

## DETAILS OF IMPORTANT PLANTS IN RPBG

*ABIES BRACTEATA*. SANTA LUCIA OR BRISTLECONE FIR. PINACEAE, THE PINE FAMILY. A slender tree (especially in the wild) with skirts of branches and long glossy green spine-tipped needles with white stomatal bands underneath. Unusual for its sharp needles and pointed buds. Pollen cones borne under the branches between needles; seed cones short with long bristly bracts extending beyond scales and loaded with pitch, the cones at the top of the tree and shattering when ripe. One of the world's rarest and most unique firs, restricted to steep limestone slopes in the higher elevations of the Santa Lucia Mountains. Easiest access is from Cone Peak Road at the top of the first ridge back of the ocean and reached from Nacimiento Ferguson Road. Signature tree at the Garden, and much fuller and attractive than in its native habitat.

*ACER CIRCINATUM*. VINE MAPLE. SAPINDACEAE, THE SOAPBERRY FAMILY. Not a vine but a small deciduous tree found on the edge of conifer forests in northwestern California and the extreme northern Sierra (not a Bay Area species). Slow growing to perhaps 20 feet high with pairs of palmately lobed leaves that turn scarlet in fall, the lobes arranged like an expanded fan. Tiny maroon flowers in early spring followed by pairs of winged samaras that start pink and turn brown in late summer, the fruits carried on strong winds. A beautiful species very similar to the Japanese maple (*A. palmatum*) needing summer water and part-day shade, best in coastal gardens. A beautiful sight along the northern Redwood Highway in fall.

*ACER MACROPHYLLUM*. BIGLEAF MAPLE. A large, fast-growing deciduous tree of riparian corridors and the edge of conifer forests. Vertically furrowed gray-brown bark, pairs of very large, palmately lobed leaves that turn golden in the fall (with chilly conditions), hanging trusses of pale yellow bee-pollinated flowers in early spring just as the new leaves are unfurling, and hanging chains of doubly winged samaras in late summer and fall. Can be tapped in spring for the sap which, boiled down, can make a maple syrup (long process). Common throughout the foothills and widespread in Bay Area forests near creeks.

*AESCULUS CALIFORNICA*. CALIFORNIA BUCKEYE. SAPINDACEAE, THE SOAPBERRY FAMILY. Medium-sized deciduous multitrunked seasonal tree especially common with oaks and gray pine in the inner foothills but also growing near the coast as well. Smooth pale gray bark, opposite palmately compound leaves that drop early in a dry summer, spikes of fragrant white to pale pink flowers in late spring and early summer, and large hanging leathery seed pods containing a single shiny brown seed in fall that may roll down hills. Seeds are toxic unless leached and mainly contain starch. Easy to propagate from seed and good choice for smaller gardens. Abundant in the Bay Area as on Mt. Diablo.

*AGAVE* SPP. AGAVE, MAGUEY, CENTURY PLANT. AGAVACEAE, THE AGAVE FAMILY. Large bold leaf succulents with tight rosettes of fleshy, fibrous leaves lined with recurved spines and ending in a needlelike tip. Blooming once after 10 to 20 years with enormous panicles of yellow tubular, nectar-rich flowers on stalks to 15 feet high, attracting hummingbirds, bees, and other pollinators. Plants die after seed has ripened but a circle of "pups" around the parent carry on. Important source of sugary sap from the flowering stalk and fiber from the leaves. Easy to grow, thrives best in full hot summer sun. Three native species, *A. deserti*, the most widespread in the southern deserts but none native to the Bay Area.

*ALNUS* SPP. ALDERS. BETULACEAE, THE BIRCH FAMILY. Fast-growing deciduous monoecious trees (one species a shrub) found along riparian corridors. Bark gray and in coastal fog belt often covered with a pattern of lichens, mosses, and leafy liverworts. Roots bright red

and used as dye, also containing nodules that fix nitrogen, allowing the trees to easily revegetate areas that have been burned or logged. Large broadly elliptical to ovate doubly toothed leaves that seldom turn color in fall. Petal-less slender drooping male catkins open at winter's end, followed by shorter upright female catkins, the pollen carried on the wind from tree to tree. Small woody catkins carry dozens of tiny, wind-dispersed winged samaras in fall, each catkin like a small redwood seed cone. Red alder (*A. rubra*) lives in coastal canyons; white alder (*A. rhombifolia*) inland and into the middle elevations of the mountains. Local stands of alder occur near Jewel Lake in Tilden Park.

*ARALIA CALIFORNICA*. ELK-CLOVER, SPIKENARD, OR CALIFORNIA ARALIA.

ARALIACEAE, THE GINSENG FAMILY. A giant herbaceous perennial from 8 to 10 feet high from massive roots, dying back in winter and growing rapidly from midspring to summer. The only close native relative to ginseng, widely known as an adaptogen with similar purported properties. Huge bipinnately compound leaves have many elliptical toothed leaflets, and the tiny greenish flowers (resembling English ivy in bloom) are arranged in panicles of umbels. Red-purple berries follow in the fall before the plants dry up, fall over, and go dormant. Abundant on wooded seeps and creeksides especially near the coast as well as at middle elevations in the Sierra. Local populations include Mt. Tamalpais, Huckleberry Preserve, and Jewel Lake in Tilden Park.

*ARBUTUS MENZIESII*. MADRONE. ERICACEAE, THE HEATHER FAMILY. Large, evergreen often multitrunked tree with smooth orange-tan bark on younger limbs and checkered or scaly dark brown bark on older growth. Large elliptical dark green leaves, often paler underneath, and lined with tiny teeth. Clusters of fragrant, urn-shaped white puckered flowers in early to midspring followed by bright red-orange, warty and rather dry berries in fall. Not a choice edible but attractive to birds. Widespread in mixed-evergreen forests and the edge of redwood forests throughout the Coast Ranges and at middle elevations in the Sierra and other mountains. Beautiful wood that easily checkers and cracks.

*ARCTOSTAPHYLOS* SPP. MANZANITAS. ERICACEAE, THE HEATHER FAMILY. A large genus of shrubs with diversity centered in California. Like *Ceanothus*, the habits range from prostrate ground covers to shrubs and small trees, and like *Ceanothus* the habitats include coastal bluffs and old dunes, edge of forests, open woodlands, and especially chaparral. All species feature red to red-brown smooth to shaggy bark (from tannins), usually vertically oriented ovate green to gray leaves, dense drooping clusters of small urn-shaped pink or white, fragrant flowers in winter and early spring, and clusters of red to red-brown and red-purple berrylike fruits that are edible. Fruits are eaten and dispersed by mammals and birds, while flowers are pollinated by many insects. Species recognition may be difficult in many cases (hand lenses essential) and hybrids frequently occur. Areas of diversity, especially among rare species, include the Monterey coast and the Bay Area and environs. Although many species are widespread, a goodly number are highly restricted, often to special soils. Garden conditions are similar to those for the ceanothus. Details of species will be shown in different parts of the Garden. Among our most iconic are huge old specimens of the Alameda manzanita, *A. pallida* and King Mountain manzanita, *A. regis-montana* near Wildcat Creek in the foothill section, and the rare and nearly extinct Franciscan manzanita, *A. franciscana*, also in the foothill section.

*ARISTOLOCHIA CALIFORNICA*. CALIFORNIA PIPEVINE OR DUTCHMAN'S PIPE.

ARISTOLOCHIACEAE, THE BIRTHWORT FAMILY. Climbing semiwoody deciduous vine with elongated heart-shaped furry leaves and clusters of hanging pipe-shaped brown and dull purple ill-scented flowers in late winter, usually before the new leaves appear. Each pipe has three maroon red sepals at the entrance to the pipe, the stamens and pistil hidden inside. The color

and odor attract tiny midges and flies that become temporarily trapped inside until the flower opening expands, releasing them to visit other flowers. (Opening a flower usually results in releasing several of these tiny pollinators.) Six-sided fluted seed pods follow. The plants contain toxins, which are used by the caterpillars of the pipevine swallowtail butterfly as a defense mechanism, the leaves also serving as their exclusive food. California pipevine is widely scattered in the East Bay and South Bay, becoming common in the North Bay, mostly near streams in forests. Besides stands in Briones and Las Trampas, California pipevine can be seen in Samuel Taylor State Park in Marin County. It's also found in the wooded foothills of the central and northern Sierra, where it is sometimes abundant in canyons.

*BACCHARIS PILULARIS*. COYOTE BRUSH OR BUSH. ASTERACEAE, THE DAISY OR SUNFLOWER FAMILY. Fast-growing evergreen dioecious shrub from a mounded coastal form a few feet tall to upright shrubs over 12 feet high. Small, fragrant, bright green rounded leaves with a few teeth, and clusters of male flowers with cream-colored stamens and female flowers (separate plants) with white-haired fruits that are wind dispersed. Unusual in blooming in fall. Tolerant of many conditions in gardens and widespread in the foothills, especially in coastal scrub and the edge of disturbed chaparral. Can be heavily pruned.

*BERBERIS* SPP. BARBERRIES AND OREGON GRAPES. BERBERIDACEAE. THE BARBERRY FAMILY. A varied group of evergreen woody shrubs that colonize by spreading roots. All share a bright yellow inner bark used as a dye and medicinally, pinnately compound leaves with hollylike sharp-toothed leaflets; dense racemes of bright yellow flowers, each flower with several rows of colored perianth parts; and edible but often sour purple or red grapelike fruits. The different species are found in several sections of the Garden according to origin and habitat. Some, like long-leaf barberry (*B. nervosa*) grow in moist shade; others like Oregon grape (*B. aquifolium*) in dry shade; still others like Nevin's barberry (*B. nevini*) in full sun. Plants are slow to establish but eventually can co-opt large swaths of land.

*CALYCANTHUS OCCIDENTALIS*. WESTERN SPICEBUSH. CALYCANTHACEAE, THE SWEET SHRUB FAMILY. Fast-growing deciduous shrub from riparian shaded areas near the coast and at middle elevations in the Sierra, the bark and leaves with a spicy aroma, the leaves broadly ovate and in pairs. Scattered clusters of wine-red waterlily-like flowers in summer, each flower consisting of spirally arranged tepals, numerous stamens attached to a broad hypanthium that becomes a container of large achene type fruits in fall (often remaining on the shrub in winter as a means of identification). Flowers smell of rotting fruit, attracting beetles for pollination. Found in the East Bay at Jewel Lake in Tilden Park and Huckleberry Preserve.

*CARPENTERIA CALIFORNICA*. BUSH-ANEMONE. HYDRANGEACEAE, THE HYDRANGEA FAMILY. Medium sized evergreen shrub with narrow, shiny green, lance-shaped leaves, brown peely bark, and open clusters of large, showy, white saucer-shaped flowers in midspring, each flower with numerous golden stamens in the center followed by brown capsular seed pods filled with tiny seeds. Some leaves often turn brown and unsightly at the end of the dry season. A rare relict species confined to a handful of occurrences in middle elevations of the Sierra foothills mainly in Fresno County, sometimes in full sun in chaparral, sometimes in partial shade of evergreen forests. Introduced to California gardens from English enthusiasts.

*CEANOTHUS* SPP. WILD LILACS AND VARIOUS OTHER COMMON NAMES. RHAMNACEAE, THE BUCKTHORN FAMILY. A large genus of shrubs with diversity centered in California. The habits range from prostrate creepers to large shrubs and small trees up to 20 feet high. Habitats include coastal bluffs, coastal scrub, chaparral, the edge of forests and woodlands, and high desert mountains. All species feature simple, sometimes toothed leaves,

and dense sprays of tiny white, pale pink, blue, or purple flowers, each flower with 5 hooded sepals and 5 scoop-like petals, 5 stamens, and a 3-sided ovary that ripens into a capsule with several large seeds. Leaves may be grayish, blue-green, bright and dark green and evergreen (most species) or winter deciduous. The leaf details vary according to subgenus: *Ceanothus* contains plants with alternate elliptical leaves with one main midvein or 3 long veins, no obvious stipules, and seed pods with "horns". *Cerastes* has opposite leaves with a pinnate vein pattern, often prickly teeth, and obvious corklike stipules but lacks horns on the seed pods. *Ceanothus* share fragrant, bee-attracting flowers that can be lathered in water to make suds, and medicinal roots. All require well drained soils and no summer water when established in garden settings. Details of species will be shown in different parts of the Garden.

*CERCIS OCCIDENTALIS*. WESTERN REDBUD. FABACEAE, THE PEA FAMILY. Large deciduous shrub or small multitrunked tree with gray-brown bark and rounded to kidney-shaped leaves (different from other members of the family Fabaceae). The rose-purple to pink, pealike flowers appear along branches before the leaves come out, making spectacular displays in early spring. Flowers are followed by pealike seed pods that start wine red then turn brown, containing a few large seeds each. Seeds can be soaked in hot water to improve germination but the plants are slow to maturity. Leaves turn shades of maroon and yellow in areas with cold fall nights, not much so in the Bay Area. Bark was used in basketry. Not native to the Bay Area but widespread in chaparral and along the margins of oak woodlands in the inner North Coast Ranges and Sierra foothills, with populations also near the desert and in the higher mountains of Southern California. Near place to see them is on Hwy. 128 west of Williams.

*CERCOCARPUS BETULOIDES*. MOUNTAIN MAHOGANY ROSACEAE, THE ROSE FAMILY. A large winter-deciduous shrub to small tree with hard wood (but no relative of the real mahogany, a tropical tree) and small elliptical fuzzy leaves with coarse teeth and an indented feathery pinnate vein pattern. (The leaves are often confused with *Holodiscus discolor*, whose leaves are fragrant, while mountain mahogany has spice-scented bark.) Clusters of small cream colored, petal-less flowers appear under the branches in spring, offering nectar to passing bees but not showy in themselves. Later the single-seeded fruits develop long, feathery white tails that are far more conspicuous and adapted for wind dispersal. These tough plants occur in open woodlands and chaparral throughout most of the foothills, also climbing into high desert mountains and being robust (var. *blanchiae*) on the Channel Islands. Pointed sticks were often used in starting fires and for arrow shafts.

*CHAMAECYPARIS LAWSONIANA*. PORT ORFORD CEDAR OR LAWSON CYPRESS. CUPRESSACEAE, THE CYPRESS FAMILY. Very tall evergreen conifer with flattened, often partially drooping branchlets of many overlapping scales, the scales displaying white x's underneath. Bark in long fibrous brown strips; tiny marble-shaped woody seed cones. An excellent source of wood, much sought by the Japanese and endangered from logging and an invasive water mold in the genus *Phytophthora*. Highly variable leaf color, numerous cultivars available from dwarfs to variegated ones, highly popular in horticulture. Restricted to water courses and lake margins in both the Klamath Mountains and intermixed with coastal conifer forests north of Eureka, extending in southwestern Oregon. Can be propagated from cuttings. Most easily accessible place to find it: along the Sacramento River near Castle Crags State Park.

*COMAROSTAPHYLIS DIVERSIFOLIA*. SUMMER-HOLLY. ERICACEAE, THE HEATHER FAMILY. Large evergreen shrub to broad-crowned tree with peely brown bark, thick leathery broadly elliptical toothed leaves, and pendant racemes of white urn-shaped flowers in early to midspring followed by bright red warty berries similar to madrone fruits. Attractive to birds. Rare

occurrences on the mainland of Southern California, and on the edge of forests on the Channel Islands. Deserves to be better known.

*CORNUS* SPP. DOGWOODS. CORNACEAE, THE DOGWOOD FAMILY. Fast-growing deciduous, sometimes suckering shrubs with one species a small tree (*C. nuttallii*) and another a rare woody ground cover (*C. canadensis* or bunchberry). All have brown to red new twigs (older bark is brown), pairs of broad, ovate distinctively veined leaves that turn red in fall, and small greenish to white star-shaped four-petaled flowers with inferior ovaries. All require summer water (minimal after developing a large root system). The three most prominent in the Garden are *C. sericea* (red-twig or creek dogwood), noted for its brilliant red twigs in winter and with loose clusters of small white flowers sporadically from spring to fall; *C. sessilis* (black-fruited dogwood) noted for its beautifully veined leaves, tiny clusters of green flowers in late winter, and black fruits (found mainly in the northern Sierra & Klamath Mountains); and *C. nuttallii* (the flowering or mountain dogwood), a small tree on the edge of moist conifer forests at middle elevations with greenish flowers in a tight head surrounded by showy white petal-like bracts in early to midspring. The latter is similar to the popular eastern dogwood, *C. florida*. Creek dogwood can be found at Jewel Lake in Tilden Park and Huckleberry Preserve, while a trip to Ida Clayton Road near Mt. St. Helena is the easiest access to the flowering dogwood. Dogwoods have medicinal uses, and some species have edible fruits. All provide beautiful fall color even in Bay Area gardens.

*CORYLUS CORNUTA CALIFORNICA*. CALIFORNIA HAZELNUT. BETULACEAE, THE BIRCH FAMILY. Large deciduous monoecious multitrunked shrub or small tree with arching branches and softly furry ovate doubly toothed leaves that turn pale yellow in fall. Slender hanging petal-less male catkins open at winter's end; tiny pea-sized female flowers display sticky dark red stigmas to catch the wind-dispersed pollen, later ripening into a fuzzy-husked nut, the nuts delicious raw or roasted. Nut production of local trees is meager and many animals seek the nuts. Hazelnut lives along the margins of coastal forests also reappearing at middle elevations in the mountains. Although not strictly riparian, it is often on the upper banks of creeks. Hazelnut is widespread in the Bay Area including Tilden Park. The branches were sometimes used in construction for their flexibility.

*ERIOGONUM* SPP. WILD BUCKWHEATS. POLYGONACEAE, THE BUCKWHEAT FAMILY. A very large and diverse group of plants in California containing tiny annuals, cushion-forming perennials, and small evergreen shrubs throughout most of the state, with many species in the deserts and mountains, usually on sandy or rocky soils. Despite the diversity, they all share simple untoothed leaves (most are spatulate shaped) often covered with woolly hairs underneath, complex clusters of tiny white, yellow, pink, or red flowers with 6-lobed perianths, the flowers clustered inside groups of bracts called involucre. The shape of the involucre, leaf details, bracts, flower colors, and flower arrangements are all important in making an identification. (The *Jepson Manual* recognizes four basic groups.) Most are easy to grow in loose, well-drained soils and full sun, and are relatively drought tolerant; most also bloom from late spring and summer into early fall, some with months of bloom. All are attractive to a wide range of pollinators including beetles, bees, and butterflies and all make good cut-flower arrangements, the flowers fading to beautiful shades of russet and red. Almost all parts of the Garden are represented by different species in the genus, and all are prominent for their summer flowers. Local species include *E. latifolium* on coastal dunes and cliffs, *E. nudum* (naked stem buckwheat) on rocky roadsides and trails, *E. wrightii* forming dense woolly mats on the Mines Road south of Livermore, and *E. umbellatum* the sulfur buckwheat with umbels of bright yellow flowers fading red near the top of Mt. Diablo.

*FREMONTODENDRON* SPP. FREMONTIA, SLIPPERY ELM, OR FLANNEL BUSH. MALVACEAE, THE MALLOW FAMILY. Most are large evergreen shrubs or small trees, but *F. decumbens* is a rare woody ground cover. Although there are two main species—*F. californicum* and *F. mexicanum*—most plants from nurseries are selected cultivars and/or hybrids. The inner bark is mucilaginous and was sometimes used medicinally. The broad, often maplelike leaves, are covered with furry, irritating, starburst (stellate) hairs. The showy, saucer-shaped yellow to yellow-orange flowers have 5 sepals (no petals) and 5 partly joined stamens, the fruits ripening into 5-chambered capsules covered with irritating hairs (wear gloves to handle the plants). Seeds are usually propagated by a fire treatment, and in the wild, numerous seedlings are found after a wildfire. Rare in the Bay Area (Carson Ridge area of Marin County; Mt. St. Helena region of Napa County), fremontias are dominant shrubs in the chaparral and forest edges in the southern Sierra, Transverse Ranges, and mountains of Southern California, where they often reach tree size in old age. In the garden, they should receive no summer water after the first couple of years and be in a well-drained soil, otherwise they're prone to fungal infections which quickly kill the plants. The rare and choice *F. decumbens* with orange flowers is restricted to gabbro soils on Pine Hill east of Sacramento.

*FRANGULA (RHAMNUS) CALIFORNICA* AND VARIETIES. COFFEE BERRY. RHAMNACEAE, THE BUCKTHORN FAMILY. Mounded woody shrub or growing over 10 feet tall, some forms emulating small trees. Highly variable, the elliptical leaves often curled along the margins and dark, bright, dull, or gray green according to environment. New twigs red. Clusters of tiny yellowish starlike flowers in late spring, loaded with nectar to attract bees. Berrylike drupes follow turning from green to yellow to red and finally dark purple and are eaten by birds (not advisable for humans). Each fruit contains two or three large coffee beanlike seeds giving rise to the common name. Many parts of the plant laxative. Widespread from coastal scrub to chaparral, open woodlands, and edges of forests throughout the foothills of the Coast Ranges and Sierra. Highly useful as backdrops and hedges in gardens with several cultivars available. Many stands in the Bay Area including Tilden Park.

*GARRYA* SPP. SILK TASSEL BUSHES. GARRYACEAE. Medium sized to large dioecious evergreen shrubs with broadly elliptical paired leaves, brown-gray bark, and hanging tassels of petal-less wind-pollinated flowers in winter, the male tassels longer and showier, the female tassels ripening berries with red-purple flesh. *G. elliptica*, the coast silk tassel is readily available in nurseries with several cultivars, and is native to coastal scrub and the edge of coastal forests in the Bay Area. A couple of other species—*G. fremontii* and *G. flavescens*—are also occasional in the inner Bay Area. The six species are mostly in hot chaparral across much of the state.

*HESPEROCYPARIS (=CUPRESSUS)* SPP. CYPRESSES. CUPRESSACEAE, THE CYPRESS FAMILY. Evergreen, bushy shrubs to small trees with branches thickly clothed with pairs of tiny highly fragrant fish scalelike leaves similar to junipers, the leaves from blue-gray to bright green. Most are monoecious producing a plethora of tiny pollen cones in summer and fall and clusters of long-lived woody seed cones, most of which remain tightly bound to the branches and with shield-shaped scales that seldom open except after fire (much like the closed-cone pines). Species often difficult to identify; California with the lion's share of species although much disagreement about what are species and varieties. Most are rare and restricted to special soils, especially serpentine, some growing along the coast, others inland in very hot, summer-dry areas. The most widely planted of all cyresses, *H. macrocarpa* or Monterey cypress occurs in only two places on the Monterey Peninsula yet is widely planted elsewhere; most of the other natives are seldom grown. The Garden is home to a fair number of species. In the Bay Area, *H. sargentii* or Sargent's cypress is common on serpentine outcrops on Mt. Tamalpais and other

areas but no others are native to our area except small populations of Santa Cruz cypress (*H. abrmassiana*) in the Santa Cruz Mountains.

*HESPEROYUCCA WHIPPLEI*. CHAPARRAL YUCCA OR OUR LORD'S CANDLE. A woody-based giant rosetted leaf succulent, the leaves dull to silvery green, narrowly lance-shaped, fibrous, and ending in a seriously sharp spine. Leaf rosettes may take over 10 years to develop a central flowering stalk much like the agaves, rising to 10 or more feet high and carrying hundreds of creamy, nodding, bell-shaped flowers (flowers edible when cooked). Large, 3-chambered seed pods follow to revegetate as the parent rosette dies. Many also produce a circle of "pups" or offsets that carry on after the parent dies. Leaves used for their fibers; roots high in saponins or soapy substances. Common in the chaparral of Southern California from the Monterey coast south and in the southern Sierra foothills. Easily propagated from seed or offsets.

*JUNIPERUS CALIFORNICA*. CALIFORNIA JUNIPER. CUPRESSACEAE, THE CYPRESS FAMILY. A bushy multitrunked small tree or large evergreen shrub with pairs of tiny dull to blue-green scales along the twigs, foliage fragrant. Bark is fibrous and in long strips; plants are dioecious, the minute pollen cones on males, and the pale purple berrylike seed cones on females. Fleshy seed cones are designed to be dispersed by birds; Indians sometimes ground the cones into flour or used the plant medicinally. Gin flavored with some species of junipers (the two words have a common origin). Found in very hot dry places both in the interior foothills of the Coast Ranges and southern Sierra as well as in many of the higher desert mountains. Easiest access if at Juniper Camp on Mt. Diablo.

*JUNIPERUS COMMUNIS* AND VARIETIES. COMMON OR MAT JUNIPER. A widespread evergreen conifer, differing greatly in size and form according to variety and with a broad distribution. Three recognized subspecies in California, all low growing prostrate sprawling shrubs retaining the juvenile needles (most other junipers form scaly leaves in maturity) which are often silvery on the back and pale to blue green on the upper side. Very slow growing, often rooting as they grow. Dioecious, the males with tiny pale yellow pollen cones, the females with pale purple berrylike seed cones. Widely distributed but seldom common. A number of clones usually in one area such as the high Sierra and rocky outcrops (often on serpentine) in the Klamath Mountains. Easiest access if by Lake just east of Tioga Pass.

*LONICERA INVOLUCRATA*. TWINBERRY HONEYSUCKLE. CAPRIFOLIACEAE, THE HONEYSUCKLE FAMILY. A fast-growing deciduous shrub of riparian areas, often growing with spicebush and others of similar habitat requirements. Broad ovate leaves in pairs and clusters of yellow to orange-tinted tubular flowers in spring, sometimes reblooming in fall, and attractive to hummingbirds. Flowers borne within pairs of bright red bracts that later entice birds to the dark black-purple berries (insipid to humans). Can be pruned hard to make bushier. Local areas include Jewel Lake in Tilden Park.

*LYONOTHAMNUS FLORIBUNDUS* AND VARIETIES. ISLAND IRONWOOD. ROSACEAE, THE ROSE FAMILY. A fast-growing, suckering, evergreen tree that colonizes, with long peely brown bark and flat-topped clusters of small white, roselike flowers in early summer. The main variety, *asplenifolius*, with coarsely divided bright green fernlike leaves. (*Asplenium* is a genus of ferns.) Seed pods last for several years on the trees after blooming. The fern-leaved variety restricted to the northern Channel Islands, usually in canyons and areas of a high water table, propagating vegetatively but seldom growing from seed. A relict that once grew on the mainland.

*MIMULUS (DIPLACUS) AURANTIACUS* AND VARIETIES. PHRYMACEAE. Small fast-growing woody perennials or shrubs with pairs of narrow, toothed, sticky leaves with curled margins, the leaves often disappearing partially in the summer. Clusters of showy two-lipped blossoms attractive to many pollinators from late spring through summer and sometimes into fall (with additional summer water). Flowers are typically orange in the Bay Area, but many variants elsewhere have red, pale apricot, pure white, or yellow flowers, and the varieties may hybridize to produce an even wider range of attractive colors, an aspect utilized in horticulture to produce myriad named cultivars of great beauty. Plants often short lived but can be pruned heavily to rejuvenate; cuttings and seed also easy. Most grow on rocky soils in coastal scrub, the edge of chaparral and borders of woodlands and forests throughout the foothills. The showiest form, aka *M. bifidus*, has the largest flowers and is typical of the Feather River country, while *M. flemingii* has small red flowers and is endemic to the northern Channel Islands. Many stands of the orange form occur in all the foothills of the Bay Area, including Tilden Park.

*MORELLA (MYRICA) CALIFORNICA*. CALIFORNIA WAX-MYRTLE OR BAYBERRY. MYRICACEAE, THE SWEET GALE FAMILY. Fast-growing monoecious evergreen tree to around 20 feet high with narrow, lightly toothed glossy and fragrant leaves, the fragrance not as overpowering as the California bay and useful in flavoring stews. Tiny clusters of petal-less male and female flowers are borne in leaf axils in spring, seldom noticed. The “berries” that follow in summer are dark purple, fragrant, and bumpy, containing small amounts of wax. The fruits of the related wax-myrtle from the Eastern U.S. is boiled to remove the wax and make the famous bayberry candles. Wax-myrtle leaves along the margins of coastal forests in the fog belt and sometimes on the margins of swamps, ranging mainly from south-central California to Oregon. Locally it occurs at Huckleberry Preserve and in many parts of Marin County including Point Reyes National Seashore.

*NOLINA* SPP. BEAR-GRASS OR NOLINA. RUSCACEAE, THE BUTCHERBROOM FAMILY. Prominent leaf succulents from a woody rhizome similar in appearance to yuccas but the leaves less spiky, more flexible, and less stiffly fibrous, often lined with minute teeth. Woody stalks often carry leaves up to several feet above the ground. Immense panicles of white-bracted, tiny white flowers in midspring followed by 3-winged seed pods carried away on the wind. New studies indicate that nolinias are not at all closely related to yuccas, belonging instead to the Ruscaceae. Four native species, most growing to gargantuan sizes over time but *N. interrata*, a rare species from Otay Mountain in San Diego County, only grows to 6 feet high in flower. The others are widespread in the higher elevations of rocky desert mountains, none close to the Bay Area.

*PICEA SITCHENSIS*. SITKA SPRUCE. PINACEAE, THE PINE FAMILY. Among the tallest conifers of the Pacific Northwest extending from Jughandle Creek in Mendocino County northwards to Sitka, Alaska. Evergreen tree with stiff branches that swoop up, covered with sharp dark green needles attached all around the twigs and leaving behind a “peg” when they fall. Pollen cones underneath the branches and between the needles; seed cones cylinder shaped with numerous light-weight papery, fluted or toothed scales which hang from branch tips. Wood widely used for its strength; bark scaly. The only coastal spruce in California and often dominating north coastal conifer forests in Humboldt and Del Norte counties.

*PICEA BREWERIANA*. BREWER’S OR WEEPING SPRUCE. Slow-growing evergreen conifer with nearly vertical hanging side branches, a stiff leader, and prickly dull green needles attached to pegs as with Sitka spruce. Bark scaly; seed cones slender and cylinder shaped, with many papery scales, longer than most other spruces. A distinctive species for its silhouette and

restricted to the Klamath and Siskiyou Mountains of northwestern California and southwestern Oregon. Easiest access is along the O'Brien Road north of Happy Camp.

*PINUS LONGAIEVA*. BRISTLECONE PINE PINACEAE, THE PINE FAMILY.. A relatively short, sometimes spreading evergreen conifer often called the world's oldest tree with specimens dated close to 5,000 years of age. Dense thick needles in 5s remain on branches for twenty years or more, an unusual trait in pines. Bark is brown and checkered on old trees, and seed cones hang in clusters from branch tips, initially purple then turning brown as they open, each scale with a small bristle leading to the common name. Even when they die, the trees are picturesque for their burnished wood skeletons survive for many years due to the dry conditions and lack of fungi. Trees are exceptionally slow growing, requiring many years to reach a treelike size. Bristlecone pine is mostly confined in California to white dolomite soils with the oldest and largest specimens in the White Mountains east of Bishop; other populations in the Inyo Mountains and the highest peaks in Death Valley. The species is also found in high desert mountains of Nevada and Utah. Its close relative, foxtail pine (*P. balfouriana*) occurs in the high southern Sierra and Klamath Mountains.

*PINUS TORREYANA*. TORREY PINE. A very rare pine from the south coast, known only from Torrey Pines State Park north of San Diego and Santa Rosa Island. Fast-growing tall tree with exceptionally long gray-green needles in 5s and substantial fat seed cones, the seeds large, and the cone scales ending in a broad spine. Easy to grow and much taller in cultivation than in the wild.

*PLATANUS RACEMOSA*. WESTERN SYCAMORE. PLATANACEAE, THE PLANE TREE FAMILY. Large, bold-trunked deciduous monoecious tree with bark mottled into gray, cream colored, and brown patches and large, maplelike hairy leaves with conspicuous collarlike stipules, the leaf petiole hollow at the base and covering a vegetative bud. Hanging chains of petal-less wind-pollinated flowers in spring, the flowers in round ball-like clusters. Male flowers with long stamens, female with furry purple stigmas that later ripen into prickly balls of achenes. Typical riparian tree from the northern Sierra foothills south and from the East Bay south, extending into Baja California and desert oases. Can be easily told from maples by the stipules, hollow petioles, and alternate not opposite leaves.

*POLYSTICHUM MUNITUM*. WESTERN SWORD FERN. DRYOPTERIDACEAE, THE WOOD FERN FAMILY. A medium sized to large evergreen shade-loving fern, especially abundant in the understory of coastal mixed-evergreen and redwood forests, sometimes also on coastal bluffs where fog protects them from sun exposure. Massive filamentous roots anchor the plants, whose clusters of basal fronds that are once divided help identify it. Further scrutiny reveals sword-shaped leaf segments (pinnae) with a hilt at the base of each one. Typical of all ferns, the frond undersides have brown sori that produce hundreds of microscopic spores, each round sous a cluster of spore sacs protected with an umbrella-like membrane or indusium. (Shape and position of sori are important identifying features in ferns.) Spores settle down on moist soil, grow into tiny heart-shaped prothalli that produce sperms and eggs fertilized when it's wet, the fertilized eggs then growing into new baby fern plants. (All ferns share this basic life cycle.) Sword fern is common in Tilden and other regional Bay Area parks.

*POPULUS FREMONTII*. FREMONT COTTONWOOD. SALICACEAE, THE WILLOW FAMILY. Fast-growing deciduous tree with weak wood, fissured bark, and broadly ovate leaves lined with scalloped teeth, the leaves turning gold in cold fall habitats. The trees are dioecious, the male with hanging catkins of petal-less staminate flowers, the females with hanging catkins of pistillate flowers that, after wind pollination, ripen seed pods filled with cottony-haired seeds

carried by the wind. Cottonwoods sucker heavily, have very thirsty roots, and typically live along riparian corridors. A sizeable population can be seen in Mitchell Canyon on Mt. Diablo.

*POPULUS TREMULOIDES*, QUAKING ASPEN. Medium-sized winter deciduous cloning tree from the high Sierra, often near water courses, with whitish bark, broadly deltoid leaves that flutter on flattened petioles, turning gorgeous shades of gold, yellow, or orange in fall. Seldom blossom but flowers are similar to Fremont cottonwood. Rapidly expanding to form groves by suckering. A focal point at the Garden in the Sierran lawn, but failing to turn color in fall because of the lack of cold nights. Not native to the Bay Area.

*PSEUDOTSUGA MENZIESII*. DOUGLAS-FIR. PINACEAE, THE PINE FAMILY. Very tall, robust evergreen conifer with irregularly fissured dark brown bark and highly fragrant bright to dark green needles arranged around twigs, the new growth often used in herbal teas. Tiny pollen cones on the underside of branches in spring, and seed cones borne near the ends of branches ripening in fall, each cone with broad rounded scales and three-pronged (mousetail) bracts between, the cones falling intact. Not a true fir but the common name firmly established. Excellent and valued source of wood in the West. Broad distribution through the Pacific Northwest, Rocky Mountains south to California, where it grows in mixed-evergreen and middle-elevation conifer forests south to Yosemite in the Sierra and south to the Santa Lucia Mountains in the Coast Ranges. Missing from the East Bay, and preferring the fog belt. May shade out shorter broadleaf trees over time.

*QUERCUS AGRIFOLIA*. COAST LIVE OAK. Large, evergreen tree with a broad rounded canopy, shiny dark green simple leaves lined with prickly teeth, the margins often curled under, and the underside usually with clumps of tiny hairs at vein junctions. Acorns long and pointed with stripes in a scaly acorn cup; male catkins in early spring to late winter. Bark dark gray. Muscular, sometimes two- to three-trunked. Acorns sometimes used as food. Common in the Coast Ranges from Mendocino County south to northern Baja California, often growing on hillsides in the fog belt but canyon bottoms inland. Not found in the Sierra.

*Q. CHRYSOLEPIS*. GOLDCUP OR CANYON LIVE OAK. Large evergreen tree with a variable crown according to conditions with dark brown-gray bark, medium sized leathery leaves dark green on top and pale underneath, dusted with a gold powder when young and either entire or with prickly teeth. Plump rounded acorns borne in a warty acorn cup dusted with gold powder. Not common as food. Perhaps the most widespread oak in California, growing on north-facing slopes and canyons throughout the Coast Ranges into Baja California, and climbing to middle elevations in the mountains. Easily distinguished from other evergreen oaks by the bicolored leaves.

*QUERCUS GARRYANA*. GARRY OR OREGON WHITE OAK. FAGACEAE, THE OAK OR BEECH FAMILY. Large deciduous tree with a rounded canopy, large pinnately lobed leaves, and plump rounded acorns in a warty acorn cup; male tassels in early spring as new growth resumes. Bark pale gray often developing a checkered pattern. Common on hillsides in the North Bay counties into Oregon and also in the Klamath Mountains and northern Sierra; widely scattered elsewhere. Resembles valley oak in many respects. Acorns served as food but not one of the preferred species.

*Q. KELLOGGII*. CALIFORNIA BLACK OAK. Large deciduous tree with a variable crown depending on growing conditions, large pinnately lobed leaves, the lobes ending in a bristle tip unlike other lobed-leaf oaks, and plump rounded acorns that sit in a shallow scaly acorn cup; male tassels in early spring along with briefly bright pink new leaves, the colored hairs later

wearing off. Bark shallowly checkered and dark gray to black. Preferred food of the Indians. Main distribution at middle elevations in most of the mountains, often growing with ponderosa pine and white fir. Widely scattered elsewhere with a few localized stands in the East Bay and Marin County.

*Q. TOMENTELLA*. ISLAND OAK. Large evergreen often narrow but sometimes broad tree with large, simple, toothed leaves, the upper surface with an impressed featherlike vein pattern, the lower surface covered with dense white hairs. Leaves reminiscent of the tanbark oak, *Notholithocarpus densiflorus*. Acorns borne in a warty cup, the cup sometimes dusted with a gold powder. Bark dark grey-brown. A relict species now restricted to canyons in the northern Channel Islands. Trees easily grown in cultivation.

*NOTHOLITHOCARPUS DENSIFLORUS*. TANBARK OR TAN OAK. FAGACEAE, THE OAK OR BEECH FAMILY. A very large robust evergreen tree with fissured whitish bark rich in tannins (once used for tanning hides), large tough leaves lined with coarse teeth, an imprinted featherlike vein pattern, and furry with tiny hairs underneath. Large rounded acorns borne in a bristly (not scaly or warty) acorn cup, the acorns a favored food of the Indians. Sensitive to SODS, with many dead trees in coastal counties of central California. A dominant tree from the Santa Cruz Mountains north often growing near Douglas-fir, madrone, and coast redwood, but missing from the East Bay. Also found in the northern Sierra and Klamath Mountains. Replaced by a shrub variety, *echinoides*, on hot, dry mountain slopes in California's northwest.

*RHODODENDRON OCCIDENTALE*. WESTERN AZALEA. ERICACEAE, THE HEATHER FAMILY. Medium sized deciduous shrub with whorls of branchlets on the ends of the main stems, narrowly elliptical sometimes skunk-scented leaves, and clusters of highly showy and fragrant white to pink flowers in late spring, the upper petals usually with a golden blotch, the stamens extending out from the petals. Narrow capsules follow with hundreds of dustlike seeds and leaves often turn shades of orange and bronze in the fall. Rare in the East Bay, western azalea is common along forested creeks in the fog zone of the Coast Ranges, sometimes trending inland where reliable summer water is available. It is also abundant in the Klamath Mountains and at middle elevations in the Sierra like Yosemite Valley. Look for it on Mt. Tamalpais and other parts of Marin County.

*RHUS OVATA*. SUGAR BUSH. ANACARDIACEAE, THE SUMAC FAMILY. Large evergreen shrub (sometimes a small tree) with fragrant, ovate, *taccoid* leaves, brown bark, and dense branched spikes of small pink-budded white flowers from late winter to early spring, followed by rhomboid red drupes that look as though they're frosted with sugar, the hairs actually containing a lemony flavored substance usable in drinks. Restricted to the chaparral of Southern California mountains and the margins of the Sonoran Desert. Closely related to the lemonade berry, *R. integrifolia*, another evergreen shrub from Southern California.

*RIBES* SPP. CURRANTS. GROSSULARIACEAE, THE GOOSEBERRY FAMILY. With one exception, deciduous medium-sized shrubs with sticky, fragrant, maplelike leaves and trusses of showy pink, red, or white (one species yellow) flowers, each flower with both colored sepals and petals and an inferior ovary that ripens into a edible but often insipid berry, good for attracting birds. Most live on the margins of woodlands and forests in the foothills and middle elevations of the mountains, sometimes in full sun. The most widely planted is *R. sanguineum glutinosum*, the pink flowering currant, which blooms at winter's end and early spring, attracting hummingbirds. *R. malvaceum*, the chaparral currant, grows in drier habitats and blooms during the heart of winter. Pink flowering currant occurs in Tilden Park as well as many other Bay Area locales while chaparral currant is found on Mt. Diablo.

*RIBES* SPP. GOOSEBERRIES. While currants have sticky fragrant leaves, most gooseberries have smaller unscented leaves and triplets of spines at the nodes, spines lacking entirely in the currants. As well, gooseberry flowers, constructed in a similar way to currants, hang under the branches in leaf axils. California has more species of gooseberries than currants, found throughout the foothills and mountains in several different plant communities, the species often difficult to separate. Although many have spiny berries, some have smooth or glandular berries, all potentially edible. *R. speciosum*, the fuchsia-flowered gooseberry is by far the most ornamental, carrying lines of red fuchsialike flowers in late winter and spring, and native to dry woodlands from Santa Clara County south in the coastal mountains. Several similar gooseberries like the canyon gooseberry, *R. menziesii*, are native to the Bay Area.

*ROMNEYA COULTERI*. MATILILJA POPPY. PAPAVERACEAE, THE POPPY FAMILY. A giant woody based perennial with running roots, this plant is dormant for 3 to 4 months during winter. The clusters of upright stems grow to 8 feet high with pale to bluish green lobed leaves and open clusters of huge white flowers in summer sometimes referred to as fried eggs. Each flower features several crumpled petals and numerous golden stamens that attract bees to gather pollen, no nectar is offered. The plants grow without summer water. Matilija poppy is a fire follower in chaparral from the mountains of Southern California, germinating after fire, growing rapidly and spreading to take advantage of their temporary opportunity to grow, flourish, and make seed. The plants contain opiates.

*ROSA* SPP. WILD ROSES. ROSACEAE, THE ROSE FAMILY. Fast-growing deciduous small cloning shrubs with prickles lining the stems, pinnately compound leaves with toothed leaflets and basal stipules, and open clusters of showy, fragrant, single roselike pink, red, or occasionally white flowers, the flowers with numerous stamens and a hypanthium that turns red in fall, known as a hip. The hip, edible and attractive to birds, contains several hard, fuzzy single-seeded fruits. Easy in gardens but may become invasive. Species often difficult to differentiate, found throughout most of California at many elevations. *R. californica*, common along creek banks, and *R. gymnocarpa*, the wood rose, common in woodlands and forests, are the two Bay Area species.

*SALIX* SPP. WILLOWS. SALICACEAE, THE WILLOW FAMILY. Fast-growing deciduous shrubs and trees, suckering and reproducing much the same way as the related cottonwoods. Twigs may be brown, grayish, orange, or red and attractive when leafless in the winter. These twigs are highly flexible, making them important in creating frameworks for huts and the framework of baskets. Also medicinal, the bark contains salicylic acid, the active ingredient in aspirin. Dioecious like the cottonwoods, male willows bear upright catkins of petal-less staminate flowers visited by bees as well as the pollen carried on the wind; female plants have upright green pistillate flowers that ripen pods with hairy seeds. The many species grow along riparian corridors and near marshes with several foothill species (*S. lasiolepis* or arroyo willow is the common one in Tilden Park), and a number of other species climbing into the high mountains, two with prostrate stems close to the ground. Identification of species is often difficult.

*SALVIA* SPP. SAGES AND CHIA. LAMIACEAE, THE MINT FAMILY. A varied and important dryland genus containing several semi-evergreen shrubs (some are summer deciduous without water), one woody creeping ground cover (*S. sonomensis*, Sonoma sage), one herbaceous shade-loving ground cover (*S. spathacea*, hummingbird sage), and two annuals, the most famous of which is chia (*S. columbariae*). All share square stems with pairs of highly fragrant sage-scented leaves and whorled spikes of two-lipped flowers rich in nectar and followed by

sepals that contain edible and nutritious nutlets. Sages have been used for many purposes including medicines as well as their edible seeds, chia being perhaps the most widely harvested. The Bay Area is home to the hummingbird sage mostly in coastal mountains, the black sage (*S. mellifera*) an abundant shrub with pale purple flowers on Mt. Diablo, chia growing on dry rocky slopes inland, and Sonoma sage spilling over rocky hillsides in Sonoma County. Most other sages, especially the shrubby species live in deserts, chaparral, and coastal sage scrub in Southern California. Most have leaves usable in herbal teas and in small amounts for flavoring food and most are easy to grow.

**SAMBUCUS SPP. ELDERBERRIES. ADOXACEAE.** Fast-growing tall deciduous shrubs to small trees with opposite, ill-scented, pinnately compound leaves and panicles or cymes of tiny white to cream colored flowers that ripen into berries in summer. Two common species: *S. nigra caerulea*, the blue elderberry, is widespread in canyons and hill slopes into the mountains, usually growing inland, and produces cream-colored fragrant flowers in late spring followed by blue berries; *S. racemosa*, the red elderberry, is typically found in shaded coastal canyons and bears pyramidal clusters of white flowers in early to mid-spring followed by bright red berries. Elderberries have multiple uses, including as medicinals, new straight shoots for flutes and clappers, flowers battered and fried as fritters, and fruits made into jelly and wine, best used thoroughly cooked to remove the toxins from the seeds. Both species are common in the Bay Area—red elderberry at Pt. Reyes, and blue elderberry in the local Berkeley and Oakland hills east to Mt. Diablo.

**SEQUOIA SEMPERVIRENS. COAST REDWOOD. CUPRESSACEAE, THE CYPRESS FAMILY.** This, the world's tallest tree at over 350 feet high, is a fast-growing, long-lived evergreen conifer with furrowed pitch-free fibrous red-brown bark and short dark green needles arranged in two rows on the lower branches, and spiralled and prickly on the upper crown. Tiny pollen cones open in winter, and the seed cones, small barrel-shaped cones with wrinkled diamond-shaped scales ripen in fall. Most of the seeds fail to germinate in the mature forest because of shade and fungal pathogens so that either fire or silt from flooding favors seedling germination and establishment. The trees range from deep canyons in the coastal Santa Lucia Mountains northwards into southernmost coastal Oregon, always in the fog belt, where temperatures are mild in winter and summer. The best stands are on silty soils near river bottoms, although smaller trees grow on slopes. The best development and distribution is north of Eureka, where forest understories are jungle like because of abundant winter rain and heavy summer fogs. Two excellent places to experience the best of the redwoods is at Prairie Creek State Park and Jedediah Smith State Park. In the Bay Area, my favorite stand is at Armstrong Redwoods State Park just north of the Russian River.

**SEQUOIA DENDRON GIGANTEUM. GIANT SEQUOIA, BIG TREE, OR SIERRA REDWOOD. CUPRESSACEAE, THE CYPRESS FAMILY.** This is the world's largest living organism with more board feet of wood than any other tree and among the greatest in girth. Although the coast redwood is heavily logged for its rot-resistant wood, the giant sequoia has very brittle wood making it difficult to use for similar purposes; This evergreen conifer can grow over 200 feet high with a nearly straight trunk for the first dozens of feet. The cinnamon colored fibrous, pitch-free bark is thick and resistant to fire. The prickly dark green needles are spirally arranged and resemble the needles at the top of the coast redwood. The tiny pollen cones open in late winter and the seed cones, similar in shape to coast redwoods, are three to four times the volume but with diamond-shaped wrinkled scales. These cones remain tightly closed even when ripe and will remain on the trees for many years unless opened by fire or gathered by squirrels. Like the coast redwood the seeds seldom grow except after fire so controlled burns are being trialed to help regenerate the species. Giant sequoia seldom forms exclusive stands the way the coast

redwood does, instead mixing with other middle-elevation conifers such as ponderosa pine, sugar pine, incense-cedar, and white fir. The groves occur from just west of Lake Tahoe (very small population) south to beyond Sequoia National Park, the largest stands from Yosemite southwards in middle elevations, where the trees receive some winter snow and runoff from snow melt in summer.

*SPIRAEA DOUGLASIANA*. DOUGLAS'S SPIRAEA OR STEEPLE BUSH. ROSACEAE, THE ROSE FAMILY. Fast-growing, colonizing deciduous shrub found on the edge of wetlands in northwestern California and the northern Sierra. Shreddy brown barked stems with elliptical toothed, pale green leaves, and dense steeple-shaped spikes of small rose-purple flowers in summer, each flower like a miniature wild rose. Can be invasive in watered gardens. Not native to the Bay Area but easily seen along the northern coast.

*THUJA PLICATA*. WESTERN RED-CEDAR. CUPRESSACEAE, THE CYPRESS FAMILY. A very tall evergreen conifer whose fragrant and strong wood is the most common source of cedar for decks, fences, etc. Not a true cedar at all, this tree is a member of the cypress family Cupressaceae, while the true cedars belong to the genus *Cedrus* in the Pinaceae. Bark similar to Port Orford cedar although perhaps a bit redder, branches also similar but with white "butterfly wings or bow ties" underneath. Tiny bell-shaped upright seed cones also differ from *Chamaecyparis*. A much valued source of wood. Most impressive specimens on the Peninsula in Washington, western red-cedar is occasional in California's north coastal coniferous forest from Aracata northwards. Most accessible place to see it is in Prairie Creek State Park.

*TORREYA CALIFORNICA*. CALIFORNIA NUTMEG OR STINKING YEW. Taxaceae or yew family. Medium-sized evergreen conifer, seldom over 50 feet high with one to few trunks with vertically striped bark and dense clusters of shiny, dark green, highly fragrant needles that end in a spinelike tip, used for tattooing by the Indians. Trees are dioecious, males bearing small cream-colored pollen cones in leaf axils in spring, females developing clusters of pale green to purple, plum-shaped "cones", each with a fleshy wrapping and a single large, nutmeg-shaped but poisonous seed. Trees stump sprout when injured. Occurs in familylike populations amongst other evergreen trees, the groves often separated from each other by many miles. Scattered from the Santa Cruz Mountains northwards in the Coast Ranges, and also in canyons of the central and northern Sierra. Stands in the Bay Area include Samuel Taylor State Park, Mt. Tamalpais, and Mt. St. Helena.

*TRICHOSTEMA LANATUM*. WOOLLY BLUE CURLS OR ROMERO LAMIACEAE, THE MINT FAMILY. A small evergreen shrub with dense, bright green, scented linear leaves similar to rosemary and clusters of showy blue and purple, two-lipped flowers in spring, sporadically in summer, and again in fall, each flower with woolly purple sepals, blue petals, and long curled stamens, the flowers visited by hummingbirds. Widespread on rocky slopes especially after fire in the chaparral from Pinnacles National Monument south but not found in the immediate Bay Area.

*UMBELLULARIA CALIFORNICA*. CALIFORNIA BAY, BAY-LAUREL, OR PEPPERWOOD. LAURACEAE, THE LAUREL FAMILY. Large often broadly spreading, sometimes drooping, evergreen tree, often multitrunked with dark checkered bark, and readily stump sprouting. Bright green, lance-shaped, highly fragrant leaves full of oils, which used in small amounts in stews and sauces, adds a flavor like the bay of commerce (*Laurus nobilis*). Umbel-like clusters of small, saucer-shaped pale yellow flowers in winter providing nectar for bees. Small, avocado-like fruits turn dark purple when ripe in the fall, each with a hard seed that can be ground and roasted as a condiment. Leaves sometimes used in herbal medicines. Widespread in mixed-

evergreen and ponderosa pine forests from near the sea to middle elevations throughout most of the mountains.

*VACCINIUM OVATUM*. ERICACEAE. THE HEATHER FAMILY. Evergreen huckleberry. A slow-growing evergreen shrub to 10 feet high common on the margins of coastal conifer forests from central California northwards, evergreen huckleberry displays nodding clusters of white to pink, bell-shaped flowers in winter and early spring under leafy branches, covered with thick, narrow, toothed leaves, sometimes used for Christmas greens. The delicious berries ripen in late summer and early fall and are among the best of all native edibles, often surpassing commercial blueberries in flavor. Found localized in the East Bay in sites like Huckleberry Preserve, the best stands that bear heavily are at Pt. Reyes, especially on Mt. Vision. The berries can be used in any application where blueberries are called for.

*VITIS* SPP. WILD GRAPES. VITACEAE, THE VINE FAMILY. Vigorous, deciduous woody vines climbing dozens of feet into tree crowns or covering banks along creeks and rivers inland. Large rounded toothed bright green leaves (edible when young), tendrils to aid in climbing, and drooping panicles of tiny yellow-green flowers full of nectar and attractive to bees in late spring. Clusters of purple, edible but seedy fruits ripen in fall and leaves turn shades of yellow and red before dropping. 'Roger's Red' is a popular cultivar noted for its intense fall color but is now thought to be a hybrid with the European grape, *V. vinifera*. California grape (*V. californica*) is the common one, abundant along waterways inland, often forming great tapestries in riparian forests both in the inner Coast Ranges, Central Valley, and Sierra foothills. Differing slightly is the desert grape, *V. girdiana*, from oases on the margins of deserts. Both species can be severely pruned back in the garden to make less invasive shoots when growth resumes in mid to late spring.

*YUCCA* SPP. YUCCAS, JOSHUA TREE, AND OUR LORD'S CANDLE AGAVACEAE, THE AGAVE FAMILY. Although the latter name is applied to *Hesperoyucca whipplei*, distinguished from the others by flowering only once, then dying (*monocarpic*), yuccas all are woody-based giant succulent-leaved perennials with long, linear to lance-shaped, rigid and highly fibrous leaves that end in a spine, and immense panicles of small, creamy to white, bell-shaped flowers in spring followed by three-chambered seed pods that contain six rows of flat, coinlike seeds inside. Our three true yuccas—*Y. brevifolia*, the Joshua tree, *Y. schidigera*, the Spanish dagger or Mojave yucca, and *Y. baccata*, the banana yucca—are all desert plants, the Joshua tree restricted to middle elevations in the Mojave Desert, and the only tree species in our region, the multibranched trunks reaching to 40 feet high and the plants adding girth to their trunks over their entire lifetimes. Joshua trees bloom heavily every two to three years and like all other yuccas are pollinated by tiny pronuba moths, the moths deliberately gathering a ball of pollen and placing it on the stigma while laying eggs inside the ovary. This mutualistic relationship feeds the moth larvae while assuring seed set of the yuccas.

The Mojave yucca actually occurs at middle elevations throughout southern deserts, usually growing 15 to 20 feet high but occasional individuals can grow taller. The longer leaves are lined with curled fibers and the massive flower displays are showier than on Joshua trees, and often occur every year. The banana yucca, mostly in the eastern parts of our deserts, are more a multibranched shrub, seldom growing over 4 to 6 feet high, with blue-green leaves lined with curled fibers, and spikes of nodding, bell-shaped creamy flowers striped with red purple and followed by fleshy seed pods that to some suggest bananas and were used as food. All yuccas have soapy roots and blossoms, the latter edible when cooked, and all provide strong fibers that run the length of the leaves. None of the species are native close to the Bay Area.