



FOREST SERVICE  
U.S. DEPARTMENT OF AGRICULTURE  
P.O. BOX 245, BERKELEY, CALIFORNIA 94701

# PACIFIC SOUTHWEST Forest and Range Experiment Station



**Plants of the  
Highest Santa Lucia  
and Diablo  
Range Peaks, California**

**James R. Griffin**

## CONTENTS

|                                 | <i>Page</i> |
|---------------------------------|-------------|
| Summary .....                   | 1           |
| Study Peaks .....               | 3           |
| Cone Peak .....                 | 4           |
| Ventana Double Cone .....       | 5           |
| Junipero Serra Peak .....       | 5           |
| Chews Ridge .....               | 6           |
| Pine Ridge .....                | 6           |
| San Benito Mountain .....       | 6           |
| Sampling Methods .....          | 8           |
| Flora of the Study Peaks .....  | 8           |
| References .....                | 10          |
| Appendix .....                  | 13          |
| Distribution of Plants .....    | 13          |
| Plants of the Study Peaks ..... | 23          |

#### THE AUTHOR

**JAMES R. GRIFFIN** was formerly a plant ecologist on the Station's silvicultural research staff headquartered at Redding, California. He earned bachelor's (1952) and master's degrees (1958) in forestry and a doctorate (1962) in botany at the University of California, Berkeley. He joined the Forest Service in 1962. He assumed his present position in 1967 as associate research ecologist, Hastings Natural History Reservation, University of California, Carmel Valley.

#### ACKNOWLEDGMENTS

Help in identifying problem plants was generously provided by Loran C. Anderson (Kansas State University), Lincoln Constance, Lauramay T. Dempster, and Pamela Yorks (University of California, Berkeley), Frank G. Hawksworth (Rocky Mountain Forest and Range Experiment Station), Marion Ownbey (Washington State University), Peter H. Raven (Missouri Botanical Garden) and James L. Reveal (University of Maryland). John Thomas Howell (California Academy of Sciences) and Lawrence R. Heckard (University of California, Berkeley) helped with several plant groups and provided much encouragement. Voucher specimens of the interesting or difficult plants were deposited in the Jepson Herbarium, University of California, Berkeley, or with the specialists listed above. Margaret Campbell supplied historical material from the California Academy of Sciences archives.

## SUMMARY

Griffin, James R.

1975. Plants of the highest Santa Lucia and Diablo Range peaks, California. USDA Forest Serv. Res. Paper PSW-110, 50 p., illus. Pacific Southwest Forest and Range Exp. Stn., Berkeley, Calif.

Oxford: 187x455.7[-(794) (23)]

Retrieval Terms: plant communities; montane disjuncts; elevational distributions; Ventana Wilderness Area; Santa Lucia Range (California); Diablo Range (California); California.

As the first phase of a broader vegetational study, a search for vascular plants was made on six of the highest ridges in the south Coast Ranges of California. The survey covered five prominent peaks in the Santa Lucia Range, Monterey County, and the tallest mountain unit in the Diablo Range, San Benito and Fresno Counties. These peaks, which support depauperate scraps of conifer forest are distant from montane regions with well-developed mixed conifer forest. A major purpose of the survey was to document the distribution of montane disjuncts on these lower elevation coastal peaks.

No detailed vegetational studies have been made on these summits, but the history of plant collecting and the relevant floristic literature were reviewed.

This collection emphasized the disjunct conifer forests, but all types of habitats above the 1200-meter (3937-foot) level were searched. Only vascular plants growing above this elevation on at least one of the six peaks are included in this report. The relative abundance of every species is tabulated within three elevational zones for each peak. Notes provide information about each species (including important varieties and subspecies) on life form, plant community preferences, ecological characteristics, and taxonomic problems.

A total of 449 species were noticed above 1200 m. The relatively low proportion of introduced species

on each peak ranged from 3 to 9 percent, with very few introduced species in the dense forest stands. Most species had broad elevational ranges, and only 5 of 13 montane forest disjuncts seemed to be confined to areas above 1200 m: *Chimaphila menziesii*, *Cycladenia humilis*, *Holodiscus microphyllus*, *Raillardella (muirii ?)* and *Sanicula graveolens*.

Chews Ridge had the most plants. Of the 267 native species above 1200 m noted there, 26 were not seen on any of the other peaks. Forty-three species which were absent from the Santa Lucia Range peaks grew on San Benito Mountain. This more interior mountain has the driest climate of the study peaks and much highly serpentinized soil lacking on the other peaks. Six Santa Lucia Range endemics grew on the Santa Lucia peaks, and four Diablo Range endemics were in the San Benito Mountain region.

Eight species of limited distribution are recognized by the California Native Plant Society as rare and endangered plants: *Camissonia benitensis*, *Fritillaria falcata*, *Galium californicum* ssp. *luciense*, *Galium clementis*, *Layia discoidea*, *Lupinus cervinus*, *Monardella benitensis*, and *Raillardella (muirii?)*. The *Fritillaria* has not been reported from its type locality on San Benito Mountain since its original discovery. This plant may be extinct on San Benito Mountain but surviving in one other Diablo Range locality.

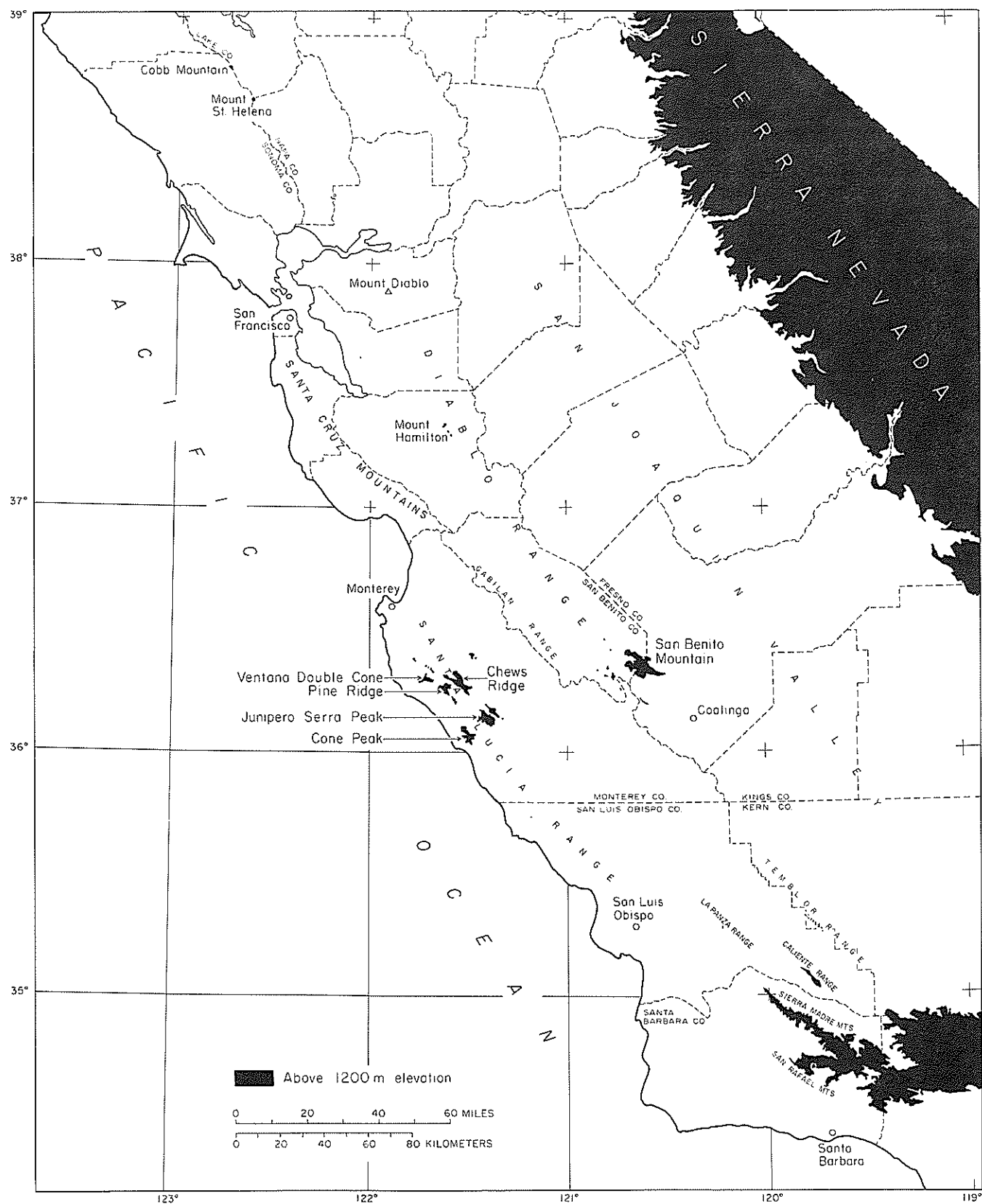


Figure 1—Distribution of montane areas above 1200 m (3937 ft) elevation in central California, and the relative locality of the six study peaks.

Plants on the Santa Lucia and Diablo Ranges of central California have received much taxonomic attention. Professional botanists started collecting along the primitive roads in 1830, and the more accessible spots have remained popular with plant collectors ever since. In recent decades, monographic studies on many genera have included a host of specimens from these mountains. The fund of geographic and ecological information, however, is still limited. Except for the most conspicuous trees, even general distributions for particular plants on specific peaks are poorly known.

This floristic survey is the initial step in a vegetation study that emphasizes the role of "montane disjuncts"—plants that are widely distributed in distant mountain regions, but have only isolated populations on these Coast Range peaks.

The summary of field observations and review of the literature and herbarium records is limited to higher elevations. Six geographically isolated and ecologically important peaks were selected. I confined the intensive search for plants to levels above the 1200-m (3937-ft) elevation. Separate records were kept on species growing between 1200 m and 1400 m (4593 ft) and those continuing above 1400 m. When plants present above 1200 m were noticed at lower elevations, they were also recorded. But data on spe-

cies extensions below 1200 m are less complete.

The elevational orientation of the survey was prompted by the vegetation study. For a careful analysis of how the montane disjuncts fit into the local vegetation, it was desirable to have as much data as possible on elevational distributions. Although arbitrarily chosen, the 1200-m limit has some ecological merit. In practical terms, this lower limit eliminated much of the grassland, foothill woodland, and redwood forest floras—reducing the survey to a manageable size.

This paper reports the presence—or probable absence—of vascular plants on each of the study peaks. Plants listed in the literature, but which I could not find in the field, are also included. Elevational distributions for all species are suggested. To make the report more helpful to a diversity of users, individual species notes provide information on size, life form, plant community preferences, and other ecological features. Obvious taxonomic problems are summarized.

The scientific names follow Munz (1959, 1968) or later monographs. These are essentially the same names used by Howitt and Howell (1964, 1973). Common names were adapted from central California references: Little (1953) for all trees; Howitt and Howell (1964, 1973), Thomas (1961), and Twisselmann (1967) for most herbs and shrubs.

## STUDY PEAKS

The northwestern Santa Lucia Range and the southeastern Diablo Range contain the most significant ridges above 1200-m elevation in the south Coast Ranges (*fig. 1*). These two mountain units, with scraps of coniferous forest on them, are far removed from the montane regions that support well-developed mixed conifer forest. The Santa Lucia and Diablo areas lie more than 320 km (200 miles) south of the sizable high ridges in the north Coast Ranges of Lake County. Both areas are more than 150 km (90 miles) north of the 1200 m high ridges of the

Sierra Madre in Santa Barbara County. Forested slopes of the Sierra Nevada are about 130 km (80 miles) east of the Diablo Range across the San Joaquin Valley. The Santa Lucia Range in Monterey County has a number of peaks exceeding 1200 m. Five of the most prominent ridges were selected for study (*fig. 2, table 1*). All these study peaks are within the Monterey Ranger District, Los Padres National Forest. Geographic isolation between the peaks is minor; yet there are distinct climatic, floristic, and vegetational differences between them.

## Cone Peak

An outstanding characteristic of Cone Peak is its dramatic proximity to the Pacific Ocean (fig. 1, table I). Few spots in North America can boast of a mountain this tall so close to the coast. The geology includes exposures of ancient Pre-Cambrian rocks (table I). Another attraction is the old-growth sugar pine forest along with many fine bristlecone fir colonies. The presence of these pines and firs may have prompted the officials at San Antonio Mission to send visiting European botanists there. In any case, Cone Peak did gain an interesting historical heritage with visits by David Douglas in March 1831 (Hooker 1836), Thomas Coulter in 1832 or 1833 (Coville 1895, Don 1837), Karl Theodor Hartweg in September 1847 (Hartweg 1848), and William Lobb in 1849 (Ewan 1973, Veitch 1900). Unfortunately, Douglas lost his valuable field notes in the Fraser River, and

Coulter's notes seemed to have disappeared in Great Britain. No direct record of their work on Cone Peak is available except for several letters and their herbarium specimens.

Alice Eastwood was probably the first "California" botanist to collect on Cone Peak. In June 1893, she hiked from the Kirk Ranch (Sec. 35, T. 21S, R. 5E) to the Dani Ranch (Sec. 9, T. 22S, R. 4E), crossing the Cone Peak study area somewhere near the summit of the present Gamboa trail (Eastwood n/d). In her reminiscences of this trip, she mentioned sugar pine on the ridge. Eastwood (1897) later alluded to this Cone Peak population as "the only grove of *Pinus Lambertiana* now left in these mountains." Unfortunately, her original notes and specimens were lost in the 1906 San Francisco fire.

Willis L. Jepson crossed the ridge north of Cone Peak in June 1901, and his interesting field notes are

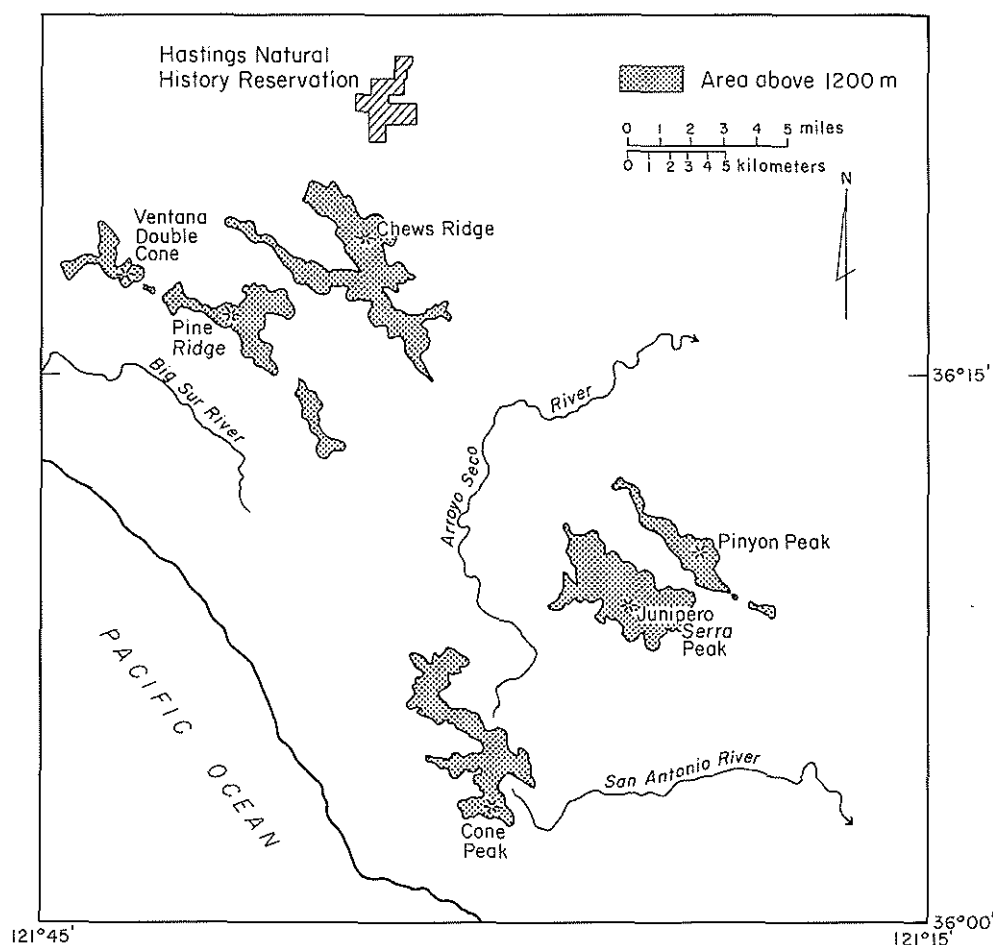


Figure 2—Location of five study peaks in relation to the 1200 m (3937 ft) elevation in the northwestern Santa Lucia Range, Monterey County, California. These peaks are covered on the Chews Ridge, Cone Peak, Junipero Serra Peak, Lopez Point, and Ventana Cones 7.5-minute U.S. Geological Survey quadrangles.

Table 1—*Physiographic and geologic information about the study peaks, Santa Lucia and Diablo Ranges, California*

|                     | Distance<br>from<br>ocean | Maximum<br>elevation | Contiguous<br>area above<br>1200 m | Predominant<br>rock types <sup>1</sup>                                                                            |
|---------------------|---------------------------|----------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------|
|                     | <i>km</i>                 | <i>m</i>             | <i>ha</i>                          |                                                                                                                   |
| Cone Peak           | 5.3                       | 1571                 | 2000                               | Pre-Cretaceous schist, some limestone outcrops, Cretaceous sandstone (1,2,4,5,13)                                 |
| Ventana Double Cone | 9.8                       | 1479                 | 450                                | Mesozoic granitics (1,3,6,7)                                                                                      |
| Junipero Serra Peak | 17.7                      | 1787                 | 2200                               | Mesozoic granitics, Pre-Cretaceous schist (1)                                                                     |
| Chews Ridge         | 18.8                      | 1538                 | 2600                               | Pre-Cretaceous schist, very small ultrabasic outcrops, Miocene sandstone (1,7)                                    |
| Pine Ridge          | 11.7                      | 1513                 | 1100                               | Mesozoic granitics, Pre-Cretaceous schist, Mesozoic ultrabasic "Iherzolite" with minor serpentinization (1,3,6,7) |
| San Benito Mtn.     | 85                        | 1597                 | 10000                              | Mesozoic ultrabasics with much highly sheared serpentine (8,9,10,11,12)                                           |

<sup>1</sup> Sources are noted as follows:

- |                  |                              |                    |
|------------------|------------------------------|--------------------|
| 1. Hart (1966)   | 6. Pearson and others (1967) | 11. Coleman (1957) |
| 2. Reiche (1937) | 7. Fiedler (1944)            | 12. Coleman (1961) |
| 3. Wiebe (1970a) | 8. Forstner (1903)           | 13. Compton (1966) |
| 4. Wiebe (1970b) | 9. Eckel and Myer (1946)     |                    |
| 5. Wyatt (1973)  | 10. Walker and Griggs (1953) |                    |

still available (Jepson n/d). He went from the Avila Ranch (near Kirk's) to Dani's, probably on the same trail that Eastwood used. Jepson thought that this ridge must have been the point at which David Douglas first found sugar pine and bristlecone fir. Joseph Burt-Davy also visited Cone Peak in June 1901.

The study area on Cone Peak included "Twin Peak" and "High Square Peak." "Arroyo Hondo" and "Big Creek" were names used in early notes on the area north of Cone Peak. They probably refer to the south fork of Devils Canyon on contemporary maps.

### ***Ventana Double Cone***

This peak in the Ventana Wilderness Area is characterized by extremely steep and rocky slopes. Ventana Double Cone was far too remote to attract early collectors. In 1901, Joseph Burt-Davy collected in the Little Sur drainage and on "Ventana Cone," but he probably was not on the summit. A 1918 U. S. Forest Service map of the district still did not show a trail anywhere near the mountain. A 21-km (13-mile)

hike is now required to reach the summit, and the main ridge has a single access trail with few spots where the traveler is tempted to leave the beaten path. This region remains one of the least botanically explored spots in the Santa Lucias.

Although somewhat further inland, Ventana Double Cone has floristic similarities with Cone Peak. Both share many rock outcrops and talus slope species. Ventana Double Cone is too rocky to have any well developed forest communities. The peak does support large numbers of scattered bristlecone firs. There is virtually no grassland on this ridge above 1200 m.

### ***Junipero Serra Peak***

Good astronomical observing conditions were an early attraction to Junipero Serra Peak (formerly called Santa Lucia Peak). Astronomers scratched a trail to the summit in January 1880 to observe a total eclipse of the sun (Davidson 1882). Eastwood (n/d) claimed that observations from the peak were also

made on the transit of Venus in 1882. Interest in building an observatory on the summit continues to this day (Walker 1970).

In June 1893, Eastwood (n/d) climbed the "astronomer's trail" to what she described as the "top." Curiously, she did not mention the sugar pine forest on the summit in her reminiscences. In her note on Santa Lucia Range conifers, Eastwood (1897) stated that "*Pinus Lambertiana* is said to have been abundant formerly on the slopes of Santa Lucia Peak, and a few trees are yet left." For someone who claimed to have been on the summit, her statement is rather unsatisfactory. She also suggested that much timber was removed from "Santa Lucia Peak" for construction of Mission San Antonio (Eastwood 1897). I can find no basis for her claim.

William R. Dudley apparently collected plants on the mountain in May 1895. The unlogged sugar pine forest on Junipero Serra Peak was mentioned by Plummer and Goswell.<sup>1</sup> They did allude to some cutting of incense-cedars near the base of the peak, but gave no details. Jepson (n/d) visited the peak in September 1911.

Although by far the tallest of the Santa Lucia Range peaks, Junipero Serra Peak appears to have a drier climate than the others. No long-term weather data are available. Walker (1970), an astronomer who spent several seasons on the summit, measured 51 cm (19.9 inches) of rain plus 93 cm (36.6 inches) of snow during the 1965-66 season. In adjacent regions this was an "average" season. In the wet 1966-67 season he measured 100 cm (39.4 inches) of rain plus 304 cm (119.7 inches) of snow.

It is a steep hike of 10 km (6 miles) up to the summit. The traveler may wander around easily enough in the pine forest on top of the mountain, but the steep sides of the peak with dense chaparral discourage much collecting away from the trail. A vast area on the northern face of the mountain has not been botanically explored. The only "unmapped" spot on Hart's (1966) Monterey County geology map was in this region.

The large Pinyon Peak ridge just east of Junipero Serra Peak was not included in my survey. Pinyon Peak appears to be even drier than Junipero Serra Peak and has a rather limited selection of montane species.

<sup>1</sup> Sloane, N. H. 1914. *Resources and plan of operation of Monterey National Forest*. (Unpublished report on file, Los Padres National Forest, King City, Calif.)

## Chews Ridge

William Brewer climbed the lower slopes of Chews Ridge in May 1861 (Brewer 1930). By 1890 Tassajara Hot Springs was accessible by road, and a few botanists stopped on the summit of Chews Ridge on their way down to the resort; e.g., A. D. E. Elmer in June 1901 and William R. Dudley in June 1911. Chews Ridge is now the only high peak in the Santa Lucia Range with a public road crossing the summit. Numerous collectors have been on the mountain in recent years.

Chews Ridge and the contiguous Miller Ridge have highly developed hardwood forest and mixed oak-Coulter pine communities in protected spots. One unique feature of this peak is the extensive savanna with large valley oaks (Griffin 1975). Chews Ridge is the only study peak with clear evidence of Indian activity on the summit. There are some bedrock mortars for grinding acorns in the savanna. Chews Ridge also has far more patches of open grassland or potreritos than the other study peaks. A series of tiny ultrabasic outcrops on Chews Ridge provide habitat for several xeric species, but they support no real "serpentine" flora.

The Hastings Natural History Reservation of the University of California lies at the northern base of Chews Ridge. Intensive plant collecting has been conducted in this vicinity since 1937 (Griffin 1974b). The Hastings collections make the record of Chews Ridge plants growing below 1200 m more complete than for the other study peaks.

## Pine Ridge

Pine Ridge lies within the Ventana Wilderness Area, some 13 km (8 miles) from Chews Ridge by trail. The trail has been used for a long time, but Pine Ridge still has received little botanical attention. This peak has the only extensive old-growth ponderosa pine forest above 1200 m in the Santa Lucia Range.

The 80-ha (200-acre) ultrabasic plug that outcrops on Pine Ridge provides an interesting "serpentine" habitat (*table 1*). This ultrabasic mass, however, is much less serpentinized than that on San Benito Mountain.

A group of marshy springs near Pine Ridge Camp adds a number of riparian species to the flora of this peak.

## San Benito Mountain

Within the Diablo Range the highest mountain unit centers on the San Benito Mountain-Santa Rita Peak portion of San Benito and Fresno Counties (*fig.*

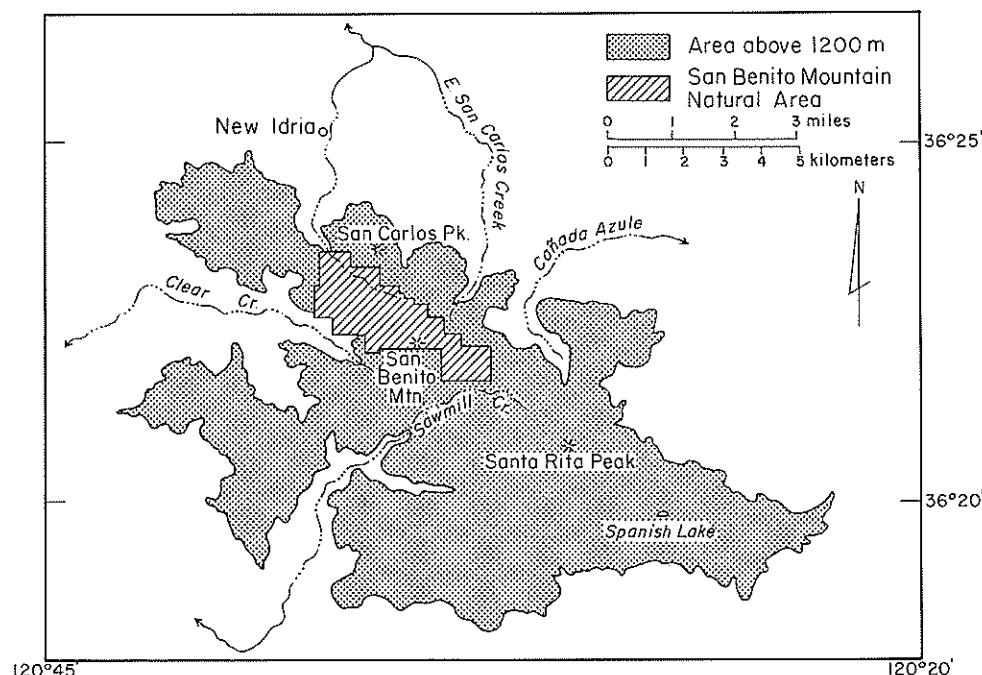


Figure 3—Distribution of area above the 1200 m (3937 ft) elevation in the San Benito Mountain study area of San Benito and Fresno Counties. This peak is covered on the Idria, San Benito Mountain, and Santa Rita Peak 7.5-minute U.S. Geological Survey quadrangles.

3). Most of this ridge is now administered by the Folsom District, U. S. Bureau of Land Management (Griffin 1974a). Between 1907 and 1916, however, this region was managed by the U. S. Forest Service as part of the Monterey National Forest.<sup>2</sup>

Much of the past and present interest in the region stems from its extreme mineralization (table 1). The study area included the upper portion of a highly sheared and altered ultrabasic plug which is some 22 km (14 miles) long and 6 km (4 miles) wide. The strange-looking landscape has huge patches of completely bare, "slickentite" serpentine.

In 1853, Mexican prospectors located the Aurora and New Idria mines here. Commercial exploitation of the New Idria mine came quickly, and it became the second most productive mercury producer in North America. The entire region has been intensely prospected for mercury, chromite, and—most recently—asbestos.

Forest habitats are less productive on San Benito Mountain than on any of the Santa Lucia peaks. In addition to the sterile serpentine soil, San Benito Mountain has a drier climate—perhaps half the precip-

itation of the driest Santa Lucia Range peak. Yet despite the lower rainfall, permanently flowing creeks are more obvious near the 1200-m level on San Benito Mountain than in the Santa Lucias.

William Brewer visited the mines and collected plants on San Benito Mountain in July 1861 (Brewer n/d, 1930). Much of my study area on the mountain was within the upper "San Carlos" region of Brewer's notes. Eastwood (n/d) collected plants between Hernandez and New Idria in May 1898, and William R. Dudley was in the area in late May 1899. Laura Lathrop, a student of Dudley's, collected extensively in the area in 1902-1903 (Elmer 1906). Jepson (n/d) crossed San Benito Mountain in May 1907, and his notes vividly portray the barren serpentine patches and the effect that logging for mine timbers had on the forest:

The trees spoken of above are about 12 to 20 to the acre where there is stand. Great areas on the summits and ridge slopes are as barren as one's hand, not even herbaceous vegetation. These characteristic spots are rotting sliding shale rock . . . The trees have been logged clean for the mines, even the 6-inch stuff taken for logging.

In recent times the main botanical activity in the region has been by those looking for "serpentine" endemic plant species, or by others interested in the hybridization of Jeffrey and Coulter pines.

<sup>2</sup>Plummer, Fred C., and M. G. Gowsell. 1905. *Forest conditions in the Monterey Forest Reserve, California*. Unpublished report on file, Los Padres National Forest, Goleta, Calif.)

## SAMPLING METHODS

In my floristic survey, the forest communities—particularly the conifer stands—received the most attention. But I did collect in all types of vegetation and specialized habitats (table 2). Essentially all roads and trails above 1200-m elevation on each peak were visited. The more critical areas were sampled at several seasons during 2 different years. I left the trail system whenever topography and vegetation conditions permitted. Notes were taken on study peak species down to the 600-m (1968-foot) level. Elevations were determined with barometric altimeter and topographic maps.

Numerous trips were made to the Santa Lucia peaks between 1972 and 1974. Probably I visited the largest proportion of the landscape on Chews Ridge. On Pine Ridge the study area included South Ventana Cone, but the dense chaparral prevented sampling on the main summit. Ventana Double Cone received the fewest visits.

Tally (1974) also collected on the Santa Lucia study peaks, and the material he gave me contributed significantly to this survey. His collections on Ventana Double Cone were especially helpful.

In the San Benito Mountain region, my trips were scattered from 1971 until 1974. Here the area above 1200 m was too large to cover in detail even though the topography was more favorable than in the Santa Lucias. My greatest efforts were spent in and around the 600-ha (1500-acre) San Benito Mountain Natural Area which the U.S. Bureau of Land Management has established on the main ridge (fig. 3). The limited areas of high-elevation nonserpentine soil in the San Benito Mountain study area were not accessible, and the San Benito Mountain collections above 1200 m were essentially all on serpentine. Spanish Lake (fig. 3), a large serpentine vernal pool, added several spe-

cies to the San Benito flora, but sampling of the aquatic species in this pond was not complete.

Table 2.—*Conspicuous vegetation types and specialized habitats on the study peaks, Santa Lucia and Diablo Ranges, California*

---

|                                                                               |
|-------------------------------------------------------------------------------|
| <b>Mixed Evergreen Forest</b>                                                 |
| Hardwood phases:                                                              |
| <i>Lithocarpus densiflorus</i> dominant                                       |
| <i>Quercus chrysolepis</i> dominant                                           |
| Mixed phase:                                                                  |
| <i>Quercus chrysolepis</i> , <i>Arbutus menziesii</i> , <i>Pinus coulteri</i> |
| <b>Coniferous Forest</b>                                                      |
| (may have understory of Mixed Evergreen Forest)                               |
| Nonserpentine phases:                                                         |
| <i>Pinus lambertiana</i> dominant                                             |
| <i>Pinus ponderosa</i> dominant                                               |
| Serpentine phases:                                                            |
| <i>Pinus ponderosa</i> , <i>P. coulteri</i> , <i>Libocedrus decurrens</i>     |
| <i>Libocedrus decurrens</i> , <i>P. coulteri</i> , <i>P. jeffreyi</i>         |
| <b>Savanna</b>                                                                |
| Grassland with scattered <i>Quercus lobata</i> and <i>Pinus coulteri</i>      |
| <b>Potrero</b>                                                                |
| Well-defined patches of open grassland within the Mixed Evergreen Forest      |
| <b>Chaparral</b>                                                              |
| Mixed phase:                                                                  |
| <i>Arctostaphylos glandulosa</i> , <i>Quercus wislizenii</i> prominent        |
| Chamise phase:                                                                |
| <i>Adenostoma fasciculatum</i> dominant                                       |
| Serpentine phase:                                                             |
| <i>Quercus durata</i> , <i>Arctostaphylos glauca</i> prominent                |
| <b>Riparian Habitats</b>                                                      |
| Permanent creeks, permanent springs, seasonal seeps, vernal lakes             |
| <b>Rock Habitats</b>                                                          |
| Outcrops, talus slopes, serpentine bald spots                                 |

---

## FLORA OF THE STUDY PEAKS

The study peaks cover a large area with diverse geology and topography, but they support only a modest number of plant species. On all six peaks I noticed only 421 native and 28 introduced species above 1200 m. These numbers may be compared with 465 native and 127 introduced species collected on the small 781-ha Hastings Reservation below Chews Ridge (Griffin 1974b).

Of the 421 native species above 1200 m, only 297 species apparently extend above 1400 m. Many of these species above 1400 m are rare or unimportant

in the vegetation. Table 3 lists the number of species in several elevational groupings on each peak. The large number on Chews Ridge reflects a wide range of habitats, including the species-rich potrereros. The more intensive sampling on this peak also influenced the number. The small number of species on Ventana Double Cone is largely the result of the steep, rocky nature of the entire summit and the lack of grassland. Additional visits would add to the list, but the peak would continue to have the fewest species.

Few species are confined to the ridgetops. In the

Santa Lucias the montane disjuncts *Chimaphila menziesii*, *Cycladenia humilis*, *Holodiscus microphyllus*, *Raillardella (muirii ?)*, and *Sanicula graveolens* seem to have no significant populations below 1200 m. Most of the other montane forest disjuncts have broad elevational ranges. A few montane disjuncts in the Santa Lucias are found only below 1200 m. For example, the only colony of *Cornus nuttallii* is well below the study area on the east base of Cone Peak.

Although a large number of endemic plants are scattered about the south Coast Ranges, only a relatively few appear on the study peaks above 1200 m. Six Santa Lucia Range endemics which have substantial populations on the study peaks are: *Abies bracteata*, *Arctostaphylos hooveri*, *Galium californicum* spp. *lucienae*, *Galium clementis*, *Lupinus abramsii*, and *Lupinus cervinus*. Some other Santa Lucia Range endemics such as *Chorizanthe vortriedei* probably have a few plants above 1200 m, but I did not find them.

Four Diablo Range endemics on San Benito Mountain are: *Camissonia benitensis*, *Fritillaria falcata*, *Layia discoidea*, and *Monardella benitensis*.

The flora of San Benito Mountain had a greater overlap with that of the Santa Lucia peaks than anticipated. San Benito Mountain had only 43 species that were not found above 1200 m on the Santa Lucia peaks. At least 10 of these species occur in the Santa Lucias at lower elevations. Some 50 of the more "mesic" plants of the Santa Lucia peaks seem to be absent from the southern Diablo Range, e.g., *Acer macrophyllum* and *Alnus rhombifolia*. But addi-

tional exploring on nonserpentine habitats above 1200 m in the Diablo Range would probably locate a few of these species.

The percentage of introduced species on these peaks seems to be relatively small (table 3). The majority of exotic plants are either trailside weeds or part of the grassland communities. One of the few introduced herbs appearing in the stable forest understory is *Galium aparine*.

Eight of the species on the study peaks have such a small total range that the California Native Plant Society (Powell 1974) and the Smithsonian Institution recognized them as rare and endangered plants: *Galium clementis*, *Galium californicum* spp. *lucienae*, *Lupinus cervinus* and *Raillardella (muirii ?)* on the Santa Lucia peaks and *Camissonia benitensis*, *Fritillaria falcata*, *Layia discoidea*, and *Monardella benitensis* on San Benito Mountain. All these species should receive some type of administrative protection. No species known to occur on the Santa Lucia peaks has become extinct, but one vandal could destroy all known plants of the *Raillardella* in a short time. On San Benito Mountain, one of the rare species may be extinct. I know of no report of *Fritillaria falcata* since Jepson's original discovery, although this lily survives in one other Diablo Range locality.

Some of the disjunct species—although common elsewhere in California—are endangered on the study peaks and should receive the same protection as the rare species. The tiny populations of *Cycladenia humilis* are a good example.

Table 3—Number of species on the study peaks (limited to plants occurring above 1200 m on at least one peak)

|                                    | Cone Peak         | Ventana Double Cone | Junipero Serra Peak | Chews Ridge | Pine Ridge | San Benito Mtn. |
|------------------------------------|-------------------|---------------------|---------------------|-------------|------------|-----------------|
|                                    | Number of species |                     |                     |             |            |                 |
| Present above 1400 m:              |                   |                     |                     |             |            |                 |
| Native species                     | 108               | 53                  | 67                  | 188         | 69         | 78              |
| Introduced species                 | 7                 | 3                   | 1                   | 16          | 0          | 4               |
| Present above 1200 m:              |                   |                     |                     |             |            |                 |
| Native species                     | 152               | 84                  | 146                 | 267         | 177        | 137             |
| Introduced species                 | 10                | 4                   | 5                   | 22          | 9          | 14              |
| Total species present above 600 m  | 223               | 140                 | 267                 | 353         | 219        | 196             |
| Native taxa noted on only one peak | 1                 | 4                   | 6                   | 26          | 5          | 43              |
|                                    | Percent           |                     |                     |             |            |                 |
| Introduced species above 1200 m    | 6                 | 5                   | 3                   | 8           | 5          | 9               |

## REFERENCES

- Anderson, E., and G. L. Stebbins, Jr.  
1954. Hybridization as an evolutionary stimulus. *Evolution* 8:378-388.
- Baker, Milo S.  
1953. Studies in western violets VII. *Madroño* 12:8-18.
- Beetle, Dorothy E.  
1944. A monograph of the North American species of *Fritillaria*. *Madroño* 7:133-159, illus.
- Bowerman, Mary L.  
1944. The flowering plants and ferns of Mount Diablo, California. 290 p., illus. Gillic Press, Berkeley, Calif.
- Brewer, William H.  
(n/d). Botanical notes 1860-1867—notes of the California State Survey. 521 p. [Copied from original notes in Gray Herbarium by A. V. Stubenrauch in 1897, bound volume on file Univ. Calif. Herbarium, Berkeley.]
- Brewer, William H.  
1930. Up and down California in 1860-1864: the journal of William H. Brewer. 601 p., illus. Yale Univ. Press, New Haven.
- Brown, Carl  
1972. A description of selected populations of *Pinus ponderosa* in central California. M.S. Thesis. Calif. State Polytechnic College, San Luis Obispo.
- Clausen, Jens  
1964. Cytotaxonomy and distributional ecology of western North American violets. *Madroño* 17:173-197.
- Coleman, R. G.  
1957. Mineralogy and petrology of the New Idria district, California. Ph.D. Thesis. Stanford Univ., Stanford, Calif., C. D., 28, 53, 54, 70
- Coleman, R. G.  
1961. Jadeite deposits of the Clear Creek area, New Idria district, San Benito County, California. *J. Petrol.* 2:209-247.
- Compton, Robert R.  
1966. Granitic and metamorphic rocks of Salinan block, California Coast Ranges. *Calif. Div. Mines and Geol. Bull.* 190:277-287.
- Coville, Frederick V.  
1895. The botanical explorations of Thomas Coulter in Mexico and California. *Bot. Gaz.* 20:519-531, illus.
- Critchfield, William B.  
1971. Profiles of California vegetation. USDA Forest Serv. Res. Paper PSW-76, 54 p., illus. Pacific Southwest Forest and Range Exp. Stn., Berkeley, Calif.
- Davidson, George  
1882. The total solar eclipse of January 11, 1880, observed at Mount Santa Lucia, California. p. 463-464. U.S. Coast and Geod. Surv. Annu. Rep. for 1882.
- Dempster, Lauramay T., and G. Ledyard Stebbins  
1968. A cytotaxonomic revision of the fleshy-fruited *Galium* species of the Californias and southern Oregon (*Rubiaceae*). *Univ. Calif. Publ. Bot.* 46:1-57, illus.
- Dempster, Lauramay T., and G. Ledyard Stebbins  
1971. The *Galium angustifolium* complex (*Rubiaceae*) of California and Baja California. *Madroño* 21:70-95.
- Don, David  
1837. Descriptions of five new species of the genus *Pinus*; discovered by Dr. Coulter in California. *Linn. Soc. London Trans.* 17:439-444, illus.
- Eastwood, Alice  
1897. The coniferae of the Santa Lucia Mountains. *Erythraea* 5:71-74.
- Eastwood, Alice  
(n/d) Handwritten memoirs on file in the Eastwood Archives. Calif. Acad. Sci., San Francisco.
- Eckel, Edwin B., and W. B. Myers  
1946. Quicksilver deposits of the New Idria district, San Benito and Fresno Counties, California. *Calif. J. Mines and Geol.* 42:81-124, illus.
- Elmer, A. D. E.  
1906. New and noteworthy plants, III. *Bot. Gaz.* 41:309-326.
- Ewan, Joseph  
1973. William Lobb, plant hunter for Veitch and messenger of the Big Tree. *Univ. Calif. Publ. Bot.* 67:1-36, illus.
- Fiedler, William Morris  
1944. Geology of the Jamesburg quadrangle, Monterey County, California. *Calif. J. Mines and Geol.* 40:177-250, illus.
- Forstner, Wm.  
1903. The quicksilver resources of California. *Calif. State Mining Bur. Bull.* 27, 273 p., illus.
- Griffin, James R.  
1964. Cone morphology in *Pinus sabiniana*. *J. Arnold Arbor.* 45:260-273, illus.
- Griffin, James R.  
1965. Digger pine seedling response to serpentinite and nonserpentinite soil. *Ecology* 46:801-807, illus.
- Griffin, James R.  
1973. Valley oaks—the end of an era? *Fremontia* 1(1):5-9, illus.
- Griffin, James R.  
1974a. A strange pine and cedar forest in San Benito County. *Fremontia* 2(1):11-15, illus.
- Griffin, James R.  
1974b. Botanical resources of the Hastings Reservation, Monterey County. *Madroño*. 22:329-32.
- Griffin, James R.  
1975. Regeneration in *Quercus lobata* savannas, Santa Lucia Mountains, California. *Amer. Mid Nat.* (In press.)
- Griffin, James R., and William B. Critchfield  
1972. Distribution of forest trees in California. USDA Forest Serv. Res. Paper PSW-82, 114 p., illus. Pacific Southwest Forest and Range Exp. Stn., Berkeley, Calif.
- Hardham, Clare B.  
1966. Three diploid species of the *Monardella villosa* complex. *Leaflets West. Bot.* 10:237-242.
- Hart, Earl W.  
1966. Mines and mineral resources of Monterey County, California. *Calif. Div. Mines and Geol. County Rep.* 5, 142 p., illus.
- Hartweg, Theodor  
1848. Journal of a mission to California in search of plants, IV. *J. Hort. Soc. London* 3:217-227.
- Hawksworth, Frank G., and Delbert Wiens  
1972. Biology and classification of dwarf mistletoes (*Arceuthobium*). *USDA Handb.* 401, 234 p., illus.

- Heckard, Lawrence R.  
1960. Taxonomic studies in the *Phacelia magellanica* polyploid complex. Univ. Calif. Publ. Bot. 32:1-123, illus.
- Hooker, William Jackson  
1836. A brief memoir of the life of Mr. David Douglas with extracts from his letters. Comp. Bot. Mag. 2:79-182.
- Hoover, Robert F.  
1970. The vascular plants of San Luis Obispo County, California. 350 p., illus. Univ. Calif. Press, Berkeley.
- Howitt, Beatrice F., and John Thomas Howell  
1964. The vascular plants of Monterey County, California. Wasmann J. Biol. 22:1-184, illus.
- Howitt, Beatrice F., and John Thomas Howell  
1973. Supplement to the vascular plants of Monterey County, California. 60 p., illus. Pacific Grove Museum of Nat. Hist. Assoc., Pacific Grove, Calif.
- Jepson, Willis L.  
(n/d) Field notebooks on file at Jepson Herbarium, University of California, Berkeley.
- Jepson, Willis Linn  
1925. A manual of the flowering plants of California, 1238 p., illus. Sather Gate Bookshop, Berkeley, Calif.
- Keck, David D.  
1957. Trends in systematic botany. In Survey of biological progress. V. 3:47-107. Acad. Press, New York and London.
- Kruckeberg, A. R.  
1958. The taxonomy of the species complex *Streptanthus glandulosus* Hook. Madrono 14:217-248.
- Lewis, Harlan  
1945. A revision of the genus *Trichostema*. Brittonia 5:376-403.
- Little, Elbert L., Jr.  
1953. Check list of native and naturalized trees of the United States (including Alaska). USDA Handb. 41, 472 p.
- Little, Elbert L., Jr., and Francis I. Righter  
1965. Botanical descriptions of forty artificial pine hybrids. USDA Tech. Bull. 1345, 47 p., illus.
- Lonard, Robert I., and Frank W. Gould  
1974. The North American species of *Vulpia* (Gramineae). Madrono 22:217-230.
- McMinn, Howard E.  
1939. An illustrated manual of California shrubs, 689 p., illus. J. W. Stacey, San Francisco.
- Morrison, John L.  
1941. A monograph of the section *Euclisia* Nutt. of *Streptanthus*. Ph.D. Thesis. Univ. Calif., Berkeley.
- Munz, Philip A.  
1959. The California flora. 1681 p., illus. Univ. Calif. Press, Berkeley.
- Munz, Philip A.  
1968. Supplement to a California flora. 224 p. Univ. Calif. Press, Berkeley.
- Pearson, Robert C., Philip T. Hayes, and Paul V. Fillo  
1967. Mineral resources of the Ventana Primitive Area, Monterey County, California. U.S. Geol. Surv. Bull. 1261-B, 42 p., illus.
- Powell, W. Robert  
1974. Inventory of rare and endangered vascular plants of California. Calif. Native Plant Soc. Spec. Publ. 1, 56 p.
- Raven, Peter H.  
1957. Plant records from San Benito County, California. Leaflets West. Bot. 8:174-176.
- Raven, Peter H.  
1969. A revision of the genus *Camissonia* (Onagraceae). Contr. U.S. Natl. Herb. 37:161-396, illus.
- Reiche, Parry C.  
1937. Geology of the Lucia quadrangle, California. Univ. Calif. Dep. Geol. Sci. Bull. 24(7):115-168.
- Reveal, James L.  
1970. Additional notes on the California buckwheats (*Eriogonum*, Polygonaceae). Aliso 7:217-230.
- Rydberg, Per Axel  
1927. *Raillardiopsis*. North Amer. Flora (Cordiales) 34(4):319-320.
- Sharsmith, Helen K.  
1945. Flora of the Mount Hamilton Range of California (a taxonomic study and floristic analysis of the vascular plants). Amer. Mid. Nat. 34:289-367, illus.
- Sharsmith, Helen K.  
1961. The genus *Hesperolinon* (Linaceae). Univ. Calif. Publ. Bot. 32:235-314.
- Smith, Alan R.  
1975. The California species of *Aspidotis*. Madroño 23:15-24, illus.
- Solbrig, Otto T.  
1965. The California species of *Gutierrezia* (Compositae-Astereae). Madrono 18:75-84, illus.
- Stebbins, G. L., B. L. Harvey, E. L. Cox, J. N. Rutger, et al.  
1963. Identification of the ancestry of an amphiploid *Viola* with the aid of paper chromatography. Amer. J. Bot. 50:830-839, illus.
- Talley, Steven, N.  
1974. The ecology of Santa Lucia fir (*Abies bracteata*), a narrow endemic of California. Ph.D. Thesis. Duke Univ., Durham, N.C.
- Thomas, John Hunter  
1961. Flora of the Santa Cruz Mountains of California. 434 p., illus. Stanford Univ. Press, Stanford, Calif.
- Tucker, J. M.  
1953. The relationship between *Quercus dumosa* and *Quercus turbinella*. Madroño 12:49-60.
- Twisselmann, Ernest C.  
1967. A flora of Kern County, California. Wasmann J. Biol. 25:1-395, illus.
- Veitch, J.  
1900. Manual of the conifers. 326 p., illus. J. Veitch and Sons, London.
- Walker, George W., and Allen B. Griggs  
1953. Chromite deposits of the southern Coast Ranges of California. Calif. Div. Mines Bull. 134(2):39-88, illus.
- Walker, Merle F.  
1970. The California site survey. Publ. Astron. Soc. Pac. 82(407):672-698, illus.
- White, Keith L.  
1966. Structure and composition of foothill woodland in central coastal California. Ecology 47:229-237, illus.
- Wicklow, D. T.  
1966. Further observations on serpentine response in *Emmenanthe*. Ecology 47:864-863, illus.

- Wiebe, Robert A.  
 1970a. Relations of granitic and gabbroic rocks, northern Santa Lucia Range, California. Geol. Soc. Amer. Bull. 81:105-116.
- Wiebe, Robert A.  
 1970b. Pre-Cenozoic tectonic history of the Salinan Block, western California. Geol. Soc. Amer. Bull. 81:1837-1842.
- Wyatt, G. Gilbert  
 1973. Franciscan rocks near Sur Fault zone, northern Santa Lucia Range, California. Geol. Soc. Amer. Bull. 84:3317-3328.
- Zobel, Bruce J.  
 1951a. The natural hybrid between Coulter and Jeffrey pines. Ph.D. Thesis. Univ. Calif., Berkeley.
- Zobel, Bruce  
 1951b. The natural hybrid between Coulter and Jeffrey pines. Evolution 5:405-413.
- Zobel, Bruce  
 1952. Jeffrey pine in the south Coast Ranges of California. Madroño 11:283-284.
- Zobel, Bruce  
 1953. Geographic range and intraspecific variation in Coulter pine. Madroño 12:1-7, illus.

# APPENDIX

## *Distribution of Plants*

### Key to Symbols

Three elevational zones on each peak are indicated by the numbers heading the columns:

- 1    above 1400 m                      (4593 feet)
- 2    between 1200 m and 1400 m      (3937-4593 feet)
- 3    between 600 m and 1200 m        (1968-3937 feet)

Relative abundance of plant within an elevational zone is suggested by symbols:

- C    COMMON in suitable, relatively widespread habitats
- U    UNCOMMON or at least inconspicuous in widespread habitats
- L    LOCAL in specialized habitats, such as wet spots or rock outcrops
- R    RARE--only a few individuals seen in any habitat
- +    recorded from the literature or a herbarium specimen; elevations usually estimated
- .    not seen, but insufficient data are available to make a strong case for the plant's absence
- probably absent; there are no records of the plant in the region and the most promising habitats are missing
- \*    introduced; usually ruderal or found in disturbed habitats

A few species which could not be readily distinguished in the field are combined for purposes of this tabulation. In most cases varieties or subspecies are not shown in this list, but they are described in the species notes.

| Species                        | Cone<br>Peak<br>123 | Ven.<br>Doub.<br>Cone<br>123 | Jun.<br>Serra<br>Peak<br>123 | Chews<br>Ridge<br>123 | Pine<br>Ridge<br>123 | San<br>Benito<br>Mtn.<br>123 |
|--------------------------------|---------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|
| <i>Abies bracteata</i>         | CCC                 | CCC                          | ..U                          | .UC                   | CCC                  | ---                          |
| <i>Acer macrophyllum</i>       | RUU                 | ..+                          | RUU                          | UUU                   | .UU                  | ---                          |
| <i>Achillea borealis</i>       | ..U                 | ..U                          | ..C                          | UCC                   | .R.                  | CCC                          |
| <i>Adenostoma fasciculatum</i> | CCC                 | .CC                          | CCC                          | CCC                   | .CC                  | CCC                          |
| <i>Agoseris grandiflora</i>    | UUU                 | ..U                          | ..C                          | UUC                   | R.U                  | UUU                          |
| <i>Agoseris heterophylla</i>   | ...                 | ...                          | ...                          | .UC                   | UU.                  | ...                          |
| <i>Agoseris retrorsa</i>       | .U.                 | ...                          | ..U                          | UUU                   | ...                  | ...                          |
| <i>Agropyron parishii</i>      | ..+                 | ..U                          | ...                          | CCC                   | .UU                  | ...                          |
| <i>Agropyron trachycaulon</i>  | ---                 | ---                          | ---                          | ---                   | ...                  | LLL                          |
| <i>Agrostis exarata</i>        | ..L                 | ...                          | ..L                          | LLL                   | ...                  | .L.                          |
| <i>Aira caryophyllea</i> *     | ...                 | ...                          | ..C                          | ..C                   | .UU                  | ...                          |
| <i>Allium burlewii</i>         | R..                 | ---                          | ---                          | ---                   | ---                  | UUU                          |
| <i>Allium campanulatum</i>     | ...                 | ...                          | R..                          | U..                   | UUU                  | ...                          |
| <i>Allium fimbriatum</i>       | ---                 | ---                          | ---                          | ---                   | ...                  | UUU                          |
| <i>Allophyllum divaricatum</i> | ...                 | ...                          | ...                          | .R.                   | ...                  | ...                          |

| Species                            | Cone<br>Peak<br>123 | Ven.<br>Doub.<br>Cone<br>123 | Jun.<br>Serra<br>Peak<br>123 | Chews<br>Ridge<br>123 | Pine<br>Ridge<br>123 | San<br>Benito<br>Mtn.<br>123 |
|------------------------------------|---------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|
| <i>Allophyllum giloides</i>        | .U.                 | ..U                          | .UU                          | .UU                   | .R.                  | ...                          |
| <i>Alnus rhombifolia</i>           | ..L                 | ...                          | .LL                          | .LL                   | .LL                  | ---                          |
| <i>Amelanchier pallida</i>         | ..L                 | ...                          | ...                          | RR.                   | ...                  | ...                          |
| <i>Amsinckia intermedia</i>        | ...                 | ...                          | ..U                          | .RC                   | ...                  | ..U                          |
| <i>Antirrhinum multiflorum</i>     | .UU                 | ..U                          | .UU                          | .UU                   | ...                  | ...                          |
| <i>Apocynum pumilum</i>            | ...                 | ...                          | ...                          | .UU                   | .UU                  | ...                          |
| <i>Aquilegia eximia</i>            | ---                 | ---                          | ---                          | ---                   | ...                  | LLL                          |
| <i>Aquilegia formosa</i>           | ..L                 | ...                          | ..+                          | ..L                   | .L.                  | ...                          |
| <i>Arabis breweri</i>              | LLL                 | L..                          | ...                          | ..+                   | ...                  | ...                          |
| <i>Arabis glabra</i>               | ..U                 | ...                          | ..U                          | UUC                   | .LU                  | ...                          |
| <i>Aralia californica</i>          | ..L                 | ...                          | ..+                          | ..L                   | .LL                  | ---                          |
| <i>Arbutus menziesii</i>           | CCC                 | CCC                          | ..+U                         | CCC                   | CCC                  | ---                          |
| <i>Arceuthobium occidentale</i>    | R..                 | U..                          | U..                          | CCC                   | CCC                  | CCC                          |
| <i>Arctostaphylos glandulosa</i>   | CCC                 | CCC                          | CCC                          | CCC                   | CCC                  | ...                          |
| <i>Arctostaphylos glauca</i>       | ..C                 | ...                          | .UC                          | .UC                   | ...                  | CCC                          |
| <i>Arctostaphylos hooveri</i>      | RUU                 | ---                          | ---                          | ---                   | ---                  | ---                          |
| <i>Arctostaphylos pungens</i>      | ...                 | ...                          | ..U                          | ...                   | ...                  | CCC                          |
| <i>Arenaria douglasii</i>          | UU.                 | ..U                          | UUU                          | UUU                   | UUU                  | ...                          |
| <i>Arenaria macrophylla</i>        | ...                 | ..+                          | ...                          | U..                   | ...                  | ...                          |
| <i>Argemone munita</i>             | .R.                 | ...                          | .R+                          | ...                   | ...                  | ..U                          |
| <i>Arnica discoidea</i>            | .R.                 | ...                          | ...                          | U..                   | ..U                  | ...                          |
| <i>Artemisia douglasiana</i>       | ..L                 | ...                          | .LL                          | LLL                   | .LL                  | ...                          |
| <i>Artemisia dracunculus</i>       | ...                 | ...                          | ..U                          | UUU                   | .L                   | ..U                          |
| <i>Asclepias californica</i>       | UUU                 | ...                          | UU.                          | ...                   | UU.                  | UUU                          |
| <i>Asclepias eriocarpa</i>         | ...                 | ...                          | U.C                          | CCC                   | .U.                  | ...                          |
| <i>Asclepias fascicularis</i>      | ...                 | ...                          | ..U                          | R.R                   | ...                  | ..+                          |
| <i>Aspidotis carlotta-halliae</i>  | ---                 | ---                          | ---                          | ---                   | ...                  | ..+                          |
| <i>Aspidotis densa</i>             | ---                 | ---                          | ---                          | ---                   | LL.                  | ...                          |
| <i>Astragalus clevelandii</i>      | ---                 | ---                          | ---                          | ---                   | ---                  | ..+                          |
| <i>Astragalus gambelianus</i>      | ...                 | ...                          | ...                          | .UC                   | ...                  | ..U                          |
| <i>Astragalus purshii</i>          | ---                 | ---                          | ---                          | ---                   | ---                  | UU+                          |
| <i>Athysanus pusillus</i>          | ...                 | ...                          | ..R                          | UUC                   | ...                  | .U.                          |
| <i>Avena barbata *</i>             | .U.                 | ...                          | ..U                          | UUC                   | ...                  | ..C                          |
| <i>Avena fatua *</i>               | UCC                 | ..U                          | .UC                          | CCC                   | ..C                  | .UC                          |
| <i>Barbarea orthoceras</i>         | ...                 | ...                          | ...                          | .LL                   | .L                   | ...                          |
| <i>Berberis dictyota</i>           | ...                 | ...                          | ..+                          | ...                   | ...                  | UUU                          |
| <i>Berula erecta</i>               | ...                 | ...                          | ...                          | .LL                   | .L.                  | ...                          |
| <i>Bloomeria crocea</i>            | ..U                 | ...                          | ..C                          | ..C                   | ..U                  | UUU                          |
| <i>Boschniakia strobilacea</i>     | ...                 | ...                          | ...                          | ...                   | ...                  | UUU                          |
| <i>Brickellia californica</i>      | .LL                 | ...                          | ..L                          | ..L                   | ...                  | ...                          |
| <i>Brodiaea lutea</i>              | ...                 | ..L                          | ...                          | UCC                   | .UU                  | ...                          |
| <i>Brodiaea pulchella</i>          | UUC                 | R.U                          | .UC                          | CCC                   | UUU                  | ..C                          |
| <i>Bromus arenarius *</i>          | ...                 | ...                          | ...                          | .UC                   | ...                  | .UC                          |
| <i>Bromus carinatus/marginatus</i> | UUU                 | U.U                          | .UC                          | UUC                   | UUC                  | .UU                          |
| <i>Bromus diandrus *</i>           | UUC                 | .UU                          | ..C                          | UCC                   | .UU                  | .UC                          |
| <i>Bromus grandis/laevipes</i>     | UUC                 | ..U                          | .UC                          | CCC                   | UCC                  | .U.                          |
| <i>Bromus mollis *</i>             | UCC                 | ...                          | .UC                          | CCC                   | .UC                  | .UC                          |
| <i>Bromus orcuttianus</i>          | R..                 | ...                          | ...                          | CU+                   | .UC                  | ...                          |
| <i>Bromus pseudolaevipes</i>       | ...                 | ...                          | ...                          | .UR                   | ...                  | ...                          |
| <i>Bromus rubens *</i>             | UUU                 | RUU                          | .UC                          | UUC                   | .UU                  | .UC                          |
| <i>Bromus tectorum *</i>           | UU.                 | UUU                          | U.U                          | U.U                   | .UU                  | U..                          |

| Species                             | Cone<br>Peak<br>123 | Ven.<br>Doub.<br>Cone<br>123 | Jun.<br>Serra<br>Peak<br>123 | Chews<br>Ridge<br>123 | Pine<br>Ridge<br>123 | San<br>Benito<br>Mtn.<br>123 |
|-------------------------------------|---------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|
| <i>Calamagrostis rubescens</i>      | ...                 | ...                          | ...                          | ..L                   | .L.                  | ...                          |
| <i>Calandrinia ciliata</i>          | ...                 | ...                          | ...                          | .UC                   | ...                  | ...                          |
| <i>Calochortus albus</i>            | .UU                 | ..L                          | ..+                          | UCC                   | .CU                  | ..                           |
| <i>Calochortus invenustus</i>       | ---                 | ---                          | ---                          | L.+                   | UU.                  | UU.                          |
| <i>Calochortus splendens</i>        | ...                 | ...                          | ..C                          | UUC                   | ...                  | ...                          |
| <i>Calochortus venustus</i>         | ...                 | ...                          | ...                          | ...                   | ...                  | RUC                          |
| <i>Calycadenia truncata</i>         | ...                 | ...                          | ...                          | UUU                   | ...                  | ...                          |
| <i>Calyptridium monandrum</i>       | ...                 | ...                          | .R.                          | ..U                   | ...                  | ...                          |
| <i>Calyptridium parryi</i>          | ...                 | ...                          | ..+                          | R..                   | ...                  | LU.                          |
| <i>Calystegia malacophylla</i>      | ...                 | ...                          | .UU                          | UUU                   | UUU                  | .UU                          |
| <i>Camissonia benitensis</i>        | ---                 | ---                          | ---                          | ---                   | ---                  | .U+                          |
| <i>Camissonia contorta</i>          | ...                 | ..+                          | ...                          | UUC                   | ...                  | ..+                          |
| <i>Camissonia graciliflora</i>      | ...                 | ...                          | ...                          | .RU                   | ...                  | ...                          |
| <i>Camissonia hirtella</i>          | ..U                 | .U.                          | .UU                          | UUU                   | ...                  | ..+                          |
| <i>Camissonia ignota</i>            | ...                 | ...                          | ...                          | .UU                   | ...                  | ...                          |
| <i>Camissonia luciae</i>            | ...                 | ...                          | ...                          | .UU                   | ...                  | ...                          |
| <i>Camissonia micrantha</i>         | ...                 | ...                          | .UU                          | ..U                   | ...                  | ...                          |
| <i>Capsella bursa-pastoris</i> *    | ...                 | ...                          | ...                          | .RU                   | ...                  | ...                          |
| <i>Carex alma</i>                   | ...                 | ...                          | L.+                          | .LL                   | ...                  | ...                          |
| <i>Carex bolanderi</i>              | ...                 | ...                          | ...                          | ..L                   | .L.                  | ...                          |
| <i>Carex globosa</i>                | UUU                 | .U.                          | ...                          | ..+                   | .UC                  | ...                          |
| <i>Carex multicaulis</i>            | UUU                 | R.U                          | ..+                          | UU+                   | UUU                  | ...                          |
| <i>Carex serratodens</i>            | ...                 | ...                          | ..+                          | .LL                   | .L.                  | .L.                          |
| <i>Carex subfusca</i>               | ..+                 | ...                          | ..+                          | ..+                   | ...                  | ...                          |
| <i>Castilleja foliolosa</i>         | ..U                 | ...                          | R.U                          | ..U                   | .R.                  | ...                          |
| <i>Castilleja miniata</i>           | ---                 | ---                          | ---                          | ---                   | ---                  | LLL                          |
| <i>Castilleja martinii</i>          | UU.                 | UUU                          | UUU                          | UC.                   | .U.                  | .UU                          |
| <i>Castilleja stenantha</i>         | ..+                 | ...                          | ..+                          | ...                   | .L.                  | ...                          |
| <i>Ceanothus cuneatus/ramulosus</i> | ..U                 | UCC                          | .UC                          | ..C                   | ..C                  | CCC                          |
| <i>Ceanothus foliosus</i>           | ---                 | ---                          | ---                          | +. .                  | ---                  | ---                          |
| <i>Ceanothus integerrimus</i>       | UUU                 | ...                          | CCC                          | CUU                   | .UU                  | RRU                          |
| <i>Ceanothus oliganthus</i>         | UUC                 | .UU                          | ...                          | .UU                   | UUC                  | ---                          |
| <i>Ceanothus papillosus</i>         | UUU                 | .UU                          | ...                          | UUU                   | .UC                  | ---                          |
| <i>Centaurea melitensis</i> *       | .R.                 | ...                          | ..U                          | ..U                   | ...                  | UUC                          |
| <i>Cerastium glomeratum</i> *       | ...                 | ...                          | ..U                          | .RC                   | ..U                  | ...                          |
| <i>Cercocarpus betuloides</i>       | UUC                 | ...                          | .UC                          | UUU                   | ...                  | UUC                          |
| <i>Cheilanthes covillei</i>         | LL.                 | ...                          | RL.                          | .LL                   | ...                  | ...                          |
| <i>Cheilanthes gracillima</i>       | +. .                | ...                          | ...                          | ...                   | ..+                  | ---                          |
| <i>Cheilanthes intertexta</i>       | L+. .               | LL.                          | +. .                         | L..                   | ...                  | ...                          |
| <i>Chenopodium album</i> *          | ...                 | ...                          | ...                          | R.U                   | ...                  | R..                          |
| <i>Chimaphila menziesii</i>         | UU.                 | R..                          | ...                          | ...                   | ...                  | ---                          |
| <i>Chlorogalum pomeridianum</i>     | ..U                 | ...                          | ..C                          | UUC                   | ..U                  | ...                          |
| <i>Chorizanthe douglasii</i>        | .UU                 | ..U                          | ..U                          | UUU                   | UU.                  | ...                          |
| <i>Chorizanthe membranacea</i>      | .U.                 | ...                          | ..U                          | .UU                   | ...                  | ...                          |
| <i>Chorizanthe staticoides</i>      | ..U                 | ...                          | .UU                          | ..U                   | ...                  | ...                          |
| <i>Chrysopsis villosa</i>           | UUC                 | ..C                          | ..C                          | UUC                   | ..C                  | ..+                          |
| <i>Chrysosomnus nauseosus</i>       | RU.                 | R..                          | ...                          | U.+                   | ...                  | CCC                          |
| <i>Cirsium californicum</i>         | UUU                 | ...                          | .UU                          | UUU                   | UUU                  | ...                          |
| <i>Cirsium proteanum</i>            | ...                 | ...                          | ...                          | ..U                   | ...                  | .UU                          |
| <i>Clarkia botatae</i>              | ...                 | ..U                          | ...                          | .UC                   | ...                  | ---                          |

| Species                    | Cone<br>Peak<br>123 | Ven.<br>Doub.<br>Cone<br>123 | Jun.<br>Serra<br>Peak<br>123 | Chews<br>Ridge<br>123 | Pine<br>Ridge<br>123 | San<br>Benito<br>Mtn.<br>123 |
|----------------------------|---------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|
| Clarkia modesta            | ...                 | ...                          | ...                          | U.+                   | ...                  | ...                          |
| Clarkia purpurea           | ...                 | ..U                          | ...                          | UCC                   | ...                  | ..UU                         |
| Clarkia rhomboidea         | ..+                 | ...                          | ...                          | R..                   | ...                  | ...                          |
| Clarkia unguiculata        | ..UU                | ...                          | ..C                          | UCC                   | ...                  | ..C                          |
| Clematis lasiantha         | ..UU                | ..U                          | ..UU                         | ..U                   | ...                  | ..U                          |
| Clematis ligusticifolia    | ...                 | ...                          | ..L                          | ..L                   | ..LL                 | ...                          |
| Collinsia childii          | ..+                 | ...                          | +..                          | UUU                   | ..U                  | ...                          |
| Collinsia heterophylla     | ...                 | ..U                          | ..U                          | UUC                   | ...                  | ...                          |
| Collomia grandiflora       | ...                 | ...                          | ...                          | UUU                   | ...                  | ...                          |
| Collomia heterophylla      | ..UU                | ..U                          | ...                          | ..U+                  | ..UU                 | ...                          |
| Corallorhiza maculata      | ...                 | ...                          | ...                          | UUU                   | ..U                  | ---                          |
| Cordylanthus rigidus       | UUU                 | UUU                          | ..UU                         | UUU                   | U..                  | UUU                          |
| Corethrogyne filaginifolia | ...                 | ...                          | ...                          | UUC                   | ..U                  | ...                          |
| Cornus occidentalis        | ...                 | ...                          | ...                          | ..LL                  | ...                  | ...                          |
| Cryptantha clevelandii     | ...                 | ..U                          | ...                          | U.U                   | ..U                  | ...                          |
| Cryptantha mariposae       | ---                 | ---                          | ---                          | ---                   | ---                  | U.+                          |
| Cryptantha muricata        | UUU                 | ..U                          | ..UU                         | UUU                   | ...                  | ...                          |
| Cuscuta californica        | UU.                 | ..UU                         | ...                          | UUU                   | ..U                  | ..UU                         |
| Cycladenia humilis         | U..                 | ---                          | U..                          | ---                   | ---                  | ---                          |
| Cynoglossum grande         | ..U                 | ...                          | ...                          | ..UC                  | ..U                  | ---                          |
| Cystopteris fragilis       | ...                 | ...                          | ...                          | ..UU                  | ..UU                 | ---                          |
| Datisca glomerata          | ..L                 | ...                          | ..+                          | ..LL                  | ..LL                 | ...                          |
| Delphinium nudicaule       | ..LL                | ...                          | ...                          | ..+                   | ...                  | ...                          |
| Delphinium parryi          | ..UU                | ...                          | ..U                          | U.U                   | ..+                  | ..U                          |
| Delphinium patens          | ...                 | ...                          | ..+                          | ..UC                  | ..R.                 | R.U                          |
| Dendromecon rigida         | ..UU                | ...                          | +UU                          | ..+                   | ...                  | ...                          |
| Dentaria integrifolia      | ...                 | ...                          | ...                          | ..C                   | ..R.                 | UUU                          |
| Deschampsia elongata       | ..L                 | ...                          | ..+                          | L..L                  | ..L                  | ...                          |
| Dicentra chrysantha        | R.+                 | ...                          | ..+                          | ..+                   | ...                  | ..R                          |
| Disporum hookeri           | ...                 | ..U                          | ...                          | RU.                   | ..UU                 | ---                          |
| Dryopteris arguta          | ..U                 | ..L                          | ..U                          | ..UU                  | ..U                  | ---                          |
| Dudleya cymosa             | LLL                 | L..                          | ..LL                         | ..L                   | ..LL                 | ...                          |
| Eburophyton austinae       | ..+                 | ..R                          | ...                          | ...                   | ..RR                 | ---                          |
| Eleocharis acicularis      | ...                 | ...                          | ...                          | ...                   | ...                  | L..                          |
| Eleocharis parishii        | ...                 | ...                          | ...                          | ...                   | ...                  | L..                          |
| Elymus glaucus             | UUC                 | U.C                          | ..UC                         | UCC                   | UCC                  | ..UU                         |
| Elymus triticoides         | ...                 | ...                          | ...                          | ..L                   | ...                  | ..L                          |
| Emmenanthe penduliflora    | ...                 | ...                          | ..R.                         | ..U                   | ...                  | ..R+                         |
| Epilobium minutum          | ..U                 | ..UU                         | ...                          | U.U                   | UU.                  | ..UU                         |
| Epilobium paniculatum      | ...                 | ...                          | ...                          | U.C                   | ...                  | ..+                          |
| Epilobium watsonii         | ...                 | ...                          | ...                          | ..L                   | ..L                  | ...                          |
| Epipactis gigantea         | ...                 | ...                          | ..L                          | ...                   | ...                  | ---                          |
| Equisetum laevigatum       | ..L                 | ...                          | ..LL                         | ..U                   | ..LL                 | ...                          |
| Equisetum telmateia        | ...                 | ...                          | ...                          | ..L                   | ..L                  | ...                          |
| Eriastrum densifolium      | ...                 | ...                          | UUU                          | UUU                   | ...                  | ...                          |
| Erigeron foliosus          | UU.                 | ...                          | ..UU                         | UUU                   | ..U                  | ...                          |
| Erigeron petrophilus       | LL.                 | UU.                          | ...                          | ...                   | ...                  | ...                          |
| Eriodictyon californicum   | UUU                 | ..UU                         | ..UU                         | UUU                   | UUU                  | ..UU                         |
| Eriodictyon tomentosum     | ..+                 | ...                          | ..UU                         | UUU                   | ...                  | ..U                          |
| Eriogonum covilleianum     | ...                 | ...                          | ...                          | ...                   | ...                  | ..C.                         |

| Species                          | Cone<br>Peak<br>123 | Ven.<br>Doub.<br>Cone<br>123 | Jun.<br>Serra<br>Peak<br>123 | Chews<br>Ridge<br>123 | Pine<br>Ridge<br>123 | San<br>Benito<br>Mtn.<br>123 |
|----------------------------------|---------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|
| Eriogonum davidsonii             | U..                 | ...                          | .U.                          | .U.                   | UU.                  | CC.                          |
| Eriogonum elongatum              | UUU                 | ...                          | .UU                          | .UU                   | ...                  | ...                          |
| Eriogonum fasciculatum           | CCC                 | UU.                          | UUC                          | UUU                   | ...                  | .U                           |
| Eriogonum gracile                | U..                 | ...                          | ..+                          | UUU                   | .U.                  | CC.                          |
| Eriogonum hirtiflorum            | ...                 | ...                          | ..+                          | ..+                   | ...                  | ...                          |
| Eriogonum nudum                  | ..U                 | ..U                          | ..U                          | UUU                   | UUU                  | ..C                          |
| Eriogonum saxatile               | L..                 | L..                          | L..                          | ..+                   | ...                  | ...                          |
| Eriogonum spergulinum            | ...                 | ...                          | ..+                          | ...                   | ...                  | ...                          |
| Eriogonum umbellatum             | ---                 | ---                          | ---                          | ---                   | UU.                  | CC.                          |
| Eriophyllum confertiflorum       | CCC                 | UUC                          | UCC                          | UUC                   | UUC                  | .CC                          |
| Erodium cicutarium *             | .UU                 | ...                          | ..C                          | UCC                   | ...                  | .UC                          |
| Eryngium aristulatum             | ...                 | ...                          | ...                          | ...                   | ...                  | L..                          |
| Erysimum capitatum               | .U.                 | ...                          | ..U                          | UUU                   | ...                  | CCC                          |
| Eschscholzia californica         | .UU                 | ...                          | ...                          | UUC                   | .RU                  | .UU                          |
| Festuca rubra                    | ...                 | ...                          | ...                          | ...                   | .L.                  | ---                          |
| Filago californicum              | ...                 | ...                          | .UC                          | .UU                   | ...                  | ..U                          |
| Filago gallica *                 | ...                 | ...                          | ...                          | ..C                   | .U.                  | ...                          |
| Fremontodendron californicum     | ...                 | ...                          | ..U                          | ...                   | ...                  | UUU                          |
| Fritillaria falcata              | ---                 | ---                          | ---                          | ---                   | ---                  | ..+                          |
| Fritillaria lanceolata           | ...                 | ...                          | ...                          | U.U                   | UU.                  | ...                          |
| Fritillaria viridea              | ---                 | ---                          | ---                          | ---                   | ...                  | UUU                          |
| Galium andrewsii                 | ...                 | ...                          | ..U                          | ...                   | ...                  | UUU                          |
| Galium angustifolium             | UUU                 | U..                          | UUU                          | UUU                   | ...                  | ..U                          |
| Galium aparine *                 | ...                 | ..U                          | .RU                          | UCC                   | .UU                  | .UU                          |
| Galium californicum s. flaccidum | UCC                 | UUC                          | ..U                          | CCU                   | .UC                  | ...                          |
| Galium californicum s. lucienae  | UUU                 | RR.                          | ---                          | ---                   | ---                  | ---                          |
| Galium clementis                 | UUR                 | UU.                          | U..                          | ---                   | ---                  | ---                          |
| Galium nuttallii                 | UUC                 | .U.                          | .UC                          | UUC                   | .U.                  | .UC                          |
| Garrya flavescens/congdoni       | UUU                 | .U.                          | UUU                          | RR.                   | ...                  | UUU                          |
| Gayophytum heterozygum           | ...                 | ...                          | ..+                          | UU.                   | ..U                  | ...                          |
| Gilia achilleaefolia             | ...                 | ...                          | ..U                          | UUU                   | ...                  | ...                          |
| Gilia clivorum                   | ...                 | ...                          | ...                          | .UC                   | ...                  | ..U                          |
| Gilia splendens                  | .UU                 | .UU                          | .U.                          | UU.                   | ...                  | ...                          |
| Gilia tenuiflora                 | ..+                 | ...                          | ...                          | .U                    | ...                  | ...                          |
| Gnaphalium beneolens             | UUU                 | ...                          | .UU                          | UUU                   | .U.                  | ...                          |
| Gutierrezia bracteata            | ...                 | ...                          | ..+                          | ...                   | ...                  | .R+                          |
| Habenaria elegans                | RUU                 | ...                          | ...                          | UUU                   | .UU                  | ...                          |
| Haplopappus squarrosus           | LLL                 | ...                          | ..U                          | ..U                   | ...                  | ...                          |
| Helenium puberulum               | ...                 | ...                          | ...                          | ..L                   | ...                  | .LL                          |
| Hemitomes congestum              | ...                 | .R.                          | ...                          | ...                   | ...                  | ---                          |
| Hemizonia paniculata             | ...                 | ...                          | ...                          | ...                   | ...                  | .U.                          |
| Heracleum maximum                | ...                 | ...                          | ...                          | .L.                   | .LL                  | ---                          |
| Hesperolinon disjunctum          | ---                 | ---                          | ---                          | ---                   | ---                  | .UU                          |
| Hesperolinon micranthum          | ---                 | ---                          | ..+                          | ..R                   | UU.                  | ---                          |
| Heteromeles arbutifolia          | .UC                 | ...                          | .UC                          | .UC                   | ...                  | ..C                          |
| Hieracium albiflorum             | CU.                 | U..                          | ...                          | ..R                   | CCC                  | ---                          |
| Hieracium argutum                | ..U                 | .UU                          | .UU                          | .LL                   | .UU                  | ...                          |
| Holodiscus discolor              | ...                 | ...                          | R..                          | .UC                   | ...                  | ---                          |
| Holodiscus microphyllus          | U..                 | R..                          | ...                          | ...                   | ...                  | ---                          |
| Hordeum californicum             | ...                 | ...                          | ..U                          | R.U                   | ...                  | ..R                          |

| Species                         | Cone<br>Peak<br>123 | Ven.<br>Doub.<br>Cone<br>123 | Jun.<br>Serra<br>Peak<br>123 | Chews<br>Ridge<br>123 | Pine<br>Ridge<br>123 | San<br>Benito<br>Mtn.<br>123 |
|---------------------------------|---------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|
| Hordeum glaucum *               | ...                 | ...                          | ...                          | ..U                   | ...                  | .UU                          |
| Hulsea heterochroma             | .+.                 | ...                          | R.+                          | .R.                   | ...                  | ...                          |
| Hypericum formosum              | ...                 | ...                          | .LL                          | ...                   | .L.                  | ...                          |
| Juncus bufonius                 | ..L                 | ...                          | ..U                          | L.U                   | ...                  | ...                          |
| Juncus effusus                  | ...                 | ...                          | ...                          | .LL                   | ...                  | ...                          |
| Juncus patens                   | ...                 | ...                          | ..+                          | L.L                   | ...                  | ...                          |
| Juncus rugulosus                | ...                 | ..                           | .L+                          | .LL                   | ...                  | ...                          |
| Juniperus californica           | ---                 | ---                          | ---                          | ---                   | ---                  | .RU                          |
| Koeleria macrantha              | R..                 | ...                          | ...                          | UUC                   | UUU                  | .U.                          |
| Lactuca serriola *              | ...                 | ...                          | ..U                          | ..U                   | ...                  | .R.                          |
| Lathyrus vestitus               | UUU                 | .UC                          | .UU                          | UUU                   | .UU                  | ...                          |
| Layia discoidea                 | ---                 | ---                          | ---                          | ---                   | ---                  | UUU                          |
| Lepechinia calycina             | ...                 | ...                          | .U+                          | UUU                   | ...                  | ...                          |
| Lewisia rediviva                | ...                 | ...                          | ...                          | ...                   | ...                  | R..                          |
| Libocedrus decurrens            | RUL                 | ---                          | UUL                          | ---                   | CCU                  | CCU                          |
| Lilium pardalinum               | ..L                 | ...                          | L..                          | ...                   | .L.                  | ...                          |
| Linanthus ambiguus              | ---                 | ---                          | ---                          | ---                   | ...                  | .UU                          |
| Linanthus androsaceus           | UUU                 | ...                          | ..U                          | CCC                   | CC.                  | .CC                          |
| Linanthus androsaceus s. luteus | ...                 | ...                          | ...                          | UU.                   | ...                  | ...                          |
| Linanthus ciliatus              | ..R                 | ...                          | ...                          | .UU                   | ...                  | ...                          |
| Linanthus liniflorus            | ..U                 | ...                          | ..U                          | U..                   | .U.                  | ...                          |
| Linum lewisii                   | ---                 | ---                          | ---                          | ---                   | ...                  | UUU                          |
| Lithocarpus densiflorus         | CCC                 | CCC                          | ..+                          | CCC                   | CCC                  | ---                          |
| Lithophragma affine             | ...                 | ...                          | ...                          | U.C                   | ..U                  | ..C                          |
| Lithophragma heterophylla       | ..U                 | ..U                          | ..U                          | UUU                   | .UU                  | ..U                          |
| Lomatium dasycarpum             | ...                 | ...                          | ..U                          | ..C                   | .U.                  | .UU                          |
| Lomatium macrocarpum            | ...                 | ...                          | ...                          | U..                   | UU.                  | U.U                          |
| Lonicera hispidula              | ...                 | R..                          | ...                          | ...                   | ...                  | ---                          |
| Lonicera interrupta             | CCC                 | UUU                          | UUC                          | UUC.                  | .UU                  | ...                          |
| Lonicera subspicata             | ...                 | ...                          | ...                          | ..R                   | ...                  | .UC                          |
| Lotus argophyllus               | UUU                 | U..                          | U.U                          | UUU                   | UU                   | ...                          |
| Lotus crassifolius              | .UU                 | UUU                          | UUU                          | UU.                   | .U.                  | ...                          |
| Lotus grandiflorus              | .+.                 | UUU                          | UUU                          | U.U                   | ...                  | ...                          |
| Lotus humistratus               | U..                 | ...                          | ..U                          | UUU                   | UU.                  | UUU                          |
| Lotus micranthus                | .UU                 | ..U                          | ..U                          | .UC                   | .U.                  | ...                          |
| Lotus oblongifolius             | ...                 | ...                          | .LL                          | ..+                   | .L.                  | ...                          |
| Lotus purshianus                | ...                 | ...                          | ..U                          | UUC                   | .U.                  | ...                          |
| Lotus scoparius                 | .UU                 | ..U                          | UUU                          | UUC                   | .U.                  | ...                          |
| Lotus strigosus                 | UUU                 | ...                          | .UU                          | UUC                   | .U.                  | ...                          |
| Lotus subpinnatus               | ...                 | ...                          | ...                          | .UC                   | ..                   | ..C                          |
| Lupinus abramsii                | CCC                 | UUU                          | ...                          | CCU                   | UUU                  | ---                          |
| Lupinus albifrons               | ...                 | ...                          | RRU                          | ..+                   | ...                  | UUU                          |
| Lupinus bicolor                 | .UU                 | ...                          | ..C                          | .CC                   | ...                  | ...                          |
| Lupinus cervinus                | UUU                 | UU.                          | U.+                          | ..+                   | .R.                  | ---                          |
| Lupinus formosus                | ...                 | ...                          | ..U                          | UUU                   | U.U                  | ...                          |
| Lupinus hirsutissimus           | ...                 | ..L                          | .LL                          | ..L                   | ...                  | ...                          |
| Lupinus nanus                   | ..U                 | ..C                          | ..C                          | .CC                   | ...                  | ...                          |
| Madia elegans                   | .UR                 | ..C                          | +.C                          | UCC                   | U.U                  | ...                          |
| Madia exigua                    | ...                 | ...                          | ..+                          | ..U                   | .U.                  | ...                          |
| Madia gracilis                  | ...                 | ...                          | ..C                          | UUC                   | .U.                  | ...                          |

| Species                          | Cone<br>Peak<br>123 | Ven.<br>Doub.<br>Cone<br>123 | Jun.<br>Serra<br>Peak<br>123 | Chews<br>Ridge<br>123 | Pine<br>Ridge<br>123 | San<br>Benito<br>Mtn.<br>123 |
|----------------------------------|---------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|
| <i>Madia madioides</i>           | ...                 | ...                          | ..+                          | .UU                   | .U.                  | ...                          |
| <i>Malacothrix floccifera</i>    | ...                 | ...                          | ..+                          | ..U                   | ...                  | CCC                          |
| <i>Malacothrix saxatilis</i>     | .L.                 | ...                          | .L.                          | ...                   | ...                  | ...                          |
| <i>Marah fabaceus</i>            | .UU                 | ..U                          | .UC                          | UUC                   | .U.                  | ..U                          |
| <i>Medicago polymorpha</i> *     | ...                 | ...                          | ..C                          | .UU                   | ..                   | ..U                          |
| <i>Melica californica</i>        | ...                 | ...                          | ..U                          | U.U                   | ...                  | .UU                          |
| <i>Melica geyeri</i>             | ...                 | ...                          | ...                          | R..                   | ...                  | ---                          |
| <i>Melica harfordii/aristata</i> | UUU                 | ..U                          | ...                          | UU.                   | .U.                  | ---                          |
| <i>Melica imperfecta</i>         | UUU                 | UUU                          | .UU                          | UUU                   | .UU                  | ..U                          |
| <i>Melica stricta</i>            | ---                 | ---                          | ---                          | ---                   | ---                  | .R.                          |
| <i>Melica torreyana</i>          | ...                 | ...                          | ...                          | ...                   | ...                  | L..                          |
| <i>Mentzelia gracilentia</i>     | ...                 | ...                          | ...                          | ...                   | ...                  | .UU                          |
| <i>Mentzelia laevicaulis</i>     | ...                 | ...                          | ...                          | ...                   | ...                  | U.U                          |
| <i>Mentzelia micrantha</i>       | ...                 | ...                          | .UU                          | ..U                   | ...                  | ...                          |
| <i>Mentzelia pinetorum</i>       | ...                 | ...                          | ..+                          | +..                   | ...                  | ...                          |
| <i>Mentzelia veatchiana</i>      | ...                 | ...                          | ...                          | R..                   | ...                  | ...                          |
| <i>Micropus californicus</i>     | ...                 | ...                          | ...                          | ..U                   | .U.                  | ...                          |
| <i>Microseris linearifolia</i>   | ...                 | ..U                          | .UC                          | .UC                   | ...                  | .UU                          |
| <i>Microsteris gracilis</i>      | ...                 | ...                          | ...                          | UUC                   | ...                  | .UU                          |
| <i>Mimulus bifidus</i>           | CCC                 | UCC                          | UCC                          | CCC                   | .CU                  | ---                          |
| <i>Mimulus cardinalis</i>        | ...                 | ...                          | ..+                          | .L.                   | ...                  | ...                          |
| <i>Mimulus floribundus</i>       | ...                 | ..L                          | LLL                          | LLL                   | .LL                  | ...                          |
| <i>Mimulus fremontii</i>         | ...                 | ...                          | ...                          | .UU                   | ...                  | UUU                          |
| <i>Mimulus guttatus</i>          | ...                 | ...                          | .LL                          | LLL                   | ..L                  | LLL                          |
| <i>Mimulus pilosus</i>           | ...                 | ...                          | ..+                          | ...                   | ...                  | L..                          |
| <i>Mimulus subsecundus</i>       | UU.                 | UUU                          | +..                          | ...                   | UU.                  | ...                          |
| <i>Mollugo verticillata</i> *    | ...                 | ...                          | ...                          | ...                   | ..                   | L..                          |
| <i>Monardella benitensis</i>     | ---                 | ---                          | ---                          | ---                   | ---                  | CCC                          |
| <i>Monardella douglasii</i>      | ---                 | ---                          | ---                          | ---                   | ...                  | UUU                          |
| <i>Monardella villosa</i>        | UUU                 | ..C                          | CCC                          | CCC                   | UUU                  | ---                          |
| <i>Montia perfoliata</i>         | .UU                 | .UU                          | .UC                          | UCC                   | UUU                  | .UU                          |
| <i>Montia spathulata</i>         | ...                 | ...                          | ...                          | U.U                   | .R.                  | .UU                          |
| <i>Muhlenbergia asperifolia</i>  | ---                 | ---                          | ---                          | ---                   | ---                  | .LL                          |
| <i>Navarretia mellita</i>        | ...                 | ...                          | ...                          | U.U                   | ...                  | ...                          |
| <i>Navarretia pubescens</i>      | ---                 | ---                          | ---                          | ---                   | ---                  | .UU                          |
| <i>Nemacladus secundiflorus</i>  | ...                 | ...                          | ..+                          | ...                   | ...                  | ...                          |
| <i>Nemophila menziesii</i>       | ..U                 | ...                          | ..C                          | UUC                   | ..U                  | .U.                          |
| <i>Nemophila parviflora</i>      | ..+                 | ...                          | ...                          | ..C                   | ...                  | ...                          |
| <i>Nemophila pulchella</i>       | ...                 | ...                          | ...                          | .UC                   | ...                  | ...                          |
| <i>Nicotiana attenuata</i>       | ---                 | ---                          | ---                          | ---                   | ---                  | +..                          |
| <i>Oenothera hookeri</i>         | ...                 | ...                          | .L.                          | ...                   | ...                  | ...                          |
| <i>Orobanche bulbosa</i>         | ..R                 | ...                          | .R.                          | ..R                   | ...                  | ...                          |
| <i>Orobanche fasciculata</i>     | ..R                 | ...                          | ...                          | RRU                   | ...                  | .U+                          |
| <i>Orthocarpus purpureus</i>     | UUU                 | ...                          | ..C                          | UUC                   | UU.                  | ..C                          |
| <i>Osmaronia cerasiformis</i>    | ...                 | ...                          | ...                          | .RU                   | ...                  | ---                          |
| <i>Osmorhiza brachypoda</i>      | ...                 | ...                          | ...                          | UUU                   | .UU                  | ...                          |
| <i>Osmorhiza chilensis</i>       | ..U                 | ..U                          | .UU                          | UUU                   | UUU                  | ...                          |
| <i>Parnassia palustris</i>       | ...                 | ...                          | ..+                          | ...                   | ...                  | .LL                          |
| <i>Pedicularis densiflora</i>    | CU.                 | ...                          | ...                          | ..C                   | ..C                  | ..U                          |
| <i>Pellaea andromedaefolia</i>   | .RU                 | ..U                          | .UC                          | .UU                   | ..U                  | ...                          |

| Species                    | Cone<br>Peak<br>123 | Ven.<br>Doub.<br>Cone<br>123 | Jun.<br>Serra<br>Peak<br>123 | Chews<br>Ridge<br>123 | Pine<br>Ridge<br>123 | San<br>Benito<br>Mtn.<br>123 |
|----------------------------|---------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|
| Pellaea mucronata          | UUU                 | UU.                          | CCC                          | UUC                   | UU.                  | ...                          |
| Penstemon breviflorus      | CCC                 | UCC                          | CCC                          | CCC                   | .CU                  | ..U                          |
| Penstemon centranthifolius | CCC                 | ..C                          | CCC                          | CCC                   | ...                  | ..C                          |
| Penstemon corymbosus       | LL.                 | LL.                          | ...                          | ..+                   | .R.                  | ...                          |
| Penstemon grinnellii       | ...                 | ...                          | ...                          | UU.                   | ...                  | RR.                          |
| Penstemon heterophyllus    | UUU                 | ...                          | ..U                          | UUU                   | ..U                  | .U.                          |
| Phacelia brachyloba        | ...                 | ...                          | .U.                          | R.U                   | ...                  | ...                          |
| Phacelia curvipes          | ...                 | ...                          | ...                          | +..                   | ...                  | ...                          |
| Phacelia distans           | ...                 | ...                          | ...                          | .RU                   | ...                  | ..+                          |
| Phacelia divaricata        | ---                 | ---                          | ---                          | ---                   | ---                  | .U.                          |
| Phacelia douglasii         | UUU                 | ...                          | ..U                          | .UU                   | .U.                  | ...                          |
| Phacelia egea/imbricata    | UUU                 | .UU                          | .UU                          | UUU                   | UUU                  | UUU                          |
| Phacelia grisea            | .R.                 | .RR                          | ..+                          | ...                   | ...                  | ...                          |
| Phacelia malvaefolia       | UUU                 | UU.                          | ...                          | .UU                   | ...                  | ...                          |
| Phacelia ramosissima       | ...                 | ...                          | ...                          | UUU                   | ...                  | ...                          |
| Phoradendron juniperinum   | ...                 | ---                          | ...                          | ---                   | ...                  | UUU                          |
| Phoradendron villosum      | UUU                 | ...                          | .UU                          | .UU                   | ..R                  | UUU                          |
| Pinus attenuata            | .UC                 | ...                          | .U                           | ---                   | ---                  | ---                          |
| Pinus coulteri             | CCC                 | CCC                          | CCC                          | CCC                   | CCC                  | CCC                          |
| Pinus jeffreyi             | ---                 | ---                          | ---                          | R--                   | ---                  | UUU                          |
| Pinus lambertiana          | CCC                 | ---                          | CU.                          | ---                   | ---                  | ---                          |
| Pinus ponderosa            | .UC                 | .U.                          | ---                          | RUU                   | CCC                  | ---                          |
| Pinus sabiniana            | ---                 | ---                          | ..C                          | ---                   | ---                  | UCC                          |
| Pityrogramma triangularis  | UUU                 | ..U                          | ..C                          | RUC                   | UUU                  | ...                          |
| Plagiobothrys nothofulvus  | ..U                 | ...                          | ...                          | .UC                   | ...                  | ...                          |
| Poa annua *                | ...                 | ...                          | ..L                          | L.U                   | ...                  | ...                          |
| Poa howellii               | ...                 | R..                          | ...                          | ...                   | ...                  | ...                          |
| Poa scabrella              | UUU                 | .UU                          | ..C                          | UUC                   | UUU                  | .UU                          |
| Polygala californica       | ...                 | ...                          | ...                          | ...                   | .UU                  | ---                          |
| Polypodium californicum    | LLL                 | .L.                          | ..L                          | .LL                   | .L.                  | ---                          |
| Polypogon monspeliensis *  | ...                 | ...                          | ...                          | LLL                   | ...                  | ...                          |
| Polystichum munitum        | UUC                 | UCC                          | UUU                          | UUU                   | UUU                  | ---                          |
| Potentilla glandulosa      | ..U                 | ..U                          | U.U                          | UUU                   | .UU                  | ...                          |
| Prunus emarginata          | UU.                 | ...                          | ...                          | ..+                   | .R.                  | ...                          |
| Prunus virginiana          | ...                 | ...                          | ..L                          | UUU                   | ..L                  | + .                          |
| Psoralea californica       | ---                 | ---                          | ---                          | ---                   | ---                  | UUU                          |
| Psoralea macrostachya      | ..L                 | ...                          | .L.                          | .LL                   | .LL                  | ...                          |
| Psoralea orbicularis       | ...                 | ...                          | ..+                          | .LL                   | .L.                  | ...                          |
| Psoralea physodes          | ...                 | ..L                          | ..+                          | UUU                   | .R.                  | ...                          |
| Pteridium aquilinum        | UUU                 | .UU                          | UUU                          | CCC                   | UUC                  | ---                          |
| Pterostegia drymarioides   | ...                 | ..U                          | .UU                          | .UU                   | ...                  | ...                          |
| Pyrola picta               | ...                 | ...                          | +..                          | ...                   | ...                  | ---                          |
| Quercus agrifolia          | ..C                 | ..C                          | ..C                          | .UC                   | ..U                  | ...                          |
| Quercus chrysolepis        | CCC                 | CCC                          | CCC                          | CCC                   | CCC                  | RUU                          |
| Quercus douglasii          | ..U                 | ---                          | ..C                          | ..C                   | ..U                  | .UC                          |
| Quercus durata             | ---                 | ---                          | ---                          | ---                   | ---                  | CCC                          |
| Quercus kelloggii          | ..C                 | .U.                          | ..R                          | UCC                   | .CC                  | ---                          |
| Quercus lobata             | ..U                 | ---                          | ..C                          | CCC                   | ---                  | ..C                          |
| Quercus turbinella/dumosa  | ..U                 | ---                          | .UC                          | ..U                   | ---                  | .UC                          |
| Quercus wislizenii         | .CC                 | .CC                          | CCC                          | CCC                   | CCC                  | ..U                          |

| Species                  | Cone<br>Peak<br>123 | Ven.<br>Doub.<br>Cone<br>123 | Jun.<br>Serra<br>Peak<br>123 | Chews<br>Ridge<br>123 | Pine<br>Ridge<br>123 | San<br>Benito<br>Mtn.<br>123 |
|--------------------------|---------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|
| Raillardella (muirii?)   | ---                 | R..                          | ---                          | ---                   | ---                  | ---                          |
| Rafinesquia californica  | ...                 | ...                          | .R.                          | ..U                   | ...                  | ...                          |
| Ranunculus californicus  | ...                 | ...                          | ..C                          | UUC                   | ..U                  | ..U                          |
| Ranunculus hebecarpus    | ...                 | ...                          | ..U                          | ..U                   | ...                  | ...                          |
| Rhamnus californica      | CCC                 | UUU                          | CCC                          | CCC                   | CCC                  | UUC                          |
| Rhamnus crocea           | UUU                 | RU.                          | UCC                          | UUC                   | ..UC                 | UUU                          |
| Rhus diversiloba         | UCC                 | ..UC                         | ..UC                         | UCC                   | UCC                  | RUC                          |
| Ribes roezlii            | ...                 | ...                          | U..                          | UR.                   | ..RL                 | ---                          |
| Rigiopappus leptocladus  | ...                 | ...                          | ...                          | ..UU                  | ..U.                 | ...                          |
| Rosa californica         | ..L                 | ...                          | ..L                          | ..LL                  | ..LL                 | ...                          |
| Rubus parviflorus        | ..L                 | ..L                          | ...                          | ...                   | ..R.                 | ---                          |
| Rubus ursinus            | ..L                 | ..L                          | ..LL                         | ..LL                  | ..LL                 | ...                          |
| Rumex acetosella *       | ...                 | ...                          | ..U                          | U..U                  | ..U                  | ...                          |
| Rumex conglomeratus *    | ...                 | ...                          | ...                          | U..U                  | ...                  | ...                          |
| Rumex salicifolius       | ...                 | ...                          | ...                          | R..L                  | ...                  | ...                          |
| Salix breweri            | ---                 | ---                          | ---                          | ---                   | ---                  | LLL                          |
| Salix sp.                | ..L                 | ...                          | ..RL                         | ..RL                  | ..L                  | ..L                          |
| Salvia columbariae       | UUU                 | ..U                          | ..UU                         | UUU                   | ...                  | ..U                          |
| Sambucus mexicana        | UUU                 | ..UU                         | UUU                          | UUU                   | UUU                  | ...                          |
| Sanicula crassicaulis    | ..U                 | ..C                          | ..UC                         | UUC                   | ..UU                 | ...                          |
| Sanicula graveolens      | ...                 | ...                          | ...                          | ...                   | RR.                  | ---                          |
| Satureja mimuloides      | ..+                 | ...                          | ..L+                         | ..L                   | ...                  | ...                          |
| Scirpus microcarpus      | ...                 | ...                          | ...                          | ..L                   | ..L.                 | ...                          |
| Sedum spathulifolium     | ..+                 | LL.                          | ...                          | ...                   | ...                  | ...                          |
| Selaginella bigelovii    | LLL                 | LLL                          | ..L                          | LLL                   | LL.                  | ...                          |
| Silene gallica *         | ...                 | ...                          | ..U                          | ..UC                  | ..U.                 | ...                          |
| Silene lemmonii          | ...                 | ...                          | U..+                         | UU.                   | UUU                  | ...                          |
| Silene verecunda         | ...                 | ...                          | ..+                          | R..R                  | ..R.                 | R..U                         |
| Sisyrinchium bellum      | ...                 | ...                          | ..U                          | ..C                   | ...                  | LLL                          |
| Sitanion hystrix         | ...                 | ...                          | +. .                         | ...                   | ..R.                 | UUU                          |
| Sitanion jubatum         | UU.                 | ..U                          | ..U                          | CCC                   | UUU                  | UUU                          |
| Solanum umbelliferum     | ..UU                | ..U.                         | UU.                          | UUC                   | ...                  | ..U                          |
| Solidago californica     | UUU                 | UUU                          | ..UU                         | UUU                   | ..UU                 | ...                          |
| Solidago guiradonis      | ---                 | ---                          | ---                          | ---                   | ---                  | LLL                          |
| Stachys bullata          | ..U                 | ..U                          | ..UC                         | UCC                   | ..U.                 | ...                          |
| Stachys pycnantha        | ..L                 | ...                          | ..L+                         | ..LL                  | ..L                  | ..L.                         |
| Stellaria media *        | ...                 | ...                          | ..U                          | ..UU                  | ..U                  | ...                          |
| Stellaria nitens         | ...                 | ...                          | ...                          | ..U                   | ...                  | ..UU                         |
| Stephanomeria elata      | ..U                 | ...                          | ...                          | ..U.                  | ...                  | ...                          |
| Stephanomeria virgata    | ..U.                | ...                          | ..U                          | ..UU                  | ...                  | ..U                          |
| Stipa cernua             | ...                 | ...                          | ..+                          | ..U                   | ...                  | ..UU                         |
| Stipa coronata           | LLL                 | ...                          | ..LL                         | ..LL                  | ...                  | ...                          |
| Streptanthus brewerii    | ---                 | ---                          | ---                          | ---                   | ---                  | ..+                          |
| Streptanthus glandulosus | ..+                 | ...                          | ...                          | UUU                   | UU.                  | ...                          |
| Streptanthus insignis    | ---                 | ---                          | ---                          | ---                   | ---                  | ..+U                         |
| Streptanthus tortuosus   | LL.                 | U..                          | ...                          | ...                   | ...                  | ---                          |
| Stylocline gnaphalioides | ...                 | ...                          | ...                          | ..U                   | ..U.                 | ...                          |
| Symphoricarpos mollis    | RR.                 | ..U                          | ..U                          | UUU                   | ..UU                 | ...                          |
| Tauschia hartwegii       | ..U                 | ...                          | UUU                          | UUU                   | ..U.                 | ...                          |
| Thelypodium lasiophyllum | ...                 | ..R.                         | ..U.                         | ..U                   | ...                  | ...                          |

| Species                        | Cone<br>Peak<br>123 | Ven.<br>Doub.<br>Cone<br>123 | Jun.<br>Serra<br>Peak<br>123 | Chews<br>Ridge<br>123 | Pine<br>Ridge<br>123 | San<br>Benito<br>Mtn.<br>123 |
|--------------------------------|---------------------|------------------------------|------------------------------|-----------------------|----------------------|------------------------------|
| Thermopsis macrophylla         | ..L                 | ..U                          | ...                          | R.U                   | CCC                  | ...                          |
| Thysanocarpus curvipes         | ..U                 | ...                          | ..U                          | UCC                   | ...                  | ..C                          |
| Thysanocarpus laciniatus       | ...                 | ...                          | .R.                          | ..U                   | ...                  | ...                          |
| Trichostema lanatum            | .UU                 | ...                          | .UU                          | ..U                   | ...                  | ...                          |
| Trichostema rubisepalum        | ---                 | ---                          | ---                          | ---                   | ---                  | .LL                          |
| Trifolium albopurpureum        | .U.                 | ...                          | ..U                          | UUC                   | .U.                  | ...                          |
| Trifolium ciliolatum           | ...                 | ...                          | ...                          | .UU                   | .U.                  | ...                          |
| Trifolium gracilentum          | ...                 | ...                          | ..C                          | .UC                   | ...                  | ...                          |
| Trifolium microcephalum        | .U.                 | ...                          | ..C                          | .UC                   | .U.                  | ...                          |
| Trifolium tridentatum          | ...                 | ...                          | ..U                          | UUC                   | .U.                  | ...                          |
| Trifolium variegatum           | .U.                 | ...                          | ..U                          | UUC                   | ...                  | ...                          |
| Triodanis biflora              | ...                 | ...                          | ...                          | ..U                   | ...                  | L..                          |
| Umbellularia californica       | CCC                 | .CC                          | UUU                          | CCC                   | CCC                  | ---                          |
| Urtica holosericea             | ...                 | ...                          | ...                          | .LL                   | .LL                  | ...                          |
| Urtica urens *                 | ...                 | ...                          | ...                          | +..U                  | ...                  | ...                          |
| Verbena lasiostachys           | ...                 | ...                          | ..U                          | UUU                   | ...                  | ..U                          |
| Vicia americana                | ...                 | ...                          | ...                          | UUU                   | ...                  | ...                          |
| Viola purpurea ssp. mohavensis | ---                 | ---                          | ---                          | L..                   | UU.                  | UU.                          |
| Viola purpurea ssp. purpurea   | ...                 | ...                          | UR.                          | ...                   | ...                  | ---                          |
| Viola quercetorum              | RRU                 | ...                          | ..C                          | UUU                   | UUU                  | UUU                          |
| Vulpia bromoides *             | U.+                 | ...                          | ...                          | UUU                   | ...                  | ..C                          |
| Vulpia microstachys            | UU+                 | UUU                          | ..U                          | UUU                   | UU.                  | UUU                          |
| Vulpia myuros *                | UU.                 | UUU                          | ..C                          | UUC                   | .U.                  | .UC                          |
| Woodwardia fimbriata           | ..L                 | ...                          | LLL                          | .LL                   | .LL                  | ---                          |
| Wyethia helenioides            | ...                 | ...                          | ...                          | UUU                   | ...                  | ...                          |
| Yucca whipplei                 | UUC                 | UUU                          | UCC                          | CCC                   | UUC                  | .UC                          |
| Zauschneria californica        | UUU                 | .UU                          | U.U                          | UCC                   | ..U                  | ..C                          |
| Zigadenus fremontii            | ...                 | ...                          | ...                          | ..U                   | UUU                  | ...                          |
| Zigadenus venenosus            | ...                 | ...                          | ..+                          | ...                   | ...                  | .LL                          |

## Plants of the Study Peaks

*Abies bracteata* D. Don, bristlecone fir or Santa Lucia fir (*Pinaceae*).

Evergreen tree, conspicuous on fire resistant habitats. The Griffin and Critchfield (1972) distribution map omitted a small stand on the north slope of Junipero Serra Peak. Talley (1974) has conducted a detailed study of the ecology of this fir. SANTA LUCIA RANGE ENDEMIC.

*Acer macrophyllum* Pursh, bigleaf maple (*Aceraceae*).

Deciduous tree, mostly riparian, but at all elevations scattered maples grow in shady ravines without any surface water.

*Achillea borealis* Bong. ssp. *californica* (Pollard) Keck, yarrow (*Compositae*).

Perennial herb, scattered in parts of the open forest and savanna. On San Benito Mountain yarrow grows abundantly in the creeks, less commonly on the dry serpentine uplands.

*Adenostoma fasciculatum* H. & A., chamise (*Rosaceae*).

Evergreen, burl-forming shrub, dominates the driest chaparral slopes, usually on south aspects.

*Agoseris grandiflora* (Nutt.) Greene, large-flowered agoseris (*Compositae*).

Perennial herb, scattered in open forest and savanna.

*Agoseris heterophylla* (Nutt.) Greene, mountain dandelion (*Compositae*).

Annual herb, in savanna and grassland.

*Agoseris retrorsa* (Benth.) Greene, spear-leaved agoseris (*Compositae*).

Perennial herb, scattered in open forest and savanna, less common than *A. grandiflora*.

*Agropyron parishii* Scribn. & Sm., Parish wheatgrass (*Gramineae*).

Perennial bunchgrass, widely scattered in open forest, locally abundant on edges of the Chews Ridge savanna. As Hoover (1970) suggested, var. *laeve* Scribn. & Sm. is not a useful taxon locally; many plants with long awns and glabrous nodes fit var.

*laeve*, but other plants in the same population may have long awns and pubescent nodes; few local plants have consistently short awns. The study peaks are near the northern limit for this species in the Coast Ranges.

*Agropyron trachycaulon* (Link) Malte, slender wheatgrass (*Gramineae*).

Perennial grass, common along the serpentine creeks of San Benito Mountain. This grass has not been reported from Monterey County, at least not under this name; it might be present on serpentine, for it appears to grow on serpentine in San Luis Obispo County (Hoover 1970) and San Mateo County (Thomas 1961).

*Agrostis exarata* Trin., spike bent (*Gramineae*).

Perennial bunchgrass, local in wet spots; the two local varieties may be partially separated geographically: (1) var. *exarata* without awns, noticed only on Chews Ridge; (2) var. *pacifica* Vasey with conspicuous awns, more widely distributed, particularly at lower elevations.

*Aira caryophyllea* L., silver hairgrass (*Gramineae*).

Small annual grass, minor weed in grassland. INTRODUCED.

*Allium burlewii* A. Davids., Burlew onion (*Amaryllidaceae*).

Bulb, not reported in the Santa Lucia Range until 1972, when Steven Talley found it on a talus slope within the sugar pine forest on Cone Peak. Raven (1957) found the northern-most outpost of this southern Sierra Nevada and southern California species on San Benito Mountain. DISJUNCT, next population to south is in the Sierra Madre, Santa Barbara County. 3/

*Allium campanulatum* Wats., Sierra onion (*Amaryllidaceae*).

Bulb, locally common on serpentine outcrops on Chews Ridge and Pine Ridge but not confined to serpentine. DISJUNCT, next population to south is in the Sierra Madre, Santa Barbara County. 3/

---

3/ Smith, Clifton. 1974. A flora of the Santa Barbara Region. (Unpublished report on file, Santa Barbara Museum of Natural History, Calif.).

*Allium fimbriatum* Wats. var. *diabolense*  
Ownbey & Aase, fringed onion  
(*Amaryllidaceae*).

Bulb, locally common on serpentine on  
San Benito Mountain, present on lower ele-  
vation serpentine in the Santa Lucias, but  
not noticed on Pine Ridge serpentine.

*Allophyllum divaricatum* (Nutt.) A. & V.  
Grant, (*Polemoniaceae*).

Annual herb, rare above 1200 m in dis-  
turbed spots.

*Allophyllum giliioides* Benth.) A. & V. Grant,  
straggling-gilia (*Polemoniaceae*).

Annual herb, uncommon in disturbed  
spots.

*Alnus rhombifolia* Nutt., white alder  
(*Betulaceae*).

Deciduous tree, important riparian tree  
at lower elevations but uncommon along  
creeks above 1200 m.

*Amelanchier pallida* Greene, service berry  
(*Rosaceae*).

Tall deciduous shrub, uncommon in  
shady ravines or creek bottoms.

*Amsinckia intermedia* F. & M., common fiddle-  
neck (*Boraginaceae*).

Annual herb, very minor plant in the  
grassland.

*Antirrhinum multiflorum* Penn., sticky snap-  
dragon (*Scrophulariaceae*).

Tall short-lived perennial, widely  
scattered in disturbed spots in the  
chaparral but never common.

*Apocynum pumilum* (Gray) Greene, dogbane  
(*Apocynaceae*).

Perennial herb, not reported in  
Monterey County until 1972, when I found it  
in open pine forests on Chews Ridge, Pine  
Ridge, and Little Pines, probably scattered  
elsewhere in the Santa Lucias in pine  
forests. Rare elsewhere in the south  
Coast Ranges (Hoover 1970, Thomas 1961).

*Aquilegia eximia* Van Houtte, Van Houtte  
columbine (*Ranunculaceae*).

Perennial herb, common on all the San  
Benito Mountain creeks, scattered on

serpentine wet spots in the south Coast  
Ranges (Hoover 1970, Sharsmith 1945,  
Thomas 1961), but not yet reported for the  
northern Santa Lucias.

*Aquilegia formosa* Fisch., crimson columbine  
(*Ranunculaceae*).

Perennial herb, local in non-serpentine  
wet spots. Two varieties are reported in  
Monterey County, the Pine Ridge plants are  
viscid pubescent and fit var. *hypolasia*  
(Greene) Munz. (Howitt and Howell 1973).

*Arabis breweri* Wats. var. *breweri*, Brewer  
rockcress (*Cruciferae*).

Low perennial herb, local on rock out-  
crops.

*Arabis glabra* (L.) Bernh., tower mustard  
(*Cruciferae*).

Tall biennial herb, scattered in lower  
elevation grassland, but above 1200 m is  
uncommon in seasonally wet, open spots.

*Aralia californica* Watson, elk clover  
(*Araliaceae*).

Tall perennial herb, local in springs  
and creeks.

*Arbutus menziesii* Pursh, madrone or Pacific  
madrone (*Ericaceae*).

Large evergreen tree, vigorous sprouter,  
important dominant in the mixed evergreen  
forest. The fire-scarred remains of one huge  
individual on Chews Ridge appeared to have a  
dbh of about 3 m and an intact tree nearby  
was 152 cm in dbh.

*Arceuthobium occidentale* Engelm., Digger  
pine dwarf mistletoe (*Viscaceae*).

Shoot parasite on pines, locally common  
on Coulter and Digger pines throughout the  
south Coast Ranges; *A. occidentale*, which is  
closely related to *A. campylopodum* Engelm.,  
does not usually infect ponderosa pines  
(Hawksworth and Wiens 1972). But some  
ponderosa pines on Pine Ridge are infected  
with *A. occidentale*, which is common on  
adjacent Coulter pines (personal correspond-  
ence with F. G. Hawksworth, Feb. 22, 1974).  
The same situation may exist on San Benito  
Mountain where a few Jeffrey pines are  
infected with a dwarf mistletoe similar to  
that on the adjacent Coulter and Digger  
pines. *A. campylopodum* (as recognized by

Hawksworth and Wiens 1972) has not been reported in the south Coast Ranges; they consider the *A. campylopodium* of Howitt and Howell (1964) to be *A. occidentale*.

*Arctostaphylos glandulosa* Eastw., Eastwood manzanita (*Ericaceae*).

Burl-forming evergreen shrub, important in the chaparral, dominant over *Adenostoma* on the highest ridges. This shrub is extremely difficult to classify taxonomically (McMinn 1939). At low elevations, as near the Hastings Reservation, the *A. glandulosa* complex may not be clearly isolated from the more coastal *A. tomentosa* (Pursh) Lindl. complex, and a few shrubs on Chews Ridge may show this *A. tomentosa* influence. Within *A. glandulosa* many taxa have been described which seem to have little geographic or ecological significance on the study peaks. Plants with glandular twigs and inflorescences approach var. *glandulosa*, plants with only glandular inflorescences approach var. *howellii* (Eastw.) Adams, and the mostly non-glandular plants approach var. *cushingiana* (Eastw.) Adams. The nonglandular, somewhat canescent, plants were mapped as *A. canescens* Eastw. by the Vegetation Type Map Survey (Critchfield 1971). No recognizable *A. glandulosa* shrubs were seen on San Benito Mountain, but it might be part of difficult manzanita problems there.

*Arctostaphylos glauca* Lindl., bigberry manzanita (*Ericaceae*).

Tall nonsprouting evergreen shrub, scattered in the low elevation chaparral of the Santa Lucias, very conspicuous in chaparral on serpentine in the Diablo Range at all elevations; most plants on the study peaks appeared to be var. *puberula* J. T. Howell.

*Arctostaphylos hooveri* Wells (*Ericaceae*).

Tall nonsprouting evergreen shrub, scattered in forest and chaparral south of Cone Peak, but a few highly variable individuals grow near the Gamboa trail summit north of Cone Peak. They may be near the northern limit for this SANTA LUCIA RANGE ENDEMIC.

*Arctostaphylos pungens* HBK., Mexican manzanita (*Ericaceae*).

Evergreen shrub, nonburl-forming, but the branches readily layer, forming large

colonies, conspicuous on San Benito Mountain serpentine. This variable manzanita is uncommon in the south Coast Ranges and appears in more typical form south of San Diego. There are suggestions of hybridization between *A. pungens* and *A. glauca* on San Benito Mountain.

*Arenaria douglasii* Frenzl., Douglas sandwort (*Caryophyllaceae*).

Annual herb, scattered in forest openings, locally common on serpentine.

*Arenaria macrophylla* Hook., large-leaved sandwort (*Caryophyllaceae*).

Low perennial herb, rare on the study peaks. Uncommon elsewhere in the south Coast Ranges (Bowerman 1944, Sharsmith 1945, Thomas 1961).

*Argemone munita* Dur. & Hilg., prickly poppy (*Papaveraceae*).

Annual herb, uncommon in disturbed spots.

*Arnica discoidea* Benth., rayless arnica (*Compositae*).

Perennial herb, scattered in forest and chaparral on the summit of Chews Ridge; the study peak plants do not seem to differ much from the coastal plants called var. *alata* (Rydb.) Cronquist.

*Artemisia douglasiana* Bess., California mugwort (*Compositae*).

Large perennial herb, often riparian or near dry stream beds, but may be scattered far from any seasonally wet spots as in the Chews Ridge savanna.

*Artemisia dracunculus* L., dragon sagewort (*Compositae*).

Large perennial herb, distribution similar to *A. douglasiana*.

*Asclepias californica* Greene var. *greenii* Woodson, round-hooded milkweed (*Asclepiadaceae*).

Prostrate perennial herb, uncommon on open rocky spots or talus slopes. This southern Sierra Nevada and southern California species is uncommon in the south Coast Ranges (Bowerman 1944, Hoover 1970, Sharsmith 1945).

*Asclepias eriocarpa* Benth., Indian milkweed (*Asclepiadaceae*).

Perennial herb, scattered in grassland at lower elevations, uncommon above 1200 m, one colony under the sugar pine forest on the summit of Junipero Serra Peak.

*Asclepias fascicularis* Dcne., narrow-leaved milkweed (*Asclepiadaceae*).

Perennial herb, uncommon along dry creekbeds at lower elevation, rare on a serpentine outcrop on Chews Ridge.

*Aspidotis carlotta-halliae* (W. & G.) Lellinger (*Pteridaceae*).

Small fern, one 1938 collection from San Benito Mountain; either extremely rare there now or perhaps extinct in this locality. (Smith 1975).

*Aspidotis densa* (Brackenridge) Lellinger, Indian dream (*Pteridaceae*).

Small fern, local on ultrabasic outcrops on Pine Ridge, uncommon in the south Coast Ranges and usually confined to serpentine (Hoover 1970, Sharsmith 1945, Smith 1975). This species has been placed in three other genera: *Cheilanthes*, *Onychium*, and *Pellaea*.

*Astragalus clevelandii* Greene (*Leguminosae*).

Perennial herb; Munz (1959) listed a riparian locality on serpentine at 1400 m near San Benito Mountain. DISJUNCT, mainly a serpentine endemic in Napa and Lake Counties.

*Astragalus gambelianus* Sheld., dwarf loco-weed (*Leguminosae*).

Small annual herb, minor plant in grassland.

*Astragalus purshii* Dougl. var. *tinctus* Jones, woolly pod (*Leguminosae*).

Prostrate perennial herb, uncommon on San Benito Mountain serpentine. Various forms of this species are widespread in dry interior forests of the West, but it is rare in the south Coast Ranges. DISJUNCT, closest population may be in upper Cuyama Valley, Santa Barbara County. 4/

4/ Smith, Clifton. 1974. A flora of the Santa Barbara Region. (Unpublished report on file, Santa Barbara Museum of Natural History, Calif.).

*Athysanus pusillus* (Hook.) Greene, sandweed (*Cruciferae*).

Small annual herb, minor plant in grassland.

*Avena barbata* Brot., slender wild oat (*Gramineae*).

Annual grass, less common in grassland than *A. fatua*. INTRODUCED.

*Avena fatua* L. wild oat (*Gramineae*).

Annual grass, important dominant in grassland. INTRODUCED.

*Barbarea orthoceras* Ledeb., American winter-cress (*Cruciferae*).

Biennial herb, local in wet spots.

*Berberis dictyota* Jeps., Jepson barberry (*Berberidaceae*).

Evergreen sub-shrub, widely distributed in chaparral on San Benito Mountain but never common.

*Berula erecta* (Huds.) Cov., water-parsnip (*Umbelliferae*).

Perennial herb, local in wet spots.

*Bloomeria crocea* (Torr.) Cov. var. *aurea* (Kell.) Ingram, golden stars (*Amaryllidaceae*).

Bulb, unimportant or absent above 1200 m except for scattered plants on San Benito Mountain.

*Boschniakia strobilacea* Gray, California ground-cone (*Orobanchaceae*).

Root parasite, probably on *Arctostaphylos*, widely distributed but never common in San Benito Mountain forests with a manzanita understory.

*Brickellia californica* (T. & G.) Gray, California brickelbush (*Compositae*).

Low evergreen shrub, local on rock outcrops or boulder piles.

*Brodiaea lutea* (Lindl.) Mort., golden brodiaea (*Amaryllidaceae*).

Bulb, unimportant in grassland.

*Brodiaea pulchella* (Salisb.) Greene, blue dicks (*Amaryllidaceae*).

Bulb, scattered in grassland and forest openings.

*Bromus arenarius* Labill, Australian chess  
(Gramineae).

Annual grass, minor in grassland or  
disturbed spots. INTRODUCED.

*Bromus carinatus* H. & A., California brome  
(Gramineae).

Short-lived perennial grass, widely  
scattered in open forests at lower eleva-  
tions, probably less common on the study  
peaks than *B. marginatus* from which it may  
not be very clearly separated.

*Bromus diandrus* Roth, ripgut brome  
(Gramineae).

Annual grass, scattered in grassland.  
INTRODUCED.

*Bromus grandis* (Shear) Hitch., tall brome  
(Gramineae).

Tall perennial grass, widely distributed  
in forest openings at all elevations, diffi-  
cult to distinguish from *B. laevipes*.  
Hoover (1970) commented on the unsatisfactory  
separation between the perennial bromes,  
particularly *B. grandis*, *B. laevipes*, and  
*B. pseudolaevipes*.

*Bromus laevipes* Shear, woodland brome  
(Gramineae).

Tall perennial grass, probably more  
common at higher elevations than *B. grandis*.

*Bromus marginatus* Nees, mountain brome  
(Gramineae).

Perennial grass, difficult to distin-  
guish from *B. carinatus*. Hoover (1970)  
assigned all the *B. marginatus*-like plants  
in San Luis Obispo County to either *B.*  
*carinatus* or *B. breviaristatus*. The only  
bromes on the study peaks hairy enough to  
suggest *B. breviaristatus* were on San Benito  
Mountain.

*Bromus mollis* L., soft chess (Gramineae).

Annual grass, probably the most  
important annual in the grassland.  
INTRODUCED.

*Bromus orcuttianus* Vasey var. *hallii* Hitch.  
(Gramineae).

Perennial grass, scattered in open  
portions of the more productive forests.

*Bromus pseudolaevipes* Wagnon (Gramineae).

Perennial grass; a few plants key out  
to this species, but they seem to be an  
integral part of the *B. grandis* complex.

*Bromus rubens* L., red brome (Gramineae).

Annual grass, scattered in the grass-  
land. This is the only introduced annual  
that has any significant population on the  
San Benito Mountain serpentine. INTRODUCED.

*Bromus tectorum* L., cheat grass (Gramineae).

Annual grass, widely distributed as a  
trail-side weed at higher elevations, not  
important in the grassland. The pubescent  
var. *tectorum* is more common than the smooth  
var. *glabratus* Spenser; the two varieties  
sometimes grow together. INTRODUCED.

*Calamagrostis rubescens* Buckl., pinegrass  
(Gramineae).

Perennial grass, local in wet spots.

*Calandrinia ciliata* (R. & P.) DC. var.  
*menziesii* (Hook.) Macbr., redmaids  
(Portulacaceae).

Annual herb, unimportant in grassland  
above 1200 m.

*Calochortus albus* Dougl., white globe-lily  
(Liliaceae).

Bulb, scattered in open forests and  
savanna; pink colors may be more conspicuous  
in the corollas of plants closer to the  
coast, but var. *rubellus* Greene seems to be  
a vague entity.

*Calochortus invenustus* Greene, plain mariposa  
(Liliaceae).

Bulb, uncommon in chaparral and forest  
on serpentine on San Benito Mountain and Pine  
Ridge; the few plants on the summit of Chews  
Ridge seem to be on small serpentine outcrops.  
Uncommon elsewhere in the south Coast Ranges  
on serpentine (Sharsmith 1945); more common  
in the southern Sierra Nevada and southern  
California.

*Calochortus splendens* Dougl., lilac mariposa  
(Liliaceae).

Bulb, scattered in open forest and  
savanna.

*Calochortus venustus* Dougl., butterfly mariposa (*Liliaceae*).

Bulb, uncommon in chaparral and grassland on San Benito Mountain serpentine.

*Calycadenia truncata* DC., rosinweed (*Compositae*).

Annual herb, scattered in grassland and savanna.

*Calyptidium monandrum* Nutt., common calyptidium (*Portulacaceae*).

Annual herb, rare in chaparral.

*Calyptidium parryi* Gray (*Portulacaceae*).

Annual herb, rare in disturbed spots; the few plants collected on Chews Ridge did not seem to fit the south Coast Range var. *hessae* Thomas very well, and the plants around Spanish Lake (fig. 3) suggested the montane *C. roseum* Wats.

*Calystegia malocophylla* (Greene) Munz ssp. *pedicellata* (Jeps.) Munz (*Convolvulaceae*).

Prostrate, perennial herb, scattered in rocky portions of the grassland and savanna.

*Camissonia benitensis* Raven (*Onagraceae*).

Small annual herb, scattered on several serpentine alluvial terraces on San Benito Mountain, listed as a rare and endangered species by the California Native Plant Society (Powell 1974). It should receive high priority for administrative protection. SAN BENITO MOUNTAIN ENDEMIC. (Raven 1969).

*Camissonia contorta* (Dougl.) Kearney (*Onagraceae*).

Small annual herb, unimportant in grassland above 1200 m. (Raven 1969).

*Camissonia graciliflora* (H. & A.) Raven (*Onagraceae*).

Annual herb, rare in grassland above 1200 m. (Raven 1969).

*Camissonia hirtella* (Greene) Raven (*Onagraceae*).

Annual herb, scattered in disturbed spots in chaparral. (Raven 1969).

*Camissonia ignota* (Jeps.) Raven (*Onagraceae*).

Annual herb, uncommon in rocky spots in chaparral and grassland. (Raven 1969).

*Camissonia luciae* Raven (*Onagraceae*).

Annual herb, uncommon in rocky spots. (Raven 1969).

*Camissonia micrantha* Raven (*Onagraceae*).

Annual herb, uncommon in disturbed spots. The species related to *C. micrantha* are difficult to distinguish in the field; *C. intermedia* Raven may have been overlooked or mistaken for *C. micrantha* or *C. hirtella*. (Raven 1969).

*Capsella bursa-pastoris* (L.) Medicus., shepherd's purse (*Cruciferae*).

Annual herb, rare in grassland. INTRODUCED.

*Carex alma* Bailey (*Cyperaceae*).

Perennial sedge, local in wet spots.

*Carex bolanderi* Olney (*Cyperaceae*).

Perennial sedge, local in wet spots.

*Carex globosa* Boott., round-fruited sedge (*Cyperaceae*).

Perennial sedge, scattered in shady, rocky spots in forest.

*Carex multicaulis* Bailey (*Cyperaceae*).

Perennial sedge, widely scattered in the forest, not at all riparian. DISJUNCT, next population to the north may be Howell Mountain, Napa County--to the south in the San Rafael Mountains, Santa Barbara County. 5/

*Carex serratodens* W. Boott., bifid sedge (*Cyperaceae*).

Local in wet places.

*Carex subfusca* W. Boott., rusty sedge (*Cyperaceae*).

Perennial sedge, local in wet spots.

*Castilleja foliolosa* H. & A., woolly painted cup (*Scrophulariaceae*).

Evergreen sub-shrub, scattered in chaparral.

5/ Smith, Clifton. 1974. A flora of the Santa Barbara Region. (Unpublished report on file, Santa Barbara Museum of Natural History, Calif.).

*Castilleja miniata* Dougl., great red paintbrush (*Scrophulariaceae*).

Perennial herb, conspicuous along all San Benito Mountain serpentine creeks. Rare elsewhere in the south Coast Ranges, next report to the north is an extinct stand at Russ Gardens marsh, San Francisco (Thomas 1961)--to the south on the Oceano sand dunes, San Luis Obispo County (Hoover 1970).

*Castilleja martinii* Abrams, Indian paintbrush (*Scrophulariaceae*).

Perennial herb, widely distributed in the more open forest and savanna. (Howitt and Howell 1973).

*Castilleja stenantha* Gray, large-flowered Indian paintbrush (*Scrophulariaceae*).

Annual herb, local in wet spots.

*Ceanothus cuneatus* (Hook.) Nutt., buckbrush (*Rhamnaceae*).

Nonsprouting evergreen shrub, common in the more interior chaparral. This small-leaved, white-flowered shrub is not very clearly separated from *C. ramulosus*.

*Ceanothus foliosus* Parry var. *medius* McMinn, wavyleaf ceanothus (*Rhamnaceae*).

Nonsprouting evergreen shrub, uncommon in chaparral of south Coast Ranges (Hoover 1970, Thomas 1961); the only report from the study peaks was by McMinn (1939) on the summit of Chews Ridge. I have not been able to find the Chews Ridge shrubs.

*Ceanothus integerrimus* H. & A., deerbrush (*Rhamnaceae*).

Sprouting deciduous shrub, widely distributed in the forest and the more mesic portions of the chaparral.

*Ceanothus oliganthus* Nutt., hairy ceanothus (*Rhamnaceae*).

Evergreen shrub, difficult to distinguish the southern California *C. oliganthus* from the northern California *C. sorediatus*. There seems to be no real difference between Monterey County plants that have been identified as either species. Hoover (1970) treated *C. sorediatus* as a var. of *C. oliganthus*.

*Ceanothus papillosus* T. & G. var. *papillosus* wartleaf ceanothus. (*Rhamnaceae*).

Evergreen shrub, widely scattered in the chaparral.

*Ceanothus ramulosus* (Greene) McMinn, coast ceanothus (*Rhamnaceae*).

Nonsprouting evergreen shrub; this vigorous, large-leaved, pale-blue-flowered shrub seems to be a coastal form of the more interior white-flowered *C. cuneatus*. Hoover (1970) treated *C. ramulosus* as a color form of *C. cuneatus*, but the Monterey County *C. ramulosus* seems to have some geographic separation from *C. cuneatus*.

*Ceanothus sorediatus* (see *C. oliganthus*)

*Centaurea melitensis* L., Tocalote (*Compositae*).

Annual herb, minor weed in grassland. INTRODUCED.

*Cerastium glomeratum* Thuill., mouse-ear chickweed (*Caryophyllaceae*).

Annual herb, unimportant in grassland. INTRODUCED.

*Cercocarpus betuloides* Nutt., California mountain-mahogany (*Rosaceae*).

Sprouting evergreen shrub or small tree, widely scattered in the chaparral but seldom dominant. Hoover (1970) treated all the southern Santa Lucia Range shrubs as part of three var. of *C. montanus* Raf. or as *C. minutiflorus* Abrams. All the shrubs examined on the study peaks seemed to fit into a single species.

*Cheilanthes covillei* Maxon, Coville lip-fern (*Pteridaceae*).

Small fern, local on rock outcrops, uncommon in south Coast Ranges (Hoover 1970).

*Cheilanthes gracillima* D. C. Eaton, lace-fern (*Pteridaceae*).

Small fern, local on rock outcrops. Uncommon in south Coast Ranges (Sharsmith 1945); the Santa Lucias are the southern limit in the Coast Ranges.

*Cheilanthes intertexta* (Maxon) Maxon,  
coastal lip-fern (*Pteridaceae*).

Small fern, local on rock outcrops.  
Uncommon in the south Coast Ranges (Bowerman  
1944, Sharsmith 1945, Thomas 1961); it is  
difficult to separate some specimens of  
this species from *C. covillei*.

*Chenopodium album* L., white pigweed  
(*Chenopodiaceae*).

Annual herb, rare weed in disturbed  
spots. INTRODUCED.

*Chimaphila menziesii* (R. Br.) Spreng.,  
western pipsissiwa (*Pyrolaceae*).

Uncommon in rocky spots in forest.  
DISJUNCT, next population to the north may  
be in Napa County--to the south in the San  
Gabriels, Los Angeles County.

*Chlorogalum pomeridianum* (DC.) Kunth, soap-  
root (*Liliaceae*).

Bulb, scattered in grassland.

*Chorizanthe douglasii* Benth., Douglas spine-  
flower (*Polygonaceae*).

Annual herb, scattered in grassland,  
particularly in bare spots or disturbed  
areas as along trails.

*Chorizanthe membranacea* Benth., pink spine-  
flower (*Polygonaceae*).

Annual herb, scattered in grassland.

*Chorizanthe staticoides* Benth., Turkish  
rugging (*Polygonaceae*).

Annual herb, uncommon in disturbed or  
open spots.

*Chrysopsis villosa* (Pursh) Nutt., hairy  
golden-aster (*Compositae*).

Perennial herb, scattered in rocky  
portions of grassland and savanna.

*Chrysothamnus nauseosus* (Pall.) Britton,  
rabbitbrush (*Compositae*).

Shrub, partly leafless by late summer,  
two distinct forms on the study peaks:

1. Ssp. *mohavensis* Hall & Clem. This  
form with glandular twigs is common in open  
spots on the San Benito Mountain serpentine,  
on Chews Ridge it is locally common in  
savanna along the summit on, or near, the

small serpentine outcrops. Uncommon else-  
where in the south Coast Ranges (Sharsmith  
1945).

2. Ssp. *albicaulis* (Nutt.) Hall & Clem.  
This form with tomentose twigs is rare in  
widely separated rocky spots, sometimes on  
serpentine as on Pine Ridge. Not previously  
reported for the south Coast Ranges.

*Cirsium californicum* Gray, Bigelow thistle  
(*Compositae*).

Tall annual or biennial herb, scattered  
in open forest and savanna.

*Cirsium proteanum* J. T. Howell, red thistle  
(*Compositae*).

Tall annual or biennial herb, scattered  
in lower elevation or more interior habitats  
than *C. californicum*.

*Clarkia bottae* (Spach) Lewis & Lewis, hill  
clarkia (*Onagraceae*).

Annual herb, scattered in grassland and  
savanna.

*Clarkia modesta* Jeps., modest clarkia  
(*Onagraceae*).

Annual herb, uncommon in savanna.

*Clarkia purpurea* (Curt.) Nels. & Macbr. ssp.  
*quadrivulnera* (Dougl.) Lewis & Lewis  
(*Onagraceae*).

Annual herb, widely scattered in grass-  
land and savanna.

*Clarkia rhomboidea* Dougl. (*Onagraceae*).

Annual herb, rare in savanna.

*Clarkia unguiculata* Lindl., canyon clarkia  
(*Onagraceae*).

Annual herb, widely scattered in open  
forest and savanna.

*Clematis lasiantha* Nutt., pipestem  
(*Ranunculaceae*).

Deciduous woody vine, scattered in  
chaparral.

*Clematis ligusticifolia* Nutt., Yerba de  
Chivata. (*Ranunculaceae*).

Deciduous woody vine, local in canyon  
bottoms and riparian habitats.

*Collinsia childii* Parry, Child blue-eyed-mary (*Scrophulariaceae*).

Annual herb, scattered in forest.

*Collinsia heterophylla* Buist., Chinese-houses (*Scrophulariaceae*).

Annual herb, scattered in savanna.

*Collomia grandiflora* Dougl., large-flowered collomia (*Polemoniaceae*).

Annual herb, scattered in savanna.

*Collomia heterophylla* Dougl., varied-leaved collomia (*Polemoniaceae*).

Annual herb, scattered in forest.

*Corallorhiza maculata* Raf., spotted coral root (*Orchidaceae*).

Saprophytic herb, scattered from Chews Ridge to Pine Ridge under the densest forest, seems to be missing from many "promising" mesic forest habitats in the Santa Lucias, next population to the south or southeast probably in Kern County (Twisselmann 1967).

*Cordylanthus rigidus* (Benth.) Jeps., birds beak (*Scrophulariaceae*).

Annual herb, widely scattered in open rocky spots, sometimes as a trail-side weed.

*Corethrogyne filaginifolia* (H. & A.) Nutt., common corethrogyne (*Compositae*).

Perennial herb, scattered in grassland and savanna.

*Cornus occidentalis* (T. & G.) Cov., western creek dogwood (*Cornaceae*).

Large deciduous shrub, rare in wet spots above 1200 m.

*Cryptantha clevelandii* Greene var. *florosa* Jtn. (*Boraginaceae*).

Annual herb.

*Cryptantha mariposae* Jtn. (*Boraginaceae*).

Annual herb, uncommon on San Benito Mountain serpentine.

*Cryptantha muricata* (H. & A.) Nels. & Macbr. var. *jonesii* (Gray) Jtn., (*Boraginaceae*).

Annual herb, scattered in open and disturbed spots.

*Cuscuta californica* H. & A., California dodder (*Cuscutaceae*).

Parasitic herbaceous vine, widely scattered on a variety of hosts; other species of dodder may have been confused with this species or overlooked.

*Cycladenia humilis* Benth. var. *venusta* (Eastw.) Woodson (*Apocynaceae*).

Low perennial herb; one colony on the summit of Junipero Serra Peak (the type locality for this var.) and three tiny colonies around the head of South Devils Canyon on Cone Peak are known in the Santa Lucias. DISJUNCT, closest population of var. *humilis* to the north is in Napa County-- to the south the closest record of this southern California var. *venusta* is in the upper Cuyama Valley, Ventura County. 6/

*Cynoglossum grande* Dougl., western houndstongue (*Boraginaceae*).

Perennial herb, unimportant in forest above 1200 m.

*Cystopteris fragilis* (L.) Bernh., brittle fern (*Aspidiaceae*).

Small fern, local on shady rock outcrops.

*Datisca glomerata* (Presl) Baill., Durango root (*Datisceae*).

Tall perennial herb, local in wet spots.

*Delphinium nudicaule* T. & G., red larkspur (*Ranunculaceae*).

Perennial herb, local in shady, rocky spots with some wet spots.

*Delphinium parryi* Gray, Parry larkspur (*Ranunculaceae*).

Perennial herb, scattered in forest and savanna.

*Delphinium patens* Benth., coast larkspur (*Ranunculaceae*).

Perennial herb, unimportant in forest and savanna above 1200 m.

6/ Smith, Clifton. 1974. A flora of the Santa Barbara Region. (Unpublished report on file, Santa Barbara Museum of Natural History, Calif.).

*Dendromecon rigida* Benth., bush poppy  
(*Papaveraceae*).

Evergreen shrub, scattered in chaparral.

*Dentaria integrifolia* Nutt., milkmaids  
(*Cruciferae*).

Perennial herb. Var. *cuneata* (Greene)  
J. T. Howell is scattered in the pine forest  
on San Benito Mountain. Var. *sinuata*  
(Greene) is rare in creek on Pine Ridge.  
Var. *californica* (Nutt.) Jepson is common  
in the mixed evergreen forest at lower  
elevations in the Santa Lucias but may not  
reach 1200 m elevation.

*Deschampsia elongata* (Hook.) Munro, slender  
hairgrass (*Gramineae*).

Perennial grass, local in wet spots.

*Dicentra chrysantha* (H. & A.) Walp., golden  
ear-drops (*Fumariaceae*).

Perennial herb, uncommon in widely  
separated rocky spots.

*Disporum hookeri* (Torr.) Nichols., fairy  
bells (*Liliaceae*).

Perennial herb, unimportant in forest  
above 1200 m.

*Dryopteris arguta* (Kaulf.) Maxon, coastal  
wood fern (*Aspidiaceae*).

Perennial fern, unimportant in forest  
above 1200 m.

*Dudleya cymosa* (Lem.) Britt. & Rose ssp.  
*minor* (Rose) Moran, (*Crassulaceae*).

Succulent perennial herb, local on rock  
outcrops; variable, more than one subspecies  
may be involved.

*Eburophyton austinae* (Gray) Heller, phantom  
orchid (*Orchidaceae*).

Saprophytic herb, rare on the study  
peaks, rare elsewhere in the south Coast  
Ranges (Thomas 1961), next population to  
the south may be in the San Bernardino  
Mountains.

*Eleocharis acicularis* (L.) R. & S. var.  
*bella* Piper, needle spikerush (*Cyperaceae*).

Tiny annual herb, abundant in Spanish  
Lake (fig. 3), population seems to be the  
annual montane form of this widely distri-  
buted marsh species.

*Eleocharis parishii* Britt. (*Cyperaceae*).

Perennial herb, abundant in Spanish  
Lake (fig. 3). (Twisselmann 1967).

*Elymus glaucus* Buckl., western ryegrass  
(*Gramineae*).

Tall perennial grass, widespread in the  
more open portions of the forest. A variable  
species, the pubescent form ssp. *jepsonii*  
(Davy) Gould is not common. Howitt and  
Howell (1973) report one collection from  
Chews Ridge. Steven N. Talley made one  
collection on Pine Ridge. Scattered plants  
with short awns approach ssp. *virescens*  
(Piper) Gould, some small plants with mostly  
one spikelet per node may be confused with  
*Agropyron*.

*Elymus triticoides* Buckl., beardless wild  
rye (*Gramineae*).

Tall perennial grass, unimportant above  
1200 m.

*Emmenanthe penduliflora* Benth., whispering  
bells (*Hydrophyllaceae*).

Annual herb, rare on study peaks, but  
after a fire or clearing this species might  
be conspicuous for 1 or 2 years, the San  
Benito Mountain plants appear to be var.  
*rosea* Brand, which is usually confined to  
serpentine (Wicklow 1966).

*Epilobium minutum* Lindl., minute willow-herb  
(*Onagraceae*).

Annual herb, uncommon in forest openings.

*Epilobium paniculatum* Nutt. ex T. & G.,  
summer cottonweed (*Onagraceae*).

Annual herb, unimportant above 1200 m.

*Epilobium watsonii* Barb. var. *franciscanum*  
(Barb.) Jeps., coast cottonweed (*Onagraceae*).

Perennial herb, local in wet spots.

*Epipactis gigantea* Dougl., stream orchid  
(*Orchidaceae*).

Perennial herb, only noticed in a spring  
near Roosevelt Creek on Junipero Serra Peak.

*Equisetum laevigatum* A. Br., California horse-  
tail (*Equisetaceae*).

Perennial herb, local in wet spots.

*Equisetum telmateia* Ehrhart, giant horsetail (*Equisetaceae*).

Perennial herb, local in wet spots.

*Eriastrum densifolium* (Benth.) Mason, many-leaved eriastrum (*Polemoniaceae*).

Perennial herb, scattered in chaparral, the plants approach ssp. *austromontanum* (Craig) Mason, which is the most montane form. The study peaks are near the northern limit for this southern California species.

*Erigeron foliosus* Nutt., leafy daisy (*Compositae*).

Perennial herb, widely distributed in open habitats.

*Erigeron petrophilus* Greene, rock daisy (*Compositae*).

Low perennial herb, local on rock outcrops.

*Eriodictyon californicum* (H. & A.) Torr., Yerba Santa (*Hydrophyllaceae*).

Evergreen shrub, widely scattered in disturbed spots in or near the chaparral.

*Eriodictyon tomentosum* Benth., woolly Yerba Santa (*Hydrophyllaceae*).

Evergreen shrub, scattered in disturbed spots, the study peaks are near the northern limit for this south Coast Range endemic.

*Eriogonum covilleum* Eastw. (*Polygonaceae*).

Annual herb, widely scattered in disturbed or open spots on San Benito Mountain serpentine. (Munz 1968).

*Eriogonum davidsonii* Greene (*Polygonaceae*).

Annual herb, variable populations widely scattered in open spots.

*Eriogonum elongatum* Benth. var. *elongatum* long-stemmed buckwheat (*Polygonaceae*).

Perennial herb, uncommon in rocky areas.

*Eriogonum fasciculatum* Benth. var. *foliolosum* (Nutt.) S. Stokes, California buckwheat (*Polygonaceae*).

Evergreen sub-shrub or shrub, widely distributed in open rocky habitats, one of the few woody plants prominent in the coastal sage scrub that continues upwards in distribution to the tops of the highest ridges.

*Eriogonum gracile* Benth., slender woolly buckwheat (*Polygonaceae*).

Annual herb, extremely variable populations widely scattered in open spots. The annual buckwheats associated with this and related species in the subgenus *Oregonium* are very difficult to separate, and many specimens do not fit described taxa. James L. Reveal (personal communication, Nov. 14, 1972, Oct. 16, 1973) called this group the most difficult in the genus and suggested that at least one new species might be described from study peak material, the San Benito Mountain populations are particularly confusing.

*Eriogonum hirtiflorum* Gray, hairy-flowered buckwheat (*Polygonaceae*).

Annual herb, not important above 1200 m. (Reveal 1970).

*Eriogonum nudum* Dougl. var. *indictum* (Jeps.) Reveal (*Polygonaceae*).

Perennial herb, uncommon in rocky spots.

*Eriogonum saxatile* Wats., rock buckwheat (*Polygonaceae*).

Perennial herb, local on very rocky spots. Rare elsewhere in the south Coast Ranges (Hoover 1970, Sharsmith 1945, Thomas 1961).

*Eriogonum spergulinum* Gray var. *reddingianum* (Jones) J. T. Howell (*Polygonaceae*).

Annual herb, not important above 1200 m.

*Eriogonum umbellatum* Torr. var. *bahiiforme* (T. & G.) Jeps., sulphur flower (*Polygonaceae*).

Perennial herb, widely distributed on serpentine on San Benito Mountain (the type locality), not reported in the Santa Lucias until 1972, when Steven N. Talley noticed it on the Pine Ridge serpentine. The study peaks are near the southern limit for this serpentine endemic variety, which is uncommon elsewhere in the south Coast Ranges (Reveal 1970, Sharsmith 1945).

*Eriophyllum confertiflorum* (DC.) Gray, golden-yarrow (*Compositae*).

Evergreen sub-shrub, widely distributed in a variety of habitats.

*Erodium cicutarium* (L.) L'Her., red-stemmed filaree (*Geraniaceae*).

Annual herb, minor in grassland.  
INTRODUCED.

*Eryngium aristulatum* Jeps., coyote-thistle (*Umbelliferae*).

Annual herb, vernal pool species common in Spanish Lake (fig. 3).

*Erysimum capitatum* (Dougl.) Greene, western wall flower (*Cruciferae*).

Perennial herb, widely scattered in rocky spots but never common.

*Eschscholzia californica* Cham. California poppy (*Papaveraceae*).

Annual or perennial herb, minor in grassland.

*Festuca rubra* L., red fescue (*Gramineae*).

Perennial grass, rare in wet spots.

*Festuca* (see *Vulpia* for annual species)

*Filago californica* Nutt., California cotton-rose (*Compositae*).

Annual herb, unimportant in grassland above 1200 m.

*Filago gallica* L., narrow-leaved filago (*Compositae*).

Annual herb, unimportant in grassland above 1200 m. INTRODUCED.

*Fremontodendron californicum* Cov., flannel bush (*Sterculiaceae*).

Evergreen shrub, uncommon in the south Coast Range chaparral (Hoover 1970, Thomas 1961). A colony in upper East San Carlos Creek canyon on San Benito Mountain approaches ssp. *crassifolium* (Eastw.) Munz in form; the Santa Lucia Range shrubs, including those at the western base of Junipero Serra Peak, were referred to ssp. *obispoense* (Eastw.) Munz by Howitt and Howell (1973).

*Fritillaria falcata* (Jeps.) D. E. Beetle (*Liliaceae*).

Bulb, restricted to serpentine near San Benito Mountain (the type locality) and the Red Mountain region of the Mount Hamilton Range (Beetle 1944, Sharsmith 1945). I have

not been able to find any San Benito Mountain plants or even any reports since Jepson's discovery. Listed as a rare and endangered species by the California Native Plant Society (Powell 1974). DIABLO RANGE ENDEMIC.

*Fritillaria lanceolata* Pursh., checker-lily (*Liliaceae*).

Bulb, uncommon in several forest habitats.

*Fritillaria viridea* Kell. (*Liliaceae*).

Bulb, widely scattered on San Benito Mountain serpentine (the type locality). The plant also occurs on some Santa Lucia Range serpentine habitats and should be looked for on Pine Ridge. Munz (1959) included this species with *F. lanceolata*.

*Galium andrewsii* Gray, phlox-leaved bedstraw (*Rubiaceae*).

Low perennial herb; the glabrous diploid (n=11) form, ssp. *andrewsii* is scattered in widely separated parts of both Diablo and Santa Lucia Ranges. All the specimens I collected from the San Benito Mountain serpentine were the variable pubescent octoploid (n=44) form, ssp. *gatense* (Demp.) Demp. & Steb. (Dempster and Stebbins 1968).

*Galium angustifolium* Nutt. ssp. *angustifolium* (*Rubiaceae*).

Suffrutescent perennial, scattered on rocky south exposures. The study peaks are near the northern limit for this southern California species (Dempster and Stebbins 1971).

*Galium aparine* L., goose-grass (*Rubiaceae*).

Annual herb, scattered under dense hardwood forests. INTRODUCED.

*Galium californicum* H. & A., California bedstraw (*Rubiaceae*).

Perennial herb, an extremely variable species complex in the Santa Lucias (Dempster and Stebbins 1968); at least two subspecies occur on the study peaks:

1. Ssp. *flaccidum* (Greene) Demp. & Steb. Widely scattered in a variety of forest habitats, an extremely variable octoploid (n=44) form of the species.

2. Ssp. *luciense* Demp. & Steb. In appearance this tetraploid (n=22) form is sort of intermediate between *G. californicum* ssp. *flaccidum* and *G. clementis*. The bulk of

this subspecies' distribution is on Cone Peak above 1200 m. It is probably the rarest of the Santa Lucia Range endemic taxa on the study peaks. A few plants near *G. clementis* colonies on Ventana Double Cone have been tentatively assigned to ssp. *luciense* by Lauramay Dempster. Listed as a rare and endangered plant by the California Native Plant Society (Powell 1974). SANTA LUCIA RANGE ENDEMIC.

*Galium clementis* Eastw., Santa Lucia bedstraw (*Rubiaceae*).

Low matted, perennial herb, distribution is largely confined to three study peaks with the most plants on Cone Peak, listed as a rare and endangered species by the California Native Plant Society (Powell 1974). (Dempster and Stebbins 1968). SANTA LUCIA RANGE ENDEMIC.

*Galium nuttallii* Gray ssp. *ovalifolium* (Demp.) Demp. & Steb., climbing bedstraw (*Rubiaceae*).

Perennial herbaceous vine, scattered in chaparral and dry forest openings.

*Garrya congdoni* Eastw. interior silk-tassle (*Garryaceae*).

Evergreen shrub, this serpentine endemic has been reported in San Benito County (Sharsmith 1945) and the adjacent Diablo Range of Monterey County (Howitt and Howell 1964) and Fresno County. Some of the San Benito Mountain shrubs approach this species, but they could also be placed in the variable *G. flavescens*.

*Garrya flavescens* Wats. var. *pallida* (Eastw.) Bacig. ex Ewan, ashy silk-tassle (*Garryaceae*).

Evergreen shrub, widely distributed in the chaparral but seldom common in any one spot. Differences between the Santa Lucia Range shrubs and the Diablo Range shrubs on serpentine that have been called *G. congdoni* appear to be slight.

*Gayophytum heterozygum* Lewis & Szweykowski (*Onagraceae*).

Annual herb, uncommon in forest openings. DISJUNCT, closest population is probably in the San Rafael Mountains, Santa Barbara County (Smith 1974). (Howitt and Howell 1973).

*Gilia achilleaefolia* Benth., California *gilia* (*Polemoniaceae*).

Annual herb, uncommon in savanna and grassland.

*Gilia clivorum* (Jeps.) V. Grant (*Polemoniaceae*).

Annual herb, minor in grassland.

*Gilia splendens* Dougl. (*Polemoniaceae*).

Annual herb, uncommon in savanna and forest openings, the study peaks are near the northern limit for the species.

*Gilia tenuiflora* Benth. (*Polemoniaceae*).

Annual herb, not important above 1200 m, difficult to distinguish from *G. splendens*, Hoover (1970) did not recognize *G. splendens* in the southern Santa Lucias.

*Gnaphalium beneolens* A. Davids., fragrant everlasting (*Compositae*).

Perennial herb, scattered in rocky spots, difficult to separate from *G. microcephalum* Nutt.

*Gutierrezia bracteata* Abrams, San Joaquin matchweed (*Compositae*).

Small evergreen shrub, not important above 1200 m (Solbrig 1965).

*Habenaria elegans* (Lindl.) Boland., slender habenaria (*Orchidaceae*).

Perennial herb, scattered in shady forest habitats.

*Haplopappus squarrosus* H. & A., sawtooth goldenbush (*Compositae*).

Small evergreen shrub, local on rocky spots.

*Helenium puberulum* DC., rosilla (*Compositae*).

Perennial herb, local in wet spots.

*Hemitomes congestum* Gray, gnome plant (*Pyrolaceae*).

Saprophyte, one plant seen under scrubby mixed evergreen forest on Ventana Double Cone at 1200 m elevation, all California reports of this species concern low elevation redwood forest habitats.

*Hemizonia paniculata* Gray, San Diego tarweed (*Compositae*).

Annual herb, uncommon on San Benito Mountain serpentine. Hoover (1970) assigned some San Luis Obispo plants on serpentine to ssp. *paniculata*. The San Benito collection seems to be a rather interior and northward extension of this typical subspecies (Munz 1959).

*Heracleum maximum* Bartram, cow-parsnip (*Umbelliferae*).

Tall perennial herb, local in wet spots. (Howitt and Howell 1973).

*Hesperolinon disjunctum* H. K. Sharsm. (*Linaceae*).

Annual herb, scattered on San Benito Mountain serpentine, a serpentine endemic of the inner Coast Ranges (Sharsmith 1961).

*Hesperolinon micranthum* (Gray) Small, small-flowered dwarf-flax (*Linaceae*).

Annual herb, scattered on Pine Ridge serpentine, often on serpentine in the Santa Lucia Range (Sharsmith 1961).

*Heteromeles arbutifolia* M. Roem., toyon (*Rosaceae*).

Evergreen shrub or small tree, scattered in chaparral.

*Hieracium albiflorum* Hook., white-flowered hawkweed (*Compositae*).

Perennial herb, scattered in coniferous forests.

*Hieracium argutum* Nutt. var. *parishii* (Gray) Jeps. (*Compositae*).

Perennial herb, local in rocky spots. Some of the most common and variable plants are on Pine Ridge--just above the Big Sur Canyon where hybrids between this species and *H. albiflorum* have been reported (Anderson and Stebbins 1954). The study peaks are near the northern limits for this species.

*Holodiscus discolor* (Pursh) Maxim., cream bush (*Rosaceae*).

Tall deciduous shrub, an important understory shrub in parts of the mixed evergreen forest at lower elevation but unimportant above 1200 m.

*Holodiscus microphyllus* Rydb. (*Rosaceae*).

Low deciduous shrub, scattered on rocky ridgetops. There is some question as to how clearly this is isolated from *H. discolor*. DISJUNCT, the next population to the north may be in Mendocino County--to the southeast in Tulare County. Some Santa Barbara County plants resemble this species. 7/

*Hordeum californicum* Covas & Steb., California barley (*Gramineae*).

Perennial bunchgrass, uncommon in seasonally wet spots.

*Hordeum glaucum* Steud., wall barley (*Gramineae*).

Annual grass, minor weed in disturbed spots. INTRODUCED.

*Hulsea heterochroma* Gray, red-eyed hulsea (*Compositae*).

Perennial herb, rare in disturbed spots.

*Hypericum formosum* HBK. var. *scouleri* (Hook.) Coult., Scouler St. Johns wort (*Hypericaceae*).

Perennial herb, local in wet spots.

*Juncus bufonius* L. toad rush (*Juncaceae*).

Annual herb, scattered in seasonally wet spots.

*Juncus effusus* L. var. *pacificus* Fern. & Wieg. (*Juncaceae*).

Perennial herb, local in wet spots.

*Juncus patens* E. Mey., common rush (*Juncaceae*).

Perennial herb, local in wet spots.

*Juncus rugulosus* Engelm. (*Juncaceae*).

Tall perennial herb, local in wet spots.

---

7/ Smith, Clifton. 1974. A flora of the Santa Barbara Region. (Unpublished report on file, Santa Barbara Museum of Natural History, Calif.).

*Juniperus californica* Carr., California juniper (*Cupressaceae*).

Large evergreen shrub, scattered in the non-serpentine savanna at lower elevation on San Benito Mountain but unimportant above 1200 m.

*Koeleria macrantha* (Ledeb.) Sreng., June-grass (*Gramineae*).

Perennial bunchgrass, minor in grassland.

*Lactuca serriola* L. prickly lettuce (*Compositae*).

Annual herb, minor weed in disturbed spots. INTRODUCED.

*Lathyrus vestitus* Nutt. ssp. *puberulus* (White) C. L. Hitch. (*Leguminosae*).

Perennial herbaceous vine, widely scattered in forest habitats.

*Layia discoidea* Keck, rayless layia (*Compositae*).

Small annual herb, restricted to a few serpentine sites on San Benito Mountain, recognized as a rare and endangered species by the California Native Plant Society (Powell 1974). This species was an important example in the development of bio-systematics (Keck 1957). It should have high priority for administrative protection. SAN BENITO MOUNTAIN ENDEMIC.

*Lepechinia calycina* (Benth.) Epl., pitcher sage (*Labiatae*).

Aromatic, suffrutescent perennial, uncommon in chaparral.

*Lewisia rediviva* Pursh., bitterroot (*Portulacaceae*).

Acaulescent perennial herb, rare on San Benito Mountain serpentine, rare elsewhere in the south Coast Ranges where it is often, but not always, associated with serpentine (Bowerman 1944, Hoover 1970, Sharsmith 1945, Thomas 1961).

*Libocedrus decurrens* Torr., incense-cedar (*Cupressaceae*).

Evergreen tree, in the Santa Lucias incense-cedar is concentrated in canyon bottoms or shady ravines except for the trees on the exposed serpentine of Pine

Ridge. On San Benito Mountain this tree is widely distributed on exposed upland slopes. Alice Eastwood's (1897) suggestion that extensive logging of incense-cedar occurred on "Santa Lucia Peak" seems improbable. If the San Antonio Mission builders used incense-cedar (it is not clear that they did), they may have cut the relatively accessible trees along the Arroyo Seco Creek near Memorial Park. I doubt that the Mission builders used trees from either the Cone Peak or Junipero Serra Peak forests. There remains, however, a problem of who produced the few mysterious stumps near the head of Santa Lucia Creek (H. B. Cahill [personal communication, Jan. 29, 1974]). The San Benito Mountain forest was heavily logged for mine timbers <sup>8/</sup> (Brewer n/d, Jepson n/d, Griffin 1974a). DISJUNCT, closest stand to the north is in northern Napa County--to the south in the Sierra Madre, Santa Barbara County (Griffin and Critchfield 1972).

*Lilium pardalinum* Kell., tiger lily (*Liliaceae*).

Bulb, local in wet spots.

*Linanthus ambiguus* (Rattan) Greene, serpentine linanthus (*Polemoniaceae*).

Annual herb, scattered on serpentine on San Benito Mountain, largely a serpentine endemic in the inner Coast Ranges.

*Linanthus androsaceus* (Benth.) Greene, shower gilia (*Polemoniaceae*).

Annual herb, widely distributed in open spots, most of the described subspecies do not seem very helpful locally, but the bright yellow form, ssp. *luteus* (Benth.) Mason was quite distinct on Chews Ridge although uncommon.

*Linanthus ciliatus* (Benth.) Greene, whisker brush (*Polemoniaceae*).

Annual herb, unimportant above 1200 m.

*Linanthus liniflorus* (Benth.) Greene, flax-flowered linanthus (*Polemoniaceae*).

Annual herb, unimportant above 1200 m.

<sup>8/</sup> Sloane, N. H. 1914. Resources and plan of operation of Monterey National Forest. (Unpublished report on file. Los Padres National Forest, King City, Calif.).

*Linum lewisii* Pursh., blue flax (*Linaceae*).

Perennial herb, widely distributed in serpentine on San Benito Mountain, rare elsewhere in the south Coast Ranges (Hoover 1970).

*Lithocarpus densiflorus* (H. & A.) Rehd., tan-oak (*Fagaceae*).

Evergreen tree, vigorous sprouter, important dominant in the mixed evergreen forest.

*Lithophragma affinis* Gray., woodland star (*Saxifragaceae*).

Perennial herb, unimportant above 1200 m.

*Lithophragma heterophyllum* (H. & A.) T. & G., hill star (*Saxifragaceae*).

Perennial herb, scattered in savanna habitats.

*Lomatium dasycarpum* (T. & G.) Coult. & Rose, lace-parsnip (*Umbelliferae*).

Perennial herb, uncommon in savanna and forest openings.

*Lomatium macrocarpum* (H. & A.) Coult. & Rose, sheep-parsnip (*Umbelliferae*).

Perennial herb, uncommon on serpentine outcrops.

*Lonicera hispidula* Dougl., hairy honeysuckle (*Caprifoliaceae*).

Evergreen woody vine, appears to reach 1200 m only on Ventana Double Cone where it is rare in the chaparral.

*Lonicera interrupta* Benth., chaparral honeysuckle (*Caprifoliaceae*).

Evergreen woody vine, widely distributed in chaparral.

*Lonicera subspicata* H. & A. var. *johnstonii* Keck, southern honeysuckle (*Caprifoliaceae*).

Evergreen woody vine, scattered in more interior areas than *L. interrupta*, not very clearly separated from *L. interrupta*.

*Lotus argophyllus* (Gray) Greene var. *fremontii* (Gray) Ottley, silver-leaved lotus (*Leguminosae*).

Low perennial herb, scattered in rocky spots. Some of the local plants do not fit var. *fremontii* too well. The study peaks are near the northern limit in the Coast

Ranges, the next population to the south may be in Kern County (Twisselmann 1967), var. *decorus* (Jtn.) Ottley occurs in Santa Barbara County. 9/ DISJUNCT.

*Lotus crassifolius* (Benth.) Greene, broad-leaved lotus (*Leguminosae*).

Tall perennial herb, scattered in disturbed spots in the chaparral.

*Lotus grandiflorus* (Benth.) Greene var. *mutabilis* Ottley, chaparral lotus (*Leguminosae*).

Perennial herb, scattered in rocky spots, sometime appearing as a trail-side weed.

*Lotus humistratus* Greene, short-podded lotus (*Leguminosae*).

Annual herb, minor in grassland.

*Lotus micranthus* Benth., hill lotus (*Leguminosae*).

Annual herb, minor in grassland.

*Lotus oblongifolius* (Benth.) Greene, narrow-leaved lotus (*Leguminosae*).

Tall perennial herb, local in wet spots.

*Lotus purshianus* (Benth.) Clem. & Clem., Spanish-clover (*Leguminosae*).

Annual herb, minor in grassland.

*Lotus scoparius* (Nutt.) Ottley, deer-weed (*Leguminosae*).

Suffrutescent perennial, scattered along trails and disturbed spots or in openings in the chaparral.

*Lotus strigosus* (Nutt.) Greene, bishop lotus (*Leguminosae*).

Annual herb, minor in grassland.

*Lotus subpinnatus* Lag, California lotus (*Leguminosae*).

Annual herb, unimportant in grassland above 1200 m.

9/ Smith, Clifton. 1974. A flora of the Santa Barbara Region. (Unpublished report on file, Santa Barbara Museum of Natural History, Calif.).

*Lupinus abramsii* C. P. Smith (*Leguminosae*).

Evergreen mat or low shrub, widely distributed, may not be clearly isolated from *L. albifrons* in some places. Hoover (1970) treated it as a var. of *L. albifrons*.  
SANTA LUCIA RANGE ENDEMIC.

*Lupinus albifrons* Benth., silver lupine (*Leguminosae*).

Evergreen shrub, appears in lower, more interior habitats than the nearly prostrate *L. abramsii*, not important above 1200 m.

*Lupinus bicolor* Lindl. (*Leguminosae*).

Annual herb, scattered in grassland.

*Lupinus cervinus* Kell., deer lupine (*Leguminosae*).

Perennial herb, widely scattered but never common in forest habitats. First collected by William Lobb in 1850 probably near Cone Peak. Listed as a rare and endangered species by the California Native Plant Society (Powell 1974). SANTA LUCIA RANGE ENDEMIC.

*Lupinus formosus* Greene var. *bridgesii* (Wats.) Greene, lunaria lupine (*Leguminosae*).

Perennial herb, uncommon in rocky spots.

*Lupinus hirsutissimus* Benth., stinging lupine (*Leguminosae*).

Annual herb, widely scattered on rocky spots at lower elevations but rare above 1200 m.

*Lupinus nanus* Dougl., sky lupine (*Leguminosae*).

Annual herb, scattered in grassland.

*Madia elegans* D. Don., common madia (*Compositae*).

Annual herb, widely scattered. The plants that Willis L. Jepson collected on Junipero Serra Peak have been referred to a montane form, ssp. *wheeleri* (Gray) Keck. (Howitt and Howell 1973).

*Madia exigua* (SM.) Gray, little tarweed (*Compositae*).

Small annual herb, unimportant above 1200 m.

*Madia gracilis* (Sm.) Keck, gumweed (*Compositae*).

Annual herb, widely scattered in grassland and savanna on Chews Ridge.

*Madia madioides* (Nutt.) Greene, woodland madia (*Compositae*).

Perennial herb, uncommon above 1200 m.

*Malacothrix floccifera* (DC.) Blake, woolly malacothrix (*Compositae*).

Annual herb, widespread on San Benito Mountain serpentine, but unimportant on the Santa Lucia peaks.

*Malacothrix saxatilis* (Nutt.) T. & G. var. *commutata* (T. & G.) Ferris cliff malacothrix (*Compositae*).

Perennial herb, rare on rock outcrops.

*Marah fabaceus* (Nand.) Greene, common manroot or wild cucumber (*Cucurbitaceae*).

Perennial vine with annual shoots, widely distributed near chaparral margins.

*Medicago polymorpha* L., bur-clover (*Leguminosae*).

Annual herb, minor in grassland.  
INTRODUCED.

*Melica aristata* Thurb. (*Gramineae*).

Perennial grass, several collections in the University of California Herbarium from Chews Ridge (G. L. Stebbins & L. A. Snyder #3767, and C. Hardham #6191B) have been labeled as this species. But the separation between the long-awned *M. aristata* and the shorter-awned *M. harfordii* is not very satisfactory in the Santa Lucias. A Cone Peak specimen in the Jepson Herbarium was annotated as intermediate between these species. Hoover (1970) treated *M. aristata* as a var. of *M. harfordii* in the southern Santa Lucias. Twisselmann (1967) reported only one colony of *M. aristata* in Kern County.

*Melica californica* Scribn., western melic (*Gramineae*).

Perennial bunchgrass, minor in grassland.

*Melica geyeri* Munro, geyer onion-grass  
(Gramineae).

Perennial grass, rare in shady forest habitats on Chews Ridge. The study peaks are near the southern limit, only one colony reported in San Luis Obispo County (Hoover 1970).

*Melica harfordii* Bol., Harford melic  
(Gramineae).

Perennial grass, scattered in forest habitats (see note on *M. aristata*).

*Melica imperfecta* Trin., small-flowered melic  
(Gramineae).

Perennial grass, widely distributed, particularly in rocky spots.

*Melica stricta* Bol., rock melic (Gramineae).

Perennial grass, rare along upper Sawmill Creek (fig. 3), probably rare elsewhere in the south Coast Ranges. The next closest locality is in the San Rafael Mountains. <sup>10/</sup> DISJUNCT.

*Melica torreyana* Scribn., Torrey melic  
(Gramineae).

Perennial grass, scattered on serpentine outcrops on summit of San Benito Mountain. Often associated with serpentine in the south Coast Ranges (Hoover 1970).

*Mentzelia gracilentia* T. & G., slender stick-leaf (Loasaceae).

Annual herb, minor in grassland on San Benito Mountain.

*Mentzelia laevicaulis* (Dougl.) Torr., blazing star (Loasaceae).

Biennial herb, uncommon in disturbed spots.

*Mentzelia micrantha* (H. & A.) T. & G., San Luis stickleaf (Loasaceae).

Annual herb, uncommon in disturbed spots.

*Mentzelia pinetorum* Heller (Loasaceae).

Annual herb, unimportant above 1200 m. (Howitt and Howell 1973).

*Mentzelia veatchiana* Kell., (Loasaceae).

Annual herb, rare in disturbed spots on Chews Ridge. (Howitt and Howell 1973).

*Micropus californicus* F. & M., slender cottonweed (Compositae).

Small annual herb, minor in grassland.

*Microseris linearifolia* (Nutt.) Sch-Bip.  
(Compositae).

Annual herb, scattered in grassland.

*Microsteris gracilis* (Dougl.) Greene, annual phlox (Polemoniaceae).

Annual herb, scattered in grassland.

*Mimulus bifidus* Penn., ssp. *fasciculatus* Penn., Santa Lucia sticky monkey-flower (Scrophulariaceae).

Small evergreen shrub, widely distributed in chaparral and along forest margins. This species is mainly endemic to the Santa Lucias, but some plants do occur in San Benito County (Howitt and Howell 1973).

*Mimulus cardinalis* Dougl., scarlet monkey-flower (Scrophulariaceae).

Annual herb, local in wet spots.

*Mimulus floribundus* Dougl., floriferous monkey-flower (Scrophulariaceae).

Small annual herb, local in seasonally wet spots.

*Minulus fremontii* (Benth.) Gray, Fremont monkey-flower (Scrophulariaceae).

Annual herb, scattered in open areas (see note on *M. subsecundus*).

*Mimulus guttatus* Fisch., common monkey-flower (Scrophulariaceae).

Annual or perennial herb, local in wet spots, a small form is very abundant along all the San Benito Mountain creeks.

*Mimulus pilosus* (Benth.) Wats., downy mimethanthe (Scrophulariaceae).

Small annual herb, local in wet spots.

<sup>10/</sup> Smith, Clifton. 1974. A flora of the Santa Barbara Region. (Unpublished report on file, Santa Barbara Museum of Natural History, Calif.).

*Mimulus subsecundus* Gray (*Scrophulariaceae*).

Annual herb; it is difficult to separate this species from *M. fremontii*. Hoover (1970) considered this to be a small flowered form of *M. fremontii*; an undescribed, small, pink flowered monkey-flower may be complicating this situation in the Santa Lucias.

*Mollugo verticillata* L., Indian chickweed (*Aizoaceae*).

Small annual herb, common around Spanish Lake (fig. 3). INTRODUCED.

*Monardella benitensis* Hardham (*Labiatae*).

Aromatic perennial herb, an interior serpentine form of the *M. villosa* complex (Hardham 1966). Widely scattered on San Benito Mountain, according to Clare Hardham (personal communication, July 30, 1970) diploid plants are scattered along Clear Creek on "jadeite and asbestos serpentine" with tetraploids on the higher ridges on "ordinary" serpentine. Listed as a rare and endangered species by the California Native Plant Society (Powell 1974). DIABLO RANGE ENDEMIC.

*Monardella douglasii* Benth., Fenestra monardella (*Labiatae*).

Extremely aromatic annual herb, scattered on San Benito Mountain serpentine, this species is usually restricted to serpentine in the Coast Ranges.

*Monardella villosa* Benth., coyote mint (*Labiatae*).

Aromatic perennial herb, widely distributed, a variable species with most of the plants on the Santa Lucia peaks approaching ssp. *subserata* (Greene) Epl.

*Montia perfoliata* (Donn) Howell, miner's-lettuce (*Portulacaceae*).

Succulent, annual herb, widely distributed in shady habitats, particularly under oaks. A variable species, some populations on San Benito Mountain serpentine fit var. *nubigena* (Greene) Jeps.

*Montia spathulata* (Dougl.) Howell var. *exigua* (T. & G.) Rob. (*Portulacaceae*).

Small succulent annual herb, uncommon in widely separated localities. The distinctive var. *tenuifolia* (T. & G.) Munz also occurs on San Benito Mountain below 1200 m, perhaps above. This species may hybridize with *M. perfoliata* on Chews Ridge.

*Muhlenbergia asperifolia* (Nees & Mey.) Parodi., scratch grass (*Gramineae*).

Perennial grass, common along creeks on San Benito Mountain, uncommon elsewhere in the south Coast Ranges (Raven 1957).

*Navarretia mellita* Greene, honey-scented navarretia (*Polemoniaceae*).

Annual herb, uncommon in grassland.

*Navarretia pubescens* (Benth.) H. & A. (*Polemoniaceae*).

Annual herb, scattered on San Benito Mountain serpentine, a south Coast Range serpentine endemic.

*Nemocladus secundiflorus* Robbins (*Campanulaceae*).

Annual herb, unimportant above 1200 m.

*Nemophila menziesii* H. & A., baby blue-eyes (*Hydrophyllaceae*).

Annual herb, scattered in grassland and savanna.

*Nemophila parviflora* Dougl., small-flowered nemophila (*Hydrophyllaceae*).

Annual herb, unimportant above 1200 m.

*Nemophila pulchella* Eastw. (*Hydrophyllaceae*).

Annual herb, scattered in forest and savanna.

*Nicotiana attenuata* Torr., mountain Indian tobacco (*Solanaceae*).

Annual herb, Raven (1957) found this "basically Great Basin" plant on Santa Rita Peak (fig. 3), uncommon elsewhere in the south Coast Ranges (Sharsmith 1945).

*Oenothera hookeri* T. & G. ssp. *hookeri* evening primrose (*Onagraceae*).

Perennial herb, local in wet spots.

*Oenothera* (for annual species see *Camissonia*)

*Orobanche bulbosa* (Gray) G. Beck., chaparral broomrape (*Orobanchaceae*).

Root parasite, only a few plants seen along chaparral margins, but the plant is probably more common.

*Orobanche fasciculata* Nutt. var. *franciscana* Achey, clustered broomrape (*Orobanchaceae*).

Only a few plants seen along chaparral margins, but the plant is probably more common.

*Orthocarpus purpurascens* Benth., escobita (*Scrophulariaceae*).

Annual herb, scattered in the grassland.

*Osmaronia cerasiformis* (T. & G.) Greene, oso berry (*Rosaceae*).

Deciduous shrub, scattered in shady canyons at lower elevations, rare above 1200 m.

*Osmorhiza brachypoda* Torr., California cicely (*Umbelliferae*).

Perennial herb, scattered in a variety of forest habitats.

*Osmorhiza chilensis* H. & A., wood cicely (*Umbelliferae*).

Perennial herb, scattered in a variety of forest habitats, perhaps more common than *O. brachypoda*.

*Parnassia palustris* L. var. *californica* Gray, California grass-of-parnassus (*Saxifragaceae*).

Perennial herb, uncommon riparian plant, sometimes on serpentine as on San Benito Mountain.

*Pedicularis densiflora* Benth. Indian warrior (*Scrophulariaceae*).

Perennial herb, locally common on the sandstone ridge north of Cone Peak, not noticed above 1200 m on other parent materials.

*Pellaea andromedaefolia* (Kaulf.) Fée, coffee fern (*Pteridaceae*).

Perennial herb, scattered on partly shaded rocky spots.

*Pellaea mucronata* (D. C. Eat.) D. C. Eat., birdsfoot fern (*Pteridaceae*).

Perennial herb, scattered on exposed rocky spots, more common above 1200 m than *P. andromedaefolia*.

*Penstemon breviflorus* Lindl., bush beard-tongue (*Scrophulariaceae*).

Evergreen shrub, widely distributed in open spots.

*Penstemon centranthifolius* Benth., scarlet bugler (*Scrophulariaceae*).

Perennial herb, widely distributed in forest or chaparral openings and rocky portions of grassland.

*Penstemon corymbosus* Benth., red penstemon (*Scrophulariaceae*).

Low evergreen mat-forming shrub, local on rock outcrops. Cone Peak is near the southern limit for this species, it was first collected by Thomas Coulter, probably in the Cone Peak region (McMinn 1939).

*Penstemon grinnellii* Eastw. ssp. *scrophularioides* (Jones) Munz, Grinnell penstemon (*Scrophulariaceae*).

Suffrutescent perennial, scattered on Chews Ridge, one plant seen on San Benito Mountain, uncommon elsewhere in the south Coast Ranges (McMinn 1939).

*Penstemon heterophyllus* Lindl. ssp. *australis* (M. & J.) Keck, chaparral penstemon (*Scrophulariaceae*).

Perennial herb, widely scattered but never common.

*Phacelia brachyloba* (Benth.) Gray, short-lobed phacelia (*Hydrophyllaceae*).

Annual herb, a few plants noticed in disturbed spots. Hoover (1970) described this species as abundant after fires in the southern Santa Lucias. The study peaks are near the northern limit for the species.

*Phacelia curvipes* Torr. var. *macrantha* (Parish) Munz (*Hydrophyllaceae*).

Annual herb, Howitt and Howell (1964) reported this plant (as *P. davidsonii* Gray) on the top of Chews Ridge. Hoover (1970) treated *P. curvipes* as part of *P. douglasii*, and it is possible that the *P. davidsonii* report is based on the same plants as *P. douglasii* in this list.

*Phacelia distans* Benth., wild heliotrope (*Hydrophyllaceae*).

Annual herb, unimportant above 1200 m.

*Phacelia divaricata* (Benth.) Gray (*Hydrophyllaceae*).

Annual herb, scattered on serpentine on San Benito Mountain.

*Phacelia douglasii* (Benth.) Torr., Douglas phacelia (*Hydrophyllaceae*).

Annual herb, scattered in dry rocky spots in grassland and chaparral openings.

*Phacelia egea* (Greene) Const. (*Hydrophyllaceae*).

Perennial herb, widely scattered in rocky openings in the forest. This tetraploid ( $n=22$ ) form is sometimes difficult to distinguish from the closely related, mostly diploid ( $n=11$ ) *P. imbricata* (Heckard 1960).

*Phacelia grisea* Gray, Santa Lucia phacelia (*Hydrophyllaceae*).

Annual herb, uncommon in disturbed spots in the chaparral, the study peaks are near the northern limit for this species.

*Phacelia imbricata* Greene ssp. *imbricata* (*Hydrophyllaceae*).

Perennial herb, widely scattered, often grows with the closely related *P. egea* (see *P. egea* note).

*Phacelia malvifolia* Cham. var. *loasifolia* (Benth.) Brand, stinging phacelia (*Hydrophyllaceae*).

Annual herb, scattered in rocky openings in the forest.

*Phacelia ramosissima* Dougl., branching phacelia (*Hydrophyllaceae*).

Perennial herb, scattered in widely separated spots on Chews Ridge, not noticed elsewhere, the plants approach var. *suffrutescens* Parry.

*Phoradendron juniperinum* Engelm. ssp. *libocedri* Engelm., mistletoe (*Viscaceae*).

Shoot parasite, scattered on incense-cedar on San Benito Mountain (Raven 1957), not reported on the Santa Lucia Range incense-cedars. DISJUNCT.

*Phoradendron villosum* Nutt., mistletoe (*Viscaceae*).

Shoot parasite, widely scattered on several oak species, above 1200 m the most common host was *Quercus chrysolepis*.

*Pinus attenuata* Lemm., knobcone pine (*Pinaceae*).

Small evergreen tree, locally common in chaparral at lower elevations, it reaches

1200 m only on the sandstone outcrops north of Cone Peak.

*Pinus coulteri* D. Don, Coulter pine (*Pinaceae*).

Evergreen tree, widely distributed, the most common pine on the study peaks. Thomas Coulter's type collection probably came from the ridge north of Cone Peak, but Alice Eastwood seems to have been under the impression that Coulter's collection came from Junipero Serra Peak. Her wish to see the type locality was a major reason for climbing the peak in 1893 (Eastwood n/d). (Zobel 1953).

*Pinus jeffreyi* Grev & Balf., Jeffrey pine (*Pinaceae*).

Evergreen tree, scattered on San Benito Mountain, the only native stand in the south Coast Ranges. Closest trees to the north are in northern Lake County--to the south in the San Rafael Mountains, Santa Barbara County (Griffin and Critchfield 1972). This pine was probably more dominant on San Benito Mountain prior to the heavy logging for mine timbers (Griffin 1974a). In February 1909 Jeffrey pine seedlings were planted on some 4 ha in two spots in the savanna on the summit of Chews Ridge. <sup>11/</sup> These Chews Ridge plantations have been mistaken for native stands (Zobel 1951a, 1952). In October 1910 Jeffrey pine seedlings were planted on some 20 ha of bare serpentine on Clear Creek, San Benito Mountain. <sup>11/</sup> No one in recent times has suspected this addition of nonlocal Jeffrey pines to the native San Benito Mountain forest. The seedlings for these early plantations were probably raised in nurseries on the Santa Barbara National Forest, but no records of the seed origin can be found. DISJUNCT.

*Pinus coulteri* X *P. jeffreyi*. Hybrids between these two pines are scattered on San Benito Mountain (Zobel 1951b). There may be more hybrids now than "pure" Jeffrey pine parents on parts of the area. Zobel (1951a) found a few hybrids in the Jeffrey pine plantations on Chews Ridge, the oldest hybrids may be the same age as the plantation, and perhaps these hybrids were inadvertently planted along with the Jeffrey pine seedlings in 1909 (see *Pinus jeffreyi* note). (Little and Righter 1965).

<sup>11/</sup> Sloane, N. H. 1914. Resources and plan of operation of Monterey National Forest. (Unpublished report on file. Los Padres National Forest, King City, Calif.).

*Pinus lambertiana* Dougl., sugar pine  
(*Pinaceae*).

Large evergreen tree, magnificent old-growth trees are common in the Cone Peak region and on Junipero Serra Peak. David Douglas discovered this pine in Oregon, but he first saw the tree in California near Cone Peak (Hooker 1836). The closest stand to the north is near Mt. St. Helena, Lake County--to the south in the San Rafael Mountains, Santa Barbara County (Griffin and Critchfield 1972). DISJUNCT.

*Pinus ponderosa* Laws., ponderosa pine  
(*Pinaceae*).

Large evergreen tree, widely scattered in the Santa Lucias, but more often dominant just below the 1200 m level than on the higher ridges. Although no recognizable ponderosa pines have been found on San Benito Mountain, some of the Jeffrey pines there have cones that suggest ponderosa pine characters. A few of the San Benito Jeffrey pines may also have some biochemical relationships with ponderosa pine (Brown 1972).

*Pinus sabiniana* Dougl., Digger pine  
(*Pinaceae*).

Evergreen tree, widely scattered on San Benito Mountain, both on and off serpentine; although common in parts of the Santa Lucias, no trees were noticed above 1200 m (Griffin 1964, 1965, 1974a).

*Pityrogramma triangularis* (Kaulf.) Maxon,  
gold-back fern (*Pteridaceae*).

Small fern with annual fronds, widely distributed in dry rocky, but partly shaded spots.

*Plagiobothrys nothofulvus* (Gray) Gray, popcorn flower (*Boraginaceae*).

Annual herb, minor in grassland.

*Poa annua* L., annual bluegrass (*Gramineae*).

Small annual grass, minor in seasonally wet spots in grassland and savanna.  
INTRODUCED.

*Poa howellii* Vasey & Scribn., Howell bluegrass (*Gramineae*).

Annual grass, rare on Ventana Double Cone.

*Poa scabrella* (Thurb.) Benth., pine bluegrass  
(*Gramineae*).

Perennial bunchgrass, scattered in grassland and savanna.

*Polygala californica* Nutt., California milkwort (*Polygonaceae*).

Perennial herb, unimportant above 1200 m.

*Polypodium californicum* Kaulf., California polypody (*Polypodiaceae*).

Small fern with annual fronds, local on shady rock outcrops.

*Polypogon monspeliensis* (L.) Desf., rabbit-foot grass (*Gramineae*).

Annual grass, local in wet places.  
INTRODUCED.

*Polystichum munitum* (Kaulf.) Presl., sword fern (*Aspidiaceae*).

Fern with perennial fronds, widely distributed in forest habitats but seldom common above 1200 m. Most plants on the study peaks have rachises with reduced scales and probably fit ssp. *curtum* Ewan.

*Potentilla glandulosa* Lindl., sticky cinquefoil (*Rosaceae*).

Perennial herb, scattered in open forest and savanna.

*Prunus emarginata* (Dougl.) Walp., bitter cherry (*Rosaceae*).

Tall deciduous shrub, uncommon in rocky ravines or creek bottoms.

*Prunus virginiana* L. var. *demissa* (Nutt.) Sarg., western choke cherry (*Rosaceae*).

Uncommon in rocky ravines or creek bottoms, more widely distributed than *P. emarginata*; although their habitat requirements seem to overlap, these two cherries were not noticed growing together.

*Psoralea californica* Wats., California psoralea (*Leguminosae*).

Prostrate perennial, scattered in forest and chaparral openings on serpentine on San Benito Mountain. Uncommon elsewhere in the south Coast Ranges (Hoover 1970, Sharsmith 1945).

*Psoralea macrostachya* DC., leather root (*Leguminosae*).

Tall perennial herb, local in wet spots.

*Psoralea orbicularis* Lindl., round-leaved psoralea (*Leguminosae*).

Perennial herb, local in wet spots, not as widespread as *P. macrostachya*, these two psoraleas may grow together.

*Psoralea physodes* Dougl., California-tea (*Leguminosae*).

Perennial herb, uncommon in forest and chaparral habitats.

*Pteridium aquilinum* (L.) Kuhn var. *pubescens* Underw., bracken (*Pteridaceae*).

Tall fern with annual fronds, widely distributed in forest habitats, dominates the ground-cover in parts of the Chews Ridge savanna (Griffin 1975).

*Pterostegia drymarioides* F. & M. (*Polygonaceae*).

Annual herb, unimportant above 1200 m.

*Pyrola picta* Sm. f. *aphylla* (Sm.) Camp., leafless shinleaf (*Pyrolaceae*).

Perennial herb, root parasite, reported only on Junipero Serra Peak, rare elsewhere in the south Coast Ranges (Thomas 1961).

*Quercus agrifolia* Née, coast live oak (*Fagaceae*).

Large evergreen tree, important in parts of the lower elevation mixed evergreen forest but only scattered trees grow above 1200 m.

*Quercus chrysolepis* Liebm., canyon live oak (*Fagaceae*).

Large evergreen tree, vigorous sprouter, important dominant in the mixed evergreen forest, widely distributed in a variety of forest and mesic chaparral situations, rare on the San Benito Mountain serpentine.

*Quercus douglasii* H. & A., blue oak (*Fagaceae*).

Small to medium sized deciduous tree, important in lower elevation savanna, but only scattered trees grow above 1200 m (White 1966).

*Quercus dumosa* Nutt. (see *Q. turbinella* note)

*Quercus durata* Jeps., leather oak (*Fagaceae*).

Large evergreen shrub, widespread in serpentine chaparral on San Benito Mountain. Occurs on lower elevation serpentine in the Santa Lucias, but seems to be absent from the Pine Ridge serpentine.

*Quercus kelloggii* Newb., California black oak (*Fagaceae*).

Large deciduous tree, widely scattered in the more open forests, probably more important below the 1200 m elevation, conspicuous in the ponderosa pine forests.

*Quercus lobata* Née, valley oak, California white oak (*Fagaceae*).

Large deciduous tree, important in the savanna along the summit of Chews Ridge where trees up to 206 cm in dbh occur, this tree is absent above 1200 m on all other study peaks (Griffin 1973, 1975).

*Quercus turbinella* Greene ssp. *californica* Tucker, shrub live oak (*Fagaceae*).

Evergreen shrub or small tree, vigorous sprouter. Important in north-slope chaparral at lower elevations on interior slopes, but only scattered shrubs occur above 1200 m. *Q. turbinella* is sometimes difficult to separate from *Q. dumosa*, and some shrubs on Junipero Serra Peak are intermediate. In the lower Arroyo Seco drainage, *Q. turbinella* is common and clearly recognizable; on the coastal ridge south of Cone Peak *Q. dumosa* is common (Tucker 1953).

*Quercus wislizenii* A. DC. interior live oak (*Fagaceae*).

Evergreen shrub or tree, vigorous sprouter. Widely distributed as a dominant in the higher elevation mesic chaparral, less common as an understory tree in the forest.

*Raillardella (muirii Gray ?)* (*Compositae*).

Perennial herb, this plant was unknown in the south Coast Ranges until 1962, when Clare Hardham noticed it in the Ventana Double Cone region. In 1972, Steven N. Talley collected it on the rocky summit of Ventana Double Cone. It is closely related to *R. muirii* which is considered a rare and endangered species by the California Native Plant Society in the southern Sierra Nevada (Powell 1974). It appears less closely related to *R. scabrida* Eastw., an uncommon species of the north

Coast Ranges (Rydberg 1927). Several students are working on the relationship of these three *Raillardellas*. If the Ventana population is *R. muirii*, this plant is one of the most restricted and most interesting montane disjuncts in the Santa Lucias; if it is a new species, it is probably the most restricted endemic above 1200 m. These plants should receive the highest priority for administrative protection.

*Rafinesquia californica* Nutt., California chicory (*Compositae*).

Annual herb, rare in disturbed spots.

*Ranunculus californicus* Benth., California buttercup (*Ranunculaceae*).

Perennial herb, scattered in the savanna.

*Ranunculus hebecarpus* H. & A., downy buttercup (*Ranunculaceae*).

Small annual herb, unimportant above 1200 m.

*Rhamnus californica* Esch. ssp. *tomentella* (Benth.) C. B. Wolf, coffeeberry (*Rhamnaceae*).

Large evergreen shrub, widely distributed in the chaparral and scattered in the forest understory at all elevations.

*Rhamnus crocea* Nutt., ssp. *ilicifolia* (Kell.) C. B. Wolf, hollyleaf redberry (*Rhamnaceae*).

Large evergreen shrub, widely distributed in the chaparral.

*Rhus diversiloba* T. & G., poison-oak (*Anacardiaceae*).

Deciduous woody vine or shrub, widely distributed at lower elevations but only locally common above 1200 m and rare above 1400 m on any of the study peaks.

*Ribes roezlii* Regel, Sierra gooseberry (*Saxifragaceae*).

Deciduous shrub, uncommon in the forest understory, shrubs on the summit of Junipero Serra Peak and Chews Ridge are clearly referable to *R. roezlii*, shrubs in Pine Valley below Pine Ridge approach *R. roezlii* in form but suggest hybridization

with some other species such as *R. amarum* McClat. The sparse number of plants of this one *Ribes* species above 1200 m on the Santa Lucia peaks is in marked contrast to the rich assemblage of species at lower elevations; for example, eight species of *Ribes* are present on the Hastings Reservations at the foot of Chews Ridge. The next *R. roezlii* population to the north may be in Napa County (McMinn 1939)--to the south in the San Rafael Mountains, Santa Barbara County. 12/ DISJUNCT.

*Rosa californica* Cham. & Schlecht., California wild rose (*Rosaceae*).

Deciduous shrub, local in creek bottoms.

*Rubus parviflorus* Nutt., thimbleberry (*Rosaceae*).

Deciduous shrub, local in wet spots.

*Rubus ursinus* Cham. & Schlecht., Pacific blackberry (*Rosaceae*).

Evergreen woody vine, local in creek bottoms.

*Rumex acetosella* L., sheep sorrel (*Polygonaceae*).

Perennial herb, minor weed in disturbed spots. INTRODUCED.

*Rumex conglomeratus* Murr., green dock (*Polygonaceae*).

Perennial herb, minor weed in disturbed spots. INTRODUCED.

*Rumex salicifolius* Weinm., willow dock (*Polygonaceae*).

Perennial herb, local in wet spots.

*Salix breweri* Bebb., Brewer willow (*Salicaceae*).

Deciduous shrub, common along all serpentine creeks on San Benito Mountain (the type locality). Uncommon elsewhere in the south Coast Ranges (Sharsmith 1945).

12/ Smith, Clifton. 1974. A flora of the Santa Barbara Region. (Unpublished report on file, Santa Barbara Museum of Natural History, Calif.).

*Salix* (misc. unidentified species probably *S. laevigata* Bebb or *S. lasiolepis* Benth. in most cases, uncommon above 1200 m).

*Salvia columbariae* Benth., chia (*Labiatae*).

Annual herb, scattered in rocky exposed spots in the grassland and chaparral margins.

*Sambucus mexicana* Presl., blue elderberry (*Caprifoliaceae*).

Deciduous shrub or small tree, widely scattered but never common.

*Sanicula crassicaulis* Poepp., gambleweed (*Umbelliferae*).

Perennial herb, scattered in the more weedy portions of several habitats.

*Sanicula graveolens* Poepp. (*Umbelliferae*).

Perennial herb, not reported in the south Coast Ranges until 1972, when Steven N. Talley found it on the Pine Ridge serpentine. Next population to the north may be on Bartlett Mountain, Lake County--to the south in the San Rafael Mountains, Santa Barbara County. 13/ DISJUNCT.

*Satureja mimuloides* (Benth.) Briq. (*Labiatae*).

Perennial herb, local in wet spots.

*Scirpus microcarpus* Presl., panicled bulrush (*Cyperaceae*).

Tall perennial herb, local in wet spots.

*Sedum spathulifolium* Hook, ssp. *anomalum* (Britton) Clausen & Uhl, Pacific stonecrop (*Crassulaceae*).

Succulent perennial herb, local on rock outcrops.

*Selaginella bigelovii* Underw., Bigelow moss-fern (*Selaginellaceae*).

Perennial herb, widely scattered on rock outcrops.

*Silene gallica* L., common catchfly (*Caryophyllaceae*).

Annual herb, minor weed in grassland. INTRODUCED.

13/ Smith, Clifton. 1974. A flora of the Santa Barbara Region. (Unpublished report on file, Santa Barbara Museum of Natural History, Calif.).

*Silene lemmonii* Wats., Lemmon campion (*Caryophyllaceae*).

Perennial herb.

*Silene verecunda* Wats. ssp. *platyota* (Wats.) Hitch. & Maquire (*Caryophyllaceae*).

Perennial herb.

*Sisyrinchium bellum* Wats., blue-eyed-grass (*Iridaceae*).

Perennial herb, apparently absent above 1200 m in the Santa Lucias but locally common along all the creeks on serpentine on San Benito Mountain.

*Sitanion hystrix* (Nutt.) J. G. Sm. (*Gramineae*).

Perennial bunchgrass, unimportant on the Santa Lucia peaks but scattered on serpentine on San Benito Mountain. This species is much less common on the study peaks than the closely related *S. jubatum*. *S. hystrix* appears to be the more montane in distribution as suggested by Anderson and Stebbins (1954).

*Sitanion jubatum* J. G. Sm., squirrel-tail (*Gramineae*).

Perennial bunchgrass, more widely distributed at lower elevations than *S. hystrix*. (Anderson and Stebbins 1954).

*Sitanion* (occasional sterile hybrids, probably with both *Agropyron* and *Elymus* were noticed on Chews Ridge and San Benito Mountain)

*Solanum umbelliferum* Eschs., blue witch (*Solanaceae*).

Evergreen shrub, widely scattered in disturbed areas.

*Solidago californica* Nutt., common goldenrod (*Compositae*).

Perennial herb, widely scattered in many habitats.

*Solidago guiradonis* Gray (*Compositae*).

Common along all the creeks on serpentine on San Benito Mountain. Raven (1957) appeared to refer to this plant as *S. confinis* Gray, but Hoover (1970) treated all the *S. confinis* in San Luis Obispo County as *S. guiradonis* var. *luxurians* (Hall) Hoover.

*Stachys bullata* Benth., hedge-nettle  
(*Labiatae*).

Perennial herb, scattered in open forest habitats.

*Stachys pycnantha* Benth., short-spiked hedge-nettle (*Labiatae*).

Perennial herb, local in wet spots.

*Stellaria media* (L.) Cyrill., common chickweed (*Caryophyllaceae*).

Annual herb, unimportant in grassland above 1200 m. INTRODUCED.

*Stellaria nitens* Nutt., shining chickweed (*Caryophyllaceae*).

Annual herb, unimportant in grassland above 1200 m.

*Stephanomeria elata* Nutt. (*Compositae*).

Annual herb, unimportant above 1200 m.

*Stephanomeria virgata* Benth. ssp. *pleurocarpa* (Greene) Gottlieb. (*Compositae*).

Annual herb, widely scattered in disturbed or open spots.

*Stipa cernua* Steb. & Love, nodding needlegrass (*Gramineae*).

Perennial bunchgrass, unimportant, or perhaps absent, from the Santa Lucia Range grassland above 1200 m. One population was noticed on San Benito Mountain on a partially serpentinized slope at 1300 m.

*Stipa coronata* Thurb., large needlegrass (*Gramineae*).

Tall perennial grass, local on rock outcrops, not a component of the stable grassland.

*Streptanthus breweri* Gray (*Cruciferae*).

Annual herb, reported in the San Benito Mountain area (Morrison 1941), but not noticed there during this survey. Arthur Kruckeberg (personal communication, May 6, 1971) refers the early San Carlos Peak collections to var. *tenuis*. San Benito Mountain is near the southern limit for this Coast Range serpentine endemic.

*Streptanthus glandulosus* Hook. ssp. *glandulosus* Jewel Flower (*Cruciferae*).

Annual herb, scattered on the Pine Ridge serpentine, on Chews Ridge scattered on serpentine and rocky non-serpentine spots (Kruckeberg 1958).

*Streptanthus insignis* Jeps. (*Cruciferae*).

Annual herb, scattered on San Benito Mountain serpentine. The plants referred to *S. hispidus* Gray by Jepson (1925) from San Carlos Peak were probably *S. insignis* (A. Kruckeberg, personal communication, May 6, 1971).

*Streptanthus tortuosus* Kell., mountain streptanthus (*Cruciferae*).

Annual or biennial herb, local on rock outcrops. Rare elsewhere in the south Coast Ranges (Hoover 1970), the next population to the north may be Hood Peak, Sonoma County.

*Stylocline gnaphalioides* Nutt. (*Compositae*).

Annual herb, unimportant in grassland above 1200 m.

*Symphoricarpos mollis* Nutt., spreading snowberry (*Caprifoliaceae*).

Low deciduous shrub, scattered in forest understory.

*Tauschia hartwegii* (Gray) Macbr., (*Umbelliferae*).

Perennial herb, scattered in rocky spots.

*Thelepodium lasiophyllum* (H. & A.) Greene, cut-leaved thelypodium (*Cruciferae*).

Annual herb, unimportant in grassland above 1200 m.

*Thermopsis macrophylla* H. & A., false-lupine (*Leguminosae*).

Tall perennial herb, conspicuous in forest understory and chaparral margins on Pine Ridge, elsewhere local or rare in rocky spots or creek bottoms.

*Thysanocarpus curvipes* Hook., hairy fringe-pod (*Cruciferae*).

Annual herb, unimportant in grassland.

*Thysanocarpus laciniatus* Nutt. var. *crenatus* (Nutt.) Brewer., narrow-leaved fringe-pod (*Cruciferae*).

Annual herb, rare in open spots above 1200 m.

*Trichostema lanatum* Benth., woolly blue-curls (*Labiatae*).

Aromatic evergreen shrub, uncommon in chaparral.

*Trichostema rubisepalum* Elmer (*Labiatae*).

Aromatic annual herb, scattered along San Benito Mountain serpentine creeks, the type locality (Elmer 1906). SIERRA NEVADA FOOTHILL DISJUNCT, known elsewhere only in Mariposa and Tuolumne Counties (Lewis 1945).

*Trifolium albopurpureum* T. & G., rancheria clover (*Leguminosae*).

Annual herb, widely scattered in grassland.

*Trifolium ciliolatum* Benth., tree clover (*Leguminosae*).

Annual herb, minor in the grassland.

*Trifolium gracilentum* T. & G., pin-point clover (*Leguminosae*).

Annual herb, scattered in grassland.

*Trifolium microcephalum* Pursh, maiden clover (*Leguminosae*).

Annual herb, widely scattered in grassland.

*Trifolium tridentatum* Lindl., tomcat clover (*Leguminosae*).

Annual herb, scattered in grassland.

*Trifolium variegatum* Nutt., white-tipped clover (*Leguminosae*).

Annual herb, scattered in grassland.

*Triodanis biflora* (R. & P.) Greene, venus looking-glass (*Campanulaceae*).

Annual herb, unimportant above 1200 m.

*Umbellularia californica* (H. & A.) Nutt., California-laurel (*Lauraceae*).

Aromatic evergreen tree, widely scattered in the forest and mesic chaparral on the Santa Lucia peaks. Although often found in serpentine wet spots in the Coast

Ranges, this tree seems to be absent from the San Benito Mountain region (Griffin and Critchfield 1972).

*Urtica holosericea* Nutt., hoary nettle (*Urticaceae*).

Tall perennial herb, local in wet spots.

*Urtica urens* L., dwarf nettle (*Urticaceae*).

Annual herb, unimportant weed above 1200 m. INTRODUCED.

*Verbena lasiostachys* Link., California vervain (*Verbenaceae*).

Perennial herb, scattered in grassland and savanna.

*Vicia americana* Muhl. ssp. *oregana* (Nutt.) Abrams, American vetch.

Perennial herbaceous vine, scattered in the Chews Ridge forest, probably present elsewhere but confused with *Lathyrus*.

*Viola purpurea* Kell. (*Violaceae*).

Perennial herb, extremely variable.

1. Ssp. *mohavensis* (Baker & Clausen) J. Clausen. Both Baker (1953) and Stebbins et al. (1963) called this diploid (n=6) desert form of the *V. purpurea* complex *V. aurea* ssp. *mohavensis*. Baker (1953) reported this ssp. on Chews Ridge and Santa Rita Peak (fig. 3). Stebbins et al. (1963) accepted this ssp. for Chews Ridge but called all the violets in the San Benito Mountain region *V. quercetorum*. I can see no real difference between the Chews Ridge plants and some of the San Benito Mountain plants, although much of the San Benito Mountain material could be keyed to *V. quercetorum*. The same plant which occurs on small serpentine outcrops on Chews Ridge also occurs on the Pine Ridge serpentine. Clausen (1964) shifted ssp. *mohavensis* from *V. aurea* to *V. purpurea*.

2. Ssp. *purpurea* pine violet. Howitt and Howell (1964) listed this diploid (n=6) montane subspecies on Junipero Serra Peak. But Howitt and Howell (1973) were no longer certain that these plants differed from ssp. *mohavensis* on Chews Ridge. I would support their first view. Stebbins and others (1963) did not recognize ssp. *purpurea* in the Coast Ranges south of Lake County. Clausen (1964) continued to recognize ssp. *purpurea* as far south as southern California. Hoover (1970) reported ssp. *purpurea* in the southern Santa Lucias.

*Viola quercetorum* Baker & Clausen, oak violet (*Violaceae*).

Perennial herb, widely scattered in forest openings and savanna but never common. A variable population of this tetraploid ( $n=12$ ) form of the *V. purpurea* complex is conspicuous in the San Benito Mountain region where it is difficult to separate from *V. purpurea* ssp. *mohavensis* (Clausen 1964, Stebbins et al. 1963).

*Vulpia bromoides* (L.) S. F. Gray, six weeks fescue (*Gramineae*).

Annual grass, scattered in grassland (*Festuca dertonensis* [All.] Asch. & Graebn.) (Lonard and Gould 1974). INTRODUCED.

*Vulpia microstachys* (Nutt.) Benth. (*Gramineae*).

Annual grass, Lonard and Gould (1974) merged all the native annual fescue species with reflexed spikelets into one species complex. The following varieties are minor grassland plants on the study peaks, there is some geographic separation between the different forms on the peaks, but at the Hastings Reservation all of them occur within a limited area, sometimes in mixed stands.

1. Var. *ciliata* (Beal) Lonard & Gould (*Festuca eastwoodae* Piper, *F. grayi* (Abrams) Piper, and *F. pacifica* Piper).
2. Var. *confusa* (Piper) Lonard & Gould (*Festuca confusa* Piper).
3. Var. *pauciflora* (Beal) Lonard & Gould (*Festuca reflexa* Buckley).

*Vulpia myuros* (L.) K. C. Gmelin (*Gramineae*).

Annual grass. (Lonard and Gould 1974). INTRODUCED.

1. Var. *hirsuta* Hack. One of the most widespread of the annual fescues (*Festuca megalura* Nutt.).
2. Var. *myuros*. Scattered in grassland (*Festuca myuros* L.).

*Woodwardia fimbriata* Sm., chain fern (*Blechnaceae*).

Tall perennial fern, local in wet spots.

*Wyethia helenoides* (DC.) Nutt., gray mule-ears (*Compositae*).

Perennial herb, scattered in Chews Ridge forest and savanna.

*Yucca whipplei* Torr., Spanish bayonet (*Agavaceae*).

Tall perennial rosette, widely scattered on dry chaparral slopes. The study peaks are near the northern limit for this southern California species. The summit of Junipero Serra Peak may be the highest elevation record for the species. Yuccas on the Santa Lucia peaks appear to be more rhizomatous than those of the Diablo range, the described subspecies do not fit the study peak plants well.

*Zauschneria californica* Presl., California fuchsia (*Onagraceae*).

Perennial herb, widely distributed in a variety of habitats, leaf and flower characters are variable and do not fit the described subspecies well.

*Zigadenus fremontii* Torr., star-lily (*Liliaceae*).

Perennial herb, locally common in forest and chaparral at lower elevations but reaches 1200 m only on Pine Ridge.

*Zigadenus venenosus* Wats., death camas (*Liliaceae*).

Perennial herb, local in wet spots.

Griffin, James R.

1975. Plants of the highest Santa Lucia and Diablo Range peaks, California. USDA Forest Serv. Res. Paper PSW-110, 50 p. illus. Pacific Southwest Forest and Range Exp. Stn., Berkeley, Calif.

A search for vascular plants was conducted on six of the highest ridges in the south Coast Ranges of California. It covered five prominent peaks in the Santa Lucia Range, Monterey County, and the tallest mountain in the Diablo Range, San Benito-Fresno counties. Listed are all species found above 1200-m (3937-feet) elevation on at least one peak. Relative abundance is estimated for three elevation zones on all peaks. Notes provide information about each species' life form, plant community preference, ecological characteristics, and taxonomic problems.

*Oxford:* 187x455.7[-(794) (23)]

*Retrieval Terms:* plant communities; montane disjuncts; elevational distributions; Ventana Wilderness Area; Santa Lucia Range (California); Diablo Range (California); California.

Griffin, James R.

1975. Plants of the highest Santa Lucia and Diablo Range peaks, California. USDA Forest Serv. Res. Paper PSW-110, 50 p. illus. Pacific Southwest Forest and Range Exp. Stn., Berkeley, Calif.

A search for vascular plants was conducted on six of the highest ridges in the south Coast Ranges of California. It covered five prominent peaks in the Santa Lucia Range, Monterey County, and the tallest mountain in the Diablo Range, San Benito-Fresno counties. Listed are all species found above 1200-m (3937-feet) elevation on at least one peak. Relative abundance is estimated for three elevation zones on all peaks. Notes provide information about each species' life form, plant community preference, ecological characteristics, and taxonomic problems.

*Oxford:* 187x455.7[-(794) (23)]

*Retrieval Terms:* plant communities; montane disjuncts; elevational distributions; Ventana Wilderness Area; Santa Lucia Range (California); Diablo Range (California); California.

Griffin, James R.

1975. Plants of the highest Santa Lucia and Diablo Range peaks, California. USDA Forest Serv. Res. Paper PSW-110, 50 p. illus. Pacific Southwest Forest and Range Exp. Stn., Berkeley, Calif.

A search for vascular plants was conducted on six of the highest ridges in the south Coast Ranges of California. It covered five prominent peaks in the Santa Lucia Range, Monterey County, and the tallest mountain in the Diablo Range, San Benito-Fresno counties. Listed are all species found above 1200-m (3937-feet) elevation on at least one peak. Relative abundance is estimated for three elevation zones on all peaks. Notes provide information about each species' life form, plant community preference, ecological characteristics, and taxonomic problems.

*Oxford:* 187x455.7[-(794) (23)]

*Retrieval Terms:* plant communities; montane disjuncts; elevational distributions; Ventana Wilderness Area; Santa Lucia Range (California); Diablo Range (California); California.

Griffin, James R.

1975. Plants of the highest Santa Lucia and Diablo Range peaks, California. USDA Forest Serv. Res. Paper PSW-110, 50 p. illus. Pacific Southwest Forest and Range Exp. Stn., Berkeley, Calif.

A search for vascular plants was conducted on six of the highest ridges in the south Coast Ranges of California. It covered five prominent peaks in the Santa Lucia Range, Monterey County, and the tallest mountain in the Diablo Range, San Benito-Fresno counties. Listed are all species found above 1200-m (3937-feet) elevation on at least one peak. Relative abundance is estimated for three elevation zones on all peaks. Notes provide information about each species' life form, plant community preference, ecological characteristics, and taxonomic problems.

*Oxford:* 187x455.7[-(794) (23)]

*Retrieval Terms:* plant communities; montane disjuncts; elevational distributions; Ventana Wilderness Area; Santa Lucia Range (California); Diablo Range (California); California.