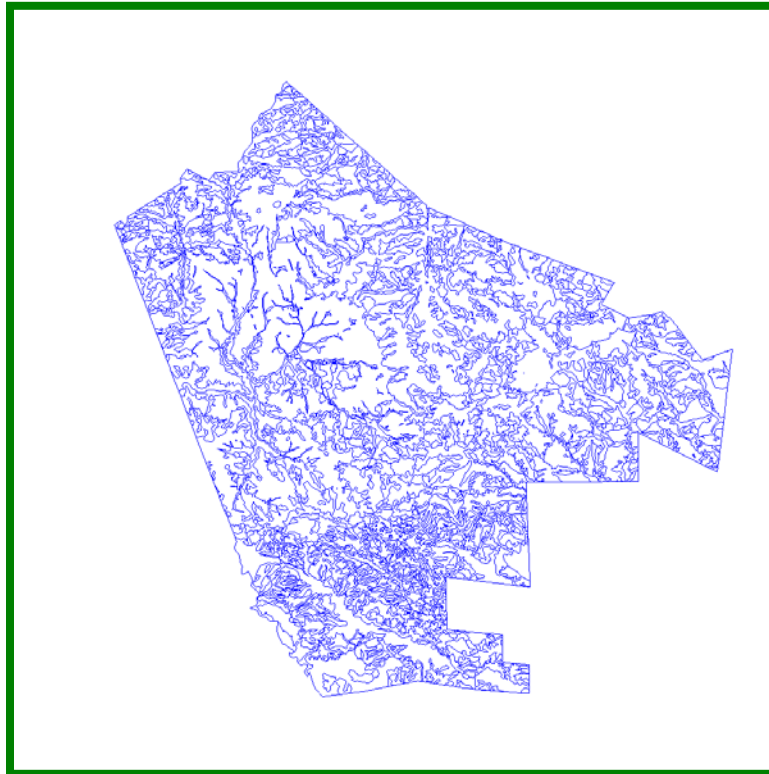


# GABILAN RANCH

## Vegetation Mapping Report

Photo Interpretive Guidelines for Mapping Vegetation

Aerial Information Systems, Inc.



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## 1. INTRODUCTION

Aerial Information Systems, Inc. (AIS) was contracted by The Nature Conservancy to create a vegetation map covering approximately 11000 acres (~17 square miles) known as the Gabilan Ranch south of the town of San Juan Bautista. The goal of the project is to create a baseline vegetation map depicting existing conditions within the study area. The vegetation map will be used by TNC for three primary purposes:

- Track changes that may occur to vegetation and associated wildlife habitats over time.
- To better understand the distribution of rare vegetation types not adequately mapped or described in existing classification systems
- To contribute to building a better Statewide vegetation map on lands where TNC has a conservation interest.

## 2. DESCRIPTION

Gabilan Ranch encompasses mixed pine oak forests, oak woodlands and forests, chaparral and grasslands in addition to numerous small meadows and seeps. Rare chaparral communities containing the Gabilan Manzanita (*arctostaphylos gabilansis*) and mixed hardwood forests exist in the southern and western portions of the property.

The property is drained by three major watersheds and ranges in elevation from approximately 1300' in the southeastern corner to 3100' in the north western portion near Fremont Peak. The eastern two thirds of the property lie within the boundaries of San Benito County; the northwestern portion in Monterey County. The western third of the study area is somewhat more marine influenced and contains small examples of mixed hardwood forests common in the Santa Cruz Mountains and coastal ranges west of San Francisco Bay. The eastern portions of the property exhibit trends towards more interior habitats and contain small stands of blue oak and foothill pine more common in the coastal ranges east of the San Francisco Bay.

## 3. SUMMARY OF THE MAPPING EFFORT

- March 2006 – Review Imagery and Ancillary Data
- April 2006 – Two-day Reconnaissance Field
- April 2006 – Develop Mapping Classification and Photo Signature Correlates
- May 2006 – Preliminary Photo Interpretation and Mapping Quality Control

- June 2006 – Field Verification and Further Photo Signature Training on Problem Photo Signatures
- July 2006 – Map Completion along with Classification & Descriptions
- October 2006 – Final reports, plots delivered

#### **4. VEGETATION MAPPING CRITERIA & METHODOLOGIES**

Vegetation mapping procedures include first conducting an initial field reconnaissance that establishes relationships between plant communities and bio-physical attributes. This was a two-day effort and involved the photo interpreters along with TNC and local field botanists and ecologists. Approximately 115 GPS points were taken over most of the study area capturing the major floristic variability within the property.

Using these points, air photo signatures (color-tone-texture combinations that the photo interpreter views on the hard copy or digital photo) were then correlated to their corresponding plant communities or plant species viewed in the field. TNC vegetation ecologists and AIS photo interpreters evaluated these correlations between the vegetation units and photo signatures and refined them to insure that the map would be useful at a resolution needed to meet TNC's goals.

A preliminary mapping classification and PI signature key was then developed using information derived from the field reconnaissance and any existing field plot data and vegetation classifications used in previous mapping efforts.

The vegetation units were then interpreted across the entire study area using heads-up digitizing techniques through custom ArcEdit tools that AIS has developed for the various vegetation mapping projects conducted throughout the state. As a general rule, common and widespread vegetation units were delineated down to a minimum mapping unit (MMU) of approximately ½ hectare. Small wetlands were delineated in many incidences below the MMU.

Three sets of digital imagery were used in aiding the photo interpreter in delineating and labeling the mapping units:

- 1-Meter Natural Color – Summer (Base for mapped polygons)
- 1-Meter CIR – Summer
- ½ Meter Natural Color – Late Fall

The one-meter natural color was used as a base line imagery for the mapped polygons although all three sets of imagery closely registered to one another. The CIR imagery was especially helpful in pulling out herbaceous wetland areas (See page 28) while

the higher resolution 1/2-meter imagery aided in separating out the rare manzanita stands.

Photo interpreters also had a contour layer to help in determining the terrain related features of the stand being mapped. These included slope steepness, position, direction and shape.

#### VEGETATION DENSITY & FLORISTIC ASSIGNMENTS OF POLYGONS

Densities are mapped for each vegetation layer that exists in the stand. Vegetation densities can be assigned for up to three layers of vegetation (conifer – broadleaf tree and shrub layers). Alliances are normally defined by the dominant overstory vegetation layer if that layer contains at least 10% cover. For example; stands of coulter pine of ~25% over a dense coast live oak woodland will be assigned to the coulter pine alliance and labeled as a 2123: Coulter pine – coast live oak. This example stand will have a vegetation density assignment of 1 in the hardwood field (>60%) and a density assignment of 3 in the conifer field (25-40%). All density values are measured in absolute cover, not relative cover. Stands of coulter pine of ~5% over dense coast live oak woodland will be assigned to the coast live oak alliance and will receive a density category of 5 (2-10%) in the conifer layer and a density category of 1 (>60%) in the hardwood category. This way, sparse emergent stands of coulter pine (or foothill pine in the eastern portions of the study area) can be accounted for without assigning it to a conifer type when there is a strong dominance of oak in the non-emergent tree canopy. Detailed descriptions of the mapping units are included in section 5 of this report.

## **5. MAPPING DESCRIPTIONS**

### **1010 Canyon Oak Alliance**

WHR – Montane Hardwood Forest  
NDDDB - Canyon Live Oak Forest



Mid slopes west of Pescadero Creek



**NAIP 1 meter Imagery:**

This example depicts Canyon oak in dense settings with emergent coulter pine of about 5-10%.

**Mapping Descriptions:** Mapped where canyon live oak (*Quercus chrysolepis*) dominates the canopy. Stands are generally dense usually over 70% cover, but occasionally open with a sparse understory of grasses and upland sedges, poison oak and snowberry. Important species in the canopy may include emergent Coulter pine of up to 10% or coast live oak, occasionally as a codominant.

**Environmental Parameters:** Mapped in higher elevations, especially in the southwestern portion of the study area; generally on steep east to northeast slopes. Stands are large in size; generally over 50 acres.

**Type 1011: Canyon Oak – Madrone:** Generally occurs in similar settings with at least 5% cover of madrone; generally as a subordinate species to canyon oak.

## **1020 – Tanbark Oak Alliance**

WHR – Montane Hardwood Forest  
NDDDB - Tanoak Forest



### **NAIP 1 meter Imagery:**

Tanoak in riparian setting along Bear Tree Canyon in the western portion of the study area

**Mapping Descriptions:** Mapped where tanbark oak (*Lithocarpus densiflora*) dominates the canopy. Stands are generally dense, usually over 70% cover. Uncommon in the study area; locally in small stands in Bear Tree Canyon and Gabilan Creek in the western portion of the study area. Coast live oak or big-leafed maple can be a minor component to the canopy layer. Mapped stands appear to be in healthy condition.

**Environmental Parameters:** Mapped in riparian and low slope settings; generally in protected mesic locations just upslope from stands of big leaf maple.



## **1020 – Madrone Alliance**

WHR: Coastal Oak Woodland

NDDB: Madrone Woodland



Upper Pescadero Creek



### **NAIP 1 meter Imagery:**

Madrone along seasonal Pescadero Creek codominating with canyon oak in this example.

**Mapping Descriptions:** Mapped where madrone (*Arbutus menzeisii*) dominates the canopy or codominates with canyon oak; stands are dense; over 80% crown cover. Rare as dominant stands in the study area, more common as a subordinate species to either canyon or coast live oak forest.

**Environmental Parameters:** In the study area found along drier creek beds in discontinuous stands along Pescadero Creek. Important subordinate species in oak forests throughout the study area; more common in western portions.



## **1210 Coast Live Oak Alliance**

WHR: Coastal Oak Woodland  
NDDB: Coast Live Oak Woodland



Coast live oak with minor component of valley oak over a grassy setting



### **NAIP 1 meter Imagery:**

Coast live oak in forest and woodland settings surrounded by annual grasslands

**Mapping Descriptions:** The most common alliance in the study area; stands of coast live oak (*Quercus agrifolia*) occur in forest to sparse savanna settings throughout all regions. Coast live oak dominates the tree layer. Coulter pine or foothill pine may be an emergent up to 10% cover. Subordinate trees common in the canopy include Manzanita and valley oak. In drier settings, coast live oak is a sparse emergent over chamise chaparral.

**Environmental Parameters:** Found primarily on deep soils on all slopes in level to moderate slopes. Common in the northwestern portion of the study in slightly steeper settings than adjacent valley oak; in the northeastern part of the study area often adjacent to stands of mixed blue oak and in the southeastern portion as an emergent canopy to dense chamise chaparral. May also trend towards drier canyon bottoms by ephemeral streams.

## COST LIVE OAK TYPES FOUND AT GABILAN RANCH



Type 1212 - Coast live oak / mixed coastal scrub: Occurs in open settings; coyote brush, snowberry, poison oak or elderberry often as a dense shrub layer forms the shrub layer where the canopy opens possibly as a result of grazing related disturbances.



Type 1211 – Coast live oak / chamise chaparral: Sparse emergent oaks over a dense canopy of chamise chaparral; often as a transition between coast live oak forests and adjacent chaparral.

## **2110 – FOOTHILL PINE ALLIANCE**

WHR: Cismontane Woodlands

NDDB: Digger Pine Chaparral



Foothill Pines emergent canopy to blue oak woodland



**November 2005 ½ meter Imagery:**

In this example, foothill pine is emergent over coast live oak forming a rather dense canopy cover ~40%.

Mapping Descriptions: Mapped as an emergent canopy to either chaparral or oak woodland in the eastern portions of the study area. Emergent canopy of at least 10% cover of foothill pine (*Pinus sabiniana*); several stands have up to 50% cover. Understory trees are either coast live oak or blue oak or a mix of the two and make up a fairly dense to open canopy under the pine. Stands emergent to chaparral are sparse and generally emergent to dense chamise or mixed chaparral. *Note: Stands of emergent pine less than 10% are not mapped to a conifer alliance and assigned the understory vegetation type; pines in these circumstances are captured in the density field as a category 5 (2-10% cover).*

Environmental Parameters: Located on gently to moderately sloping settings in drier eastern portions of the study.

## FOOTHILL PINE TYPES FOUND AT GABILAN RANCH



Type 2112 – Foothill pine / coast live oak – valley oak: Sparse emergent layer of foothill pine over dense mixed valley and coast live oak, generally coast live oak more dominant. Stands are found in the central and eastern portions of the study.



Type 2113 - Foothill pine / coast live oak: Sparse to moderate emergent cover of foothill pine over generally dense stands of coast live oak, occasionally with some blue oak. Stands are limited to the southeastern portion of the study



Type 2114 – Foothill pine / chamise chaparral: Restricted to a few areas in the southeastern portion of the study where foothill pine forms a very sparse emergent to fairly dense chamise or chamise and mixed chaparral.



## **2120 - COULTER PINE ALLIANCE**

WHR: Montane hardwood - conifer

NDDB: Coulter Pine Forest



Coulter pine in sparse to dense settings over chaparral in the foreground and canyon oak in the background.



### **NAIP 1 meter Imagery:**

Coulter pine in varying densities over sparse chaparral of decomposing granites and over dense interior live oak chaparral.

**Mapping Descriptions:** Mapped in sparse to moderately dense settings over a mixed oak woodland or decomposed granitic chaparrals containing rare Gabilan manzanita. Coulter pine (*Pinus coulterii*) is found throughout most of the study except in the central portions and extreme eastern portions.

**Environmental Parameters:** Limited to upper slopes and ridge tops in settings over oak woodlands; on decomposed granite in chaparral stands. *Note: Stands of emergent pine less than 10% are not mapped to a conifer alliance and assigned the understory vegetation type; pines in these circumstances are captured in the density field as a category 5 (2-10% cover).*

## COULTER PINE TYPES FOUND AT GABILAN RANCH



Type 2121 – Coulter pine / brittle-leaf manzanita: Found on decomposed granitic soils in the southern portion where Coulter pine forms an emergent canopy of 10% or greater over varying densities of brittle-leaf manzanita, chamise, and at times the rare Gabilan manzanita.



Type 2123 – Coulter pine / canyon oak: Extensive stands of canyon oak in the southeastern portion of the study contain a sparse pine overstory; several expressions have Coulter pine greater than 10% over a dense oak canopy.



Type 2124: Coulter pine / coast live oak – valley oak: Uncommon on upper gentle slopes within the study area; stands are generally in an open woodland setting with ~10% emergent cover of coulter pine.



Type 2125: Coulter pine / coast live oak: Most stands located in the northern portions of the study on upper slopes and ridges. Coulter pine is generally a sparse emergent, generally less than 20% cover over dense oak forests.



### **3110 – Blue Oak Alliance**

WHR: Blue Oak Woodlands

NDDB: Blue Oak Woodlands



Open stands of blue oak in rocky setting over relatively shallow limestone soils.



#### **NAIP 1 meter Imagery:**

Open stands of blue oak, in this example mixing with some coast live oak. Best examples of blue oak are located in the northeastern portion of the study area

**Mapping Descriptions:** Sparse savanna to open woodland settings of blue oak (*Quercus douglasii*) dominating the stand, often with a component of coast live oak. Stands are generally located east of Dowdy Peak in grassland savannah settings on limestone derived soils. Blue oak stands are uncommon and several individuals appear to be hybridizing with valley oak. (Vern Yadon, personal communication)

**Environmental Parameters:** Located in drier east sections of the study area on gently rolling upper slopes on fairly shallow soils with some rock outcroppings.

### **3120 – Valley Oak Alliance**

WHR: Valley Oak Woodlands

NDDB: Valley Oak Woodlands



Pure stands of valley oak in a rather dense woodland setting along the northern perimeter of the study area



#### **NAIP 1 meter Imagery:**

Dense valley oak in grassland setting with mixed coast live and valley oak in lower right portion of image.

Mapping Descriptions: Valley oak (*Quercus lobata*) is found generally in the central and northern portions of the study in pure or mixed stands with coast live oak. Understory ranges from open annual grasses to mesic coastal scrub. Densities range from extremely sparse to dense woodlands of up to 80% cover.

Environmental Parameters: Best developed stands are on deep soils on mid to upper gentle slopes; steeper settings have a component of coast live oak and sparsely coulter pine.

## VALLEY OAK TYPES AT GABILAN RANCH



Type 3121 – Valley oak / mixed herbaceous: Open stands of valley oak in a grassland setting with mixed valley and coast live oak surrounding.



Type 3122 – Valley oak – coast live oak: Generally dense stands of mixed valley oak & coast live oak; note in this image the coast live oak being darker green, the valley oak lighter.



Type 3123 – Valley oak / mixed coastal scrub: Open stands of valley oak over a dense but irregular cover of poison oak, snowberry or coyote brush.



### **3130 – California Buckeye Alliance**

WHR: Montane Hardwood Forests  
NDDDB: Broadleaved Upland Forests



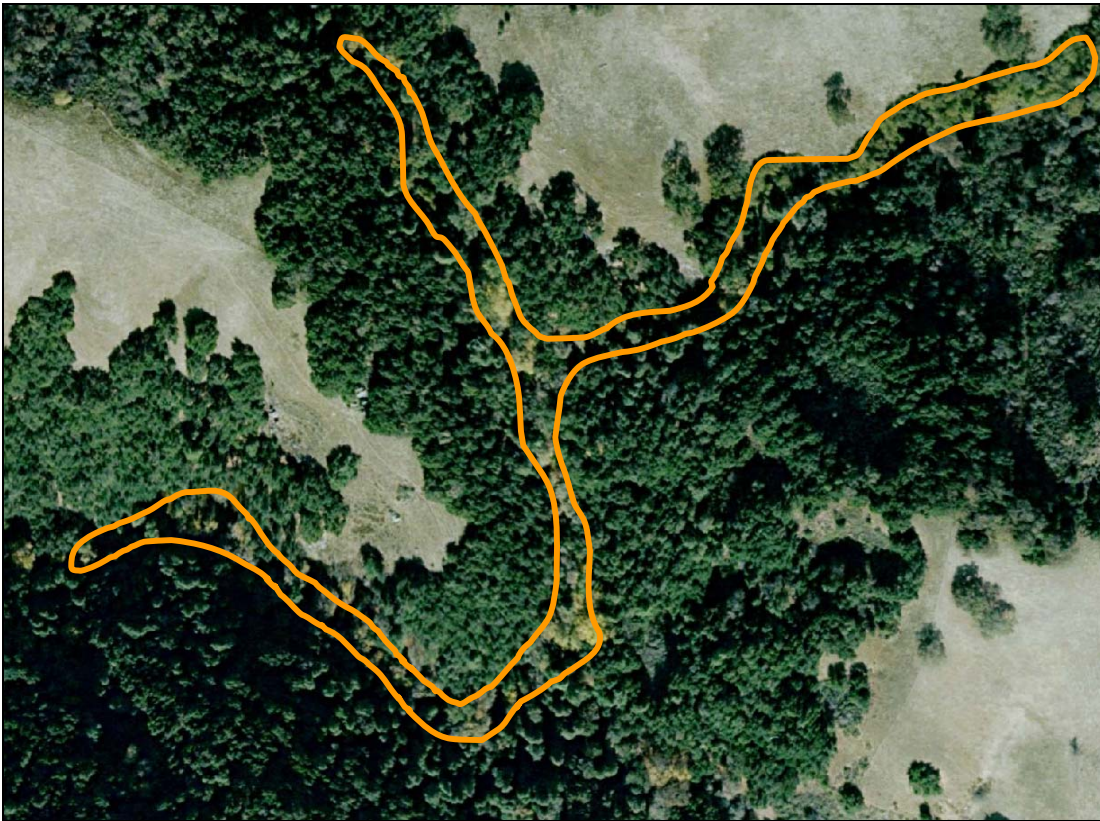
#### **NAIP 1 meter Imagery:**

Dense California buckeye with an understory of poison oak on steep rocky setting in the northeastern portion of the study area.

Mapping Descriptions: Small stands of buckeye (*Aesculus californica*) occur throughout the northern two thirds of the study in open to dense stands; generally associated with shallow soils in steep settings. Often occurring over a spotty understory of poison oak or as several individual trees as a sparse emergent to bush lupine. Oaks or elderberry may be a minor component to the canopy.

Environmental Parameters: Found on rocky soils or in steep riparian settings.

### 3210 – Big Leaf Maple Alliance



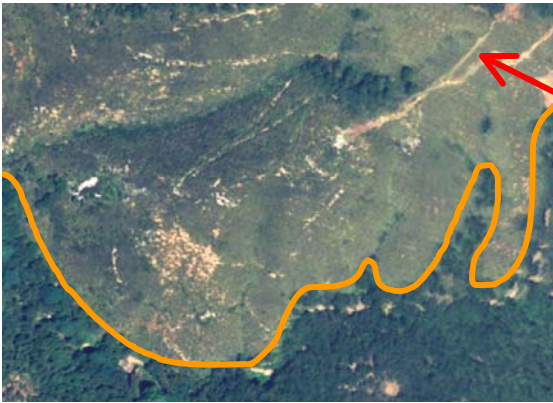
Well developed riparian stand of big leaf maple (*Acer macrophyllum*) along Bear Tree Creek – Fall imagery – note leaf change conditions.

Mapping Descriptions: Found in all major riparian systems throughout the study area except Pescadero Creek. Big leaf maple is often in pure stands or with a minor component of tanoak.

## **4310 – Chamise Alliance**

WHR: Chamise - Redshank Chaparral

NDDB: Chamise



**NAIP 1 meter Imagery:** Dense stands of pure chamise chaparral (upper portion) above a coast live oak forest.

Mapping Descriptions: Mapped in dense settings as either pure stands of chamise (*adenostoma fasciculatum*) or in post fire settings with a component of black sage and sticky monkey flower. Other chaparral species may form a minor component of the canopy such as wedge-leaf Ceanothus or buckthorn.

Environmental parameters: Primarily on south trending mid and upper slopes of varying steepness on shallow soils. More common in the eastern portion of the park. Chamise also is an important component of the rare Gabilan manzanita stands on decomposed granite.



## **4320 - Brittle-leaf Manzanita Alliance**

**Mapped to 4321: Brittle-leaf Manzanita – Chamise – (Warty-leaf Ceanothus) or 4322 where Gabilan manzanita is noted in the stand.**

NDDDB: Maritime Chaparral

WHR: Mixed Chaparral



Stands here include warty-leaf ceanothus in flower with sparse emergent coulter pine and interior oak.



**NAIP 1 meter Imagery:** This image depicts varying densities of chaparral; denser areas are dominated by brittle – leaf manzanita, more open stands codominate with chamise. Sparse emergent coulter pine are more common on the upper slopes & spurs.

Mapping Descriptions: A mixed chaparral composed most often of chamise and brittle-leaf manzanita with a minor subordinate of warty-leaf ceanothus and in more mesic settings, interior oak. Gabilan manzanita

*(arctostaphylos tomentosa ssp. Crustacean)* occurs generally as a minor component to this chaparral in patches of up to a several individuals; more often as individual plants. Stands vary in density with more open stands containing bare ground of decomposing Granitic soils. Emergent coulter pine occurs in densities generally under 10%.

Environmental Parameters: Found on well drained decomposed granitic soils on gentle to moderate slopes (rarely steep) primarily on upper slopes away from draws. Obligate seeders (Gabilan manzanita and warty-leaf ceanothus) may be more frequent in open settings with exposed bare ground. *Note: Individual plants of Gabilan manzanita cannot be mapped reliably with the aerial photography and can only be addressed as a component to existing polygons within the brittle-leaf manzanita alliance. Stands denoting a presence of Gabilan manzanita are denoted with a code of 4323 instead of 4321.*



Gabilan Manzanita (5-7 individuals)



Coulter pine individual

Interior Oak Chaparral

Chamise Chaparral

Brittle-leaf Manzanita -  
shows up green



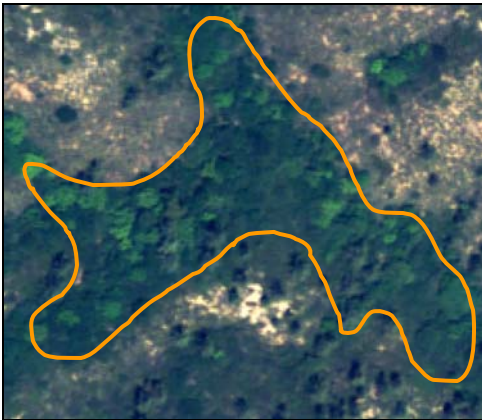
### **4340 – Interior Oak Alliance**

NDDDB – Interior Live Oak Chaparral

WHR – Mixed Chaparral



Interior oak with emergent coulter pine in the northern portion of the Gabilan Ranch property



**NAIP 1 meter Imagery:** Dense stands of interior live oak with some California bay which shows up as a lighter green

Mapping Descriptions: Found in mesic chaparral settings on decomposed granite in the southern portion of the Gabilan ranch and adjacent to coast live oak woodland in chaparral along the northern boundary. Mapped where interior live oak (*Quercus wislizenii*) makes up at least 50% of the shrub canopy; always in dense stands ; brittle leaf manzanita is often a significant component to the chaparral. More mesic stands have a component of canyon oak emerging from the chaparral layer.

Environmental Parameters: Found adjacent to more xeric chamise or Manzanita chaparral in small draws and concavities.

#### **4411 – Coyote Brush – Mixed coastal scrub**

NDDDB: Northern Coyote Brush Scrub

WHR: Coastal Scrub



**NAIP 1 meter Imagery:** Dense stands of coyote brush; in this setting mixing with poison oak with emergent coast live oak. Patches of annual grasses throughout.



**November 2005 ½ meter Imagery:** Depicts same general area with better distinctions between greener coyote brush and deciduous poison oak as a grayer color.

Mapping Descriptions: Largest stands on the western edge of the property; mapped where coyote brush (*Baccharis pilularis*) dominates the shrub layer; usually with a significant mix of other mesic north coastal scrub species such as poison oak, elderberry and blackberry.

Environmental Parameters: Found in the cooler moister western portions replacing chaparral as the dominant scrub vegetation; generally most extensive on north trending mid and upper slopes ranging from neutral to concave in rather steep settings.



#### **4420 – Bush Lupine – (Poison Oak – Elderberry)**



In this setting, elderberry is an emergent shrub.



**NAIP 1 meter Imagery:** Rocky environment with patches of poison oak, elderberry; bush lupine is difficult to see, the location is inferred based on the setting.



**November 2005 1/2 meter Imagery:**  
Note the deciduous poison oak showing up less green on the fall imagery

**Mapping Descriptions:** Mapped in sparse rocky environments where bush lupine (*lupinus albifrons*) occurs as the dominant shrub generally under 10% cover. Poison oak and elderberry are frequently emergents to the low shrub canopy. California buckeye is often a sparse tree component to the rocky setting. Found in small to medium patches primarily in the northwestern portion of the property.

**Environmental Parameters:** Noted in rocky settings on shallow soils which vary in slope and aspect, often with a component of native grasses and forbs in the understory layer.

## **5501 – Willow – (Mixed Riparian Shrub) Mapping Unit**



Narrow stand of arroyo willow north of the headquarters



**NAIP 1 meter Imagery:** Denoted here as a narrow band following a small drainage just below a spring.

**Mapping Descriptions:** Mapped as small narrow stands where willow species (generally arroyo willow (*Salix lasiolepis*)) dominates the tall shrub layer. Other riparian shrubs may mix in with the arroyo willow including elderberry or other willow species. Every effort was made to map even the smallest stands of willow on the property.

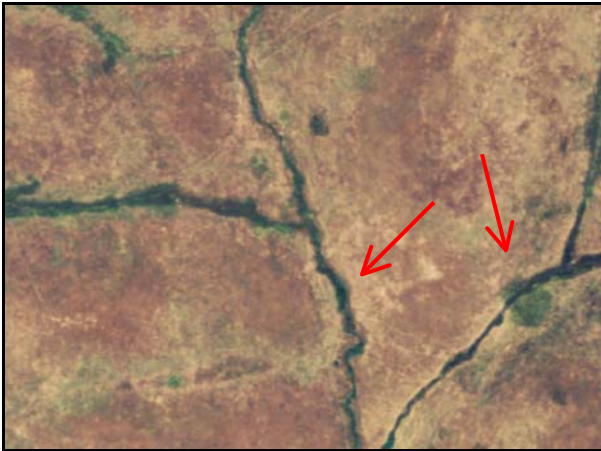
**Environmental Parameters:** Mapped in wetland settings where water is present throughout most of the growing season, usually in spring fed draws in the central portions of the study.



## 6101 – Wet Meadow Vegetation



This meadow is located in a small swale (*delineated in red*); lone valley oak in the background.



**NAIP 1 meter Imagery:** Small meadows depicted here (*with red arrows*) as narrow bands following small drainages often spring fed upslope.

Mapping Descriptions: Noted in wetland settings and delineated as narrow bands where possible. Cartographic limitations may cause portions of the mapped polygon to include adjacent upland annual grasses and therefore may be difficult to generalize the polygon as a 'wetland'. Rush (*Juncus spp.*) species dominate the herbaceous layer, often with wildrye and sedges co-dominating.

Environmental Parameters: Noted in small swales where drainage is poor; surface water is present throughout the early part of the growing season.



### **DIFFICULTIES IN MAPPING WETLAND VEGETATION**

Green areas delineated are actual wet areas containing rushes; note this entire area is well below one acre. Photo interpreters must include portions of upland (*denoted in yellow*) as an inclusion of the entire mapped polygon (*two green polygons + yellow polygon*) – Note lone valley oak for comparisons. Photo interpreters will never delineate a single tree as a vegetation 'type'.

In general, wetlands were captured when visible on the photography, down to as small as  $\frac{1}{4}$  acre or ~500 square meters – adjacent upland areas will often be included in the polygon.

## 7110 – Upland Grasses & Forbs

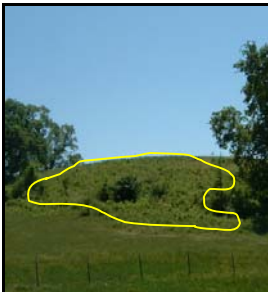


View looking southeast towards Dowdy Peak – Coast live oak & valley oak in the background



Mapping Descriptions: Mapped where tree cover is below 5-10% cover where annual grasses dominate the herbaceous layer. Native grasses and forbs often make up a sizable component of the vegetation especially in areas of shallower soil and adjacent to bush lupine in rocky settings.

Environmental Parameters: Found on all slopes, aspects; especially well developed on deep soil.



In this setting, annual grasses are mapped with a component of bracken fern (type 7111)

## **Gabilan Ranch - Vegetation Mapping Classification**

### **FOREST – WOODLAND**

#### 1000 – Evergreen Broadleaf Forests & Woodlands

- 1010 – Canyon Oak Alliance
- 1011 – Canyon Oak – Madrone
- 1020 – Tanoak Alliance
- 1030 – Madrone Alliance

#### 1200 – Xeromorphic Sclerophyll Woodlands

- 1210 – Coast Live Oak Alliance
- 1211 – Coast Live Oak / Poison Oak
- 1212 – Coast Live Oak / Chamise Chaparral

#### 2000 – Evergreen Needle-leaf Forests & Woodlands

##### 2100 – Rounded Crown Forests & Woodlands (Pines & Cypress)

- 2110 – Foothill Pine Alliance
- 2112 – Foothill Pine – Coast Live Oak – Valley Oak
- 2113 – Foothill Pine – Coast Live Oak
- 2114 – Foothill Pine / Chamise
- 2120 – Coulter Pine Alliance
- 2121 – Coulter Pine / Interior Oak – Brittle-leaf Manzanita
- 2122 – Coulter Pine / Brittle-leaf Manzanita
- 2123 – Coulter Pine – Canyon Oak
- 2124 – Coulter Pine – Coast Live Oak – Valley Oak
- 2125 – Coulter Pine – Coast Live Oak / (Interior Oak)

#### 3000 – Deciduous Forests & Woodlands

##### 3100 – Cold Season Deciduous Forests & Woodlands

- 3110 – Blue Oak Alliance
- 3111 – Blue Oak / Mixed Herbaceous
- 3112 – Blue Oak – Coast Live Oak
- 3120 – Valley Oak Alliance
- 3121 – Valley Oak / Mixed Herbaceous
- 3122 – Valley Oak – Coast Live Oak
- 3123 – Valley Oak / Mixed Mesophytic Shrubs
- 3130 – California Buckeye / Poison Oak

3200 – Temporarily Flooded Cold-Season Deciduous Forests & Woodlands

3210 – Big Leaf Maple Alliance

3220 – California Sycamore

**SHRUBLAND - DWARF SHRUBLAND**

4000 – Evergreen Shrubland

4300 – Sclerophyllous Shrubland

4310 – Chamise Alliance

4311 – Chamise Pure

4312 – Chamise – Black Sage – Sticky Monkey Flower

4320 – Brittle-leaf Manzanita Alliance

4321 – Brittle-leaf Manzanita – Chamise – (Warty-leaved Ceanothus)

4322 – Brittle-leaf Manzanita – strong dominant

4323 – Brittle-leaf Manzanita – Gabilan Manzanita

4330 - Gabilan Manzanita Stands

4340 – Interior Live Oak Alliance

4400 – Microphyllous Shrubland

4411 – Coyote Brush – Mixed Mesophytic Shrubs

4420 – Bush Lupine – (Poison Oak – Elderberry) / Mixed Grasses

& Herbs

4430 – California Sagebrush Alliance

5000 – Deciduous Shrubland

5400 - Winter Rain Cold-Season Deciduous Shrubland

5401 – Poison Oak – Mixed Mesophytic Shrubs / Herbaceous

Mapping Unit

5500 – Seasonally Flooded Deciduous Shrubland

5501 – Willow – Mixed Riparian Shrubs Mapping Unit

## **6000 – HERBACEOUS**

6100 – Temporarily Flooded Grasses & Forbs

6101 – Wet Meadow Vegetation – Sedges, Rushes Wet Meadow  
Grasses

6200 – Seasonally to Permanently Flooded Grasses & Forbs

6201 – Marsh Vegetation – Cattail – Bulrush – Spike rush

7000 – Annual Herbaceous (Graminoid – Forbs)

7100 – Upland Annual Grasslands & Forbs

7110 – California Annual Grasslands Alliance

7111 – California Annual Grasslands with Bracken Fern

## **9000 – Little or No Vegetation**

9001 – Sparsely Vegetated Rock Outcrop

9100 – Urban or Built Up

9200 – Agriculture

9400 – Water

9401 – Small Farm Ponds

9402 – Floating Vegetation

9500 – Engorged Airport Tic

9999 – Vegetation needing field checking (7 total)

## **DENSITY CATEGORIES (Assigned for up to three layers of vegetation)**

1 = Greater than 60%

2 = 40-60%

3 = 25-40%

4 = 10-25%

5 = 2-10%

## **COMMENTS**

Occasionally, a mapping unit value does not describe certain anomalies in the vegetation which may occur that may be of importance to the user. This field is used to further describe the polygon being mapped.



## 5. DATA DICTIONARY

### GIS RELATED

Area  
Perimeter  
Coverage#  
Coverage-Id

### USER DEFINED

Code – Floristic Assignment  
Comment – Specific notes regarding that polygon  
Fieldck – Internal AIS reference regarding field checking  
Density – Refers to the Conifer density to that polygon (see section 4 for descriptions)  
Hardwood – Refers to the hardwood (deciduous & evergreen) density to that polygon  
Shrub – Refers to the shrub density to that polygon