial forb (bulb) |
| *Lilium bolanderi* | S. Watson | Liliaceae | SE | 6 | 18 | 3 | 6 | 0 | 4.2 | 1 | | | | | Perennial forb (bulb) |
| *Lilium kelloggii* | Purdy | Liliaceae | SI | 2.5 | 10 | 4 | 2 | 1.9 | 4.3 | 1 | 1 | | | | Perennial forb (bulb) |
| *Lilium pardalinum* ssp. *vollmeri* | Kellogg | Liliaceae | BE | 5 | 15 | 3 | 5 | 1 | 4.3 | 1 | | | | | Perennial forb (bulb) |
| *Lilium rubescens* | S. Watson | Liliaceae | WI | 2 | 9.75 | 5 | 2 | 1.4 | 4.2 | 1 | 1 | 1 | | | Perennial forb (bulb) |
| *Lilium washingtonianum* ssp. *purpurascens* | Kellogg | Liliaceae | BE/SI | 3.5 | 10.5 | 3 | 3 | 2.5 | 4.3 | 1 | | | | | Perennial forb (bulb) |
| *Prosartes parvifolia* | S. Watson | Liliaceae | BE | 5 | 5 | 1 | 5 | - | 1B.2 | 1 | | | | | Perennial forb |
| *Hesperolinon adenophyllum* | (A. Gray) Small | Linaceae | SE | 5.7 | 28.5 | 5 | 6 | 0.9 | 1B.2 | | 1 | | | | Annual forb |
| *Hesperolinon bicarpellatum* | (H. Sharsm.) H. Sharsm. | Linaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | 1 | | | | Annual forb |
| *Hesperolinon breweri* | (A. Gray) Small | Linaceae | SI | 2.5 | 10 | 4 | 2.5 | 1.5 | 1B.2 | | 1 | 1 | | | Annual forb |
| *Hesperolinon californicum* | (Benth.) Small | Linaceae | SI | 2.8 | 8.5 | 3 | 3 | 0.6 | | | 1 | 1 | 1 | 1 | Annual forb |
| *Hesperolinon clevelandii* | (Greene) Small | Linaceae | WI | 2 | 8 | 4 | 2 | 1.8 | | | 1 | 1 | | | Annual forb |
| *Hesperolinon congestum* | (A. Gray) Small | Linaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.1 | | 1 | 1 | | | Annual forb |
| *Hesperolinon didymocarpum* | H. Sharsm. | Linaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | 1 | | | | Annual forb |
| *Hesperolinon disjunctum* | H. Sharsm. | Linaceae | SE | 6 | 18 | 3 | 6 | 0 | | | 1 | 1 | 1 | | Annual forb |
| *Hesperolinon drymarioides* | (Curran) Small | Linaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.2 | | 1 | | | | Annual forb |
| *Hesperolinon micranthum* | (A. Gray) Small | Linaceae | WI | 2.4 | 11.8 | 5 | 3 | 1 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Hesperolinon sharsmithiae* | R. O'Donnell | Linaceae | SE | 5.7 | 17 | 3 | 6 | 0.6 | | | 1 | 1 | | | Annual forb |
| *Hesperolinon spergulinum* | (A. Gray) Small | Linaceae | BE | 4.7 | 14 | 3 | 6 | 2.3 | CBR | | 1 | 1 | | | Annual forb |
| *Hesperolinon tehamense* | H. Sharsm. | Linaceae | SE | 5.8 | 34.5 | 6 | 6 | 0.8 | 1B.3 | | 1 | | | | Annual forb |
| *Linum lewisii* var. *lewisii* | Pursh | Linaceae | WI/IN | 1.3 | 4 | 3 | 1 | 1.5 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Fremontodendron decumbens* | R. M. Lloyd | Malvaceae | WI | 2 | 8 | 4 | 1.5 | 2.4 | 1B.2 | | | | | 1 | Shrub |
| *Sidalcea asprella* ssp. *nana* | Greene | Malvaceae | SI | 2.5 | 5 | 2.5 | 2.5 | - | | 1 | 1 | | | 1 | Perennial forb |
| *Sidalcea diploscypha* | (Torr. & A. Gray) A. Gray | Malvaceae | SI | 2.6 | 13 | 5 | 3 | 2.3 | | | 1 | 1 | 1 | 1 | Annual forb |
| *Sidalcea hartwegii* | A. Gray | Malvaceae | WI | 1.6 | 4.75 | 3 | 2 | 0.7 | | | 1 | | | 1 | Annual forb |
| *Sidalcea hickmanii* ssp. *anomala* | Greene | Malvaceae | SE | 5.6 | 22.5 | 4 | 6 | 1 | 1B.2 | | | | 1 | | Perennial forb |
| *Sidalcea hickmanii* ssp. *viridis* | Greene | Malvaceae | SE | 6 | 12 | 2 | 6 | - | 1B.1 | | 1 | 1 | | | Perennial forb |
| *Sidalcea keckii* | Wiggins | Malvaceae | SI | 3 | 6 | 2 | 3 | - | 1B.1 | | | | | 1 | Annual forb |
| *Pseudotrillium rivale* | (S. Watson) S. B Farmer | Melanthiaceae | BE/SI | 4 | 12 | 3 | 4 | 1 | | 1 | | | | | Perennial forb |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Toxicoscordion fontanum* | (Eastw.) Zomlefer & Judd | Melanthiaceae | BE/SI | 3.8 | 23 | 6 | 4 | 0.8 | 4.2 | | 1 | 1 | 1 | | Perennial forb (bulb) |
| *Toxicoscordion paniculatum* | (Nutt.) Rydb. | Melanthiaceae | WI | 1.6 | 4.75 | 3 | 2 | 0.7 | | 1 | 1 | | | 1 | Perennial forb (bulb) |
| *Xerophyllum tenax* | (Pursh) Nutt. | Melanthiaceae | WI | 1.6 | 8 | 5 | 1 | 0.9 | | 1 | 1 | 1 | 1 | 1 | Perennial forb (rhiz.) |
| *Calyptridium quadripetalum* | S. Watson | Montiaceae | BE | 4.6 | 27.5 | 6 | 4 | 1.2 | 4.3 | | 1 | | | | Annual forb |
| *Calyptridium umbellatum* | (Torr.) Greene | Montiaceae | WI/IN | 1.3 | 4 | 3 | 1 | 1.5 | | 1 | 1 | 1 | | 1 | Perennial forb |
| *Claytonia exigua* ssp. *exigua* | Torr. & A. Gray | Montiaceae | SI | 3.4 | 24 | 7 | 3 | 1.1 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Claytonia exigua* ssp. *glauca* | Torr. & A. Gray | Montiaceae | BE/SI | 3.6 | 18 | 5 | 3 | 1.3 | | 1 | 1 | 1 | 1 | | Annual forb |
| *Claytonia gypsophiloides* | Fisch. & C. A. Mey. | Montiaceae | SI | 3.1 | 15.5 | 5 | 3 | 0.2 | | | 1 | 1 | 1 | | Annual forb |
| *Claytonia saxosa* | Brandegee | Montiaceae | BE/SI | 4.4 | 21.8 | 5 | 5 | 2.2 | CBR | 1 | 1 | | | | Annual forb |
| *Claytonia serpenticola* | T.R. Stoughton | Montiaceae | BE/SI | 4 | 4 | 1 | 4 | - | | 1 | | | | | Perennial forb |
| *Lewisia cantelovii* | J. T. Howell | Montiaceae | WI/IN | 1 | 6 | 6 | 1 | 1.1 | 1B.2 | 1 | | | | 1 | Perennial forb |
| *Lewisia cotyledon* var. *cotyledon* | (S. Watson) B. L. Rob. | Montiaceae | WI | 2 | 6 | 3 | 3 | 1.7 | CBR | 1 | | | | | Perennial forb |
| *Lewisia cotyledon* var. *heckneri* | (S. Watson) B. L. Rob. | Montiaceae | WI/IN | 1 | 4 | 4 | 0.5 | 1.4 | 1B.2 | 1 | | | | | Perennial forb |
| *Lewisia cotyledon* var. *howellii* | (S. Watson) B. L. Rob. | Montiaceae | WI/IN | 1.3 | 4 | 3 | 1 | 1.5 | 3.2 | 1 | | | | | Perennial forb |
| *Lewisia leeana* | (Porter) B. L. Rob. | Montiaceae | SI | 3 | 6 | 2 | 3 | - | | 1 | 1 | | | 1 | Perennial forb |
| *Lewisia nevadensis* | (A. Gray) B. L. Rob. | Montiaceae | WI | 1.7 | 5 | 3 | 2 | 1.5 | | 1 | 1 | | | 1 | Perennial forb |
| *Lewisia oppositifolia* | (S. Watson) B. L. Rob. | Montiaceae | BE | 5.3 | 21 | 4 | 6 | 1.5 | 2B.2 | 1 | | | | | Perennial forb |
| *Lewisia rediviva* | Pursh | Montiaceae | WI/IN | 1.4 | 7 | 5 | 1 | 1.1 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Lewisia stebbinsii* | Gankin & W. R. Hildreth | Montiaceae | BE | 4.7 | 14 | 3 | 6 | 2.3 | | | 1 | | | | Perennial forb |
| *Lewisia triphylla* | (S. Watson) B. L. Rob. | Montiaceae | WI | 1.7 | 5 | 3 | 2 | 1.5 | | 1 | 1 | | | 1 | Perennial forb |
| *Camissonia benitensis* | P. H. Raven | Onagraceae | SE | 5.9 | 29.5 | 5 | 6 | 0.4 | 1B.1 | | | | 1 | | Annual forb |
| *Camissonia lacustris* | P. H. Raven | Onagraceae | SI | 3 | 9 | 3 | 3 | 3 | | | 1 | | | 1 | Annual forb |
| *Clarkia arcuata* | (Kellogg) A. Nelson & J. F. Macbr. | Onagraceae | WI | 2.3 | 7 | 3 | 2 | 0.6 | | | | | | 1 | Annual forb |
| *Clarkia biloba* ssp. *biloba* | (Durand) A. Nelson & J. F. Macbr. | Onagraceae | WI/IN | 1.4 | 2.75 | 2 | 1.4 | - | | | | 1 | | 1 | Annual forb |
| *Clarkia breweri* | (A. Gray) Greene | Onagraceae | BE/SI | 3.8 | 11.5 | 3 | 3 | 2.1 | 4.2 | | | 1 | 1 | | Annual forb |
| *Clarkia franciscana* | H. Lewis & P. H. Raven | Onagraceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.1 | | | 1 | 1 | | Annual forb |
| *Clarkia gracilis* ssp. *albicaulis* | (Piper) A. Nelson & J. F. Macbr. | Onagraceae | WI | 2.2 | 6.5 | 3 | 2 | 1 | 1B.2 | | | | | 1 | Annual forb |
| *Clarkia gracilis* ssp. *tracyi* | (Piper) A. Nelson & J. F. Macbr. | Onagraceae | BE | 5 | 25 | 5 | 5 | 1 | 4.2 | | 1 | | | | Annual forb |
| *Epilobium minutum* | Lindl. | Onagraceae | WI | 2 | 6 | 3 | 2 | 1 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Epilobium oregamum* | Greene | Onagraceae | BE/SI | 3.8 | 23 | 6 | 4 | 2.2 | 1B.2 | 1 | 1 | | | | Perennial forb |
| *Epilobium rigidum* | Hausskn. | Onagraceae | BE | 5.1 | 20.5 | 4 | 6 | 2 | 4.3 | 1 | | | | | Perennial forb |
| *Epilobium septentrionale* | (D. D. Keck) R. N. Bowman & Hoch | Onagraceae | WI | 2 | 4 | 2 | | - | 4.3 | | 1 | | | | Perennial forb |
| *Epilobium siskiyouense* | (Munz) Hoch & P. H. Raven | Onagraceae | SE | 5.5 | 38.5 | 7 | 6 | 1 | 1B.3 | 1 | | | | | Perennial forb |
| *Cypripedium californicum* | A. Gray | Orchidaceae | BE | 4.5 | 40.5 | 9 | 4 | 1.3 | 4.2 | 1 | 1 | 1 | | 1 | Perennial forb (bulb) |
| *Cypripedium fasciculatum* | Kellogg | Orchidaceae | SI | 2.5 | 12.3 | 5 | 2 | 1.6 | 4.2 | 1 | 1 | 1 | | 1 | Perennial forb (bulb) |
| *Piperia candida* | Rand. Morgan & Ackerman | Orchidaceae | WI/IN | 1.2 | 3.5 | 3 | 1 | 1 | 1B.2 | 1 | 1 | 1 | | | Perennial forb (bulb) |
| *Aphyllon validum* ssp. *howellii* | Jeps. | Orobanchaceae | SI | 3.4 | 13.5 | 4 | 3 | 1.3 | 4.3 | | 1 | | | | Perennial forb (paras.) |
| *Castilleja affinis* ssp. *neglecta* | Hook. & Arn. | Orobanchaceae | SE | 6 | 30 | 5 | 6 | 0 | | | 1 | 1 | | | Perennial forb (hemipar.) |
| *Castilleja brevilobata* | Piper | Orobanchaceae | SE | 6 | 18 | 3 | 6 | 0 | 4.2 | 1 | | | | | Perennial forb (hemipar.) |
| *Castilleja foliolosa* | Hook. & Arn. | Orobanchaceae | WI | 2.3 | 9 | 4 | 2.5 | 1 | | | 1 | 1 | 1 | 1 | Perennial forb, Shrub |
| *Castilleja miniata* ssp. *elata* | Douglas ex Hook. | Orobanchaceae | BE | 4.6 | 27.5 | 6 | 4.5 | 1.4 | | 1 | | | | | Perennial forb (hemipar.) |
| *Castilleja minor* ssp. *spiralis* | (A. Gray) A. Gray | Orobanchaceae | SI | 3.3 | 16.5 | 5 | 3 | 2.6 | | | 1 | 1 | 1 | 1 | Annual forb (hemipar.) |
| *Castilleja pruinosa* | Fernald | Orobanchaceae | SI | 3.2 | 15.8 | 5 | 3 | 1.9 | | 1 | 1 | | | 1 | Perennial forb (hemipar.) |
| *Castilleja rubicundula* ssp. *lithospermoides* | (Jeps.) T. I. Chuang & Heckard | Orobanchaceae | WI | 2.4 | 9.75 | 4 | 2 | 1.8 | | | 1 | | | | Annual forb (hemipar.) |
| *Castilleja rubicundula* ssp. *rubicundula* | (Jeps.) T. I. Chuang & Heckard | Orobanchaceae | SE | 5.6 | 28 | 5 | 6 | 0.9 | | | 1 | | | | Annual forb (hemipar.) |
| *Cordylanthus nidularius* | J. T. Howell | Orobanchaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.1 | | | 1 | 1 | | Annual forb (hemipar.) |
| *Cordylanthus pilosus* ssp. *pilosus* | A. Gray | Orobanchaceae | SI | 2.5 | 10 | 4 | 2.5 | 0.6 | | | 1 | 1 | | | Annual forb (hemipar.) |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Cordylanthus pringlei* | A. Gray | Orobanchaceae | SE | 5.6 | 28 | 5 | 6 | 0.9 | CBR | | 1 | | | | Annual forb (hemipar.) |
| *Cordylanthus tenuis* ssp. *brunneus* | A. Gray | Orobanchaceae | BE | 5.1 | 25.5 | 5 | 5 | 1 | 4.3 | | 1 | | | | Annual forb (hemipar.) |
| *Cordylanthus tenuis* ssp. *capillaris* | A. Gray | Orobanchaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.2 | | 1 | | | | Annual forb (hemipar.) |
| *Cordylanthus tenuis* ssp. *tenuis* | A. Gray | Orobanchaceae | WI | 2.3 | 9 | 4 | 2 | 0.5 | | | | | | 1 | Annual forb (hemipar.) |
| *Cordylanthus tenuis* ssp. *viscidus* | A. Gray | Orobanchaceae | BE | 4.5 | 27 | 6 | 4.5 | 1.4 | | 1 | 1 | | | 1 | Annual forb (hemipar.) |
| *Orthocarpus pachystachyus* | A. Gray | Orobanchaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.1 | 1 | | | | | Annual forb (hemipar.) |
| *Pedicularis howellii* | A. Gray | Orobanchaceae | SI | 2.5 | 7.5 | 3 | 3 | 1.2 | 4.3 | 1 | | | | | Perennial forb (hemipar.) |
| *Triphysaria floribunda* | (Benth.) T. I. Chuang & Heckard | Orobanchaceae | WI | 2.3 | 6.75 | 3 | 2 | 1.9 | 1B.2 | | 1 | 1 | 1 | | Annual forb |
| *Dicentra formosa* ssp. *oregana* | (Haw.) Walp. | Papaveraceae | BE | 5.2 | 31 | 6 | 6 | 1.3 | 4.2 | 1 | | | | | Perennial forb |
| *Dicentra pauciflora* | S. Watson | Papaveraceae | WI | 2.2 | 6.5 | 3 | 3 | 1.4 | CBR | 1 | | | | 1 | Perennial forb |
| *Ehrendorferia chrysantha* | (Hook. & Arn.) Rylander | Papaveraceae | WI/IN | 1.1 | 3.25 | 3 | 1 | 0.9 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Eschscholzia hypecoides* | Benth. | Papaveraceae | SI | 2.6 | 7.75 | 3 | 1 | 3.1 | 4.3 | | | | 1 | | Annual forb |
| *Platystemon californicus* | Benth. | Papaveraceae | WI | 1.7 | 5 | 3 | 2 | 0.6 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Parnassia cirrata* var. *intermedia* | Piper | Parnassiaceae | BE/SI | 3.5 | 7 | 2 | 3.5 | - | | 1 | | | | | Perennial forb |
| *Parnassia palustris* | L. | Parnassiaceae | WI | 2 | 6 | 3 | 2 | 0 | | 1 | 1 | | 1 | 1 | Perennial forb |
| *Diplacus douglasii* | (Benth.) G.L. Nesom | Phrymaceae | SI | 2.7 | 13.5 | 5 | 3 | 0.5 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Diplacus layneae* | (Greene) Jeps. | Phrymaceae | SI | 2.9 | 14.3 | 5 | 3 | 1.2 | | 1 | 1 | | | 1 | Annual forb |
| *Erythranthe glaucescens* | (Greene) G.L. Nesom | Phrymaceae | BE/SI | 3.8 | 18.8 | 5 | 4 | 2.1 | | | | | | 1 | Annual forb |
| *Erythranthe linearifolia* | Benth. | Phrymaceae | BE/SI | 4 | 16 | 4 | 4.5 | 2.4 | | 1 | | | | | Perennial forb (rhiz.) |
| *Erythranthe nudata* | (Curran ex Greene) G.L. Nesom | Phrymaceae | SE | 5.6 | 33.5 | 6 | 6 | 1.2 | | | 1 | | | | Annual forb |
| *Erythranthe percaulis* | G.L. Nesom | Phrymaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.1 | | | | | 1 | Annual forb |
| *Erythranthe trinitiensis* | G.L. Nesom | Phrymaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.3 | 1 | 1 | | | | Annual forb |
| *Erythranthe willisii* | G.L. Nesom | Phrymaceae | SE | 5.5 | 11 | 2 | 5.5 | - | | | | | | 1 | Perennial forb |
| *Picea breweriana* | S. Watson | Pinaceae | WI | 2.2 | 6.5 | 3 | 3 | 1.4 | CBR | 1 | | | | | Tree |
| *Pinus attenuata* | Lemmon | Pinaceae | SI | 2.5 | 12.6 | 5 | 3 | 2.4 | | 1 | 1 | 1 | 1 | 1 | Tree |
| *Pinus balfouriana* ssp. *balfouriana* | Grev. & Balf. | Pinaceae | BE/SI | 4.3 | 26 | 6 | 4 | 1.5 | | 1 | | | | | Tree |
| *Pinus coulteri* | D. Don | Pinaceae | WI/IN | 1.3 | 4 | 3 | 1 | 1.5 | | | | 1 | 1 | | Tree |
| *Pinus jeffreyi* | Grev. & Balf. | Pinaceae | SI | 2.7 | 8 | 3 | 3 | 0.6 | | 1 | 1 | | 1 | 1 | Tree |
| *Pinus sabiniana* | D. Don | Pinaceae | WI/IN | 1.4 | 4.25 | 3 | 1 | 1.4 | | 1 | 1 | 1 | 1 | 1 | Tree |
| *Antirrhinum cornutum* | Benth. | Plantaginaceae | WI | 2.2 | 11 | 5 | 2 | 0.8 | CBR | | 1 | | | | Annual forb |
| *Antirrhinum leptaleum* | A. Gray | Plantaginaceae | WI | 1.6 | 3.1 | 2 | 1.6 | - | | | | | | 1 | Annual forb |
| *Antirrhinum subcordatum* | A. Gray | Plantaginaceae | BE/SI | 4.3 | 21.5 | 5 | 4 | 1.8 | 4.3 | | 1 | | | | Annual forb |
| *Antirrhinum vexillocalyculatum* | Kellogg | Plantaginaceae | SI | 2.5 | 20 | 8 | 2.5 | 1.3 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Antirrhinum virga* | A. Gray | Plantaginaceae | SI | 2.8 | 8.5 | 3 | 3 | 0.6 | 4.3 | | 1 | | | | Perennial forb |
| *Collinsia greenei* | A. Gray | Plantaginaceae | BE | 5.2 | 31 | 6 | 6 | 1.3 | CBR | 1 | 1 | | | | Annual forb |
| *Collinsia multicolor* | Lindl. & Paxton | Plantaginaceae | WI/IN | 1.1 | 2.25 | 2 | 1.1 | - | 1B.2 | | 1 | 1 | | | Annual forb |
| *Collinsia sparsiflora* | Fisch. & C. A. Mey. | Plantaginaceae | WI | 1.7 | 5 | 3 | 1 | 1.2 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Keckiella lemmonii* | (A. Gray) Straw | Plantaginaceae | WI/IN | 1.1 | 3.25 | 3 | 1 | 0.9 | | 1 | 1 | | | 1 | Shrub |
| *Penstemon azureus* var. *azureus* | Benth. | Plantaginaceae | SI | 2.7 | 8 | 3 | 3 | 0.6 | | 1 | 1 | | | 1 | Perennial forb |
| *Penstemon filiformis* | (D. D. Keck) D. D. Keck | Plantaginaceae | BE | 5 | 30 | 6 | 5.5 | 1.3 | 1B.3 | 1 | | | | | Perennial forb |
| *Penstemon parvulus* | (A. Gray) Krautter | Plantaginaceae | BE/SI | 3.7 | 11 | 3 | 4 | 0.6 | | 1 | | | | 1 | Perennial forb |
| *Penstemon purpusii* | Brandegee | Plantaginaceae | SI | 2.8 | 11 | 4 | 2 | 2.4 | CBR | 1 | 1 | | | | Perennial forb |
| *Plantago erecta* | E. Morris | Plantaginaceae | WI/IN | 1 | 3 | 3 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Veronica copelandii* | Eastw. | Plantaginaceae | SE | 6 | 34 | 4 | 6 | 0 | 4.3 | 1 | | | | | Perennial forb |
| *Agrostis microphylla* | Steud. | Poaceae | WI/IN | 1.1 | 4.25 | 4 | 1.1 | 1.1 | | | 1 | 1 | 1 | | Annual gram. |
| *Bromus laevipes* | Shear | Poaceae | WI | 1.7 | 5 | 3 | 2 | 0.6 | | 1 | 1 | 1 | 1 | 1 | Perennial gram. (cesp.) |
| *Calamagrostis foliosa* | Kearney | Poaceae | WI | 1.7 | 5 | 3 | 2 | 1.5 | 4.2 | | 1 | | | | Perennial gram. (rhiz.) |
| *Calamagrostis ophitidis* | (J. T. Howell) Nygren | Poaceae | SE | 6 | 24 | 4 | 6 | 0 | 4.3 | | 1 | 1 | | | Perennial gram. (rhiz.) |
| *Calamagrostis stricta* ssp. *inexpansa* | (Timm) Koeler | Poaceae | WI | 1.5 | 3 | 2 | 1.5 | - | | 1 | 1 | 1 | 1 | 1 | Perennial gram. (cesp.) |
| *Danthonia californica* | Bol. | Poaceae | SI | 3.3 | 13 | 4 | 3 | 2.2 | | 1 | 1 | 1 | 1 | 1 | Perennial gram. (cesp.) |
| *Elymus trachycaulus* ssp. *trachycaulus* | (Link) Shinners | Poaceae | WI | 1.6 | 3.1 | 2 | 1.6 | - | | 1 | 1 | 1 | 1 | 1 | Perennial gram. (cesp.) |
| *Festuca californica* | Vasey | Poaceae | WI | 2.4 | 11.8 | 5 | 2 | 1.6 | | 1 | 1 | 1 | 1 | 1 | Perennial gram. (cesp.) |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Festuca idahoensis* | Elmer | Poaceae | WI/IN | 1.3 | 5.25 | 4 | 1 | 1.2 | | 1 | 1 | 1 | 1 | 1 | Perennial gram. (cesp.) |
| *Hordeum brachyantherum* ssp. *californicum* | Nevski | Poaceae | SI | 3.1 | 9.25 | 3 | 3 | 2.9 | | 1 | 1 | 1 | 1 | 1 | Perennial gram. (cesp.) |
| *Melica geyeri* | Munro | Poaceae | WI/IN | 1.2 | 6 | 5 | 1 | 0.4 | | 1 | 1 | | 1 | 1 | Perennial gram. (cesp.) |
| *Poa piperi* | Hitchc. | Poaceae | BE | 5.4 | 21.5 | 4 | 5.5 | 1 | 4.3 | 1 | | | | | Perennial gram. (rhiz.) |
| *Poa rhizomata* | Hitchc. | Poaceae | WI | 1.8 | 3.5 | 2 | 1.5 | - | 4.3 | 1 | | | | | Perennial gram. (rhiz.) |
| *Poa tenerrima* | Scribn. | Poaceae | SI | 3.3 | 13 | 4 | 3 | 1.3 | CBR | | | 1 | 1 | 1 | Perennial gram. (cesp.) |
| *Scribneria bolanderi* | (Thurb.) Hack. | Poaceae | WI | 1.7 | 5.1 | 3 | 1 | 2 | | 1 | 1 | 1 | 1 | 1 | Annual gram. |
| *Stipa lemmonii* var. *pubescens* | (Vasey) Scribn. | Poaceae | BE | 4.8 | 14.5 | 3 | 6 | 2.3 | 3.2 | 1 | 1 | | | | Perennial gram. (cesp.) |
| *Stipa nelsonii* var. *dorei* | Scribn. | Poaceae | WI/IN | 1 | 2 | 2 | 1 | - | | | | | | 1 | Perennial gram. (cesp.) |
| *Stipa stillmanii* | Bol. | Poaceae | WI/IN | 1.1 | 2.1 | 2 | 1.1 | - | CBR | | | | | 1 | Perennial gram. (cesp.) |
| *Collomia diversifolia* | Greene | Polemoniaceae | SE | 5.6 | 33.5 | 6 | 6 | 1.2 | 4.3 | | 1 | 1 | | | Annual forb |
| *Collomia tinctoria* | Kellogg | Polemoniaceae | WI | 1.8 | 7.1 | 4 | 2 | 1.5 | | 1 | 1 | | | 1 | Annual forb |
| *Gilia capitata* ssp. *capitata* | Sims | Polemoniaceae | WI | 1.6 | 4.75 | 3 | 1 | 1.2 | | 1 | 1 | | | | Annual, Perennial forb |
| *Leptosiphon ambiguus* | (Rattan) J. M. Porter & L. A. Johnson | Polemoniaceae | SE | 5.8 | 17.5 | 3 | 6 | 0.6 | | | | 1 | 1 | | Annual forb |
| *Leptosiphon bolanderi* | (A. Gray) J.M. Porter & L.A. Johnson | Polemoniaceae | WI/IN | 1.3 | 2.5 | 2 | 1.3 | - | | | 1 | 1 | | 1 | Annual forb |
| *Leptosiphon latisectus* | (E. G. Buxton) J. M. Porter & L. A. Johnson | Polemoniaceae | WI | 2 | 6 | 3 | 2 | 0 | | | 1 | | | | Annual forb |
| *Leptosiphon liniflorus* | (Benth.) J. M. Porter & L. A. Johnson | Polemoniaceae | WI | 1.6 | 6.25 | 4 | 1.5 | 1.2 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Leptosiphon nuttallii* ssp. *howellii* | (A. Gray) J. M. Porter & L. A. Johnson | Polemoniaceae | BE | 5.3 | 31.5 | 6 | 6 | 1.3 | | | 1 | | | | Perennial forb |
| *Linanthus dichotomus* | Benth. | Polemoniaceae | SI | 2.5 | 12.4 | 5 | 3 | 2.4 | | 1 | 1 | 1 | 1 | 1 | Annual forb |
| *Navarretia heterodoxa* | (Greene) Greene | Polemoniaceae | SI | 2.8 | 14 | 5 | 3 | 2.4 | | | | 1 | | | Annual forb |
| *Navarretia jepsonii* | V. L. Bailey ex Jeps. | Polemoniaceae | SE | 5.6 | 22.5 | 4 | 5.5 | 0.6 | 4.3 | | 1 | | | | Annual forb |
| *Navarretia linearifolia* ssp. *pinnatisecta* | (Howell) L.A. Johnson | Polemoniaceae | BE/SI | 3.8 | 19 | 5 | 3 | 2.2 | | | 1 | | | | Annual, Perennial forb |
| *Navarretia mitracarpa* | Greene | Polemoniaceae | SE | 5.9 | 23.5 | 4 | 6 | 0.5 | | | | | 1 | | Annual forb |
| *Navarretia paradoxiclara* | L.A. Johnson & D. Gowen | Polemoniaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.3 | | | | | 1 | Annual forb |
| *Navarretia paradoxinota* | L.A. Johnson & D. Gowen | Polemoniaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.3 | | 1 | | | | Annual forb |
| *Navarretia pubescens* | (Benth.) Hook. & Arn. | Polemoniaceae | WI | 2 | 6 | 3 | 2 | 1 | | | 1 | 1 | 1 | 1 | Annual forb |
| *Navarretia rosulata* | Brand | Polemoniaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | 1 | 1 | | | Annual forb |
| *Navarretia sinistra* | (M. E. Jones) L. A. Johnson | Polemoniaceae | SI | 2.5 | 7.5 | 3 | 3 | 1.8 | | 1 | 1 | | | 1 | Annual forb |
| *Phlox hirsuta* | E. E. Nelson | Polemoniaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | 1 | | | | | Perennial forb |
| *Polemonium chartaceum* | H. Mason | Polemoniaceae | WI | 1.6 | 8.1 | 5 | 2 | 1.5 | 1B.3 | 1 | | | | 1 | Perennial forb |
| *Polemonium eddyense* | Stubbs | Polemoniaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | 1 | | | | | Perennial forb |
| *Polygala cornuta* var. *cornuta* | Kellogg | Polygalaceae | WI | 2.3 | 9 | 4 | 2 | 1.3 | | 1 | | | | 1 | Perennial forb, shrub |
| *Chorizanthe breweri* | S. Watson | Polygonaceae | BE | 5.4 | 21.5 | 4 | 5.5 | 1 | 1B.3 | | | | 1 | | Annual forb |
| *Chorizanthe palmeri* | S. Watson | Polygonaceae | BE | 4.9 | 24.5 | 5 | 6 | 1.6 | 4.2 | | | | 1 | | Annual forb |
| *Chorizanthe uniaristata* | Torr. & A. Gray | Polygonaceae | SI | 2.7 | 10.8 | 4 | 2.5 | 2 | | | | | 1 | 1 | Annual, Perennial forb |
| *Chorizanthe ventricosa* | Goodman | Polygonaceae | BE | 5.3 | 16 | 3 | 6 | 1.2 | 4.3 | | | | 1 | | Annual forb |
| *Eriogonum alpinum* | Engelm. | Polygonaceae | SE | 6 | 30 | 5 | 6 | 0 | 1B.2 | 1 | | | | | Perennial forb |
| *Eriogonum argillosum* | J. T. Howell | Polygonaceae | SI | 3.1 | 12.5 | 4 | 3 | 2.6 | 4.3 | | | 1 | 1 | | Annual forb |
| *Eriogonum cedrorum* | Reveal & Raiche | Polygonaceae | SE | 6 | 12 | 2 | 6 | - | 1B.3 | | 1 | | | | Perennial forb |
| *Eriogonum clavatum* | Small | Polygonaceae | SI | 3.3 | 10 | 3 | 3 | 2.5 | | | | | 1 | | Annual forb |
| *Eriogonum compositum* var. *compositum* | Douglas ex Benth. | Polygonaceae | WI | 1.7 | 5.1 | 3 | 2 | 1.5 | CBR | 1 | 1 | | | | Perennial forb |
| *Eriogonum congdonii* | (S. Stokes) Reveal | Polygonaceae | BE | 5.1 | 35.5 | 7 | 6 | 1.7 | 4.3 | 1 | | | | | Shrub |
| *Eriogonum covilleanum* | Eastw. | Polygonaceae | SI | 3 | 12 | 4 | 3 | 1.6 | CBR | | | | 1 | | Annual forb |
| *Eriogonum dasyanthemum* | Torr. & A. Gray | Polygonaceae | SI | 3 | 6 | 2 | 3 | - | CBR | | 1 | | | | Annual forb |
| *Eriogonum diclinum* | Rev. | Polygonaceae | SI | 3.2 | 9.5 | 3 | 3 | 3 | 2B.3 | 1 | | | | | Perennial forb |
| *Eriogonum elatum* var. *villosum* | Douglas ex Benth. | Polygonaceae | SI | 3.3 | 13 | 4 | 3.5 | 3.2 | | 1 | | | | 1 | Perennial forb |
| *Eriogonum hirtellum* | J. T. Howell & Bacig. | Polygonaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.3 | 1 | | | | | Perennial forb (rhiz.) |
| *Eriogonum hirtiflorum* | A. Gray ex S. Watson | Polygonaceae | SI | 3.3 | 13 | 4 | 3.5 | 3.2 | CBR | 1 | 1 | 1 | 1 | 1 | Annual forb |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Eriogonum kelloggii* | A. Gray | Polygonaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.2 | | 1 | | | | Perennial forb |
| *Eriogonum libertini* | Reveal | Polygonaceae | SE | 6 | 36 | 6 | 6 | 0 | 4.2 | 1 | 1 | | | | Perennial forb |
| *Eriogonum luteolum* var. *caninum* | Greene | Polygonaceae | SE | 5.5 | 27.5 | 5 | 6 | 0.9 | 1B.2 | | 1 | 1 | | | Annual forb |
| *Eriogonum luteolum* var. *luteolum* | Greene | Polygonaceae | BE/SI | 3.8 | 15 | 4 | 3 | 1.5 | | 1 | 1 | 1 | | 1 | Annual forb |
| *Eriogonum luteolum* var. *pedunculatum* | Greene | Polygonaceae | BE | 5 | 10 | 2 | 5 | - | CBR | | | | | 1 | Annual forb |
| *Eriogonum nervulosum* | (S. Stokes) Reveal | Polygonaceae | SE | 6 | 18 | 3 | 6 | 0 | 1B.2 | | 1 | | | | Perennial forb (rhiz.) |
| *Eriogonum nudum* var. *indictum* | Douglas ex Benth. | Polygonaceae | WI | 1.5 | 4.5 | 3 | 1 | 0.6 | 4.2 | | | | 1 | | Perennial forb |
| *Eriogonum nudum* var. *oblongifolium* | Douglas ex Benth. | Polygonaceae | WI | 2 | 6 | 3 | 2 | 0 | | 1 | 1 | | | 1 | Perennial forb |
| *Eriogonum pendulum* | S. Watson | Polygonaceae | SE | 6 | 18 | 3 | 6 | 0 | 2B.2 | 1 | | | | | Perennial forb |
| *Eriogonum pyrolifolium* | Hook. | Polygonaceae | WI/IN | 1 | 3 | 3 | 0 | 1.7 | | 1 | | | | 1 | Perennial forb |
| *Eriogonum siskiyouense* | Small | Polygonaceae | BE | 5.4 | 32.5 | 6 | 6 | 1.2 | 4.3 | 1 | | | | | Perennial forb |
| *Eriogonum strictum* var. *greenei* | Benth. | Polygonaceae | SE | 5.9 | 29.5 | 5 | 6 | 0.4 | 4.3 | 1 | 1 | | | | Perennial forb |
| *Eriogonum ternatum* | Howell | Polygonaceae | SE | 6 | 18 | 3 | 6 | 0 | 4.3 | 1 | 1 | | | | Perennial forb |
| *Eriogonum tripodum* | Greene | Polygonaceae | BE | 5.3 | 26.5 | 5 | 6 | 1.3 | 4.2 | | 1 | | | 1 | Shrub |
| *Eriogonum umbellatum* var. *argus* | Torr. | Polygonaceae | SI | 3 | 12 | 4 | 3.5 | 1.4 | CBR | 1 | 1 | | | | Perennial forb |
| *Eriogonum umbellatum* var. *bahiiforme* | Torr. | Polygonaceae | BE/SI | 3.5 | 21 | 6 | 3 | 1.2 | 4.2 | | 1 | 1 | 1 | | Perennial forb |
| *Eriogonum umbellatum* var. *goodmanii* | Torr. | Polygonaceae | SI | 3.3 | 10 | 3 | 3 | 2.5 | CBR | 1 | | | | | Perennial forb |
| *Eriogonum umbellatum* var. *humistratum* | Torr. | Polygonaceae | BE | 4.5 | 27.3 | 6 | 5 | 2.1 | 4.3 | 1 | 1 | | | | Perennial forb |
| *Eriogonum umbellatum* var. *nelsoniorum* | Torr. | Polygonaceae | SE | 5.5 | 11 | 2 | 5.5 | - | | 1 | 1 | | | | Perennial forb |
| *Eriogonum umbellatum* var. *speciosum* | Torr. | Polygonaceae | BE/SI | 4.2 | 21 | 5 | 4 | 1.3 | CBR | 1 | | | | 1 | Perennial forb |
| *Eriogonum ursinum* | S. Watson | Polygonaceae | WI/IN | 1.1 | 2.25 | 2 | 1.1 | - | | 1 | | | | 1 | Perennial forb |
| *Eriogonum vimineum* | Douglas ex Benth. | Polygonaceae | WI/IN | 1 | 3 | 3 | 1 | 0 | | 1 | | | | 1 | Annual forb |
| *Polygonum majus* | (Meisn.) Piper | Polygonaceae | WI | 1.5 | 4.5 | 3 | 2 | 0.9 | | 1 | | | | 1 | Annual forb |
| *Polygonum spergulariiforme* | Meisn. ex Small | Polygonaceae | SI | 3 | 18.3 | 6 | 2.5 | 2.1 | | 1 | 1 | 1 | | 1 | Annual forb |
| *Systenotheca vortriedei* | (Brandegee) Reveal & Hardham | Polygonaceae | SI | 3.1 | 12.3 | 4 | 2.5 | 2.2 | 4.3 | | | | 1 | | Annual forb |
| *Primula clevelandii* var. *patula* | (Greene) Mast & Reveal | Primulaceae | SI | 3 | 9 | 3 | 3 | 0 | | | | 1 | 1 | 1 | Perennial forb |
| *Adiantum aleuticum* | (Rupr.) C. A. Paris | Pteridaceae | WI | 2.4 | 11.8 | 5 | 2 | 1.2 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Aspidotis carlotta-halliae* | (W. H. Wagner & E. F. Gilbert) Lellinger | Pteridaceae | BE | 5.3 | 26.5 | 5 | 6 | 1.1 | 4.2 | | | 1 | 1 | | Perennial forb (rhiz.) |
| *Aspidotis densa* | (Brack.) Lellinger | Pteridaceae | SI | 3.4 | 31 | 9 | 3 | 1.2 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Pellaea brachyptera* | (T. Moore) Baker | Pteridaceae | WI | 1.5 | 4.5 | 3 | 2 | 0.9 | | 1 | 1 | | | 1 | Perennial forb |
| *Anemone drummondii* var. *drummondii* | S. Watson | Ranunculaceae | WI | 2.3 | 6.75 | 3 | 2 | 1.6 | | 1 | | | | 1 | Perennial forb |
| *Anemone oregana* var. *oregana* | A. Gray | Ranunculaceae | SI | 3 | 6 | 2 | 3 | - | | 1 | | | | | Perennial forb |
| *Aquilegia eximia* | Van Houtte ex Planch.. | Ranunculaceae | BE/SI | 4.2 | 25 | 6 | 3.5 | 1.5 | | | 1 | 1 | 1 | | Perennial forb |
| *Delphinium hesperium* ssp. *hesperium* | A. Gray | Ranunculaceae | SI | 2.7 | 8 | 3 | 3 | 0.6 | | 1 | 1 | 1 | | | Perennial forb |
| *Delphinium nuttallianum* | Pritz. | Ranunculaceae | WI/IN | 1.4 | 4.1 | 3 | 1 | 1.5 | | 1 | | | | 1 | Perennial forb |
| *Delphinium parryi* ssp. *eastwoodiae* | A. Gray | Ranunculaceae | BE/SI | 3.7 | 11 | 3 | 4 | 2.5 | 1B.2 | | | | 1 | | Perennial forb |
| *Delphinium uliginosum* | Curran | Ranunculaceae | SE | 5.7 | 28.5 | 5 | 6 | 0.9 | 4.2 | | 1 | | | | Perennial forb |
| *Ceanothus arcuatus* | McMinn | Rhamnaceae | BE/SI | 3.5 | 7 | 2 | 3.5 | - | | 1 | 1 | | | 1 | Shrub |
| *Ceanothus confusus* | J. T. Howell | Rhamnaceae | WI/IN | 1.3 | 2.5 | 2 | 1.3 | - | 1B.1 | | 1 | | | | Shrub |
| *Ceanothus cuneatus* var. *cuneatus* | (Hook.) Nutt. | Rhamnaceae | WI | 1.5 | 6.1 | 4 | 1.5 | 1.3 | | 1 | 1 | 1 | 1 | 1 | Shrub |
| *Ceanothus divergens* | Parry | Rhamnaceae | WI | 2 | 4 | 2 | 2 | - | 1B.2 | | 1 | | | | Shrub |
| *Ceanothus ferrisiae* | McMinn | Rhamnaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.1 | | | 1 | | | Shrub |
| *Ceanothus foliosus* var. *medius* | Parry | Rhamnaceae | BE/SI | 4 | 12 | 3 | 3 | 1.7 | | | | 1 | 1 | | Shrub |
| *Ceanothus jepsonii* | Greene | Rhamnaceae | SE | 6 | 18 | 3 | 6 | 0 | | | 1 | 1 | | | Shrub |
| *Ceanothus masonii* | McMinn | Rhamnaceae | SI | 3.3 | 6.5 | 2 | 3 | - | 1B.2 | | | 1 | | | Shrub |
| *Ceanothus pumilus* | Greene | Rhamnaceae | SE | 5.7 | 28.5 | 5 | 6 | 0.9 | | 1 | 1 | | | | Shrub |
| *Ceanothus roderickii* | W. Knight | Rhamnaceae | WI | 1.7 | 5 | 3 | 2 | 1.5 | 1B.1 | | | | | 1 | Shrub |
| *Ceanothus sonomensis* | J. T. Howell | Rhamnaceae | WI/IN | 1.3 | 4 | 3 | 2 | 1.2 | 1B.2 | | | 1 | | | Shrub |
| *Frangula californica* ssp. *crassifolia* | (Eschsch.) A. Gray | Rhamnaceae | BE | 4.8 | 19 | 4 | 6 | 2.5 | | 1 | 1 | | | | Shrub |
| *Frangula californica* ssp. *occidentalis* | (Eschsch.) A. Gray | Rhamnaceae | SE | 6 | 24 | 4 | 6 | 0 | | 1 | 1 | | | 1 | Shrub |
| *Frangula californica* ssp. *tomentella* | (Eschsch.) A. Gray | Rhamnaceae | WI | 1.5 | 6 | 4 | 0.8 | 1.7 | | 1 | 1 | 1 | 1 | 1 | Shrub |
| *Adenostoma fasciculatum* | Hook. & Arn. | Rosaceae | WI/IN | 1.3 | 5.2 | 4 | 1.1 | 1.4 | | | 1 | 1 | 1 | 1 | Shrub |

APPENDIX 1. CONTINUED.

| Taxon[1] | Authority | Family | Aff[2] | Mean[3] | Sum[4] | Sourc. | Med[5] | SD[6] | Rarity[7] | Geog. Distribution[8] | | | | | Lifeform[9] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | KL | NC | BA | SC | SN | |
| *Holodiscus discolor* | (Pursh) Maxim. | Rosaceae | WI/IN | 1 | 3 | 3 | 1 | 1 | | 1 | 1 | 1 | 1 | 1 | Shrub |
| *Horkelia congesta* var. *nemorosa* | Hook. | Rosaceae | BE/SI | 3.8 | 7.5 | 2 | 3.5 | - | 2B.1 | 1 | | | | | Perennial forb |
| *Horkelia daucifolia* | (Greene) Rydb. | Rosaceae | BE/SI | 3.8 | 15 | 4 | 3 | 1.5 | | 1 | 1 | | | | Perennial forb |
| *Horkelia daucifolia* var. *daucifolia* | (Greene) Rydb. | Rosaceae | BE | 4.5 | 9 | 2 | 4.5 | - | | 1 | | | | | Perennial forb |
| *Horkelia sericata* | S. Watson | Rosaceae | SE | 5.6 | 22.5 | 4 | 6 | 1 | 4.3 | 1 | | | | | Perennial forb |
| *Horkelia tridentata* var. *flavescens* | Torr. | Rosaceae | SI | 3 | 9 | 3 | 2 | 1.7 | | 1 | 1 | | | 1 | Perennial forb |
| *Ivesia gordonii* | (Hook.) Torr. & A. Gray | Rosaceae | WI | 1.6 | 3.25 | 2 | 1.6 | - | | 1 | 1 | | | 1 | Perennial forb |
| *Ivesia pickeringii* | Torr. ex A. Gray | Rosaceae | BE | 5.4 | 32.5 | 6 | 6 | 1 | 1B.2 | 1 | | | | | Perennial forb |
| *Potentilla cristae* | Ferlatte & Strother | Rosaceae | SI | 3.1 | 12.5 | 4 | 3 | 0 | 1B.3 | 1 | | | | | Perennial forb |
| *Sanguisorba officinalis* | L. | Rosaceae | BE/SI | 4.2 | 12.5 | 3 | 3 | 1.7 | 2B.2 | 1 | 1 | | | | Perennial forb (rhiz.) |
| *Galium ambiguum* ssp. *ambiguum* | W. Wight | Rubiaceae | SI | 3.3 | 10 | 3 | 3 | 2.5 | | | 1 | | | 1 | Perennial forb |
| *Galium ambiguum* ssp. *siskiyouense* | W. Wight | Rubiaceae | SE | 5.5 | 27.5 | 5 | 6 | 0.9 | | 1 | 1 | | | | Perennial forb |
| *Galium andrewsii* ssp. *andrewsii* | A. Gray | Rubiaceae | SI | 3.2 | 16 | 5 | 3 | 1.9 | | | 1 | 1 | 1 | | Perennial forb |
| *Galium andrewsii* ssp. *gatense* | A. Gray | Rubiaceae | BE | 5.1 | 20.5 | 4 | 5 | 0.8 | 4.2 | | | 1 | 1 | | Perennial forb |
| *Galium andrewsii* ssp. *intermedium* | A. Gray | Rubiaceae | WI/IN | 1.4 | 2.75 | 2 | 1.4 | - | | | | | 1 | | Perennial forb |
| *Galium clementis* | Eastw. | Rubiaceae | WI/IN | 1 | 2 | 2 | 1 | - | 1B.3 | | | | 1 | | Perennial forb |
| *Galium hardhamiae* | Dempster | Rubiaceae | SE | 6 | 24 | 4 | 6 | 0 | 1B.3 | | | | 1 | | Perennial forb |
| *Galium serpenticum* ssp. *scotticum* | Dempster | Rubiaceae | SE | 5.9 | 29.5 | 5 | 6 | 0.4 | 1B.2 | 1 | | | | | Perennial forb |
| *Salix breweri* | Bebb | Salicaceae | SE | 6 | 30 | 5 | 6 | 0 | | | 1 | 1 | 1 | | Shrub |
| *Salix delnortensis* | C. K. Schneid. | Salicaceae | SE | 6 | 18 | 3 | 6 | 0 | 4.3 | 1 | | | | | Shrub |
| *Salix sitchensis* | Sanson ex Bong. | Salicaceae | WI | 1.6 | 4.75 | 3 | 1 | 1.2 | | 1 | 1 | 1 | 1 | | Tree, shrub |
| *Darlingtonia californica* | Torr. | Sarraceniaceae | BE/SI | 4.1 | 32.5 | 8 | 4 | 1.4 | 4.2 | 1 | | | | 1 | Perennial forb (carn.) |
| *Micranthes howellii* | (Greene) Small | Saxifragaceae | BE/SI | 3.8 | 7.5 | 2 | 3.5 | - | 4.3 | 1 | | | | | Perennial forb |
| *Odontostomum hartwegii* | Torr. | Tecophilaeaceae | SI | 2.7 | 8 | 3 | 3 | 0.6 | | | 1 | | | 1 | Perennial forb |
| *Brodiaea rosea* ssp. *rosea* | (Greene) Baker | Themidaceae | BE/SI | 4 | 12 | 3 | 4 | 2 | 3.1 | 1 | 1 | | | | Perennial forb |
| *Brodiaea sierrae* | R. E. Preston | Themidaceae | WI | 1.7 | 5 | 3 | 1 | 1.7 | 4.3 | | | | | 1 | Perennial forb |
| *Brodiaea stellaris* | S. Watson | Themidaceae | BE/SI | 3.7 | 11 | 3 | 4 | 2.5 | | | 1 | | | | Perennial forb |
| *Muilla maritima* | (Torr.) S. Watson | Themidaceae | WI | 2 | 6 | 3 | 2 | 1 | | | 1 | 1 | 1 | 1 | Perennial forb |
| *Triteleia bridgesii* | (S. Watson) Greene | Themidaceae | SI | 3.3 | 13 | 4 | 3.5 | 1.7 | | 1 | 1 | | | 1 | Perennial forb |
| *Triteleia crocea* | (Alph. Wood) Greene | Themidaceae | BE/SI | 4.1 | 32.5 | 8 | 3.7 | 1.8 | | 1 | | | | | Perennial forb |
| *Triteleia ixioides* ssp. *cookii* | (W. T. Aiton) Greene | Themidaceae | BE | 4.5 | 13.5 | 3 | 6 | 2.9 | 1B.3 | | | | 1 | | Perennial forb |
| *Triteleia peduncularis* | Lindl. | Themidaceae | BE/SI | 3.8 | 19 | 5 | 3 | 2.2 | | 1 | 1 | 1 | 1 | | Perennial forb |
| *Verbena californica* | Moldenke | Verbenaceae | BE | 4.8 | 14.5 | 3 | 4 | 1.2 | 1B.1 | | | | | 1 | Perennial forb |
| *Viola cuneata* | S. Watson | Violaceae | BE | 5.2 | 31 | 6 | 6 | 1.3 | CBR | 1 | 1 | | | | Perennial forb |
| *Viola douglasii* | Steud. | Violaceae | SI | 2.8 | 13.8 | 5 | 2 | 2 | | 1 | 1 | 1 | 1 | 1 | Perennial forb |
| *Viola hallii* | A. Gray | Violaceae | BE/SI | 4 | 16 | 4 | 4 | 2.3 | CBR | 1 | 1 | | | | Perennial forb |
| *Viola lobata* ssp. *lobata* | Benth. | Violaceae | WI | 2.3 | 11.4 | 5 | 2 | 2.4 | | 1 | 1 | | | 1 | Perennial forb (rhiz.) |
| *Viola ocellata* | Torr. & A. Gray | Violaceae | SI | 2.5 | 12.5 | 5 | 3 | 0.9 | | 1 | 1 | 1 | 1 | | Perennial forb |
| *Viola primulifolia* ssp. *occidentalis* | L. | Violaceae | BE | 5.1 | 25.5 | 5 | 6 | 1.4 | 1B.2 | 1 | | | | | Perennial forb (rhiz.) |
| *Viola purpurea* ssp. *integrifolia* | Kellogg | Violaceae | WI/IN | 1.3 | 4 | 3 | 2 | 1.2 | | 1 | 1 | | | 1 | Perennial forb |