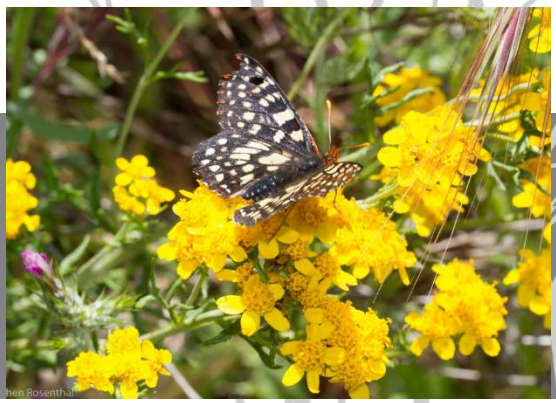
Native Plants for School & Urban Gardens

Southern California

California Native Plant Society



Introduction

Section I: Planning

Section IIa: Planting

Section IIb: Main Database

Section III: Appendices

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www.cnps.org/gardening

CONTENT FOREWORD

For the convenience of teachers, the Southern California Native Plants for School & Urban Gardens book has been split into three sections, and saved as four separate PDF files convenient downloading.

- Section I – Planning (pg. 1-20)
- Section IIa – Planting (pg. 21-134)
- Section IIb – Plant Database (pg. 135-164)
- Section III – Appendices (pg. 165 – 171)

These files in part or as a whole are free to educators, those working on school garden projects, and those working on public urban garden sites, but the contents of the files may not be sold without permission of the Los Angeles/Santa Monica Mountains Chapter of the California Native Plant Society. The Los Angeles/Santa Monica Chapter will print copies of the book in small quantities for special orders.

The book, Southern California Native Plants for School & Urban Gardens and the author, Betsey Landis, should be cited as the source of any information, illustrations or photos from this book used in electronic media or in print.

SOUTHERN CALIFORNIA NATIVE PLANTS FOR SCHOOL & URBAN GARDENS

by Betsey Landis
Los Angeles / Santa Monica Mountains Chapter
California Native Plant Society
Revised August 2011

Available in three sections as pdf files

SECTION IIa: PLANTING

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PLANTING ADVICE

Because schools may be near industrial areas, may have had herbicides and/or other chemicals applied to the soil around the school or had chemicals dumped in the soil when the school was built, remodeled or repaired, and because knowledge of native plant edibility is imprecise and sometimes incorrect:

WARNING!

Never let students put any part of a plant in their mouths unless it is a classroom exercise and the teacher is sure that the plant parts are edible and do not cause allergic reactions.

Before planting any plant you intend to eat, have the soil tested for heavy metals and other poisonous contaminants. If the soil is contaminated, remove or treat the soil then retest the soil on the site for the garden before planting any edible plant.

1. Clearing the garden site:

Parents, teachers, students and community volunteers may all be needed to clear a site for a garden. Asphalt, root-bound ivy patches or other weedy or long-neglected plantings may need to be removed. Rototilling or loosening the soil with spades and garden forks can become a one-time gardening party or may be done in small sections by different classrooms in the school taking responsibility for one section--to clear it, to prepare the soil, to plant it and to maintain the plants.

2. Planting times:

Plant young shrubs and trees in the garden between December and March for best results. Even with summer watering, many plants will die if planted too late in the spring.

Seeds may be sown in late spring, summer or fall, depending on the normal end of flowering time of the plant species, when the plant usually distributes its seeds. Check in the native plant database in this book to see when the flowering time for each species is over.

3. Placement of plants:

To be healthy and thrive the plants must receive the correct amounts of sun, shade and water. One of the main design considerations is giving the plants room to grow. Many of these plants grow very quickly and will crowd out the other plants if too many plants are placed in too small a space. Check the growth rate and mature size when planning your garden. Species like white, black or purple sage and deer grass form large clumps quickly and have extensive root systems. They need lots of room.

Note that trees must not be planted near foundations or walls or water mains. Most of the trees have large canopies (a coast live oak needs a fifty-foot diameter clear space to grow in, for instance). Tall shrubs (small trees) might be preferable for most school situations.

Fewer plants are better. In California gardens are usually overplanted with the expectation of instant dense greenery and immediate flowers. After a year fifty percent of the plants in these gardens will be dead, crowded out by the hardiest individuals. In school gardens cost is important as is having the same plants for growth studies, plant community studies and leaf and seed experiments over several years. Plant less and harvest more.

In general, one one-gallon shrub needs at least thirty-six square feet of garden space. Annuals and other herbs can be grown in between the larger plants. Cover the garden with a thick layer of mulch and scatter the seeds of annuals or herbaceous perennials over the mulch.

4. Planting:

For best results when planting young native plants buy no larger than one-gallon plants. The best method is to dig a hole and fill it with water several times, preferably over two or three days. The purpose of deep watering the hole is to encourage the roots to grow downward, away from the surface where they might dry out in hot weather.

All of the sample selections in this book were chosen because they are able to survive in soil conditions ranging from poorly-draining clay to fast-draining sand. However, if you have clay or silty clay soil and it is very heavy, you may have to add some soil amendment and dig the hole bigger and deeper so that the water will drain away from the plant.

The plant should be placed in the hole with all the dirt from the container. The container dirt may contain mycorrhizae (fungi) that the plant roots need to survive. The plant should be watered in its container before planting.

After planting the dirt should be tamped down firmly around the plant making sure no air pockets are left around the roots. Water the dirt to make sure it has settled into the hole and that the plant is securely anchored in an upright position. More dirt may have to be added if any roots are exposed by the watering.

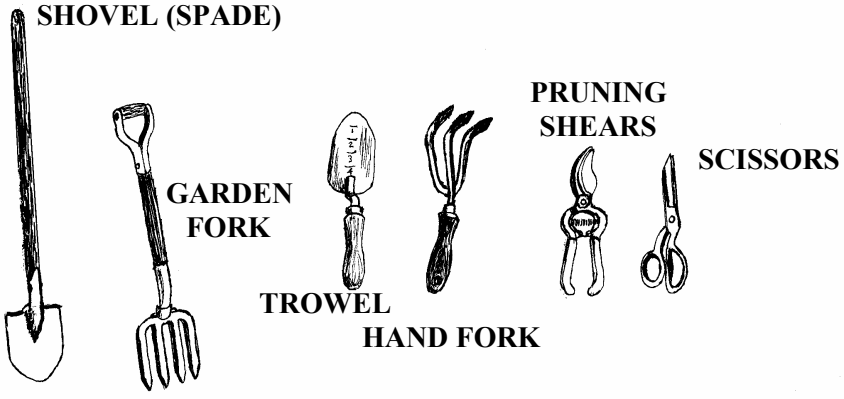
Depending on the garden's soil conditions, fertilizer usually is not necessary and may even harm the roots of some plants.

5. Watering:

Do not water the plant again after planting until the surface inch of soil has dried out. Since clay can form a crust, break up the soil gently around the base of the plant if you see the water running off and not soaking into the soil. A two- to four-inch layer of mulch around the base of young plants will retain moisture and suppress weeds. So the water won't run off, create a basin around each plant.

Do water deeply around the base of each young tree, shrub or perennial to encourage its roots to go down. Do not wet the entire area of the garden as this encourages the young plants to grow surface roots that will dry out in hot weather.

Once established, all chaparral, coastal sage scrub and desert plants should need only winter rains except during extended periods of drought or extremely hot weather. However, monthly watering will extend the flowering season.



DIGGING ***PLANTING & WEEDING*** ***PRUNING & TRIMMING***

COLUMN HEADINGS AND TERMS FOR LANDSCAPING TABLES

The native plants in this data base were chosen because they are native to southern California and particularly to Los Angeles County, most are available from nurseries or seed companies, and the native species represent typical trees, shrubs and herbs/flowers found in natural areas. These selections are only a tiny fraction of the 6000 species native to California, but they are the most appropriate for modeling southern California habitats in a school garden situation

NUMBER COLUMN: The numbers in this first column come from the main database at the back of the book.. Each category of plant (Tree, Shrubs and Cacti, Perennials and Succulents, Annuals, Bulbs, Ferns, Perennial Grasses, and Vines) has its own set of numbers.

COMMON NAME: Generally accepted, non-scientific, name given to a plant species, subspecies or variety.

(* = thorns): When an asterick appears beside the common name, the part of the plant with thorns or spines will be identified. Many schools do not allow, or severely restrict, the use of plants with thorns or spines in school landscaping.

NEW SCIENTIFIC NAME: Scientific name of a plant species, subspecies or variety in the *Jepson Manual: Higher Plants of California* edited by James C. Hickman, 1993 or the latest edition (partially available online in 2011). When a genus in Jepson is rendered unusable from a landscaping standpoint, because so many previously recognized species were lumped under one name, the Jepson identification has been omitted.

(OLD SCIENTIFIC NAME): *The Jepson Manual* renamed and reclassified some species. Many of the older classifications are found in *A Flora of Southern California* by Philip A. Munz, 1974. The previously-recognized scientific names for those species are still used by many botanists, ethnobotanists, horticulturalists and herbalists, so they are included in the tables in parentheses.

HABITAT: These are very general terms that apply to the structure of the plant habitat and sometimes the location of the habitat.

Chaparral: Habitat with one or two species of trees at the most, a dominant shrub layer containing tall shrubs or small trees (10-20 feet in height) and a sparse to abundant herb layer. Vines are also often found in this habitat.

CSS, Coastal Sage Scrub: Habitat with no tree layer, a dominant shrub layer usually less than six feet in height, and an herb layer that may contain grasses, annuals, herbaceous perennials and bulbs. CSS needs fog.

Creosote Bush: Desert wash habitat dominated by creosote bush with no tree layer, a dominant shrub layer and, in season, a dominant herb layer.

Forest: Habitat with 75% to 100% tree canopy, a dominant tree layer, with a few shade-loving shrubs in the shrub layer along with ferns and shade-loving bulbs and annuals.Vines grow high in this habitat, seeking sunlight.

Grass, Grassland: Habitat with no tree layer, a sparse to non-existent shrub layer and an abundant herb layer dominated by grasses with some annuals, herbaceous perennials and bulbs.

Joshua Tree Woodland: Desert woodland dominated by Joshua Trees.

Montane or Mt. Woodland: Woodland habitat at higher elevations usually dominated by pines.

P-J, Pinyon-Juniper Woodland: is a desert or desert mountain woodland dominated by pinyon and juniper trees.

Riparian: Habitat along seasonally-flowing or year-round streams, springs or seeps. The habitat has trees that are often deciduous, an abundant shrub layer (with vines) and an herb layer containing herbaceous perennials, annuals, ferns and grasses.

Savanna: Habitat with <10% tree canopy, few shrubs and a dominant herb layer. Tree layer may be 80 – 100 feet tall. Grass dominates the herb layer.

Scrub or Sage Scrub: Desert or dry inland habitats having the same structure as Coastal Sage Scrub.
Strand: Habitat having no tree layer, a shrub layer usually less than four feet in height and an herb layer that is either very low or about the same height as the shrub layer. This habitat is sand: coastal or desert dunes.

Woodland: Habitat with a dominant tree layer, a sparse shrub layer (with vines) and an herb layer that may range from grasses to a wide variety of herbaceous perennials, annuals, ferns and bulbs.

(ALTITUDE), ('=feet): This represents the range of feet above sea level in which the plant species normally lives.

FLOWER TIMES: The seasons of the year during which the plant species usually blooms, or, in the case of pines, when the cone seeds mature.

GROWTH: The shape of the plant: how fast it grows, its maximum height under ideal growing conditions and sometimes a long life, and the width of the plant. These are guides for placement in the garden or for judging the size of the container needed.

1y/Max Ht.: The **"1y"** represents the height a healthy plant will attain in one year. The **"Max Ht."** represents the maximum height the plant will attain. This could occur in one season or one hundred years.

Width: The width or diameter of the mature plant, expressed as **"number of feet spread"** since the plant shape is usually irregular. If the word **"spreads"** appears in the column with no number, this means the plant keeps growing outward either above or below the ground and may take over the garden or the container, crowding out other plants.

SOIL TYPE: The type of soil or range of soils the plants can live in. Most are self-explanatory.

(pH): pH can range from 0 to 14. Neutral pH is 7. Acid pH is less than (<) 7. Alkaline pH is greater than (>) 7. Some plants require acid soil, some require alkaline soil conditions, some plants will die if the soil is not

neutral. This is necessary information and a good basis for experimentation especially when no information is given. All pH values come from Bert Wilson, 1993, *A Manual of California Native Plants,* Las Pilitas Nursery.

WATER NEEDS: The water requirements of the plant are divided into three catagories:

small: Needs water until it is established, little or no water after that and no summer water. Don't irrigate.

moderate: Needs water until it is established, occasional water (once or twice per month) during summer.

ample: Needs to have its roots moist. Water once a week. **"Deep water"** means to really soak the root system occasionally so that the water gets several feet into the ground. **"Drain well"** means that the roots will rot if the water stands around the plant and does not drain into the soil and away fairly quickly. Those plants usually require sand or gravel to grow in.

SUN or SHADE: The sun exposure for a plant is very important. There are three terms:

full sun: Plant should be in full sunlight all day.

cool sun: Plant should be in sun only part of the day and in shade the rest of the day. Or the plant may be where it receives indirect or filtered sunlight.

shade: Plant should not receive any direct sunlight. The plant should be in shade the entire day.

ATTRACTS BIRDS or INSECTS: Most plants attracts birds or insects when the plant is in bloom. If bees are a problem, then plants may be chosen that bloom in the summer when school is not in session, though not all plants attract bees. Since some schools may want a butterfly garden or a bird sanctuary, this information will help choose plants for those locations.

BUTTERFLY: This column only appears in the Butterfly Garden: Sample Selections section of this book.

COMMON NAME: Generally accepted, non-scientific, name given to a butterfly species or subspecies.

***SCIENTIFIC NAME*:** Scientific name of a butterfly species or subspecies. References are a number of popular guides to local butterflies.

LARVAL FOOD (F), ADULT NECTAR (N): The butterflies listed in this column are known to use these plants, either as food sources **(F)** for the larval forms or as nectar sources **(N)** for adult butterflies.

Please note that butterflies vary widely in their flying range and habitat requirements. Some of the butterflies are very rare and will not normally be found in a garden situation. Do not expect that every butterfly listed for a particular plant species will show up when that plant species is added to the garden. Over time some of the wider-ranging butterfly species may find their way from nearby natural areas or roosting areas to the garden.

If student are raising butterflies, the garden design must include food plants for the butterfly larva, food sources for the adult butterfly, as well as adequate shelter and any other resources required by that butterfly species.

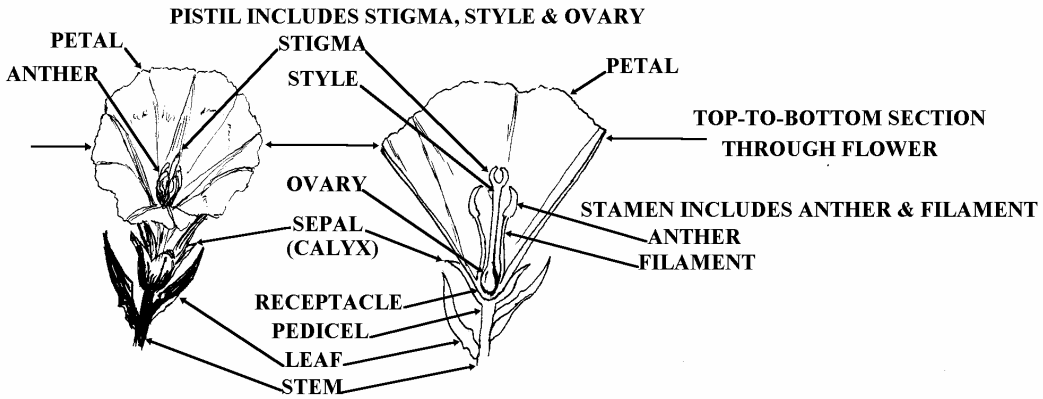
FRUITS: EDIBLE? YES or NO: This column indicates if the seed or fruit are edible or may be toxic to some degree.

"yes, with processing": This means do not eat the fruit or seed raw! The processing may be boiling leaching, drying and/or combining with other foods. Careful research needs to be done before preparing any plant materials with that notation.

Students should not put any part of any plant in their mouths unless the teacher or a qualified expert has given permission for them to do so. An easy way to sample the aroma or flavor of a plant is to rub a leaf or bruise a fruit with your fingers and smell it, instead of tasting it. As a general rule everyone should wash their hands and face thoroughly after working with any plants.

NATIVE AMERICAN USES: The information provided may help those teachers and schools interested in an ethnobotanic garden or container garden. Since native American uses varied widely around California, only those uses identified with southern California native Americans have been included. Many of these plants were used by early settlers and some are used today by ethnic groups and people interested in natural foods and herbal remedies.

When a plant is identified as having a **"medicine"** use, this does not mean that the plant or the part having a **"medicine"** use is edible or that the class should experiment with preparing the **"medicine"**. For instance, a tea made of plant leaves steeped in boiling water for five minutes may be a good medicine, while a tea made by steeping the same plant leaves for an hour could have serious medical side effects, and the raw leaves of this same plant could well be inedible.



BISEXUAL FLOWER
MORNING GLORY
Calystegia macrostegia

SOUTHERN CALIFORNIA NATIVE PLANTS SUITABLE FOR CONTAINERS

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SELECTED NATIVE PLANTS SUITABLE FOR CONTAINERS

All native plants grown in containers require a well-drained soil mix. In general you can purchase prepackaged "Supersoil" and add bulk "Perlite" (=Spongerock) at a 2:1 ratio. That means 2 parts of Supersoil to 1 part of Perlite. When working with Perlite, be sure to wear an appropriate dust mask.

The plants listed here were chosen because they are native to southern California, however **all** California native plants require ample water when grown in containers (remember, they are not able to send their roots deep into the soil to search for water). Most of these plants will generally require watering several times a week. A number of them will require daily watering during summer heat waves--especially after they have filled their containers with roots.

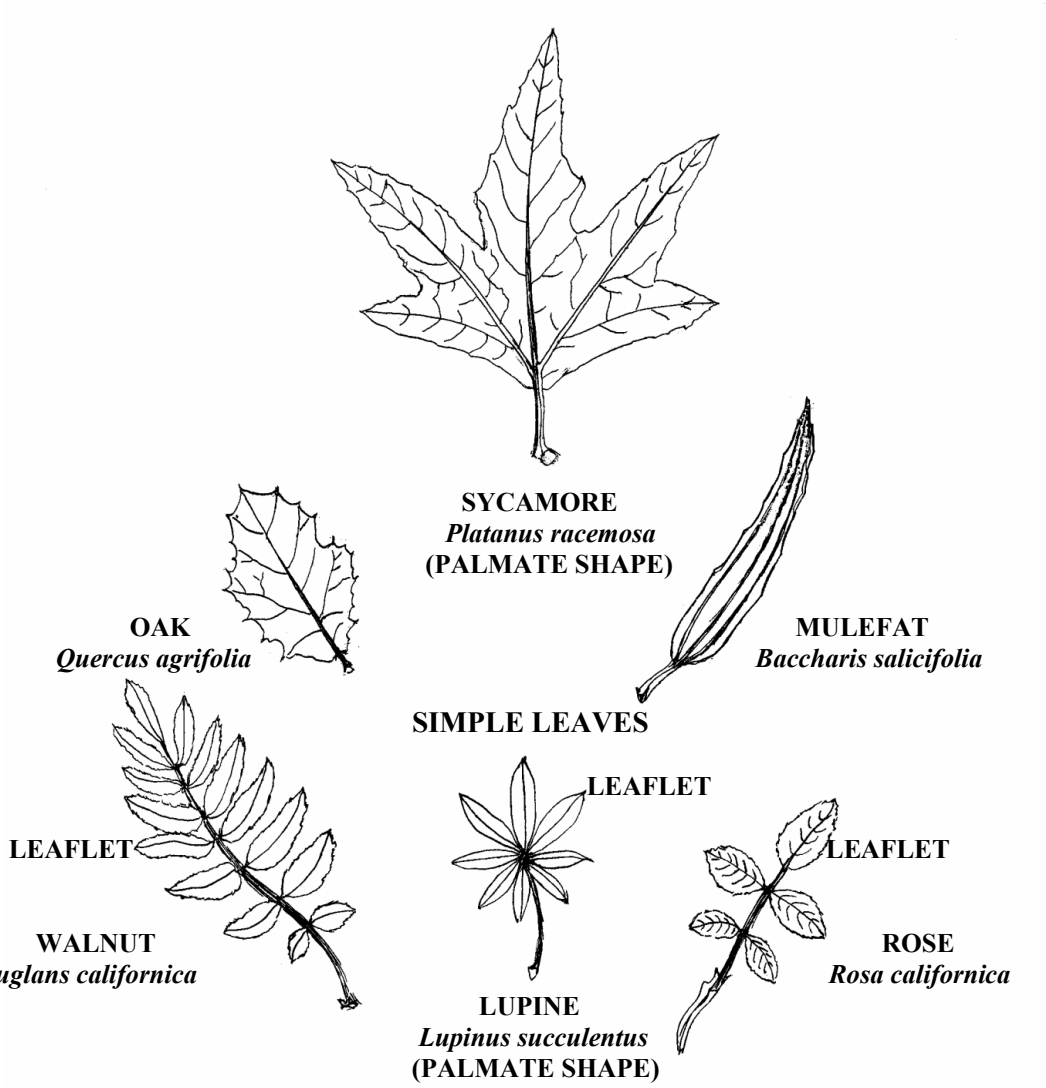
Try to shield or insulate black plastic pots from direct sun--the pots can heat up to the point that the sensitive young roots are killed, leading to the death or decline of the plant.

Container size should be the largest available for trees, shrubs and vines. This means 15- to 20-gallon pots for young trees, 36 -inch boxes for larger plants. Usually you should not buy anything bigger than a 1- to 5-gallon size in a tree, shrub or vine, if you want to be assured of a healthy plant. Then transplant the tree, shrub or vine immediately to a larger container to give its roots room to grow. The smaller the container size for these plants, the more often they will require watering and transplanting.

Nearly all the annuals, perennials, cacti and succulents may be grown and kept in 5-gallon containers.
(The above information was provided by Bart O'Brien, Director of Horticulture, Rancho Santa Ana Botanic Garden.)

Almost anything can be used as a container for plants. The one requirement is that there must be drain hole, or holes, in the bottom of the container. If a plant sits in undrained water day after day, its roots rot and the plant dies. These are not aquatic plants.

On the other hand, many of the plants will not survive if the soil is totally without moisture, because the roots then dry out and cannot take in water and nutrients to feed the plant. A moisture gauge is helpful, so is a finger thrust down into the soil to see if it is moist an inch or so below the surface. If the plant is a drought-resistant plant, only water it when the soil is dry on the surface and dry an inch or so below the soil surface. The lowest roots need to stay moist, but not wet.



SOUTHERN CALIFORNIA NATIVE PLANTS SUITABLE FOR CONTAINERS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? Yes or No	NATIVE AMERICAN USES
	TREES (Woody trunk or trunks, 20 feet or taller when mature.)									
1	Bigleaf Maple *Acer macrophyllum*	Riparian (<5000')	Spring	10'/50' 20'spread	clay (pH 4-8)	ample	cool sun		no	baskets
2	White Alder *Alnus rhombifolia*	Riparian (300-8000')	Winter- Spring	10'/50' 40'spread	clay,sandy (pH 4-8)	ample	full sun		no	dyes, to smoke meat
15	Western Sycamore *Platanus racemosa*	Riparian (<6500')	Winter- Spring	3'/75'	silty,sandy (pH 5-8)	ample	full sun	all	no	building material
16	Western Cottonwood *Populus fremontii* ssp.*fremontii*	Riparian (<6500	Spring	30'/80'	silty,sandy (pH 6-8)	ample	full sun	all	no	bark:food building material
17	Black Cottonwood *Populus trichocarpa* (*P. balsamifera* ssp.*trichocarpa*)	Riparian (<9000')	Spring	30'/100'	clay, sandy (pH 4-7)	ample	cool sun	all	no	bark:food building material
27	Narrowleaf Willow *Salix exigua*	Riparian (<8000')	Spring	2'/20'	sandy loam (pH 6.5-8.5)	ample	cool sun	butterflies, birds	no	medicine, poles, baskets
28	Red Willow *Salix laevigata*	Riparian (<5000')	Spring	6'/45' 25'+spread	clay,gravel (pH 6-7.5)	ample	cool sun	butterflies, birds	no	medicine, poles, baskets
29	Arroyo Willow *Salix lasiolepis*	Riparian (<7000')	Spring	4'/30' 20'+spread	clay, sandy (pH 5-7.5)	ample	cool sun	butterflies, birds	no	rope,medicine poles,baskets
	SHRUBS (May be perennials, but shrubs have woody stems, often multiple stems & are <20 feet tall.)									
8	California Sagebrush *Artemisia californica*	CSS,Chaparral, Woodland (<2500')	Fall	2'/ 5' 4'spread	clay,sandy (pH 5-8.5)	small	full sun	all	no	medicine
24	Mountain Mahogany *Cercocarpus betuloides*	Chaparral, Woodland (<6000')	Spring	2'/22' 10'spread	clay,sandy (pH 5-8)	moderate	full sun	all	no	arrow,pipe, roots:tools
25	Desert Willow *Chilopsis linearis* ssp. *arcuta*	Desert Riparian (<5000')	Spring- Summer	3'/20' 15'spread	clay,sandy (pH 6-9)	moderate	full sun	all	no	food, tools, bark:fiber
28	Dogwood *Cornus sericea* ssp.*sericea* (*Cornus stolonifera*)	Woodland Riparian (<9000')	Summer	2'/15' 10'+spread	loam (pH 4-7)	ample	shade	all	no	baskets, medicine
42	Desert Olive *Forestiera pubescens* (*Forestiera neomexicana*)	Creosote,CSS, Chaparral (300-6000')	Spring	3'/15' 10'spread	clay,stony (pH 6-8)	moderate to small	full sun		no	

CSS=Coastal Sage Scrub
Island=Catalina Island
Creosote Bush=Desert Wash
Pinyon-Juniper=pinyon Juniper Woodland

SOUTHERN CALIFORNIA NATIVE PLANTS SUITABLE FOR CONTAINERS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? Yes or No	NATIVE AMERICAN USES
	SHRUBS (Continued)									
44	Island Snapdragon *Gambelia speciosa* (*Galvezia speciosa*)	CSS, Island (<1500')	Winter- Spring	2'/4' 20'spread	clay,sandy (pH 6-8)	moderate	cool sun	hummingbird	no	
51	Desert Lavender *Hyptis emoryii*	Creosote Bush (<3000')	Winter- Spring	2'/10' 3'spread	sandy (pH 6.5-8)	small drain well	full sun	bees	no	medicine
83	Chaparral Currant *Ribes malvaceum*	Chaparral, Woodland (<3000')	Winter	2'/8' 5'spread	sandy,clay (pH 5.5-7)	moderate	cool sun	all	yes	food
85	California Rose *Rosa californica*	Riparian (<6000')	Spring- Summer	2'/8' 20'spread	clay,sandy (pH 5-8)	moderate	cool sun	all	yes	food: buds medicine
86	Wood Rose *Rosa gymnocarpa*	Chaparral,Forest (100-6000')	Spring- Summer	1'/6' 4'spread	loam (pH 5-7)	moderate	shade	all	yes	food:buds dye, baskets
87	Fragrant Rose *Rosa woodsii* var. *ultramontana* (*Rosa woodsii* var. *glabrata*)	Desert Riparian (3000-4000')	Spring- Summer	2'/10'	sandy (pH 6-8)	moderate	cool sun	all	yes	food:buds tea, medicine
88	Thimbleberry *Rubus parviflorus*	Forest Riparian (<8000')	Spring- Summer	2'/6' spreads	loam	moderate	shade	all	yes	food
90	Sandbar Willow (*Salix hindsiana*)	Riparian (<3000')	Spring	3'/20'	sand,gravel (pH 6-7.5)	ample	full sun	butterflies	no	medicine, poles,baskets
91	Longleaf Willow *Salix melanopsis*	Riparian (2500-7500')	Spring	2'/16'	loam	ample	cool sun	butterflies	no	baskets
99	Blue Witch *Solanum umbelliferum* (*S. umbelliferum* var.*incanum*)	Chaparral, Woodland (<4500')	Summer- Fall	1'/2'	clay,gravel (pH 6-8)	moderate	cool sun	insects	no	
100	Snowdrop Bush,Snowbell Bush *Styrax redivivus* (*S.officinalis*)	Chaparral, Woodland (<5000')	Spring	2'/14'	loam (pH 7?)	moderate	cool sun	all	no	
101	Creeping Snowberry *Symphoricarpos mollis*	Chaparral,Island, Woodland (<5000')	Spring	1'/3' 6'spread	clay (pH 4-7)	moderate	shade	all	no	
102	Roundleaf Snowberry *Symphoricarpos rotundifolia* var. *parishii* (*Symphoricarpos parishii*)	Mt. Woodland (4000-11000')	Summer	1'/4' spreads	granitic (pH 5-7.5)	ample	shade	all	no	

CSS=Coastal Sage Scrub
Island=Catalina Island

Creosote Bush=Desert Wash
Pinyon-Juniper=pinyon Juniper Woodland

SOUTHERN CALIFORNIA NATIVE PLANTS SUITABLE FOR CONTAINERS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? Yes or No	NATIVE AMERICAN USES
	PERENNIALS (Herbaceous perennials, may have woody base, subshrubs.)									
2	White Yarrow *Achillea millefolium*	CSS,Chaparral (<3000')	Spring- Summer	3'/3' spreads	all (pH 4-8)	small	full sun	butterflies	no	medicine
6	Yerba Mansa *Anemopsis californica*	Riparian, Marsh (<6500')	Spring- Fall	1.6'/1.6'	silt,sandy (pH 5-9)	ample	cool sun		no	medicine
7	Columbine *Aquilegia formosa* (*A. formosa* var. *truncata*)	Riparian (<8000')	Summer	2'/5'	clay,gravel (pH 4-7.5)	ample	cool sun	all	no	ritual medicine
8	Spikenard *Aralia californica*	Riparian (<6000')	Summer	3'/9'	clay,sandy	ample	cool sun		no	
16	Beach Evening Primrose *Camissoniopsis cheiranthifolia* (*Camissonia cheiranthifolia*)	Strand, Island (<300')	Spring- Summer	1'/1' 6'spread	sandy	small drain well	full sun		no	
35	Conejo Buckwheat *Eriogonum crocatum*	CSS (150-500')	Spring- Summer	?/1' 3'spread	clay (pH 6-8)	small	full sun	insects	no	food, medicine
39	Western Wallflower *Erysimum capitatum*	CSS, Chaparral, Pinyon-Juniper (<8000")	Spring- Summer	3'/3' 2'spread	gravel (pH 5-8)	small	cool sun	insects	no	
45	Common Rush *Juncus patens*	Riparian (<5000')	Summer	3'/3' spreads	clay,sandy	ample	shade		no	baskets
50	Sea Lavender *Limonium californicum*	Strand, Salt Marsh (<200')	Summer- Fall	2'/2'	silt, sandy	ample	full sun		no	
52	Blue Flax *Linum lewsii*	Mt.Woodland, Pinyon-Juniper (1500-9000')	Spring- Summer	3'/3'	clay,rocky (pH 5-7)	moderate	full sun	insects	no	medicine
55	Scarlet Monkeyflower *Mimulus cardinalis*	Riparian (<8000')	Spring- Fall	2'/2' 2'spread	clay,sandy (pH 4-9)	ample	cool sun	insects	no	
67	Yerba Buena *Satureja douglasii*	Chaparral, Woodland (<3000')	Spring- Fall	1'/1' 3'spread	clay,sandy (pH 6-7.5)	moderate	shade		no	medicine
76	Checker Mallow *Sidalcea malviflora*	Grassland,CSS (<1500')	Spring	3'/3'	sandy clay (pH 6-7)	small	cool sun	insects	no	

CSS=Coastal Sage Scrub
Island=Catalina Island
Creosote Bush=Desert Wash
Pinyon-Juniper=pinyon Juniper Woodland

SOUTHERN CALIFORNIA NATIVE PLANTS SUITABLE FOR CONTAINERS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? Yes or No	NATIVE AMERICAN USES
	PERENNIALS (Continued)									
78	Blue-eyed Grass (Iris) *Sisyrinchium bellum*	Chaparral,Island, Woodland, Grassland (<3000')	Winter- Spring	2'/2'	clay, sandy (pH 5-8)	moderate	full sun		no	
80	Desert Mallow *Sphaeralcea ambigua*	JoshuaTree, Creosote Bush (500-4000')	Spring	3'/3'	sandy (pH 6-8.5)	small drain well	full sun		no	
83	Greata's Aster *Symphyotrichum greatae* *(Aster greatae)*	Riparian (2500-5000')	Fall	2'/ 4'		moderate	cool sun		no	
	FERNS									
8	Giant Chain Fern *Woodwardia fimbriata*	Riparian (<8000')		10'	silty	ample	shade		no	
	PERENNIAL GRASSES									
8	Giant Wild Rye *Elymus condensatus* (*Leymus condensatus*)	CSS, Chaparral, Woodland, Island (<7000')	Summer	10'/10' clumps	clay,sandy	small	full sun	all	yes:with processing	famine food, roof thatch, arrow shafts
	SUCCULENTS AND CACTI (found under PERENNIALS (P) or SHRUBS (S) in main data base.)									
27	Lax Dudleya (P) *Dudleya cymosa*	CSS,Chaparral, Woodland (200-8500')	Spring	<1' 1' at base	rocky (pH 6-8.5)	small drain well	full sun	hummingbird	no	leaves,stems: food
28	Lance-leaved Dudleya (P) *Dudleya lanceolata*	CSS,Chaparral, Woodland (100-4000')	Spring- Summer	2' 2' at base	clay,sandy (pH 5-7.5)	small drain well	cool sun	hummingbird	no	leaves,stems: food
29	Chalk Dudleya (P) *Dudleya pulverulenta*	CSS,Chaparral, Woodland (<3000')	Spring- Summer	2' 2'+at base	sandy,rocky (pH 5-7.5)	small drain well	cool sun	all	no	
30	Island Live-forever (P) *Dudleya virens*	Coastal Bluffs (<1300')	Spring	?/2' 1.5'at base	rocky	moderate drain well	full sun			

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	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? Yes or No	NATIVE AMERICAN USES
	SUCCULENTS AND CACTI (Continued)									
48	Our Lord's Candle (S) *Hesperoyucca whipplei* (*Yucca whipplei* ssp.*whipplei*) (*=spiny leaves)	CSS,Chaparral, Creosote Bush (<4000')	Spring	3'/12'	clay,sandy (pH 6-8)	small	full sun	moth all	no	food:flowers & stalks
62	Parry's Nolina (S) *Nolina parryi* (*=spiny leaves)	CSS,Chaparral (3500-5500')	Spring	?/4' 3-6'spread	clay (pH 6-8)	small drain well	cool sun		no	
63	Beaver-tail Cactus (S) *Opuntia basilaris* (*=spines)	Chaparral, Creosote Bush, Pinyon-Juniper (400-7000')	Spring	?/1-2' spreads	sandy,rocky (pH 6-8)	small	full sun		yes	food:pads & fruit
64	Coast Prickly-pear (S) *Opuntia littoralis* (*=spines)	CSS,Chaparral (30-1300')	Spring	?/1-2' spreads	clay,sandy (pH 6-8)	small	full sun		yes	food:pads & fruit
65	Prickly-pear (S) *Opuntia oricola* (*=spines)	CSS,Chaparral (10-1300')	Spring	?/8' spreads	clay,sandy (pH 6-8)	small	full sun		yes	food:pads & fruit
73	Pacific Stonecrop (P) *Sedum spathulifolium*	Chaparral,Forest (200-7000')	Summer	1'/1'	rocky (pH 5-8)	small drain well	cool sun	insects	no	
	ANNUALS									
6	Elegant Clarkia *Clarkia unguiculata*	CSS,Chaparral, Woodland, Grassland (<5000')	Spring	3'/3'	clay,sandy (pH 6-8)	small	cool sun	insects	no	
8	Chinese Houses *Collinsia heterophylla* var. *heterophylla*	CSS,Chaparral, Riparian, Woodland (<3000')	Spring	1'/1'	clay,sandy (pH 5-8)	moderate	shade	all	no	
10	California Poppy *Eschscholzia californica*	CSS,Chaparral, Grassland Woodland (<6500')	Winter- Fall	2'/2'	clay,sandy (pH 5-8)	small	full sun	insects	no	pollen: cosmetics
11	Globe Gilia *Gilia capitata* ssp.*abrotanifolia*	CSS,Chaparral, Forest,Island (<6000')	Spring	3'/3'	sand,rocks (pH 6-8)	small	full sun	insects	no	

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SOUTHERN CALIFORNIA NATIVE PLANTS SUITABLE FOR CONTAINERS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? Yes or No	NATIVE AMERICAN USES
	ANNUALS (Continued)									
13	Coast Goldfield *Lasthenia californica* ssp. *californica* (*Lasthenia chrysostoma*)	CSS,Island, Grassland, Creosote Bush (<3000')	Winter- Spring	1'/1'	sandy	small	full sun	insects	no	
15	Tidy Tips *Layia platyglossa* (*Layia platyglossa* ssp. c*ampestris)*	CSS,Grassland, Island (<6000')	Spring	1'/1' 2'spread	clay,loam (pH 5-8)	small	full sun	insects	no	
16	Chick Lupine *Lupinus microcarpus* var. *microcarpus* (*L. densiflorus* var. *palustris*)	Chaparral, Grassland (<2500')	Spring	1'/1' 2'spread	clay,sandy (pH 6-8.5)	small	full sun	insects	no	
17	Succulent Lupine *Lupinus succulentus*	CSS,Chaparral, Woodland, Grassland (<2500')	Winter- Spring	3'/3' 3'spread	clay,gravel (pH 6-8.5)	small	full sun	insects	no	
19	Baby Blue-eyes *Nemophila menziesii* ssp. *menziesii*	CSS,Chaparral, Grassland, Woodland (<5000')	Winter- Spring	1'/1'	loamy clay	small	cool sun	insects	no	
21	Wind Poppy *Papaver heterophylla* (*Stylomecon heterophylla*)	Chaparral, Grassland, Woodland (<4000')	Spring	2'/2'	clay,sandy	small drain well	cool sun	insects	no	
24	Fernleaf Phacelia *Phacelia tanacetifolia*	CSS, Chaparral, Creosote Bush (<6000')	Spring	3'/3' 2'spread	sandy, gravel (pH 6-8)?	small	full sun	insects	no	
25	Fiesta Flower *Pholistoma auritum* var. *auritum*	CSS,Chaparral, Woodland,Island (<4500')	Spring	3'/3' 3'spread	clay,sandy	small	cool sun	insects	no	
26	Cream Cups *Platystemon californicus*	Chaparral, Grassland, Woodland (<3000')	Spring	1'/1'	clay,sandy	small drain well	full sun	insects	no	

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	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? Yes or No	NATIVE AMERICAN USES
	VINES									
1	Morning Glory *Calystegia macrostegia*	CSS,Chaparral (<3000')	Spring	30' spreads	clay,sandy	small	cool sun		no	
7	Wild Grape *Vitis girdiana*	Riparian,Island (<4000')	Spring	20' climbs	clay,sandy (pH 6-8)	ample	cool sun	all	yes	food

CSS=Coastal Sage Scrub
Island=Catalina Island

Creosote Bush=Desert Wash
Pinyon-Juniper=Pinyon-Juniper Woodland

TIPS:

Remember that container plants need more water than plants in the ground. Even chaparral or coastal sage scrub plants will need frequent watering to survive. Many native plants, such as white sage, are not included in the above tables because they grow too fast with too many roots, and outgrow their containers in a few months.

If your school has no room for a garden, containers of herbs, shrubs and trees can be arranged into a habitat near a wall or fence even on asphalt. Spread several inches of an insulating layer of bark, mulch or soil on top of the asphalt in your chosen location. Put a shade cloth over the area or hang shade cloth on the fence so the plants will not overheat in their containers. Place the containers on the insulating latyer. Small pots can be placed on raised blocks inside larger pots to give them more protection from high outside temperatures.

Native plants can be raised from seed in small containers and sold as fund-raisers for future gardening activities. Poppies, sunflowers, tidy tips and clarkias lend themselves to this kind of activity. The students learn about different shapes of seeds, different germinating times of seeds, different growth rates and different leaf and flower shapes, as well as the care needed to produce something healthy enough to sell.

Almost anything with a hole in the bottom will work as a container for plants except concrete or cement, which leach lime into the soil in the container. The lime may make the soil too alkaline for the container plants. Bricks, railroad ties, porcelain containers, even old toilets, tires, wood barrels or wood boxes will do. Do not use plastic containers unless they are well insulated from high outside temperatures. The plastic does not "breathe" and will cook the plant roots in hot weather, especially if the plants are overwatered.

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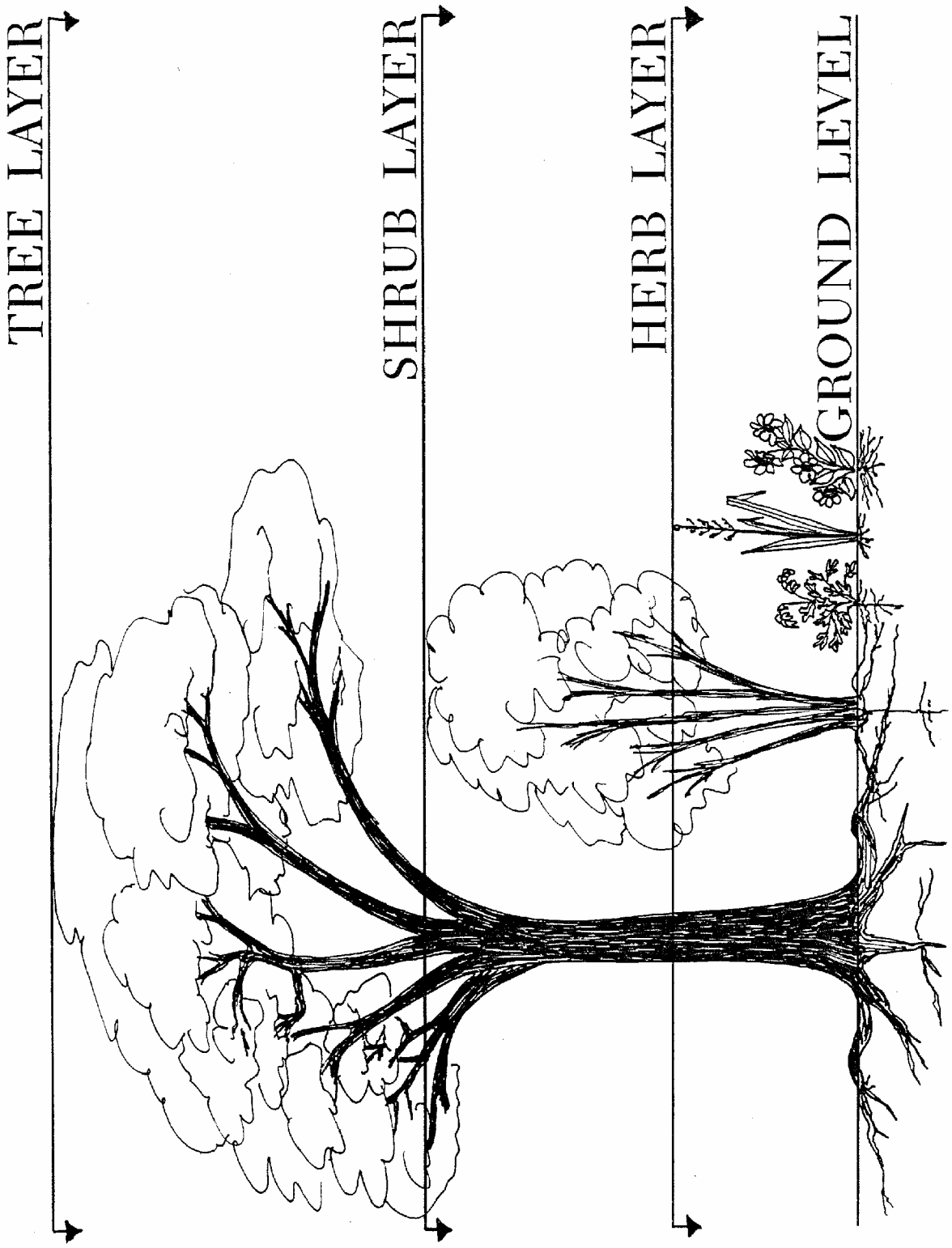
TREE LAYER
SHRUB LAYER
HERB LAYER
GROUND LEVEL

PLANT COMMUNITY GARDEN
SAMPLE SELECTIONS

The following selections are meant as a guide to show how to choose plants that are compatible--that are found growing together in the wild. Plant community here is not meant to imply that these plants are interrelated, only that they require similar conditions of sunlight, soil and water. They are interdependent in that some require the shade of taller plants during part of the day, some seedlings need shade until they grow into mature plants. The architecture of the plant community--what is in the herb, shrub and tree layer--becomes important in the design of the garden.

The following sample selections cover five plant communities: chaparral, coastal sage scrub, grassland, riparian and woodland. Some of the sample selections list only a few choices, some list many; none of the sample selection charts are meant to be used in their entirety. In choosing which plants are suitable for your garden site, you should note the sizes of the various plants and plan accordingly. Often too many plants are crowded into the garden site and then die because there is no room for their root systems to properly establish. Each plant community has its own characteristic architecture, which you should simulate in designing a plant community garden.

Chaparral typically has many tall shrubs, many perennials, some annuals, several vines and a few grasses. North-facing or moister chaparral may have one or two species of trees (California walnut and/or coast live oak). The "Sample Selections" given in the chart are representative of a north-facing or east-facing chaparral. South-facing or west-facing chaparral may contain chamise, manzanita, more sage species and no trees. A garden can successfully combine any of these elements as long as proper consideration is made of amount of sun, type of soil and whether or not irrigation or hand watering is to be used.

Coastal sage scrub rarely has any trees (toyon and wax myrtle seldom reach tree size in coastal sage scrub habitat). Coastal sage scrub does have a few tall shrubs, many lower shrubs, perennials, annuals and some grasses. Coastal sage scrub and native bunch grasses historically may have taken turns being dominant on some sites largely due to the presence or absence of wildfires and/or grazing. Shrubs gradually will fill in grasslands in the long-term absence of disturbances such as grazing or wildfires. Coastal sage scrub usually occurs on drier, hotter sites with poorer soil conditions than chaparral will tolerate. Coastal sage scrub is a

tough plant community of the coastal slopes. There are other types of sage scrub communities that thrive inland in similar conditions. Sagebrush (*Artemisia*) is common to most of them, as are various sages (*Salvias*) and buckwheats (*Eriogonums*).

The drought tolerance of chaparral and coastal sage scrub plants has made them increasingly popular garden elements. Once they are established they should not require summer water. If there are normal winter rains, they will require no irrigation at all.

Grassland is an interesting plant community, not least because many of the grasses have uses in basketry or ornamental work. The San Fernando Valley used to be a huge unbroken field of wildflowers in the spring. Then, as the native perennial grasses grew tall and matured, the valley floor became a grassland from late spring through the fall. In planning a grassland garden, you should plan for many spring wildflowers being gradually overtopped by the beautiful native grasses. The grasses can be harvested. If needlegrass is used, it should be mowed or cut before it produces seed since the seeds are very sharp, like small needles. Great care should be exercised in gathering any needlegrass seed.

Riparian plant communities obviously require more water than the other plant communities (riparian means streamside). Some of the plants are adapted to intermittant streams (streams which flow in the winter and are dry in the summer) and can survive on small amounts of summer water, especially if they are watered deeply to encourage their roots to grow down, away from the hot dry surface of the soil. Typically these trees and shrubs have large root systems and may not be planted near walls, foundations or water mains. The riparian community has many trees and some shrubs, perennials, bulbs, and a few ferns, vines and grasses, resulting in a complex and rich plant architecture.

Woodland plant communities contain a few or many trees. A woodland can have a tree canopy from ten percent to seventy-five percent. Below that is the savanna, above that is the forest. So you can design an open woodland with only a few trees or create a shady glen with an almost closed canopy. However, the placement of the trees is critical to their survival. Trees must have room for a strong root structure and a proper, unrestricted canopy. this requires a large garden space away from walls, building foundations or any other structures that might be damaged by the tree's growth. A one-gallon to five-gallon tree looks very small,

but it will grow quickly in the right conditions. Please note the size and growth rates in the sample selection charts and plan carefully. While the trees are maturing, an understory of shrubs, perennials, annuals, bulbs, ferns and grasses will provide plenty of variety for study and appreciation.

Students, teachers and parents should work together on garden design. The students should do follow-up studies on the growth and success of the plantings. The purpose in creating a garden simulating a natural plant community is that the plants generally fare better and the students are provided with many research opportunities--working with seeds, seedlings, growth rates, leaf patterns, flower structure, pollination patterns, seed production, bird and insect studies, and how they relate to the architecture of the plant community--that they would not have in a park where the plants are protected. If there are any natural areas near the school, the garden will attract birds, butterflies and other insects from that area, providing even more study opportunities.

When planting native plants (not seeds) use only 1-gallon, or no larger than 5-gallon plants. The best method is to dig a hole and fill it with water several times. All of the sample selections were chosen because they are able to survive in soil conditions ranging from poorly-draining clay to fast-draining sand. However, if you have clay or silty clay soil and it is very heavy, you may have to add some soil amendment and dig the hole bigger and deeper so that the water will drain away from the plant. The plant should be placed in the hole with all the dirt from the container. The container dirt may contain mycorrhizae that the plant roots need to survive. The purpose of deep watering the hole is to encourage the roots to grow downward, away from the surface where they might dry out in hot weather. The plant should be watered in its container before planting. After planting the dirt should be tamped down around the plant making sure no air pockets are left around the roots. Water the dirt to make sure it has settled into the hole and that the plant is securely anchored in an upright position. Depending on the garden's soil conditions, fertilizer usually is not be necessary and may even harm the roots of some plants. Do not water the plant again until the surface inch of soil has dried out. Since clay can form a crust, break up the soil gently around the base of the plant if you see the water running off and not soaking into the soil. A two- to four-inch layer of mulch around the base of young plants will retain moisture and suppress weeds.

PLANT COMMUNITY: CHAPARRAL SELECTIONS

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	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	TREES									
8	Toyon (* =spiny leaves) *Heteromeles arbutifolia*	CSS,Chaparral (<4500')	Summer	1'/15'(30') 15'spread	clay,sandy (pH 5-8)	small	full sun	all	yes	food
9	California Walnut *Juglans californica*	Chaparral, Woodland (150-3000')	Spring	1'/25' 20'spread	clay,loam (pH 6-8)	small	cool sun	birds	yes	food, dye
18	Hollyleaf Cherry *Prunus ilicifolia* ssp. *ilicifolia* (*=spiny leaves)	Chaparral, Woodland (<5000)	Spring	?/25' 10'+spread	clay,sandy (pH 4-8)	small drain well	cool sun	all	yes	food
21	Coast Live Oak *Quercus agrifolia* (*=spiny leaves)	Chaparral, Riparian, Woodland (<5000')	Spring	3'/80' 50'spread	clay,sandy (pH 4-8)	deep water drain well	cool sun	all	yes:with processing	food: acorns very good
	SHRUBS									
22	Greenbark Ceanothus *Ceanothus spinosus* (*=spiny twigs)	Chaparral, Woodland (<3000')	Spring	?/20' 10'+spread	clay,sandy (pH 6-8)	small	full sun	butterflies	no	
24	Mountain Mahogany *Cercocarpus betuloides*	Chaparral, Woodland (<6000')	Spring	2'/20' 10'spread	clay,sandy (pH 5-8)	small	full sun	all	no	roots:tools arrows,pipe
48	Our Lord's Candle(* =leaves) *Hesperoyucca whipplei* (*Yucca whipplei*)	CSS,Chaparral, Creosote Bush (<4000')	Spring	3'/12'	clay,sandy (pH 6-8)	small	full sun	moth all	no	food:flowers & stalks
61	Bush Monkey Flower *Mimulus aurantiacus* var. *pubescens* (*Mimulus longiflorus*)	CSS, Chaparral (<5000')	Spring- Summer	?/2' 2'spread	clay,sandy (pH 6-8)	small	full sun	butterflies	no	
79	Sugar Bush *Rhus ovata*	Chaparral, Woodland (<4000')	Spring	?/20' 10'spread	clay,sandy (pH 6-8)	small	full sun	all	see recipe	beverage, medicine
95	Black Sage *Salvia mellifera*	CSS, Chaparral (<2000')	Spring- Summer	?/5' 6'spread	sandy,loam (pH 4-8)	small drain well	full sun	all	yes:with processing	food, medicine

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Island=Catalina Island

Riparian=Streamside
Creosote Bush=Desert Wash

PLANT COMMUNITY: CHAPARRAL SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	PERENNIALS									
54	Bush Lupine *Lupinus longifolius*	CSS,Chaparral, Woodland (2000')	Spring	4'/4' 4'spread	clay,sandy (pH 6-8)	small	cool sun	all	no	
65	California Everlasting *Pseudognaphalium californicum* *(Gnaphalium californicum)*	CSS,Chaparral, Woodland (<5000')	Winter- Summer	3'/3'	clay,sandy	small	full sun	insects	no	medicine
79	Purple Nightshade *Solanum xanti* (*Solanum xanti* var.*intermedium*)	Chaparral, Woodland (<5000')	Winter- Spring	3'/3' 3'spread	clay,loam (pH 5.5-7.5)	small	cool sun	insects	no	
88	Canyon Sunflower *Venegasia carpesioides*	CSS,Chaparral, Woodland (<2700')	Winter- Fall	7'/7' 7'spread	clay (pH 5-7.5)	small	cool sun	all	no	
	ANNUALS									
7	Miner's Lettuce *Claytonia perfoliata* ssp. *perfoliata*	CSS,Chaparral, Woodland (<5000')	Winter- Spring	1'/1' 1'spread	clay,sandy	moderate	shade		no	food: leaves
25	Fiesta Flower *Pholistoma auritum*	CSS,Chaparral, Island, Woodland (<4500')	Spring	3'/3' 3'spread	clay,sandy	small	cool sun	insects	no	
27	Chia *Salvia columbariae*	CSS,Chaparral, Creosote Bush (<7000')	Spring	2'/2'	clay,gravel (pH 6-8)	small drain well	full sun	insects	yes:with processing	food:seeds medicine
	PERENNIAL GRASSES									
14	Chaparral Melica *Melica imperfecta*	CSS,Chaparral, Woodland, Island (<5000')	Summer	3'/3' clumps	clay,rocky	small	cool sun	all	no	
16	Deer Grass *Muhlenbergia rigens*	Chaparral,Forest, Grassland, Woodland, (<7000')	Summer	4'/4' clumps	sandy, gravel (pH 5-8)	moderate drain well	cool sun	all	no	basketry

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PLANT COMMUNITY: COASTAL SAGE SCRUB SELECTIONS:

PLANT COMMUNITY: COASTAL SAGE SCRUB SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	TREES									
8	Toyon *Heteromeles arbutifolia* (*=spiny leaves)	CSS,Chaparral, Woodland (<4500')	Summer	1'/15'(30') 15'spread	clay,sandy (pH 5-8)	small	full sun	all	yes	food
11	Wax Myrtle *Morella californica* (*Myrica californica*)	CSS, Forest (<500')	Spring	?/35' 10'+spread	clay,sandy (pH 4-7.5)	deep water drain well	cool sun	birds	no	medicine
	SHRUBS									
1	Chamise *Adenostoma fasciculatum*	CSS,Chaparral, Woodland (<5000')	Spring	?/10'	clay,sandy (pH 5-8)	small	full sun	all	no	wood,arrows, medicine
7	California Sagebrush *Artemisia californica*	CSS,Chaparral, Woodland (<2500')	Fall	fast/5' 4'spread	clay,sandy (pH 5-8.5)	small drain well	full sun	all	no	medicine
12	Coyote Bush *Baccharis pilularis*	CSS,Woodland (<2500')	Fall	fast/8' 8'spread	clay,sandy (pH 5-8)	water 1st year	full sun	birds	no	
15	Brickel Bush *Brickellia californica*	CSS,Chaparral (<8000')	Fall	?/3' 2'spread	clay,sandy (pH 5-7.5)	small	cool sun		no	
30	Bush Sunflower *Encelia californica*	CSS,Chaparral (<2000')	Winter- Spring	fast/4' 4'spread	clay,sandy (pH 6-8)	small drain well	full sun	butterflies	no	
38	California Buckwheat *Eriogonum fasciculatum*	CSS,Chaparral, Woodland (<7500')	Summer- Fall	?/5' 6'spread	clay,sandy (pH 6-7.5)	small	full sun	butterflies, bees	no	flower:food medicine
47	Goldenbush *Hazardia squarrosa* *(Haplopappus squarrosus)*	CSS,Chaparral (<4500')	Summer- Fall	?/3' 3'spread	clay (pH 5.5-7.5)	small	full sun		no	
48	Our Lord's Candle *Hesperoyucca whipplei* (*Yucca whipplei*) (*Yucca whipplei* ssp.*whipplei*)	CSS,Chaparral, Creosote Bush (<4000') (<4000')	Spring	3'/12'	clay,sandy (pH 6-8)	small	full sun	moth all	no	food:flowers & stalks
59	Bush Mallow *Malacothamnus fasciculatus*	CSS,Chaparral (<2500')	Spring- Summer	fast/12' 12'spread	clay (pH 6-7)	small	cool sun	all	no	

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PLANT COMMUNITY: COASTAL SAGE SCRUB SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	SHRUBS (continued)									
61	Bush Monkey Flower *Mimulus aurantiacus* var. *pubescens* (*Mimulus longiflorus*)	CSS,Chaparral (<5000')	Spring- Summer	?/2' 2'spread	clay,sandy (pH 6-8)	small	full sun	butterflies	no	
62	Parry's Nolina *Nolina parryi*	CSS,Chaparral (3500-5500')	Spring	?/4' 3-6'spread	clay (pH 6-8)	small drain well	cool sun		no	
64	Coast Prickly Pear *Opuntia littoralis*	CSS,Chaparral (30-1300')	Spring	?/1-2' spreads	clay,sandy (pH 6-8)	small	full sun		yes	food:pads & fruit
65	Prickly Pear *Opuntia oricola*	CSS,Chaparral (10-1300')	Spring	?/8' spreads	clay,sandy (pH 6-8)	small	full sun		yes	food:pads & fruit
66	Bladderpod *Peritoma arborea* (*Isomeris arborea*)	CSS, Creosote Bush (0-4000')	All year	?/6' 5'spread	clay,sandy (pH 7-9)	small	full sun	butterflies	yes:with processing	food
76	Spiny Redberry *Rhamnus crocea*	CSS, Chaparral (<3000')	Spring	?/4' 4-6'spread	clay,sandy (pH 5-7)	small drain well	cool sun	butterflies	yes:with processing	medicine,food
78	Lemonade Berry *Rhus integrifolia*	CSS,Chaparral (<2600')	Winter- Spring	?/20' 10'spread	clay,sandy (pH 5-8)	small	full sun	all	see recipe	beverage, medicine
84	Fuschia-flowered Gooseberry *Ribes speciosum*	CSS,Chaparral (<2000')	Winter- Spring	?/8' 6'spread	clay,sandy (pH 4-7.5)	small drain well	cool sun	all	yes	food
94	Purple Sage *Salvia leucophylla*	CSS (150-2500')	Spring- Summer	?/5' 4'spread	clay,sandy (pH 6-8)	small	full sun	all	no?	
103	Woolly Blue Curls *Trichostemma lanatum*	CSS,Chaparral (<4500')	Spring- Summer	4'/4' 4'spread	clay,gravel (pH 6-7.5)	small drain well	cool sun	all	no	medicine
	PERENNIALS									
2	White Yarrow *Achillea millefolium*	CSS,Chaparral (<3000')	Spring- Summer	3'/3' spreads	all (pH 4-8)	small	full sun	butterflies	no	medicine
3	Deerweed *Acmispon graber* (*Lotus scoparius*)	CSS,Chaparral, Strand (<5000)	Spring- Summer	3'/3' 3'+spread	clay,sandy (pH 5.5-8)	small	full sun	insects	no	building material
26	Shooting Star *Dodecatheon clevelandii*	CSS,Chaparral, Grassland (<2000')	Winter- Spring	1'/1'	clay (pH 6-8)	small	full sun	insects	no	

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PLANT COMMUNITY: COASTAL SAGE SCRUB SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	PERENNIALS (continued)									
28	Lance-leaved Dudleya *Dudleya lanceolata*	CSS,Chaparral, Woodland (100-4000')	Spring- Summer	2' 2' at base	clay,sandy (pH 5-7.5)	small drain well	cool sun	hummingbird	no	food: leaves, stems
33	California Fuchsia *Epilobium canum* ssp. *canum* (*Zauschneria californica,* *Zauschneria cana*)	CSS,Chaparral, Island (<2000')	Fall	?/3' 4'spread	clay,sandy (pH 6-8)	small drain well	cool sun	hummingbird	no	
35	Conejo Buckwheat *Eriogonum crocatum*	CSS (150-500')	Spring- Summer	?/1' 3'spread	clay (pH 6-8)	small	full sun	butterflies	no	food, medicine
36	Wand Buckwheat *Eriogonum elongatum*	CSS,Chaparral (150-6000')	Fall	?/6'	clay (pH 6-8)	small	full sun	butterflies	no	food, medicine
38	Golden Yarrow *Eriophyllum convertiflorum*	CSS,Chaparral (<10,000')	Spring- Summer	2'/2' 1'spread	clay,sandy (pH 5-8)	small	full sun	butterflies	yes:with processing	food, medicine
40	California Poppy *Eschscholzia californica*	CSS,Chaparral, Grassland, Woodland (<6500')	Winter- Fall	2'/2'	clay,sandy (pH 5-8)	small	full sun	insects	no	pollen: cosmetic
42	Goldenbush *Hazardia squarrosus* (*Haplopappus squarrosus* ssp. *grindelioides*)	CSS, Chaparral (400-4500')	Fall	3'/3' 3'spread	clay,sandy (pH 5.5-7.5)	small	full sun	insects	no	
54	Bush Lupine *Lupinus longifolius*	CSS,Chaparral, Woodland (2000')	Spring	4'/4' 4'spread	clay,sandy (pH 6-8)	small	cool sun	all	no	
62	Royal Penstemon *Penstemon spectabilis*	CSS, Chaparral, Woodland (<7000')	Spring	3'/3' 3'spread	clay,sandy (pH 6-8)	small drain well	full sun	hummingbird insects	no	
64	Bicolor Everlasting *Pseudognaphalium bicolor* (*Gnaphalium bicolor*)	CSS,Chaparral, Island (<2500')	Winter- Spring	3'/3'	clay,sandy	small	full sun	insects	no	medicine
65	California Everlasting *Pseudgnaphalium californicum* (*Gnaphalium californicum*)	CSS,Chaparral, Woodland (<5000')	Winter- Summer	3'/3'	clay,sandy	small	full sun	insects	no	medicine

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PLANT COMMUNITY: COASTAL SAGE SCRUB SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	PERENNIALS (continued)									
66	Hummingbird Sage *Salvia spathacea*	CSS,Chaparral, Woodland (<2500')	Spring	2'/2' spreads	clay,sandy (pH 5-7)	moderate	cool sun	hummingbird insects	no	medicine
76	Checker Mallow *Sidalcea malvaeflora*	CSS,Grassland (<1500')	Spring	3'/3'	sandy clay (pH 6-7)	small	cool sun	insects	no	
	ANNUALS									
5	Farewell-to-spring *Clarkia bottae* (*Clarkia deflexa*)	CSS,Chaparral, Woodland (<3000')	Spring	3'/3'	clay,sandy (pH 6-8)?	small	full sun	insects	no	
6	Elegant Clarkia *Clarkia unguiculata*	CSS,Chaparral, Grassland, Woodland (<5000')	Spring	3'/3'	clay,sandy (pH 6-8)	small	cool sun	insects	no	
7	Miner's Lettuce *Claytonia perfoliata* ssp. *perfoliata*	CSS,Chaparral, Woodland (<5000')	Winter- Spring	1'/1' 1'spread	clay,sandy	moderate	shade		no	food: leaves
8	Chinese Houses *Collinsia heterophylla*	CSS,Chaparral, Riparian, Woodland (<3000')	Spring	1'/1'	clay,sandy (pH 5-8)	moderate	shade	all	no	
15	Tidy Tips *Layia platyglossa* (*Layia platyglossa* ssp. *campestris*)	CSS, Island, Grassland (<6000')	Spring	1'/1' 2'spread	clay,loam (pH 5-8)	small	full sun	insects	no	
17	Succulent Lupine *Lupinus succulentus*	CSS,Chaparral, Grassland, Woodland (<2500')	Winter- Spring	3'/3' 3'spread	clay,gravel (pH 6-8.5)	small	full sun	insects	no	
19	Baby Blue Eyes *Nemophila menziesii* ssp. menziesii	CSS,Chaparral, Grassland, Woodland (<5000)	Winter- Spring	1'/1'	loamy clay	small	cool sun	insects	no	

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	ANNUALS (continued)									
22	Wild Canterbury Bells *Phacelia minor*	CSS, Chaparral (<5000')	Spring	2'/2' 2'spread	clay,sandy (pH 6-8)?	small	full sun	insects	no	
23	Parry's Phacelia *Phacelia parryi* (*=plant hairs may irritate skin)	CSS,Chaparral, Creosote Bush (<4000')	Spring	1'/1' 1'spread	clay,sandy (pH 6-8)?	small	full sun	insects	no	
27	Chia *Salvia columbariae*	CSS,Chaparral, Creosote Bush (<7000')	Spring	2'/2'	clay,gravel (pH 6-8)	small drain well	full sun	insects	yes:with processing	food:seeds medicine
	BULBS									
6	Blue Dicks *Dichelostemma capitatum* (*Dichelostemma pulchella*)	Scrub,Chaparral, Grassland, Woodland (<7500')	Spring	2'/2'	clay,sandy	small drain well	full sun		no	food: corms
	FERNS									
6	California Polypody *Polypodium californicum*	CSS,Chaparral, Riparian (<4000')		1'	clay,sandy	moderate	shade		no	
	PERENNIAL GRASSES									
3	Beard Grass/Bluestem *Andropogon glomeratus* var. *scabriglumis* (*Andropogon glomeratus*)	CSS,Chaparral, Riparian, Creosote Bush (<2000')	Fall- Winter	1'/1'	clay,silty	moderate	full sun	all	no	
4	Caned Bluestem *Bothriochloa barbinodis*	CSS,Chaparral, Joshua Tree, Island (<4000')	All year	4'/4' clumps	clay,gravel	small	full sun	all	no	
5	California Brome *Bromus carinatus*	CSS,Chaparral, Woodland,Forest (<8000')	Spring- Summer	4'/4'	clay,sandy	small	full sun	all	no	

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	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	PERENNIAL GRASSES(continued)									
19	Nodding Needlegrass *Stipa cernua* (*Nassella cernua*) (*=needle-like seeds)	CSS,Chaparral, Grassland, Woodland (<4500')	Spring	3'/3' clumps	clay,sandy (pH 6-8)	small	full sun	all	no:needle- like seeds	
22	Foothill Needlegrass *Stipa lepida* (*Nassella lepida*) (*=needle-like seeds)	CSS,Chaparral, Grassland, Island (<5500')	Spring	3'/3' clumps	clay,sandy (pH 6-8)	small	cool sun	all	no:needle- like seeds	
23	Purple Needlegrass *Stipa pulchra* (*Nassella pulchra*) (*=needle-like seeds)	CSS,Chaparral, Grassland, Woodland,Island (<5000')	Spring	3'/3' clumps	clay,sandy (pH 6-8)	small drain well	full sun	all	no:needle- like seeds	
	VINES									
1	Morning Glory *Calystegia macrostegia*	CSS, Chaparral (<3000')	Spring	30' spreads	clay,sandy	small	cool sun		no	
4	Wild Sweet Pea *Lathyrus vestitus* var.*vestitus* (*Lathyrus laetiflorus* var. *laetiflorus*)	CSS,Chaparral, Woodland (<5000')	Spring	10' erect, climbs	clay,sandy	small	cool sun	all	no	
6	Wild Cucumber (*=seedpods) *Marah macrocarpus*	CSS,Chaparral, Woodland (<3000')	Winter- Spring	20'+ climbs	clay,sandy	small	full sun	all	no	

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PLANT COMMUNITY: GRASSLAND SELECTIONS

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	COMMON NAME(*=thorns) NEW SCIENTIFIC NAME (OLD SCIENTIFIC NAME)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	SHRUBS									
10	Quail Bush *Atriplex lentiformis*	CSS,Grassland (<5000')	Summer- Fall	?/10' 10'spread	sandy (pH 6-9)	small	full sun	birds	yes	food, soap, medicine
	PERENNIALS									
40	California Poppy *Eschscholzia californica*	CSS,Chaparral, Grassland, Woodland (<6500')	Winter- Fall	2'/2'	clay,sandy (pH 5-8)	small	full sun	insects	no	pollen: cosmetic
53	Woodland Star *Lithophragma affine*	Chaparral, Grassland, Woodland (<3500')	Spring	2'/2'	sandy,rocky (pH 5-7)	small drain well	shade		no	
74	Sandwash Groundsel *Senecio flaccidus* var.*douglasii* (*Senecio douglasii* var. *douglasii*)	CSS,Chaparral, Grassland, Woodland (<6000')	Summer- Fall	5'/5' 3'spread	sandy,rocky (pH 6-8)	small drain well	full sun	insects	no	
76	Checker Mallow *Sidalcea malviflora*	CSS,Grassland (<1500')	Spring	3'/3'	sandy clay (pH 6-7)	small	cool sun	insects	no	
78	Blue-eyed Grass *Sisyrinchium bellum*	Chaparral,Island, Grassland, Woodland (<3000')	Winter- Spring	2'/2'	clay,sandy (pH 5-8)	small	full sun		no	
	ANNUALS									
2	Red Maids *Calandrinia ciliata*	Grassland, Woodland (<6000')	Winter- Spring	1'/1' 1'spread	sandy,loam	small drain well	full sun	insects	no	
3	Owl's Clover *Castilleja densiflora* (*Orthocarpus densiflorus* var. *densiflorus*)	Chaparral, Grassland, Woodland (<2500')	Spring	1'/1'	clay,sandy	small	full sun	insects	no	

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PLANT COMMUNITY: GRASSLAND SELECTIONS

	COMMON NAME(*=thorns) NEW SCIENTIFIC NAME (OLD SCIENTIFIC NAME)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	ANNUALS(continued)									
4	Purple Owl's Clover *Castilleja exserta* ssp. *latifolia* (*Orthocarpus purpurascens* var. *purpurascens*)	CSS, Chaparral, Grassland (<3000')	Spring	1'/1'	clay,sandy	small	full sun	insects	no	
6	Elegant Clarkia *Clarkia unguiculata*	CSS,Chaparral, Grassland, Woodland (<5000')	Spring	3'/3'	clay,sandy (pH 6-8)	small	cool sun	insects	no	
9	Collarless Poppy *Eschscholzia caespitosa*	Chaparral, Grassland, Woodland (<3500')	Spring	1'/1'	clay,sandy (pH 6-8)	small	full sun	insects	no	medicine, cosmetic
12	Common Sunflower *Helianthus annuus* (*Helianthus annuus* ssp. *lenticularis)*	All except Desert (<5000')	Winter- Fall	10'/10'	clay,sandy (pH 5-8)?	moderate	full sun	all	yes:with processing	food:seeds
13	Coast Goldfields *Lasthenia californica* (*Lasthenia chrysostoma*)	CSS, Island, Creosote Bush, Grassland (<3000')	Winter- Spring	1'/1'	sandy	small	full sun	insects	no	
16	Chick Lupine *Lupinus microcarpus* var. *microcarpus* (*Lupinus densiflorus* var.*palustris*)	Chaparral, Grassland (<2500')	Spring	1'/1' 2'spread	clay,sandy (pH 6-8.5)	small	full sun	insects	no	
21	Wind Poppy *Papaver heterophylla* (*Stylomecon heterophylla*)	Chaparral, Grassland, Woodland (<4000')	Spring	2'/2'	clay,sandy	small drain well	cool sun	insects	no	
26	Cream Cups *Platystemon californicus*	Chaparral, Grassland, Woodland (<3000')	Spring	1'/1'	clay,sandy	small drain well	full sun	insects	no	

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	BULBS									
6	Blue Dicks *Dichelostemma capitatum* (*Dichelostemma pulchella*)	Scrub,Chaparral, Grassland, Woodland (<7500')	Spring	2'/2'	clay,sandy	small drain well	full sun		no	food: corms
	PERENNIAL GRASSES									
12	Meadow Barley *Hordeum brachyantherum* ssp. *californicum* (*Hordeum californicum*)	Riparian,Scrub Grassland (<1700')	Spring- Summer	2'/2'	clay,sandy	moderate drain well	full sun	all	no	
16	Deer Grass *Muhlenbergia rigens*	Chaparral,Forest, Grassland, Woodland (<7000')	Summer	4'/4' clumps	sandy, gravel (pH 5-8)	moderate drain well	cool sun	all	no	basketry
19	Nodding Needlegrass *Stipa cernua* (*Nassella cernua*)	CSS,Chaparral, Grassland, Woodland (<4500')	Spring	3'/3' clumps	clay,sandy (pH 6-8)	small	full sun	all	no:needle- like seeds	
22	Foothill Needlegrass *Stipa lepida* (*Nassella lepida*)	CSS,Chaparral, Grassland, Island (<5500')	Spring	3'/3' clumps	clay,sandy (pH 6-8)	small	cool sun	all	no:needle- like seeds	
23	Purple Needlegrass *Stipa pulchra* (*Nassella pulchra*)	CSS,Chaparral, Grassland, Woodland, Island (<5000')	Spring	3'/3' clumps	clay,sandy (pH 6-8)	small drain well	full sun	all	no:needle- like seeds	

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PLANT COMMUNITY: RIPARIAN SELECTIONS

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	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	TREES									
1	Bigleaf Maple *Acer macrophyllum*	Riparian (<5000')	Spring	10'/50' 20'spread	clay (pH 4-8)	moderate to ample	cool sun		no	baskets
2	White Alder *Alnus rhombifolia*	Riparian (300-8000')	Winter- Spring	10'/50' 40'spread	clay, sandy (pH 4-8)	ample	full sun		no	dyes, to smoke meat
17	Black Cottonwood *Populus trichocarpa* (*P. balsamifera* ssp.*trichocarpa*)	Riparian (<9000')	Spring	30'/100'	clay,sandy (pH 4-7)	moderate	cool sun	all	no	food: bark, building materials
21	Coast Live Oak *Quercus agrifolia* (*=spiny leaves)	Chaparral, Riparian, Woodland (<5000')	Spring	3'/80' 50'spread	clay,sandy (pH 4-8)	deep water drain well	cool sun	all	yes:with processing	food: acorns very good
29	Arroyo Willow *Salix lasiolepis*	Riparian (<7000')	Spring	4'/30' 20'+spread	clay,sandy (pH 5-7.5)	ample	cool sun	butterflies, birds	no	medicine, baskets,poles
30	Blue Elderberry *Sambucus nigra* ssp. *caerla* (*Sambucus mexicana*)	Chaparral, Riparian, Woodland (<4500')	Spring, Summer	?/20' 15'+spread	clay (pH 5-7)	moderate	cool sun	all	yes	food,medicine, dye,flutes
	SHRUBS									
13	Mule Fat *Baccharis salicifolia* (*B. glutinosa, B. viminea*)	CSS,Chaparral, Riparian (<2500')	Winter- Spring	fast/10' 8'spread	clay,sandy (pH 6-8)	water 1st year	full sun	birds	no	medicine, poles
14	Nevin's Barberry *Berberis nevinii* (*Mahonia nevinii*)	Chaparral Riparian (<2000')	Spring	fast/12' 12'spread	clay,sandy (pH 6-8.5)	small	cool sun	birds	no	
57	California Honeysuckle *Lonicera hispidula*	Chaparral Riparian, Woodland (<3500')	Spring- Summer	vine-like to 20'	clay,sandy (pH 5-7)	deep water drain well	cool sun	birds, bees	yes,bitter taste	baskets
85	California Rose(*=spiny stems) *Rosa californica*	Riparian (<6000')	Spring- Summer	2'/8' 20'+spread	clay,sandy (pH 5-8)	moderate	cool sun	all	yes	food: buds medicine

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PLANT COMMUNITY: RIPARIAN SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	SHRUBS(continued)									
89	California Blackberry *Rubus ursinus* (*=spiny stems)	Chaparral & Woodland Riparian (<5000')	Spring	mounds spreads	clay,sandy	moderate	cool sun	all	yes	food, medicine
	PERENNIALS									
7	Columbine *Aquilegia formosa* *(A. formosa* var.*truncata)*	Riparian (<8000')	Summer	2'/5'	clay,gravel (pH 4-7.5)	ample	cool sun	all	no	ritual medicine
8	Spikenard *Aralia californica*	Riparian (<6000')	Summer	3'/9'	clay,sandy	ample	cool sun		no	
9	Mugwort *Artemisia douglasiana*	Riparian (<7000')	Summer- Fall	5'/5' 3' spread	sandy clay	moderate	shady		no	medicine, arrow shafts
17	Sedge *Carex barbarae*	Riparian (<3000')		4'/4' spreads	silt,clay	moderate	full sun		no	baskets
45	Common Rush *Juncus patens*	Riparian (<5000')	Summer	3'/3' spreads	clay,sandy	ample	shade		no	basketry?
46	Rush *Juncus xiphioides*	Riparian (<7000')	Spring- Fall	3'/3' spreads	clay,sandy	ample	shade		no	basketry?
55	Scarlet Monkey Flower *Mimulus cardinalis*	Riparian (<8000')	Spring- Fall	2'/2' 2'spread	clay,sandy (pH 4-9)	moderate	cool sun	all	no	
63	Sticky Cinquefoil *Potentilla glandulosa*	Riparian (<7000')	Spring- Summer	2'/2'	clay,sandy (pH 5-7)	moderate	cool sun		no	medicine
	ANNUALS									
8	Chinese Houses *Collinsia heterophylla*	CSS,Chaparral, Riparian, Woodland (<3000')	Spring	1'/1'	clay,sandy (pH 5-8)	moderate	shade	all	no	
12	Common Sunflower *Helianthus annuus* (*H. annuus* ssp.*lenticularis*)	All except Desert (<5000')	Winter- Fall	10'/10'	clay,sandy (pH 5-8)?	moderate	full sun	all	yes:with processing	food:seeds

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Pinyon-Juniper=Pinyon-Juniper Woodland

PLANT COMMUNITY: RIPARIAN SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	BULBS									
6	Blue Dicks *Dichelostemma capitatum* (*Dichelostemma pulchella*)	Scrub,Chaparral, Grassland, Woodland (<7500')	Spring	2'/2'	clay,sandy	small drain well	full sun		no	food: corms
	FERNS									
1	Calif. Maiden-hair Fern *Adiantum jordani*	Chaparral, Riparian, Woodland (<3500')		1 1/2'	clay,sandy (pH 4-8)	moderate	shade		no	basketry
6	California Polypody *Polypodium californicum*	CSS, Chaparral, Riparian (<4000')		1'	clay,sandy	moderate	shade		no	
7	Bracken Fern *Pteridium aquilinum* var. *pubescens*	Riparian (<10,000')		5'	clay,sandy	moderate	cool sun		no	food:shoots
	PERENNIAL GRASSES									
1	Bentgrass *Agrostis exarata*	Riparian,Forest, Woodland (<7000')	Summer	3'/3'	clay,sandy	moderate	cool sun	all	no	
12	Meadow Barley *Hordeum brachyantherum* ssp. *californicum* (*Hordeum californicum*)	Riparian, Scrub, Grassland (<1700')	Spring- Summer	2'/2'	clay,sandy	moderate drain well	full sun	all	no	
	VINES									
2	Virgin's Bower, Pipestems *Clematis lasiantha*	Chaparral, Forest,Riparian (<6000')	Spring	20' climbs	clay,sandy (pH 5-8)	small drain well	cool sun	all	no	medicine, twine
7	Wild Grape *Vitis girdiana*	Riparian,Island (<4000')	Spring	20' climbs	clay,sandy (pH 6-8)	moderate	cool sun	all	yes	food

CSS=Coastal Sage Scrub
Island=Catalina Island
Creosote Bush=Desert Wash
Pinyon-Juniper=Pinyon-Juniper Woodland

PLANT COMMUNITY: WOODLAND SELECTIONS

PLANT COMMUNITY: WOODLAND SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	TREES									
8	Toyon *Heteromeles arbutifolia* (*=spiny leaves)	CSS,Chaparral, Woodland (<4500')	Summer	1'/15'(30') 15'spread	clay,sandy (pH 5-8)	small	full sun	all	yes	food
9	California Walnut *Juglans californica*	Chaparral, Woodland (150-3000')	Spring	1'/25' 20'spread	clay,loam (pH 6-8)	small	cool sun	birds	yes	food, dye
18	Hollyleaf Cherry *Prunus ilicifolia* ssp. *ilicifolia* (*=spiny leaves)	Chaparral, Woodland (<5000')	Spring	?/25' 10'+spread	clay,sandy (pH 4-8)	small drain well	cool sun	all	yes	food
21	Coast Live Oak *Quercus agrifolia* (*=spiny leaves)	Chaparral, Riparian, Woodland (<5000')	Spring	3'/80' 50'spread	clay,sandy (pH 4-8)	deep water drain well	cool sun	all	yes:with processing	food: acorns very good
25	Valley Oak *Quercus lobata*	Savanna, Woodland (<5500')	Spring	2-4'/70' widespread	clay,loam (pH 6-8)	deep water drain well	full sun	all	yes:with processing	food: acorns poor taste
	SHRUBS									
22	Greenbark Ceanothus *Ceanothus spinosus* (*=spiny twigs)	Chaparral, Woodland (<3000')	Spring	?/20' 10'+spread	clay,sandy (pH 6-8)	small	full sun	butterflies	no	
24	Mountain Mahogany *Cercocarpus betuloides*	Chaparral, Woodland (<6000')	Spring	2'/20' 10'spread	clay,sandy (pH 5-8)	small	full sun	all	no	roots:tools arrows,pipe
43	California Coffeeberry *Frangula californica* (*Rhamnus californica*)	Chaparral, Woodland (<3500')	Spring	fast/15' 10'spread	clay,sandy (pH 5-8)	small	cool sun	butterflies	no	medicine
57	California Honeysuckle *Lonicera hispidula*	Chaparral, Riparian, Woodland (<3500')	Spring- Summer	vine-like to 20'	clay,sandy (pH 5-7)	deep water drain well	cool sun	birds, bees	yes,bitter taste	baskets
72	Scrub Oak (*=spiny leaves) *Quercus berberidifolia* (*Quercus dumosa*)	Chaparral, Woodland (<5000')	Spring	1'/15' 8'spread	clay,sandy (pH 6-8)	small deep water	cool sun	all	yes:with processing	food: acorns wood, medicine

CSS=Coastal Sage Scrub
Island=Catalina Island
Riparian=Streamside
Creosote Bush=Desert Wash

PLANT COMMUNITY: WOODLAND SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	SHRUBS(continued)									
75	Interior Live Oak(*=spiny leaves) *Quercus wislizenii* var. *frutescens*	Chaparral, Woodland (1000-6000')	Spring	?/13' 13'spread	sandy clay (pH5.5-7)	small to moderate	full sun	all	yes:with processing	
79	Sugar Bush *Rhus ovata*	Chaparral, Woodland (<4000')	Spring	?/20' 10'spread	clay,sandy (pH 6-8)	small	full sun	all	see recipe	beverage, medicine
82	Hillside Gooseberry(*=thorns) *Ribes californicum* var. *hesperium*	Chaparral, Woodland (<3000')	Winter	?/5'	sandy clay (pH 6-8)	moderate	cool sun	all	yes	food
83	Chaparral Currant *Ribes malvaceum*	Chaparral, Woodland (<3000')	Winter	2'/8' 5'spread	sandy clay (pH 5.5-7)	small	cool sun	all	yes	food
	PERENNIALS									
10	Indian Milkweed *Asclepias eriocarpa*	Chaparral, Woodland (<7000')	Summer	3'/3'	clay (pH 6-8)	small	full sun	monarch butterflies	no	twine,gum
28	Lance-leaved Dudleya *Dudleya lanceolata*	CSS,Chaparral, Woodland (100-4000')	Spring- Summer	2' 2' at base	clay,sandy (pH 5-7.5)	small drain well	cool sun	hummingbird	no	food: leaves, stems
40	California Poppy *Eschscholzia californica*	CSS,Chaparral, Grassland, Woodland (<6500')	Winter- Fall	2'/2'	clay,sandy (pH 5-8)	small	full sun	insects	no	pollen: cosmetic
48	Climbing Penstemon *Keckiella cordifolia*	Chaparral, Woodland (<4000')	Spring- Summer	10'/10' 10'+spread	clay,sandy (pH 6-8)	moderate drain well	cool sun	butterflies, hummingbird	no	
59	California Peony *Paeonia californica*	CSS,Chaparral, Woodland (<4000')	Winter- Spring	2'/2'	clay,gravel (pH 5.5-7.5)	small drain well	cool sun		no	medicine
60	Scarlet Bugler *Penstemon centranthifolius*	Chaparral, Woodland (<6000')	Spring- Summer	4'/4' 1'spread	clay,sandy (pH 6-8)	small drain well	full sun	hummingbird insects	no	

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	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	PERENNIALS(continued)									
62	Royal Penstemon *Penstemon spectabilis*	CSS,Chaparral, Woodland (<7000')	Spring	3'/3' 3'spread	clay,sandy (pH 6-8)	small drain well	full sun	hummingbird insects	no	
65	California Everlasting *Pseudognaphalium californicum* (*Gnaphalium californicum*)	CSS,Chaparral, Woodland (<5000')	Winter- Summer	3'/3'	clay,sandy	small	full sun	insects	no	medicine
66	Hummingbird Sage *Salvia spathacea*	CSS,Chaparral, Woodland (<2500')	Spring	2'/2' spreads	clay,sandy (pH 5-7)	moderate	cool sun	hummingbird insects	no	medicine
67	Yerba Buena *Satureja douglasii*	Chaparral, Woodland (<3000')	Spring- Fall	1'/1' 3'spread	clay,sandy (pH 6-7.5)	moderate drain well	shade		no	medicine
71	California Figwort *Scrophularia californica*	CSS,Chaparral, Woodland (<6000')	Spring	4'/4'	clay (pH 4-7)	moderate	cool sun	insects	no	dye,medicine
77	Indian Pink *Silene laciniata* ssp.*major*	CSS,Chaparral, Woodland (<5000')	Spring- Summer	2'/2'	clay,sandy (pH 6-7)	small	cool sun	insects	no	
79	Purple Nightshade *Solanum xanti* (*Solanum xanti* var.*intermedium*)	Chaparral, Woodland (<5000')	Winter- Spring	3'/3' 3'spread	clay,loam (pH 5.5-7.5)	small	cool sun	insects	no	
84	Meadow Rue *Thalictrum fendleri* var. *polycarpum* (*Thalictrum polycarpum*)	Woodland (<4000')	Spring	4'/4'	clay,loam (pH 6-7)?	moderate	shade	all	no	
88	Canyon Sunflower *Venegasia carpesioides*	CSS,Chaparral, Woodland (<2700')	Winter- Fall	7'/7' 7'spread	clay (pH 5-7.5)	small	light shade	all	no	
	ANNUALS									
2	Red Maids *Calandrinia ciliata*	Grassland, Woodland (<6000')	Winter- Spring	1'/1' 1'spread	sandy,loam	small drain well	full sun	insects	no	

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	ANNUALS (continued)									
3	Owl's Clover *Castilleja densiflora* (*Orthocarpus densiflorus* var. *densiflorus*)	Chaparral, Grassland. Woodland (<2500')	Spring	1'/1'	clay,sandy	small	full sun	insects	no	
6	Elegant Clarkia *Clarkia unguiculata*	CSS,Chaparral, Grassland, Woodland (<5000')	Spring	3'/3'	clay,sandy (pH 6-8)	small	cool sun	insects	no	
7	Miner's Lettuce *Claytonia perfoliata* ssp. *perfoliata*	CSS,Chaparral, Woodland (<5000')	Winter- Spring	1'/1' 1'spread	clay,sandy	moderate	shade		no	food: leaves
8	Chinese Houses *Collinsia heterophylla*	CSS,Chaparral, Riparian, Woodland (<3000')	Spring	1'/1'	clay,sandy (pH 5-8)	moderate	shade	all	no	
9	Collarless Poppy *Eschscholzia caespitosa*	Chaparral, Grassland, Woodland (<3500')	Spring	1'/1'	clay,sandy (pH 6-8)	small	full sun	insects	no	medicine, cosmetic
12	Common Sunflower *Helianthus annuus* (*H. annuus* ssp. *lenticularis*)	All except Desert (<5000')	Winter- Fall	10'/10'	clay,sandy (pH 5-8)?	moderate	full sun	all	yes:with processing	food:seeds
17	Succulent Lupine *Lupinus succulentus*	CSS,Chaparral, Grassland, Woodland (<2500')	Winter- Spring	3'/3' 3'spread	clay,gravel (pH 6-8.5)	small	full sun	insects	no	
18	Mustang Mint *Monardella brewerii* *ssp. lanceolata* (*Monardella lanceolata*)	Chaparral, Woodland (<8000')	Summer	2'/2'	clay,loam	small drain well	cool sun	insects	no	
19	Baby Blue Eyes *Nemophila menziesii* ssp. *menziesii*	CSS,Chaparral, Grassland, Woodland (<5000')	Winter- Spring	1'/1'	loamy clay	small	cool sun	insects	no	

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	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	ANNUALS(continued)									
26	Cream Cups *Platystemon californicus*	Chaparral, Grassland, Woodland (<3000')	Spring	1'/1'	clay,sandy	small drain well	full sun	insects	no	
	BULBS									
1	Golden Stars *Bloomeria crocea*	Scrub,Chaparral, Grassland, Woodland (<5000')	Spring	2'/2'	clay (pH 6-8)	small	cool sun		no	food: corms
6	Blue Dicks *Dichelostemma capitatum* (*Dichelostemma pulchella*)	Scrub,Chaparral, Grassland, Woodland (<7500)	Spring	2'/2'	clay,sandy	small drain well	full sun		no	food: corms
	FERNS									
1	California Maiden-hair Fern *Adiantum jordani*	Chaparral, Riparian, Woodland (<3500')		1 1/2'	clay,sandy (pH 4-8)	moderate	shade		no	basketry
	PERENNIAL GRASSES									
1	Bentgrass *Agrostis exarata*	Riparian, Forest, Woodland (<7000')	Summer	3'/3'	clay,sandy	moderate	cool sun	all	no	
5	California Brome *Bromus carinatus*	CSS,Chaparral, Woodland,Forest (<8000')	Spring- Summer	4'/4'	clay,sandy	small	full sun	all	no	
9	Blue Wildrye *Elymus glaucus* ssp. *glaucus*	Chaparral, Woodland,Forest (<7500')	Summer	4'/4'	clay,sandy	moderate drain well	full sun	all	no	

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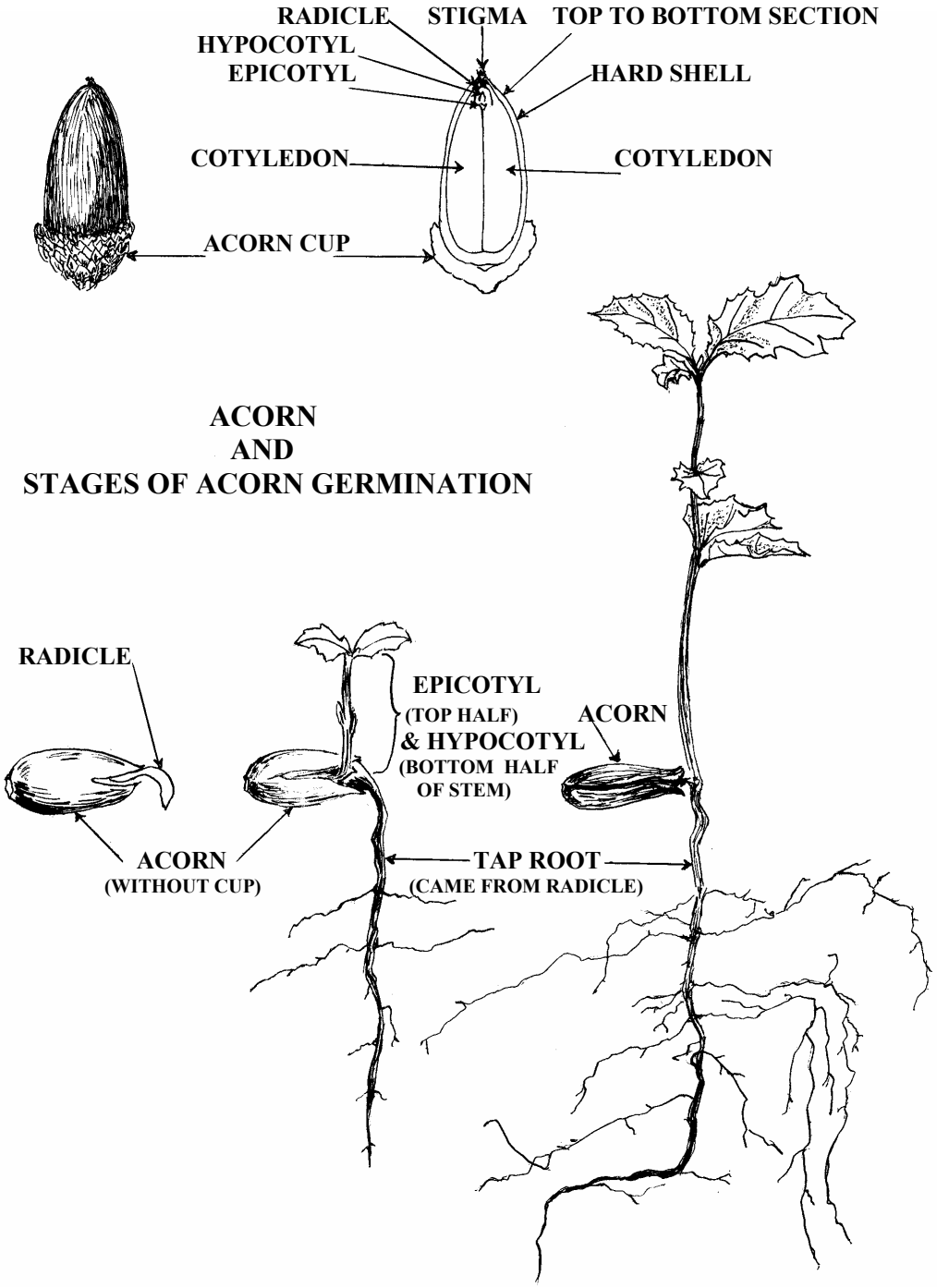
RADICLE
STIGMA
TOP TO BOTTOM SECTION
HYPOCOTYL
EPICOTYL
HARD SHELL
COTYLEDON
COTYLEDON
ACORN CUP
ACORN
AND
STAGES OF ACORN GERMINATION
RADICLE
EPICOTYL
(TOP HALF)
& HYPOCOTYL
(BOTTOM HALF
OF STEM)
ACORN
ACORN
(WITHOUT CUP)
TAP ROOT
(CAME FROM RADICLE)

NATIVE AMERICAN GARDEN SAMPLE SELECTIONS

Native American gardens are colorful, beautiful and excellent sources of curriculum material for everything from history to art to creative writing to cuisine to scientific observation and experimentation. Native plants have provided us with food, medicine, cosmetics, dyes, material for rituals, basketry, tools and construction. Early settlers and present-day people still use many of the same plant species.

The focus of the native American garden may be food, basketry sources, herbs, dyes, tools etc., or a combination of resources. Different tribes of native Americans may use native plants in different ways from other tribes. In general, if there is any variation in the way a native plant species is used, only the southern California usage is listed.

The native plant data base in this book lists those plants with fruit or seeds known to be edible. **If the native plant data base says it is not edible, don't eat it!** If the native plant data base says the fruit or seed is edible only **"with processing"** you will have to research how to make that part of the plant edible before eating it. A plant part listed as "**medicine**" or as "**tea**" is not edible raw.

If you are not sure which part of a plant is edible **do not experiment**. **Get an expert opinion. Resource books often contradict each other.** Some plant species, such as *Rhus* or sumac, may cause allergic reactions in students. Unripe fruit, overripe fruit, moldy seeds or nuts can cause illness. Teachers need to be very careful about experiments in processing and eating native plants or in attempting to prepare medicines using native plants. There are courses in gathering and using native plants at some local colleges and some excellent references that explain both the hazards and benefits of herbal medicines.

The native American garden selections have been separated into three plant communities (chaparral, coastal sage scrub and riparian) to aid in designing with compatible plants. Read the pages on the architecture of chaparral, coastal sage scrub and riparian communities under "Plant Community Garden, Sample Selections" if you are interested in structuring your native American garden more authentically, as it would be in nature.

You will have to ensure that the plants you choose receive the correct amounts of sun, shade and water. One of the main design considerations is giving the plants room to grow. Many of these plants grow very quickly and will crowd out the other plants if too many plants are placed in too small a space. Check the growth rate and mature size when planning your garden. Species like white sage or deer grass form large clumps quickly and have extensive root systems. Note that trees must not be planted near foundations or walls or water mains. Most of the trees have large canopies (a coast live oak needs a fifty-foot diameter clear space to grow in, for instance). Tall shrubs (small trees) might be preferable for most school situations.

WARNING!

Because schools may be located near industrial sites or may have used hazardous chemicals in previous landscaping or may have dumped chemicals during previous building or remodeling projects, **you must test the soil if you intend to eat any plants from your garden.** If the soil proves to be contaminated, it must be removed or cleaned and retested.

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NATIVE AMERICAN GARDENS: CHAPARRAL SELECTIONS

NATIVE AMERICAN GARDENS: CHAPARRAL SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	TREES									
8	Toyon *Heteromeles arbutifolia*	CSS,Chaparral (<4500')	Summer	1'/15'(30') 15'spread	clay,sandy (pH 5-8)	small	full sun	all	yes	food
9	California Walnut *Juglans californica*	Chaparral, Woodland (150-3000')	Spring	1'/25' 20'spread	clay,loam (pH 6-8)	small	cool sun	birds	yes	food, dye
18	Hollyleaf Cherry *Prunus ilicifolia* ssp. *ilicifolia*	Chaparral, Woodland (<5000')	Spring	?/25' 10'+spread	clay,sandy (pH 4-8)	small drain well	cool sun	all	yes	food
21	Coast Live Oak *Quercus agrifolia*	Chaparral, Riparian, Woodland (<5000')	Spring	3'/80' 50'spread	clay,sandy (pH 4-8)	deep water drain well	cool sun	all	yes:with processing	acorns:food very good
30	Blue Elderberry *Sambucus nigra* ssp. *caerlea* (*Sambucus mexicana*)	Chaparral, Riparian, Woodland (<4500')	Spring, Summer	?/20' 15'+spread	clay (pH 5-7)	moderate	cool sun	all	yes	food,medicine dye,flutes
	SHRUBS									
1	Chamise *Adenostoma fasciculatum*	CSS,Chaparral, Woodland (<5000')	Spring	?/10'	clay,sandy (pH 5-8)	small	full sun	all	no	wood,arrows, medicine
5	Eastwood Manzanita *Arctostaphylos glandulosa*	Chaparral (1000-6000')	Spring	?/8' 10'spread	clay,sandy (pH 5.5-8)	small	cool sun	all	yes	food, tools, medicine
7	California Sagebrush *Artemisia californica*	CSS,Chaparral, Woodland (<2500')	Fall	fast/5' 4'spread	clay,sandy (pH 5-8.5)	small drain well	full sun	all	no	medicine
24	Mountain Mahogany *Cercocarpus betuloides*	Chaparral, Woodland (<6000')	Spring	2'/20' 10'spread	clay,sandy (pH 5-8)	small	full sun	all	no	roots:tools arrows,pipe
36	Yerba Santa *Eriodictyon crassifolium*	Chaparral, Pinyon-Juniper (100-6000')	Spring	?/5' spreads	gravel (pH 6-8)	small drain well	full sun		no	medicine

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	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	SHRUBS (continued)									
38	California Buckwheat *Eriogonum fasciculatum*	CSS,Chaparral, Woodland (<7500')	Summer- Fall	?/5' 6'spread	clay,sandy (pH 6-7.5)	small	full sun	butterflies, bees	no	flower:food medicine
48	Our Lord's Candle *Hesperoyucca whipplei* (*Yucca whipplei* ssp.*whipplei*)	CSS, Chaparral, Creosote Bush (<4000')	Spring	3'/12'	clay,sandy (pH 6-8)	small	full sun	moth all	no	food:flowers & stalks
58	Wild Honeysuckle *Lonicera subspicata*	Chaparral (<3000')	Summer	vine-like to 8'	clay,sandy (pH 4-7.5)	deep water drain well	cool sun	birds, bees	no	baskets?
64	Coast Prickly Pear *Opuntia littoralis*	CSS,Chaparral (30-1300')	Spring	?/1-2' spreads	clay,sandy (pH 6-8)	small	full sun		yes	food:pads & fruit
65	Prickly Pear *Opuntia oricola*	CSS,Chaparral (10-1300')	Spring	?/8' spreads	clay,sandy (pH 6-8)	small	full sun		yes	food:pads & fruit
72	Scrub Oak *Quercus berberidifolia* (*Quercus dumosa*)	Chaparral, Woodland (<5000')	Spring	1'/15' 8'spread	clay,sandy (pH 6-8)	small deep water	cool sun	all	yes:with processing	acorns:food wood,medicine
76	Spiny Redberry *Rhamnus crocea*	CSS, Chaparral (<3000')	Spring	?/4' 4-6'spread	clay,sandy (pH 5-7)	small drain well	cool sun	butterflies	yes:with processing	medicine,food
78	Lemonade Berry *Rhus integrifolia*	CSS, Chaparral (<2600')	Winter- Spring	?/20' 10'spread	clay,sandy (pH 5-8)	small	full sun	all	see recipe	beverage, medicine
79	Sugar Bush *Rhus ovata*	Chaparral, Woodland (<4000')	Spring	?/20' 10'spread	clay,sandy (pH 6-8)	small	full sun	all	see recipe	beverage, medicine
80	Squaw Bush *Rhus trilobata*	Chaparral, Woodland (1500-6000')	Spring	?/5' 5'+spread	clay,sandy (pH 6-8)	small	cool sun	butterflies	yes	food,medicine baskets
82	Hillside Gooseberry *Ribes californicum* var. *hesperium*	Chaparral, Woodland (<3000')	Winter	?/5'	sandy clay (pH 6-8)	moderate	cool sun	all	yes	food
83	Chaparral Currant *Ribes malvaceum*	Chaparral, Woodland (<3000')	Winter	2'/8' 5'spread	sandy clay (pH 5.5-7)	small	cool sun	all	yes	food
84	Fuschia-flowered Gooseberry *Ribes speciosum*	CSS,Chaparral (<2000')	Winter- Spring	?/8' 6'spread	clay,sandy (pH 4-7.5)	small drain well	cool sun	all	yes	food

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	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	SHRUBS (continued)									
92	White Sage *Salvia apiana*	CSS, Chaparral, Pine Forest (<5000')	Spring, Summer	?/5' 5'spread	clay, rocky sandy, loam (pH 6.5-8.5)	small	full sun	all	yes:with processing	food,twine medicine
95	Black Sage *Salvia mellifera*	CSS, Chaparral (<2000')	Spring- Summer	?/5' 6'spread	sandy,loam (pH 4-8)	small drain well	full sun	all	yes:with processing	food, medicine
103	Woolly Blue Curls *Trichostemma lanatum*	CSS, Chaparral (<4500')	Spring- Summer	4'/4' 4'spread	clay,gravel (pH 6-7.5)	small drain well	cool sun	all	no	medicine
	PERENNIALS									
2	White Yarrow *Achillea millefolium*	CSS, Chaparral (<3000')	Spring- Summer	3'/3' spreads	all (pH 4-8)	small	full sun	butterflies	no	medicine
3	Deerweed *Acmispon glaber* (*Lotus scoparius*)	CSS, Chaparral, Strand (<5000')	Spring- Summer	3'/3' 3'+spread	clay,sandy (pH 5.5-8)	small	full sun	insects	no	building material
10	Indian Milkweed *Asclepias eriocarpa*	Chaparral, Woodland (<7000')	Summer	3'/3'	clay (pH 6-8)	small	full sun	monarch butterfly	no	twine,gum
11	Narrowleaf Milkweed *Asclepias fascicularis*	Chaparral,Island, Riparian, Woodland (<7000')	Summer	3'/3'	clay,loam (pH 6-8)	small	full sun	monarch butterfly	no	medicine, twine
20	California Croton *Croton californicus*	CSS,Chaparral, Strand (<3000')	Spring- Fall	3'/3'	sandy	small drain well	full sun		no	medicine
28	Lance-leaved Dudleya *Dudleya lanceolata*	CSS,Chaparral, Woodland (100-4000')	Spring- Summer	2' 2' at base	clay,sandy (pH 5-7.5)	small drain well	cool sun	hummingbird	no	leaves,stems: food
36	Wand Buckwheat *Eriogonum elongatum*	CSS,Chaparral (150-6000')	Fall	?/6'	clay (pH 6-8)	small	full sun	butterflies	no	food, medicine
38	Golden Yarrow *Eriophyllum convertiflorum*	CSS, Chaparral (<10,000')	Spring- Summer	2'/2' 1'spread	clay,sandy (pH 5-8)	small	full sun	butterflies	yes:with processing	food, medicine

CSS=Coastal Sage Scrub
Island=Catalina Island

Creosote Bush=Desert Wash
Pinyon-Juniper=Pinyon-Juniper Woodland

NATIVE AMERICAN GARDENS: CHAPARRAL SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	PERENNIALS (continued)									
40	California Poppy *Eschscholzia californica*	CSS,Chaparral, Grassland, Woodland (<6500')	Winter- Fall	2'/2'	clay,sandy (pH 5-8)	small	full sun	insects	no	pollen: cosmetic
66	Hummingbird Sage *Salvia spathacea*	CSS,Chaparral, Woodland (<2500')	Spring	2'/2' spreads	clay,sandy (pH 5-7)	moderate	cool sun	hummingbird insects	no	medicine
67	Yerba Buena *Satureja douglasii*	Chaparral, Woodland (<3000')	Spring- Fall	1'/1' 3'spread	clay,sandy (pH 6-7.5)	moderate drain well	shade		no	medicine
71	California Figwort *Scrophularia californica*	CSS, Chaparral, Woodland (<6000')	Spring	4'/4'	clay (pH 4-7)	moderate	cool sun	insects	no	dye,medicine?
	ANNUALS									
7	Miner's Lettuce *Claytonia perfoliata* ssp. *perfoliata*	CSS,Chaparral, Woodland (<5000')	Winter- Spring	1'/1' 1'spread	clay,sandy	moderate	shade		no	leaves:food
9	Collarless Poppy *Eschscholzia caespitosa*	Chaparral, Woodland, Grassland (<3500')	Spring	1'/1'	clay,sandy (pH 6-8)	small	full sun	insects	no	medicine, cosmetic
12	Common Sunflower *Helianthus annuus* (*H. annuus* ssp. *lenticularis*)	All except Desert (<5000')	Winter- Fall	10'/10'	clay,sandy (pH 5-8)?	moderate	full sun	all	yes:with processing	food:seeds
27	Chia *Salvia columbariae*	CSS, Chaparral, Creosote Bush (<7000')	Spring	2'/2'	clay,gravel (pH 6-8)	small drain well	full sun	insects	yes:with processing	food:seeds medicine
	BULBS									
1	Golden Stars *Bloomeria crocea*	Scrub,Chaparral, Grassland, Woodland (<5000')	Spring	2'/2'	clay (pH 6-8)	small	cool sun		no	corm:food

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Pinyon-Juniper=Pinyon-Juniper Woodland

NATIVE AMERICAN GARDENS: CHAPARRAL SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	BULBS (continued)									
6	Blue Dicks *Dichelostemma capitatum* (*Dichelostemma pulchella*)	Scrub,Chaparral, Grassland, Woodland (<7500')	Spring	2'/2'	clay,sandy	small drain well	full sun		no	corms:food
	FERNS									
1	Calif. Maiden-hair Fern *Adiantum jordani*	Chaparral, Riparian, Woodland (<3500')		1 1/2'	clay,sandy (pH 4-8)	moderate	shade		no	basketry
	PERENNIAL GRASSES									
8	Giant Wild Rye *Elymus condensatus* (*Leymus condensatus*)	CSS,Chaparral, Island, Woodland (<7000')	Summer	10'/10' clumps	clay,sandy	small	full sun	all	yes:with processing	famine food, roof thatch, arrow shafts
16	Deer Grass *Muhlenbergia rigens*	Chaparral, Forest, Grassland, Woodland (<7000')	Summer	4'/4' clumps	sandy, gravel (pH 5-8)	moderate drain well	cool sun	all	no	basketry
	VINES									
2	Virgin's Bower, Pipestems *Clematis lasiantha*	Chaparral, Forest Riparian (<6000')	Spring	20' climbs	clay,sandy (pH 5-8)	small drain well	cool sun	all	no	medicine, twine

CSS=Coastal Sage Scrub
Island=Catalina Island
Creosote Bush=Desert Wash
Pinyon-Juniper=Pinyon-Juniper Woodland

NATIVE AMERICAN GARDENS: COASTAL SAGE SCRUB SELECTIONS

NATIVE AMERICAN GARDEN: COASTAL SAGE SCRUB SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	TREES									
8	Toyon (*=spiny leaves) *Heteromeles arbutifolia*	CSS,Chaparral, Woodland (<4500')	Summer	1'/15'(30') 15'spread	clay,sandy (pH 5-8)	small	full sun	all	yes	food
	SHRUBS									
1	Chamise *Adenostoma fasciculatum*	CSS,Chaparral, Woodland (<5000')	Spring	?/10'	clay,sandy (pH 5-8)	small	full sun	all	no	wood,arrows, medicine
7	California Sagebrush *Artemisia californica*	CSS,Chaparral, Woodland (<2500')	Fall	fast/5' 4'spread	clay,sandy (pH 5-8.5)	small drain well	full sun	all	no	medicine
10	Quail Bush *Atriplex lentiformis*	CSS, Grassland (<5000')	Summer- Fall	?/10' 10'spread	sandy (pH 6-9)	small	full sun	birds	yes	food, soap, medicine
38	California Buckwheat *Eriogonum fasciculatum*	CSS,Chaparral, Woodland (<7500')	Summer- Fall	?/5' 6'spread	clay,sandy (pH 6-7.5)	small	full sun	butterflies, bees	no	flower:food medicine
48	Our Lord's Candle *Hesperoyucca whipplei* (*Yucca whipplei* ssp.*whipplei*) (*=spiny leaves)	CSS, Chaparral, Creosote Bush (<4000')	Spring	3'/12'	clay,sandy (pH 6-8)	small	full sun	moth all	no	food:flowers & stalks
64	Coast Prickly Pear (*=spines) *Opuntia littoralis*	CSS,Chaparral (30-1300')	Spring	?/1-2' spreads	clay,sandy (pH 6-8)	small	full sun		yes	food:pads & fruit
65	Prickly Pear (*=spines) *Opuntia oricola*	CSS,Chaparral (10-1300')	Spring	?/8' spreads	clay,sandy (pH 6-8)	small	full sun		yes	food:pads & fruit
66	Bladderpod *Peritoma arborea* (*Isomeris arborea*)	CSS, Creosote Bush (0-4000')	All year	?/6' 5'spread	clay,sandy (pH 7-9)	small	full sun	butterflies	yes:with processing	food
76	Spiny Redberry(*=twigs) *Rhamnus crocea*	CSS,Chaparral (<3000')	Spring	?/4' 4-6'spread	clay,sandy (pH 5-7)	small drain well	cool sun	butterflies	yes:with processing	medicine,food
78	Lemonade Berry *Rhus integrifolia*	CSS,Chaparral (<2600')	Winter- Spring	?/20' 10'spread	clay,sandy (pH 5-8)	small	full sun	all	see recipe	beverage, medicine
84	Fuschia-flowered Gooseberry *Ribes speciosum* (*=spiny)	CSS,Chaparral (<2000')	Winter- Spring	?/8' 6'spread	clay,sandy (pH 4-7.5)	small drain well	cool sun	all	yes	food

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NATIVE AMERICAN GARDEN: COASTAL SAGE SCRUB SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	SHRUBS(continued)									
92	White Sage *Salvia apiana*	CSS,Chaparral, Pine Forest (<5000')	Spring- Summer	?/5' 5'spread	clay,sandy, rocky (pH 6-8)	small	full sun	all	yes:with processing	food, twine, medicine
95	Black Sage *Salvia mellifera*	CSS,Chaparral (<2000')	Spring- Summer	?/5' 6' spread	clay,sandy (pH 4-8)	small drain well	full sun	all	yes:with processing	food, medicine
103	Woolly Blue Curls *Trichostemma lanatum*	CSS, Chaparral (<4500')	Spring- Summer	4'/4' 4'spread	clay,gravel (pH 6-7.5)	small drain well	cool sun	all	no	medicine
	PERENNIALS									
2	White Yarrow *Achillea millefolium*	CSS,Chaparral (<3000')	Spring- Summer	3'/3' spreads	all (pH 4-8)	small	full sun	butterflies	no	medicine
3	Deerweed *Acmispon glaber* (*Lotus scoparius*)	CSS,Chaparral, Strand (<5000')	Spring- Summer	3'/3' 3'+spread	clay,sandy (pH 5.5-8)	small	full sun	insects	no	building material
20	California Croton *Croton californicus*	CSS,Chaparral, Strand (<3000')	Spring- Fall	3'/3'	sandy	small drain well	full sun		no	medicine
28	Lance-leaved Dudleya *Dudleya lanceolata*	CSS,Chaparral, Woodland (100-4000')	Spring- Summer	2' 2' at base	clay,sandy (pH 5-7.5)	small drain well	cool sun	hummingbird	no	leaves,stems: food
35	Conejo Buckwheat *Eriogonum crocatum*	CSS (150-500')	Spring- Summer	?/1' 3'spread	clay (pH 6-8)	small	full sun	butterflies	no	food, medicine
36	Wand Buckwheat *Eriogonum elongatum*	CSS,Chaparral (150-6000')	Fall	?/6'	clay (pH 6-8)	small	full sun	butterflies	no	food, medicine
38	Golden Yarrow *Eriophyllum convertiflorum*	CSS,Chaparral (<10,000')	Spring- Summer	2'/2' 1'spread	clay,sandy (pH 5-8)	small	full sun	butterflies	yes:with processing	food, medicine
40	California Poppy *Eschscholzia californica*	CSS,Chaparral, Grassland, Woodland (<6500')	Winter- Fall	2'/2'	clay,sandy (pH 5-8)	small	full sun	insects	no	pollen: cosmetic
66	Hummingbird Sage *Salvia spathacea*	CSS,Chaparral, Woodland (<2500')	Spring	2'/2' spreads	clay,sandy (pH 5-7)	moderate	cool sun	hummingbird insects	no	medicine

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Pinyon-Juniper=Pinyon-Juniper Woodland

NATIVE AMERICAN GARDEN: COASTAL SAGE SCRUB SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	PERENNIALS (continued)									
71	California Figwort *Scrophularia californica*	CSS,Chaparral, Woodland (<6000')	Spring	4'/4'	clay (pH 4-7)	moderate	cool sun	insects	no	dye,medicine?
	ANNUALS									
7	Miner's Lettuce *Claytonia perfoliata* ssp. *perfoliata*	CSS,Chaparral, Woodland (<5000')	Winter- Spring	1'/1' 1'spread	clay,sandy	moderate	shade		no	leaves:food
12	Common Sunflower *Helianthus annuus* (*H.annuus* ssp. *lenticularis*)	All except Desert (<5000')	Winter- Fall	10'/10'	clay,sandy (pH 5-8)?	moderate	full sun	all	yes:with processing	food:seeds
27	Chia *Salvia columbariae*	CSS, Chaparral, Creosote Bush (<7000')	Spring	2'/2'	clay,gravel (pH 6-8)	small drain well	full sun	insects	yes:with processing	food:seeds medicine
	BULBS									
1	Golden Stars *Bloomeria crocea*	Scrub,Grassland, Chaparral, Woodland (<5000')	Spring	2'/2'	clay (pH 6-8)	small	cool sun		no	food: corms
6	Blue Dicks *Dichelostemma capitatum* (*Dichelostemma pulchella*)	Scrub,Chaparral, Grassland, Woodland (<7500')	Spring	2'/2'	clay,sandy	small drain well	full sun		no	food: corms
	PERENNIAL GRASSES									
8	Giant Wild Rye *Elymus condensatus* (*Leymus condensatus*)	CSS,Chaparral, Woodland, Island (<7000')	Summer	10'/10' clumps	clay,sandy	small	full sun	all	yes:with processing	famine food, roof thatch, arrow shafts

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Pinyon-Juniper=Pinyon-Juniper Woodland

NATIVE AMERICAN GARDENS: RIPARIAN SELECTIONS

NATIVE AMERICAN GARDEN: RIPARIAN SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	TREES									
1	Bigleaf Maple *Acer macrophyllum*	Riparian (<5000')	Spring	10'/50' 20'spread	clay (pH 4-8)	moderate to ample	cool sun		no	baskets
2	White Alder *Alnus rhombifolia*	Riparian (300-8000')	Winter- Spring	10'/50' 40'spread	clay, sandy (pH 4-8)	ample	full sun		no	dyes, to smoke meat
17	Black Cottonwood *Populus trichocarpa* (*P.balsamifera* ssp. *trichocarpa*)	Riparian (<9000')	Spring	30'/100'	clay,sandy (pH 4-7)	moderate	cool sun	all	no	bark:food building materials
29	Arroyo Willow *Salix lasiolepis*	Riparian (<7000')	Spring	4'/30' 20'+spread	clay,sandy (pH 5-7.5)	ample	cool sun	butterflies, birds	no	medicine, poles, baskets
30	Blue Elderberry *Sambucus nigra* ssp. *caerla* (*Sambucus mexicana*)	Chaparral, Riparian, Woodland (<4500')	Spring, Summer	?/20' 15'+spread	clay (pH 5-7)	moderate	cool sun	all	yes	food,medicine dye,flutes
	SHRUBS									
13	Mule Fat *Baccharis salicifolia* (*B. glutinosa, B. viminea*)	CSS, Chaparral, Riparian (<2500')	Winter- Spring	fast/10' 8'spread	clay,sandy (pH 6-8)	water 1st year	full sun	birds	no	medicine, poles
57	California Honeysuckle *Lonicera hispidula*	Chaparral, Riparian, Woodland (<3500')	Spring- Summer	vine-like to 20'	clay,sandy (pH 5-7)	deep water drain well	cool sun	birds, bees	yes,bitter taste	baskets?
85	California Rose(*=spiny stems) *Rosa californica*	Riparian (<6000')	Spring- Summer	2'/8' 20'+spread	clay,sandy (pH 5-8)	moderate	cool sun	all	yes	buds:food medicine
89	California Blackberry *Rubus ursinus* (*=spiny stems)	Chaparral, Woodland Riparian (<5000')	Spring	mounds spreads	clay,sandy	moderate	cool sun	all	yes	food, medicine
	PERENNIALS									
9	Mugwort *Artemisia douglasiana*	Riparian (<7000')	Summer- Fall	5'/5' 3' spread	sandy clay	moderate	shady		no	medicine, arrow shafts
17	Sedge *Carex barbarae*	Riparian (<3000')		4'/4' spreads	silt,clay	moderate	full sun		no	baskets

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Island=Catalina Island
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Pinyon-Juniper=Pinyon-Juniper Woodlands

NATIVE AMERICAN GARDEN: RIPARIAN SELECTIONS

	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES
	PERENNIALS (continued)									
45	Common Rush *Juncus patens*	Riparian (<5000')	Summer	3'/3' spreads	clay,sandy	ample	shade		no	basketry?
46	Rush *Juncus xiphioides*	Riparian (<7000')	Spring- Fall	3'/3' spreads	clay,sandy	ample	shade		no	basketry?
63	Sticky Cinquefoil *Potentilla glandulosa*	Riparian (<7000')	Spring- Summer	2'/2'	clay,sandy (pH 5-7)	moderate	cool sun		no	medicine
	FERNS									
1	California Maiden-hair Fern *Adiantum jordani*	Chaparral, Riparian, Woodland (<3500')		1 1/2'	clay,sandy (pH 4-8)	moderate	shade		no	basketry
7	Bracken Fern *Pteridium aquilinum* var. *pubescens*	Riparian (<10,000')		5'	clay,sandy	moderate	cool sun		no	food:shoots
	VINES									
2	Virgin's Bower, Pipestems *Clematis lasiantha*	Chaparral, Forest Riparian (<6000')	Spring	20' climbs	clay,sandy (pH 5-8)	small drain well	cool sun	all	no	medicine, twine
7	Wild Grape *Vitis girdiana*	Riparian, Island (<4000')	Spring	20' climbs	clay,sandy (pH 6-8)	moderate	cool sun	all	yes	food

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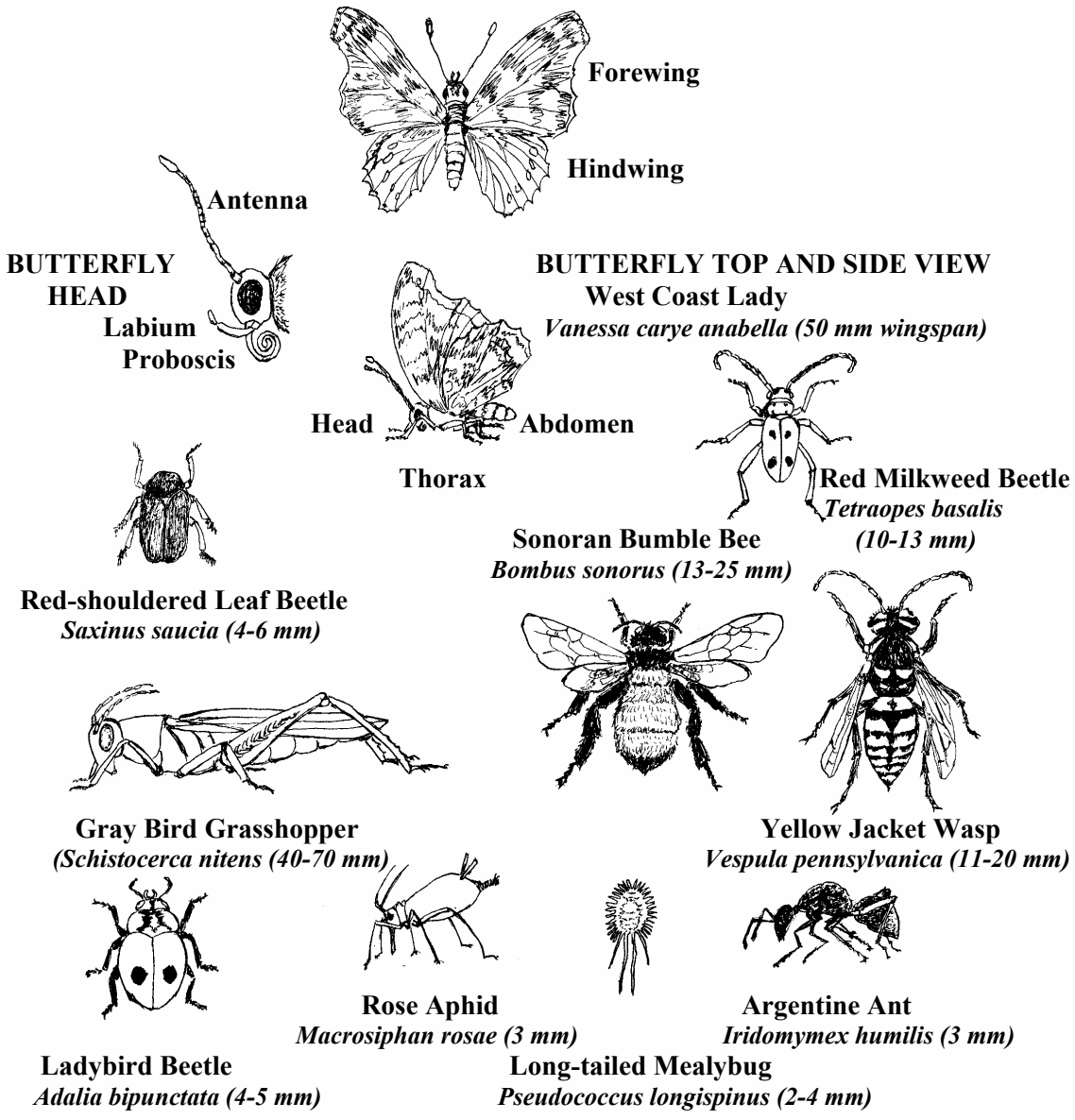
COMMON TYPES OF INSECTS FOUND ON PLANTS

Not drawn to scale. Body length (or butterfly wingspan) given in millimeters.
Slugs, snails (mollusks) and spiders (arachnids) are not insects.



Information from *California Insects* by Jerry A. Powell & Charles L. Hogue, 1979, U.C. Press, & *Insects of the Los Angeles Basin* by Charles L. Hogue, 1993, Natural History Museum of Los Angeles County.

BUTTERFLY GARDEN:
SAMPLE SELECTIONS

The butterfly garden is designed to attract and to nurture butterflies for study, research and aesthetic appreciation. To have a successful butterfly garden, which may take some time to develop if the intent is to attract local butterflies, the garden must have:

1. Food plants for the larval forms (caterpillars) of butterflies and safe havens for the pupas.

2. Nectar sources for the adult forms (butterflies) for both the spring and summer seasons, since butterflies may produce more than one generation per year or may pupate at different times of the year.

3. Shelter, shade and other requirements of butterfly species, such as mud or water sources.

Creating a butterfly garden still requires that soil, sun exposure and amount of water available be compatible for the plants selected. The following data base for Butterfly Garden: Sample Selections contains not only the essential information for selecting plants with similar habitat needs, but also aids in developing an attractive garden architecture by providing the size of the plants and their growth rates.

To aid in selecting compatible plants Butterfly Garden: Sample Selections has been divided into three sections (Chaparral, Coastal Sage Scrub and Riparian) based on the plant communities in which these plants are usually found and the range of soils the plants prefer. Plants that will grow in both clay and sandy soil are very tolerant of soil composition and may be easier to grow in typical school landscaping conditions, such as compacted silt or heavy clay, so those plants were included in the sections. Other plants may be found in the main native plant data base for other plant communities and soil conditions. Please note that "plant community" is not a scientific definition, but refers to plants commonly found living together in a natural environment and requiring similar conditions of sun exposure, soil composition and water availability. Information on edibility and native American uses has been eliminated from the butterfly garden sections in order to expand the information an butterflies.

Most schools will not have room for the trees in the data base since most of the trees listed have extensive root systems and develop large canopies, but existing trees may be utilized as part of the garden structure. The garden should have some shrubs, perennials and perennial grasses to provide an ongoing structure from year to year for establishing resident butterfly populations. The same annuals should be planted each year if they prove to be nectar sources for the resident butterflies.

Keeping a notebook of observations of caterpillars, pupas and butterflies present in the garden will prove useful in modifying or adding to the garden each year to provide the correct balance of food and nectar sources. NOTE: The western tiger swallowtail, pale swallowtail and California sister butterflies like to sip mud as well as nectar. The mourning cloak butterfly prefers rotting fruit instead of nectar. The cabbage butterfly is non-native (it is from Europe) and is considered a pest on cole crops and some flowers. The common hairstreak larvae and sara orangetip larvae are cannibalistic. These facts and what you observe as the garden develops will help you, the teachers and students, decide how to modify the garden to encourage some species and discourage others.

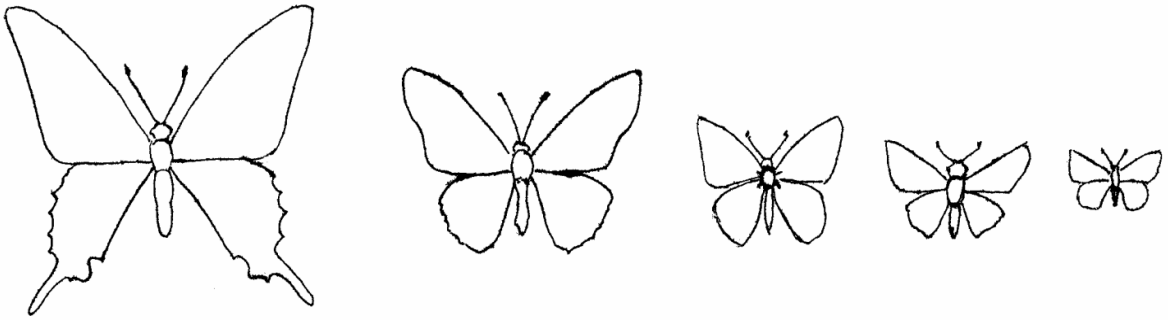
The column labeled "BUTTERFLY" lists which butterflies are known to be attracted to which plants; which are food plants (F) for larvae and which plants are nectar sources (N) for adult butterflies. This list is especially important when planning what plants are needed to sustain a butterfly population. If there are garden plots with different plants and different goals nearby consider these two points:

1. Your butterfly larvae may feed on plants in the other garden plots, thereby making your garden unpopular with those responsible for the other garden plots, especially if the garden plots contain vegetables or flowers for other school projects.

2. Butterfly larvae, other insect competitors (bees, wasps, flies, etc.) and birds that are feeding on plants in those other garden plots may move into your butterfly garden and displace or eat the butterfly larvae and adults you are nurturing. Again you will have to adjust your plantings and the location of your butterfly garden to encourage and shelter the species of butterfly you are interested in, while discouraging invading and competing species.

By establishing a butterfly garden with native plants in a large urban area the school is creating not only a delightful research tool, but also the school is providing a haven for some of our rapidly diminishing local butterfly species. Most butterflies do not migrate long distances (the monarch butterfly is an outstanding exception). Some, like certain blue species, are highly localized, have short-lived adults, and feed on only one or two native plant species, so their populations are heavily impacted by the loss of essential food and/or nectar plants or by an increase in insect competitors due to changes in surrounding habitat. Providing the proper native plant habitat for these butterflies in developed areas where the butterflies were previously common could help save some species from extinction.

(Information on butterflies is from *Butterflies of Greater Los Angeles* by Rudi Mattoni, Lepidoptera Research Foundation, Inc., website: www.lepidopteraresearchfoundation.org, and from Las Pilitas Nursery, Bert and Celeste Wilson, website: www.laspilitas.com.)



GULF FRITILLARY
Agraulus vanillae

FIERY SKIPPER
Hylephila phyleus

WESTERN TIGER SWALLOWTAIL
Papilio rutulus

CABBAGE BUTTERFLY
Pieris rapae

ACMON BLUE
Plebejus acmon

RELATIVE SIZES OF DIFFERENT KINDS OF BUTTERFLIES

BUTTERFLY GARDENS: CHAPARRAL SELECTIONS

BUTTERFLY GARDEN: CHAPARRAL SELECTIONS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (N)
	TREES							
18	Hollyleaf Cherry *Prunus ilicifolia* ssp. *ilicifolia* (*=spiny leaves)	Chaparral, Woodland (<5000')	Spring	?/25' 10'+spread	clay,sandy (pH 4-8)	small drain well	cool sun	Pale swallowtail *Papilio eurymedon* (F)
21	Coast Live Oak *Quercus agrifolia* (*=spiny leaves)	Chaparral, Riparian, Woodland (<5000')	Spring	3'/80' 50'spread	clay,sandy (pH 4-8)	deep water drain well	cool sun	California sister *Adelpha bredowii californica* (F) California hairstreak *Satyrium californicum* (F) Mournful duskywing *Erynnis tristis tristis* (F)
	SHRUBS							
4	False Indigo *Amorpha californica*	Chaparral, Woodland (<7500')	Spring- Summer	?/10' 10'spread	loam (pH 6-8)	deep water	shade	California dogface *Zerene eurydice* (F)
21	Hairy-leaf Ceanothus *Ceanothus oliganthus*	Chaparral (<4500')	Winter- Spring	?/10'	sandy	small	full sun	Artful duskywing *Erynnis pacuvius callidus* (F)
22	Greenbark Ceanothus *Ceanothus spinosus* (*=spiny twigs)	Chaparral, Woodland (<3000')	Spring	?/20' 10'+spread	clay,sandy (pH 6-8)	small	full sun	California tortoiseshell *Nymphalis californica* (F) Pale swallowtail *Papilio eurymedon* (F) California hairstreak *Satyrium californicum* (F) Southern buckthorn hairstreak *Satyrium saepium chalcis* (F) Echo blue *Celastrina argiolus echo* (F)
24	Mountain Mahogany *Cercocarpus betuloides*	Chaparral, Woodland (<6000')	Spring	2'/20' 10'spread	clay,sandy (pH 5-8)	small	full sun	Grey hairstreak *Satyrium tetra* (F)
30	Bush Sunflower *Encelia californica*	CSS, Chaparral (<2000')	Winter- Spring	fast/4' 4'spread	clay,sandy (pH 6-8)	small drain well	full sun	Dusky metalmark *Calephelis nemesis* (F)
36	Yerba Santa *Eriodictyon crassifolium*	Chaparral, Pinyon-Juniper (100-6000')	Spring	?/5' spreads	gravel (pH 6-8)	small drain well	full sun	Western tiger swallowtail *Papilio rutulus rutulus* (N)

CSS=Coastal Sage Scrub
Island=Catalina Island

Creosote Bush=Desert Wash
Pinyon-Juniper=Pinyon-Juniper Woodland

BUTTERFLY GARDEN: CHAPARRAL SELECTIONS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (N)
	SHRUBS (continued)							
37	Ashy-leaf Buckwheat *Eriogonum cinereum*	CSS,Strand (<1600')	Summer- Fall	?/4' 4'spread	sandy (pH 6-8)	small	full sun	**These larvae feed on buckwheat:** Common hairstreak *Strymon melinus pudica* (F) Southern buckthorn hairstreak *Satyrium saepium chalcis* (N) Behr's metalmark *Apodemia mormo virgulti* (F) Acmon blue *Plebejus acmon acmon* (F) Lupine blue *Plebejus lupini monticola* (F) Edward's blue *Hemiargus ceraunus gyas* (F) Bernardino blue *Euphilotes bernardino bernardino* (F) California dogface *Zerene eurydice* (N)
38	California Buckwheat *Eriogonum fasciculatum*	CSS,Chaparral, Woodland (<7500')	Summer- Fall	?/5' 6'spread	clay,sandy (pH 6-7.5)	small	full sun	
	(Buckwheats are common nectar plants for many butterflies)							
43	California Coffeeberry *Frangula californica* (*Rhamnus californica*)	Chaparral, Woodland (<3500')	Spring	fast/15' 10'spread	clay,sandy (pH 5-8)	small	cool sun	Pale swallowtail *Papilio eurymedon* (F)
59	Bush Mallow *Malacothamnus fasciculatus*	CSS, Chaparral (<2500')	Spring- Summer	fast/12' 12'spread	clay (pH 6-7)	small	cool sun	Western checkered skipper *Pyrgus communis albescens* (F) Large white skipper *Heliopetes ericetorum* (F) West coast lady *Vanessa carye anabella* (F)
72	Scrub Oak *Quercus berberidifolia* (*Quercus dumosa*)	Chaparral, Woodland (<5000')	Spring	1'/15' 8'spread	clay,sandy (pH 6-8)	small deep water	cool sun	Lacustra duskywing *Erynnis brizo lacustra* (F) Nut brown hairstreak *Satyrium auretorum* (F) Santa Monica Mt. hairstreak *Satyrium auretorum fumosum* (F)
76	Spiny Redberry *Rhamnus crocea*	CSS, Chaparral (<3000')	Spring	?/4' 4-6'spread	clay,sandy (pH 5-7)	small drain well	cool sun	Pale swallowtail *Papilio eurymedon* (F)

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BUTTERFLY GARDEN: CHAPARRAL SELECTIONS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (N)
	SHRUBS (continued)							
95	Black Sage *Salvia mellifera*	CSS, Chaparral (<2000')	Spring- Summer	?/5' 6'spread	sandy,loam (pH 4-8)	small drain well	full sun	Adult butterflies (N)
	PERENNIALS							
3	Deerweed *Acmispon glaber* (*Lotus scoparius*)	CSS, Chaparral, Strand (<5000')	Spring- Summer	3'/3' 3'+spread	clay,sandy (pH 5.5-8)	small	full sun	Alfalfa *Colias eurytheme* (F) California green hairstreak *Callophrys affinis perplexa* (F) Funereal duskywing *Erynnis zarucco funeralis* (F) Marina blue *Leptotes marina* (F) Acmon blue *Plebejus acmon acmon* (F) Southern blue *Glaucopsyche lygdamus australis* (F)
10	Indian Milkweed *Asclepias eriocarpa*	Chaparral, Woodland (<7000')	Summer	3'/3'	clay (pH 6-8)	small	full sun	Monarch *Danaus plexippus* (F)
11	Narrowleaf Milkweed *Asclepias fascicularis*	Chaparral, Riparian, Woodland, Island (<7000')	Summer	3'/3'	clay,loam (pH 6-8)	small	full sun	Monarch *Danaus plexippus* (F)
15	Elegant Rock Rose *Boechera californica* (*Arabis sparsiflora* var. *californica*)	CSS,Chaparral (2500-6000')	Winter- Spring	?/2.5'	rocks, gravel	small	full sun	Same as Tower mustard
19	Indian Paintbrush *Castilleja affinis*	CSS, Chaparral, (<4000')	Spring	2.5'/2.5'	rocky	small	full sun	Wright's leanira checkerspot *Melitaea (Chlosyne) leanira wrightii* (F)
28	Lance-leaved Dudleya *Dudleya lanceolata*	CSS,Chaparral, Woodland (100-4000')	Spring- Summer	2' 2' at base	clay,sandy (pH 5-7.5)	small drain well	cool sun	Sonora blue *Dudleya lanceolata* (F)

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BUTTERFLY GARDEN: CHAPARRAL SELECTIONS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (N)
	PERENNIALS (continued)							
33	California Fuchsia *Epilobium canum* ssp. *canum* (*Zauschneria californica, Zauschneria cana*)	CSS,Chaparral, Island (<2000')	Fall	?/3' 4'spread	clay,sandy (pH 6-8)	small drain well	cool sun	Adult butterflies (N)
43	Dwarf Sunflower *Helianthus gracilentus*	Chaparral,Forest (<6000')	Spring-Fall	4'/4'	gravel,loam (pH 5.5-8)	small drain well	full sun	Adult butterflies (N)
54	Bush Lupine *Lupinus longifolius*	CSS, Chaparral, Woodland (<2000')	Spring	4'/4' 4'spread	clay,sandy (pH 6-8)	small	cool sun	Common hairstreak *Strymon melinus pudica* (F) Painted lady *Vanessa cardui* (F)
66	Hummingbird Sage *Salvia spathacea*	CSS,Chaparral, Woodland (<2500')	Spring	2'/2' spreads	clay,sandy (pH 5-7)	moderate	cool sun	Adult butterflies (N)
80	Hedge Nettle *Stachys bullata*	CSS,Chaparral (<5000')	Spring-Fall	3'/3' spreads	clay,sandy (pH 5-7.5)	moderate	shade	Adult butterflies (N)
85	Tower Mustard *Turritis glabra* (*Arabis glabra*) (usually biennial, not perennial)	Grassland, Woodland (<7000')	Spring-Summer	?/4'	all	small	cool sun	Sara orangetip *Anthocaris sara sara* (F) Grinnell's marble *Anthocaris lanceolata australis* (F) Cabbage butterfly *Pieris rapae* (F) Common white *Pieris protodice* (F) California white *Pieris sisymbrii sisymbrii* (F)
89	Johnny Jump Up *Viola pedunculata*	Chaparral, Woodland, Grassland (<2500')	Winter-Spring	1'/1' 1'spread	loam (pH 5-7)	small	cool sun	Variegated fritillary *Euptoieta claudia* (F) Comstock's fritillary *Argynnis (Speyeria)callippe comstocki* (F)
	ANNUALS							
11	Globe Gilia *Gilia capitata* ssp.*abrotanifolia*	CSS,Chaparral, Forest,Island (<6000')	Spring	3'/3'	sand,rocks (pH 6-8)	small	full sun	Adult butterflies (N)

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BUTTERFLY GARDEN: CHAPARRAL SELECTIONS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (N)
	ANNUALS (continued)							
12	Common Sunflower *Helianthus annuus* (*H.annuus* ssp. *lenticularis*)	All except Desert (<5000')	Winter- Fall	10'/10'	clay,sandy (pH 5-8)?	moderate	full sun	Adult butterflies (N)
17	Succulent Lupine *Lupinus succulentus*	CSS,Chaparral, Woodland, Grassland (<2500')	Winter- Spring	3'/3' 3'spread	clay,gravel (pH 6-8.5)	small	full sun	Adult butterflies (N)
27	Chia *Salvia columbariae*	CSS,Chaparral, Creosote Bush (<7000')	Spring	2'/2'	clay,gravel (pH 6-8)	small drain well	full sun	Adult butterflies (N)
	PERENNIAL GRASSES							
2	San Diego Bent Grass *Agrostis pallens* (*Agrostis diegoensis*)	Chaparral,Forest Woodland, (650-10,000')	Spring- Summer	3'/3'	sandy,loam	small drain well	cool sun	**These larvae feed on grasses:** California ringlet *Coenonympha tullia california* (F)
3	Beard Grass/Bluestem *Andropogon glomeratus* var. *scabriglumis* (*Andropogon glomeratus*)	CSS,Chaparral, Riparian, Creosote Bush (<2000')	Fall- Winter	1'/1'	clay,silty	moderate	full sun	Sylvan satyr *Cercyonis sithnele silvestris* (F) Hewitson's skipper *Copaeodes aurantica* (F)
5	California Brome *Bromus carinatus*	CSS,Chaparral, Woodland, Forest (<8000')	Spring- Summer	4'/4'	clay,sandy	small	full sun	Fiery skipper *Hylephila phyleus* (F) Leussler's skipper *Hesperia comma leussleri* (F)
14	Chaparral Melica *Melica imperfecta*	CSS,Chaparral, Woodland, Island (<5000')	Summer	3'/3' clumps	clay,rocky	small	cool sun	Columbia skipper *Hesperia columbia* (F) Sandhill skipper *Polites sabuleti sabuleti* (F)
16	Deer Grass *Muhlenbergia rigens*	Chaparral,Forest Woodland, Grassland (<7000')	Summer	4'/4' clumps	sandy,gravel (pH 5-8)	moderate drain well	cool sun	Field skipper *Atalopetes campestris* (F) Woodland skipper *Ochlodes sylvanoides sylvanoides* (F)
19	Nodding Needlegrass *Stipa cernua* (*Nassella cernua*)	CSS,Chaparral, Woodland, Grassland (<4500')	Spring	3'/3' clumps	clay,sandy (pH 6-8)	small	full sun	Eufala skipper *Lerodea eufala* (F)

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BUTTERFLY GARDENS: COASTAL SAGE SCRUB SELECTIONS

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	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (F)
	SHRUBS							
13	Mule Fat *Baccharis salicifolia* (*B. glutinosa, B.viminea*)	CSS,Chaparral, Riparian (<2500')	Winter- Spring	fast/10' 8'spread	clay,sandy (pH 6-8)	water 1st year	full sun	Dusky metalmark *Calephelis nemesis* (F)
30	Bush Sunflower *Encelia californica*	CSS,Chaparral (<2000')	Winter- Spring	fast/4' 4'spread	clay,sandy (pH 6-8)	small drain well	full sun	Dusky metalmark *Calephelis nemesis* (F)
37	Ashy-leaf Buckwheat *Eriogonum cinereum*	CSS,Strand (<1600')	Summer- Fall	?/4' 4'spread	sandy (pH 6-8)	small	full sun	**These larvae feed on buckwheat:** Common hairstreak *Strymon melinus pudica* (F) Southern buckthorn hairstreak *Satyrium saepium chalcis* (N) Behr's metalmark *Apodemia mormo virgulti* (F) Acmon blue *Plebejus acmon acmon* (F) Lupine blue *Plebejus lupini monticola* (F) Edward's blue *Hemiargus ceraunus gyas* (F) Bernardino blue *Euphilotes bernardino bernardino* (F) California dogface *Zerene eurydice* (N)
38	California Buckwheat *Eriogonum fasciculatum* (Buckwheats are common nectar plants for many butterflies)	CSS,Chaparral, Woodland (<7500')	Summer- Fall	?/5' 6'spread	clay,sandy (pH 6-7.5)	small	full sun	
59	Bush Mallow *Malacothamnus fasciculatus*	CSS, Chaparral (<2500')	Spring- Summer	fast/12' 12'spread	clay (pH 6-7)	small	cool sun	Western checkered skipper *Pyrgus communis albescens* (F) Large white skipper *Heliopetes ericetorum* (F) West coast lady *Vanessa carye anabella* (F)
66	Bladderpod *Peritoma arborea* (*Isomeris arborea*)	CSS, Creosote Bush (0-4000')	All year	?/6' 5'spread	clay,sandy (pH 7-9)	small	full sun	Becker's white *Pieris chloridice beckeri* (F)
76	Spiny Redberry *Rhamnus crocea*	CSS,Chaparral (<3000')	Spring	?/4' 4-6'spread	clay,sandy (pH 5-7)	small drain well	cool sun	Pale swallowtail *Papilio eurymedon* (F)

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BUTTERFLY GARDEN: COASTAL SAGE SCRUB SELECTIONS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (F)
	SHRUBS (continued)							
94	Purple Sage *Salvia leucophylla*	CSS (150-2500')	Spring- Summer	?/5' 4'spread	clay,sandy (pH 6-8)	small	full sun	Adult butterflies (N)
95	Black Sage *Salvia mellifera*	CSS,Chaparral (<2000')	Spring- Summer	?/5' 6'spread	sandy,loam (pH 4-8)	small drain well	full sun	Adult butterflies (N)
	PERENNIALS							
3	Deerweed *Acmispon glaber* (*Lotus scoparius*)	CSS,Chaparral, Strand (<5000')	Spring- Summer	3'/3' 3'+spread	clay,sandy (pH 5.5-8)	small	full sun	Alfalfa *Colias eurytheme* (F) California green hairstreak *Callophrys affinis perplexa* (F) Funereal duskywing *Erynnis zarucco funeralis* (F) Marina blue *Leptotes marina* (F) Acmon blue *Plebejus acmon acmon* (F) Southern blue *Glaucopsyche lygdamus australis* (F)
12	Locoweed *Astragalus trichopodus*	CSS, Grassland (<4000')	Winter- Spring	2'/2'	sandy,rocky	small	full sun	Western tailed blue *Everes amyntula* (F)
15	Elegant Rock Rose *Boechera californica* (*Arabis sparsiflora* var.*californica*)	CSS,Chaparral (2500-6000')	Winter- Spring	?/2.5'	rocks, gravel	small	full sun	Same as Tower mustard
19	Indian Paintbrush *Castilleja affinis*	CSS,Chaparral (<4000')	Spring	2.5'/2.5'	rocky	small	full sun	Wright's leanira checkerspot *Melitaea (Chlosyne)leanira wrightii* (F)
28	Lance-leaved Dudleya *Dudleya lanceolata*	CSS,Chaparral, Woodland (100-4000')	Spring- Summer	2' 2' at base	clay,sandy (pH 5-7.5)	small drain well	cool sun	Sonora blue *Philotes sonorensi* (F)
33	California Fuchsia *Epilobium canum* ssp.*canum* (*Zauschneria californica,Z.cana*)	CSS,Chaparral, Island (<2000')	Fall	?/3' 4'spread	clay,sandy (pH 6-8)	small drain well	cool sun	Adult butterflies (N)

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BUTTERFLY GARDEN: COASTAL SAGE SCRUB SELECTIONS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (F)
	PERENNIALS (continued)							
54	Bush Lupine *Lupinus longifolius*	CSS,Chaparral, Woodland (<2000')	Spring	4'/4' 4'spread	clay,sandy (pH 6-8)	small	cool sun	Common hairstreak *Strymon melinus pudica* (F) Painted lady *Vanessa cardui* (F)
66	Hummingbird Sage *Salvia spathacea*	CSS,Chaparral, Woodland (<2500')	Spring	2'/2' spreads	clay,sandy (pH 5-7)	moderate	cool sun	Adult butterflies (N)
81	Hedge Nettle *Stachys bullata*	CSS,Chaparral (<5000')	Spring- Fall	3'/3' spreads	clay,sandy (pH 5-7.5)	moderate	shade	Adult butterflies (N)
	ANNUALS							
11	Globe Gilia *Gilia capitata* ssp.*abrotanifolia*	CSS,Chaparral, Forest,Island (<6000')	Spring	3'/3'	sand,rocks (pH 6-8)	small	full sun	Adult butterflies (N)
12	Common Sunflower *Helianthus annuus* (*Helianthus annuus*	All except Desert (<5000')	Winter- Fall	10'/10'	clay,sandy (pH 5-8)?	moderate	full sun	Adult butterflies (N)
17	Succulent Lupine *Lupinus succulentus*	CSS,Chaparral, Woodland, Grassland (<2500')	Winter- Spring	3'/3' 3'spread	clay,gravel (pH 6-8.5)	small	full sun	Adult butterflies (N)
27	Chia *Salvia columbariae*	CSS,Chaparral, Creosote Bush (<7000')	Spring	2'/2'	clay,gravel (pH 6-8)	small drain well	full sun	Adult butterflies (N)
	PERENNIAL GRASSES							**These larvae feed on grasses:**
3	Beard Grass/Bluestem *Andropogon glomeratus* var.*scabriglumis* (*Andropogon glomeratus*)	CSS,Chaparral, Creosote Bush, Riparian (<2000')	Fall- Winter	1'/1'	clay,silty	moderate	full sun	California ringlet *Coenonympha tullia california* (F) Sylvan satyr *Cercyonis sithnele silvestris* (F)
5	California Brome *Bromus carinatus*	CSS,Chaparral, Woodland, Forest (<8000')	Spring- Summer	4'/4'	clay,sandy	small	full sun	Hewitson's skipper *Copaeodes aurantica* (F) **continued on next page**

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BUTTERFLY GARDEN: COASTAL SAGE SCRUB SELECTIONS

	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (N)
	PERENNIAL GRASSES (continued)							
5	California Brome *Bromus carinatus*	CSS,Chaparral, Woodland, Forest (<8000')	Spring- Summer	4'/4'	clay,sandy	small	full sun	Fiery skipper *Hylephila phyleus* (F) Leussler's skipper *Hesperia comma leuddleri* (F)
12	Meadow Barley *Hordeum brachyantherum* ssp. *californicum* (*Hordeum californicum*)	Riparian, Grassland, Scrub (<1600)	Spring- Summer	2'/2'	clay,sandy	moderate	full sun	Columbia skipper *Hesperia columbia* Sandhill skipper *Polites sabuleti sabuleti* (F)
14	Chaparral Melica *Melica imperfecta*	CSS,Chaparral, Woodland, Island (<5000')	Summer	3'/3' clumps	clay,rocky	small	cool sun	Field skipper *Atalopetes campestris* (F) Woodland skipper *Ochlodes sylvanoides sylvanoides* (F)
19	Nodding Needlegrass *Stipa cernua* (*Nassella cernua*)	CSS,Chaparral, Woodland, Grassland (<4500')	Spring	3'/3' clumps	clay,sandy (pH 6-8)	small	full sun	

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EGG

LARVA (CATERPILLAR)

CHRYSALIS

ADULT BUTTERFLY
CHALCEDON CHECKERSPOT
Euphydryas chalcedona chalcedona

DIFFERENT STAGES IN THE LIFE OF A BUTTERFLY

BUTTERFLY GARDENS: RIPARIAN SELECTIONS

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	COMMON NAME (*=thorns) NEW SCIENTIFIC NAME (OLD SCIENTIFIC NAME)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (N)
	TREES							
2	White Alder *Alnus rhombifolia*	Riparian (300-8000')	Winter- Spring	10'/50' 40'spread	clay, sandy (pH 4-8)	ample	full sun	Western tiger swallowtail *Papilio rutulus rutulus* (F)
15	Western Sycamore *Platanus racemosa*	Riparian (<6500')	Winter- Spring	3'/75'	silty,sandy (pH 5-8)	ample	full sun	Western tiger swallowtail *Papilio rutulus rutulus* (F)
16	Western Cottonwood *Populus fremontii* ssp.*fremontii*	Riparian (<6500')	Spring	30'/80'	silty,sandy (pH 6-8)	ample	full sun	Western tiger swallowtail *Papilio rutulus rutulus* (F)
17	Black Cottonwood *Populus trichocarpa* (*P. balsamifera* ssp.*trichocarpa*)	Riparian (<9000')	Spring	30'/100'	clay,sandy (pH 4-7)	moderate	cool sun	Western tiger swallowtail *Papilio rutulus rutulus* (F)
29	Arroyo Willow *Salix lasiolepis*	Riparian (<7000')	Spring	4'/30' 20'+spread	clay,sandy (pH 5-7.5)	ample	cool sun	Western tiger swallowtail *Papilio rutulus rutulus* (F) Lorquin's admiral *Liminitis lorquini lorquini* (F) Mourning cloak *Nymphalis antiopa antiopa* (F) Southern sylvan hairstreak *Satyrium sylvinum desertorum* (F) Drope hairstreak *Satyrium sylvinum drope* (F)
	SHRUBS							
13	Mule Fat *Baccharis salicifolia* (*B. glutinosa, B. viminea*)	Chaparral, CSS,Riparian (<2500')	Winter- Spring	fast/10' 8'spread	clay,sandy (pH 6-8)	water 1st year	full sun	Dusky metalmark *Calephelis nemesis* (F)
25	Desert Willow *Chilopsis linearis* ssp.*arcuata*	Desert Riparian(<5000') (<5000')	Spring- Summer	3'/20' 15'spread	clay,sandy (pH 6-9)	deep water drain well	full sun	Adult butterflies (N)
90	Sandbar Willow *Salix hindsiana*	Riparian (<3000')	Spring	3'/20' 10+spread	sandy (pH 6-7.5)	ample	cool sun	Same as other willows (see TREES)
	PERENNIALS							
7	Columbine *Aquilegia formosa*	Riparian (<8000')	Summer	2'/5'	clay,gravel (pH 4-7.5)	ample	cool sun	Adult butterflies (N)

CSS=Coastal Sage Scrub
Island=Catalina Island

Creosote Bush=Desert Wash
Pinyon-Juniper=Pinyon-Juniper Woodland

BUTTERFLY GARDEN: RIPARIAN SELECTIONS

	COMMON NAME (*=thorns) NEW SCIENTIFIC NAME (OLD SCIENTIFIC NAME)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (N)
	PERENNIALS (continued)							
11	Narrowleaf Milkweed *Asclepias fascicularis*	Chaparral, Riparian, Woodland, Island (<7000')	Summer	3'/3'	clay,loam	small	full sun	Monarch *Danaus plexippus(F)*
17	Sedge *Carex barbarae*	Riparian (<3000')		4'/4' spreads	silt,clay	moderate	full sun	Umbar skipper *Paratrytone melane* (F) Harbison's skipper *Euphyes vestris harbisoni* (F)
55	Scarlet Monkey Flower *Mimulus cardinalis*	Riparian (<8000')	Spring- Fall	2'/2' 2'spread	clay,sandy (pH 4-9)	moderate	cool sun	Chalcedon checkerspot *Euphydryas chalcedona chaldedona* (F)
56	Yellow Monkey Flower *Mimulus guttatus*	Riparian (<8000')	Spring- Fall	3'/3' 3'spread	silt (pH 5-7)	ample	cool sun	Chalcedon checkerspot *Euphydryas chalcedona chaldedona* (F)
	ANNUALS							
12	Common Sunflower *Helianthus annuus* (*Helianthus annuus* ssp. *lenticularis*)	All except Desert (<5000') (<5000')	Winter- Fall	10'/10'	clay,sandy (pH 5-8)?	moderate	full sun	Adult butterflies (N)
	PERENNIAL GRASSES							**These larvae feed on grasses:**
3	Beard Grass/Bluestem *Andropogon glomeratus* var. *scabriglumis* (*Andropogon glomeratus*)	CSS,Chaparral, Creosote Bush, Riparian (<2000')	Fall- Winter	1'/1'	clay,silty	moderate	full sun	California ringlet *Coeonympha tullia california* (F) Sylvan satyr *Cercyonis sithnele silvestris* (F)
12	Meadow Barley *Hordeum brachyantherum* ssp. ssp. *californicum* (*Hordeum californicum*)	Riparian, Grassland, Scrub (<1600)	Spring- Summer	2'/2'	clay,sandy	moderate drain well	full sun	Hewitson's skipper *Copaeodes aurantica* (F) Fiery Skipper *Hylephila phyleus(F)*
	These larvae feed on grasses:	Field skipper *Atalopetes campestris* (F) Eufala skipper *Lerodea eufala* (F)		Woodland skipper *Ochlodes sylvanoides sylvanoides* (F) Sandhill skipper *Polites sabuleti sabuleti* (F)				Leussler's skipper *Hesperia comma leussleri* (F) Columbia skipper *Hesperia columbia* (F)

CSS=Coastal Sage Scrub
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SOUTHERN CALIFORNIA NATIVE PLANTS FOR BUTTERFLY GARDENS

# IN DB	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (N)

SOUTHERN CALIFORNIA NATIVE PLANTS FOR BUTTERFLY GARDENS

# IN DB	COMMON NAME (*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	BUTTERFLY: COMMON NAME *SCIENTIFIC NAME* Larval Food (F) or Adult Nectar (N)

SOUTHERN CALIFORNIA NATIVE PLANTS FOR SCHOOL AND URBAN LANDSCAPING

# IN DB	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES

SOUTHERN CALIFORNIA NATIVE PLANTS FOR SCHOOL AND URBAN LANDSCAPING

# IN DB	COMMON NAME(*=thorns) *NEW SCIENTIFIC NAME* (*OLD SCIENTIFIC NAME*)	HABITAT (ALTITUDE) ('=feet)	FLOWER TIMES	GROWTH 1y/Max Ht. Width	SOIL TYPE (pH)	WATER NEEDS	SUN or SHADE	ATTRACTS BIRDS or INSECTS	FRUITS: EDIBLE? YES or NO	NATIVE AMERICAN USES

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