

**VASCULAR PLANTS OF THE UNIVERSITY OF CALIFORNIA,
IRVINE ECOLOGICAL PRESERVE**

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ABSTRACT: The University of California, Irvine's (UCI) Ecological Preserve is a 62-acre (25 hectares) habitat fragment enclosed by urban development, freeways, and other roads. Roughly 25 acres (10 hectares) are Venturan-Diegan transitional sage scrub and 37 acres (15.4 hectares) are grassland. Based upon 35 years of records, the sage scrub and grassland include two ferns and approximately 202 angiosperm species, 66 species of which are not native (32.6%), from 43 families. Added to this are species that were deliberately introduced as part of a University mitigation, consisting of created vernal pools, coastal sage scrub restoration, a wetland mitigation along one edge of the Preserve, and species intruding from adjacent faculty housing. Thus, the total flora consists of two ferns and 226 angiosperm species in 54 families. The most represented families include the Asteraceae (40 species), Poaceae (30 spp.), Brassicaceae (13 spp.), Fabaceae (12 spp.), Boraginaceae (10 spp.), Liliaceae (9 spp.) and the Apiaceae (8 spp.). Most of the species are vouchered in IRVC.

KEYWORDS: University of California, Irvine (UCI) Ecological Preserve, San Joaquin Hills, vascular plants, Irvine, Orange County, coastal sage scrub restoration, restoration, created vernal pools.

INTRODUCTION

The University of California, Irvine Ecological Preserve comprises approximately 62 acres (25 hectares) and is located at N33°38'30" W117°50' in Orange County, California. To access the Preserve from the San Joaquin Corridor, follow Bison Avenue onto the main UCI campus, then turn east on East Peltason Drive. The UCI Ecological Preserve may be accessed by the public from entrances on East Peltason Drive adjacent to University Hills Housing, and also at the corner of Los Trancos Drive and Locke

Court. There are several other entrances along trails following the Preserve boundary from East Peltason Drive toward the San Joaquin Corridor. Access is unrestricted and there is no charge. Visitors are requested to stay on trails, smoking is prohibited, and collection of plant material must be approved by the UCI Open Space Committee, through the School of Biological Sciences. A map of the campus is presented at:

<http://www.uci.edu/campusmap/UCI.pdf>

The Preserve is primarily a westerly facing slope of the San Joaquin Hills, and about 25 acres (10 hectares) are Venturan – Diegan transitional coastal sage scrub, with the other 37 acres (15.4 hectares) being grassland. The site is highly fragmented, with islands of coastal sage scrub, and cacti dominating the well drained, rocky slopes, and areas comprised primarily of annual European grasses, black mustard (*Brassica nigra*) and cardoon (*Cynara cardunculus*). The Preserve is the northernmost fragment of the San Joaquin Hills, and the four hills on the Preserve range from 22 to 44 degrees in slope, with a maximum elevation of 346.5 ft. (105 m) above sea level. Soil types include Alo clay, Cieneba sandy loam, and Myford sandy loam.

The University of California, Irvine campus was opened in 1965, and historic grazing ended in the early 1980s. The Preserve was informally recognized since the 1970s, and was formally established through the Long Range Development Plan in 1989. The Preserve is bounded by faculty and staff housing (University Hills) and the Chancellor's House on the east, the San Joaquin Corridor on the south, a research park on the west, and by East Peltason Drive on the north. Thus, it is now an isolated urban fragment. The Preserve is enrolled in the Natural Communities Conservation Plan, and it is part of a biological corridor linking the Bonita Canyon and Laguna Coast Wilderness with Newport Back Bay, San Diego Creek, and the University of California Natural Reserve System's San Joaquin Marsh Reserve.

The Preserve has been utilized for University teaching for decades, and numerous masters' (Compton 1978, for example) and doctoral dissertations (Amarasekare 1998; Krupnick 1996, and Schussler 1970, among others) have used the site in their research. There has also been considerable research activity on the Preserve ranging from lichenology (Bowler and Riefner 1990), floral herbivory and evolutionary plant ecology (numerous papers based on the theses of Amarasekare and Krupnick), to ecological restoration (Bowler 1990, 1999, 2000; Bowler et al. 1999). Other research efforts include long-term studies using permanent quadrats and transects for botanical research, and pitfall arrays to census reptiles and amphibians. The California gnatcatcher population has been monitored at this site since the early 1990s (Atwood et al. 1998a, 1998b, 1999; Bontrager 1999; Harmsworth & Assoc. 2002).

The Ecological Preserve supports a number of animal and plant species of special concern, including the cactus wren (*Campylorhynchus brunneicapillus*), California gnatcatcher (*Polioptila californica*), San Diego desert woodrat (*Neotoma lepida intermedia*), *Dudleya multicaulis* (Rare: CNPS List 1B), *Microseris douglasii* ssp. *platycarpha* (Rare: CNPS List 4), *Senecio aphanactis* (Rare: CNPS List 2), *Brodiaea jolonensis* (Rare: locally rare), *Calochortus catalinae* (Rare: CNPS List 4), and *Hordeum intercedens* (Rare: CNPS List 3). It is not known when the Preserve last burned, and it may be that several species reported but not seen in years could appear under postfire

conditions in this Venturan-Diegan transitional coastal sage scrub community. The Ecological Preserve is managed by the Ecological Preserve and Open Space Committee, through UCI's School of Biological Sciences, with the assistance of the campus's Natural Reserve System Office.

Lichens reported from the Preserve include *Thelomma mammosum*, *Buellia* sp., *Dimelaena radiata*, *Cladonia* sp., *Peltula polyspora*, *Lecania brunonis*, *Lecanora muralis*, *Lecanora* sp., *Lecidella stigmatea*, *Psorula rufonigra*, *Physconia detersa*, *Flavopunctelia flaventior*, *Xanthoparmelia mexicana*, *Caloplaca bolacina*, *C. fraudans*, *C. saxicola*, *Xanthoria candelaria* and *Lecanactis* sp. (Bowler and Riefner 1990). There are a number of additional crustose species, and subsequent to that report, a single individual of *Niebla polymorpha* was observed.

Landsnails are represented by the native *Helminthoglypta tudiculata*, and two non-native species, *Helix aspersa* and *Otala lactea*. *Helix aspersa* is limited to the wetland mitigation area and the irrigated edge of University Hills housing development. *Helminthoglypta tudiculata* occurs patchily in coastal sage scrub, and has colonized one of the restoration sites. *Otala lactea* occurs primarily on black mustard stalks, which it adorns like Christmas tree ornaments.

Reptiles known from the Preserve include the San Diego alligator lizard (*Elgaria multicarinatus webbii*), western skink (*Eumeces s. skiltonianus*), Great Basin fence lizard (*Sceloporus occidentalis longipes*), California side-blotched lizard (*Uta stansburiana elegans*), California kingsnake (*Lampropeltis getula californiae*), red coachwhip (*Masticophis flagellum piceus*), San Diego gopher snake (*Pituophis melanoleucas annectens*), and the San Diego ringneck snake (*Diadophis punctatus similis*). The southern Pacific rattlesnake (*Crotalus viridis helleri*) is known to have occurred on the Preserve in the past, but it has not been recorded there for many years, although several have been captured in nearby University housing areas. The Pacific slender salamander (*Batrachoseps major*) occurs throughout the Preserve. The Preserve is one of the U.S.G.S. Biological Resources fragment survey sites under Robert Fisher's direction.

Small mammals include the ornate shrew (*Notiosorex crawfordi*), California vole (*Microtus californicus sanctidiegi*), western harvest mouse (*Reithrodontomys megalotis longicaudis*), four deer mouse species (*Peromyscus maniculatus gambelii*; *P. californicus insignis*; *P. eremicus insulicola*; *P. boylei rowleyi*), Botta's pocket gopher (*Thomomys bottae*) and the San Diego desert woodrat (*Neotoma lepida intermedia*). The exotic house mouse (*Mus musculus*) is also present. The long-tailed weasel (*Mustela frenata latirostra*), bobcat (*Felis rufus californicus*), and coyote (*Canis latrans*) occur on the Preserve, and mule deer (*Odocoileus hemionus*) were occasionally seen into the late 1970s. Other species such as the striped skunk (*Mephitis mephitis holzneri*), opossum (*Didelphis marsupialis virginiana*), raccoon (*Procyon lotor psora*) and the Norway rat (*Rattus norvegicus*) are known from the adjacent UCI campus or University Hills complex and likely wander onto the Preserve.

In 1991, the campus planted a wetland mitigation project in a wedge-shaped artificial drainage adjacent the University Hills faculty and staffing housing, and West Peltason Drive. Although many individual trees died, the following species, most of which did not previously occur in the Preserve, were introduced: *Quercus agrifolia*, *Q. chrysolepis*,

Platanus racemosa, *Salix gooddingii*, and *Artemisia douglasiana*. An S & S Seed Company provided “California native grassland” seedmix comprising *Aristida purpurea*, *Bromus carinatus*, *Plantago insularis*, *Sisyrinchium bellum*, *Nassella lepida*, *Nassella pulchra*, and the S & S Seed “riparian swale” seedmix consisting of *Anemopsis californica*, *Artemisia douglasiana*, *Artemisia palmeri*, *Leymus triticoides*, *Festuca rubra* “Molate” and *Gnaphalium californicum* were also applied. However, *Bromus carinatus*, *Plantago insularis*, and *Festuca rubra* have not persisted, and they are not included in the current compilation of species for the Preserve.

In 1996 The Irvine Company created two vernal pools in the Preserve that were inoculated with soil samples from over twenty small pools taken to realign California Avenue along the northwestern boundary of the UCI campus and adjacent Irvine Company land. Plants in the vernal pools included *Psilocarphus brevissimus*, *Lythrum hyssopifolium*, *L. tribracteatum*, *Plagiobothrys acanthocarpus*, *Plantago elongata*, *Eleocharis macrostachya*, *Juncus bufonius* var. *congestus*, *Veronica peregrina* ssp. *xalapensis*, *Polypogon monspeliensis*, *Frankenia salina*, *Distichlis spicata*, and *Rumex crispus* (see Table 1).

The UCI Ecological Preserve has a known flora of two fern species and 226 angiosperm species in 54 families. Excluding the species introduced deliberately in the wetland mitigation project, the created vernal pools, the coastal sage scrub restorations, and species occurring just along the interface between the landscaped housing areas and the Preserve (see Table 1), there are approximately 202 angiosperm species within 43 families in the sage scrub and grassland habitats. Of these, 66 species, or 32.6%, are not native, a proportion greater than that of the state as reported in Hickman (1993; 17.4% of the California flora), but similar to the non-native component of the County flora (1,193 species; 387 are non-native species, or 32.4% exotics, Roberts 1998).

The taxonomy used in Table 1 for the most part follows the Jepson Manual (Hickman [ed.] 1993) and incorporates subsequent taxonomic changes reflected in the Jepson Interchange, whereby the name appearing in the Manual appears in brackets following the current name.

Table 1. Vascular plant species recorded at the UCI Ecological Preserve. Life history abbreviations are: A = Annual; B = Biennial; P = Perennial. Habitats where found are: Coastal sage scrub (CSS), wetland mitigation area (W), created vernal pools (VP), grassland (G), and ruderal (R).

DIVISION PTEROPHYTA – FERNS

Family Pteridaceae – Lip Fern Family

<i>Adiantum jordanii</i> C. Mueller California maiden-hair fern	P	CSS
<i>Pentagramma triangularis</i> (Kaulfuss) G. Yatskievych, M.D. Windham & E. Wollenweber Goldback fern	P	CSS

DIVISION ANTHOPHYTA – FLOWERING PLANTS

Class Dicotyledones – DICOTS

Family Adoxaceae – Honeysuckle Family

<i>Sambucus mexicana</i> C. Presl Mexican elderberry, blue elderberry	P	CSS, W
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Amaranthaceae – Amaranth Family

* <i>Amaranthus albus</i> L. Tumbling pigweed	A	G, R
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Anacardiaceae – Sumac Family

<i>Malosma laurina</i> (Nuttall) Abrams Laurel sumac	P	CSS
<i>Rhus integrifolia</i> (Nuttall) Bentham & Hooker Lemonade berry	P	CSS
* <i>Schinus terebinthifolius</i> Raddi Brazilian pepper	P	W

Apiaceae – Carrot Family

<i>Apiastrum angustifolium</i> Nuttall Mock parsley	A	CSS
<i>Bowlesia incana</i> Ruiz & Pávon American bowlesia	A/B	CSS

**Conium maculatum* L.

Poison hemlock	B	G, R
<i>Daucus pusillus</i> Michaux Rattlesnake weed	A/B	CSS
* <i>Foeniculum vulgare</i> P. Miller Sweet fennel	P	CSS, G
<i>Sanicula arguta</i> E. Greene ex Coulter & Rose Sharp-tooth sanicle	B/P	CSS, G
<i>Sanicula bipinnata</i> Hooker & Arnott Poison sanicle	P	CSS, G
<i>Yabea microcarpa</i> (Hooker & Arnott) Kozo-Polianski California hedge-parsley	A	CSS

Asclepiadaceae – Milkweed Family

<i>Asclepias fascicularis</i> Decaisne in A. DC. Narrow-leaved milkweed	A	G
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Asteraceae – Sunflower Family

<i>Ambrosia psilostachya</i> DC. Western ragweed	P	W, G
<i>Artemisia californica</i> Lessing California sagebrush	P	CSS
<i>Artemisia douglasiana</i> Besser in Hooker Mugwort	P	W, G
<i>Artemisia palmeri</i> A. Gray (Planted) San Diego sagewort Rare: CNPS List 4	B/P	W
<i>Baccharis pilularis</i> DC. Coyote brush	P	CSS, G
<i>Baccharis salicifolia</i> (Ruiz & Pávon) Persoon Mulefat	P	W
* <i>Centaurea melitensis</i> L. Tocalote	A	CSS, G, R
<i>Chaenactis artemisiifolia</i> (A. Gray) A. Gray Artemisia-leaved pincushion	A	G, R
<i>Cirsium occidentale</i> (Nuttall) Jepson ssp. <i>californica</i> (A. Gray) Keil & C. Turner Cobweb Thistle	A	G
* <i>Conyza bonariensis</i> (L.) Cronquist Flax-leaved horseweed	A	G

<i>Conyza canadensis</i> (L.) Cronquist Common horseweed	A	W
<i>Corethrogyne filaginifolia</i> (Hooker & Arnott) Nuttall var. <i>f.</i> [<i>Lessingia filaginifolia</i> (DC.) M.A. Lane var. <i>f.</i> <= <i>C. f.</i> var. <i>virgata</i> (Bentham) A. Gray]		
Common sand aster	P	CSS, G
* <i>Cotula australis</i> (Sieber) Hooker f. Australian brass-buttons	A	W, CSS, G,R
* <i>Cynara cardunculus</i> L. Arthichoke thistle	P	CSS, G, R
<i>Deinandra fasciculata</i> (DC.) E. Greene Fascicled tarweed	A	CSS, G, R
<i>Encelia californica</i> Nuttall California bush sunflower	P	CSS
<i>Ericameria palmeri</i> (A. Gray) H.M. Hall var. <i>pachylepsis</i> (A. Gray) G. Nesom Grassland goldenbush	P	G
<i>Filago californica</i> Nuttall California fluffweed	A	CSS, G
* <i>Filago gallica</i> L. Narrow-leaved filago	A	CSS, G
<i>Gnaphalium bicolor</i> Bioletti Bicolored cudweed	P	CSS
<i>Gnaphalium californicum</i> DC. California everlasting	A/B	CSS, W
<i>Gnaphalium canescens</i> DC. ssp. <i>microcephalum</i> (Nuttall) Stebbins & Keil White everlasting	B	CSS
<i>Grindelia camporum</i> E. Greene var. <i>bracteosum</i> (J.T. Howell) M.A. Lane White-stem gumplant	P	G
* <i>Hypochaeris glabra</i> L. Smooth cat's-ear	A	G, R
<i>Isocoma menziesii</i> (Hooker & Arnott) G. Nesom var. <i>vernonioides</i> (Nuttall) G. Nesom Coastal golden bush	P	CSS, G
<i>Lactuca serriola</i> L. Prickly lettuce	A	R
<i>Lasthenia gracilis</i> (DC.) E. Greene [<i>L. californica</i> Lindley] California goldfields	A	CSS, G
<i>Microseris douglasii</i> (DC.) Schultz-Bipontinus ssp. <i>platycarpa</i> (A. Gray) Chambers Small-flowered microseris Rare: CNPS List 4	A	G

* <i>Picris echioides</i> L. Bristly ox-tongue	A/B	W, G, R
<i>Pluchea odorata</i> (L.) Cassini Marsh flea-bane	A/P	W
<i>Psilocarphus brevissimus</i> Nuttall var. <i>brevissimus</i> Woolly marbles	A	VP, G
<i>Senecio aphanactis</i> E. Greene California groundsel Rare: CNPS List 2	A	CSS
* <i>Senecio vulgaris</i> L. Common groundsel	A	CSS, G
* <i>Silybum marianum</i> (L.) Gaertner Milk thistle	A/B	G
* <i>Sonchus asper</i> (L.) Hill Prickly sow thistle	A	W, G
* <i>Sonchus oleraceus</i> L. Common sow thistle	A	CSS, G, R
<i>Stebbinsoseris heterocarpa</i> (Nuttall) Chambers Derived microseris	A	G
<i>Stephanomeria virgata</i> Benthams ssp. <i>virgata</i> Virgate wreath plant	A	CSS, G, R
<i>Stylocline gnaphaloides</i> Nuttall Everlasting nest-straw	A	CSS
<i>Uropappus lindleyi</i> (DC.) Nuttall Silver puffs	A	CSS, G

Boraginaceae – Borage Family

<i>Amsinckia menziesii</i> (Lehmann) Nelson & J.F. Macbride var. <i>intermedia</i> (Fisher and C.A. Meyer) Ganders Common fiddleneck	A	CSS, G, R
<i>Cryptantha clevelandii</i> E. Greene Cleveland's cryptantha	A	CSS
<i>Cryptantha intermedia</i> (A. Gray) E. Greene Common cryptantha	A	CSS, G
<i>Cryptantha microstachys</i> (A. Gray) E. Greene Tejon cryptantha	A	CSS
<i>Cryptantha muricata</i> (Hooker & Arnott) Nelson & J.F. Macbride Prickly cryptantha	A	CSS

<i>Pectocarya linearis</i> (Ruiz & Pávon) DC. ssp. <i>ferocula</i> (I.M. Johnston) Thorne Slender pectocarya	A	CSS, G
<i>Plagiobothrys acanthocarpus</i> (Piper) I.M. Johnston Adobe popcorn flower, Adobe allocarya	A	G, VP
<i>Plagiobothrys collinus</i> (Philippi) I.M. Johnston var. <i>californicus</i> (A. Gray) Higgins California popcorn flower	A	G
<i>Plagiobothrys collinus</i> (Philippi) I.M. Johnston var. <i>gracilis</i> (I.M. Johnston) Higgins San Diego popcorn flower	A	CSS
<i>Plagiobothrys nothofulvus</i> (A. Gray) A. Gray Rusty popcorn flower	A	G

Brassicaceae – Mustard Family

* <i>Brassica nigra</i> (L.) W.D.J. Koch Black mustard	A	CSS, G, R
* <i>Brassica rapa</i> L. ssp. <i>sylvestris</i> (L.) Janchen Field mustard	A/B	R
* <i>Capsella bursa-pastoris</i> (L.) Medikus Shepherd's purse	A	G, R
<i>Descurainia pinnata</i> (Walter) Britton ssp. <i>menziesii</i> (DC.) Detling Western tansy mustard	A	CSS
<i>Guillenia lasiophylla</i> (Hooker & Arnott) E. Greene California mustard	A	CSS
* <i>Hirschfeldia incana</i> (L.) Lagrèze-Fossat Summer mustard	B/P	CSS, G, R
<i>Lepidium lasiocarpum</i> Torrey and A. Gray Sand peppergrass	A	CSS, G
<i>Lepidium nitidum</i> Torrey & A. Gray Shining peppergrass	A	CSS, G
* <i>Lobularia maritima</i> (L.) Desvaux Sweet-alyssum	P	G, R
* <i>Raphanus sativus</i> L. Wild radish	A/B	G
* <i>Sinapis arvensis</i> L. Charlock	A	R
* <i>Sisymbrium irio</i> L. London rocket	A	CSS, G
* <i>Sisymbrium orientale</i> L.		

Hare's-ear cabbage	A	G, R
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Cactaceae – Cactus Family

<i>Cylindropuntia prolifera</i> (Engelmann) F.M. Knuth [<i>Opuntia prolifera</i> Engelmann]		
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Coastal cholla	P	CSS
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<i>Opuntia littoralis</i> (Engelmann) Cockerell		
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Coastal prickly pear	P	CSS
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<i>Opuntia X occidentalis</i> Engelmann		
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Western prickly pear	P	CSS
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<i>Opuntia oricola</i> Philbrick		
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Oracle cactus	P	CSS
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Capparaceae – Caper Family

<i>Isomeris arborea</i> Nuttall		
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Bladderpod	P	CSS
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Caryophyllaceae – Pink Family

<i>Cardionema ramosissimum</i> (J.A. Weinmann) Nelson & J.F. Macbride		
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Sand mat	P	R
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<i>Silene antirrhina</i> L.		
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Snapdragon catchfly	A	CSS
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* <i>Silene gallica</i> L.		
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Windmill pink	A	G, R
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* <i>Spergula arvensis</i> L. ssp. <i>arvensis</i>		
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Corn spurry	A	G
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* <i>Spergularia villosa</i> (Persoon) Cambessèdes		
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Villous sand spurry	P	G, R
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* <i>Stellaria media</i> (L.) Villars		
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Common chickweed	A	G
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<i>Stellaria nitens</i> Nuttall		
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Shiny chickweed	A	CSS
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Chenopodiaceae – Goosefoot Family

* <i>Atriplex semibaccata</i> R. Brown		
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Australian saltbush	P	CSS, G, R
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* <i>Beta vulgaris</i> L.		
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Garden beet	A/P	R
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* <i>Chenopodium album</i> L.		
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Lamb's quarters	A	W
<i>Chenopodium californicum</i> (S. Watson) S. Watson California goosefoot	P	CSS, G
* <i>Chenopodium murale</i> L. Nettle-leaved goosefoot	A	CSS, G, R
* <i>Salsola tragus</i> L. Russian-thistle	A	CSS, G, R

Convolvulaceae – Morning-glory Family

<i>Calystegia macrostegia</i> (E. Greene) Brummitt ssp. <i>intermedia</i> (Abrams) Brummitt Short-lobed morning-glory	P	CSS
* <i>Convolvulus arvensis</i> L. Field bindweed	P	G, R

Crassulaceae – Stonecrop Family

<i>Crassula connata</i> (Ruiz & Pávon) A. Berger Sand pigmy stonecrop	A	CSS, G
<i>Dudleya lanceolata</i> (Nuttall) Britton & Rose Lance-leaf dudleya	P	CSS
<i>Dudleya multicaulis</i> (Rose) Moran Many-stemmed dudleya Rare: CNPS List 1B	P	CSS
<i>Dudleya pulverulenta</i> (Nuttall) Britton & Rose Chalky live-forever	P	CSS

Cucurbitaceae – Gourd Family

<i>Cucurbita foetidissima</i> Kunth Coyote melon	P	CSS
<i>Marah macrocarpus</i> (E. Greene) E. Greene Wild cucumber	P	G

Cuscutaceae – Dodder Family

<i>Cuscuta californica</i> Hooker & Arnott California witch's hair	A	CSS
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Euphorbiaceae – Spurge Family

<i>Chamaesyce albomarginata</i> (Torrey & A. Gray) Small Rattlesnake weed	P	CSS
<i>Chamaesyce polycarpa</i> (Bentham) Millspaugh		

Golondrina	P	CSS, G, R
* <i>Chamaesyce prostrata</i> (Aiton) Small Prostrate spurge	A	CSS, G, R
<i>Croton setigerus</i> Hooker [<i>Eremocarpus setigerus</i> (Hooker) Bentham] Dove weed	A	G, R

Fabaceae – Pea Family

<i>Lotus hamatus</i> E. Greene Grab lotus	A	G
<i>Lotus scoparius</i> (Nuttall) Ottley Deer weed	P	CSS, G
<i>Lotus strigosus</i> (Nuttall) E. Greene Strigose lotus	A	G
<i>Lotus wrangelianus</i> Fischer & C.A. Meyer California lotus	A	G
<i>Lupinus bicolor</i> Lindley Miniature lupine	A	G
<i>Lupinus succulentus</i> K. Koch Arroyo lupine	A	G
<i>Lupinus truncatus</i> Hooker & Arnott Collar lupine	A	CSS, G
* <i>Medicago polymorpha</i> L. Bur clover	A	G
* <i>Melilotus indica</i> (L.) Allioini Yellow sweet-clover	A	G
<i>Trifolium depauperatum</i> Desvaux var. <i>amplectens</i> (Torrey & A. Gray) L.F. McDermott Pale sack clover	A	G
* <i>Trifolium hirtum</i> Allioini Bristled clover, Rose clover	A	G
<i>Trifolium willdenovii</i> Sprengel Valley clover	A	G

Fagaceae – Oak Family

<i>Quercus agrifolia</i> Née (Planted) Coast live oak	P	W
<i>Quercus chrysolepis</i> Liebmann (Planted) Canyon live oak	P	W

Frankeniaceae – Alkali-heath Family

Frankenia salina (Molina) I.M. Johnston
Alkali heath P VP

Geraniaceae – Geranium Family

**Erodium botrys* (Cavanilles) Bertolini
Long-beaked filaree A G, R
**Erodium cicutarium* (L.) L'Héritier
Red-stemmed filaree A CSS, G, R
**Erodium moschatum* (L.) L'Héritier
White-stemmed filaree A G

Hydrophyllaceae – Waterleaf Family

Eucrypta chrysanthemifolia (Bentham) E. Greene
Common eucrypta A CSS
Phacelia cicutaria E. Greene var. *hispida* (A. Gray) J.T. Howell
Caterpillar phacelia A CSS
Phacelia parryi Torrey
Parry's phacelia A CSS
Pholistoma auritum (Lindley) Lilja var. *auritum*
Blue fiesta flower A CSS

Lamiaceae – Mint Family

**Marrubium vulgare* L.
Common horehound P CSS, G, R
Salvia mellifera E. Greene (Transplanted)
Black sage P CSS
Scutellaria tuberosa Bentham
Danny's skullcap P G
Stachys ajugoides Bentham var. *rigida* Jepson & Hoover
Rigid hedge-nettle P G

Lythraceae – Loosestrife Family

**Lythrum hyssopifolium* L.
Grass poly A VP
**Lythrum tribracteatum* Sprengel
Three-bract loosestrife A VP

Malvaceae – Mallow Family

**Malva parviflora* L.
Cheese weed A G, R

Myrtaceae – Myrtle Family

Eucalyptus spp. (three)
Gum, Eucalyptus P W, G

Nyctaginaceae – Four O’Clock Family

Mirabilis laevis (Bentham) Curran
var. *crassifolius* (Choisy) Spellenberg [*M. californica* A. Gray]
Wishbone bush P CSS

Onagraceae – Evening Primrose Family

Camissonia bistorta (Torrey & A. Gray) Raven
California sun cup A CSS

Camissonia micrantha (Sprengel) Raven
Small primrose A CSS

Epilobium canum (E. Greene) Raven ssp. *canum*
Hoary California-fuchsia, Narrow-leaved-fuchsia P CSS

Oxalidaceae – Oxalis Family

**Oxalis pes-caprae* L.
Bermuda-buttercup, Sour-grass P CSS

Papaveraceae – Poppy Family

Eschscholzia californica Chamisso
California poppy A G

Plantaginaceae – Plantain Family

Plantago elongata Pursh
California alkali plantain A VP

Plantago erecta E. Morris
Dwarf plantain A CSS, G

**Plantago ovata* Forsskål
Woolly plantain A W

Platanaceae – Sycamore Family

Platanus racemosa Nuttall (Planted)
Western sycamore P W, R

Pittosporaceae – Pittosporum Family

**Pittosporum* sp.
Pittosporum P W

Plumbaginaceae – Leadwort Family

**Limonium perezii* (Stapf) F.T. Hubbard P CSS
Perez's sea-lavender

Polemoniaceae – Phlox Family

Gilia angelensis V. Grant
Los Angeles gilia P CSS, G

Polygonaceae – Buckwheat Family

Chorizanthe staticoides Bentham
Turkish rugging A CSS

Eriogonum fasciculatum Bentham var. *fasciculatum*
California buckwheat P CSS

Pterostegia drymarioides Fischer & C.A. Meyer
Granny's hairnet A CSS

**Rumex conglomeratus* J. Murray
Whorled dock P R

**Rumex crispus* L. P CSS, R, VP
Curly dock

Portulacaceae – Purslane Family

Calandrina ciliata (Ruiz & Pávon) DC.
Red maids A CSS

Claytonia perfoliata Willdenow ssp. *perfoliata*
Common miner's lettuce A W

**Portulaca oleracea* L. A G, R
Common purslane

Primulaceae – Primrose Family

**Anagallis arvensis* L. A CSS, G
Scarlet pimpernel

Dodecatheon clevelandii E. Greene ssp. *clevelandii*
Padre's shooting star P G

Rosaceae – Rose Family

Heteromeles arbutifolia (Lindley) M. Roemer
Toyon P CSS

Rosa californica Chamisso & Schlectendal (Planted)
California wild rose P W

Rubiaceae – Madder Family

**Galium aparine* L.
Common bedstraw A CSS

Salicaceae – Willow Family

Salix gooddingii C. Ball (Planted)
Black willow P W

Salix lasiolepis Bentham (Planted)
Arroyo willow P W

Saururaceae – Lizard Tail Family

Anemopsis californica (Nuttall) Hooker & Arnott (Planted)
Yerba mansa P W

Scrophulariaceae – Figwort Family

Antirrhinum sp.
Snapdragon A CSS, G

Antirrhinum nuttallianum Bentham
Nuttall's snapdragon A CSS

Castilleja exserta (A.A. Heller) Chuang & Heckard
Owl's-clover A G

Linaria canadensis (L.) Dumont de Courset var. *texana* (Scheele) Pennell
Larger blue toad flax A CSS

Mimulus aurantiacus Curtis
Orange-bush monkeyflower P CSS, W

Veronica peregrina L. ssp. *xalapensis* (Kunth) Pennell
Mexican speedwell A G, VP

Solanaceae – Nightshade Family

Datura wrightii Regel
Jimson weed A/P G

Nicotiana quadrivalvis Pursh

Wallace's tobacco	A	CSS
* <i>Nicotiana glauca</i> Graham Tree tobacco	P	CSS, G, R
<i>Solanum douglasii</i> Dunal Douglas' nightshade	P	CSS

Tamaricaceae –Tamarisk Family

* <i>Tamarix ramosissima</i> Ledebour Mediterranean tamarisk	P	W
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Urticaceae – Nettle Family

<i>Parietaria hespera</i> B.D. Hinton var. <i>californica</i> B.D. Hinton California pellitory	A	CSS
* <i>Urtica urens</i> L. Dwarf nettle	A	G, W

Class Monocotyledones MONOCOTS

Family Arecaceae – Palm Family

* <i>Washingtonia robusta</i> H.A. Wendland Mexican fan palm	P	W
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Cyperaceae – Sedge Family

<i>Eleocharis macrostachya</i> Britton Pale spike rush	P	W
<i>Scirpus californicus</i> (C.A. Meyer) Steudel California bulrush	P	W

Iridaceae – Iris Family

<i>Sisyrinchium bellum</i> S. Watson Blue-eyed-grass	P	G
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Junaceae – Rush Family

<i>Juncus bufonius</i> L. var. <i>bufonius</i> Toad rush	A	G, W
<i>Juncus bufonius</i> L. var. <i>congestus</i> Wahlenberg Clustered toad rush	A	G, W

Liliaceae – Lily Family

<i>Allium haematochiton</i> S. Watson Red-skinned onion	P	CSS, G
<i>Allium praecox</i> Brandegee Early onion	P	CSS, G
<i>Bloomeria crocea</i> (Torrey) Coville Golden stars	P	CSS, G
<i>Brodiaea jolonensis</i> Eastwood Mesa brodiaea Locally rare	P	CSS, G
<i>Calochortus catalinae</i> S. Watson Catalina mariposa lily Rare: CNPS List 4	P	CSS, G
<i>Calochortus splendens</i> Bentham Splendid mariposa lily	P	CSS, G
<i>Chlorogalum pomeridianum</i> (DC.) Kunth Wavy-leaved soap plant	P	CSS, G
<i>Dichelostemma capitatum</i> Alph. Wood Blue dicks	P	CSS, G
<i>Muilla maritima</i> (Torrey) S. Watson Rough or common muilla	P	G

Poaceae – Grass Family

<i>Agrostis viridis</i> Gouan [name may resolve to <i>A. semiverticillata</i> (Forsskål) C. Christiansen] Water bentgrass	P	W
* <i>Avena barbata</i> Link. Slender wild oat	A	CSS, G, R
* <i>Avena fatua</i> L. Wild oat	A	G, R
* <i>Avena sativa</i> L. Cultivated oat	A	G
* <i>Brachypodium distachyon</i> (L.) Palisot de Beauvois Purple false brome	A	G
* <i>Bromus catharticus</i> M. Vahl Rescue grass	A	G
* <i>Bromus diandrus</i> Roth Ripgut brome	A	G, R
* <i>Bromus hordeaceus</i> L. ssp. <i>hordeaceus</i>		

Soft chess	A	G
* <i>Bromus madritensis</i> L. ssp. <i>rubens</i> (L.) Husnot		
Red brome	A	G
* <i>Cynodon dactylon</i> (L.) Persoon		
Bermuda grass	P	G
<i>Distichlis spicata</i> (L.) E. Greene		
Salt grass	P	W
<i>Hordeum depressum</i> (Scribner & J.G. Smith) Rydberg		
Low barley	A	G
<i>Hordeum intercedens</i> Nevski		
Vernal barley Rare: CNPS List 3	A	G
* <i>Hordeum marinum</i> Hudson ssp. <i>gussoneanum</i> (Parlatore) Thellung		
Mediterranean barley	A	G
* <i>Hordeum murinum</i> L. ssp. <i>leporinum</i> (Link) Archangeli		
Foxtail barley	A	G
* <i>Lamarckia aurea</i> (L.) Moench		
Goldentop	A	CSS, R
<i>Leymus condensatus</i> (C. Presl) A. Löve		
Giant wild rye	P	W, CSS
<i>Leymus triticoides</i> (Buckley) Pilger		
Beardless wild-rye	P	W
* <i>Lolium multiflorum</i> Lamarck		
Italian ryegrass	A/B	W, G
<i>Melica imperfecta</i> Trinius		
Small-flowered melic	A	CSS
<i>Muhlenbergia microsperma</i> (DC.) Trinius		
Littleseed muhly	A	CSS
<i>Nassella lepida</i> (A.S. Hitchcock) Barkworth		
Foothill needle grass	P	CSS, G
<i>Nassella pulchra</i> (A.S. Hitchcock) Barkworth		
Purple needle grass	P	G
* <i>Phalaris minor</i> Retzius		
Littleseed canary grass	A	G
* <i>Phalaris paradoxa</i> L.		
Paradox canary grass	A	G
<i>Poa secunda</i> J.S. Presl		
Malpais blue grass, One-sided bluegrass	P	CSS

* <i>Polypogon monspeliensis</i> (L.) Desfontaines Rabbit's foot grass, Annual beard-grass	A	W, VP
* <i>Schismus barbatus</i> (L.) Thellung Mediterranean schismus	A	CSS, G, R
* <i>Sorghum halepense</i> (L.) Persoon Johnson grass	P	W
* <i>Vulpia myuros</i> (L.) K.C. Gmelin Foxtail fescue	A	CSS, G, R

Typhaceae – Cattail Family

<i>Typha domingensis</i> Persoon Slender cattail, Southern cattail	P	W
<i>Typha latifolia</i> L. Broad-leaved cattail	P	W

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Voucher specimens of a majority of the species, both from the Museum's efforts in 1981, and subsequent additions to the flora are deposited in IRVC, and are available through the UCI Arboretum or PAB (pabowler@uci.edu).

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