

**Buck Gully Reserve  
Resource and Recreation Management Plan**

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**Photo 3: Southern mixed chaparral community (western portion) looking east. (Spring 2007)**



**Photo 4: Southern willow scrub and coastal sage scrub communities (central portion) looking east. (Spring 2007)**

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Annual grassland occurs in upper Buck Gully, with slender oat (*Avena barbata*), foxtail chess (*Bromus madritensis* ssp. *rubens*), soft chess (*B. hordeaceus*), and glaucous barley (*Hordeum murinum* ssp. *glaucum*) as the most common species. California annual grasslands may support certain special-status plant and animal species and provide open foraging habitat for raptors (birds of prey) such as red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*). There are 10.9 acres of annual grassland within the BGR.

### **Southern Coastal Needlegrass Grassland**

Southern coastal needlegrass grassland is a native grassland community with at least 10% or more of the vegetative cover composed of the perennial needlegrass. According to Gray and Bramlet (1992), other species associated with this habitat type include leafy bentgrass (*Agrostis pallens*), junegrass (*Koeleria macrantha*), rattail fescue (*Vulpia myuros*), bromes (*Bromus* spp.), blue-eyed grass (*Sisyrinchium bellum*), blue dicks (*Dichelostemma capitatum*), mariposa lily (*Calochortus* spp.), common goldenstar (*Bloomeria crocea*), smooth cat's-ear (*Hypochoeris glabra*), and shooting star (*Dodecatheon clevelandii*). This plant community typically intermixes with CSS on some clay soils, often on more mesic exposures and at the bases of slopes, but also may occur in large patches. There is approximately 0.4 acre of southern coastal needlegrass grassland within the BGR.

### **Wild Rye**

Wild rye grassland is a native grassland that is dominated by wild rye (*Leymus condensatus*) (Jones & Stokes 1993). This community is typically found adjacent to annual grassland and ruderal communities on site. There is approximately 0.3 acre of wild rye within the BGR.

### **Coastal Scrub**

CSS has been the focus of numerous conservation planning efforts in southern California. This plant community, along with its associated plant and animal constituents, has been seriously affected by development and other human-related activities. In the late 1980s, it was estimated that upwards of 85% of CSS had been lost. As a result, in 1991 the state of California initiated its first habitat-based conservation planning effort, the NCCP program, selecting CSS as its pilot community type. Approximately 75 special-status plant and animal species are associated with CSS, the most notable of which is the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*). As such, this vegetation community is considered to be special-status by state and federal resource agencies, most southern California jurisdictions, and local conservation organizations. CSS is considered a Conserved Vegetation Community under the Central-Coastal NCCP/HCP. Several sub-associations are included in the CSS community because they function in much the same way. These sub-associations provide habitat for a

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number of special-status plant and animal species, including the Central-Coastal NCCP/HCP "target species," the California gnatcatcher, cactus wren (*Campylorhynchus brunneicapillus*), and orange-throated whiptail (*Aspidoscelis hyperythra beldingi*).

The following nine sub-associations occur within the BGR.

### **California Buckwheat Sage Scrub**

California buckwheat sage scrub is dominated by California buckwheat, with a diversity of other low-statured sage-dominated shrubs such as black sage (*Salvia mellifera*) and white sage (*Salvia apiana*). Other shrub species possibly occurring in this community include bush monkeyflower, California encelia (*Encelia californica*), deerweed (*Lotus scoparius*), coastal goldenbush, and giant wild rye (*Leymus condensatus*). Broad-leaved shrubs such as lemonadeberry (*Rhus integrifolia*), coyote brush and chaparral bushmallow (*Malacothamnus faciculatus*), and an understory of non-native grasses (*Bromus* spp.) and native grasses such as foothill needlegrass (*Stipa lepida* var. *lepida*) as well as forbs such as blue dicks (*Dichelostemma capitata*) and bicolor cudweed (*Gnaphalium bicolor*).

A small area of California buckwheat sage scrub occurs in the southwest portion of the project site. There are approximately 2.4 acres of California buckwheat sage scrub within the BGR.

### **Coastal Sage California Buckwheat Scrub**

Coastal sage California buckwheat scrub is a type of CSS co-dominated by California sagebrush and California buckwheat, with several other mostly drought-deciduous shrubs that occur throughout the mountains and low foothills of Orange County (Gray and Bramlet 1992). A diversity of low-statured shrubs include black sage, white sage, bush monkeyflower, deerweed (*Lotus scoparius*), and giant wild rye (*Leymus condensatus*), broad-leaved shrubs such as lemonadeberry (*Rhus integrifolia*), coyote brush (*Baccharis pilularis*), and chaparral bushmallow, and an understory of non-native and native grasses (such as *Bromus* spp. and foothill stipa) as well as forbs (such as blue dicks (*Dichelostemma capitata*) and bicolor cudweed (*Gnaphalium bicolor*)).

It occurs primarily along the south- and west-facing slopes of upper Buck Gully and has a dense (100%) vegetative cover primarily of California sagebrush and California buckwheat, with California encelia, coast cholla (*Opuntia littoralis*) and wishbone bush (*Mirabilis californica*) also common in the shrub layer. Needlegrass (*Nasella* sp.) is the most common herbaceous plant observed in this vegetation. There are approximately 122.6 acres of coastal sage California buckwheat scrub within the BGR.

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### **Coastal Sage Monkeyflower Scrub**

According to Jones & Stokes (1993), coastal sage monkeyflower scrub is a CSS community dominated by California sagebrush and bush monkeyflower, also containing coyote brush, giant rye grass, poison oak (*Toxicodendron diversilobum*), coastal goldenbush, blue elderberry (*Sambucus mexicana*), and white sage. This plant community is known to occur below 1,000 feet AMSL throughout Orange County on mesic foothill slopes.

Coastal sage monkeyflower scrub occurs in a small area within the central southwestern portion of the BGR. Approximately 2.1 acres of coastal sage monkeyflower scrub occur within the BGR.

### **Coastal Sage Scrub (CSS)**

CSS is a native plant community characterized by a variety of low-statured, aromatic, drought-deciduous shrubs, such as California sagebrush, California buckwheat, California encelia, coast goldenbush, and sages (*Salvia* spp.). CSS typically develops on south-facing slopes and other xeric areas. Common constituents within the CSS on site include laurel sumac (*Malosma laurina*), blue elderberry, giant wild-rye, coastal goldenbush, bush monkeyflower, and black sage. Approximately 4.7 acres of CSS occurs within the BGR.

### **CSS/Grass**

CSS/grass contains an open cover of California sagebrush and non-native grasses. This habitat, found mostly in Orange County's lowlands and foothills provides seeds and grass that support small mammal species (Gray and Bramlet 1992).

CSS/grass is found primarily on the northern portion of the site and appears to be the result of prior disturbance, possibly related to human impacts from the adjacent residential housing. Approximately 0.7 acre of CSS/grass occurs in the BGR.

### **Coyote Brush Scrub**

Coyote brush scrub is described by Gray and Bramlet (1992) as being dominated by coyote brush (*Baccharis pilularis*), with California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), bush monkeyflower (*Mimulus aurantiacus*), coastal goldenbush (*Isocoma menziesii*), giant rye grass (*Leymus condensatus*), and white sage (*Salvia apiana*), found in coastal areas of southern Orange County. Jones & Stokes (1993) note that the sage scrub community usually occurs on flat and gentle slopes that have been disturbed within the past 20 years. It generally is regarded as a post-disturbance community in a successional state, with the climax community most often being coastal scrub.

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A small patch of coyote brush scrub occurs on within the central portion of the Buck Gully and is dominated by coyote brush. There is 0.9 acre of coyote brush scrub within the BGR.

### **Sagebrush- Coyote Brush Scrub**

Sagebrush- coyote brush scrub is described in Gray and Bramlet (1992) as being dominated by California sagebrush and coyote brush, with other scrub species holding a less dominant position. This CSS community is known to grow in coastal areas of southern Orange County.

Several patches of sagebrush-coyote brush scrub occur throughout the project area. Approximately 12.3 acres of sagebrush-coyote brush scrub occurs within the BGR.

### **Sage Scrub Grassland**

Jones & Stokes describes this community as an open shrub/grassland with 5–20% shrub cover. Common shrubs include California sagebrush, jimmyweed (*Isocoma veneta*), Palmer's goldenbush (*Ericameria palmeri*), and California buckwheat. Subshrubs and forbs are a very important and representative species and include common sandaster (*Corethrogyne filaginifolia*), Palmer's rabbitbrush (*Ericameria pachylepis*), California snakeweed (*Gutierrezia bracteata*), spanish-clover (*Lotus purshianus* var. *purshianus*), shortpod mustard (*Brassica geniculata*), everlasting sp. (*Gnaphalium* spp.), deerweed, and tall buckwheat (*Eriogonum elongatum* var. *elongatum*). Grasses often dominate the cover in this habitat and the dominant species are wild oat (*Avena* spp.), bromes (*Bromus* spp.), wild barley (*Hordeum murinum* ssp. *leporinum*), rattail fescue (*Vulpia myuros* var. *myuros*), and purple needlegrass (*Nassella pulchra*). It occurs in many areas of the county below 1,000 feet AMSL. On site, approximately 0.8 acre of sage brush grassland occurs within the BGR.

### **Southern Cactus Scrub**

Southern cactus scrub consists of scrub vegetation dominated by cacti and CSS species. The presence of coastal prickly-pear (*Opuntia littoralis*), pancake prickly-pear (*Opuntia oricola*) at 20% or more relative cover defines this community. This habitat also includes species such as California sagebrush, California buckwheat, black sage and blue elderberry (Gray and Bramlet 1992).

As discussed in Jones & Stokes (1993), the Gray and Bramlet (1992) habitat classification numbering system (i.e., 2.4) is misleading in separating this habitat from other sagebrush and sage scrub (2.3). Therefore, for the purposes of this report, southern cactus scrub is considered a sub-association of CSS. On site, southern cactus scrub is found along a south-facing slope adjacent to residential housing. There is 0.2 acre of southern cactus scrub within the BGR.

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### ***Chaparral Scrub***

#### **Southern Mixed Chaparral**

Southern mixed chaparral consists of a mix of sclerophyllous chaparral species such as laurel sumac, lemonade berry, chamise, and holly-leaved redberry (*Rhamnus illicifolia*) (Gray and Bramlet 1992). Other native shrubs present in this community include bush monkeyflower, toyon (*Heteromeles arbutifolia*), and scrub oak (*Quercus berberidifolia*).

On site, this community is primarily dominated by lemonade berry. Southern mixed chaparral is found within the central portion of the BGR along north-facing slopes. There is approximately 42.1 acres of southern mixed chaparral within the BGR.

#### **Scrub Oak Chaparral**

Scrub oak chaparral is dominated by scrub oak (*Quercus berberidifolia*) with lesser components of birch-leaf mountain-mahogany, toyon, laurel sumac, and holly-leaved redberry (*Rhamnus illicifolia*) (Jones & Stokes 1993). This community is typically found within the BGR on north-facing slopes. There is approximately 2.8 acres of scrub oak chaparral within the BGR.

#### **Toyon Sumac Chaparral**

Toyon sumac chaparral is found along coastal foothill areas on north-facing slopes and is dominated by dense stands of toyon, laurel sumac and lemonade berry (Gray and Bramlet 1992). Other species commonly present include scrub oak, hollyleaf redberry, and fuchsia-flowered gooseberry. An understory of coastal scrub species may also be present.

On site this community is found within the southern portion of the BGR and is dominated by toyon and lemonade berry. There is approximately 28.5 acres of toyon sumac chaparral within the BGR.

### ***Upland Woodland***

#### **Mexican Elderberry Woodland**

Mexican elderberry woodland occurs in foothill areas often on the upper benches of stream courses and dominated by blue elderberry (*Sambucus mexicana*) as well as toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), and lemonadeberry (*Rhus integrifolia*) (Gray and Bramlet 1992).

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Mexican elderberry woodland occurs on the steep north-facing slope in upper BGR where blue elderberry is the dominant species, which, together with lemonadeberry, forms a dense cover (100%). Approximately 9.1 acres of Mexican elderberry woodland occurs in the BGR.

### **Disturbed Mexican Elderberry Woodland**

Disturbed Mexican elderberry woodland is similar to Mexican elderberry woodland; it has been disturbed (typically by anthropogenic means) and has a large component of nonnative weed species and/or bare ground (approximately 50%). There is approximately 1.5 acres of disturbed Mexican elderberry woodland within the BGR.

### ***Riparian Scrub***

#### **Southern Willow Scrub**

Southern sycamore riparian woodland is characterized by open to dense woodlands dominated by western sycamore and coast live oak. Southern willow scrub (willow riparian scrub) is a broad-leaved, winter-deciduous riparian community dominated by willow (*Salix* spp.) species, with scattered Fremont's cottonwood (*Populus fremontii*) and western sycamore (*Platanus racemosa*) and lesser amounts of mulefat (*Baccharis salicifolia*) (Jones & Stokes 1993). Very little understory occurs within this community due to the high density of the shrub canopy. This community is typically found along intermittent streams and creeks in southern California.

On site, southern willow scrub occurs in narrow strips within the lower and middle regions of the BGR. It is dominated by arroyo willow with interspersed mule fat. Fleshy jaumea (*Jaumea carnosa*) is occasionally present in the understory in addition to non-native grasses and forbes. Approximately 16.7 acres of southern willow scrub occurs within the BGR.

### ***Riparian Forest Woodland***

#### **Sycamore Riparian Woodland**

Sycamore riparian woodland is characterized by open to dense woodlands dominated by western sycamore, with coast live oak (*Quercus agrifolia*), scalebroom scrub, mule fat scrub, or southern willow scrub as an understory, as well as sclerophyllous shrubs such as hollyleaf redberry (*Rhamnus illicifolia*), California coffeeberry (*Rhamnus californica*), laurel sumac, elderberry, fuchsia-flowered gooseberry (*Ribes speciosum*), toyon, poison oak, giant rye grass, and lemonadeberry (Jones & Stokes 1993). Large grassland areas dominated by bromes (*Bromus* spp.) may also be present. This community is found on the lower slopes of the canyon within the central portion of the BGR. There is approximately 1.3 acre of sycamore riparian woodland within the BGR.

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### ***Land Covers***

#### **Developed**

Developed land refers to areas supporting manmade structures including homes, yards, roadways, and other highly modified lands supporting structures associated with dwellings or other permanent structures. Lower Buck Gully contains a very small portion of developed land. Approximately 0.1 acre of developed land occurs within the BGR.

#### **Disturbed**

Disturbed land typically occurs in areas where soils have been recently or repeatedly disturbed by grading or compaction (e.g., dirt roads) resulting in the growth of very few native perennials, and are usually dominated by bare ground or non-native dicotyledonous species including filaree (*Erodium* spp.), black mustard, thistles (e.g., *Cynara cardunculus*, *Carduus pycnocephalus*, and *Centaurea melitensis*) and others. Disturbed habitat is found primarily adjacent to residential housing. Approximately 11.7 acres of disturbed habitat occurs in the BGR.

#### **Ornamental**

Ornamental plantings include introduced trees, shrubs, and turf grasses (Gray and Bramlet 1992). Ornamental plantings occur in four general areas within the BGR and provide potential nesting and roost sites for raptors, and movement corridors for mammalian or bird migration (Gray and Bramlet 1992).

In upper Buck Gully, ornamentals extend downhill from residences into the canyon and consist of dense, monocultures of baby sun rose (*Aptenia cordifolia*). Lower Buck Gully contains several areas of ornamental vegetation including Canary Island palm (*Phoenix canariensis*) and other woody perennials adjacent to residential yards. Approximately 5.5 acres of ornamental plantings occur within the BGR.

#### **Ruderal**

Ruderal vegetation occurs in disturbed areas dominated by weedy, non-native species (Gray and Bramlet 1992). Common species on site include non-native grasses, filaree (*Erodium* spp.), mustards (*Brassica* spp.), and star thistles (*Centaurea* spp.) and native species such as tarweeds (*Centromadia* spp., *Deinandra* spp.).

Scattered locations in upper Buck Gully contain ruderal vegetation with black mustard (*Brassica nigra*) and short-pod mustard (*Hirschfeldia incana*) as the most common ruderal plants. The project area contains a block of dense ruderal vegetation on the north side of Buck Gully Creek

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that is dominated by artichoke thistle (*Cynara cardunculus*). Ruderal vegetation also occurs in smaller areas in the western part of the site, with sour clover (*Melilotus* spp.) and black mustard as the dominant species. Approximately 19.6 acres occurs within the BGR.

### 2.3.2 Floral Diversity

One hundred forty-four (144) plant taxa were observed within BGR: 92 (64%) native species and 52 (36%) non-native species. A complete list of vascular plants observed within the BGR is included as Appendix B, Plant Species within the BGR. Plant species richness is relatively high due to the variety of plant communities within the BGR rather than a high diversity within a particular community. Few annual plant species were detected in the CSS, for example because of the generally dense shrub cover.

Table 3 lists a total of 33 special-status plant species that are listed as either Covered, Conditionally Covered, or Non-Covered under the Central-Coastal Subregion NCCP/HCP, are known to occur within a 5-mile radius of the project site (CDFG 2007), or have the potential to occur based on vegetation communities present on site (see Appendix C for species sensitivity categories). For each species listed in Table 3, a determination was made regarding the potential for the species to occur on site based on information gathered during previous field reconnaissance surveys, including the location of the site, habitats present, current site conditions, past and present land use and a review of known locations based on the CNDDDB (CDFG 2007). Dudek conducted additional focused botanical surveys in April and June 2008. A number of species listed in Table 3, including small-flowered mountain mahogany (*Cercocarpus minutiflora*), Tecate cypress (*Cupressus forbesii*), heart-leaved pitcher sage (*Lepechinia cardiophylla*), Nuttall's scrub oak (*Quercus dumosa*), summery holly (*Comarostaphylis diversifolia* ssp. *diversifolia*), and southern California black walnut (*Juglans californica*) are conspicuous (i.e., large, woody shrubs) and would have been observed on site if present. Unless observed during the reconnaissance survey, it is assumed that such conspicuous and readily observed species are not present on site. In addition, the presence or absence of certain species of perennial herbs can reliably be determined by observation of vegetative structures that are detectable year-round (i.e., outside of their respective blooming periods). Coulter's matilija poppy (*Romneya coulteri*) and ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*) typically bloom during the spring and summer and may not have been in flower during the site visits, but are expected to be detectable, if present on site, based on the observation of vegetative structures.

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**Table 3  
Special-Status Plant Species Potentially Occurring on Site**

Scientific Name	Common Name	Status Federal/ State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Status on site or Potential to Occur
<i>NCCP/HCP Covered Plants</i>					
<i>Calochortus catalinae</i>	Catalina mariposa lily	None/None	4.2	Chaparral, cismontane woodland, CSS, valley and foothill grassland/ perennial herb/ February–May	Not observed. High potential to occur due to presence of suitable habitat.
<i>Cercocarpus minutiflora</i>	Small-flowered mountain mahogany	None/None	None	Maritime chaparral/ elevation 0–400 meters (m) / shrub/ March–May	Not observed. Conspicuous, woody perennial would have been detected on site during reconnaissance survey if present.
<i>Cupressus forbesii</i>	Tecate cypress	None/None	1B.1	Closed-cone conifer forest, chaparral/tree/NA	Not observed. Low potential to occur; would have been detected during reconnaissance survey if present.
<i>Dudleya cymosa</i> ssp. <i>ovatifolia</i>	Santa Monica Mountains dudleya	FT/None	1B.2	Chaparral, CSS, volcanic substrates, 150–1,675 m / perennial herb/ March–June	Not observed. Low potential to occur; species known from upstream portions of Santiago Creek, and suitable volcanic substrates not present on site.
<i>Dudleya stolonifera</i>	Laguna Beach dudleya	FT/ST	1B.1	Chaparral, cismontane woodland, CSS, valley and foothill grassland, rocky areas/ perennial herb/ May–July	Not observed. Moderate potential to occur; suitable chaparral and CSS present on site.
<i>Lepechinia cardiophylla</i>	Heart-leaved pitcher sage	None/None	1B.2	Closed-cone conifer forest, chaparral, cismontane woodland, 550–1,370 m / shrub/ April–July	Not observed. Low potential to occur; would have been detected during reconnaissance survey if present.
<i>Quercus dumosa</i>	Nuttall's scrub oak	None/None	1B.1	Chaparral, CSS, sandy and clay loam soils/ shrub/ February–March	Observed by Dudek in 2008. Species was observed within the southwestern portion of the project site.
<i>Romneya coulteri</i>	Coulter's matilija poppy	None/None	4.2	Chaparral, CSS, often in burned areas/ perennial herb/ May–July.	Not observed. Moderate potential to occur; would have been detected on site during reconnaissance survey if present.

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**Table 3 (Continued)**

Scientific Name	Common Name	Status Federal/ State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Status on site or Potential to Occur
<i>NCCP/HCP Conditionally Covered Plants</i>					
<i>Calochortus weedii</i> var. <i>intermedius</i>	Foothill (intermediate) mariposa lily	None/None	1B.2	Chaparral, CSS, valley and foothill grassland, rocky areas/ perennial herb/ May–July	Not observed. Moderate potential to occur; suitable chaparral and CSS are present on site
<i>Non-Covered Plants</i>					
<i>Abronia villosa</i> var. <i>aurita</i>	Chaparral sand-verbena	None/None	1B.1	Chaparral, CSS habitats in sandy soils, 80–1,600 m / annual herb/ January–August	Not observed. Low potential to occur; suitable sandy soils are not present on site.
<i>Astragalus brauntonii</i>	Braunton's milk-vetch	FE/None	1B.1	Closed-cone conifer forest, chaparral, CSS, valley and foothill grassland, recent burns or disturbed areas/ perennial herb/ March–July	Not observed. Low potential to occur; species is rare and known only from near Santiago Reservoir (CDFG 2007).
<i>Brodiaea filifolia</i>	Thread-leaved brodiaea	FT/SE	1B.1	CSS, cismontane woodland, valley and foothill grassland, vernal pools, clays/ perennial herb/ March–June	Not observed. Moderate potential to occur; dense chaparral and clay soils are present.
<i>Chorizanthe parryi</i> var. <i>fernandina</i>	San Fernando Valley spineflower	SE/None	1B.1	CSS, sandy soils/ annual herb/ April–June	Not observed. Low potential to occur; species is known from only two occurrences in Ventura and Los Angeles Counties; assumed to be extirpated from Orange County.
<i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	Summer holly	None/None	1B.2	Chaparral/ shrub/ April–June	Not observed. Moderate potential to occur; would have been detected during reconnaissance survey if present.
<i>Deinandra paniculata</i>	San Diego tarweed	None/None	4.2	Coastal scrub, valley and foothill grassland/ usually vernal mesic; elevation 25–940 m/ Annual herb/ blooms April–November.	Not observed. Moderate potential to occur; suitable coastal scrub habitat present on site and site is within elevation range.

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**Table 3 (Continued)**

Scientific Name	Common Name	Status Federal/ State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Status on site or Potential to Occur
<i>Dichondra occidentalis</i>	Western dichondra	None/None	4.2	Chaparral, cismontane woodland, CSS, valley and foothill grassland/ perennial herb/ March–May	Not observed. Moderate potential to occur; suitable chaparral and CSS on site.
<i>Dudleya multicaulis</i>	Many-stemmed dudleya	None/None	1B.2	Coastal bluff scrub, CSS, valley and foothill grassland, rocky, often clay or serpentinite soil/perennial herb/ April–June	Not observed. Moderate potential to occur; suitable clay soils and coastal scrub are present on site.
<i>Dudleya viscida</i>	Sticky dudleya	None/None	1B.2	Coastal bluff scrub, chaparral, CSS, rocky areas/ perennial herb/ May–June	Not observed. Moderate potential to occur; suitable chaparral and coastal scrub habitat are present on site.
<i>Euphorbia misera</i>	Cliff spurge	None/None	2.2	Coastal bluff scrub, coastal scrub; rocky/ shrub/ December–August	Observed by Dudek in 2004, but not observed in 2008.. Moderate potential to occur; suitable habitat is present and species is known primarily from extreme coastal areas (CDFG 2007).
<i>Harpagonella palmeri</i>	Palmer's grapplinghook	None/None	4.2	Chaparral, CSS, valley and foothill grassland, clays/ annual herb/ March–April	Not observed. Moderate potential to occur; suitable clay soils are present on site.
<i>Juglans californica</i>	Southern California black walnut	None/None	4.2	Chaparral, cismontane woodland, CSS, alluvial areas/ tree/ March–May	Not observed. Low potential to occur; would have been detected during reconnaissance survey if present on site.
<i>Lepidium virginicum</i> var. <i>robinsonii</i>	Robinson's pepper-grass	None/None	1B.2	Chaparral, CSS/ annual herb/ January–July	Not observed. Low potential to occur; limited chaparral on site is very dense, lacking suitable openings and with poorly developed understory.
<i>Lilium humboldtii</i> ssp. <i>ocellatum</i>	Ocellated Humboldt lily	FSC/None	4.2	Chaparral, cismontane woodland, lower montane conifer forest, openings/ perennial herb/ April–July	Not observed. Low potential to occur; would have been detected during reconnaissance survey if present.

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**Table 3 (Continued)**

Scientific Name	Common Name	Status Federal/ State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Status on site or Potential to Occur
<i>Microseris douglasii</i> var. <i>platycarpha</i>	Small-flowered microseris	None/None	4.2	Cismontane woodland, CSS, valley and foothill grassland, clays/ annual herb/ March–May	Not observed. Moderate potential to occur; suitable clay soils are present.
<i>Monardella hypoleuca</i> ssp. <i>lanata</i>	Felt-leaved monardella	None/None	1B.2	Chaparral, cismontane woodland/ perennial herb/ May–July	Not observed. Moderate potential to occur; suitable chaparral present.
<i>Monardella macrantha</i> ssp. <i>hallii</i>	Hall's monardella	None/None	1B.3	Broad-leaved upland forest, chaparral, cismontane woodland, lower montane conifer forest, valley and foothill grassland/ perennial herb/ June–August	Not observed. Low potential to occur; site is out of elevation range.
<i>Nolina cismontana</i>	Chaparral beargrass	None/None	1B.2	Chaparral/ perennial herb/ June–July	Not observed. Moderate potential to occur; would have been detected during reconnaissance survey if present.
<i>Nama stenocarpum</i>	Mud nama	None/None	2.2	Marsh and swamps, lake margins and riverbanks/ annual-perennial herb/ January–July	Not observed. No potential to occur; not expected to occur due to lack of suitable habitat.
<i>Phacelia suaveolens</i> ssp. <i>keckii</i>	Santiago Peak phacelia	FSC/None	1B.3	Closed-cone conifer forest, chaparral/ annual herb/ May–June	Not observed. Low potential to occur; suitable habitat is not present and species is only known to occur in the Santiago Peak vicinity.
<i>Piperia cooperi</i>	Chaparral rein orchid	None/None	4.2	Chaparral, cismontane woodland, valley and foothill grassland/annual herb/March–July	Not observed. Moderate potential to occur; suitable chaparral present on site.
<i>Polygala cornuta</i> var. <i>fishiae</i>	Fish's milkwort	None/None	4.3	Chaparral, cismontane woodland, riparian woodland/ shrub/ May–August	Not observed. Moderate potential to occur; suitable chaparral and woodlands present, and species known to occur near Trabuco Canyon.

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**Table 3 (Continued)**

Scientific Name	Common Name	Status Federal/ State	CNPS List	Primary Habitat Associations/ Life Form/Blooming Period	Status on site or Potential to Occur
<i>Satureja chandleri</i>	San Miguel savory	None/None	1B.2	Chaparral, cismontane woodland, CSS, riparian woodland, valley and foothill grassland/ perennial herb/ March–May	Not observed. Moderate potential to occur; suitable chaparral and coastal sage present on site.
<i>Senecio aphanactis</i>	Rayless ragwort	None/None	2.2	Cismontane woodland, CSS, alkaline soils/ annual herb/ January–April	Not observed. No potential to occur; not expected to occur due to the lack of alkaline habitats.
<i>Sidalcea neomexicana</i>	Salt Spring checkerbloom	None/None	2.2	Chaparral, CSS, lower montane conifer forest, Mojavean Desert scrub, playas, alkaline-mesic areas/ perennial herb/ March–June	Not observed. No potential to occur; not expected to occur due to lack of suitable habitat.

**Federal Designations**

FE: Federally listed as endangered

FT: Federally listed as threatened

FSC: Federal Species of Concern

**State Designations**

SE: State-listed as endangered

ST: State-listed as threatened

CNPS List: Definitions are provided in Appendix D.

### 2.3.3 Wildlife Diversity

One hundred-seven (147) species of wildlife were observed during general wildlife surveys. A complete list of wildlife species observed within the BGR is included as Appendix C. Sixteen (16) species of invertebrates, 4 amphibian, 9 reptiles, 66 birds, and 12 mammals were observed within the BGR.

Table 4 lists special-status wildlife species that are Covered, Conditionally Covered, or Non-Covered under the Central-Coastal NCCP/HCP, or that are known to occur in the vicinity of the site (CDFG 2007). For each species listed, a determination is made regarding the potential use of the site based on information gathered during the field reconnaissance, known habitat preferences, and knowledge of their relative distributions in the area.

## Buck Gully Reserve Resource and Recreation Management Plan

A total of 28 special-status wildlife species have at least a moderate potential to occur on site based on the habitat present within the BGR. Of these, there are 4 amphibians, 7 reptile, 12 bird, and 5 mammal species that are not Covered or Conditionally Covered NCCP/HCP species.

**Table 4  
Special-Status Wildlife Species Detected or Potentially Occurring on Site**

Scientific Name	Common Name	Status Federal/State	Primary Habitat Associations	Status on site or Potential to Occur
<i>NCCP/HCP Covered Amphibians</i>				
<i>Aeneides lugubris</i>	Arboreal salamander	None/None	Occurs chiefly in oak woodlands. May be found in chaparral in southern California. Found beneath or inside surface objects such as tree bark, rotting logs, rocks and woodrat nests. Also uses rodent burrows, seepages, rock fissures, mine shafts, cave, spring boxes, water tanks, and wells. This species is fairly common.	Not observed. Moderate potential to occur; suitable chaparral is present on site.
<i>Batrachoseps nigriventris</i>	Black-bellied salamander	None/None	Locally common year-long resident found primarily near drainages associated with open oak, mixed conifer forests, and mixed chaparral of the South Coast and Transverse Ranges.	Not observed. Low potential to occur; chaparral on site is marginal due to dense cover.
<i>NCCP/HCP Conditionally Covered Amphibians</i>				
<i>Bufo californicus</i>	Arroyo toad	FE/CSC	Stream channels for breeding (typically 3rd order); adjacent stream terraces and uplands for foraging and wintering	Not observed. Moderate potential to occur; suitable stream channel occurs on site or in the vicinity of the project.
<i>Non-Covered Amphibians</i>				
<i>Spea hammondi</i>	Western spadefoot	None/CSC	Most common in grasslands, CSS near rain pools or vernal pools; riparian habitats	Not observed. Moderate potential to occur; suitable grasslands or CSS occur on site.
<i>Taricha torosa</i>	Coast Range newt	None/CSC	Frequent terrestrial habitats, but breed in ponds, reservoirs, and slow-moving streams	Not observed. Moderate potential to occur; breeding habitat is present on site.
<i>NCCP/HCP Covered Reptiles</i>				
<i>Aspidoscelis hyperythra beldingi</i>	Orange-throated whiptail	None/CSC	CSS, chaparral, grassland, juniper and oak woodland	Not observed. Moderate potential to occur; suitable habitat is present on site.
<i>Aspidoscelis tigris stejnegeri</i>	Coastal western whiptail	None/None	CSS, chaparral	Not observed. Moderate potential to occur; suitable habitat is present on site.

## Buck Gully Reserve Resource and Recreation Management Plan

**Table 4 (Continued)**

Scientific Name	Common Name	Status Federal/State	Primary Habitat Associations	Status on site or Potential to Occur
<i>Charina trivirgata</i> <i>ssp. roseofusca</i>	Coastal rosy boa	None/None	Rocky chaparral, CSS, oak woodlands, desert and semi-desert scrub	Not observed. Low potential to occur; low density CSS habitat is present.
<i>Crotalus ruber</i> <i>ruber</i>	Northern red-diamond rattlesnake	None/CSC	Variety of shrub habitats where there is heavy brush, large rocks, or boulders	Not observed. Moderate potential to occur; suitable habitat is present but rocks, boulders are limited on site.
<i>Eumeces skiltonianus interparietalis</i>	Coronado skink	None/CSC	Grassland, riparian and oak woodland; found in litter, rotting logs, under flat stones	Not observed. Moderate potential to occur; suitable grassland and riparian habitats are present on site.
<i>Phrynosoma coronatum</i> ( <i>blainvillei</i> population)	San Diego horned lizard (referred to as coast horned lizard by CDFG)	None/CSC	CSS, annual grassland, chaparral, oak and riparian woodland, coniferous forest	Not observed. Moderate potential to occur; suitable habitat is present on site.
<i>Non- Covered Reptiles</i>				
<i>Lampropeltis zonata</i> (San Diego population)	San Diego mountain kingsnake	None/CSC	Valley-foothill hardwood, hardwood-conifer, chaparral, coniferous forest, wet meadow	Not observed. Low potential to occur; suitable habitat on site is limited.
<i>Emys marmorata pallida</i>	Southwestern pond turtle	FSC/CSC	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter and for breeding	Not observed. Moderate potential to occur; intermittent streams, or other aquatic areas occur on site.
<i>Salvadora hexalepis virgulata</i>	Coast patch-nosed snake	None/ CSC	Chaparral, CSS, washes, sandy flats, rocky areas	Not observed. Low potential to occur; chaparral on site is not associated with suitable habitat features.
<i>Thamnophis hammondi</i>	Two-striped garter snake	None/CSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not observed. Moderate potential to occur; suitable habitat is present on site.
<i>NCCP/HCP Covered Birds</i>				
<i>Accipiter striatus</i> (nesting)	Sharp-shinned hawk	None/CSC	Nests in coniferous forests, ponderosa pine, black oak, riparian deciduous, mixed conifer, Jeffrey pine; winters in lowland woodlands and other habitats	Not observed. Low potential to occur; does not nest on site because site is outside breeding range, but may occur as a winter migrant.

## Buck Gully Reserve Resource and Recreation Management Plan

**Table 4 (Continued)**

Scientific Name	Common Name	Status Federal/State	Primary Habitat Associations	Status on site or Potential to Occur
<i>Aimophila ruficeps canescens</i>	Southern California rufous-crowned sparrow	None/CSC	Grass-covered hillsides, CSS, chaparral with boulders and outcrops	Not observed. Moderate potential to occur; suitable habitats are present on site.
<i>Buteo lagopus</i>	Rough-legged hawk	None/None	Occurs in California only during the winter months from October through March. Occurs in prairies, semideserts, grassland, pasture, and marshland that are distant from extensive woodlands and densely settled areas.	Not observed. Low potential to occur; not expected to nest in the study area but may occur as winter migrant between October and March.
<i>Buteo lineatus</i>	Red-shouldered hawk	None/None	Riparian and woodland habitats, eucalyptus	Observed (Dudek 2007). Moderate potential to occur; suitable riparian habitat occurs on site.
<i>Campylorhynchus brunneicapillus sandiegensis</i>	San Diego cactus wren	None/CSC	Southern cactus scrub, maritime succulent scrub, cactus thickets in CSS	Not observed. High potential to occur; suitable habitat and cactus thickets are present on site and species is known to occur within the project area.
<i>Circus cyaneus</i> (nesting)	Northern harrier	None/CSC	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, CSS	Not observed. Low potential; not expected to nest on site due to the lack of suitable nesting habitat; limited foraging habitat on site.
<i>Polioptila californica californica</i>	Coastal California gnatcatcher	FT, USBC	CSS, CSS-chaparral mix, CSS-grassland ecotone, riparian in late summer	Observed (Dudek 2007; Chambers 2005). High potential to occur; suitable coastal sage is present on site and is known to occur within the project area.
<i>NCCP/HCP Conditionally Covered Birds</i>				
<i>Aquila chrysaetos</i> (nesting and wintering)	Golden eagle	BCC/CSC, P	Open country, especially hilly and mountainous regions; grassland, CSS, chaparral, oak savannas, open coniferous forest	Not observed. Low potential to occur; not expected to nest on site due to the lack of suitable nesting habitat, but eagles that nest in the Cleveland National Forest may occasionally forage on site.

## Buck Gully Reserve Resource and Recreation Management Plan

**Table 4 (Continued)**

Scientific Name	Common Name	Status Federal/State	Primary Habitat Associations	Status on site or Potential to Occur
<i>Empidonax traillii extimus</i> (nesting)	Southwestern willow flycatcher	FE, USBC/SE	Riparian woodlands along streams and rivers with mature, dense stands of willows or alders; may nest in thickets dominated by tamarisk	Not observed. Moderate potential to occur due to suitable riparian nesting habitat on site.
<i>Falco mexicanus</i>	Prairie falcon	BCC/CSC	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs	Not observed. No potential to occur; suitable habitat is not present on site.
<i>Vireo bellii pusillus</i> (nesting)	Least Bell's vireo	FE, BCC, USBC/SE	Nests in southern willow scrub with dense cover within 1–2 meters of the ground; habitat includes willows, cottonwoods, baccharis, wild blackberry or mesquite on desert areas	Observed (Dudek 2004). Moderate potential to occur; suitable riparian nesting habitat is present on site.
<i>Non-Covered Birds</i>				
<i>Accipiter cooperii</i> (nesting)	Cooper's hawk	None/CSC	Riparian and oak woodlands, montane canyons	Observed (Chambers 2005). Moderate potential (nesting) to occur; riparian habitat on site is suitable nesting habitat.
<i>Agelaius tricolor</i>	Tricolored blackbird	BCC, USBC/CSC	Nests near fresh water, emergent wetland with cattails or tules; forages in grasslands, woodland, agriculture	Not observed. Moderate potential to occur; suitable nesting and foraging habitat are present on site.
<i>Ammodramus savannarum</i>	Grasshopper sparrow	SMC/None	Open grassland and prairie, especially native grassland with a mix of grasses and forbs	Not observed. Moderate potential to occur; suitable habitat is present on site.
<i>Asio otus</i>	Long-eared owl	None/CSC	Riparian, live oak thickets, other dense stands of trees, edges of coniferous forest	Not observed. Moderate potential to occur; riparian habitat on site is suitable.
<i>Buteo regalis</i> (wintering)	Ferruginous hawk	BCC/CSC	Open, dry country, grasslands, open fields, agriculture	Not observed. No potential to occur; suitable foraging habitat for this winter migrant is not present on site.
<i>Dendroica petechia</i> (nesting)	Yellow warbler	None/CSC	Nests in lowland and foothill riparian woodlands dominated by cottonwoods, alders and willows; winters in a variety of habitats	Not observed. Moderate potential to occur in suitable riparian nesting habitat.

## Buck Gully Reserve Resource and Recreation Management Plan

**Table 4 (Continued)**

Scientific Name	Common Name	Status Federal/State	Primary Habitat Associations	Status on site or Potential to Occur
<i>Elanus leucurus</i> (nesting)	White-tailed kite	MNBMC/P	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, riparian	Not observed. Moderate potential to occur; suitable grassland and riparian habitat present on site.
<i>Eremophila alpestris actia</i>	California horned lark	None/CSC	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields	Not observed. No potential; to occur suitable open habitats are not present on site.
<i>Falco columbarius</i> (wintering)	Merlin	None/CSC	Nests in open country, open coniferous forest, prairie; winters in open woodlands, grasslands, cultivated fields, marshes, estuaries and sea coasts	Not observed. No potential to occur as a winter migrant due to lack of suitable wintering habitat.
<i>Icteria virens</i> (nesting)	Yellow-breasted chat	None/CSC	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush.	Not observed. Moderate potential to occur; suitable riparian nesting habitat is present on site.
<i>NCCP/HCP Covered Mammals</i>				
<i>Canis latrans</i>	Coyote	None/None	Prairies, open woodlands, brushy and boulder strewn areas are their primary habitat. However, coyotes are adaptable predators, found in most open habitats. They are tolerant of human activities and adapt and adjust rapidly to perturbations and changes in their environment.	Not observed. High potential to occur; species is likely to move through or use portions of site due to the extent of surrounding open space and wildlife corridors.
<i>Neotoma lepida intermedia</i>	San Diego desert woodrat	None/CSC	CSS, chaparral, pinyon-juniper woodland with rock outcrops, cactus thickets, dense undergrowth	Not observed. High potential to occur; suitable habitat present on site.
<i>Urocyon cinereoargenteus</i>	Gray fox	None/None	CSS, chaparral, riparian, woodlands, forest	Not observed. Moderate potential to occur; on site areas are adjacent to existing residences and roads.
<i>NCCP/HCP Conditionally Covered Mammals</i>				
<i>Perognathus longimembris pacificus</i>	Pacific pocket mouse	FE/CSC	Grassland, CSS with sandy soils; along immediate coast	Not observed. Low potential to occur; suitable sandy soils are limited on site.
<i>Non-Covered Mammals</i>				
<i>Chaetodipus californicus femoralis</i>	Dulzura California pocket mouse	None/CSC	CSS, chaparral, riparian-scrub ecotone; more mesic areas	Not observed. Moderate potential to occur; suitable chaparral is present on site.

## Buck Gully Reserve Resource and Recreation Management Plan

**Table 4 (Continued)**

Scientific Name	Common Name	Status Federal/State	Primary Habitat Associations	Status on site or Potential to Occur
<i>Chaetodipus fallax fallax</i>	Northwestern San Diego pocket mouse	None/CSC	CSS, grassland, sage scrub-grassland ecotones, sparse chaparral; rocky substrates, loams and sandy loams	Not observed. Moderate potential to occur; suitable chaparral and soils are present on site.
<i>Lepus californicus bennettii</i>	San Diego black-tailed jackrabbit	None/CSC	Arid habitats with open ground; grasslands, CSS, agriculture, disturbed areas, rangelands	Not observed. Low potential to occur; suitable open habitat is not present on site.
<i>Taxidea taxus</i>	American badger	None/CSC	Dry, open treeless areas, grasslands, CSS	Not observed. No potential to occur; site is too densely vegetated.
<i>NCCP/HCP Conditionally Covered Invertebrates</i>				
<i>Branchinecta sandiagonensis</i>	San Diego fairy shrimp	FE/None	Small, shallow vernal pools, occasionally ditches and road ruts	Not observed. No potential to occur; vernal pools or other potentially-suitable depressions were not observed on site. Well-drained, sandy soils on site are not conducive to ponding.
<i>Euphydryas editha quino</i>	Quino checkerspot butterfly	FE/None	Sparsely vegetated hilltops, ridgelines, occasionally rocky outcrops; host plant <i>Plantago erecta</i> and nectar plants must be present	Not observed. No potential to occur; habitat is on site is too dense and species is not known to occur in the vicinity. Species considered extirpated from Orange County.
<i>Streptocephalus woottonii</i>	Riverside fairy shrimp	FE/None	Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm water pools that have low to moderate dissolved solids	Not observed. No potential to occur; vernal pools or other potentially-suitable depressions were not observed on site. Well-drained, sandy soils on site are not conducive to ponding.

### Federal Designations

BCC: Fish and Wildlife Service: Birds of Conservation Concern  
 FE: Federally listed as endangered  
 FSC: Federal Species of Concern  
 FT: Federally listed as threatened  
 USBC: United States Bird Conservation Watch List

### State Designations

CSC: California Special Concern Species  
 SE: State-listed as endangered

## **Buck Gully Reserve Resource and Recreation Management Plan**

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### **2.3.4 Wildlife Corridor**

Habitat fragmentation may inhibit dispersal of various species and may also lead to edge effects. Wildlife corridors or habitat linkages provide greater dispersal of a variety of species and connect separated areas of viable biological resources. Wildlife corridors are feasible by continuous or semi-continuous habitat, bridges, culverts, underpasses and riparian habitats (Missing linkages 2000). Currently, the BGR serves as a functional corridor to adjacent NCCP lands (Figure 3). The BGR is important to the connectivity of the reserve network.

The BGR is within a designated habitat linkage of the Central-Coastal Subregion NCCP/HCP Reserve system. Coyote Canyon extends northward from Buck Gully providing linkage to a narrow southeast-northwest corridor through the San Joaquin foothills that links Upper Newport Bay and the main body of the Coastal Reserve. Upper Buck Gully is connected to Crystal Cove State park and the main body of the Coastal Reserve via the Pelican Hill Golf Course Special Linkage Area that extends to the southeast.

According to previous investigations conducted by the USGS across the San Joaquin Hills (USGS 2006; USGS, 2008), and ongoing studies by the Irvine Ranch Conservancy (2009; ongoing), bobcats (*Lynx rufus*) and other carnivores are utilizing the BGR as a corridor and part of their territory (Figure 10). Two bobcats captured and fitted with Global Positioning System collars by USGS in Buck Gully (December 2006) provided detailed data on local movement patterns. One, an adult female (WED) used Buck Gully, Pelican Hills Golf Course, and adjacent residential developments extensively as part of her range. She was fatally injured by a car on Pacific Coast Highway in Spring 2009. The other, an adult male (BUC) was documented to have traveled extensively from Buck Gully to surrounding regions including the Upper Newport Ecological Reserve, Pelican Hills Golf Course, and Los Trancos Canyon. Ultimately, this bobcat was also hit and killed by a car on Jamboree Blvd, far from its original point of capture. Photo monitoring data additionally confirmed movement by two separate tagged bobcats to the San Joaquin Reservoir and to a road undercrossing south of the reserve. These studies confirm that bobcats still maintain residence and utilize Buck Gully as a habitat linkage. Other data obtained from these studies also supports the conclusion that other small mammals and prey utilize this linkage and that Buck Gully serves as an important connection to adjacent NCCP regions. However, these and other bobcat mortality data collected by USGS (2008) confirm disturbingly high road mortality rates and suggest that bobcat population trajectories are unclear if road mortalities are not reduced along key roads, such as the nearby Newport Coast Drive (Figure 10).

Other key species used to identify wildlife linkages and corridors are the mountain lion (*Felis concolor*), black bear (*Ursus americanus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), mule deer (*Odocoileus hemionus*), and Los Angeles pocket mouse

## **Buck Gully Reserve Resource and Recreation Management Plan**

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(*Perognathus longimembris brevipennis*). Mountain lion and gray fox have not been reported for Buck Gully. Key bird species included least Bell's vireo (*Vireo bellii pusillus*), coastal California gnatcatcher (*Polioptila californica californica*), southwestern willow flycatcher (*Empidonax traillii extimus*), least tern (*Sterna antillarum browni*), snowy plover (*Charadrius alexandrinus nivosus*), and other migratory birds. Sensitive reptile and amphibian species that have been monitored over the years as part of the NCCP/HCP effort and provide additional information regarding wildlife linkages within the region include the southwestern pond turtle (*Clemmys marmorata*), western spadefoot toad (*Scaphiopus hammondi*), and arroyo southwestern toad (*Bufo microscaphus californicus*).

### **2.4 Cultural Resources**

The City contains a rich and diverse historic past. According to the Natural Resources Element within the City of Newport Beach General Plan (2006), fossils in the central Santa Ana Mountains represent the oldest formations in Orange County at 145 to 175 million years old. Changes in geological land formations over time have resulted in a mix of aquatic and terrestrial fossils underlying the City. The Miocene-age rock units (26 million years ago [mya] to 7 mya), particularly in the Newport Coast area, are considered to be of high-order paleontological significance (6 to 9 on a scale of 1 to 10).

Other deposits found in the Newport Beach area include a variety of marine mammals, sea birds, mollusks, and a variety of vertebrate animals typically associated with the Ice Age (2.5 mya to 15,000 years ago). Local paleontological sites, particularly near the Castaways, have yielded fossils of Ice Age horses, elephants, bison, antelopes, and dire wolves. Also, a number of localities in the portions of the Vaqueros formation that underlie the Newport Coast area have yielded a variety of invertebrate and vertebrate fossils, and are also considered to be of high-order paleontological significance. Other areas with significant fossils and known paleontological deposits include the Banning Ranch area, which contains at least fourteen documented sites of high significance, and Fossil Canyon, in the North Bluffs area, which is considered a unique paleontological locality.

Newport Beach also contains many significant archaeological sites. The Upper Newport Bay area has yielded some evidence for the earliest human occupation of Orange County and date to about 9,500 years before present. Over fifty sites have been documented in the Newport Beach area, including the Newport Coast area and Banning Ranch, many yielding substantial information regarding the prehistory of the City and County, and have included human burials. At least two and possibly three distinct cultural groups inhabited the area, including the Tongva and Acjachemem tribes, although the boundaries of their tribal territories are unclear.

## **Buck Gully Reserve Resource and Recreation Management Plan**

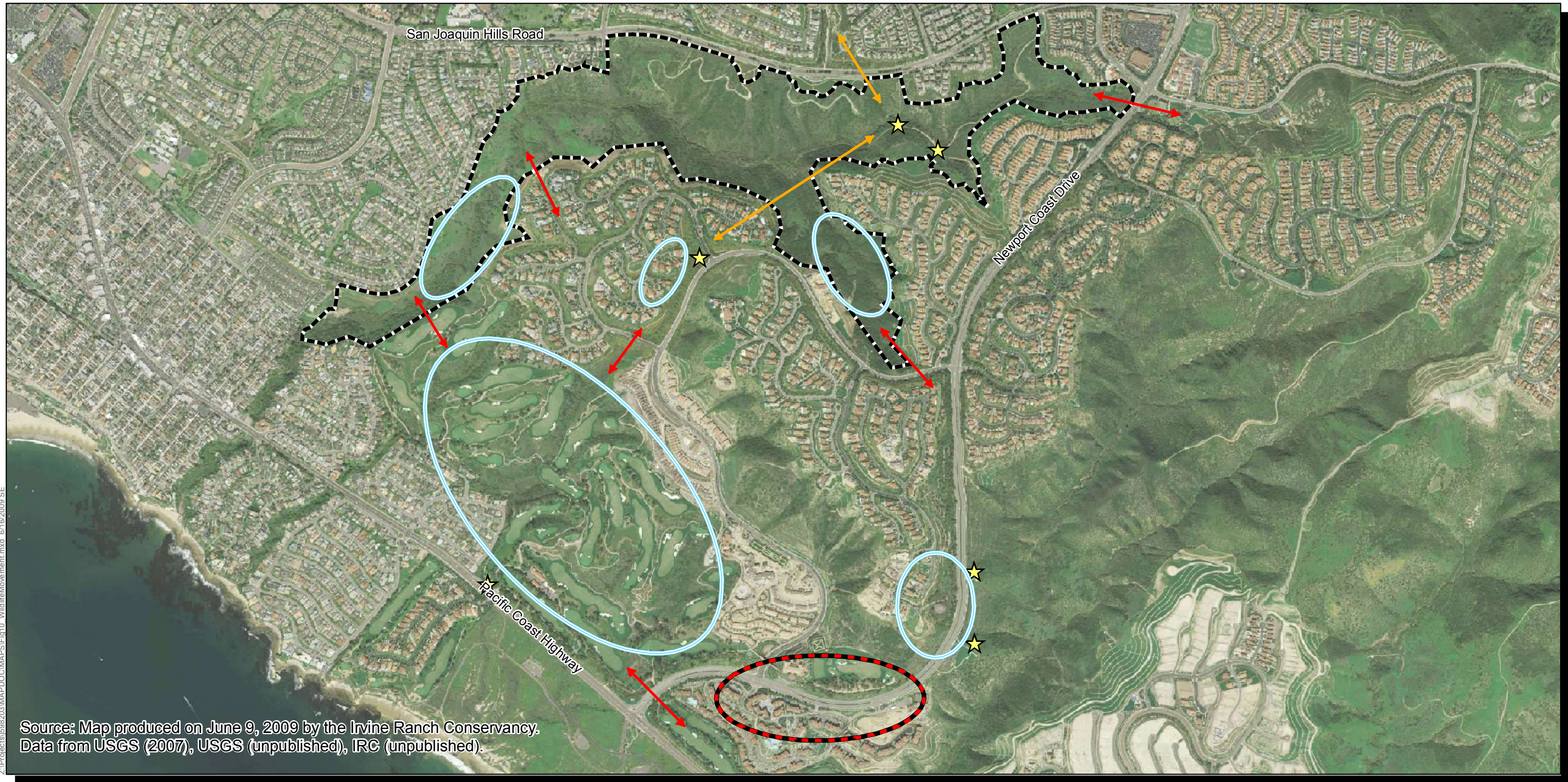
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If cultural resources are found, they will be preserved and protected. Methods to reduce risks of vandalism and looting may include the inventory and periodic monitoring of all known resources, screening vegetation to reduce the likelihood of trespass and damage, and master planning to reduce conflicts with known resources.

### **2.5 Issues, Threats, and Potential Impacts**

#### **2.5.1 Public Use**

Public use within the BGR is restricted to designated trails (Figure 11). Two view points overlooking the BGR are located outside the reserve boundary on San Joaquin Hills Road and include paved walkways, informative signage, benches, native vegetation and a panoramic view of the pacific coastline. Public use of these view points are of low impact to biological resources within the BGR; however, unauthorized public access and associated impacts such as off-road vehicles (mountain bikes), trampling of vegetation, and harassment and collection of native species may occur causing negative impacts to biological resources. A utility tower access route extends from the paved walkways into the reserve boundary. Unauthorized access could easily occur in these areas; however, due to the steep slopes within the canyon unauthorized public access will likely be limited. Additionally, the City of Newport Beach General Plan identifies an equestrian trail that extends from upper Buck Gully to lower Buck Gully Creek. This equestrian trail could potentially result in a moderate impact to the creeks water quality.



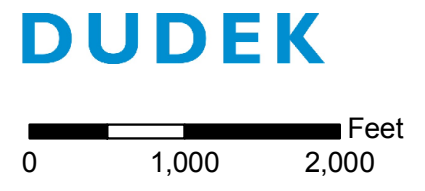
Source: Map produced on June 9, 2009 by the Irvine Ranch Conservancy.  
 Data from USGS (2007), USGS (unpublished), IRC (unpublished).

**Bobcat Transit**

- Documented Movement
- Presumed Movement

- High Activity Areas
- High Mortality Area

- Camera Locations
- Buck Gully Boundary



Buck Gully Reserve - Resource & Recreation Management Plan  
**Wildlife Movement**

**FIGURE 10**

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