

1000 – FORESTS

1100 – Temperate Broadleaf Sclerophyll Evergreen Forests

1101 – (Mh-L) - Lower Elevation Mixed Broadleaf Hardwoods (California Bay – Tanoak – Madrone- Coast Live Oak) Mapping Unit

Distribution:

- Distributed extensively throughout all the open space preserves (OSP) in the study area.

Environmental Characteristics:

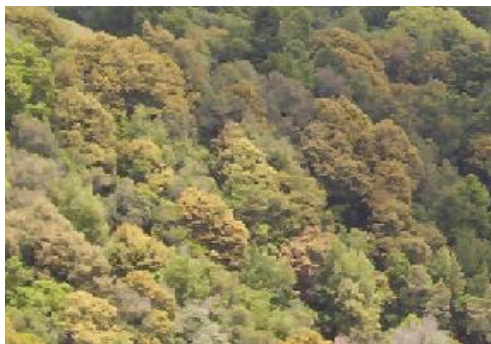
- Found in a variety of environments below 2000 feet.

Description:

- This vegetation type is the most extensive forest type within the study area. It contains a mixture of hardwoods including coast live oak, California bay, tanoak, and madrone. Valley oak, black oak, and/or interior live oak may also be present. It is often found surrounding Douglas fir/ Mixed Hardwoods (1221). There may be some inclusions of bigleaf maple or California sycamore in the riparian areas, but these are below the minimum mapping unit (mmu) of .5 hectares. Douglas fir may be present, with less than 20% cover. At lower elevations, the hardwoods become less diverse and coast live oak becomes a major component. The density of this mapping unit is usually greater than 60%. In disturbed areas the stands open up and may have densities lower than 60%.

Photo Interpretation Signature:

- The photo interpretation (PI) signature contains many shades of green, with well-defined crowns for the different species. Most of the trees in this type appear to be about the same height. Color variation on the photography is primarily dependent on species and age of the leaf.



Stand dominated by live oak and California Bay.



Typical example of mixed green hues.

1102 – (Mh-H) - Higher Elevation Mixed Broadleaf Hardwoods (California Bay -Tanoak, Madrone - Coast Live Oak - Canyon Live Oak) Mapping Unit

Distribution:

- Found in Skyline Ridge, Long Ridge, Saratoga Gap, Monte Bello, and El Sereno OSP. A good extensive example is located along Monte Bello Ridge near Black Mountain in Monte Bello OSP. Less common than the lower elevation type 1101.

Environmental Characteristics:

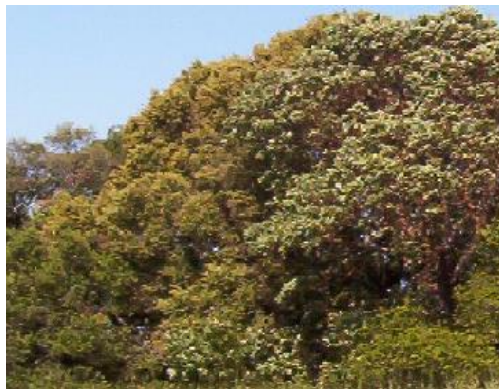
- Due to canyon oak component, it usually occurs at elevations of 2000 feet or higher on north trending slopes. This type can also occur on severe south facing, exposed slopes slightly below 2000 feet.

Description:

- Mainly found on ridge tops and on north facing slopes higher than 2000 feet, although also found in limited amounts on some exposed south facing slopes. Because canyon oak is less common than the other hardwood species, this vegetation type is much less common than the Mh-L type. Species composition varies depending on slope features. Common species include coast live oak, California bay, madrone, tan oak, and occasionally, black oak, interior live oak and valley oak. Coast live oak is generally a less common component than in the lower elevation hardwood type. Douglas fir may be present, with less than 20% cover. The density of this mapping unit is usually greater than 60%, except in disturbed areas.

Photo Interpretation Signature:

- This PI signature is very similar to the Mh-L PI signature. There are many shades of green with trees that are about the same height, however canyon oak gives off a slight gray color on the aerial photos. Since canyon oak appears green on the digital orthophoto quarter quads (DOQQ), the aerial photos are very useful for this mapping unit. The key to determining the break between the 1101 and 1102 types is a combination of the elevation as well as the PI signature that yields a gray signature on the aerial photo.



Stand dominated by canyon live oak, madrone and California bay. Note the golden color of the canyon oak on the ground photo.

1110 – California Bay Series

1111 – California Bay Association

Distribution:

- This association is found within Windy Hill, Skyline Ridge, Rancho San Antonio, Saratoga Gap, Picchetti Ranch and El Sereno OSP. Also noted in riparian areas above Bear Creek, near Devils Canyon and in Saratoga Creek. This association is more common than it appears on the map. Several California bay stands were not mapped due to the difficulty of seeing them on the photos when they occur within a forested setting.

Environmental Characteristics:

- Found most frequently in steep, narrow riparian areas and upper portions of draws.

Description:

- This association was mapped when the dominant tree in the overstory was California bay (greater than 75% relative cover). Small amounts of bigleaf maple, alder and mixed hardwoods may be found in the overstory of this mapping unit. The density of this vegetation type is usually greater than 80%.

Photo Interpretation Signature:

- The crowns of California bay are variable but in certain growth forms yield a distinct signature forming numerous “clonal” patterns of needle-like crowns on an individual tree. This signature is difficult to determine in a forested setting.



Pure California bay on the ground.



Bay dominates riparian corridor.

1120 – California Bay – Coast Live Oak Multiple Series Mapping Unit

Distribution:

- Occurs near El Sereno OSP and near Lexington Reservoir and several other low elevation areas near the urban fringe.

Environmental Characteristics:

- Found in elevations below 1000 feet ranging from slightly convex to concave areas. Environment is intermediate between the mesic California bay forests and the more xeric coast live oak woodland.

Description:

- This is a mixed broadleaved evergreen forest that has dense components of California bay, madrone and coast live oak in the overstory. This category is used when both species co-dominate; however, it is generally not separable from the low elevation mixed hardwoods type (1101). It is difficult for the photo interpreter to determine if subordinate species such as madrone or tanoak make up a significant percent of the stand to separate out these two types.

Photo Interpretation Signature:

- Coast live oak has a dark green appearance (crown is broad), and California bay has a lighter green signature and appears slightly thinner (with a tighter crown). Leaf flush conditions however vary considerably within stands.



Stand located near the Lexington Reservoir dominated by California bay and coast live oak.

1150 – (Eusp) - Eucalyptus Series

Distribution:

- Several small stands exist throughout the study, mainly in Fremont Older and El Sereno OSP. Many stands below mmu exist, but were not mapped due to size. These stands that are below mmu are generally located around homes within land use polygons coded as 9300.

Environmental Characteristics:

- These stands occur in areas of urban disturbance such as residential areas and along roads.

Description:

- Usually found in linear patterns in neighborhoods or along roads, but many stands are too small to be mapped. Blue gum is often the dominant and the only species distinguishable on the aerial photography.

Photo Interpretation Signature:

- Eucalyptus trees appear tall and range from a dark brown to a dark green color on the aerial photo depending on leaf conditions.



Small stand of eucalyptus trees located next to a residential area. They appear taller than the mixed hardwoods adjacent to them.

1170 – Mixed Oak Mapping Unit (Including broad-leaf evergreen component of madrone & bay)

Distribution:

- This type is rare in this study area, with most of the stands occurring in the northern part of the region.

Environmental Characteristics:

- Stands occur most frequently near urban disturbances or in residential areas in elevations below 1000 feet or in higher elevations where oak dominates the canopy.

Description:

- Used when 2 or more oaks are dominant in stands – generally one being deciduous. Stands are usually dense, with a density class of 1 assigned to most of the stands. Examples include: areas where valley and coast live oak mix or where blue oak and coast live oak mix; or at higher elevations where black and canyon oak may mix.

Photo Interpretation Signature:

- PI signature is a combination of 2 or more oaks that are not part of any other mapping unit in this classification. The signature depends on the species being mapped. It is usually a dark green with a lighter green (deciduous species) signature where there is a mixture of oak species present.



Stand dominated by valley oak and coast live oak.

1200 – Temperate Needleleaf Evergreen Forests

1201 – (Pisp) – Planted Stands of Pine

Distribution:

- Very few stands located within the study; usually adjacent to urban areas.

Environmental Characteristics:

- Found along roads and near residential areas throughout the study area.

Description:

- Planted stands of non-native exotic species located along roads and close to homes. Most stands are below mmu. Density is high, close to 90% crown cover in most cases.

Photo Interpretation Signature:

- Trees are variable in crown shape and size but generally form linear patterns often occurring along road and property boundaries. Shades of green vary according to what species of pine has been planted.



Stand of planted pines located in a residential area around homes.

1210 – (SeSe) - Redwood Series

Distribution:

- Less than 20 stands mapped in the study, however several polygons are fairly extensive. Significant stands are located in Oil Creek, Peters Creek and Bear Creek near Long Ridge OSP.

Environmental Characteristics:

- Most stands mapped at elevations less than 1500 feet on mid to lower slopes in major perennial drainages.

Description:

- Although coast redwoods dominate the canopy, there is a small component of tanoak, California bay and madrone present. Alder or bigleaf maple may also be a subordinate species under the canopy along the stream edges. Douglas fir may be a minor component to one or more layers of the canopy.

Photo Interpretation Signature:

- Coast redwoods are an olive green color on both the aerial photos and DOQQ. Trees are tall, often emergent to the main canopy and have a variable crown shape. Larger more mature trees often have branches extending from the main stem forming a star-like appearance. Younger trees often form clonal looking patterns of several individuals.



Stand of coast redwood in riparian area.

1211 – (SeSe-LiDe) – Redwood / Tanoak Association

Distribution:

- Rare in the study, found only in the northwest corner near Windy Hill OSP – more common on preserve lands to the west (La Honda Creek OSP).

Environmental Characteristics:

- Stands are located in mesic settings on north facing slopes, possibly in post-fire settings.

Description:

- Stands are very dense, with the overstory predominantly composed of redwoods; tanoaks are present to a lesser extent. Tanoak may co-dominate in late post fire stands with a multi-layer canopy of mature and young redwoods.

Photo Interpretation Signature:

- In this photography, redwoods are tall with a drab green color and an asterisk shaped crown. Tanoaks are shorter than redwoods, and therefore more difficult to see in the canopy. It is extremely difficult to separate out this type from stands containing little or no tanoak.



Stand dominated by coast redwood and tanoak.

1220 – (PsMe) - Douglas fir Series

1221 – (PsMe-Mh) – Douglas fir - / Mixed Hardwoods Mapping Unit

Distribution:

- Common in the area south of the San Andreas Rift Zone. For the most part, this vegetation type occurs in Skyline Ridge, Long Ridge, Saratoga Gap and El Sereno OSP. It also occurs less frequently in the southern portion of Monte Bello OSP as well as in Windy Hill and Coal Creek OSP.

Environmental Characteristics:

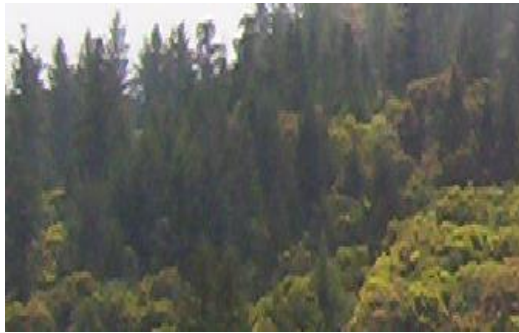
- Generally located in drainages, above coast redwood types and adjacent to (usually downslope from) the Mh-L and Mh-H types.

Description:

- Although there are a few stands that are small and isolated, most of the stands are extensive. The hardwood species vary, depending on elevation, slope, aspect, and water availability. At lower elevations coast live oak is often a subordinate species on xeric slopes, while tanoak, madrone and California bay occur on the more mesic sites. At higher elevations, canyon oak may be found. Stands are generally closed with absolute crown cover exceeding 80% in all but the driest stands. Mapped where Douglas fir is the dominant conifer species (generally over 80% relative conifer cover) and hardwoods make up at least 10-20% of the overall tree canopy. Hardwood species can however make up as much as 80% of the relative canopy cover.

Photo Interpretation Signature:

- Signature has the multiple green colors of mixed hardwoods, with the dark green (nearly blue green) color of the Douglas fir emergent to the mixed hardwoods. Hardwoods are visible in the stand generally as a tight mosaic in the secondary canopy layer. Understory hardwood individuals are often not detectable.



Stand of live oak with emergent Douglas fir. Note the darker green hue of the taller Douglas fir trees against the lighter green colors of the shorter mixed hardwoods. Aerial photo example contains a dominant hardwood cover with emergent Douglas fir.

1223 – Douglas fir – Coast Redwood Association

Distribution:

- Uncommon, but it is located in the southern part of the study near Skyline Ridge, Long Ridge and Saratoga Gap OSP.

Environmental Characteristics:

- Generally found on slopes adjacent to drainages containing coast redwood types.

Description:

- Relatively uncommon, these two conifers do not mix in extensive areas. Noted in the southern part of the study in settings somewhat less mesic than pure stands of coast redwood. Mapped where either conifer contains at least 10-20% relative canopy cover. Although hardwoods are frequently found in the understory, they are also very common in the overstory.

Photo Interpretation Signature:

- Douglas fir trees are tall with a narrow crown and yield a dark green to blue green color. Coast redwood trees are also tall, but their crown has a star shape and they are a much lighter color of green than Douglas fir. Older individuals of either species are more difficult to distinguish.



***Stand of Douglas fir – coast redwood association.
Note small patch of Douglas fir in the upper left
portion. This example is dominated by redwood.***

1310 – Mixed Willow Series Mapping Unit

Distribution:

- Widely distributed throughout the study area in most OSP except Saratoga Gap and El Sereno OSP.

Environmental Characteristics:

- Common in riparian settings that are at least temporarily flooded.

Description:

- Usually more than one willow species is present. Common willow species include arroyo willow, red willow, sitka willow, and shining willow. Other possible species include coyote brush, California bay, and coast live oak. Usually occurs in drainages that feed into larger creeks containing riparian tree species such as white alder. Alder and maple may be a minor component to willow drainages, with generally less than 10% relative cover.

Photo Interpretation Signature:

- Generally bright green and shorter in stature than other vegetation in this study.



Stand of mixed willow located in a drainage in the northern part of the study. Willows in photo are predominantly shrubby form.



Stands of mixed willow in this example are tree-form mixing with some bay.

1320 –(AIRh) - White Alder Series

Distribution:

- Not very common, but found extensively along Stevens Creek.

Environmental Characteristics:

- Noted primarily in the mid and upper portions of watersheds along perennial streams in narrow canyons with little or no associated floodplain. Bigleaf maple or California bay may be present. Sycamore may be a component at lower elevations of the stand where flood plains develop.

Description:

- Stand cover is generally closed, but may be broken by small areas not containing alder. Bigleaf maple and willow may occur in close proximity to the white alder series.

Photo Interpretation Signature:

- Tall, narrow, bright green trees with tight crowns in major riparian areas. PI signature on the early spring aerial photography is usually separable from adjacent upland hardwoods but is more difficult on the late season DOQQ's where the leaf is mature.



White alder between Douglas fir and coast live oak.

1400 – Cold Season Deciduous Forests

1410 – Black Oak Mapping Unit

Distribution:

- Uncommon, but a few extensive polygons located in and around the area of Monte Bello OSP. The main locations within Monte Bello OSP are along Skyline Blvd. near a Christmas tree farm, along Charcoal Road and in the vicinity of Table Mountain.

Environmental Characteristics:

- Occurs on gentle slopes at elevations between 1400-2400 feet.

Description:

- Occurs in dense forest settings, generally with a high density of over 90%. Most often occurs adjacent to mixed hardwoods or Douglas fir/ mixed hardwoods. Valley oak, canyon oak, or coast live oak sometimes make up a minor component of the overstory in this mapping unit.

Photo Interpretation Signature:

- Generally lighter green than surrounding evergreen hardwoods because the aerial photography was flown in early spring when leaves were in flush conditions.



Stand of black oak located near a Christmas tree farm on Skyline Blvd. in Monte Bello OSP.

2000 – WOODLANDS

2100 – Xeric Sclerophyll Evergreen Woodlands

2110 – (QuAg) - Coast Live Oak Series

Distribution:

- Very common in the northern part of the study, most frequently found in or near Fremont Older, Picchetti Ranch, Rancho San Antonio and Windy Hill OSP.

Environmental Characteristics:

- Found primarily on gently undulating lower slopes below 1500 feet that are generally trending south. Also noted on convexities on north trending slopes in smaller stands.

Description:

- Generally dense (containing over 80% relative canopy cover), and sometimes in open grassy settings at lowest elevations. Coast live oak dominates the canopy with at least 80% relative cover. Small amounts of madrone or bay are common components of the stand.

Photo Interpretation Signature:

- Trees appear to be a dark green color, with broad crowns in a uniform canopy.



Stand dominated by coast live oak surrounded by a stand of coast redwood/ tanoak association.

2200 – Cold Season Deciduous Woodlands

2210 – *Blue Oak Series*

2211 – *Blue Oak / California Annual Grasslands Association*

Distribution:

- Noted primarily in Windy Hill OSP.

Environmental Characteristics:

- Mapped at low elevations in the most interior portions of the study on moderately to gently sloping terrain.

Description:

- Blue oaks occurring over California annual grasslands in open savanna settings. Blue oak is generally the only tree present in this mapping unit. Density of the polygons is generally less than 60%.

Photo Interpretation Signature:

- Early season aerial photography yields a young flush signature to the leaf of the blue oak, separable from valley oak by its smaller size.



***Stand of blue oak/ California annual grasslands
located near homes.***

2212 – Blue Oak Woodland Mapping Unit

Distribution:

- Uncommon in study; occurs in the vicinity of Windy Hill OSP.

Environmental Characteristics:

- Mapped at low elevations in the most interior portions of the study on moderately to gently sloping terrain.

Description:

- Mapped in dense woodland environments over annual grasses where the canopy density is usually above 60%. Blue oak is usually the only species present in this mapping unit.

Photo Interpretation Signature:

- Early season aerial photography yields a young flush signature to the leaf of the blue oak, separable from valley oak by its smaller size. Dense stands at times obscure the annual understory.



***Blue oak woodland located on a gentle slope
– density increasing downslope.***

2220 – California Buckeye Series

Distribution:

- Fairly common, and widely distributed throughout the entire study area; generally in small stands.

Environmental Characteristics:

- Found on steep, often rocky settings on slopes of all aspects.

Description:

- In general stands that are dominated by California buckeye are small in size. California buckeye is not usually found in closed forests, but in a few instances was mapped in or adjacent to mixed hardwood or coast live oak forests. It is more often found mapped in rocky, open settings very close to coyote brush or poison oak types. Although coyote brush, poison oak and hardwoods often occur with California buckeye, they are below mmu and can't be delineated as a different type. Buckeye is the dominant hardwood species in the stand.

Photo Interpretation Signature:

- Due to the date of the aerial photography, California buckeye yields a tan or light gray color. The crown size of the tree does vary. In a few instances, it appears to have a small, tight crown, but most stands contain crowns with a broader, fluffier signature.



Stand of California buckeye in an open setting.

2230 – Valley Oak Series

Distribution:

- Not very common in this region, but found on Monte Bello OSP. Valley oaks often occur at boundary between annual grassland and mixed hardwood forest, though usually below mmu.

Environmental Characteristics:

- Generally found on ridge tops or on convex, upper slopes.

Description:

- Valley oak occurs in two settings in this study area: open areas with California annual grasslands and dense forested settings near riparian areas. When mapped in a savanna setting, valley oak is usually the only tree species present, and the density is low (below 30%). When mapped in a forested setting, valley oak dominates, but often in stands where other oaks are a minor component to the canopy. Lower elevation stands may have coast live oak in the stand.

Photo Interpretation Signature:

- Valley oak has a full, fluffy crown that yields a bright green signature similar to the blue oak in leaf flush conditions.



Open valley oak forest located next to California annual grasslands and mixed hardwoods.

2300 – Temporarily Flooded Cold Season Deciduous Woodlands

2310 – California Sycamore Series

Distribution:

- Uncommon, but a few mappable units are located in the northern part of the study near Rancho San Antonio OSP and in the eastern part near Fremont Older OSP. Generally more common outside study closer to the urban fringe.

Environmental Characteristics:

- Found in broad drainages and associated floodplains at the lowest elevations in this study area. Stand characteristics vary from fairly sparse and rocky to dense.

Description:

- Sycamore dominates; upper portions of riparian stands often contain minor components of bay or alder with willow, lowest examples often contain a coast live oak component.

Photo Interpretation Signature:

- Individual crowns are distinct, and color ranges from a deep, dark green to a lighter green. The signature is easier to see on the aerial photos than the DOQQ and the floodplain environment is helpful when delineating this vegetation type.



California sycamore forest located below a north trending slope containing low elevation mixed hardwood forest and poison oak. This example is in a flat riparian environment west of Rancho San Antonio County Park.

2320 – Bigleaf Maple (California Bay) Mapping Unit

Distribution:

- Found most frequently in the central part of the study area, in Monte Bello OSP. It is also located in the surrounding OSP of Saratoga Gap, Long Ridge and Los Trancos. Some stands occur near Table Mountain and Upper Stevens Creek County Park in drainages above Stevens Creek.

Environmental Characteristics:

- Located in steep, narrow, rocky riparian areas at middle and upper elevations.

Description:

- Mappable units are small and not very extensive. Other species, especially California bay, often dominate portions of the narrow riparian unit but are too small to split into individual mapping units.

Photo Interpretation Signature:

- The signature on the aerial photos is easier to see than the signature on the DOQQ. On the aerial photos, bigleaf maple yields a bright green signature with a somewhat broad crown.



Bigleaf maple stand surrounded by Douglas fir.

2330 – Fremont Cottonwood Mapping Unit

Distribution:

- Only one mappable polygon that was found in field verification. This polygon is located north of Fremont Older OSP.

Environmental Characteristics:

- Riparian habitat, seasonally flooded.

Description:

- Either Fremont cottonwood or blackwood cottonwood dominates the canopy. This polygon was viewed from too far away to determine species. Willow is also common.

Photo Interpretation Signature:

- Bright green color with broad, fluffy crowns.



Stand of Fremont cottonwood in a riparian area in a disturbed setting.

2300 – Temporarily Flooded Cold Season Deciduous Woodlands

2310 – California Sycamore Series

Distribution:

- Uncommon, but a few mappable units are located in the northern part of the study near Rancho San Antonio OSP and in the eastern part near Fremont Older OSP. Generally more common outside study closer to the urban fringe.

Environmental Characteristics:

- Found in broad drainages and associated floodplains at the lowest elevations in this study area. Stand characteristics vary from fairly sparse and rocky to dense.

Description:

- Sycamore dominates; upper portions of riparian stands often contain minor components of bay or alder with willow, lowest examples often contain a coast live oak component.

Photo Interpretation Signature:

- Individual crowns are distinct, and color ranges from a deep, dark green to a lighter green. The signature is easier to see on the aerial photos than the DOQQ and the floodplain environment is helpful when delineating this vegetation type.



California sycamore forest located below a north trending slope containing low elevation mixed hardwood forest and poison oak. This example is in a flat riparian environment west of Rancho San Antonio County Park.

2320 – Bigleaf Maple (California Bay) Mapping Unit

Distribution:

- Found most frequently in the central part of the study area, in Monte Bello OSP. It is also located in the surrounding OSP of Saratoga Gap, Long Ridge and Los Trancos. Some stands occur near Table Mountain and Upper Stevens Creek County Park in drainages above Stevens Creek.

Environmental Characteristics:

- Located in steep, narrow, rocky riparian areas at middle and upper elevations.

Description:

- Mappable units are small and not very extensive. Other species, especially California bay, often dominate portions of the narrow riparian unit but are too small to split into individual mapping units.

Photo Interpretation Signature:

- The signature on the aerial photos is easier to see than the signature on the DOQQ. On the aerial photos, bigleaf maple yields a bright green signature with a somewhat broad crown.



Bigleaf maple stand surrounded by Douglas fir.

2330 – Fremont Cottonwood Mapping Unit

Distribution:

- Only one mappable polygon that was found in field verification. This polygon is located north of Fremont Older OSP.

Environmental Characteristics:

- Riparian habitat, seasonally flooded.

Description:

- Either Fremont cottonwood or blackwood cottonwood dominates the canopy. This polygon was viewed from too far away to determine species. Willow is also common.

Photo Interpretation Signature:

- Bright green color with broad, fluffy crowns.



Stand of Fremont cottonwood in a riparian area in a disturbed setting.

3000 – SHRUBLANDS

3100 – Temperate Broadleaf Sclerophyll Evergreen Shrublands

3101 – (Mch) - Hemi-sclerophyllous Mixed Chaparral (Manzanita spp. – Chamise – Blue-blossom – Jim brush – Coffeeberry – Toyon – Coyote Brush)

Distribution:

- Very common and widely distributed throughout the study area.

Environmental Characteristics:

- Most commonly found on gentle south trending slopes, in exposed areas. Also located on north facing and neutral slopes, generally in less dry settings in close proximity to coyote brush.

Description:

- This is transitional between northern coastal scrub and chaparral types. The presence of coyote brush with chaparral species is the common expression of this type. Mapped where chaparral species make up at least 25% of the relative cover of shrubs. Stands may have a significant component of coyote brush generally not exceeding 50% relative cover. Driest settings may support a significant component of chamise. Hollyleaf cherry may be present in the canopy. Mixed hardwoods may be emergent in low numbers especially in stands adjacent to forest types. Poison oak is often a component to this type.

Photo Interpretation Signature:

- Texture is variable. The color of this vegetation type varies depending on the composition of the species present. Color ranges from a chocolate brown color (due mainly to the presence of chamise) to a green color (mainly due to presence of coyote brush).



Stand of the hemi-sclerophyllous mixed chaparral (blue and green colors) surrounding a chamise mapping unit (chocolate brown color).

3102 – Scrub Oak Chaparral - (Wedge-leaf Ceanothus – Manzanita – Chamise - Scrub Oak – Dwarf Interior Live Oak – Spiny Redberry - Toyon) Mapping Unit

Distribution:

- Common in the study area, located predominantly north of Monte Bello Ridge. Also frequently occurs in El Sereno OSP.

Environmental Characteristics:

- Found at higher elevations on ridges and spurs in gentle to moderately sloping terrain. Often noted just upslope from drier and steeper south trending stands of pure chamise. Generally above areas of frequent fogs in regions of higher summer heat.

Description:

- Scrub oak (*Quercus berberidifolia*) and/or dwarf interior live oak (*Q. wislizenii* var. *frutescens*) are always present and usually co-dominate with buck brush. Manzanita, chamise, spiny redberry, toyon, silk tassel and birchleaf mountain mahogany may also be minor components of the stand.

Photo Interpretation Signature:

- Generally has a bit of texture, mainly due to scrub oak or dwarf interior live oak presence in this mapping unit. The signature varies, but it is overwhelmingly brown due to the chamise component, with dark green scrub or dwarf oaks scattered throughout.



Scrub oak type on a slope.



Scrub oak type on a ridge.

3103 – Mixed Xeric Chaparral (Chamise – Sticky Monkey flower – Toyon – Sagebrush)

Distribution:

- Commonly found in the northern part of the study area in or near Foothills, Los Trancos, Rancho San Antonio, Picchetti Ranch and Fremont Older OSP. Few stands were mapped in the southern region of the study with the exception of the southeastern portion of El Sereno OSP.

Environmental Characteristics:

- Located on steep, southeast, south and west facing exposed slopes often upslope from adjacent steep canyons.

Description:

- The density is usually quite low with a sparse herbaceous component. Often occurs very close to pure stands of chamise. May have minor component of poison oak and California buckeye, but neither are above mmu. Other species including yerba santa, deerweed, California broom, and coyote brush often are a component to disturbed variants of these stands.

Photo Interpretation Signature:

- Chamise has a chocolate brown color, toyon has a green color, sagebrush has a tan or gray color with texture and the bush monkey flower is not detectable on the aerial photography or the DOQQ image. Since this is a xeric type, a key to mapping this signature is slope setting and overall sparseness of the stand.



Mixed xeric chaparral located on a side slope trending south.



Chamise and mixed hardwoods are located around this open mixed xeric chaparral vegetation type.

3104 – Blue Blossom - Jimbrush Mapping Unit

Distribution:

- Rarely mapped, but found in the western part of the region and at east end of El Sereno OSP.

Environmental Characteristics:

- Located on ridges, or convexities in rather dry settings. Blue blossom occurs mainly near the coast, while Jimbrush is found in more inland environments, primarily on the east side of the Santa Cruz Mountains.

Description:

- Rarely found in pure stands in this study area – may be more common in post fire situations.

Photo Interpretation Signature:

- Smooth, uniform dark green signature – the two species of ceanothus are not separable off the aerial photography.



Pure stand of blue blossom, located on a ridge above a xeric coyote brush mixture.

3106 – *Brittleleaf Manzanita* Mapping Unit

Distribution:

- Only mapped a few polygons on Long Ridge OSP.

Environmental Characteristics:

- Based on field data only.

Description:

- Based on field data only.

Photo Interpretation Signature:

- Not distinguishable from other close types on the imagery. Mapped based on field verification only.

3110 – Chamise Series

Distribution:

- Very common in this area; distributed mainly at higher elevations on ridges and exposed slopes.

Environmental Characteristics:

- Most frequently occurs on moderately steep south or west facing slopes.

Description:

- Very dense pure stands of chamise are found throughout the study, mainly located just below the ridges and continuing down the slopes in exposed areas. Mapped where chamise makes up at least 80 percent relative cover. Other chaparral species are often found as a minor component to the stand especially towards the edges of the mapped unit.

Photo Interpretation Signature:

- Chamise yields a chocolate brown smooth signature (post flowering) on the aerial photos and the DOQQ. Some of the reddish tinge is caused by the numerous dead inflorescences on each individual.



Stand of pure chamise on the ground.



A pure stand of chamise adjacent to chamise-manzanita with poison oak and a few hardwoods in the concavity.

3111 – Chamise – Leather Oak – (Garrya) – Serpentine Mapping Unit

Distribution:

- Very rare in this study area. The only mapped polygon is located in El Sereno OSP.

Environmental Characteristics:

- Located on xeric, convex slopes on serpentine soil.

Description:

- This signature looks very similar to the scrub oak mapping unit (3102), but was mapped using the geology of the area. Dominated by chamise and leather oak on serpentine soil. Garrya, manzanita, coffeeberry, coyote brush, and buck brush are minor components of the vegetation.

Photo Interpretation Signature:

- Not identifiable from signature alone due to the similarity of the chamise (3110) and scrub oak mapping unit (3102) signatures. The only way to determine this mapping unit was by locating the serpentine areas on the geology map, and using field data.



Stand of chamise-leather oak on serpentine soil.

3130 – Chamise – Manzanita Multiple Series Mapping Unit

Distribution:

- Most of the stands are located in the central part of the study in the Monte Bello OSP.

Environmental Characteristics:

- Generally observed on ridges or slopes in slightly more mesic settings than pure stands of chamise.

Description:

- Mapped where chamise and brittle-leaf manzanita occur. Other species of manzanita may be present.

Photo Interpretation Signature:

- The chamise looks chocolate brown, and the manzanita looks green-blue on the imagery.



Chamise and mixed manzanita multiple series (blue shrub signature) above a pure chamise stand (dark brown signature).

3150 – Birchleaf Mountain Mahogany – Mesic Chaparral Mapping Unit

Distribution:

- Commonly occurs in the northern part of the study area near Rancho San Antonio and Los Trancos OSP as well as near Fremont Older, Picchetti Ranch and El Sereno OSP.

Environmental Characteristics:

- Occurs in protected concavities or on steep north trending slopes at lower elevations.

Description:

- Although birchleaf mountain mahogany is the main component in this mapping unit, other species such as buck brush, poison oak, silk tassel, hollyleaf cherry, coyote brush often co-dominate. Coast live oak and California bay may be a sparse emergent to the canopy.

Photo Interpretation Signature:

- Birchleaf mountain mahogany has a dark brown textured signature, often in shaded settings due to its frequent occurrence in lower steep protected slopes.



Stand of birchleaf mountain mahogany-mesic chaparral on a north facing slope just above a low elevation mixed hardwood stand (1101). There is a tiny bit of the mixed xeric chaparral mapping unit (3103) on the south facing slope.

3200– Temperate Microphyllous Evergreen Shrubland

3210 – (Br) - Broom Series

Distribution:

- Fairly common, however, stands are generally small, and often below the mmu; therefore there are only a few stands mapped.

Environmental Characteristics:

- Largest patches are generally near roadside cuts and urban areas.

Description:

- Although coyote brush may be a co-dominant, the weedy species French broom, Scotch broom or Spanish broom usually dominate. Poison Oak is often present. Mapped where visible on the aerial photography and extensive enough to form polygons that exceed the mmu.

Photo Interpretation Signature:

- Hard to detect unless above the mmu. Gives off a light green to yellow signature.



French broom as seen on the ground.



Broom series along the right side of the road.

3220 – (BaPi) - Coyote Brush Series

Distribution:

- Mapped throughout the study especially adjacent to urban areas or agriculture but more common towards the coastal areas.

Environmental Characteristics:

- Often occurs near roads or road cuts.

Description:

- Mapped where Coyote Brush forms nearly pure stands with little or no associate shrub species. Within the study, coyote brush generally mixes in mesic or xeric settings with other shrubs such as California sagebrush or poison oak. As pure stands, it is uncommon and restricted in size, but often dense.

Photo Interpretation Signature:

- Smooth green signature, generally near roads, agriculture or annual grasslands.



Stand of coyote brush next to California annual grasslands.



Stand of coyote brush next to a road.

3221 – (BaPi-M) - Coyote Brush Mesic Stands (Coyote Brush – Ocean Spray – Rubus spp. – Poison Oak)

Distribution:

- Common in most of the study area with the exception of El Sereno OSP.

Environmental Characteristics:

- Found in moist concavities and north trending slopes, often upslope from type 1221 (Douglas fir – mixed hardwoods), type 1101 (mixed hardwoods- lower elevation) or type 1102 (mixed hardwoods- higher elevation). Also found in moist upper ravines within the grasslands.

Description:

- Generally very dense (85%), it occurs in mesic areas, frequently with poison oak as a co-dominant of the shrub layer. Mapped where mesic shrubs (poison oak or ocean spray) make up at least 10-20% of the relative canopy cover.

Photo Interpretation Signature:

- Coyote brush has a variable green color with a textured appearance, while the mesic shrubs that co-dominate this series have a smooth, lighter green signature.



Stand of mesic coyote brush near a riparian area.



Stand of mesic coyote brush with high percentage of poison oak present.

3222 – (BaPi-X) - Coyote Brush Xeric Stands (Coyote Brush – California Sagebrush – Sticky Monkey Flower; Coyote Brush Successional Stage)

Distribution:

- Much less common than the mesic coyote brush stands in this study area. Good examples are located near Camp Saratoga just east of Saratoga Gap OSP, and in the Fremont Older OSP.

Environmental Characteristics:

- Located on xeric slopes at lower elevations.

Description:

- Generally small polygons located in only a few areas throughout the study area. Mapped where California sagebrush and/or bush monkey flower make up at least 10-20% of the relative canopy cover. Densities vary and contain a significant herbaceous component. Poison oak and/or California broom are often present.

Photo Interpretation Signature:

- The PI signature is similar to the 3101 and 3103 signatures. Stands are a bit more open than the mesic coyote brush series. Coyote brush has a textured, light green or brown appearance. The other shrubs in this series also have a brown, textured appearance.



Stand of xeric coyote brush near Camp Saratoga adjacent to Mh-L and coast redwoods.

3223 – (BaPi-O) - Coyote Brush Open Stands (Coyote Brush / California Annual Grasslands)

Distribution:

- Commonly found in all the OSP in the study area except for El Sereno, where there are only a few polygons mapped.

Environmental Characteristics:

- Found in disturbed areas, especially near roads.

Description:

- Open coyote brush stands emergent to annual grasses and forbs. Density is usually low.

Photo Interpretation Signature:

- Generally dark green, somewhat textured signature found near roads and in, or close to annual grasses and forbs.



Stand of open coyote brush with harding grass.



Stand of open coyote brush in a disturbed area.

3300 – Temperate Xeric Mixed Drought-Deciduous Evergreen Shrubland

3310 - California Sagebrush Series

Distribution:

- This type is uncommon in the study area, although there are stands that are below mmu. The only stands that were mapped are located in the northern part of the study near Saratoga Gap OSP.

Environmental Characteristics:

- Occurs on steep south facing slopes at lower elevations. Generally sparse, California sagebrush is emergent over an herbaceous layer in this type.

Description:

- California sagebrush dominates, often with minor components of monkey flower or coyote brush.

Photo Interpretation Signature:

- California sagebrush has a light brown or gray to tan color, and sparsely occurs over a herbaceous layer on steep south trending slopes.



One of only a few stands of California sagebrush growing on a steep south facing slope in the study area.

3400 – Temperate Broadleaf Cold Season Deciduous Shrubland

3410 – (ToDi) - Poison Oak Series

Distribution:

- Widespread in this area, found in nearly all areas except along Russian Ridge. It is not as common in Saratoga Gap, Long Ridge or Skyline Ridge OSP as it is in the other OSP in the study area.

Environmental Characteristics:

- Pure stands of poison oak are found in mesic environments near coyote brush and mixed shrubs containing chamise. Though rare, it does occur in mesic areas amid dense trees.

Description:

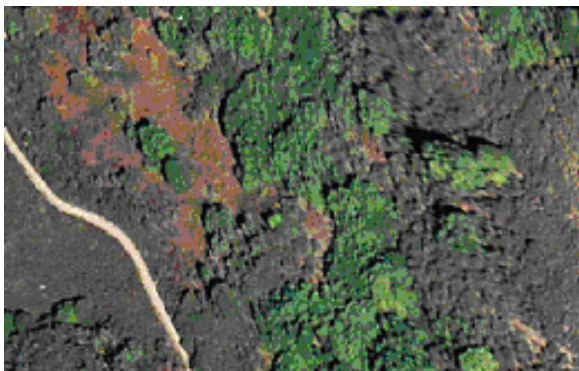
- Poison oak is found abundantly in the study area. Mapped to alliance level, it is rarely the sole component of a stand. Coyote brush, blackberry, bush monkey flower, chaparral species and even isolated mixed hardwoods emerge from the dense canopy.

Photo Interpretation Signature:

- Signature varies on the DOQQ due to the time of the year they were taken. In the upper elevations, poison oak yields a mixture of dark red, yellow and light green colors, while at the lower elevations it has a mixture of pink and light green color. In all cases, it is extremely smooth.



Pure poison oak stand as seen on the ground.



Pure poison oak vegetation type located on Black Mountain at an elevation of 2700 feet.



Pure poison oak stand at an elevation of around 1500 feet.

4000 – HERBACEOUS

4100 – Saturated Temperate Perennial Graminoids

4110 – (*Tysp*) – *Cattail Series*

Distribution:

- Not very common in this study area. Only mapped as small polygons, generally around water and sag ponds.

Environmental Characteristics:

- Found in seasonally to permanently flooded settings, generally surrounding lakes and ponds.

Description:

- Cattails or bullrush may dominate.

Photo Interpretation Signature:

- Signature is usually smooth or uniform and has a green color in a mesic setting.



4200 – Seasonally or Temporarily Flooded Graminoids

4210 – (CaJu) - Sedge – *Juncus* Meadow Mapping Unit

4300 – Tall Temperate Annual Graminoids

Distribution:

- Only a few areas mapped as tall temperate annual graminoids where field information or photo signature are inadequate to further describe stand.

Environmental Characteristics:

- Variable

Description:

- Species composition not distinguishable.

Photo Interpretation Signature:

- Signature varies. Area is predominantly a creamy or tan color with some disturbance nearby.



Area between the agriculture field and the shrubs is a sparse 4300 due to urban disturbance.

4310 – California Annual Grasslands Series

Distribution:

- Most abundantly mapped type within the study. Widespread throughout the study area, except in El Sereno OSP.

Environmental Characteristics:

- Located along roads, on ridges and on convex slopes.

Description:

- Common and extensive throughout the region. Nearly all stands are highly disturbed and contain a significant component of forbs along with non-native annual grasses such as bromes and oat grasses.

Photo Interpretation Signature:

- Has a tan or cream-colored smooth signature with a dense cover. Increased grayness to the image often indicates the increased presence of forb-like vegetation.



A stand of California annual grasslands.



A large California annual grasslands stand surrounding a road on Long Ridge.

4400 – Tall Temperate Perennial Graminoids

4401 – (Wr) - Weedy Ruderal (*Harding Grass* – *Velvet Grass* – *Thistle spp.* - other forbs)

Distribution:

- Not common in mappable units and difficult to distinguish from California annual grasses – mapped in part using weed distribution maps.

Environmental Characteristics:

- Found primarily in more disturbed settings than California annual grasses.

Description:

- Forb-like species dominates or is an important component to non-native annual grasses.

Photo Interpretation Signature:

- Not seen on the DOQQ, but very dense stands sometimes yield a gray hue on the aerial photos especially when dominated with thistle.



Yellow star thistle located between the trees where there is a color deviation from the uniform tan, creamy color of California annual grasslands.

4410 – (Hg) - Harding Grass Series

Distribution:

- Distributed predominantly in the western part of the study. Mapped based on field verification and data from the Invasive Weed Study.

Environmental Characteristics:

- Occurs in or near California annual grasslands.

Description:

- Perennial harding grass dominates along with other exotic perennials and annual forbs and grasses.

Photo Interpretation Signature:

- Signature on DOQQ is a yellow color, a subtle difference from the PI signature of the California annual grasslands.



An area of harding grass on the ground.



An area of harding grass surrounded by California annual grasslands.