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VASCULAR FLORA OF THE SAN MATEO CANYON WILDERNESS AREA, CLEVELAND NATIONAL FOREST, CALIFORNIA

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ABSTRACT

The Santa Ana Mountains, as a whole, have been well-studied floristically. Little work, however, has been conducted previously in the southwestern portion of the range which includes the San Mateo Canyon Wilderness Area of the Cleveland National Forest. This study reports the results of our floristic surveys conducted in the wilderness over a three-year period, from December 1991 through October 1994. The study area, encompassing the headwaters of the San Mateo Canyon watershed, is topographically and geologically diverse. Vegetation is characterized by a complex assemblage of chaparral and coastal sage scrub, oak woodland, native and nonnative grasslands, and riparian woodland and scrub formations. A total of 626 vascular plant taxa is reported for the wilderness, including 500 here considered native and 126 considered nonnative. Among these are 88 taxa not previously reported for the Santa Ana Mountains. Populations of 12 sensitive plant taxa are documented from the study area; these include Baccharis vanessae, Brodiaea filifolia, B. orcuttii, Chorizanthe polygonoides var. longispina, C. procumbens, Dudleya multicaulis, D. viscida, Harpagonella palmeri, Horkelia truncata, Mimulus diffusus, Polygala comuta ssp. fishiae, and Quercus engelmannii.

Key words: California, chaparral, coastal sage scrub, floristics, grassland, oak woodland, Peninsular Ranges, riparian woodland, Santa Ana Mountains, sensitive plants.

INTRODUCTION

The Santa Ana Mountains of southern California are often considered to be one of the best botanically documented ranges in the southern part of the state. In the last 65 years, various workers have reported on the flora of portions of the range (Howell 1929; Pequegnat 1951; Boughey 1968; Lathrop and Thorne 1968, 1985; Little 1977, and Boyd 1983), and in 1978, Lathrop and Thorne presented a preliminary flora of the entire range. Little detailed information has been available, however, for a sizable area at the southern end of the range included in the San Mateo Canyon Wilderness Area of the Cleveland National Forest.

This wilderness area serves to protect a rich diversity of habitat types and plant taxa characteristic of lower-elevation regions of cismontane southern California, resources which are rapidly disappearing on privately held lands outside the forest. Until our study, there had been almost no information on presence and abundance of sensitive plants in this region. In large part, this paucity of information could be attributed to the rugged terrain and dense vegetation which limit access into many parts of the wilderness. In this paper, we present the findings of our recent survey of the botanical resources in the San Mateo Canyon Wilderness Area.

Floristic field surveys were originally conducted for the Cleveland National Forest from December 1991 to September 1992, with a few supplementary surveys between October 1992 and October 1994. Above-average precipitation during the spring seasons of 1992 and 1993, and the resultant favorable growing conditions, provided an excellent opportunity to document the wilderness flora. A total of 42 days was spent engaged in fieldwork. Our efforts were largely focused on areas adjacent to the established trail network due to the relative inaccessibility of most other areas. Trail segments not surveyed were limited to four relatively short stretches: the trail south from Indian Potrero to the Camp Pendleton border, Tenaja Trail from Pigeon Spring west to Four Corners, the firebreak from Round Potrero to the Tenaja Trail, and the upper portion of the new trail from the Sitton Peak Road into Lucas
Canyon. [Use of place names is discussed under Physical Setting.] In addition to surveys along trails, we selected several areas not accessible by trail including upper and central Devil Canyon, upper north fork of Cold Spring Canyon, lower San Mateo Canyon, Miller Mountain (via "Miller Canyon"), lower Lucas and Aliso canyons, lower Wildhorse Canyon, and "Potrero Escondido." An effort was made to survey representative areas of all geologic substrates and as much of the topographic diversity within the wilderness as possible.

Voucher specimens were collected for nearly all taxa encountered, with special attention given to documenting new populations of sensitive plants, taxonomically difficult groups, species of relatively limited distribution within the Santa Ana Mountains, and new additions to the flora of the range.

**PHYSICAL SETTING**

The San Mateo Canyon Wilderness Area, one of 23 wilderness areas established by the California Wilderness Act of 1984, is situated in the southern portion of the Santa Ana Mountains roughly between the Ortega Highway (Hwy 74) on the north, Camp Pendleton Marine Corps base on the south, the Santa Rosa Plateau to the east, and Rancho Mission Viejo to the west (Fig. 1). The wilderness encompasses approximately 15,816 ha (39,540 acres) in portions of Orange, San Diego, and Riverside counties. Elevations range from 1078 m (3536 ft) in the northeastern corner to 152 m (500 ft) where San Mateo Creek exits the wilderness in the southwestern corner.

Throughout this paper, we have attempted to use only place names which appear on the USGS 7.5' topographic maps covering the study area (Sitton Peak, Wildomar, Fallbrook, Alberhill, and Canada Gobernadora quadrangles, modified for Forest Service use). In two cases, however, important physical features pertinent to this project lacked official place names. One, the major canyon draining the south flank of Miller Mountain through T7S R5W, sections 10 and 15, is referred to as "Miller Canyon" or "Miller Creek." The other, "Potrero Escondido," is an isolated flat in T7S R5W, section 16, west of the confluence of San Mateo and Los Alamos creeks.

San Mateo Canyon is here interpreted as originating in Potrero de la Cienega, Los Alamos Canyon, which joins San Mateo Canyon near the intersection of Forest Service roads 7501 and 7502, although technically the larger drainage, is treated as a major tributary. Our use of the name "San Mateo Creek" refers to the stream in San Mateo Canyon, not the major tributary of Devil Canyon in T8S R5W section 14, which unfortunately also bears this name on some maps.

The bulk of the wilderness is centered around the upper watershed of San Mateo Creek. In addition to the main trunk of San Mateo Canyon, there are numerous major and minor tributary drainages. Some of the major tributaries of San Mateo Canyon include Tenaja, Devil, Los Alamos, Wildhorse, Bluewater, and Nickel canyons. Ultimately, San Mateo Creek flows into the Pacific Ocean at San Onofre, just south of San Clemente. A limited portion of the wilderness includes areas outside of the San Mateo watershed, notably Lucas, Aliso, Verdugo, and Talega canyons to the west, and Bear and Morrell canyons to the north.

The topography of the San Mateo Canyon Wilderness Area is fairly typical of the Santa Ana Mountains as a whole. The area is dominated by rugged, steep-sided ridges. Boulder outcrops are frequent on the slopes and ridgetops, and cliff-faces occur in the head walls of some steep side canyons. Most of the canyon bottoms are filled with large to medium-sized boulders, with development of large gravel benches mostly limited to the largest drainages. In many areas, the canyon floors have been eroded to bedrock. In these areas, bedrock pools, or tenajas, are common. In a few locations, sizable waterfalls are present. The rugged topography, in conjunction with dense scrub vegetation, makes cross-country travel exceptionally difficult. Easy access can be gained only along developed trails, relatively open canyon floors, and on slopes in the first year or two following a burn.

Areas of more gentle relief are also present, however. These relatively level areas are the fragmented remains of old erosional surfaces. Four discrete surfaces have been identified in the Santa Ana Mountains including: 1) Santa Rosa surface, from 518 to 579 m in elevation (1700-1900 ft); 2) La Cienega surface, from 640 to 778 m (2100-2550 ft); 3) Los Piños surface, from 884 to 1,076 m (2900-3530 ft); and 4) Trabuco surface, from 1189 to 1395 m (3900-4575 ft) (Engle 1959). Most of the flats within the wilderness correspond to the La Cienega surface. These may be manifested as small flattish areas on the tops of ridges, or may be considerably larger. Some of the largest flats include areas such as Verdugo Potrero, Oak Flats, Potrero de la Cienega, Indian Potrero, and "Potrero Escondido." Miller Mountain has areas corresponding in elevation to both the La Cienega and Los Piños surfaces. The most extensive development of Los Piños surface topography is in the northeastern corner of the wilderness. No areas corresponding to the Trabuco surface occur within the wilderness, and only a very limited area of Santa Rosa surface is found on the north side of upper Tenaja Canyon.

The bedrock geology of the wilderness is relatively simple and characteristic of the Santa Ana Mountains as a whole (Rogers 1965). Granitic rocks, principally granodiorite, are predominant over much of the eastern and central portions of the wilderness. A relatively
large island of granitic rock is present about the confluence of San Mateo and Devil canyons. This unit is surrounded by metavolcanic rocks of the Santiago Peak formation which characterize the western third of the wilderness. Metasedimentary rocks of the Bedford Canyon formation are present in a southeast-northwest trending band across the center of the wilderness from Tenaja Canyon to Sitton Peak. Scattered outcroppings of metasedimentary rocks are also present northeast of Sitton Peak and in upper Devil Canyon, at the southeastern corner of the wilderness. Miller Mountain, between Tenaja and Devil canyons, is capped by Santa Rosa Basalt and represents the westernmost extension of the Santa Rosa Plateau. Of considerably more lim-
sted distribution are areas of San Marcos Gabbro and upper Cretaceous marine sediments. San Marcos Gabbro is present along the east-central border of the wilderness, north of Tenaja Canyon, and in the vicinity of Potrero de la Cienega. The upper Cretaceous marine sediments are limited to the extreme western edge of the wilderness from Verdugo Canyon north to Lucas Canyon.

The climate of the wilderness is typical of the Mediterranean-type regime which prevails in southern California with cool, rainy winters and hot, dry summers. Marine air flowing inland from the Pacific Ocean has a moderating effect on temperatures, with local topography playing an active role in controlling the degree of influx (Bailey 1966). The relatively low ridges west of the wilderness do not appear to be a major barrier to the inland penetration of marine air and coastal clouds. Although no records are available on rainfall within the wilderness, an annual average estimate of 300-450 mm (12-18 in.) seems reasonable based on precipitation records in adjacent areas (Boyd 1983).

VEGETATION

Many workers have attempted to identify, define, and catalog all major plant associations in California. Building upon relatively simple systems such as the life zone concepts of Merriam (1898), and floristically based communities of Munz and Keck (1949, 1950), lengthier and more detailed schemes have been proffered for use by ecologists, conservationists, land use planners, and other students of the California flora. Thorne (1976) presented a classification of southern California plant communities consisting of 21 habitats or vegetation types and comprising 78 communities or subcommunities. This system was used to describe vegetation in the Santa Ana Mountains and on the Santa Rosa Plateau (Lathrop and Thorne 1978, 1985).

In 1975, Cheatham and Haller (unpublished mimeograph) compiled an extensive list of California habitat types. The state’s Natural Diversity Data Base (NDDB) later adopted this system with some modifications. Under the NDDB scheme, the vegetation of California was subdivided into approximately 375 communities. Although these communities were given names, they were not circumscribed or defined, the consequence being considerable confusion on the part of workers attempting to use the classification. Finally, a conspectus of the system was produced by Holland (1986) in which the communities were defined with the provision of typical site factors, characteristic species, and distribution patterns. The result is both useful, and burdensome.

Holland’s classification scheme has, in turn, inspired additional variations. One such scheme has been constructed by Gray and Bramlet (1992) which modified the state system to better characterize habitats within Orange County. This habitat classification system has been adopted by the Cleveland National Forest for delimiting vegetation types on lands under its jurisdiction.

During the course of our study, we attempted to employ the Gray and Bramlet system to characterize the vegetation encountered in the wilderness. Actual vegetation patterns, however, necessitated further modifications in order to apply it locally. In this paper we have used this modified Gray and Bramlet terminology to discuss the vegetation assemblages, but in the floristic catalogue that follows, we have discussed distribution patterns in broader terms relating to general habitat preferences of the individual taxa.

The vegetation of the wilderness can be divided into four, broad categories: scrub, riparian, oak woodland, and grassland. Within each of these, major and minor subunits can often be identified based largely on physiognomy and relative abundance of the various component species.

Scrub Vegetation

Scrub habitats in the Mediterranean-type climate of the Californian Floristic Province largely fall into two main types: coastal sage scrub and chaparral. It is these scrub habitats which form the dominant vegetative cover in the wilderness, and, within each, several variably distinctive associations (sensu Paysen et al. 1980) can be recognized. Scrub vegetation is dominated by one or more species of shrubs or subshrubs with a general absence of trees. Although the physiognomy of the vegetation may be fairly uniform, the composition can vary greatly depending on such factors as exposure, slope, substrate, moisture availability, and seral stage. While the Gray and Bramlet system (1992) treated scrub and chaparral habitats separately, here we include chaparral as a subcategory within scrub habitats, as treated by Holland (1986).

Fire plays an integral regenerative role in the life cycle of many California scrub communities. Some plants, such as Ceanothus crassifolius and Arctostaphylos glauca, regenerate almost entirely from seed following fires. Others, such as Adenostoma fasciculatum, Arctostaphylos glandulosa var. glandulosa, and Quercus berberidifolia, readily resprout from heavily lignified basal burls, but also experience significant seed germination after burning. Many annuals and perennial herbs primarily reproduce following burns.

In the wake of a wildfire in chaparral, and to a lesser extent coastal sage scrub, a rather predictable succession of taxa follows. Seed germination is greatest during the first year. If there is adequate winter precipitation following a fire, the development of annuals such as Eschscholzia californica var. pensularis,
Phacelia minor, P. grandiflora, Papaver californicum, Salvia columbariae, and many others may be spectacular. Also germinating are coarse perennial herbs, such as Dicentra chrysanthha, Venegasia carpesioides, Helianthus graciidentus, and Delphinium cardinale, as well as subshrubs like Helianthemum scoparium, Lotus scoparius, and Solanum xanti. In addition, seedlings of the shrub species become established, and crown sprouting species begin to regenerate. During the second and third years, annuals are still prevalent, but the perennial herbs and subshrubs become better developed and begin to dominate. By the fourth and fifth years, the annuals and perennial herbs wane as the regenerating shrubs form the dominant cover once again. Often by the sixth or seventh year, much of the shrub cover has reformed and perennial herbs such as Dicentra and Lotus scoparius have replenished the soil seed bank and become senescent.

Records maintained by the Cleveland National Forest indicate that the oldest stands of scrub vegetation in the wilderness, limited to a small area southwest of the Morrell Potrero area, last burned in 1917. Other areas of relatively old stands include those at the southeastern end of the wilderness which last burned in 1958 and 1969. Much of the wilderness has burned since 1980, including a sizable area of the southwestern and north-central portions in 1989, and most recently, the northwestern end in 1993. The diversity of stand ages present in the wilderness allowed us to assess floristic composition at various stages of post-fire succession.

Coastal sage scrub.—This is typically a low-statured vegetation dominated by relatively soft-wooled, malacophyllous shrubs and subshrubs which are, in large part, facultatively drought-deciduous (O'Leary 1990). Species composition is variable, but Eriogonum fasciculatum and Artemisia californica are the most common elements. Other shrubs and subshrubs frequently encountered include Salvia apiana, S. mellifera, Eriophyllum confertiflorum, Lotus scoparius, Hazardia squarrosa var. grindelioide, Mimulus aurantiacus s.l., Bebbia juncea, and Solanum xanti, Malosma laurina and Rhus ovata, usually considered chaparral species because they possess stronger wood and somewhat coriaceous evergreen leaves, are frequently found in coastal sage scrub, although usually in relatively low numbers.

The term coastal sage scrub was coined by Munz and Keck (1949, 1950), who broadly circumscribed the community. Subsequently, a number of botanists have described variants of coastal sage scrub based on geographic location. Thorne (1976) recognized a maritime sage scrub for localities on the immediate coast, and a drier, inland sage scrub for interior sites. Axelrod (1978) recognized a more complex geographical assemblage and proposed the terms “venturan,” “riversidian,” and “diegan” to describe coastal sage scrub in southern California. In general, the venturan and diegan units incorporated the maritime sage scrub and more mesic elements of inland sage scrub of Thorne's classification system. Riversidian comprised the most xeric, interior expression of this community. Westman (1983) further amplified these geographical distinctions and the resulting changes were incorporated into the habitat classification scheme developed by Holland (1986).

However, the wilderness area falls within the transition zone between the diegan and riversidian areas, making application of this scheme difficult and somewhat arbitrary. Coastal sage scrub within the wilderness could be considered to be a more mesic expression of the riversidian sage scrub, or a more xeric phase of the diegan sage scrub. Since the coastal sage scrub in this borderline region does not always correspond with those units used in Gray and Bramlet (1992), we have decided to concentrate instead on the floristic associations of this community as manifested within the wilderness. Here, at least four associations of coastal sage scrub can be recognized: California sagebrush-California buckwheat scrub, mixed sage scrub, California buckwheat-white sage scrub, and floodplain sage scrub.

California sagebrush-California buckwheat scrub is the most mesic expression of coastal sage scrub locally. It is best developed along the more coastal, western edge of the wilderness where it generally interdigitates with chaparral or oak woodland. It is well developed along Lucas Canyon Trail heading into Aliso Canyon, and along Indian Potrero Trail just south of Verdugo Potrero.

The dominant shrub is Artemisia californica, followed by Eriogonum fasciculatum. In many areas, Mimulus aurantiacus s.l., Eriophyllum confertiflorum, Galiun angustifolium, Gnaphalium californicum, G. bicolor, and Lotus scoparius are prevalent. Scattered Malosma and Toxicodendron are present in more mesic areas. Cover may be relatively dense, forming nearly closed canopies with little understory development, or more open with sizable clearings supporting a diversity of perennial herbs and annuals.

The understory commonly contains native bunchgrasses such as Stipa lepida and Melica imperfecta. Perennial herbs include Marah macrocarpus, Erigeron foliosus, Sanicula crassicaulis, Dichelostemma pulchellum, Calochortus splendens, Chlorogalum pomeridianum, C. parviflorum, Lathyrus vestitus ssp. lactiflorus, and Corethrogne filaginifolia. Common annuals include natives such as Gillia angelensis, Lathenia californica, Phacelia cicutaria var. hispida, P. distans, P. minor, Lotus strigosus, L. hamatus, Lupinus bicolor, Daucus pusillus, and Clarkia purpurea, as
Mixed sage scrub is a fairly widespread association of coastal sage scrub found on mesic slopes, often in a mosaic with chaparral and oak woodland. As recognized here, it is extremely variable as to the composition and relative dominance of the component shrub species. Dominant shrubs include *Artemisia californica*, *Eriogonum fasciculatum*, *Salvia apiana*, and in some areas, *Keckiella antirrhinoideae*. Other typical shrubs and subshrubs include *Mimulus aurantiacus* s.l., *Hazardia squarrosa* var. *grindelioides*, *Lonicera subspicata* var. *denudata*, *Rhus ovata*, *Malosma laurina*, *Toxicodendron diversilobum*, *Lotus scoparius*, *Eriophyllum confertijlorum*, *Rhus trilobata* and *Galium angustifolium*.

Compared to the California sagebrush-California buckwheat association, the canopy of mixed sage scrub is more open. The assemblage of understory elements is similar, but with a preponderance of non-native annual grasses, such as *Avena barbata*, *Bromus madriensis* ssp. *rubens*, *B. hordeaceus*, *Vulpia myuros*, and *V. myuros*, which may be particularly abundant in openings.

California buckwheat-white sage scrub is a widespread association found on the most xeric sites. It is composed of very open stands of *Eriogonum fasciculatum* and *Salvia apiana*. Other associated shrubs and subshrubs include *Brickellia californica*, *Yucca whipplei*, *Artemisia californica*, *Bebbia juncea*, *Galium angustifolium*, *Malosma laurina*, and *Solanoa xanti*. This unit frequently occurs embedded within chaparral, especially more xeric stands dominated by *Adenostoma fasciculatum* and *Ceanothus crassifolius*. Therefore, it is not unusual to find these and other "typical chaparral shrubs" sparingly scattered within stands of California buckwheat-white sage scrub. In the northeastern portion of the wilderness, stands dominated by *Keckiella antirrhinoideae* frequently form a transition between sage scrub and more mesic chaparral.

The understory elements are largely the same as in the other coastal sage scrub associations described above. In addition, more xerophytic taxa well developed in this habitat include *Stipa coronata*, *Selaginella bigelovii*, *Mirabilis californica*, *Mimulus brevipes*, *Chamaeactis artemisiifolia*, *Camissonia californica*, *Chorizanthe fimbriata*, *C. staticoides*, *Phacelia minor*, *P. cicutaria* var. *hispa*, *P. ramosissima* var. *latifolia*, and *Helianthus gracilentus*.

Floodplain sage scrub is developed on relatively stabilized benches of alluvium and is characterized by extensive gravelly or sandy flat areas. These benches of boulders, coarse gravels, and sands occur along the margins of the broader drainages, especially San Mateo and Los Alamos canyons, and consist of materials deposited during powerfully erosive storms or wet cycles. Lower water levels in subsequent years cut a lower, narrower stream channel exposing the gravelly benches for colonization. Early succession on lower benches with relatively high water tables leads to development of riparian scrubs. As the stream continues to cut a lower channel, isolated benches are left high above the water table and above all but the most catastrophic floods.

Among the shrubs and subshrubs often encountered on these higher benches are *Baccharis salicifolia*, *Eriodictyon crassifolium*, *Lupinus exubitus* var. *hallii*, *Eriogonum fasciculatum*, *Artemisia californica*, *Salvia apiana*, *Adenostoma fasciculatum*, *Malosma laurina*, *Gnaphalium beneolens*, and *Senecio flaccidus* var. *douglasii*. One species normally considered characteristic of this habitat, *Lepidopartum squamatum*, is apparently scarce within the wilderness. Generally, a few large *Platanus racemosa* or *Quercus agrifolia* are present as remnants from earlier successional stages. Coarse perennial herbs, which may be locally common, include *Artemisia douglasiana*, *Ambrosia psilotachya*, *Corethogyne filagoiminia*, and *Solidago californica*. Among the annuals which may be found in these areas are *Chaenactis glabriuscula*, *Stephanomeria exigua* ssp. *deanei*, *Eriogonum gracile*, *Lastarriae coriacea*, *Minuartia douglasii*, *Coreopsis californica*, *Erodium cicutarium*, *Hypochoeris glabra*, *Stylocline gnaphaloides*, *Crassula connata*, and *Lasthenia californica*.

Chaparral.—This is a broad category of scrub vegetation dominated by hard-wooded, evergreen, sclerophyllous shrubs. As in coastal sage scrub, the composition and relative dominance of species present are highly variable. The unifying physiognomic characteristic, however, is the dense, often impenetrable overstory of intricately branched shrubs. Chaparral forms the dominant cover in the wilderness, its composition varying considerably depending on which component species are best adapted to the local environment. The most readily recognized forms include chamise chaparral, *Ceanothus crassifolius* chaparral, and southern mixed chaparral.

Chamise chaparral, dominated by *Adenostoma fasciculatum*, is the most xeric and widespread expression of chaparral within the wilderness. It is especially prevalent on the granitic substrates of the eastern and central portions of the wilderness. Depending on such factors as slope angle, exposure, and stand age, cover can be nearly complete or relatively open. Common associated shrubs include *Salvia mellifera*, *Eriogonum fasciculatum*, *Ceanothus crassifolius*, *Hazardia squarrosa* var. *grindelioides*, and *Yucca whipplei*. *Salvia*
Clevelandii and Dendromecon rigida may be locally common constituents of this association in the southeastern corner of the wilderness. Common subshrubs and coarse perennial herbs include Lotus scoparius, Helianthemum scoparium, Porophyllum gracile, Eriophyllum confertiflorum, Solanum xanti, Gnaphalium beneolens, and Helianthus gracilentus.

The understory of chamise chaparral can be poorly developed, as in dense, middle-aged stands, or well developed, as in open, or senescent stands. Common understory perennial herbs include Acourtia microcephala, Pedicularis densiflora, Sanicula crassicaulis, Tauschia arguta, Lomatium dasycarpum, Dichelostemma pulchellum, and Paeonia californica. A variety of annuals may be found in sunny openings, including Chorizanthe jimbriata, Cryptantha intermedia, C. microstachys, Phacelia cicutaria var. hispida, P. minor, Rafinesquia californica, Centaurium venustum, Navarretia hamata, Chaenactis artemisiifolia, Camissonia californica, C. hirtella, Caulanthus heterophyllus, Mimulus brevipes, Salvia columbariae, Bromus madritensis ssp. rubens, Avena barbata, Erodium cicutarium, and Filago californica.

Ceanothus crassifolius chaparral is floristically similar to chamise chaparral but is characterized by a greater abundance of Ceanothus crassifolius relative to Adenostoma fasciculatum. In general, Ceanothus crassifolius chaparral occupies more mesic exposures than adjacent chamise chaparral, such as north- and east-facing upper slopes. It is best developed in the eastern and central portions of the wilderness, especially on granitic substrates. In addition to Adenostoma, common associated shrubs include Salvia mellifera, Eriogonum fasciculatum, Lonicera subspicata var. denudata, Hazardia squarrosa var. grindeiioids, and Yucca whipplei. Common subshrubs and coarse perennial herbs include Lotus scoparius, Helianthemum scoparium, Eriophyllum confertiflorum, Solanum xanti, Gnaphalium californicum, and Helianthus gracilentus.

Although the overstory canopy cover is usually dense, the understory is better developed than equally dense chamise chaparral. The understory associates include perennial herbs such as Tauschia arguta, Sanicula crassicaulis, Paeonia californica, Acourtia microcephala, Melica imperfecta, Agrostis diegoensis, Stipa lepida, Elymus condensatus, Acourtia microcephala, Venegasia carpiciosioides, Tauschia arguta, Paeonia californica, Galium porrigens, Cirrus occidentale var. californicum and occidentale, Gnaphalium bicolor, G. californicum, Silene lacinia ssp. major, Marah macrocarpus, Scrophularia californica ssp. floribunda, Delphinium cardinale, Solanum xanti, Calochortus splendens, Tuilla maritima, Lathyrus vestitus ssp. laetiflorus, Sanicula tuberosa, Eriophyllum confertiflorum, and Chenopodium californicum. Common annuals include Claytonia perfoliata s.l., Eucrypta chrysanthemifolia, Clarkia epilobioides, C. bottae, Pholisostoma auritum, Meconella denticulata, Galium aparine, Rafinesquia californica, Collinsia heterophylla, C. parryi, Nemophila menziesii, Aphanes occidentalis, Thysanocarpus lacinatus, Athysanus pusillus, Pterocephria drymaroides, Hesperocnide tenella, Media gracilis, and Apiastrum angustifolium.

Riparian Vegetation

Riparian vegetation is associated with areas of surface drainage and is characterized by plants tolerant of, or requiring, perennial surface or subsurface water.
Due to the diverse and largely rugged nature of the topography, riparian plant associations are well represented throughout the wilderness. Major associations include: southern sycamore woodland, southern willow riparian forest, southern willow scrub, mulefat scrub, white alder riparian forest, and southern coast live oak riparian forest.

Southern sycamore woodland is the characteristic vegetation in the bottoms of San Mateo Canyon, its major tributaries such as Devil, Bluewater, Wildhorse, and Nickel canyons, as well as Lucas and Aliso canyons. It is an open woodland where the dominant overstory tree, Platanus racemosa, may be intermixed with scattered individuals of Quercus agrifolia, Fraxinus velutina, Salix laevigata, S. lucida ssp. lasiandra, Populus balsamifera ssp. trichocarpa, and rarely, Alnus rhombifolia and Populus fremontii. The understory includes a diverse array of shrubs, perennial herbs, and annuals. Salix lasiolepis, Baccharis salicifolia, Amorpha fruticosa, and Datisca glomerata form dense to open stands in the wettest areas along stream channels and frequently flooded low benches. Toxicodendron diversilobum, Rubus ursinus, Rosa californica, and Vitis girdiana are frequent on somewhat higher, drier beaches, as are various other species from surrounding scrub and oak woodland vegetation. Sandy and gravelly stream beds, pools, and seasonally inundated rocky outcrops provide habitat for such tenacious perennials as Euthamia occidentalis, Hoita macrostachya, Juncus macrophyllus, J. textilis, J. rugulosus, J. xiphioides, Eleocharis macrostachya, E. montevidensis, Carex senia, C. barbarae, C. spissa, Scirpus acutus var. occidentalis, S. microcarpus, Typha domingensis, T. latifolia, Equisetum laevigatum, and E. hyemale ssp. affine. These taxa are well adapted to a regime of destructive seasonal flooding. Despite burial under sandy or gravelly alluvium deposited by runoff from winter rains, these plants are usually able to re-emerge from extensive rhizomes or thick rootstocks.

Southern willow riparian forest is floristically similar to southern sycamore woodland, but is characterized by dense stands of arborescent willows, especially Salix laevigata, and to a lesser extent, S. lucida ssp. lasiandra. Other common trees include Quercus agrifolia, Populus balsamifera ssp. trichocarpa, Fraxinus velutina, and Platanus racemosa. Populus fremontii, typically a common component of this association, is scarce in those areas of the wilderness that we surveyed. Southern willow riparian forests are found in only a few areas of the wilderness, principally in Devil and San Mateo canyons.

Southern willow scrub is characterized by dense stands of Salix lasiolepis, S. laevigata, Datisca glomerata, and to lesser extent, Baccharis salicifolia, Salix exigua, and Amorpha fruticosa. Essentially, this association is composed of the same elements as southern sycamore woodland but without, or with less development of, the arborescent overstory. Within the larger drainages, this habitat is encountered in scattered open stretches of floodplain where the larger tree species are, for one reason or another, absent. In the secondary and tertiary drainages, southern willow scrub occurs as intermittent bands along the stream channels in areas with a fairly consistent supply of water.

Mulefat scrub is very similar to southern willow scrub, but differentiated by a predominance of Baccharis salicifolia over the shrubby Salix species. Typically, mulefat scrub is associated with drier conditions than southern sycamore woodland and southern willow scrub and, as a result, the more aquatic elements are generally not well represented. In the larger drainages subject to severe scouring, as in San Mateo Canyon, mulefat scrub develops as a seral community on recently formed benches and cleared areas within the surrounding southern sycamore woodland. In secondary and tertiary drainages, a moderately to poorly formed mulefat scrub may be encountered intermittently along the stream channels.

White alder riparian forests are characterized by dense stands of Alnus rhombifolia with scattered individuals of Platanus racemosa, Quercus agrifolia, and Umbellularia californica. The understory is poorly developed due to dense shading but, where present, is generally composed of the same elements found in the southern sycamore woodland. White alder riparian forests are apparently limited in distribution within the wilderness, with the best-developed examples observed in central Devil Canyon and lower Tenaja Canyon. A large logjam composed largely of Alnus, and apparently deposited by 1992 floods, was encountered in lower San Mateo Canyon. This strongly suggests that at some time in the recent past, there must have been well-developed alder forests in the main trunk of San Mateo Canyon, probably in the central portion which was heavily impacted by fire in 1989. Perhaps over the next few decades, a new stand of white alder riparian forest will become established within middle San Mateo Canyon.

Southern coast live oak riparian forest is characterized by riparian habitats dominated by Quercus agrifolia. For the purposes of mapping riparian habitats, this vegetation is often treated as a discrete unit. In reality, however, this unit grades into “typical” coast live oak woodland in many areas. Therefore, we have included a description of the community within the general discussion of coast live oak woodland, below.

**Oak Woodland Vegetation**

Oak woodlands form one of the most distinctive communities in the wilderness and are characterized by the physiognomic dominance of arborescent species.
of Quercus. As used here, we include the most open manifestations (oak savannas), as well as the densest (oak forests). Two types of oak woodland are present in the wilderness: coast live oak woodland and Engelmann oak woodland.

Coast live oak woodland is widely distributed throughout the wilderness and is defined by well-developed stands of Quercus agrifolia. These stands, which form broad, overhanging canopies, are usually encountered in fairly mesic areas. Consequently, these woodlands may be found in association with riparian communities along both permanent and intermittent stream courses, as in San Mateo Canyon; within scrub communities on canyon slopes, as in Tenaja Canyon; or forming a border between scrub-covered slopes and grassland-dominated flats, as at Oak Flats.

The densest stands of coast live oak woodlands are found in mesic canyon bottoms and adjacent north-facing slopes. Despite the heavy shading, the understory is generally well developed and includes many of the shrubs and perennial herbs from adjacent chaparral habitats, especially Rhamnus ilicifolia, K. californica, Ribes inedorum, Adenostoma fasciculatum, Arctostaphylos glandulosa, Heteromeles arbutifolia, Quercus berberidifolia, Rhus trilobata s.l., Lonicera subspicata var. denadata, Toxicodendron diversilobum, Venegasia carpesioides, and Symphoricarpos mollis. Other understory elements include Osmodihiza brachypoda, Elymus glaucus, Dryopteris arguta, Pteridium aquilinum var. pubescens, Madia gracilis, Rupertia physodes, Rabus arsinus, Rosa californica, and Thalictrum polycarpum. Of more local distribution in this habitat are such interesting taxa as Polygala cornuta ssp. fishiae, Lilium humboldtii ssp. ocellatum, and Piperia cooperi.

In drier situations, the understory is more open with a lower diversity of shrub species. Eriogonum fasciculatum and Salvia apiana are more prevalent, along with Elymus glaucus, E. condensatus, Rhus trilobata, Toxicodendron diversilobum, Agoseris grandiflora, Sanicula crassifolia, and Cirsium occidentale var. occidentale. As the oak canopy becomes more discontinuous, the openings may support small stands of chaparral, coastal sage scrub, perennial grassland, or annual grassland vegetation.

Engelmann oak woodland is characterized by the greater abundance of Quercus engelmannii relative to Q. agrifolia. It is otherwise floristically similar to coast live oak woodland. This woodland is very well developed on the Santa Rosa Plateau to the east (Lathrop and Thorne 1985). In the wilderness, however, Engelmann oak woodland was encountered only on Miller Mountain, which floristically and physiographically represents the westernmost extension of the Santa Rosa Plateau. The best-developed stands are found on the upper northern flank of the mountain at the ecotone between southern coastal needlegrass grassland and southern mixed chaparral. Common understory shrubs include Heteromeles arbutifolia, Rhamnus ilicifolia, and Eriogonum fasciculatum.

The other principal populations of Quercus engelmannii—or the south-central flanks of Miller Mountain and in “Potrero Escondido”—occur as intermittent trees within stands of more common Q. agrifolia. As such, these woodland areas have been included within the broadly circumscribed coast live oak woodland.

Grassland Vegetation

Grasslands are characterized by the prevalence of grasses and other nonwoody species over shrubs and trees. Within cismontane southern California, grassland habitats can be coarsely divided into two types: those dominated by annual, frequently nonnative species, and those dominated by native perennial grasses. In the wilderness, both grassland types are represented at scattered localities.

Annual grasslands are dominated by nonnative annual grasses and herbs and are highly variable in species composition. Annual grassland has a limited distribution in the wilderness, usually present as small stands in locally disturbed situations within areas otherwise characterized by coast live oak woodland or chaparral. In other cases, annual grassland may cover fairly broad expanses, usually as a result of anthropogenic activities. The best examples are found in the heavily grazed inholdings, such as Stewart Ranch, Rancho Carrillo, and Round Potrero.

The most common nonnative grasses in annual grassland include Bromus madritensis ssp. rubens, B. diandrus, B. hordeaceus, Avena barbata, A. fatua, Lolium perenne ssp. multiflorum, Hordeum murinum ssp. leporinum, Vulpia bromoides, V. myuros, and Schismus barbatus. Other common, introduced annual herbs include Erodium cicutarium, E. brachycarpum, Hypericum glanduliferum, Hypochaeris glabra, Centaurea melitensis, Silene gallica, and Filago galtica. Scattered individuals of native grasses, such as Sipir lepida, Melica imperfecta, and Poa secunda, may be present, but are never common.

In areas not too heavily disturbed, native annuals and perennial herbs may be reasonably well developed and may include Lupinus bicolor, L. egardianus, Lasionema californica, Microopus californicus, Gilia angelfensis, Microseris heterocarpa, M. lindleyi, Hemizonia fasciculata, Cryptantha intermedia, Plagiobothrys nothofatus, Lotus strigosus, L. unifolius, Trifolium willdenovii, Plantago erecta, Linanthus adscendens ssp. micranthus, Cordyianthus rigidus, Dicko sensu pulchellum, and Calochortus splendens.

Southern coastal needlegrass grassland is characterized by native perennial bunchgrasses, in particular Stipa pulchra. These grasslands are generally best de-
veloped on heavy soils in areas of low topographic relief. At their margins, these grasslands may gradually grade into oak woodland or scrub habitats but often have a sharp zone of demarcation. The best examples of southern coastal needlegrass grassland in the wilderness include stands at Oak Flats, Verdugo Potrero, Indian Potrero, Miller Mountain, and, in particular, "Potrero Escondido."

In addition to *Sipia pulchra*, other native grasses which may be present include *Sipia lepida*, *Poa secunda*, *Melica imperfecta*, and *Elymus condensatus*. Nonnative annual grasses have also become well-established, particularly *Avena barbata*, *A. fatua*, *Bromus hordeaceus*, and *B. madritensis* ssp. *rubens*. In more disturbed sites, the taller *Avena* spp. may obscure the *Sipia* and other natives, giving the false impression of an annual grassland. In southern coastal needlegrass grasslands that have remained relatively intact (i.e., that have not been too heavily grazed), the number of associated species, particularly of annuals, can be sizable. Commonly associated native perennial herbs and subshrubs include *Dichelostemma pulchellum*, *Allium haematochiton*, *Muilla maritima*, *Isocoma menziesii* var. *vernonioides*, *Corethrogynus flagellaris*, *Sidalcea malvaeflora*, *Asclepias eriocarpa*, *Sanicula bipinnatifida*, *S. arguta*, *Lomatium dasycarpum*, *L. utriculatum*, *Trifolium albopurpureum*, *T. ciliolatum*, *T. microcephalum*, *Chlorogalum pomeridianum*, *Gna­ugo arguta*, *Lomatium dasycarpum*, *L. utriculatum*, *Trifolium albopurpureum*, *T. ciliolatum*, *T. microcephalum*, and *Osmadenia tenella*. Other well-represented genera include *Camissonia*, *Hymenocallis*, *Erodium*, *Echium*, *Lotus*, *Trifolium*, *Phacelia*, *Bromus*, *Gnaphalium*, *Mimulus*, *Camissonia*, *Linanthus*, and *Carex*. Other well-represented families include *Asteraceae*, *Onagraceae*, *Polygonaceae*, *Cyperaceae*, *Hydrophyllaceae*, *Rosaceae*, *Apo­phiaceae*, *Caryophyllaceae*, *Po­lemoniaceae*, and *Boraginaceae*. These 15 families account for 64% of the total flora of the wilderness. The largest genera are: *Lupinus* (10 taxa), *Juncus* (9), *Lotus* (8), *Trifolium* (8), *Phacelia* (8), *Bromus* (8), *Gnaphalium* (8), *Mimulus* (7), *Camissonia* (6), *Linanthus* (6), and *Carex* (6). Other well-represented genera include *Cryptantha*, *Chenopodium*, *Vicia*, *Salvia*, *Eriogonum*, *Ceanothus*, *Salix*, *Solanum*, *Elymus*, and *Val­pia*. A complete list of the taxa is provided below in the annotated catalogue.

Of the 626 taxa reported for the wilderness, 500 (80%) are here considered native. The ratio of native:nonnative taxa is consistent with that reported for the Santa Rosa Plateau and Santa Ana Mountains s.l. (La­throp and Thorne 1978, 1985; Boyd et al. 1995). Table 2 provides a comparison of the ratio of native:non­native taxa reported for these and other areas of southern California.

<table>
<thead>
<tr>
<th>Geographic area</th>
<th>Native taxa</th>
<th>Non­native taxa</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Mateo Canyon Wilderness Area</td>
<td>500 (80)</td>
<td>126 (20)</td>
</tr>
<tr>
<td>Santa Rosa Plateau (Lathrop and Thorne 1985)*</td>
<td>463 (80)</td>
<td>117 (20)</td>
</tr>
<tr>
<td>Santa Ana Mountains (S. Boyd, et al. 1995)</td>
<td>793 (78)</td>
<td>230 (22)</td>
</tr>
<tr>
<td>Gaviilan Hills (Boyd 1983)</td>
<td>353 (82)</td>
<td>171 (18)</td>
</tr>
<tr>
<td>Santa Monica Mountains (Raven, et al. 1986)</td>
<td>644 (73)</td>
<td>236 (27)</td>
</tr>
<tr>
<td>Santa Catalina Island (Thorne 1967)</td>
<td>393 (70)</td>
<td>166 (30)</td>
</tr>
<tr>
<td>San Clemente Island (Raven 1963)</td>
<td>233 (78)</td>
<td>66 (22)</td>
</tr>
<tr>
<td>Orange County (Roberts 1989)</td>
<td>806 (70)</td>
<td>351 (30)</td>
</tr>
<tr>
<td>San Diego County (Beuchamp 1986)</td>
<td>1741 (78)</td>
<td>469 (22)</td>
</tr>
</tbody>
</table>

* Based on Lathrop and Thorne (1985), adjusted to conform to taxonomy used here for the San Mateo Canyon Wilderness Area flora.

Based on fieldwork conducted to date, we have identified 626 vascular plant taxa (species, subspecies, varieties, and natural hybrids) occurring within the wilderness. These are distributed among 92 families and 333 genera (Table 1). Not unexpectedly, the wilderness flora is characteristic of mid­to­lower areas of cismontane southern California. The largest families are: *Asteraceae* (60 genera/93 species and lower taxa), *Poaceae* (32/62), *Fabaceae* (12/45), *Scrophulariaceae* (14/29), and *Brassicaceae* (12/21). Other well-represented families include *Lamiaceae*, *Onagraceae*, *Polygonaceae*, *Cyperaceae*, *Hydrophyllaceae*, *Rosaceae*, *Apo­phiaceae*, *Caryophyllaceae*, *Po­lemoniaceae*, and *Boraginaceae*. These 15 families account for 64% of the total flora of the wilderness. The largest genera are: *Lupinus* (10 taxa), *Juncus* (9), *Lotus* (8), *Trifolium* (8), *Phacelia* (8), *Bromus* (8), *Gnak­halium* (8), *Mimulus* (7), *Camissonia* (6), *Linanthus* (6), and *Carex* (6). Other well-represented genera include *Cryptantha*, *Chenopodium*, *Vicia*, *Salvia*, *Eriog­onum*, *Ceanothus*, *Salix*, *Solanum*, *Elymus*, and *Val­pia*. A complete list of the taxa is provided below in the annotated catalogue.

Of the 626 taxa reported for the wilderness, 500 (80%) are here considered native. The ratio of native:nonnative taxa is consistent with that reported for the Santa Rosa Plateau and Santa Ana Mountains s.l. (La­throp and Thorne 1978, 1985; Boyd et al. 1995). Table 2 provides a comparison of the ratio of native:non­native taxa reported for these and other areas of southern California.

Moran (1992) correctly observed that no floristic study is ever complete; therefore, it is not surprising that we encountered 88 taxa previously unreported for the Santa Ana Mountains. This figure includes 53 na­tive and 35 nonnative taxa (Table 3). The additions to the Santa Ana Mountains reported here, combined with new records for the range reported elsewhere (La­
of taxa in one area; \( B = \) number of taxa in a second area, and \( C = \) number of taxa common to both areas). Comparison of the wilderness flora (native and non-native) with the revised total for the Santa Ana Mountains s.l. indicates 76% overall similarity. In comparison, the SI for the Santa Rosa Plateau compared with the entire range is 72%. The SI of the combined wilderness and Santa Rosa Plateau flora compared to the entire range is 86%.

Surprisingly, the SI for the wilderness compared with the Santa Rosa Plateau is only 72.5%, even though these two areas of roughly similar size are directly adjacent to each other. This low SI may be attributed to marked differences in geologic substrate, topographic diversity, and the resultant habitats. The floristic dissimilarity is directly related to the presence of species-rich vernal pools on the plateau which are absent from our study area, and is further accentuated by the presence of more diverse riparian and mesic chaparral associations in the wilderness than are found on the plateau. These differences are reflected in the life-form spectra for the two regions—the wilderness exhibiting slightly higher percentages for woody taxa, with the Santa Rosa Plateau supporting a greater percentage of obligate hydrophytes (Table 4). Despite these differences, however, both floristic units are characterized by a predominance of annuals and herbaceous perennials, a typical feature of regions with Mediterranean-type climates (Thorne 1967).

**Sensitive Taxa**

From the outset of our study, one of the primary objectives was to document the occurrence of sensitive plant populations within the wilderness. Sensitive plants include those taxa with a status of threatened, or endangered, as designated by the Kentucky National Forest, California Department of Fish and Game, United States Fish and Wildlife Service, and/or the California Native Plant Society (Skinner and Pavlik 1994). Prior to our work, only one sensitive species, *Dudleya viscosa*, had been documented from within the San Mateo Canyon Wilderness Area. Twelve sensitive plant taxa were encountered during our surveys: *Baccharis vanessae*, *Brodiaea filifolia*, *B. orcuttii*, *Chorizanthe polygonoides* var. *longispina*, *C. procumbens*, *Dudleya multiflora*, *D. viscosa*, *Harpgonella palmeri*, *Horkelia triscapa*, *Minimus diffusus*, *Polygonaca cornua* ssp. *fishiae*, and *Quercus engelmannii*.

The general habitat and distribution of these taxa are addressed in the catalogue. A more detailed discussion is provided below for those taxa considered here to have phytogeographically significant populations within the wilderness.

The southern end of the Santa Ana Mountains represents one of the few areas where the ranges of *Bro-
diaea filifolia and B. orcuttii overlap (Hoover 1939a, 1939b; Niehaus 1971; Skinner and Pavlik 1994). Both species have been reported from verticillarly moist clay soils on the Santa Rosa Plateau (Lathrop and Thorne 1985). Although largely distinct on the Santa Rosa Plateau, populations of these species within the wilderness are characterized by many morphologically intermediate individuals, here interpreted to be of hybrid origin. The two species are apparently closely related, distinguished from one another and other Brodiaea species by characters of the staminal filament and staminode. Brodiaea filifolia has well-developed staminodes that are narrow, pointed, and uncolored, and the filaments of the fertile stamens are short (± 1 mm) and project into the throat of the flower. In B. orcuttii, the staminodes are lacking, and the filaments of the fertile stamens are longer (± 4-6 mm) and erect. In both, the flowers are deep bluish purple.

The morphologically intermediate Brodiaea encountered in the wilderness combine the staminode character of B. filifolia with the filament character of B. orcuttii. Although most of the plants observed were rather uniform in filament length, the staminode character appeared to be more variable: plants exhibiting long, medium, and vestigial staminodes frequently occurred together in a given stand. Although Niehaus (1971) reported that natural hybrids are rare or unknown in Brodiaea, and there appear to be no earlier reports of introgression between B. filifolia and B. orcuttii, it seems most likely that these plants represent such a series of hybrids.

Dudleya viscida is a distinctive species distributed disjunctly from the vicinity of San Juan Canyon in the Santa Ana Mountains south to Escondido Creek in northwestern San Diego County (Beauchamp 1986; Skinner and Pavlik 1994). The bright green clumps of D. viscida are readily visible on the rock outcrop and cliff face habitats favored by the species, a feature which facilitated our surveys for the plant. Populations occurring in inaccessible areas could be viewed through binoculars from some distance to determine distribution and general abundance.

Prior to our work, only the easternmost population of Dudleya viscida in San Mateo Canyon (near Fisherman’s Camp) had been reported (K. Winter, pers. comm.). This species was, however, the most abundant and widely distributed of the sensitive plants encountered in the wilderness. Scattered populations were encountered from Lucas Canyon south to Devii Canyon, but most were concentrated in the lower half of San Mateo Canyon. All populations were associated with rock outcrops and cliffs of granitic, metavolcanic, and

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Table 4. Comparison of life-form spectra for the San Mateo Canyon Wilderness Area and other selected regions.

<table>
<thead>
<tr>
<th>Floristic unit</th>
<th>No. of taxa</th>
<th>Percentage distribution of taxa among life-forms*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tr</td>
<td>Shl</td>
</tr>
<tr>
<td>San Mateo Cyn Wilderness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native taxa</td>
<td>500</td>
<td>3</td>
</tr>
<tr>
<td>Total taxa</td>
<td>626</td>
<td>3</td>
</tr>
<tr>
<td>Santa Rosa Plateau</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native taxa</td>
<td>463</td>
<td>3</td>
</tr>
<tr>
<td>Total taxa</td>
<td>580</td>
<td>3</td>
</tr>
<tr>
<td>Santa Ana Mtns s.l.</td>
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<td></td>
</tr>
<tr>
<td>Native taxa</td>
<td>793</td>
<td>2</td>
</tr>
<tr>
<td>Total taxa</td>
<td>1023</td>
<td>3</td>
</tr>
<tr>
<td>Santa Monica Mtns</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native taxa</td>
<td>640</td>
<td>2</td>
</tr>
<tr>
<td>Total taxa</td>
<td>874</td>
<td>2</td>
</tr>
<tr>
<td>Santa Catalina Is.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native taxa</td>
<td>391</td>
<td>2</td>
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<tr>
<td>Total taxa</td>
<td>557</td>
<td>1</td>
</tr>
<tr>
<td>California mediterranean areas (Shmida 1981)</td>
<td>307</td>
<td>4</td>
</tr>
<tr>
<td>Raunkiaer’s Normal Spectrum (Raunkiaer 1934)</td>
<td>400</td>
<td>6</td>
</tr>
</tbody>
</table>

* Tr = trees (mesophanerophytes, 8-25 m tall); Shl = large shrubs (microphanerophytes, 2-8 m tall); Shs = small shrubs (nanophanerophytes, 0.5-2 m tall); Li = lianas (climbing phanerophytes with persistent stems); SFP = suffruteceous perennials (charmaephyles, vegetative buds not over 0.5 m above the ground); PH = perennial herbs (hemicryptophytes, vegetative buds well below soil surface); G = geophytes (herbaceous, vegetative buds well below soil surface); An = annuals (therophytes, including facultative biennials); Ep = epiphytes (nonparasitic); Pa = strict parasites (depending on other plants for much or all of their sustenance); Su = succulents (including stem succulents, leaf succulents, and rosette-leaved shrubs); Aq = aquatic plants (obligate hydrophytes, submerged or floating).
metasedimentary origin. Usually, mesic exposures (east, northeast, and north) are favored over more xeric aspects (west, southwest, and south). It appears that the San Mateo Canyon Wilderness Area harbors the most extensive known populations of *D. viscosa*. Based on the habitat occupied by this plant, we anticipate that additional large populations will be found in the extensive unsurveyed portions of Devil Canyon and its tributaries, such as Cold Spring Canyon. It is also likely that populations may be present in Aliso Canyon, Nickel Canyon, and in the other tributary drainages of lower San Mateo Canyon.

Three other sensitive plant species encountered, *Harpagoneella palmeri*, *Horkelia truncata*, and *Baccharis vanessae*, were previously unreported from the Santa Ana Mountains s.l. The *Horkelia* and *Baccharis* are of particular note, as these two species reach the northern limits of their range in the wilderness.

*Horkelia truncata* is a Peninsular Range endemic known from Sierra de Juarez of Baja California, Mexico, northward to the southern end of the Santa Ana Mountains (Munz 1974; Beauchamp 1986). Apparently, this species is restricted in the wilderness to the upper watershed of Devil Canyon. Here it occurs as a locally common understory species of grassy openings in chaparral and oak woodland.

*Baccharis vanessae* is a relatively narrow endemic of chaparral habitats in central-coastal San Diego County, known primarily from Encinitas eastward to Woodson Mountain, near Poway, and southward to Mira Mesa (Beauchamp 1980, 1986). A small population of this species was encountered at the extreme southern end of the wilderness in lower Devil Canyon. This population represents a significant northward extension of the range of *B. vanessae*, given its relatively restricted previously known distribution (Boyd et al. 1993).

**ANNOTATED CATALOGUE OF THE VASCULAR FLORA**

The following list includes all vascular plant taxa observed during our surveys in the San Mateo Canyon Wilderness Area. A representative voucher specimen is cited for each taxon listed (with one exception), including collector name(s) and number. Because all cited vouchers were taken between 1991 and 1994, collection dates have been omitted in the interest of brevity. All vouchers are deposited in the herbarium of Rancho Santa Ana Botanic Garden (RSA). Duplicates of most taxa have also been deposited at the San Diego Natural History Museum (SD), while selected duplicates have been distributed more widely but are not itemized here.

For ease of reference, an alphabetical arrangement has been followed for families within subdivisions, classes, or subclasses, as well as for genera within families and species within genera. Nomenclature used in this list follows, for the most part, Hickman (1993). In some instances, we have elected to follow alternate treatments and have thus indicated the Hickman equivalent in brackets. Family nomenclature is that of Thorne (1992) for the flowering plants and Crabbe, et al., (1975) for ferns.

Non-native taxa are indicated by an asterisk (*) before the name. Plants considered sensitive by the Cleveland National Forest, California Native Plant Society, California Department of Fish and Game, and/or United States Fish and Wildlife Service are indicated by a dagger (†). Taxa which have been provisionally determined are indicated by “cf.” before the generic or specific epithet, or “vel aff.” following the taxon authority. Abbreviations in the text have largely been limited to “cyn” for canyon, “mtn” for mountain, and “jtn” for junction.

**LYCOPODIACEAE**

**SELAGINELLACEAE**


**EQUISETACEAE**

**EQUISETUM ARVENSE L.** Geophyte. Local along streams, as in Cold Spring Cyn and Lucas Cyn. *Boyd & Ross* 7093.


**EQUISETUM LAEVIGATUM A. Braun** Geophyte. Local along streams. *Boyd & Ross* 7140.

**FILICAEE**

**ADIANTEMACEAE**

**ADIANTEM CAPILLUS-VENERIS L.** Perennial herb. Relatively uncommon and local on alkaline seepages, as in Cold Spring Cyn and Lucas Cyn. *Boyd & Ross* 7157.

**ADIANTEM JORDANI C. Mueller** Perennial herb. Occasional in mesic situations on shaded rock outcrops, and in the understory of chaparral and oak woodland. *Boyd, Ross, & K. McCulloh* 6723.


**CHEILANTHES CLEVELANDII D. Eaton** Perennial herb. Occasional about rock outcrops, but apparently more common in the eastern portion of the wilderness. *Boyd & Ross* 7588.


**PELLAEA ANDROMEDEFO利亚 (Kauff.) Fée** Perennial herb. Common on mesic slopes, shaded benches, and about rock outcrops. *Boyd, Ross, & Bramlet* 7312.

**PELLAEA MUCRONATA (D. Eaton) D. Eaton var. MUCRONATA** Perennial herb. Common in both mesic and xeric situations, especially about rock outcrops. *Boyd & Ross* 7220.

ASPLENIACEAE

ASPLENUM VESPERTINUM Maxon Perennial herb. Apparently scarce. Encountered only once in crevices of rock outcrops on a mesic slope in lower Devil Cyn, but to be expected elsewhere. Boyd, Ross, & Mistretta 7799.

DRYOPTERIS ARGUTA (Kaulf.) Maxon Perennial herb. Common to locally abundant, especially in understory of mesic chaparral-covered slopes and in oak woodland. Boyd, Ross, & Mistretta 6942.

BLECHNACEAE

WOODBORIA FIMBRIATA Smith Herbaceous to suffruticose perennial. Generally infrequent along streams at scattered sites, but locally abundant in oak riparian understory of lower Wildhorse Cyn, and about Mud Springs in upper Devil Cyn. Boyd & W. Appleby 7958.

DENNSTAEDIACEAE


POLYPODIACEAE


ANGIOSPERMAE—DICOTYLEDONES

ADOXACEAE

SAMBUCUS MEXICANA C. Presl ex DC. Arboreal shrub to small tree. Occasional on mesic, chaparral-covered slopes; generally more frequent along drainages. Boyd & Ross 7257.

AMARANTHACEAE

*AMARANTHUS ALBUS L. Annual. Occasional in gravelly areas along streams and in other disturbed situations, as along San Mateo Creek. Boyd & Ross 7442.

AMARANTHUS BREVIPEDICELLUS S. Watson Annual (considered introduced in some treatments). Occasional on open sandy benches in lower San Mateo, Aliso, and Lucas cyns, and along Verdugo Trail in the Oak Flats area. Boyd, Ross, & Mistretta 6997.

*AMARANTHUS RETROFLEXUS L. Annual. Encountered sporadically in somewhat disturbed areas, as along the trail and streamed in Lucas Cyn. Boyd & Ross 7430.

ANACARDIACEAE


RHUS INTEGRIFOLIA (Nutt.) Brewer & S. Watson Large shrub. Occasional, but generally more common in the westerly portions of the wilderness in mesic chaparral, amid rocky outcrops, etc. Boyd & Mistretta 7000.

RHUS OVATA S. Watson Large shrub. Uncommon, but generally present where both parent species occur sympatically near the western edge of the wilderness. Boyd & Mistretta 7001.


RHUS TRIOLOBATA Nutt. ex Torrey & A. Gray var. ANISOPHYLLA (E. Greene) Jepson Small shrub. Common on benches along streams, and frequently dominant in oak woodland understory, but sporadically encountered in other habitats. Although the plants observed in the wilderness most closely approach this variety, many individuals are, in fact, variably intermediate to var. quinata Jepson. Boyd, Ross, & Bramlet 7325.

TOXICODENDRON DIVERSESILLOSUM Torrey & A. Gray Small shrub or liana. Abundant, especially on mesic canyon slopes in chaparral and oak woodland understory. Boyd, Ross, & Bramlet 7362A.

APIACEAE


DAUCUS PUSILLUS Michaux Annual. Common and generally distributed in most habitats, particularly native grassland and openings amid scrub. Boyd & Ross 7635.

*FOeniculum vulgare Miller Suffruticose perennial. Scattered, and nowhere abundant where observed. Boyd, Ross, & Mistretta 7702.


APOCYNACEAE

APOCYNUM CANNABINUM L. Suffruticose perennial. Occasional along streams at scattered sites, as along San Mateo Creek. Boyd, Ross, & Bramlet 7327.


ASTERACEAE

ACHILLEA MILLIFOLIUM L. Perennial herb. Occasional in openings in mesic chaparral, coastal sage scrub, and oak woodland along the western edge of the wilderness. Boyd & Ross 7455.


ARTENISIA DRACUNCULUS L. Suffruticose perennial. Occasional at widespread sites, especially on benches in drainages. Boyd, Ross, & T. Columbus 8193.

BACCHARIS DURROSI A. Gray Large shrub. Infrequent along streams at scattered sites. Boyd, Ross, & Bramlet 7663.

BACCHARIS PILULARIS DC. Large shrub. Infrequent along streams and in oak woodland understory. Boyd, Ross, & Mistretta 7706.

BACCHARIS SULPHURENA (Ruiz Lopez & Pavon) Persoon Large shrub. Common and locally abundant along streams, at seeps, and in seasonally moist disturbed areas. Boyd, Ross, & Mistretta 6686.

BACCHARIS VANESSAE Beckerchamp Small shrub. Local on open rocky outcrops of mesic exposure, lower Devil Cyn. This population represents a significant northward extension of the taxon's range and additional populations are to be expected in adjacent portions of Devil and lower San Mateo cyns. Boyd, Ross, & Mistretta 7711.

BEBBA JUNCEA (Beeth.) E. Greene var. ASPERA E. Greene Small shrub Occasional on xeric slopes in coastal sage scrub and chaparral, usually on rock outcrops and scree. Boyd & Ross 7103.


CENTAUREA SOLUTITIAE L. Annual. Well established in disturbed annual grassland and oak woodland in Potrero de la Cienega, and encountered as far downstream as Tenaja Falls in San Mateo Cyn; also local in disturbed grassland in the Oak Flats area. Boyd, Ross, & Bramlet 7690.

CHAENACTIS ARTEMISIFOLIA (A. Gray) A. Gray Annual. Locally common on burns, trailside clearings, and openings in chaparral and coastal sage scrub. Boyd & Ross 7454.

CHAENACTIS GLABRUSCULA DC. var. GLABRUSCULA Annual. Locally common on sandy or gravelly benches in drainages. Boyd, Ross, & M. Wall 7532.

CHAMOMILLA SYUVEODENS (Pursh) Rydb. Annual. Occasional in moist sand along streams, on beaver paths, and in other disturbed situations. Boyd, Ross, & Mistretta 6768.


CORTIJA RONARIENSES (L.) Cronquist Annual. Apparently uncommon, as in Aliso Cyn along disturbed edge of Lucas Cyn trail. Boyd & Ross 8361.

CORTIJA CANADENSIS (L.) Cronquist Annual (sometimes treated as introduced). Occasional, mostly in damp sand along streams. Boyd, Ross, & Bramlet 7657.


CYNARA CARDUNCULUS L. Perennial herb. Occasional in native and xeric grasslands, especially in coastal sage scrub and xeric chaparral, and occasionally in oak woodland. Boyd & Ross 7303.

ERIOPHYLLUM CONFERTIFLORUM (DC.) A. Gray var. CONFERTIFLORUM Suffruticose perennial. Common, especially in coastal sage scrub and on burns. Boyd & Ross 7122.

EUCOMA THEMISII (E. Greene) H. M. Hall var. THEMISII Large shrub. Apparently scarce; observed only about Margarita Peak. Boyd & D. Banks 8329.

EUCOMA PINIFOLIA (A. Gray) H. M. Hall Small shrub. Apparently scarce; scattered in chaparral along northern portions of Tenaja Trail. Boyd, Ross, & Mistretta 6753A.

ERIGERON FOLIOSUS Nutt. var. FOLIOSUS Perennial herb Common in coastal sage scrub, xeric chaparral, and occasionally in oak woodland. Boyd & Ross 7303.

ERIOPHOYUM CONFERTIFLORUM (DC.) A. Gray var. CONFERTIFLORUM Suffruticose perennial. Common, especially in coastal sage scrub and on burns. Boyd & Ross 7122.

EUCOMA THEMISII (E. Greene) H. M. Hall var. THEMISII Large shrub. Apparently scarce; observed only about Margarita Peak. Boyd & D. Banks 8329.

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ERIOPHOYUM CONFERTIFLORUM (DC.) A. Gray var. CONFERTIFLORUM Suffruticose perennial. Common, especially in coastal sage scrub and on burns. Boyd & Ross 7122.
cal in very moist situations, as about Oak Flats area. **Boyd & Ross** 7175.

**GNAPHALIUM STRAMONIUM** Hrk. Annual or biennial herb. Uncommon, but widely scattered; usually on moist sand along streams. **Boyd, Ross, & Bramlet** 7379B.

**GUERTERIA SAROTHRAE** (Pursh) Britton & Rusby Suffruticose perennial. Locally common on xeric slopes and ridgetops, especially in post-burn chaparral in the northern part of the wilderness. **Boyd, Ross, & Bramlet** 7688.

**Hazardia squarrosa** (Hook. & Arn.) E. Greene var. grindeioides (DC.) W. Clark Small shrub. Common and widespread in chaparral and coastal sage scrub; occasional in woodland and grassland habitats. **Boyd, Ross, & Bramlet** 7657.

**Helenium puberulum** DC. Poteniall herb. Uncommon along stream margins as in lower San Mateo Cyn and Lucas Cyn, but to be expected elsewhere in similar situations. **Boyd & Ross** 7139.

**Helianthus grandiflorus** Nutt. Biennial herb, sometimes annual. Apparently uncommon, as about Potrero de la Cienega and Tenaja Falls. To be expected along trails, gravelly riparian benches, and other open, somewhat disturbed situations. **Boyd, Ross, & Bramlet** 7675.

**HEMIZONIA PASCULATA** (DC.) Torrey & A. Gray Annual. Common in native grasslands, as on Miller Mtn. **Boyd & Ross** 7599B.

**HEMIZONIA KELLOGGI** E. Greene Annual. Occasional in grassy openings in scrub and oak woodland habitats, as in Potrero de la Cienega. **Boyd, Ross, & Bramlet** 7691.


**HETEROTHECA GRANDIFLORA** Nutt. Biennial herb, sometimes annual. Apparently uncommon, as about Potrero de la Cienega and Tenaja Falls. To be expected along trails, gravelly riparian benches, and other open, somewhat disturbed situations. **Boyd, Ross, & Bramlet** 7675.

**HETEROTHECA VERSILIFLORA** (Nutt.) Shinners ssp. echioides (Benth.) Semple Perennial herb. Uncommon in native grasslands as at the southern end of Verdugo Potrero and Oak Flats, as well as on old-formation alluvial benches in San Mateo Cyn. **Boyd** 8381.


**HYPOCHEIRIS GLABRA** L. Annual. Abundant and widespread, particularly in the understory of coastal sage scrub and in native grasslands. **Boyd & Mistretta** 7049.

**ISOCOMA MENZIESII** (Hook. & Arn.) G. Nesom var. vernonoides (Nutt.) G. Nesom Small shrub. Primarily in the western portion of the wilderness in coastal sage scrub, and locally common in grasslands about Oak Flats and "Potrero Escondido." **Boyd & Ross** 8344.

**LACTUCA SERROLA** L. Annual. Uncommon but widely scattered, particularly in grassland and disturbed situations. **Boyd, Ross, & Bramlet** 7678.

**LAGOPHYLLA RAMOSISSIMA** Nutt. ssp. ramosissima Annual. Local in native grasslands in the Oak Flats area. **Boyd & Ross** 8342.

**LASTHENIA CALIFORNICA** DC. ex Lindley Annual. Widespread and often locally abundant, especially in native grasslands and on burns. **Boyd, Ross, & Mistretta** 6680.


**MADIA ENGIA** (Smith) A. Gray Annual. Widespread, but relatively uncommon and localized. Most frequently in mesic chaparral openings and on margins of native grassland. **Boyd & Ross** 7260.

**MADIA GRACILIS** (Smith) Keck Annual. Common in scrub, woodland, and grassland habitats. **Boyd & Ross** 7210.

**MALACOTRHI X CLEVELANDII** A. Gray Annual. Uncommon and local, as in Bluewater Cyn and the northern portion of Tenaja Trail. **Boyd & Ross** 7397.

**MALACOTRHI X SAXATILIS** (Nutt.) Torrey & A. Gray var. tenuifolia (Nutt.) A. Gray Perennial herb. Apparently uncommon in chaparral openings, as along upper Morrell Cyn. **Boyd, Ross, & T. Columbus** 8191.

**MICROPUS CALIFORNICUS** Fischer & C. Meyer Annual. Common and locally abundant in native grassland, chaparral openings, etc. **Boyd & Ross** 7190.


**MICROSERIS ELEAGANS** A. Gray Annual. Occasional in native grassland on heavy soil on the summit and upper south flank of Miller Mtn. **Boyd & et al.** 8295.

**MICROSERIS HETEROCARPA** (Nutt.) Cham. var. stebbiniii pertinentius h. (Nutt.) Chambers Annual. Common and locally abundant on open, heavy soils. **Boyd** 6971.


**OMARINIA TENELLA** Nutt. Annual. Locally common in open areas with heavy soil, particularly in native grassland and xeric chaparral, as at Oak Flats and Miller Mtn. **Boyd & Ross** 7288.

**PENTACHÆTA AUREA** Nutt. Annual. Local on open heavy soil on the summit of Miller Mtn. **Boyd & et al.** 8292.


**PSEUDOCALIFORNICA** Nutt. var. tenellus Annual. Locally common along hard-packed soil of trails and in chaparral openings at scattered sites. **Boyd & Ross** 7765.

**RAMONŒSQUA CALIFORNICA** Nutt. Annual. Common, especially in chaparral and coastal sage scrub habitats, occasional in oak woodland. **Boyd** 6884.


**SENECIO VULGARIS** L. Annual. Uncommon and scattered in scrub, woodland, and grassland habitats. **Boyd, Ross, & K. McCulloch** 6726.

**SILYRUM MARIANUM** (L.) Gérinier Annual. Uncommon and localized, as in lower San Mateo, Devil, Lucas, and Aliso cyns. **Boyd & Ross** 7138.

**SOLIDAGO CALIFORNICA** Nutt. Perennial herb. Common and widespread, especially in oak woodland understory, but also occurring in scrub, riparian, and grassland habitats. **Boyd, Ross, & Bramlet** 7673.

**SONCHUS ASPER** (L.) Hill ssp. asper Annual. Occasional and widespread, especially in moist sand along streams. **Boyd & Ross** 7120.

**SONCHUS OLERACEUS** L. Annual. Occasional and widespread; most common in moist sand along streams, but also found in very moist scrub, woodland, and grassland habitats. **Boyd & Ross** 7216.

**STEPHANOMERIA CICHORACEA** A. Gray Suffruticose perennial. Locally common on rocky slopes and outcrops in lower San Mateo and Devil cyns, and above Lucas Cyn along the Sitton Peak road. **Boyd, Ross, & Mistretta** 7708.

**STEPHANOMERIA DELEGANS** Gottlieb Annual. Locally common in burned chaparral of central San Mateo Cyn, and also encountered in lower San Mateo Cyn. To be expected more widely in the wilderness. **Boyd, Ross, & Mistretta** 7703.

**STEPHANOMERIA EXIGUA** Nutt. ssp. dianeii (J. F. Macbride) Gottlieb Annual. Common and widespread, especially in coastal sage scrub and chaparral habitats. **Boyd, Ross, & Bramlet** 7684.

**STEPHANOMERIA VIRGATA** Benth. ssp. virgata Annual. Locally common in burned chaparral in Lucas Cyn; to be expected more widely. **Boyd & Ross** 8360.
STYLOCLINE G NAPHALOIDES Nutt. Annual. Common and widespread in open situations within scrub and grassland habitats, especially on heavy soils. Boyd 6861.

*TAXACUM OFFICINALE Webber Perennial herb. Apparently scarce; known from a springy side drainage of Bluewater Creek and wet sand along Lucas Creek, but to be expected elsewhere in moist situations. Boyd 6866.

*TERADYMY COMOSA A. Gray Small shrub. Occasional and scattered, generally as small colonies in coastal sage scrub or semi-open chaparral. Boyd, Ross, & T. Columbus 8195.


VENEGATA CARINTHIDES DC. Small shrub. Common and widespread in the wilderness, especially in the southern and eastern portions, generally on mesic slopes and in oak woodland understory. Exceptionally dense stands were observed on some mesic slopes barred in the 1989 fires, especially along the Clark Trail between Cold Spring Creek and San Mateo Creek. Boyd 6878.

WEYHIA OVATA Torrey & A. Gray Perennial herb. Locally common on open benches in oak woodland at the head of Devil Creek and, to be expected elsewhere on the flanks of Margaret Peak. Boyd & Ross 7589.


*BETULACEAE


*BETULACEAE


*BETULACEAE


*BORAGINACEAE

ANSINTA MICHIBOSHI (Lehm.) Nelson & J. F. Macbride var. intermedia (Fischer & C. Meyer) Gunders Annual. Occasional to locally common; widespread on burns, in coastal sage scrub, and in native grasslands. Boyd 6867.

CYPRESSANTHA CLEVELANDII E. Greene Annual. Apparently uncommon; gray-white leaves on rock exposures in San Mateo Creek, upstream from Fisherman's Camp. To be expected in similar habitats. Boyd, Ross, & Bramlet '7441.


CYPRESSANTHA VIRGINIANA (A. Gray) E. Greene Annual. Apparently uncommon, as in Bluewater Creek on a xeric recently burned slope. Boyd & Mistretta '7060.

CYPRESSANTHA MCINTYREI (A. Gray) E. Greene Annual. Apparently uncommon, as in Bluewater Creek on a xeric recently burned slope. Boyd & Mistretta '7060.

CYPRESSANTHA MCINTYREI (A. Gray) E. Greene Annual. Common to locally abundant, especially in chaparral understory. Boyd & Ross '7232.

CYPRESSANTHA MURICATA (Hook. & Arn.) Nels. & J. F. Macbride var. MURICATA (C. mur. s.l.) E. Greene Annual. Apparently relatively uncommon; chaparral burns, etc. Boyd & Ross '7409.

HARPAGONIELLA PALMERI A. Gray Annual. Locally common on open clay soil on the south slope of Miller Mtn. Boyd & Ross '7032.


PECTOCARYA LINEARIS DC. ssp. FEROCULA (L. M. Johnston) Thorne Annual. Occasional; open areas in scrub and grassland habitats. Boyd et al. 8293.

PECTOCARYA PENICILLATA (Hook. & Arn.) A. DC. Annual. Apparently uncommon. Collected in Devil Creek, but to be expected more widely. Boyd, Ross, & M. Wall 7541.

PLAGIOTHORBIS COLLINSI (Philipp.) I. M. Johnston var. CALIFORNICUS (A. Gray) Higgins Annual. Widespread and common in scrub and grassland habitats. Boyd & W. Appleby '7935.


*BRASSICACEAE


BARRABRAE Frutex Lebed. Biennial herb. Local along streams and mesic benches, as in upper Bluewater Creek, Oak Flats, San Mateo Creek, and Lucas Creek. To be expected in similar situations throughout wilderness. Boyd '7693.

*BRASSICA GENICULATA (Desf.) J. Ball (Hirschiola incana) (L. Lagr.-Fossart) Annual to short-lived perennial herb. Widespread and locally common in most habitats, especially in relatively disturbed areas. Boyd & Ross '7214.

*BRASSICA RAPA L. Annual. Uncommon and localized along San Mateo Trail between Bluewater Creek and Tenaja Trail, and along Lucas Creek Trail in Aliso Creek. Boyd & Mistretta '7062.


CARDAMINE CALIFORNICA (Torrey & A. Gray) E. Greene var. CALIFORNICA Geophyte. Widespread and common in moist shaded situations, especially oak woodland understory. Boyd, Ross, & K. McCulloh '6725.


CALIANthus lasiophyllus (Hook. & Arn.) Payson var. IALIENSUS (Rob.) Payson [Guillenia lasiophylla (Hook. & Arn.) E. Greene s.l.] Annual, Infrequent, mostly on chaparral burns, as on Clark Trail between San Mateo and Cold Spring Creeks. Boyd & Ross '6712.

CALIANthus lasiophyllus (Hook. & Arn.) Payson var. LASIOPHYLLUS [Guillenia lasiophylla (Hook. & Arn.) E. Greene s.l.] Annual. Infrequent at scattered sites, especially on chaparral burns. Boyd & Mistretta '7042.

LEPIDUM LASIOCARPUM Nutt. var. LASIOCARPUM Annual. Locally common at scattered sites in xeric openings of coastal sage scrub and chaparral. Boyd, Ross, & Mistretta '6640.


*RAPANUS SATIVUS L. Annual. Uncommon; found on disturbed streambeds in Aliso Creek, but to be expected in grazed or other disturbed areas. Boyd & Ross '7446.


SYZMYNUM ALTISSIMUM L. Annual. Apparently uncommon; a few plants observed on Clark Trail between San Mateo and Cold.
Spring cyns, but to be expected elsewhere in the wilderness. Boyd & Ross 7156.


Thysanocarpus curvipes Hook. var. curvipes Annual. Local in native grassland about Oak Flats. Boyd & D. Banks 8256.

Thysanocarpus curvipes Hook. var. elegans (Fischer & C. Meyer) Rob. [T. curvipes, s. l.] Annual. Locally common at scattered sites, mostly in native grassland and openings in chaparral. Boyd et al. 6719.


Tropidocarpum gracile Hook. Annual. Apparently scarce. This distinctive species was encountered once (26 Feb 1992) on alluvial benches along San Mateo Cyn, just downstream from Fisherman’s Camp. A voucher was not collected at that time on the incorrect assumption that better material would be encountered later in the season. Despite its apparent rarity, we expect this species to be encountered more widely as an early spring annual in scrub and grassland habitats.

Cactaceae


Opuntia littoralis (Engelm.) Cockrell vel aff. Succulent shrub. Uncommon, but widely scattered in scrub and grassland habitats. Boyd & Ross 7600.


Calliricaceae

Calliriche heterophylla Pursh var. bolanderi (Hegelm.) Fassett Aquatic annual. Apparently scarce; only encountered once in Devil Cyn but to be expected more widely in streams, especially in deeper pools. Boyd, Ross, & M. Wall 7501.

Campnanulaceae

Githopis diffusa A. Grayssp. candida (Ewan) N. Morin Annual. Apparently uncommon; openings in chaparral at head of Cold Spring Trail, in native grassland in the Oak Flats area, etc. Boyd & Ross 7084.


Heterocodon rabilorum Nutt. Annual. Occasional at widely scattered sites, especially in moist sand along streams, as in “Miller Cyn,” Devil Cyn, and Wildhorse Cyn. Boyd, Ross, & Bramlet 7380B.


Trioaenas biflora (Ruiz Lopez & Pavon) E. Greene Annual. Infrequent at widely scattered sites, although it may be locally common in moist sand along streams and in scrub and woodland understory. Boyd & Ross 7631.

Caprifoliaceae


Symphoricarpos albus (L.) S. F. Blake var. laevigatus (Fern.) S. F. Blake Small shrub. Apparently scarce; encountered on riparian benches under oaks in Lucas Cyn, near Lucas Cyn trail. Boyd & Ross 8355.


Caryophyllaceae


Minuartia douglasii (Fenzl ex Torrey & A. Gray ) Mattf. Annual. Relatively uncommon in the wilderness, although it may be locally abundant, especially on open, xeric outcrops in alluvial scrub, chaparral, oak woodland, and native grassland. Boyd, Ross, & Bramlet 7340.


Polycarpon tetrathyllum (L.) L. Annual. Relatively uncommon, as along beaten path in Lucas Cyn, and in moist sand along Devil Creek. Boyd & Ross 7451.


Silene antirrhina L. Annual. Infrequent and local in understory of woodland and scrub habitats, as in Bluewater Cyn. Boyd 6876.


Spergularia villosa (Peraon) Cambess. Perennial herb. Apparently uncommon, as along Indian Potrero Trail north of Indian Potrero. Boyd & Mistretta 7021.


Chenopodiaceae


*Chenopodium mirale L. Annual. Locally common in moist sand along streams, and in other disturbed situations at scattered sites. Boyd, Ross, & T. Columbus 8201.

*Chenopodium pumilio R. Br. Annual. Occasional on moist sand in
Devil Cyn and "Miller Cyn," and to be expected elsewhere in similar situations. _Boyd, Ross, & M. Wall 7486._

*SALSOA AUSTRALIS* R. Br. *S. frugus* L. Annual. Infrequent in disturbed areas. _Boyd, Ross, & Mistretta 6755._

**CISTACEAE**

_HISSANTHEMUM SCOPARUM_ Nutt. Suffruticose perennial. Common and often locally abundant on open ridgetops and xeric slopes, especially after chaparral burns. _Boyd, Ross, & M. Wall 7534._

**CONVOLVULACEAE**

_CALYSTEGIA FULCRA (A. Gray) Brunnett (C. occidentalis (A. Gray) Brunnett) Perennial herb. Apparently uncommon in native grassland on Miller Mtn, and at chaparral margin in upper Tenaja Cyn. Boyd et al. 8291._

_CALYSTEGIA MACROSTEGIA (E. Greene) Brunnett ssp. ARIDA (E. Greene) Brunnett Perennial herb. Occasional to locally common on xeric slopes in scrub habitats, especially in post-burn situations. Apparently more common in western portions of the wilderness. Boyd & Mistretta 7617._

_CALYSTEGIA MACROSTEGIA (E. Greene) Brunnett ssp. INTERMEDIA (Abrams) Brunnett Perennial herb. Common and locally abundant, especially on xeric slopes and after fires. Apparently the more common subspecies within the wilderness. Boyd, Ross, & Mistretta 6695._

*CONVOLULUS ARVENSE* L. Perennial herb. Apparently scarce; encountered along trail at stream crossing in Lucas Cyn, _Boyd & Ross 8330._


*CUCUTA SUBINCLUSA* Durand & Hilg. Parasitic annual. Common on various chaparral, coastal sage scrub, and woodland shrubs. _Boyd, Ross, & Mistretta 7701._

*DICHERONIA* cf. _MCRANTHA_ Urban Perennial herb. Local in disturbed oak woodland understory along Lucas Cyn Trail in Lucas Cyn, _Boyd & Ross 8357._

**CRASSULACEAE**

_CRASSULA CONNATA_ (Ruiz Lopez & Pavon) A. Berger Annual. Common and locally abundant in open situations within scrub, woodland, and grassland habitats. Boyd 6812.

_DUIDLEA LANCICOLATA_ (Nutt.) Britton & Rose Succulent perennial herb. Common, especially on rocky outcrops in scrub, woodland, and grassland habitats. _Boyd & Ross 7300._

_DUIDLEA MULTICALIS_ (Rose) Moran Succulent perennial herb. Apparently uncommon in rocky, clay soil in coastal sage scrub south of Lucas Cyn, and in native grassland in the Oak Flats area. _Boyd & Ross 7418._

_DUIDLEA PULVERULENTA_ (Nutt.) Britton & Rose Succulent perennial herb. Common on rocky canyon walls and mesic exposures of rock outcrops, especially in coastal sage scrub, chaparral, and riparian oak woodland. _Boyd, Ross, & T. Columbis 8202._

_ELLENIOCHA_ VINCIDA (E. Watson) Moran Succulent perennial herb. Locally abundant in the western half of the wilderness on mostly mesic rocky canyon slopes, especially in the lower halves of San Mateo and Devil Cyns; also in Lucas and Cold Spring Cyns. To be expected in other tributaries of Devil Cyn and, possibly, in Niches Cyn. Apparently most common on metasedimentary and igneous volcanic substrates. _Boyd, Ross, & M. Wall 7524._

**CUCURBITACEAE**

_MARAH MACROCARPUS_ (E. Greene) E. Greene Geophyte. Common in scrub and woodland habitats. _Boyd, Ross, & Mistretta 6747._

**DATISCACEAE**

DATISCA GLOMERATA (C. Presl) Bailon Perennial herb. Common and locally abundant in streams. _Boyd, Ross, & M. Wall 7549._

**ERICACEAE**

_ARCTOSTAPHYLOS GLANDULOSA_ E. Mey. ssp. GLANDULOSA Large shrub. Common in chaparral, especially on mesic slopes. Considerable morphological variation observed. Boyd 7727.

_ARCTOSTAPHYLOS GLANDULOSA_ ssp. GLANDULOSA X A. RAINBOWENSIS Large shrub. Relatively uncommon in chaparral at the eastern edge of the wilderness—from the southern boundary at least as far north as Tenaja Cyn. _Boyd, Ross, & K. McCallinh 6728._

_ARCTOSTAPHYLOS GLAUCUA_ Lindley Large shrub. Apparently uncommon in chaparral at the northeast edge of the wilderness. Boyd 7716.

_ARCTOSTAPHYLOS RAINBOWENSIS_ Keeley & Massih Large shrub. Relatively uncommon in chaparral at the eastern edge of the wilderness—from the southern boundary at least as far north as the Fisherman’s Camp Trail. Boyd 6687.

_XYLOCOCUS BICOLORE_ Nutt. Large shrub. Uncommon and highly localized in chaparral, as in Tenaja Cyn, Lower San Mateo Cyn, and on Miller Mtn. To be expected at other scattered sites, especially in the southern portions of the wilderness. Boyd 6990.

**EUPHORBIAEAE**

_CHAMAESYCE ALBOMARGINATA_ (Torrey & A. Gray) Small Perennial herb. Occasional; mostly on xeric slopes in understory of coastal sage scrub and chaparral. _Boyd & Ross 7638._

_CHAMAESYCE POLYCARPA_ (Benth.) Millsp. var. POLYCARPA Perennial herb. Occasional, mostly on xeric slopes in understory of coastal sage scrub and chaparral. Boyd & Ross 7473.


_EREMOCARPUS SETIGER_ (Hook.) Benth. [Often misspelled "setigerus"] Annual. Occasional, but sometimes locally common, especially in grasslands, and to a lesser extent in coastal sage scrub and on recent burns. _Boyd, Ross, & T. Columbus 8194._


_EUPHORBIA SPATHULATA_ Lam. Annual. Occasional in native grassland, on chaparral burns, etc. Apparently more common on heavy soils. _Boyd, Ross, & Bramlet 7351._

**FABACEAE**

_AMORPHA CALIFORNICA_ Nutt. var. CALIFORNICA Small shrub. Occasional at scattered sites; mostly in chaparral and oak woodland. _Boyd & Mistretta 7023._

_AMORPHA FRUTICOSA_ L. Small shrub. Common in riparian and oak woodland. _Boyd & Mistretta 7038._

_ASTRAGALUS GAMBELIANUS_ E. Sheldon Annual. Occasional in understory of scrub and in native grassland habitats, especially on heavy soils. _Boyd & Mistretta 7019._

_ASTRAGALUS POMONENSIS_ M. E. Jones Perennial herb. Relatively uncommon and local at scattered sites; mostly in openings in coastal sage scrub, chaparral and oak woodlands. _Boya, Ross, & Mistretta 6702._

_HOITA MACROSTACHYCA_ (DC.) Rydb. Suffruticose perennial. Occasional and locally common in moist soil along streams. _Boyd, Ross, & Bramlet 7669._

_HOITA ORBICULARIS_ (Lindley) Rydb. Perennial herb. Local at scattered locations along "Miller Cyn," and in Devil Cyn, in standing water and moist soil along the streams. To be expected elsewhere in similar habitats. _Boyd & Ross 7622._

_LATHYRUS VESTITUS_ Nutt. ssp. ALEPHILDI (T. White) Broich [L. var.


Lotus hamatus E. Greene Annual. Common and widespread, especially on heavy soil in native grassland and in open areas of scrub habitats. Boyd 6974.

Lotus hermannii (Dru. & Hilg.) E. Greene var. hermannii Perennial herb. Occasional and locally common on benches and along streams in canyons. Boyd, Ross, & Bremner 7348.


Lotus saluginosus E. Greene var. saluginosus Annual. Occasional at scattered sites, and apparently most common following chaparral burns. Boyd & Mistretta 7028.


Lotus strigosus (Nutt.) E. Greene Annual. Common and widespread, especially in native grassland and understory of coastal sage scrub and chaparral. Both large- and small-flowered forms are present, either as pure, or mixed populations. Boyd & Ross 7110.


Lupinus agardhianus Heller [L. concinnus Agardh s. l.] Annual. Occasional at scattered sites, generally on heavy soils in native grassland or open scrub habitats. Boyd & Mistretta 7054.


Lupinus concinnus Agardh ssp. concinnus [L. concinnus s. l.] Annual. Apparently uncommon, as at the mouth of Bluewater Cyn and in the Oak Flats area. Boyd & Ross 7198.

Lupinus excubitus M. E. Jones var. hallii (Abrams) C. P. Smith Small shrub. Occasional, and locally common at scattered sites, mostly in native grassland and on alluvial branches. Boyd, Ross, & Mistretta 6703.

Lupinus formosus E. Greene var. formosus Perennial herb. Apparently uncommon and local in understory of oak woodland, north fork of Bear Creek along the Morgan Trail. Boyd, Ross, & Mistretta 6752B.


Lupinus latifolius Agardh var. parishii C. P. Smith Perennial herb. Common in riparian woodlands and in understory of oak woodlands on lower benches. Boyd 6851.


Lupinus truncatus Nutt. ex Hook. & Arn. Annual. Common and widespread; openings in scrub, woodland and grassland habitats, and especially on recent burns. Boyd 6861.

*Medicago polymorpha L. Annual. Occasional at scattered sites, especially in more disturbed situations as along trails. Boyd, Ross, & Mistretta 6673.

*Medicago sativa L. Perennial herb. Scarce; only a few plants encountered in Devil Cyn in sandy soil along stream. Boyd, Ross, & M. Wall 7513.

*Melilotus albus Medicus Annual to perennial herb. Common, mostly on open benches and moist sandy soil along streams. Boyd, Ross, & Mistretta 6630.


*Spartium junceum L. Large shrub. Local along trail in Cold Spring Cyn and especially about old mining structures in Lucas Cyn. Boyd & Ross 7459.

Trifolium albopurpureum Torrey & A. Gray Annual. Occasional at scattered sites; mostly on heavy soil in native grassland as about Oak Flats and Miller Mtn. Boyd & Ross 7056.

Trifolium celatatum Benth. Annual. Occasional in openings in scrub, woodland, and grassland habitats, especially on recent burns. Boyd & Ross 7259.

Trifolium depauperatum Desv. var. truncatum (E. Greene) Isely Annual. Apparently uncommon at scattered sites; mostly in native grassland and grassy openings in scrub habitats on heavy soil. Boyd 6973.

*Trifolium hirtum All. Annual. Scarce; grassy bench along stream in lower Wildhorse Cyn. Boyd, Ross, & Bremner 7379A.

Trifolium microcephalum Pursh Annual. Occasional in scrub and grassland habitats, especially on recent burns. Boyd & Ross 7181.


Trifolium willexnovii Sprengel Annual. Common and widespread in scrub and grassland habitats, and especially on recent burns. Boyd & Ross 7226.

Vicia americana Nutt. ex Willd. var. americana Perennial herb. Apparently uncommon; climbing on shrubs in oak woodland openings, as in upper Bluewater Cyn, upper Devil Cyn, and Verdugo Potrero. Boyd 6796.


FAGACEAE

Quercus agrifolia Neé var. agrifolia Tree. Common throughout the wilderness and locally abundant in oak woodland and riparian woodland habitats. Boyd & Ross 7217.

Quercus berberidophylla Liebm. Large shrub. Common and locally abundant, especially in mesic chaparral and in oak woodland. Occasional plants were encountered which suggest introgression with Q. engelmannii. These individuals are characterized by a more arborescent habit and larger, grayer leaves. Boyd & Ross 7218.

†Quercus engelmannii E. Greene Tree. Local in oak woodlands on Miller Mtn and in "Potrero Escondido." Boyd 6991.
GARRYACEAE


GENTIANACEAE

CENTAURIUM VENUSTUM (A. Gray) Robinson Annual. Locally common, mostly in openings in scrub and woodland habitats, and less often in native grassland and in moist soil along streams. Boyd & Ross 7627.


GERANIACEAE

*ERODIUM BRACHYCARPUM (Godron) Thell. Annual. Occasional to locally abundant in scrub, woodland, and grassland habitats, especially in disturbed situations. Boyd & Ross 7166.


GERANIUM CAROLINIANUM L. Annual. Apparently uncommon; encountered at several widely scattered sites, but mostly in grassy openings in oak woodland. Boyd 6875.

GROSSULARIACEAE


RIBES MALVACEUM Sm. var. VIRIDIFOLIUM Abrams Small shrub. Occasional at scattered sites, mostly in oak woodland understory. Boyd & Ross 7237.

RIBES SPECIOSUM Parsh Small shrub. Occasional, mostly in the western and southern portions of the wilderness in chaparral and oak woodland understory. Boyd & Mistretta 7011.

HYDROCOTYLEACEAE


HYDROPHYLLACEAE


ERIODICTYON CRASSIFOLIUM Bentham. var. CRASSIFOLIUM Small shrub. Common and widespread, especially on recent burns in chaparral, on alluvial benches, and on other disturbed sites. Boyd 6939.

EUCRYPTA CHRYSANTHEMIFOLIA (Benth.) E. Greene var. CHRYSANTHEMIFOLIA Annual. Common and widespread, especially in understory of shrub and woodland habitats. Boyd 6829.


PHACELIA BRACHYLOBA (Benth.) A. Gray Annual. Apparently uncommon, as along the Tenaja Trail south of Hwy 74 on recent chaparral burn. To be expected as a fire-following species in chaparral habitats. Boyd & Ross 7388.

PHACELIA CICUTARIA E. Greene var. HISPIDA (A. Gray) J. Howell Annual. Common and widespread in scrub, woodland, and grassland habitats, especially on recent burns. Boyd & Ross 7456.


PHACELIA GRANDIFLORA (Benth.) A. Gray Annual. Occasional at scattered sites in the western half of the wilderness, mostly on recent burns in chaparral. Boyd & Mistretta 7026.


PHACELIA MINOR (Harvey) Thell. Annual. Common and widespread in scrub, woodland, and grassland habitats, especially on recent burns. Boyd 6786.


PHOLISTOMA AURITUM (Lindley) Lilja var. AURITUM Annual. Occasional at scattered sites, mostly in openings in mesic chaparral. Boyd 6870.


HYPERICACEAE


HYPERICUM FORMOSUM Kunth var. SCOUleri (Hook.) J. Coulter Perennial herb. Relatively uncommon in gravel beds of streams, and margins of bedrock pools at scattered sites, as in Lucas Cyn and especially Devil Cyn. Boyd, Ross, & M. Wall 7517.

LAMIACEAE


*MARRUBIUM VULGARE L. Suffruticoso perennial. Occasional and widespread, especially in disturbed areas along trails and in oak woodland understory. Boyd & Ross 7265.

*MENTHA SPICATA L. var. SPICATA Perennial herb. Common along stream in Devil Cyn, occasional along San Mateo Creek, etc. Boyd, Ross, & Mistretta 7705.

MONARDELLA HYPOLEUCA A. Gray spp. HYPOLEUCA Suffruticoso perennial. Occasional at scattered sites; mostly in understory of oak woodland and chaparral on mesic slopes. Boyd & Ross 8352.

MONARDELLA LANCEOLATA A. Gray Annual. Occasional at scattered sites; openings in scrub and woodland habitats. Boyd, Mistretta, & Bramlet 7649.


SAVIA APIANA × S. MELLIFERA Small shrub. Infrequent, but encountered sporadically where both parents occur together. Boyd & Ross 7484.


TРИХОСТЕМА АУСТРОМОНТАНУМ H. Lewis sp. AUSTRIMONTANUM Annual. Scarce; encountered once on moist sand along Devil Creek. Boyd, Ross, & M. Wall 7497.


LAURACEAE

UMBELLULARIA CALIFORNICA (Hook. & Arn.) Nutt. Tree. Relatively infrequent, but locally common in riparian and oak woodland and mesic chaparral, as in central Devil Cyn, Lucas Cyn, mouth of Tenaja Cyn, etc. Rarely occurring on more xeric slopes, as along Clark Trail between Cold Spring and San Mateo Cyns. Boyd, Ross, & Mistretta 6656.

LINACEAE

HERPEROLINON MICRANTHUM (A. Gray) Small Annual. Locally common on heavy soils in xeric chaparral openings in the Oak Flats area, and to be expected in similar situations elsewhere in the wilderness. Boyd & Ross 7196.

LOASACEAE

MENTZELIA MICRANtha (Hook. & Arn.) Torrey & A. Gray Annual. Relatively uncommon, but widely scattered, mostly on recent burns in chaparral. Boyd & Mistretta 7008.

LYTHRACEAE


*LYTHRUM HYSSOPACEUM L. Perennial herb, sometimes a facultative annual. Infrequent on moist sand along streams at widely scattered sites. Boyd, Ross, & M. Wall 7495.


MALVACEAE

MALACOTHAMNUS DENSIFLORUS (S. Watson) E. Greene Small shrub. Locally common on recovering burns in scrub and oak woodland habitats; occasional in unburned situations. Boyd & Mistretta 7009.


MORACEAE

*MORUS ALBA L. Tree. Scarce; a single young tree was encountered in Cold Spring Cyn, near the lowest stream crossing on the Cold Spring Trail. Boyd & Ross 7092.

MYRTACEAE

*EUCALYPTUS CAMALOULENsis Denhardt Tree. Locally adventive near old plantings in the southern portion of Potrero de la Cienega. Boyd & Ross 6671.


NYCTAGINACEAE


OLACEAE

FRAXINUS VELUTINA Torrey Tree. Occasional to locally common along larger streams. Boyd & Mistretta 7068.

*OLEA EUROPAEA L. Tree. Persisting from cultivation, or possibly adventive, in Lucas Cyn and near Cold Spring. Boyd & Ross 7461.

ONAGRAEAE


CAMISSONIA GRACILIFLORA (Hook. & Arn.) Raven Annual. Uncommon and local on very open clay soil in native grassland at Oak Flats and on Miller Mountain. Boyd 6985.


CAMISSONIA IGNOTA (Jepson) Raven Annual. Occasional and widespread, especially on recent burns and openings in scrub habitats. Boyd, Ross, & Bramlet 7254.

CAMISSONIA STRIGULOSA (Fischer & C. Meyer) Raven Annual. Apparently uncommon; encountered on alluvial bench in Los Alamitos Cyn near confluence of Wildhorse Creek. To be expected in similar open habitats elsewhere in the wilderness. Boyd, Ross, & Bramlet 7369.

CLARKIA BOTTAE (Spach) H. Lewis & M. Lewis Annual. Occasional to locally common, usually on mesic rocky slopes and openings in chaparral. Boyd & Ross 7139.


CLARKIA SIMILIS H. Lewis & Ernst Annual. Occasional to locally common, usually on mesic rocky outcrops and openings in chaparral. Boyd, Ross, & Bramlet 7350.

EPILOBIIUM CANUM (E. Greene) Raven ssp. ANGIUSPILOM (Keck) Raven [E. c. ssp. c. s. 1] Scleromicrose perennial. Common in scrub
and woodland habitats, especially on rocky, xeric slopes. *Boyd, Ross, & Bramlett 7086.*


*Euphorbia densiflorum* (Lindley) P. Hoch & Raven Annual. Occasional on moist sand along streams, as in Devil Cyn. *Boyd, Ross, & M. Wall 7504.*

*Ludwigia peploides* (Kunth) Raven ssp. peploides Perennial herb. Local in slow-moving water and on formerly inundated sandbars in San Mateo and Devil Creeks. *Boyd & Ross 7116.*


*Oxalidaceae*

*Oxalis albicans* Kunth ssp. californica (Abrams) E. Greene Perennial herb. Occasional, usually about rock outcrops in scrub and grassland habitats. *Boyd 6873.*

*Oxalis corniculata* L. Perennial herb. Apparently scarce; encountered in moist soil along stream at Serrano Spring and on granitic boulders along upper Devil Creek. *Boyd & Ross 7203.*

*Paeoniaceae*

*Paeonia californica* Nutt. ex Torrey & A. Gray Perennial herb. Common and widespread in scrub, woodland, and native grassland habitats, but most abundant in openings in chaparral. *Boyd, Ross, & Mistretta 6746.*

*Papaveraceae*

*Dendromecon rigidum* Benth. Small shrub. Locally common in chaparral in the southeastern portion of the wilderness. To be expected as a post-fire element in chaparral; however, none were observed in areas affected by the 1989 fire. *Boyd & Ross 7577.*


*Eschscholzia californica* Cham. var. douglasii (Benth.) A. Gray [E. calif. s. 1.] Perennial herb. Local on a gravelly bench in Devil Cyn, south of Miller Mountain. This is the variety of *Eschscholzia californica* typically grown from seed mixes; we interpret its presence at this site as likely adventive from plants cultivated upstream, probably at a nearby ranch. *Boyd, Ross, & M. Wall 7496.*

*Eschscholzia californica* Cham. var. fenisulcarios (E. Greene) Munz [E. calif. s. 1.] Annual. Occasional in native grassland and open scrub habitats. Locally common on xeric slopes in some areas affected by the 1989 fire. *Boyd & Ross 7125.*

*Meconella denticulata* E. Greene Annual. Occasional to locally common in mesic, open understory of scrub and oak woodland habitats. *Boyd 6859.*

*Papaver californicum* A. Gray Annual. Locally common in widely scattered localities, such as along recently cleared trail margin in Tenaja Cyn. To be expected as a post-fire annual. *Boyd, C. Boyd, & K. Boyd 6736.*

*Plantaginaeae*

*Plantago erecta* E. Morris Annual. Common and widespread, usually on thin, rocky or clayey soils of open areas in scrub and grassland habitats. *Boyd 6820.*

*Plantago lanceolata* L. Perennial herb. Occasional at scattered sites; usually in grassy, somewhat disturbed situations, as along trails or in grazed areas. *Boyd & Ross 7262.*

*Plantago major* L. Perennial herb. Occasional in moist sand along streams. *Boyd & Ross 7146.*

*Platanaceae*

*Platanus racemosa* Nutt. Tree. Common and widespread in all major and most minor canyons, and often about seepages on slopes. *Boyd, Ross, & Bramlett 7666.*

*Poesiumiaceae*

*Allophyllum glutinosum* (Benth.) A. D. Grant & V. Grant Annual. Occasional in scrub and grassland openings. *Boyd & Ross 7452.*


*Gilia angiospermis* V. Grant Annual. Common in mesic scrub and grassland habitats. Often very common locally in post-fire situations. *Boyd 6872.*

*Gilia australis* (Mason & A. D. Grant) V. Grant & A. D. Grant Annual. Apparently uncommon at scattered sites as a post-fire annual, and in grassy openings amid scrub. To be expected following burns. *Boyd, Ross, & Bramlett 728.*

*Gilia capitata* Sims ssp. abrotanifolia (Nutt. ex E. Greene) V. Grant Annual. Occasional to locally common in openings of scrub and woodland habitats, especially as a post-fire element. *Boyd & Mistretta 6682.*


*Linanthus androsaceus* (Benth.) E. Greene ssp. micranthus (Steud.) Mason [L. parviflorus (Benth.) E. Greene] Annual. Common and widespread in native grassland, as well as openings in scrub and oak woodland habitats. *Boyd, Ross, & Mistretta 7347.*

*Linanthus diantiphlorus* (Benth.) E. Greene Annual. Occasional at scattered sites; usually in open situations on heavy soils. *Boyd 6969.*

*Linanthus floribundus* (A. Gray) E. Greene ex Milliken ssp. floribundus Suturiferous perennial. Occasionally; mostly in the southern portion of the wilderness in mesic chaparral openings, and on benches along streams as in upper middle Devil Cyn. *Boyd, Ross, & M. Wall 7489.*

*Linanthus liniflorus* (Benth.) E. Greene Annual. Locally common on heavy soils in chaparral openings and in native grasslands; Miller Mountain, about Oak Flats, etc. *Boyd, Ross, & T. Columbus 8192.*

*Linanthus pygmaeus* (Brand) J. Howell [ssp. continens (Raven) Annual. Inconspicuous and local; openings in chaparral and margins of oak woodlands at scattered sites. *Boyd & Ross 7272.*


*Navarretia hamata* E. Greene ssp. hamata Annual. Common and widespread in scrub openings and native grassland habitats, and often on hard-packed soil along trails. *Boyd & Ross 7598.*

*Polygalaceae*

POLYGONACEAE

*Chorizanthemum* fimbriatum Nutt. v. fimbriatum Nutt. Common to locally abundant in open situations, especially xeric slopes and heavy soils. *Boyd & Ross* 7625.

*Chorizanthemum* polygonoideae Torrey & A. Gray var. longispina (Goodman) Muzz Annual. Apparently uncommon in open situations on clay soil, as at Miller Mountain, Oak Flats, and “Potrero Escondido.” *Boyd & Ross* 7234.

*Chorizanthemum procumbens* Nutt. Annual. Locally common on xeric, rocky outcrops in chaparral at the southeastern end of the wilderness, and on old-formation alluvial benches in Los Alamitos Cyn near its confluence with Wildhorse Cyn. Scattered plants were also found in open clayey area in chaparral near Miller Mountain and at “Potrero Escondido.” *Boyd & Ross* 7381.

*Chorizanthemum staticoides* Bentham Annual. Apparently uncommon and local at scattered sites. Occurring in similar situations to *C. fimbriatum* and occasionally in close proximity, but never observed growing in mixed populations. *Boyd & Ross* 7422.

*Eriogonum elongatum* Bentham v. elongatum Suffruticoso perennial. Occasional, mostly on xeric slopes and rocky outcrops in scrub and grassland habitats. *Boyd, Ross, & Bramlet* 7680.

*Eriogonum fasciculatum* Bentham var. foliolosum (Nutt.) S. Stokes ex Abrams Small shrub. Common to locally abundant in scrub, woodland, and grassland habitats throughout the wilderness. *Boyd, Ross, & M. Wall* 7546.

*Eriogonum fasciculatum* Bentham var. foliolosum (Benth.) Torrey & A. Gray Small shrub. Apparently uncommon. Plants approaching this variety were observed at scattered sites, in xeric situations. *Boyd, Ross, & Bramlet* 7682.

*Eriogonum gracile* Bentham var. gracile Annual. Occasional to locally common in scrub, woodland, and grassland habitats, most often in open, sandy situations. *Boyd, Ross, & Bramlet* 7682.

*Eriogonum gracile* Bentham var. incultum Reveal Annual. Apparently scarce; open areas in chaparral along Fisherman’s Camp Trail. To be expected elsewhere in similar situations. *Boyd* 8379.

*Lastariaea coriacea* (Goodman) Hoover Annual. Locally common on old-formation alluvial benches of Los Alamitos Creek near its confluence with Wildhorse Creek. To be expected elsewhere in similar open habitats. *Boyd, Ross, & Bramlet* 7364.

*Polygonum arenarium* Boreau Annual or perennial herb. Infrequent in disturbed areas along trails and in moist areas along streams at scattered sites. Most common in areas of active cattle grazing. *Boyd & Ross* 7176B.


*Rumex crepus* L. Perennial herb. Occasional to locally common along streams as well as in moist swales in grasslands. *Boyd, Ross, & Bramlet* 7343.


PORTULACACEAE


*Claytonia parkifiora* Hook. ssp. viridis (A. Davidson) J. M. Miller & Chambers Annual. Apparently uncommon at scattered sites in situations similar to those preferred by the following species, and often growing intermixed. *Boyd, Ross*, & *Mistretta* 6754.


PRIMULACEAE


*Dodecatheon cleveandii* E. Greene ssp. cleveandii Geophyte. Relatively uncommon; grassy openings in scrub habitats on heavy soil of ridge tops, as along Indian Potrero and Lucas Cyn Trails. To be expected in other areas of xeric moist soil within the wilderness. *Boyd & Mistretta* 7020.

RANUNCULACEAE


*Clematis luetecifolia* Nutt. Liana. Local in riparian woodlands, as above Tenaja Falls and in Cold Spring Cyn. *Boyd, Ross, & Bramlet* 7676.

*Clematis pauciflora* Nutt. Liana. Apparently less common than *Clematis lasiantha*; encountered in scrub and woodland habitats, as in upper San Mateo Cyn and Tenaja Cyn. *Boyd, Ross, & Mistretta* 6674.


*Delphinium parryi* A. Gray Geophyte. Occasional to locally common in open, xeric situations in scrub, and native grassland habitats. *Boyd & Ross* 7191.

*Delphinium patens* Benth. ssp. hepaticoides Ewan Geophyte. Occasional at scattered sites in situations similar to those preferred by A. *parryi*. May be found growing intermixed with the latter. *Boyd*, C. *Boyd*, & K. *Boyd* 6738.


*Thalictrum fendleri* A. Gray var. polycarpum Torrey Perennial herb. Occasional in mesic situations in scrub and woodland habitats. *Boyd* 6797.

RHAMNACEAE

*Ceanothus crassifolius* Torrey Large shrub. Common to locally abundant on xeric slopes in chaparral. *Boyd & Ross* 6667.

*Ceanothus leucoderms* E. Greene Large shrub. Apparently uncommon. Encountered in chaparral in the southeastern portion of the wilderness from Tenaja Cyn southward. To be expected in areas of mesic chaparral elsewhere in the wilderness. *Boyd & Ross* 7587.


*Ceanothus spinosus* Nutt. Shrub. Occasional to locally common in mesic chaparral in the western half of the wilderness. *Boyd & Mistretta* 7009.
Ceanothus tomentosus Parry. Large shrub. Apparently uncommon. Plants approaching this taxon occur in relatively mesic chaparral at scattered sites. This species is known to intergrade with C. oliganthus in the Santa Ana Mountains. Boyd, Ross, & Mistretta 6651.

Rhododendron eschscholtzii ssp. californiae Large shrub. Occasional to locally common in chaparral and oak woodland habitats, usually in mesic canyon bottoms. Boyd, Ross, & M. Wall 7536.


ADENOSTOMA FASCICULATUM Hook. & Arn. var. fasciculatum [A. fasciculatum s.l.] Large shrub. Common to locally abundant in chaparral and, to a lesser degree, in woodland habitats. Boyd & Ross 71106.

Aphanes occidentalis (Nutt.) Rydb. Annual. Locally common at scattered sites; generally in relatively shaded, mesic openings in chaparral and oak woodland habitats. Boyd, Ross, & Distretta 6762.

Cercocarpus betuloides Nutt. ex Torrey & A. Gray var. betuloides Large shrub. Apparently relatively uncommon (relative to C. minutiflorus) in chaparral at scattered sites. Plants approaching this taxon were most frequently encountered in the northeastern portion of the wilderness, Boyd 7717.

Cercocarpus minutiflorus Abrams Large shrub. Occasional to locally common in mesic chaparral and oak woodland habitats, but best developed in the southern and western portions. (Many showing introgression from C. betuloides.) Boyd & Mistretta 7005.

Heteromeles arbutifolia (Lindley) Roemer Large shrub. Occasional to locally common in scrub and woodland habitats, especially in mesic slopes. Boyd & Ross 7299.


Horkelia cuneata Lindley ssp. puberula (E. Greene) Keck Perennial herb. Locally common in understory of oak woodland in the north fork of Bear Cyn at the jtn of Tenaja and Morgan trails. Boyd & Ross 7404.

†Horkelia trincata Rydb. Perennial herb. Occasional to locally common in scrub and woodland habitats in the southeastern portion of the wilderness, about Santa Margarita Peak and in upper Devil Cyn. Boyd & Ross 7590.


Potentilla glandulosa Lindley ssp. glandulosa Perennial herb. Occasional in relatively mesic situations in scrub and woodland habitats, especially about seepsages. Boyd & Ross 7249.

Prunus ilicifolia (Nutt.) Walp. ssp. ilicifolia Large shrub. Relatively uncommon, but widespread in the wilderness in scrub and oak woodland habitats. Boyd & Ross 7248.


RUBIACEAE

GALIUM ANGUSTIFOLIUM Nutt. ssp. angustifolium Suffruticose perennial. Common, especially on rocky outcrops and xeric slopes in scrub, woodland, and grassland habitats. Boyd, Ross, & M. Wall 75.95.


GALIUM PORRIGENS Dempster var. porrigenes Suffruticose perennial. Common in understory of scrub and woodland habitats, particularly in more mesic situations. Boyd & Ross 7221.

SALICACEAE

Populus balsamifera L. ssp. trichocarpa (Torrey & A. Gray) Brayshaw Tree. Locally common in riparian woodlands of the larger drainages, such as San Mateo and Devil Cyns. Boyd, Ross, & Bramlet 7314.


Salix exigua Nutt. Large shrub. Locally common in riparian woodlands of San Mateo and Devil Cyns, and to be expected in similar situations in other drainages. Boyd & Ross 7142.

Salix gooddingii C. Ball Tree. Relatively uncommon in riparian woodland of San Mateo Cyn, but to be expected in similar situations. Boyd & Mistretta 7031.

Salix laevigata Bebb Tree. Relatively uncommon in riparian woodlands of San Mateo and Devil Cyns, and to be expected in similar situations in other drainages. Boyd, Ross, & M. Wall 7550.


SAXIFRAGACEAE


Saxifraga californica E. Greene Geophyte. Locally common at scattered sites, generally in mesic openings in chaparral. Boyd & Ross 6709.

SCROPHULARIACEAE


Antirrhinum nuttallianum Benth. ssp. nuttallianum Annual or facultative biennial. Occasional; mostly on xeric slopes and rock outcrops in scrub habitats. Boyd, Ross, & M. Wall 7516.


Collinsia heterophylla Bux ex Gr. Annual. Common; mesic...
openings in scrub habitats and oak woodland understory. Boyd & Mistretta 7073.

**Collinsia parryi** A. Gray Annual. Locally common at scattered sites in mesic openings of scrub habitats. Boyd 6955.

**Cordylanthus rigidus** (Benth.) Jepson ssp. setiger Chuang & Heckard (often misspelled “setigerus”) Annual. Common in scrub and woodland habitats, but tending to be most common on burns and other disturbed sites. Boyd & Ross 7644.


**Keckielia antirrhinoidea** (Benth.) Straw var. antirrhinoidea Small shrub. Occasional to locally common in scrub habitats, mostly in the northern half of the wilderness. Boyd, Ross, & Bramlet 7360.

**Keckielia cordifolia** (Benth.) Straw Small shrub, often scandent. Common in scrub and woodland habitats, mostly in more mesic situations. Boyd & Ross 7416.

**Linaria canadensis** (L.) Dum.-Cours. var. texana (Scheele) Pennell [L. can. s.1.] Annual. Apparently uncommon in scrub habitats, as at Oak Flats, Bluewater Cyn, and north fork of Bear Cyn, but to be expected in scrub and native grassland habitats, especially after fires. Boyd & D. Banks 8260.

**Mimulus aurantiacus** Curtis s.l. Small shrub. Common in scrub and oak woodland habitats. Populations observed included plants with yellowish orange flowers, which have been treated as *M. a. austro-astralis* (McMinn) Munz (Boyd & Ross 7212), fully grading into plants with deep red flowers, which have been treated as *M. puniceus* (Nutt) Steudel (Boyd, Ross, & Mistretta 6645).

**Mimulus brevipes** Bentham Annual. Common in xeric openings within scrub habitats. May be locally common following burns. Boyd, Ross, & Bramlet 7334.


*Mimulus diffusus* A. L. Grant Annual. Apparently uncommon in mesic openings of scrub habitats, as in central San Mateo Cyn and on the south flank of Miller Mtn. To be expected in similar situations elsewhere, especially following chaparral fires. Boyd, Ross, & Bramlet 7349.

**Mimulus floribundus** Doug. ex Lindley Annual. Occasional in moist sand along streams and about seepages. Boyd & Ross 7282.

**Mimulus glutatus** Fish. ex DC. Annual or perennial herb. Common in moist sand along streams, about seepages, and in seasonally moist areas about rock outcrops and minor drainages. Boyd & Ross 7253.

**Mimulus pilosus** (Benth.) S. Watson Annual. Occasional to locally common; mostly mesic openings in scrub habitats and on moist soil along streams and seepages. Boyd, Ross, & Bramlet 7371.

**Orobanchie bulboidea** G. Beck Parasitic perennial herb. Infrequent at widely scattered sites in chaparral and generally occurring on the roots of *Adenostoma fasciculatum*. Boyd & Ross 7603.

**Orobanchie parishii** (Jepson) Heckard sp. parishii Parasitic perennial herb. Infrequent in areas of native grassland-scrub mosaic on Miller Mtn. Possibly occurring on the roots of *Corethronymy filaginifolia*, a locally common associate, although we were unable to follow any parasitized roots to their source for verification. Boyd & Ross 7065.


**Pedicularis densiflora** Bentham ex Hook. Hemiparasitic perennial herb. Occasional to locally common in understory of *Adenostoma fasciculatum* and/or *Quercus berberidifolia* in mesic chaparral. Boyd, Ross, & Mistretta 6673.


**Penstemon heterophyllus** Lindley var. australis Munz & I. M. Johnston Sulfurificose perennial. Occasional to locally common in openings of scrub and oak woodland habitats. Boyd & Ross 7592.

**Penstemon spectabilis** Thurbler ex A. Gray var. spectabilis Sulfurificose perennial. Occasional to locally common on recent burns, and in openings of scrub and woodland habitats. Boyd & Ross 7407.

**Scrophularia californica** Cham. & Schindl. sp. floribunda (E. Greene) Shaw Perennial herb. Common in scrub habitat, particularly in mesic chaparral. Boyd, Ross, & Bramlet 7380A.

*Veronica angustissima-aquatica* L. Annual to perennial herb, occasional in moist sand along streams, as in San Mateo and Devil cyns. Boyd & Mistretta 7049.

**Solanaceae**


*Nicotiana glauca* Graham Large shrub. Occasional in more-or-less disturbed situations on a recent burn in Lucas and Aliso cyns; otherwise scarce in the wilderness. Boyd & Ross 8346.

**Nicotiana quadralvus** Pursh. Annual. Apparently uncommon; encountered only along the Tenaja Trail north of its jtn with Morgan Trail in an area of chaparral burned in the 1989 fire. To be expected in more or less sandy scrub habitats, especially following fire. Boyd & Ross 7394.

*Physalis philadelphica* Lam. Annual. Apparently uncommon; encountered only on old-formation bench in Los Alamos Cyn near the confluence of Wildhorse Cyn. Boyd, Ross, & Bramlet 7362.

**Solanum americana** Miller Annual or perennial herb. Apparently uncommon on moist sand along lower San Mateo Creek. Boyd & Ross 7135.


**Solanum xanti** A. Gray s. l. Sulfurificose perennial. Common throughout the range in scrub and woodland habitats. Boyd, Ross, & Mistretta 6658.

**Styracaceae**

**Styrax officinalis** L. var. redivivus (Torrey) H. Howard. Large shrub. Localized, but common where present, in chaparral at northwestern edge of the wilderness along Sitton Peak Road, and at southeastern edge along Santa Margarita Peak Road. Boyd & Ross 7593.

**Tamaricaceae**


**Urticaceae**


PHORADENDRON VILLOSUM

ALLIUM PRAECOX

YUCCA WHIPPLEI

VITIS

PHORADENDRON MACROPHYLLUM

ALLIUM LACUNOSUM

VIOLA

*AGAVE


*BRODIAEA FILIFOLIA S. Watson Geophyte. Occasional; vernally mesic, heavy soil of chaparral openings at the southeastern end of the wilderness in the Devil Cyn drainage. Included here are plants which possess relatively short filaments and long, more-or-less linear staminodes. However, these plants occur in populations which apparently grade completely into the putative hybrid with B. orcuttii. Boyd, Mistretta & Bramlet 7548.

*BRODIAEA FILIFOLIA × B. ORCUTTII Geophyte. Plants which possess the staminode character of B. filifolia and the filament length character of B. orcuttii may represent a natural hybrid between these two taxa. These are the most frequently encountered Brodiaeas in the wilderness and are locally common in the native grasslands on Miller Mtn, on cobble deposits in “Miller Creek,” in crevices of water-smoothed bedrock outcrops along Devil Creek, and in vernally moist rocky openings in chaparral northwest of Sky Ranch. Boyd & Ross 7289.

*BRODIAEA ORCUTTII (E. Greene) Baker Geophyte. A few plants on Miller Mtn and along “Miller Creek” may have flowers bearing long staminal filaments and lacking the staminodes, and would therefore correspond morphologically to this species. However, these populations apparently grade completely into the putative hybrid with B. filifolia. Boyd & Ross 7596.


MULLA MARITIMA (Torrey) S. Watson Geophyte. Infrequent to locally common in scrub and native grassland habitats, especially in the native grasslands of Miller Mtn. Boyd 6978.

AMARYLLIDACEAE

*CALLICORE ROSEA Link Geophyte. Forming a large, well-established colony in oak woodland about old mining homestead in Lucas Cyn. Boyd & Ross 7482.


ASPHODELACEAE


*ALOE TAPONARIA (As.) Haworth vel aff. Succulent perennial. Persisting from cultivation about old mining homesteads in Lucas Cyn, and apparently spreading into surrounding native vegetation. Boyd & Ross 7471.

CYPERACEAE

CAREX ATROSTACHYCA Olney vel aff. Perennial herb. Apparently uncommon along streams, as in “Miller Cyn” and Devil Cyn. Boyd, Ross, & M. Wall 7499.


CAREX SCHOTTII Dewey Perennial herb. Apparently local, as along stream in Devil Cyn. Boyd, Ross, & M. Wall 7522.

CAREX SENA Boat Perennial herb. Occasional in canyon bottoms, but mostly on lower benches in understory of oak woodland where it may be locally abundant. Boyd, Ross, & Bramlet 7664.
**Carex spissa** L. Bailey Perennial herb. Occasional along streams and about seepages. *Boyd, Ross, & Bramlet 7375.*

**Carex triquetra** Boott Perennial herb. Local at scattered sites in scrub and oak woodland habitats. *Boyd, Ross, & Bramlet 7311.*

**Cyperus eragrostis** Lam. Annual. Common along larger streams such as San Mateo and Devil creeks. *Boyd & Ross 7134.*

**Cyperus squarrosus** L. Annual. Local in vernal seepage in chaparral along Tenaja Trail, north of its jtn with Morgan Trail. *Boyd & Ross 7391.*

**Eleocharis acicularis** (L.) Roemer & Schultes var. bella Piper Annual. Local in vernal seepage in chaparral along Tenaja Trail, north of its jtn with Morgan Trail. *Boyd & Ross 7392.*

**Eleocharis macrostachya** Britton Perennial herb. Common along streams and about seepages. *Boyd, Ross, & M. Wall 7530.*

**Eleocharis montevidensis** Kunth Perennial herb. Common along streams and about seepages. *Boyd & Ross 7115.*

**Eleocharis radicans** (Poiret) Kunth Perennial herb. Local about a spring at the head of “Miller Cyn” on the south flank of Miller Mtn. *Boyd & Ross 7617.*

**Scirpus acutus** Muhlenb. ex Bigelow var. Occidentalis (S. Watson) Beetle Aquatic perennial herb. Occasional along streams in the larger drainages such as San Mateo and Devil cyms. *Boyd, Ross, & Bramlet 7318A.*


**Scirpus microcarpus** C. Presl Perennial herb. Occasional to locally common on moist sand and in slow-moving water near stream margins. *Boyd & Ross 7136.*

**Scirpus pungens** Vahl Aquatic perennial herb. Apparently uncommon; slow moving water in lower San Mateo Cyn. To be expected elsewhere in similar situations. *Boyd & Ross 7151.*

### Hyacinthaceae

**Chlorogalum parviflorum** S. Watson Geophyte. Occasional; usually on heavy soil in scrub and native grassland habitats. *Boyd & Ross 7585.*


### Iridaceae


*Sisyrinchium bellum* S. Watson Geophyte. Common to locally abundant in native grassland and mesic, grassy openings in scrub and woodland habitats. *Boyd & Ross 7167.*

### Juncaceae


**Juncus effusus** L. var. pacificus Fern. & Wieg. Perennial herb. Apparently uncommon; wet sand along streams in Devil and lower San Mateo cyms. To be expected elsewhere in similar situations. *Boyd, Ross, & M. Wall 7494.*

**Juncus macrophyllus** Cov. Perennial herb. Common in moist soil along streams, about seepages, and in vernaly moist areas in scrub, woodland, and native grassland habitats. *Boyd, Ross, & M. Wall 7543.*

**Juncus mexicanus** Wild. ex Roemer & Schultes Perennial herb. Occasional in moist soil along streams, about seepages, and in understory of oak woodland on lower alluvial benches. *Boyd & Ross 7251.*

**Juncus patens** E. Meyer Perennial herb. Apparently uncommon in moist sand along Devil Creek. To be expected elsewhere in similar situations. *Boyd, Ross, & M. Wall 7529.*


**Juncus textilis** Buchenau Perennial herb. Occasional to locally common; mostly on lower alluvial benches in oak and riparian woodland understory, and about seepages in scrub habitats. *Boyd & Ross 7406.*

**Juncus tehamae** Erter Annual. Local in vernal seepage in chaparral along Tenaja Trail, north of its jtn with Morgan Trail. To be expected elsewhere in similar situations. *Boyd & Ross 7390.*

**Juncus xiphoides** E. Meyer Perennial herb. Occasional in moist sand and slow-moving water along streams. *Boyd, Ross, & Mistretta 7699.*

### Liliaceae

**Lemna minor** L. Aquatic herb. Scarce and local in shallow pools along the stream in upper Morrell Cyn. To be expected more widely in small, protected pools and near margins of slow-moving streams. *Boyd, Ross, & T. Columbus 8198.*

### Liliaceae

**Calochortus albus** Douglas ex Benth. Geophyte. Uncommon at scattered sites; mesic, often grassy, openings in scrub habitats. *Boyd & Mistretta 7074.*


**Calochortus weedi** Alph. Wood var. WEEDE Geophyte. Locally common on xeric, rocky slopes in scrub habitats of upper San Mateo, Devil, Lucas, and Aliso cyns. To be expected in similar situations, although possibly absent from areas of granitic substrates. *Boyd & Ross 7624.*

**Fritillaria biflora** Lindley var. BIFLORA Geophyte. Local in areas of heavy clay soils in native grassland, as at Oak Flats and on Miller Mountain; also in mesic chaparral understory, as along Lucas Cyn and Indian Potrero trails. *Boyd & Mistretta 7013.*

**Lilium humboldti** Roezl & Leichtlin ssp. OCELLATUM (Kellogg) Thorne Geophyte. Infrequent to locally common in understory of oak woodland along larger drainages. *Boyd & D. Banks 8332.*

### Melanthiaceae

**Zigadenus fremontii** (Torrey) Torrey ex S. Watson var. FREMONTII Geophyte. Infrequent to locally common in understory of chaparral. *Boyd 6834.*

### Orchidaceae

**Epipactis gigantea** Douglas ex Hook. Perennial herb. Locally common along San Mateo Creek downstream from its confluence with Los Alamos Creek. To be expected in other perennially wet areas including seepages. *Boyd, Ross, & Bramlet 7315.*


### Poaceae


**Agrostis exarata** Trinivirus Perennial herb. Apparently uncommon; a few robust plants were encountered in a seasonally moist opening in chaparral near Sky Ranch at the southeastern edge of the wilderness. *Boyd & Ross 7595.*


**Aristida descensionis** L. Annual. Apparently uncommon on xeric boulder outcrops at Tenaja Falls and on the south flank of Miller Mtn. *Boyd & Ross 7290.*
ELYMUS CONDENSATUS
DESCHAMPSIA DANTHONIOIDES
BROMUS GRANDIS (Shear)
ELYMUS TRITICOIDES
ELYMUS MULTISETUS
BROMUS ANOMALUS
*CYNODON DACTYLON
*BROMUS DIANDRUS
*CYNOSURUS ECHINATUS
ELYMUS GLAUCUS
VOLUME
*BROMUS TECTORUM
*BROMUS MADRITENSIS
*BROMUS ARENARIUS

*CYNODON DACTYLON
BROMUS DIANDRUS
CYNOSURUS ECHINATUS
ELYMUS GLAUCUS

LYMUS CONDENSATUS
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*BROMUS ARENARIUS

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BROMUS DIANDRUS
CYNOSURUS ECHINATUS
ELYMUS GLAUCUS

*AVENA BARBATA Link Annual. Common in grasslands, openings in scrub and woodland habitats, and on recent burns and other disturbed situations. Boyd & Ross 7095.

*AVENA FATUA L. Annual. Common in grasslands, openings in scrub and woodland habitats, and on recent burns and other disturbed situations. Boyd, Ross, & Mistretta 6694.


BROMUS CARNITANES Hook. & Arn. var. CARNITANUS Annual. Local and scattered in scrub and oak woodland habitats. Boyd, Ross, & Mistretta 7280.


BROMUS MACRITIENSIS L. ssp. RUBENS (L.) Husnot Annual. Common to locally abundant in scrub, woodland, and grassland habitats. Tending to favor sandier soils than B. hordaceus, and becoming especially dense in heavily disturbed situations. Boyd & Ross 7097.

BROMUS TECTORUM L. Annual. Occasional at scattered sites but mostly in grassy openings in oak woodland habitats. Boyd, Ross, & Mistretta 7281.

CYNODON DACTYLON (L.) Persoon Perennial herb. Apparently rather uncommon at scattered sites; mostly in disturbed areas in scrub and woodland habitats and in moist soil along streams. Boyd & Mistretta 7046.

CYNOSURUS ECHINATUS L. L. Common to locally abundant in scrub, woodland, and grassland habitats. Tending to favor sandier soils than B. hordaceus, and becoming especially dense in heavily disturbed situations. Boyd & Ross 7097.

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CYNODON DACTYLON (L.) Persoon Perennial herb. Apparently rather uncommon at scattered sites; mostly in disturbed areas in scrub and woodland habitats and in moist soil along streams. Boyd & Mistretta 7281.
TYPHA LATIFOLIA. Aquatic perennial herb. Occasional in slow-moving water and pools along streams. *Boyd, Ross, & Bramlet 7670.*

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LITERATURE CITED


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